



Department of Planning,
Lands and Heritage



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Western Australia.*

EAST WANNEROO

district structure plan

draft for public consultation

September 2019



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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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website: www.dplh.wa.gov.au
email: info@dplh.wa.gov.au
tel: 08 6551 8002
fax: 08 6551 9001
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Message from the Chairman



I am pleased to release the draft District Structure Plan (DSP) for East Wanneroo. East Wanneroo has been the subject of numerous planning studies over a long period of time. The North-west Sub-regional Planning Framework released by the State Government in March 2018 supported by the findings of the more recent technical studies, underpin the formulation of the DSP.

The draft DSP is part of the continuing work of the Western Australian Planning Commission to ensure that Perth continues to provide its growing population with the enviable quality of life it is known for internationally. Critically, East Wanneroo is part of meeting the long-term housing requirements anticipated for this part of the City and presents significant opportunities to create activity centres and employment nodes catering for the future needs of industry, commerce and a growing community. The DSP represents a co-ordinated and strategic approach to unlocking these opportunities.

At the same time, East Wanneroo is an area of significant cultural importance and sensitive environmental attributes. Aboriginal people have inhabited this part of the Swan Coastal Plain for over 40,000 years and continue to place significant cultural importance on the area's natural environment. A large proportion of the area's wetlands and native vegetation is already formally protected as Conservation Category Wetlands, Bushforever sites and Parks and Recreation Reserves under the Metropolitan Region Scheme. The draft DSP will result in additions to this inventory and provide enhanced

opportunities for these areas to become more accessible for public enjoyment and educational appreciation.

This diverse natural environment will become a defining feature of the identity and sense of place created within East Wanneroo and significantly shape the urban areas that are to be created. Responding positively to such a varied natural landscape will enable a wide spectrum of housing choices, leisure and recreational experiences to be delivered.

The proposed movement network will enable people to move around easily, efficiently and safely within the area and beyond. The opportunity to link East Wanneroo into an expanding METRONET system via the protection of a future land reservation as a transit corridor is being provided now to ensure that when it is needed, it can be delivered without significant disruption to the local community.

The transition of East Wanneroo from its current rural character to a fully urbanised environment will likely occur over an extended period, determined largely by the economy and resultant population growth over the next 50 years. Significant changes to people's housing preferences, work practices and modes of transport are likely to occur over this time horizon and will necessitate this Plan being reviewed every 10 years to ensure it remains relevant and responsive to people's changing lifestyles.

I encourage you to take this opportunity to have your say on the future of East Wanneroo by lodging a submission on the revised draft district structure plan during the 90-day public consultation period.

David Caddy
Chairman
Western Australian Planning Commission

Executive Summary

The **East Wanneroo District Structure Plan** guides the progressive urbanisation of East Wanneroo in response to the proposals set out in the *North-West Sub-regional Planning Framework 2018*. This plan sets out the next steps in this process, which will ultimately provide for a population of around 150,000 residents in approximately 50,000 homes, supported by up to 20,000 new jobs.

The District Structure Plan area covers 8,300 hectares of land and includes the following localities (from north to south): a small portion of Pinjar, most of Mariginiup and Jandabup, the eastern part of Wanneroo, Gngangara and south-west Lexia. The district is approximately 25 kilometres north of the Perth Central Business District. It currently has a mix of mainly rural land uses such as market gardens, equestrian activities and rural lifestyle properties surrounding regional Parks and wetlands (many with significant environmental values) and some State Forest.

A **Community Reference Group** of local residents informed and contributed to the drafting of this plan. It prepared the vision for the East Wanneroo District Structure Plan area, being:

East Wanneroo will be a place which offers housing and lifestyle choice for all generations, that supports, links and protects natural flora and fauna and wetland systems, and celebrates local historic and cultural values.

The protection of natural, historical and cultural values is a significant feature of this plan and is balanced with the elements necessary for the creation of functional and attractive neighbourhoods, serviced by high schools, activity centres and future employment opportunities. These are illustrated in Figure 1.1.

Figure 1.1 is the foundation for more detailed and staged planning processes to occur. It identifies future necessary **Metropolitan Region Scheme (MRS) amendments** (the important first step toward urbanisation) with comprehensive planning to follow via individual **local structure plans (LSP)**. LSPs based on the 28 precincts shown in Figure 1.15 will be the mechanism through which the desired character and staging of new areas will be delivered.

Part 1 of the East Wanneroo District Structure Plan sets out district level elements and how these are to be given effect to, in each precinct.

Part 2 provides the background information and considerations upon which the outcomes for each element and precinct are based.

The East Wanneroo vision will be delivered through the following elements:

- A district centre
- Movement network
- A neighbourhood centre
- Parkland network
- Urban neighbourhoods
- Water management
- Character areas
- Service commercial
- Special residential neighbourhoods
- Industrial areas
- Rural areas / tourism uses
- State Forest

The largest activity centre for the district will be in Gngangara, incorporating a future transit station served by a future East Wanneroo Rail Link as identified in the *North-West Sub-regional Planning Framework*. The Gngangara **district centre** is approximately bounded by the existing road network of Ashby and Ross streets to the north, Carmignani Road to the east, Badgerup

Road to the west and Elliot Road to the south. The **district centre** will be the focal point of economic activity and employment for the emerging East Wanneroo community. It will be surrounded by higher-density urban residential living, in close proximity to future transit services and the district centre itself. The retail core of the district centre will be around 20 hectares in size

Neighbourhood classification	Density
District centre	High
Neighbourhood centre (200m)	High
Urban neighbourhoods	Medium to High
Character areas	Medium to High
Suburban neighbourhoods	Low to Medium
Special residential neighbourhoods	Low

and eventually provide 58,000 square metres (net) of commercial floorspace and include community and educational facilities, and high-density living.

The second largest activity centre will be a **neighbourhood centre** in the north. Located in Mariginiup, it is centred on Rousset Road adjacent to a second proposed transit station. It will have the additional benefit of direct regional access via the proposed Lakeview Road to the future Whiteman Yanchep Highway. It is to become the focal point of commercial and community activity for northern residents of the district, providing opportunities for medium density residential living in townhouse and apartment style developments. The retail core of the neighbourhood centre will ultimately be about five hectares in area with around 6,000 square metres (net) of commercial floor area including community facilities.

Urban neighbourhoods are the medium to higher-density residential areas surrounding the district and neighbourhood centres. Due to their proximity to a centre and future public transport services, they will provide for a range of housing diversity to maximise the number of residents who will benefit from access to these and other attractors. A variety of housing choice will importantly provide different residential products to the traditional suburban and rural residential areas currently available in this part of Wanneroo. Urban neighbourhoods are particularly responsive to multi-generational living needs such as empty nesters, young people leaving home for the first time, seniors wanting to remain in the area downsizing to a smaller property, and 'lock and leave' living for those that travel for work or leisure.

Suburban neighbourhoods are residential areas of medium density that are more typical of outer metropolitan subdivisions. However, each will have its own identity drawn from the neighbourhood's design, in response to natural features and the landscape.

Character areas are residential areas of high scenic value that respond sensitively to the natural amenity of their locations. They will become aesthetic points of reference for the future East Wanneroo residents and will contribute to recreation and leisure opportunities throughout the district. Character areas may include specific design standards to ensure a certain character or theme is achieved in new development. This may include design guidelines requiring certain building materials, architectural styles, façades and roof design, setbacks and colours are used.

Special residential neighbourhoods are areas of existing rural and landscape value that will continue to provide semi-rural lifestyle opportunities. Intended to retain existing natural character, the overall layout of the area will not substantially change from what exists now.

Opportunities for the continuation of the main current lifestyle use of the district will remain in **rural areas**. They round out a complete choice and diversity of living in East Wanneroo.

The **movement network** identifies the future Whiteman Yanchep Highway alignment between the south-east and north-west of the district. Integrator arterial roads and neighbourhood connectors necessary for the district's proposed subdivision and development are also shown. Consistent with future METRONET planning, two options are presented for an East Wanneroo rail link. The first is within the proposed Whiteman Yanchep Highway. The second rail option runs through the district and caters for stations at the district and neighbourhood centres, serving future communities with high levels of public transport accessibility. The second option delivers the optimal planning outcome for the area.

Parklands create a network of multifunctional natural environments and landscaped spaces. They protect and conserve the area's significant environmental values, offer significant education opportunities and will be linked through the use

of linear public open spaces and landscaped boulevards incorporated as a design element of local roads.

Based on the anticipated population of East Wanneroo, five high schools and up to 25 primary schools will be needed. Conceptual **high school** sites are included, while primary schools will be identified when local structure planning is undertaken.

Water will be a defining feature of the East Wanneroo area. Groundwater supports the wetlands and vegetation that are such a major part of the identity of the area. Urbanisation will contribute to the recharging of the Gngangara groundwater resource and managed appropriately, presents an opportunity to rehabilitate and increase the extent of these features.

Industrial and service commercial land uses are to be located adjacent to major transportation links. The northern and eastern edges of the district present strategic, long-term opportunities for innovative technology, food production and sustainable energy generation. A designated precinct adjacent to Ocean Reef Road will accommodate large format showrooms and retail warehouses, to cater for the increased demand arising from a growing residential population.

An opportunity for a **tourism and leisure** destination has been identified adjacent to the north-east foreshore of Lake Jandabup to encourage small scale tourism and recreation uses.

Due to the long-term implementation of this plan, the continued operation of existing rural uses and businesses across the district is encouraged, until redevelopment is imminent, to ensure best use of the land and allow for a gradual and orderly transition to urbanisation.

Urbanisation of the district is expected to occur with the sequential extension of existing water, wastewater and electricity services from the existing serviced urban areas to the west.

The transition of East Wanneroo to an urban area will depend on the nature and rate of growth of the WA economy and is anticipated to extend over a 50-year timeframe. To ensure this district structure plan remains current and accurate, it will be reviewed and updated every 10 years.

The East Wanneroo District Structure Plan is the result of **consultation and collaboration** with the East Wanneroo Community Reference Group, the Whadjuk Working Party as part of the South-west Aboriginal Land and Sea Council, and government agencies. This plan acknowledges that the entire district and its natural features are highly significant to Aboriginal people. Consultation with the Whadjuk Working Party is to continue when each precinct's local structure plan is prepared.

The district structure plan is informed by the following studies:

- Integrated Water Management Framework (July 2019)
- Environmental Assessment Study (October 2018)
- Strategic Bushfire Hazard Level Assessment (May 2018)
- Community Facilities Plan (April 2019)
- East Wanneroo District Rail Alignment – Land Reservation Study (August 2018)
- Road Planning Study (August 2019)
- East Wanneroo Economic Development and Employment Study (November 2018)
- Engineering Servicing Report (January 2018)
- Assessment of Proposed Environmental Outcomes (August 2019)
- Preliminary Environmental Assessment of Planning Investigation Areas (October 2018)



EAST WANNEROO district structure plan

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Key Statistics and Planning Outcomes	Area / Quantity
Item	
Total area covered by the district structure plan	8,300ha
Estimated Dwellings	50,000
Estimated Population	150,000
Estimated Commercial Floorspace:	64,600m ²
<i>District Centre</i>	58,600m ²
<i>Neighbourhood Centre</i>	6,000m ²
Estimated Employment:	
<i>Commercial</i>	64,600m ²
<i>Industrial</i>	58,600m ²
<i>Educational</i>	6,000m ²
Government High Schools	5
Primary Schools	25 - 30
Estimated Commercial Floorspace:	
Urban	2,950ha
Rural	352ha
Industrial	842ha
Precinct 25 subject to further planning	541ha
Parkland	
<i>Existing Parks and Recreation Reserves</i>	1,730ha
<i>New Parks and Recreation Reserves</i>	203ha
<i>Potential Parks and Recreation Reserves</i>	97ha
<i>Bush Forever subject to negotiated planning outcomes</i>	14ha
<i>State Forest</i>	6,729ha

Vision

East Wanneroo will be a place which offers housing and lifestyle choice for all generations, that supports, links and protects natural flora and fauna and wetland systems, and celebrates local historic and cultural values.

East Wanneroo District Structure Plan, Community Reference Group



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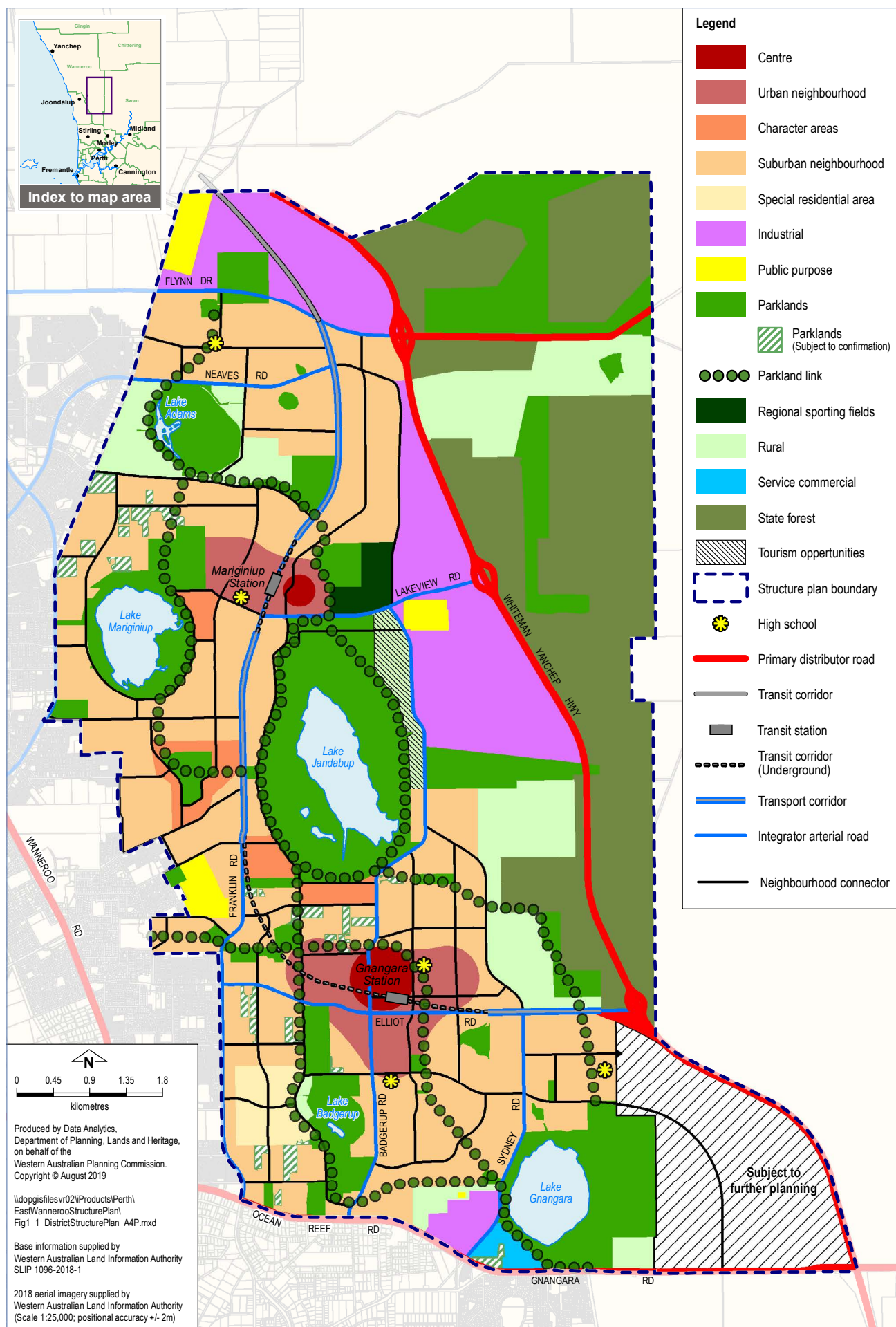
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Part One: Implementation



Part One - Implementation

1 Introduction and Purpose

The East Wanneroo District Structure Plan (EWDSP) has been prepared to guide the progressive urbanisation of East Wanneroo over the next 50 years. The EWDSP caters for a total of 50,000 new dwellings and an eventual residential population of about 150,000 people.

A variety of new residential neighbourhoods derive their character from a strong relationship with the natural environment: topography, wetlands and remnant vegetation. The EWDSP identifies the major, district level elements required to achieve functional, sustainable and attractive neighbourhoods including a movement network, major Parklands, high schools and centres of activity and employment.

Part 1 of the EWDSP provides the framework for subsequent planning processes, in particular amendments to the Metropolitan Regional Scheme (MRS) (including the lifting of Urban Deferred zone) and the preparation of local structure plans (LSPs). The EWDSP designates 28 precincts based on environmental, planning, water management and tenure considerations. LSPs will need to be prepared for these precincts where land use change is proposed.

Part 2 of the EWDSP explains the rationale and provides guidance and information to inform and assist with the subsequent stages of planning, and in particular the preparation of local structure plans. These issues and information requirements are based on the technical information gathered for the EWDSP and are not exhaustive. Other issues may arise and need to be resolved as part of detailed investigation at the LSP stage.

2 District Structure Plan Area and Operation

2.1 Application

The District Structure Plan is the framework for local structure planning and applies to the area shown on Figure 1.1, and is divided into 28 precincts as shown in Figure 1.15.

The District Structure Plan guides future amendments to the Metropolitan Region Scheme and the City of Wanneroo's District Planning Scheme No. 2 (DPS No. 2).

Local structure plans shall be prepared for the identified precincts and shall give effect to the District Structure Plan.

The District Structure Plan shall guide the Developer Contribution Plans needed for the equitable sharing of infrastructure costs.

2.2 Process

There are a number of changes to the existing planning framework that need to be put in place before land within the EWDSP area may be subdivided and developed. The implementation framework below outlines the essential steps for amending the MRS (Figure 2.4) and the City of Wanneroo (the City) District Planning Scheme No. 2 (DPS No. 2) (Figure 2.5).

The process has three sequential parts:

1. District level processes:
 - a. District Structure Plan
 - b. MRS Amendments
 - c. District Development Contributions Scheme.

2. Precinct level processes:
 - a. Lifting of Urban Deferment
 - b. Local Structure Plan
 - c. Local Scheme Amendment (zoning)
 - d. Local Development Contributions Scheme.
3. Subdivision and development

All district level processes relevant to a precinct, must be completed prior to the formal commencement of any precinct level process and likewise all precinct level processes must be completed prior to subdivision and development within that precinct. The EWDSP encourages processes to be undertaken in parallel or concurrently where possible, in line with the principles of orderly and proper planning.

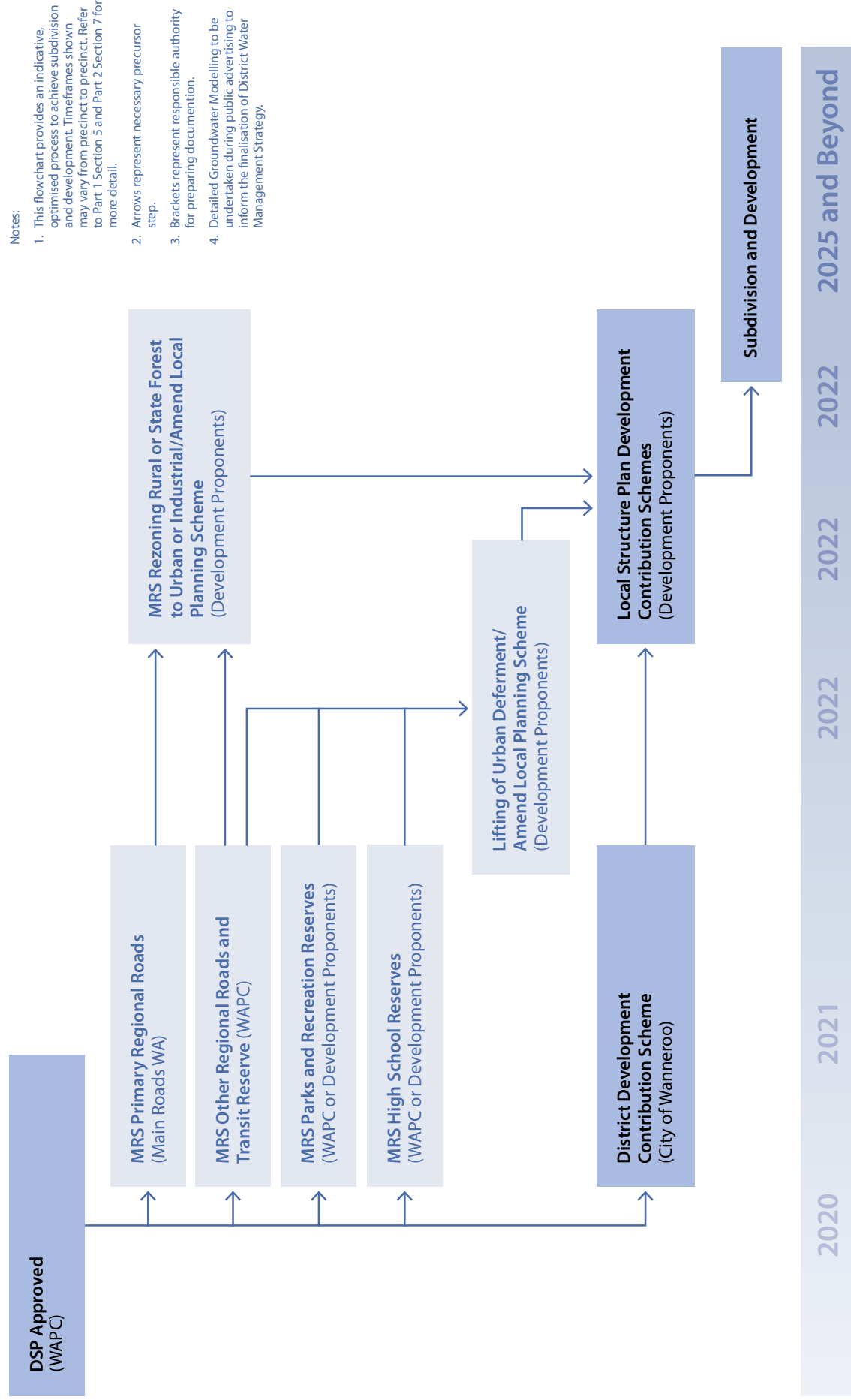


Figure 1.2: District Planning Process Flowchart

2.2.1 Region Scheme Amendments

Primary distributor roads

Main Roads Western Australia has completed an Alignment Definition Study for the Whiteman Yanchep Highway, for the section from Gnangara Road to Neaves Road. This has informed an Ultimate Planning Design Concept and proposed road reservation, shown in Figure 1.1. It will be the basis of a future MRS Amendment to reserve the land needed as Primary Regional Road. The proponent for the amendment will be Main Roads Western Australia.

Integrator arterial roads

The Integrator Arterial Roads shown in Figure 1.1 are to be reserved as Other Regional Roads under the MRS prior to or in parallel with land being zoned Urban (including the lifting of Urban deferment). These reservations will be based on the alignments depicted in Figure 1.1. The WAPC will be the responsible authority for preparing and initiating the necessary amendments to the MRS.

Parks and Recreation Reserves

The Parkland element depicted on Figure 1.1 includes:

- Parks and Recreation reserves under the MRS
- Local reserves vested with the City of Wanneroo
- Conservation Category Wetlands (CCW).

All existing Parks and Recreation reserves, local reserves and CCWs will be retained. New Parks and Recreation reserves will be created from the following two categories as shown in Figure 1.3:

1. new Parks and Recreation reserves
2. potential Parks and Recreation reserves subject to confirmation.

The WAPC will be the responsible authority for preparing and initiating the MRS amendments to create the category 1 reserves.

Proponents undertaking local structure planning for precincts containing category 2 reserves, will be responsible for carrying out detailed flora and fauna surveys to confirm the appropriate configuration of these new reserves in conjunction with the creation of coherent neighbourhoods. This information will form the basis of a request to the WAPC for the reservation of the confirmed area.

The process for both categories must be completed prior to, or in parallel with the precinct being zoned Urban.

High school reserves

Figure 1.1 identifies approximate locations for high school reserves. Proponents for precincts containing a high school must progress an amendment to the MRS to reserve the land required for the school in consultation with the Department of Education. The precise location, size and shape of the reserve should be determined as part of preparing a local structure plan. The reservation of the land must be completed prior to a formal request being made for the precinct to be zoned Urban under the MRS, and before the formal lodgement of a local structure plan with the City of Wanneroo under the Planning and Development (Local Planning Scheme) Regulations 2015.

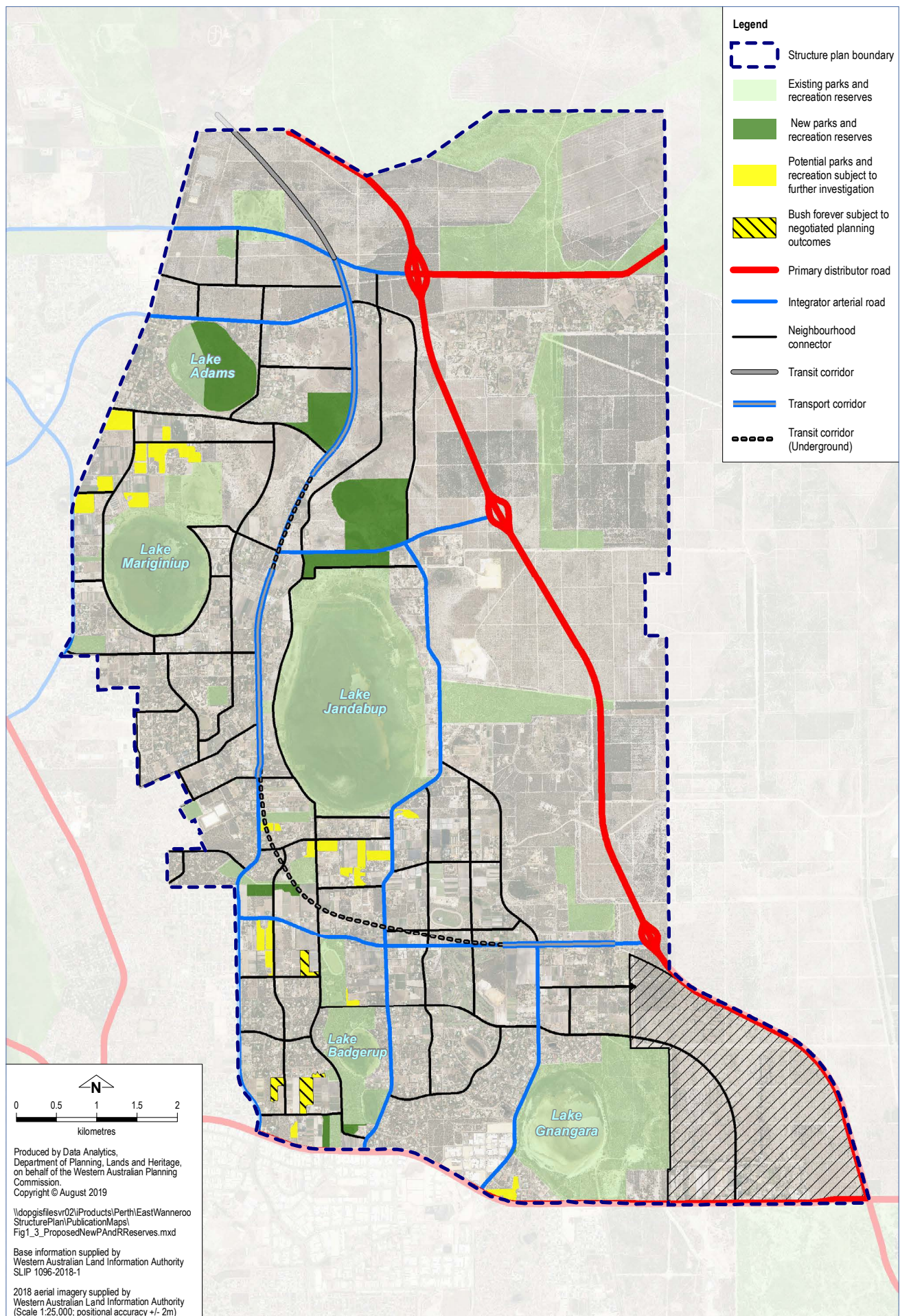


Figure 1.3: Proposed New Parks and Recreation Reserves

2.2.2 District Development Contribution Plan

A developer contribution plan (DCP) for the entirety of the district structure plan area is to be prepared by the City of Wanneroo, in accordance with State Planning Policy 3.6 Development Contributions for Infrastructure, for the following items:

- acquisition of land and construction of integrator arterial roads
- construction of district level community facilities as set out in the Community Facilities Plan (**Appendix E**)
- sustainable transport infrastructure.

The DCP is to be progressed as an amendment to the City of Wanneroo's District Planning Scheme No.2 requiring all land in the EWDSP, zoned Urban or Industrial under the MRS, to pay contributions in respect of these items. The amendment must be substantially commenced - including public consultation - prior to the rezoning of any precinct to Urban or Industrial land under the MRS.

2.2.3 Rezoning from Rural to Urban or Industrial

All areas which are currently zoned Rural under the MRS and identified for future development, will need to be rezoned to Urban or Industrial prior to the progressing of local structure planning, subdivision and development. The criteria for progressing Urban or Industrial rezoning is consistent with the criteria for lifting Urban Deferment (see section 2.2.6 below).

2.2.4 Water catchments reservation and Rural – Water Protection zone

Precincts 10, 23 and 24 are subject to State Forest and water catchments reservation. An amendment to the MRS will be required to rezone these areas Urban or Industrial to lift the reservations. State Planning Policy 2.7 *Public Drinking Water Source* provides guidance for the consideration of drinking water supply as part of the rezoning process. Similarly, the rezoning of portions of Rural – water protection to Urban in precincts 13, 15, 16 and 20 will require consideration of the SPP 2.7 policy requirements.

2.2.5 Bush Forever sites subject to Negotiated Planning Outcome

The three Bush Forever sites comprising BF 327 can be the subject of a negotiated planning outcome conducted in accordance with State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan Region.

2.2.6 Lifting of Urban Deferment

Large parts of the EWDSP are currently zoned Urban Deferred under the MRS. The WAPC's *Lifting of Urban Deferment Guidelines* set out the information requirements necessary to support a request for lifting. In addition to these, the EWDSP requires the following information to be submitted with a lifting request:

- a concept local structure plan for the precinct
- confirmation from relevant servicing agencies on the provision of water and wastewater services
- any other requirements which may be specific to an area.

The EWDSP requires that the Urban Deferred zone may not be lifted until the MRS is amended in accordance with Section 2.2.1 above and a district development contribution scheme has been initiated by the local government.

The lifting of urban deferment is to be undertaken on a precinct by precinct basis and will apply to a whole precinct.

2.2.7 Local Planning Scheme Amendment (Zoning)

As part of the lifting of the Urban Deferred zone or if land is rezoned from Rural to Urban, the WAPC may concurrently rezone land under DPS No. 2, to a development zone pursuant to section 126(3) of the *Planning and Development Act 2005*, to facilitate the preparation of a local structure plan. It is expected that this will be the typical mechanism for amending DPS No.2.

2.2.8 Local Structure Plan

Local structure plans are required to be prepared for each precinct where more intensive development is proposed by the EWDSP. The area of the local structure plan shall be consistent with the precinct delineation on the Precinct Plan (Figure 1.15).

The formal process to prepare a local structure plan under Part 4 Section 15 of the Planning and Development (Local Planning Scheme) Regulations (2015) will commence upon gazettal of a development zone under DPS No 2.

2.2.9 Local Development Contribution Plans

Section 5.3 identifies the precincts within which individual DCPs are likely to be necessary and the items they shall address. Generally, this will comprise public open space contributions, but may also include local road connections

and drainage requirements. The development contribution items listed in Section 5.3 are not exhaustive with further items being added as needed.

All local development contribution schemes are to be prepared in accordance with State Planning Policy 3.6 Development Contributions for Infrastructure and should occur concurrently with, or within six months following approval of the local structure plan.

2.2.10 Subdivision and development

Subdivision and development can proceed once a local structure plan has been approved by the WAPC. Prior to this, there is a presumption against any further development and/or subdivision of land within the EWDSP area, except land zoned Rural or Rural Residential where it is consistent with State Planning Policy 2.5 - Rural Planning and Development Control Policy 3.4 Subdivision of Rural Land.

The provisions of both the EWDSP and local structure plans are to be given due regard in the preparation and assessment of subdivision and development applications.

2.2.11 Managing the transition from Rural to Urban

The relocation of existing businesses and rural operations including market gardens, poultry farms and extractive industry operations away from the approaching urban front is unlikely to happen immediately. The WAPC's position is that the continued operation of existing rural businesses should be facilitated until such time as their owners decide otherwise.

The management of potential land use conflicts will include the use of:

- appropriate separation distances between sensitive uses and the rural business
- the use of notifications on the title of newly-created lots to inform landowners of potential amenity impacts, such as dust, odour, noise and vibrations arising from nearby rural business operations
- withholding the approval of Deposited Plans until it can be proven that buffers are no longer required.

The Environmental Protection Authority's Environmental Protection Guidance Statement No.3 Separation Distances between Industrial and Sensitive Land Uses provides advice on which land uses require separation and recommends appropriate separation distances. This guidance will be considered as part of all planning decisions where existing business operations may impact proposed land uses in terms of amenity and human health.

3 District Structure Plan Elements

The vision for East Wanneroo is delivered through the following elements:

- District Centre
- Movement Network
- Neighbourhood Centre
- Parkland Network
- Urban Neighbourhoods
- Water
- Character Areas
- Service Commercial
- Special Residential Neighbourhoods
- Industrial Areas
- Rural Areas
- State Forest

3.1 District Centre

A vibrant, mixed-use area forming the shopping, employment, entertainment and civic heart of the East Wanneroo community. Carefully integrated with the Gngangara transit station, the commercial core will be framed by mid-rise apartment living, community and educational uses. The urban structure is grid-based and characterised by small street blocks and high-quality public spaces.

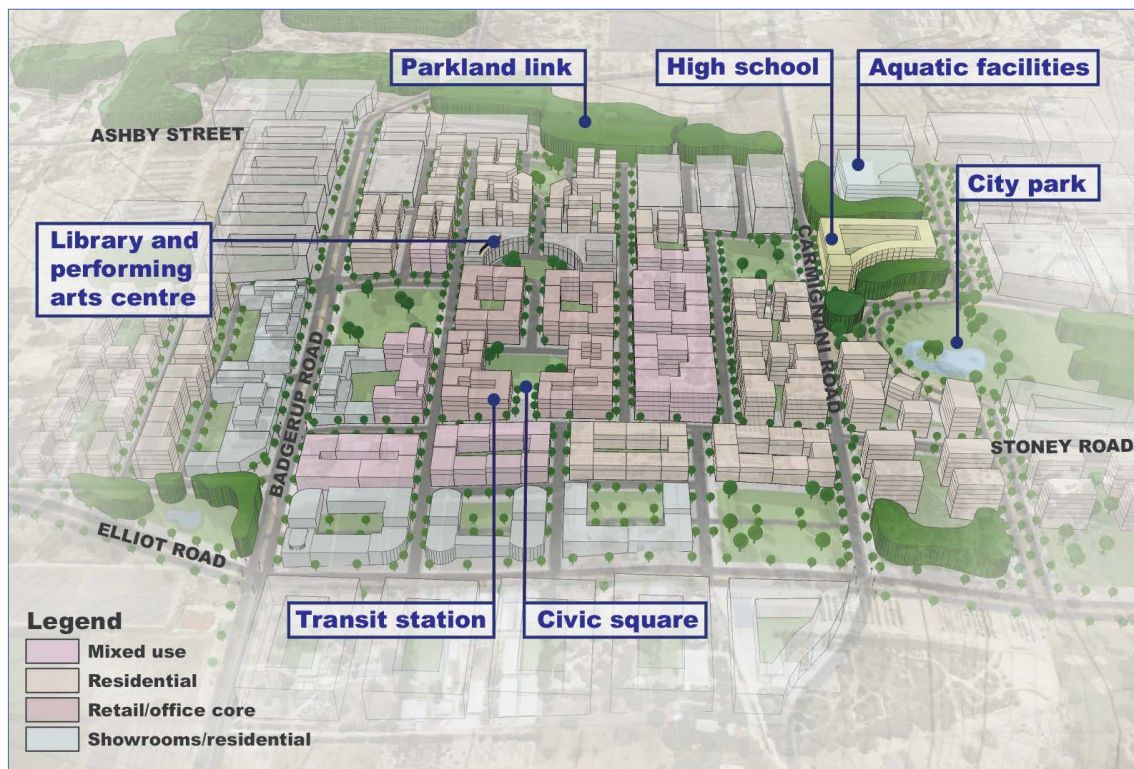


Figure 1.4: District Centre Layout

EAST WANNEROO district structure plan

draft for public consultation



Concept 1.1: District Centre Civic Square



Concept 1.2: Showroom and mixed use formats (Badgerup/Stoney Road)

Planning Outcomes for the District Centre

Area / Density	<ul style="list-style-type: none"> 50ha (defined broadly by 400m radius/walkable catchment) with an average density of 30 dwellings per hectare.
Land use	<ul style="list-style-type: none"> Vertical and horizontal mixing of diverse uses deliver a lively urban environment which is activated for most of the day. Retail/office/civic/community/entertainment and other uses predominate on the ground floor with residential uses above. Retail uses with larger floorspace requirements (e.g. supermarket, showrooms) are located on the edge of the core adjacent to arterial roads. The outskirts of the centre comprise high intensity residential uses.
Movement network	<ul style="list-style-type: none"> An integrated street network provides a high level of internal and external connectivity and ease of movement for all users. In the retail core, mid-block lanes contribute to a fine-grain network of movement around small walkable street blocks (80x100m). The main street is pedestrian focused and is anchored by the transit station to the south and community/civic buildings to the north. Arterial roads positioned on the periphery provide good access to the centre without disrupting the pedestrian focus in the core. High-frequency bus routes connect surrounding neighbourhoods to the centre and to the transit station. Streets are slow-speed, shared environments where priority is given to pedestrians/cyclists.
Built form	<ul style="list-style-type: none"> Built form is mid-rise (4-6 storeys). Individual development footprints within the core are small and fine grain, generating diversity and pedestrian interest at the street level transitioning to larger retail tenancies along arterial roads. Building design addresses and activates streets, creating a continuous street edge, with minimal building setbacks. Residential building formats provide mainly for apartment living.
Public realm	<ul style="list-style-type: none"> The public realm conveys a strong sense of place which builds upon the cultural and historic influences of the area. The main street with a civic square at the entry to the station, forms the heart of the centre and provides for public gathering and community activity. The transit corridor and station are situated underground. Mature street trees on both sides, provide amenity and a continuous canopy of shade.
Parking	<ul style="list-style-type: none"> Most public parking is provided on-street. Parking associated with commercial uses is provided in consolidated locations, not on individual development sites. Residential parking is integrated within the built form and screened from street view.
Community Facilities	<ul style="list-style-type: none"> A high school is located on the periphery of the centre utilising a multi-storey building format. An aquatic centre together with an indoor recreation centre is located close to the high school. Spaces for performing arts, community gatherings, library and an art gallery, are consolidated in a landmark building anchoring the northern end of the main street.

3.2 Neighbourhood Centre

A significant mixed-use area in proximity to the Mariginiup transit station, forming a shopping and community hub servicing the daily needs of local residents. The street network is grid based and connects the civic core with the station and natural features on the periphery. It provides residential living within medium-rise built formats.

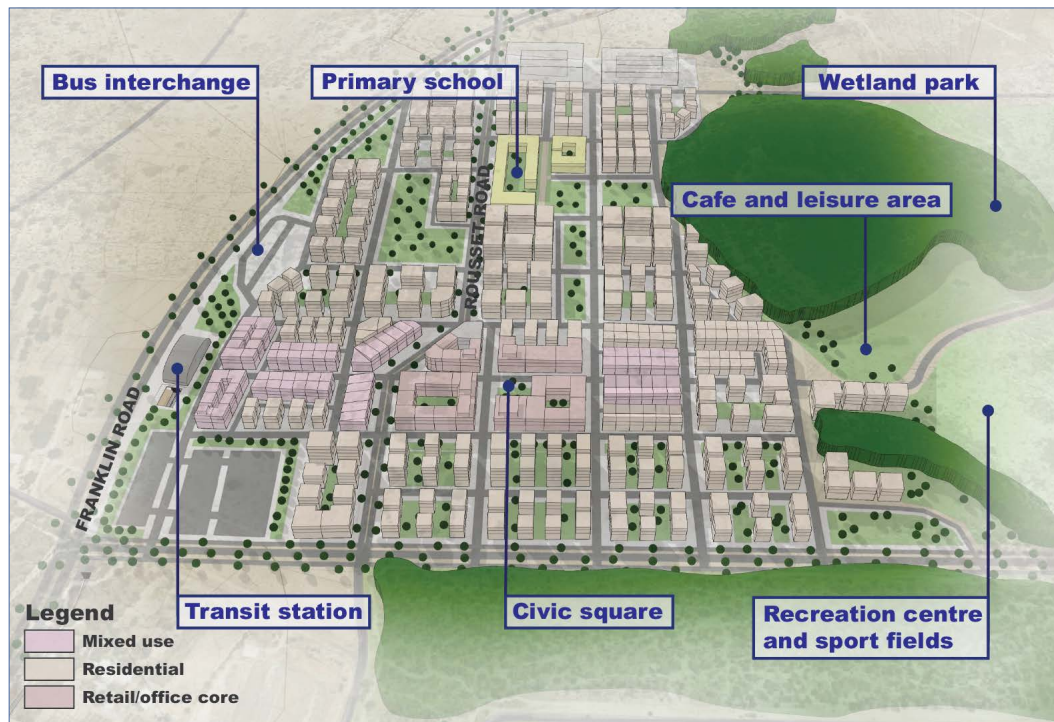


Figure 1.5: Neighbourhood Centre layout



Concept 1.3: Neighbourhood Centre Civic Square

Planning Outcomes in the Neighbourhood Centre

Area / Density	<ul style="list-style-type: none"> 12.5ha (defined broadly by 200m radius/walkable catchment), with an average density of 25 dwellings per hectare.
Land use	<ul style="list-style-type: none"> Commercial uses including retail/office/professional, health and education services together with civic/community uses, catering for the day-to-day needs of the local community. The main street, extending through to Mariginiup station, is highly activated with a mix of uses and small-scale businesses at the street level. Residential uses are provided on upper levels and on the periphery of the centre.
Movement network	<ul style="list-style-type: none"> An integrated street network, with small walkable street blocks (80x100 - 120m) delivering high levels of internal and external connectivity. The main street is pedestrian focused and provides a line of sight between Mariginiup station and the wetland park and the regional sporting complex to the east. High-frequency bus routes connect surrounding neighbourhoods to the centre. Streets are low-speed vehicle environments.
Built form	<ul style="list-style-type: none"> Built form is low-rise (2-3 storeys). Individual development footprints within the core are small and fine grain generating diversity and pedestrian interest at the street level The ground floor is treated to accommodate active uses and provide for weather protection at the street level. Building design strongly addresses and activates surrounding streets, with minimal building setbacks for a continuous street edge. Residential building formats provide for apartment or terraced house living.
Public realm	<ul style="list-style-type: none"> Public realm conveys a strong sense of place which builds upon the natural features of the area. The main street with a civic square, forms the heart of neighbourhood activity. Mature street trees on both sides provide amenity and a continuous canopy of shade.
Parking	<ul style="list-style-type: none"> Most public parking is provided on-street. Additional public parking is available on the periphery. Residential parking is integrated within the built form and screened from street view. Park and ride facility associated with Mariginiup station is located adjacent to Lakeview or Franklin Roads.
Community Facilities	<ul style="list-style-type: none"> A community hub including a library are consolidated in a landmark building anchoring the main street. A recreational node is created adjacent to the wetland to the east, incorporating sports facilities (including multipurpose hardcourts), in combination with café/restaurant facilities.

3.3 Urban Neighbourhoods

Predominantly residential areas of medium to high-density in immediate proximity to the District and Neighbourhood centres. They incorporate a grid-based street layout, and medium-rise built form which responds to the desired character for each precinct. They provide for pockets of mixed use development at appropriate locations.

Planning Outcomes in the Urban Neighbourhoods

Area / Density	<ul style="list-style-type: none"> Defined broadly by 400m radius/walkable catchment with an average density of 20 dwellings per hectare.
Land use	<ul style="list-style-type: none"> Residential with mixed use pockets offering small scale local services.
Movement network	<ul style="list-style-type: none"> An integrated street network provides a high level of internal connectivity and links directly to the centre. Streets are generally slow-speed, shared environments with on-street parking. Serviced by high-frequency bus routes.
Built form	<ul style="list-style-type: none"> Built form is mid-rise (3-5 storeys) and of higher intensity closer to the centres. Building design and small street setbacks contribute to a sense of enclosure at the street level. Incorporates a diversity of typologies providing for housing choice (apartment buildings, townhouses, terraced housing). Detached single houses (2 storey minimum) can be developed in pockets on the edges of the walkable catchment. Parking is integrated within the built form and screened from street view.
Public realm	<ul style="list-style-type: none"> Public realm conveys a strong sense of place which builds upon cultural and historic influences. Natural features are retained and enhanced within neighbourhood parks and street design. Verge and on-site landscaping (in setback areas) enhances the amenity of streetscapes. Mature street trees on both sides provide for a continuous canopy of shade over footpaths.



Concept 1.4: Urban neighbourhood with wetland interface (Neighbourhood Centre)

3.4 Suburban Neighbourhoods

Residential areas of average medium density, each with an identity drawn from a layout, and built form character which is responsive to natural features and the landscape. These areas are permeable and legible to all users and provide a broad range of housing choices around a focal point of community activity.

Planning outcomes in Suburban Neighbourhoods	
Area / Density	<ul style="list-style-type: none"> Defined broadly by 400m radius/walkable catchment with an average density of 15 dwellings per hectare.
Land use	<ul style="list-style-type: none"> Residential, local centres and primary schools.
Movement network	<ul style="list-style-type: none"> The road network responds to topography and natural environment and provides connectivity to a focal point of community activity, e.g. local centre, park or natural feature or school. Serviced by local bus routes connecting to centres. Access streets are slow speed, high amenity environments providing for community interaction.
Built form	<ul style="list-style-type: none"> Built form is generally low-rise (1-2 storeys) but up to 3-storeys in appropriate locations, e.g. overlooking parkland areas and where views are available. Single houses are the predominant built form, with clusters of small scale apartment buildings at central locations and terrace (rear access) housing along transport corridors and adjacent to public open space.
Public realm	<ul style="list-style-type: none"> Natural features are retained and enhanced within neighbourhood parks and street design. Verge and on-site landscaping (in building setback areas) enhances the amenity in streetscapes. Mature street trees provide amenity and shade over footpaths.

3.5 Character Areas

Residential areas of high scenic value with building formats that are responsive to the natural environment and amenity of the location. They form an aesthetic point of reference for the East Wanneroo community and contribute to recreational and leisure opportunities throughout the district.

Planning outcomes in Character Areas				
	Lake Jandabup South Ridge	Belgrade Road Lake view	Edgar Griffiths Park	Mariginiup Lakes
Precinct	13	5	6	7
Density	20 dwellings/gross ha	20 dwellings/gross ha	15 dwellings/gross ha	20 dwellings/gross ha
Character	Urban layout responds to the ridgeline overlooking Lake Jandabup.	A focal point of community activity enjoying views across Lake Jandabup.	The park is framed with 2-3 storey buildings.	Urban layout focussed on natural amenity of the lakes.
Land use	Medium to high density residential.	Medium to high density residential. A local centre on flat land incorporating small-scale commercial uses on ground floor. A primary school is integrated with the local centre.	Medium density residential. Recreational facilities in the park. Local centre fronting Garden Park Drive.	Medium to high density residential.
Movement network	Residential access streets will run with the slope, opening views to the foreshore.	Residential access streets run with the slope, opening the views to the foreshore.	Casuarina Way and Garden Park Drive facilitate high levels of pedestrian and cycle movement.	Wider access streets to incorporate existing mature trees.
Built form	2-3 storey townhouses, terraced with the slope and setback from the street. A small building footprint.	2-3 storey terrace town housing on steeper slopes. 3-5 storey mixed use apartments around the local centre.	2-3 storey terrace housing along Garden Park and Casuarina Way overlooking Park. Eastern edge of area incorporates 3-4 storey detached apartment buildings with on site landscaping.	2-5 storey detached apartments and townhouses.
Public realm	Retention of significant trees, supplemented by planting of large canopied street trees. The foreshore area becomes a nodal point of passive recreation and nature experiences.	Retention of significant trees, supplemented by planting of large canopied street trees.	Enhancement of Edgar Griffiths Park as a recreational feature. Retention of significant trees, supplemented with planting of large canopied street trees. Creation of a parkland link through to the Lake Jandabup Foreshore.	Existing mature trees contained within pocket parks and access streets. Water sensitive urban design forms a feature of street and public open space network to integrate with the lake systems.

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Concept 1.5: Belgrade Road Lake view



Concept 1.6: Edgar Griffiths Park



Concept 1.7: Mariginiup Lakes

3.6 Special Residential Neighbourhoods

Residential areas which respond to existing character and provide lifestyle choice on large lots in a natural setting.

Planning outcomes for Special Residential Neighbourhoods	
Bebich Drive	
Precinct	2
Character	Large lots retaining natural features, and maintaining rural character adjacent to the Lake Badgerup Reserve.
Land use	Low-density residential, with opportunities for small-scale home business and hobbies.
Movement network	Retain the existing road network, complemented with sensitively located new road connections.
Subdivision/ Built form	Subdivision should result in complete street blocks, where lots have direct street frontage. Single detached dwellings.
Public realm	Retention of rural streetscape character. No public open space requirements.

3.7 Movement Network

A hierarchy of interconnected streets, footpaths, cycleways and public transport infrastructure that provides for the efficient and safe movement of people within and through the area. Large movement corridors interface sensitively with adjoining areas, while local streets are carefully designed to contribute to local character and sense of place.

Planning outcomes for Movement Network

Primary distributors	<ul style="list-style-type: none"> Whiteman Yanchep Highway connects Ocean Reef Road and Flynn Drive and accommodates east-west arterial connections into the area. The land required is reserved as a Primary Regional Road under the Metropolitan Region Scheme (MRS).
Transit corridor and stations	<ul style="list-style-type: none"> The transit corridor will accommodate public transport services and futureproof the potential for it to become a railway line. Transit stations are provided at the district and neighbourhood centres. Transit stations are to be underground to maximise the opportunity for integration with urban development. Station dedicated parking is not provided in the district centre. Treatment of the corridor reduces adverse amenity impacts on adjoining areas.
Integrator arterials	<ul style="list-style-type: none"> The integrator arterial network facilitates efficient and safe regional and district traffic movements. The land required is reserved as Other Regional Roads under the MRS. Adjacent to the district centre and the neighbourhood centre, arterials are treated as activity centre streets, in accordance with Liveable Neighbourhoods, <i>Integrator A/B – Centres</i>. Intersections adjacent to centres are signalised and provide for pedestrian at-grade crossings. Treatment of integrator arterials reduces adverse amenity impacts on adjoining areas. Accommodates rapid public transport services to Wanneroo town centre and local bus services. Typical cross sections are shown in Figures 1.6 - 1.11.
Neighbourhood connectors	<ul style="list-style-type: none"> Neighbourhood connectors are local streets providing safe connections between neighbourhoods and into the district and neighbourhood centres. They utilise, extend and supplement the existing local road network. They accommodate local bus services.
Pedestrian/cyclist network	<ul style="list-style-type: none"> Pedestrian and cycle movement is mainly carried out in the local street network or Parkland links connecting to centres, transit stations and schools in a safe and direct way. Grade separated crossings are provided where Parkland links cross the transit corridor.

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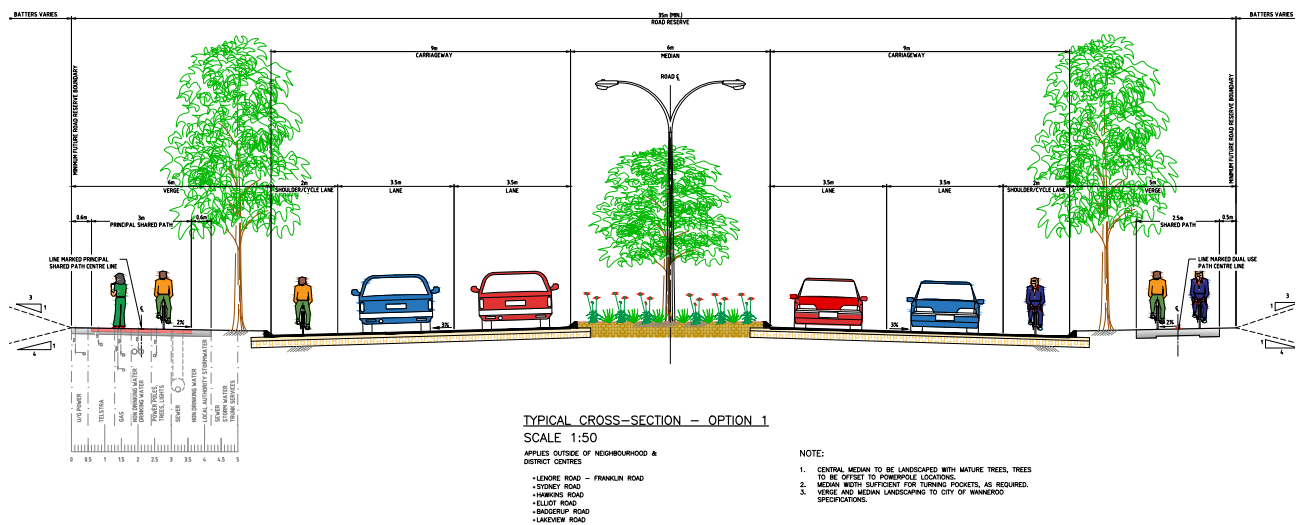


Figure 1.6: Cross-section applies outside of District and Neighbourhood centres

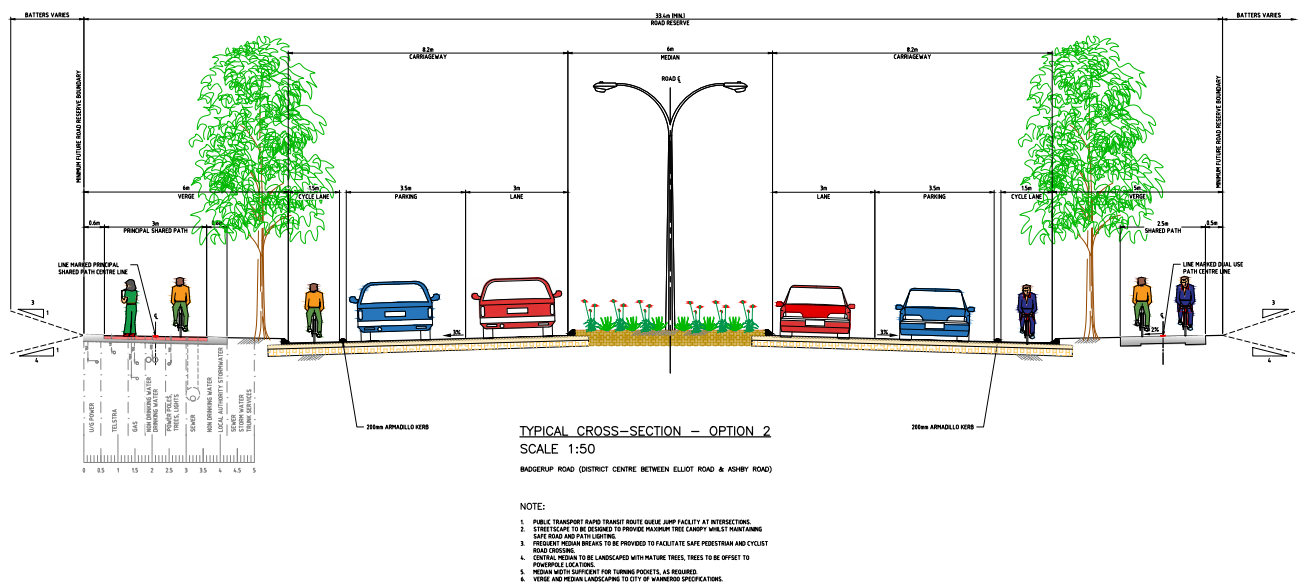


Figure 1.7: Cross-section Badgerup Road (District Centre between Elliot Road and Ashby Road)

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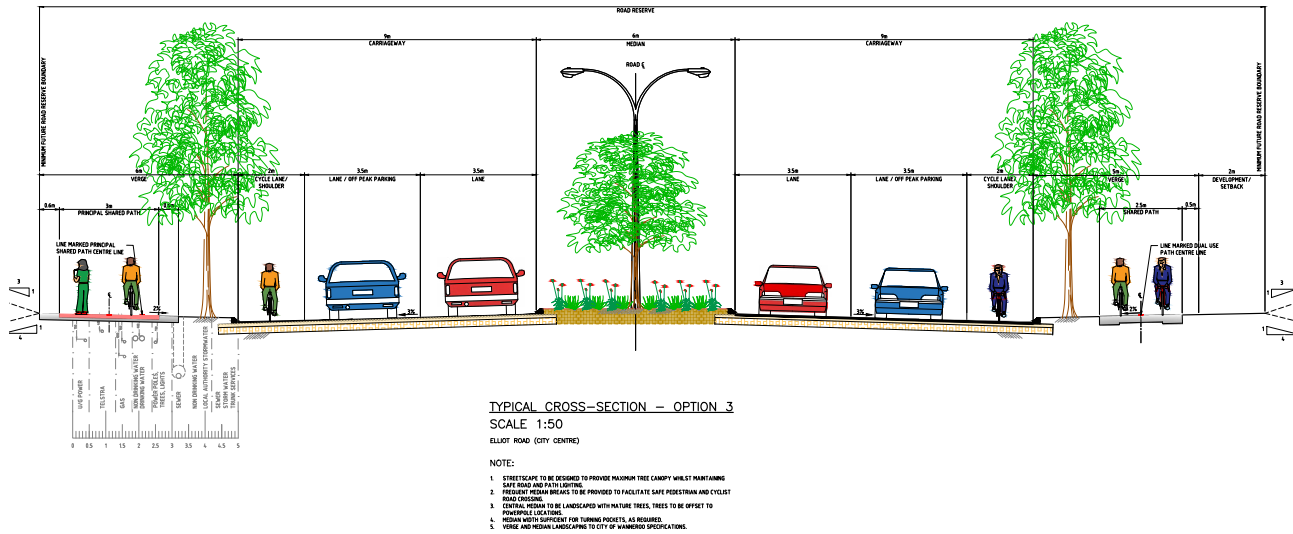


Figure 1.8: Cross-section Elliot Road (District centre)

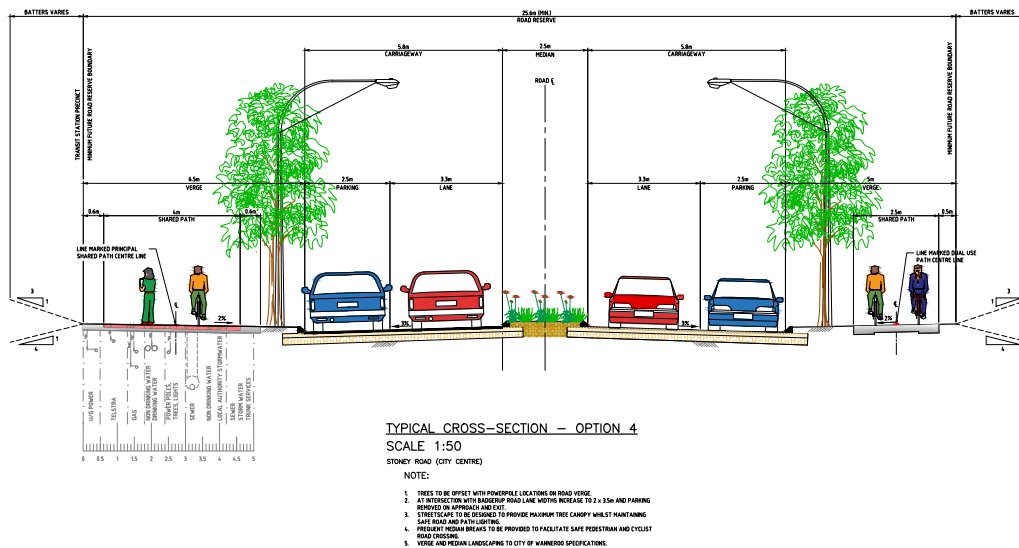


Figure 1.9: Cross-section Stoney Road (District centre)

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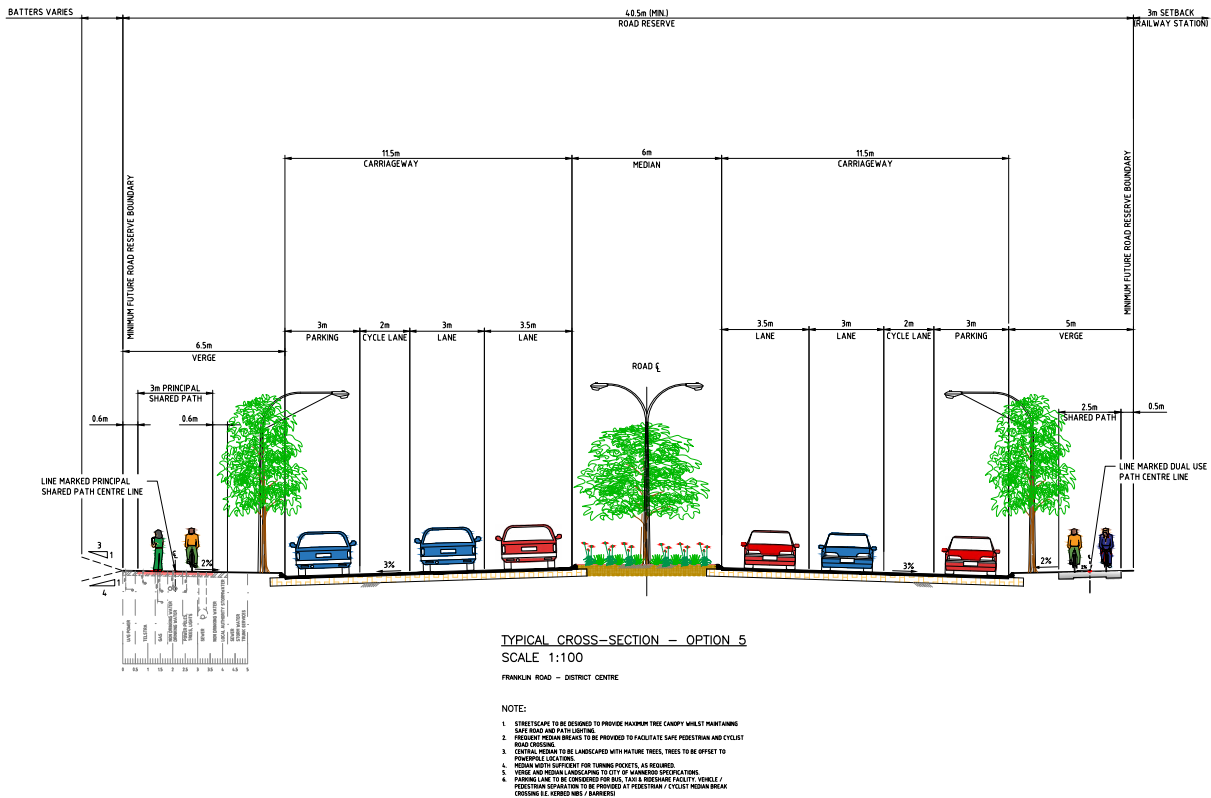


Figure 1.10: Cross-section Franklin Road (Neighbourhood centre)

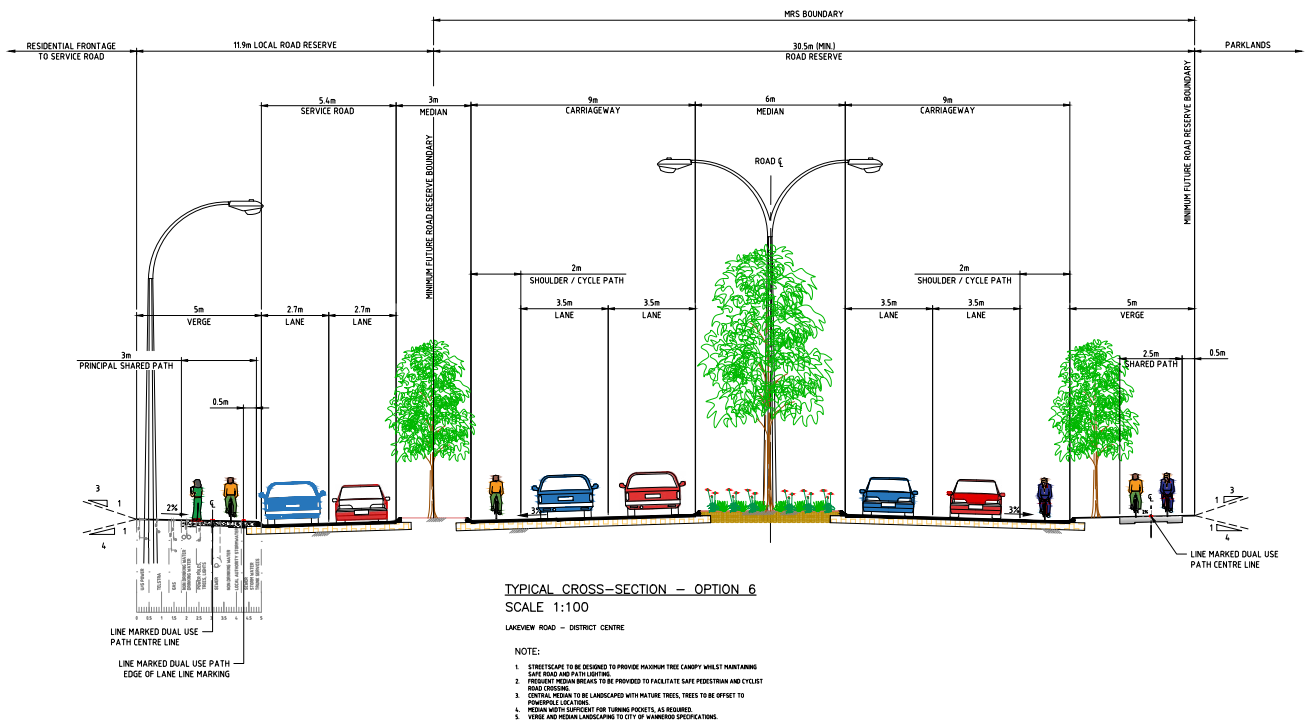


Figure 1.11: Cross-section Lakeview Road (Neighbourhood centre)

3.8 Parklands

A network of multifunctional natural environments and landscaped spaces. They provide for leisure and recreation, ecology and biodiversity, pedestrian and cycle movement, social and educational functions.

Planning outcomes in Parklands	
Bushland	<ul style="list-style-type: none"> Bushland vegetation is protected and enhanced in designated MRS reservations or as part of local reservations, carefully integrated with the surrounding urban environment. Walk trails through bushland provide for public enjoyment of the natural environment.
Wetlands and their foreshores	<ul style="list-style-type: none"> Significant wetlands are protected and enhanced for their environmental and biodiversity value, and serve an important drainage function. Lake foreshore areas are open to public enjoyment with access from the road network. Key foreshore areas are enhanced and appropriately treated to provide for recreational activity. Regional vegetation complexes are rehabilitated and extended as part of the management of foreshore areas. Appropriate areas are utilised for environmental education. Aboriginal heritage values are protected as part of the regeneration of wetlands.
Local Parkland	<ul style="list-style-type: none"> 10 per cent of urban areas comprise local parkland incorporating a balance of nature conservation, sport and recreational functions. Local parkland incorporates restored resource enhancement and multiple use wetlands for drainage purposes. Local parklands are important character elements and reference points for neighbourhoods.
Parkland links	<ul style="list-style-type: none"> Parkland is connected by linear parks and landscaped boulevards and accommodate uninterrupted pedestrian/ cyclist movement. They maintain and enhance ecological linkages through the area. Linear parks follow topographic features and link up patches of remnant vegetation. Landscaped Boulevards contain mature tree canopy and landscaping within a wide median or verge. Pedestrian and cycle crossings will be grade separated where Parkland Links intersect the Franklin Road transport corridor.
Regional sporting complex	<ul style="list-style-type: none"> A sporting complex of 50ha providing for active district level sporting pursuits. It comprises substantial facilities for organised sport integrated with existing natural features. It is well connected to the arterial road network and the footpath/cycle-path network.

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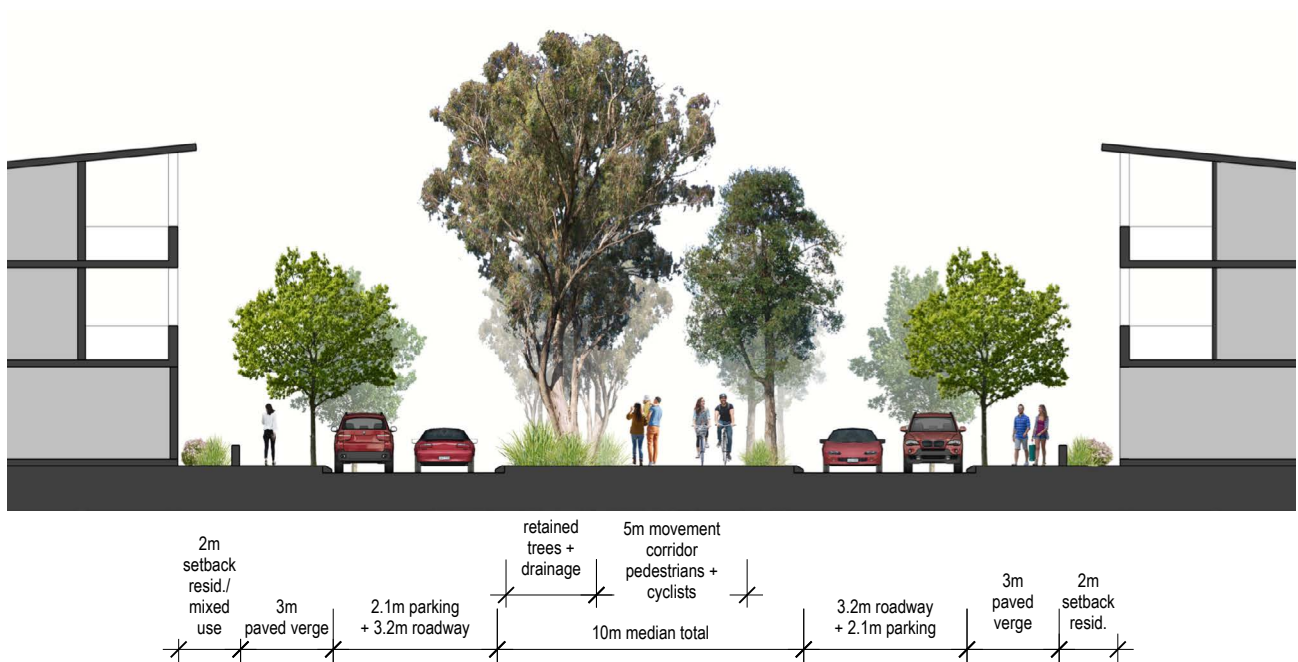


Figure 1.12: Landscape Boulevard with wide median (26.6m wide) through Urban Neighbourhood

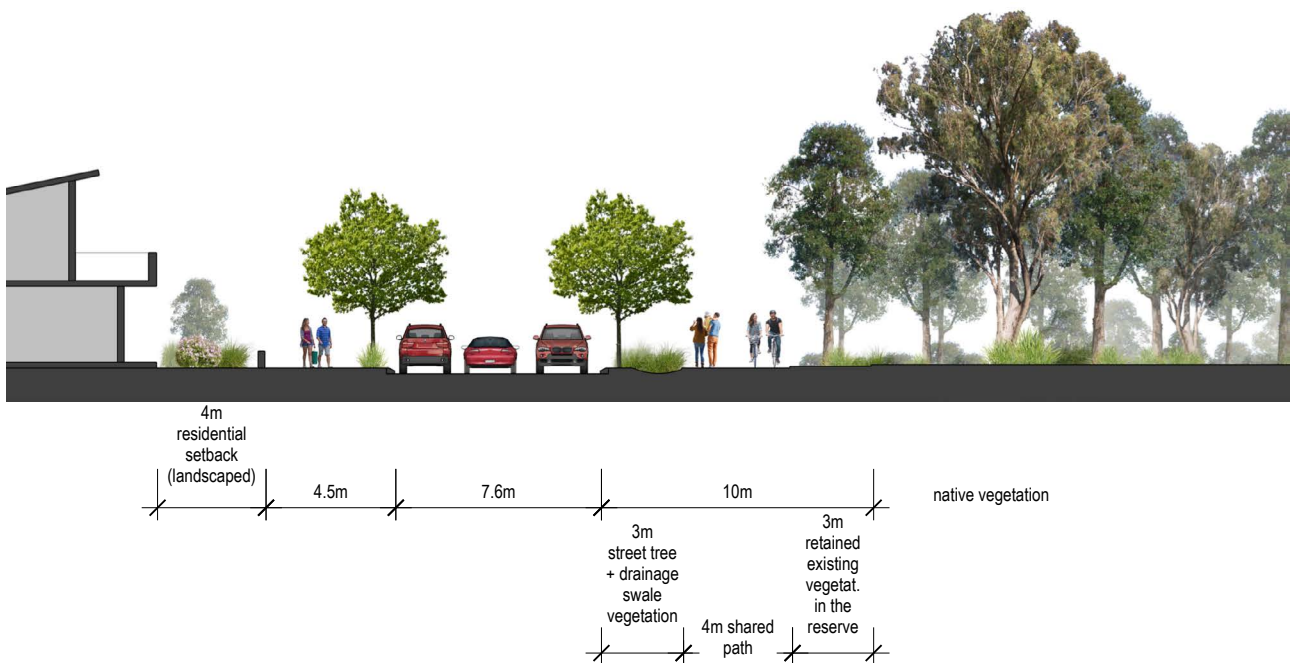


Figure 1.13: Landscape Boulevard with wide verge (22.1m wide) in Suburban Neighbourhood adjoining bushland or retained vegetation

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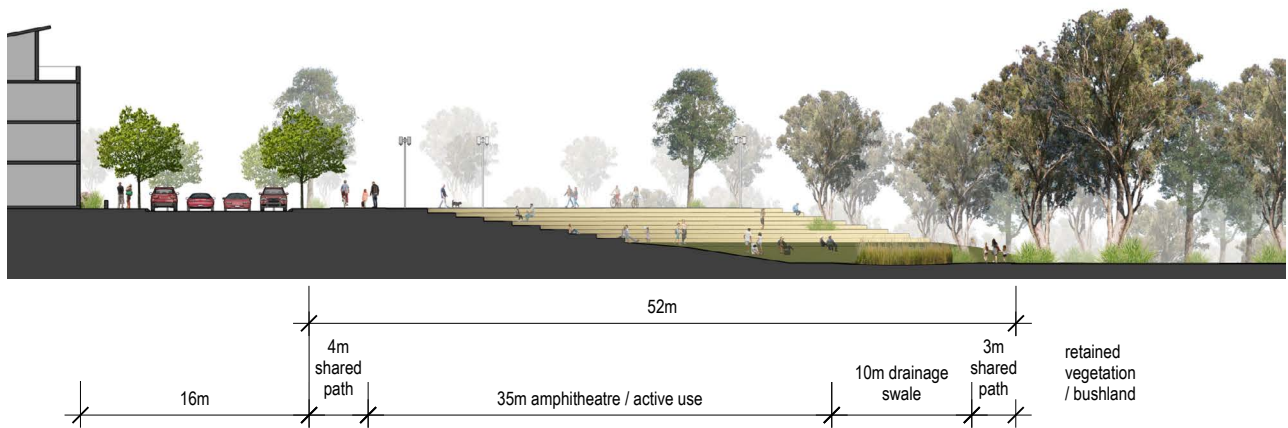


Figure 1.14: Linear Parkland (POS) 52m wide at its widest section in Urban/Suburban Neighbourhood with road interface adjoining bushland or retained vegetation

3.9 Schools and Community Facilities

Schools and community facilities are community focal points which cater for a wide range of formal educational and other social activities. Buildings are important reference points in the landscape and have the capability to respond to future changes in the provision of education and other community-based services.

Planning outcomes for schools and community facilities

High schools

- High schools are provided in the locations depicted on the EWDSP map, in consultation with the Department of Education.
- Schools are integrated with natural features, the surrounding urban structure and road network.
- Building facilities are landmark structures which form distinctive community reference points.
- The high schools situated at the edge of the district centre and to the west of the neighbourhood centre adopt a multi-storey building format.

Primary schools

- Primary schools are located centrally to student catchment populations determined in consultation with the Department of Education.
- Primary schools are located on the periphery of urban neighbourhoods, the district centre and the neighbourhood centres.
- Primary schools are located centrally to suburban neighbourhoods in conjunction with local centres and/or community facilities.

Community facilities

- Outside the neighbourhood and district centres, community facilities are co-located with primary schools.
- Retirement living is provided at the centre of neighbourhoods or in proximity to activity centres.



Concept 1.8: Community facilities, high school and city park

3.10 Water

Water is a defining feature and is managed to enable sensitive integration of development with existing lakes, wetlands and groundwater systems in a way that rehabilitates these features and utilises them to create distinctive places.

Planning Outcomes for Water

Groundwater	<ul style="list-style-type: none">• Groundwater levels are managed to<ul style="list-style-type: none">– optimize the environmental and amenity values of the lakes and wetlands– ensure the activation of acid sulphate soils are avoided– minimise the need for earthworking and the importation of fill material• The quality of groundwater is maintained at pre-development standards.
Surface water	<ul style="list-style-type: none">• Surface water is managed entirely within its originating precinct.• Existing topography is retained and utilised to direct major rainfall runoff to lakes and wetlands where available or otherwise directed to identified retention areas.• Existing resource enhancement and multiple use wetlands are used for drainage and their ecological and amenity values restored.• Retention areas are integrated into local public open space.• Surface water runoff from small rainfall events is managed within individual lots and in road reserves.• Runoff is subject to biofiltration before discharge..

3.11 Service Commercial

Area catering for commercial uses which, because of their bulk and scale, are best located away from activity centres. They are suitable for access by heavy vehicles and cater for large building footprints.

3.12 Industrial

Areas of strategic, long-term opportunity for businesses involved in innovative technologies, food production and sustainable energy generation. Potential impacts on groundwater quality are fully defined and suitable mitigation measures agreed prior to subdivision and development.

3.13 Rural

Areas maintained for their existing character and rural lifestyle. Low impact tourism and recreational activities provide for a small-scale leisure destination adjacent to the north-east margins of Lake Jandabup.

3.14 State Forest

Areas continuing to be used for State Forest purposes which include forestry, basic raw material extraction, recreation and groundwater protection.

4 Precinct outcomes

The district structure plan is divided into the 28 precincts in Figure 1.15. They reflect the land use areas shown in the North-West Sub-regional Planning Framework and are sized and configured to facilitate the creation of coherent neighbourhoods, self-contained drainage catchments and viable and efficient development contribution areas. Larger precincts are centred upon activity centres/transit stations, to facilitate an integrated planning response to the opportunities for high-density living in close proximity to commercial and public transport services.

Precinct boundaries follow existing cadastral boundaries.

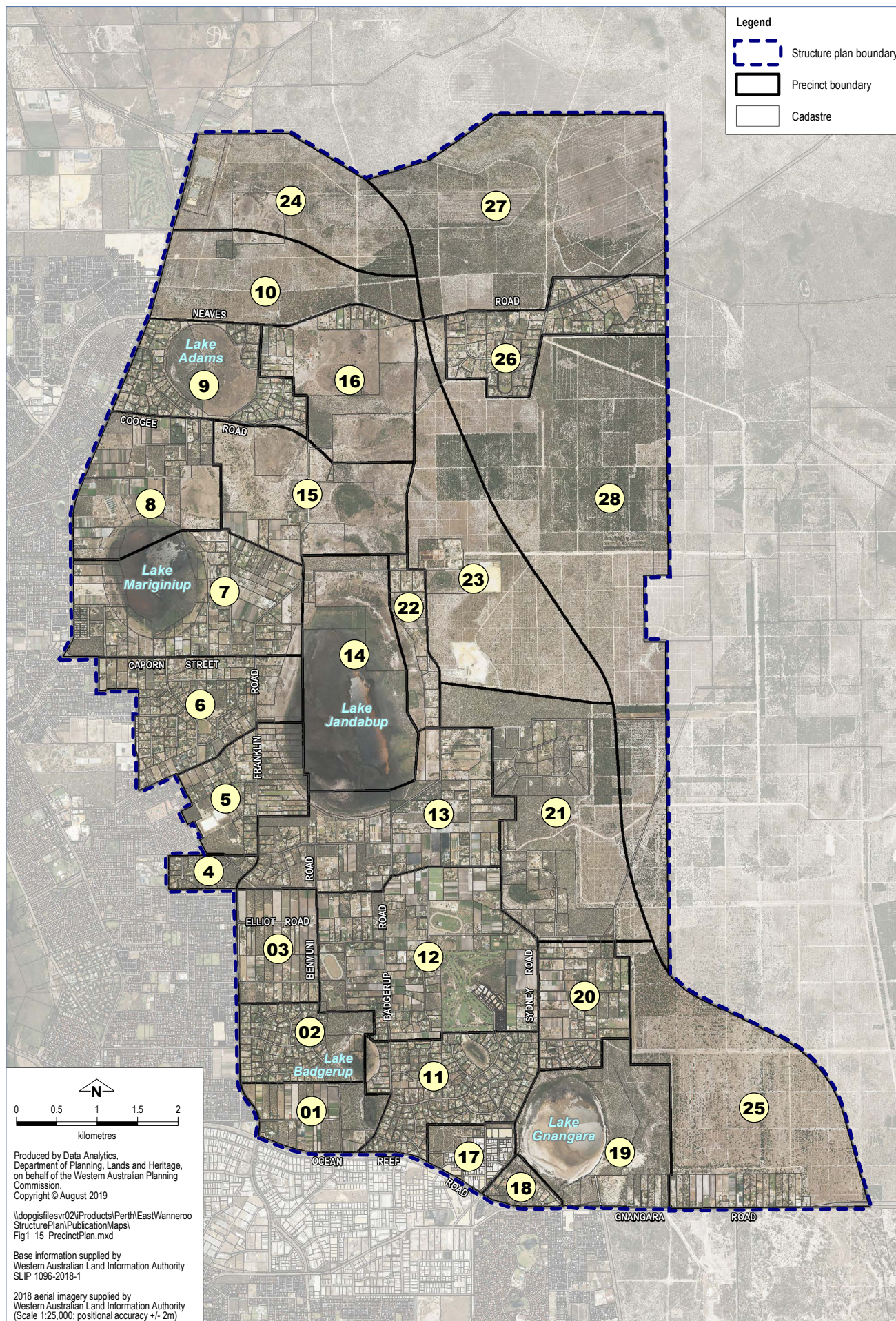


Figure 1.15: Precinct Plan

Planning Outcomes			
No.	Precinct name	Dwelling target	Description
01	Mary Street	1,500	<p>A suburban neighbourhood with a bushland backdrop. The precinct carefully integrates bushland and residential areas and connects Mary Street with Benmuni and Badgerup Roads.</p> <p>Large residential lots fronting Benmuni Road help maintain the natural character of the western edge of the Lake Badgerup Reserve.</p>
02	Bebich Drive	500	<p>The eastern part of the precinct is a special residential area which maintains its existing rural character, significant building setbacks and tree cover, existing landform and curvilinear street network. It comprises large residential lots generally greater than 2,000m².</p> <p>Development in the suburban neighbourhood fronting Lenore Road is significantly setback and incorporates sensitive landscaping along its interface with the character area.</p> <p>The rural area immediately west of Lake Badgerup Reserve is maintained without further subdivision.</p>
03	Elliot Road	2,000	<p>A suburban neighbourhood. The area derives its character from the higher landform and views to the east and north-east and is carefully integrated with Parkland.</p>
04	High Road	300	<p>A suburban neighbourhood well connected with existing urban areas to the west and south. Lot sizes are generally greater than 1000 sqm. The tree-lined character of High Road is maintained and incorporated into the urban environment.</p>
05	Belgrade Road	2,000	<p>The character area east of Franklin Road provides a vibrant local centre integrated with a primary school located on elevated flat land enjoying views across Lake Jandabup to the Darling Escarpment.</p> <p>A local centre at the Lake Jandabup foreshore creates a focal point for the local community taking advantage of the natural amenity and recreational opportunities.</p> <p>The suburban neighbourhood west of Franklin Road is generally medium density, with a more intense built form fronting Belgrade Road taking advantage of views to the east and north-east. The area is well connected to the Wanneroo town centre.</p>
06	Edgar Griffiths Park	3,500	<p>A suburban neighbourhood, the focal point of which is the character area surrounding Edgar Griffiths Park.</p> <p>Buildings adjacent to the Lake Jandabup foreshore are low-rise (one to two-storey), maintaining its open character.</p> <p>The western edge of the precinct responds to the anticipated planning outcomes identified for the Sinagra and Wanneroo Town Centre Structure Plans.</p>
07	Lake Mariginiup	4,000	<p>A suburban neighbourhood with a character area situated north-east of Lake Mariginiup, taking advantage of the lakeside environment, remnant trees and proximity to Mariginiup Station.</p> <p>Buildings adjacent to the Lake Jandabup foreshore are low-rise (one to two-storey).</p>
08	Ranch Road	2,000	<p>A suburban neighbourhood carefully integrated with Parkland and well connected to the Lake Mariginiup foreshore.</p>

No.	Precinct name	Dwelling target	Description
09	Lake Adams	0	A rural area where the existing residential and equine uses are maintained, with no subdivision potential.
10	South Pinjar	4,000	A suburban neighbourhood which is well connected with Banksia Grove and provides a local centre co-located with a high school.
11	Lakelands	3,000	A suburban neighbourhood with a distinct character derived from existing topography, meandering streets and mature vegetation. The subdivision pattern extends the existing local road network to create well connected neighbourhoods. Residential density across the precinct transitions from medium in the north to low in the south.
12	Gnangara district centre	7,500	This precinct is the primary focal point of activity within the East Wanneroo community. Its central area comprises a district centre and urban neighbourhoods with high-intensity built form. Suburban neighbourhoods on the edges of the precinct transition into more intense urban neighbourhoods.
13	Trichet Road	4,500	The character area south of Lake Jandabup comprises medium-density residential development in an attractive public realm orientated to capture views across Lake Jandabup. The tree-lined character of Trichet Road is maintained. Suburban neighbourhoods carefully integrate with existing topography, bushland and wetlands and provide for medium-rise built form adjacent to the Gnangara district centre precinct.
14	Lake Jandabup	0	Expands the existing Parks and Recreation Reserve centred on Lake Jandabup to include the Townsend Road bushland. Foreshore management will rehabilitate and expand the Pinjar vegetation complex around the foreshore.
15	Central Mariginiup	3,800	This precinct is a shopping and community hub serving the northern areas of East Wanneroo. It mainly comprises a neighbourhood centre and urban neighbourhoods integrated carefully with natural features to the east. It provides for a 50ha regional sporting facility. Suburban neighbourhoods in the rest of the precinct provide a transition from medium to low-rise built form.
16	North Mariginiup	4,000	A suburban neighbourhood that responds positively to existing wetlands and enables their enhancement as environmental and amenity features. Aboriginal heritage values are respected and protected.
17	Northlink Industrial Park	0	This precinct is already subject to the Wangara Industrial Extension Area Agreed Local Structure Plan No. 96 and Gnangara Rural Community Agreed Local Structure Plan No. 99. No changes are proposed to the existing planning framework.
18	Leach Way	0	A service commercial area where buildings and associated landscaping are orientated to front regional roads, a permeable road network is created, and significant environmental and heritage values protected. Development of the precinct is compatible with the operational needs of the Perth International Telecommunications Centre (PITC).
19	Lake Gnangara	0	A parkland and rural area that remains unchanged.
20	Lorian	2,500	A suburban neighbourhood which futureproofs connections to serve future development in the East Gnangara Precinct (Precinct 25).

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No.	Precinct name	Dwelling target	Description
21	East Jandabup	50	A rural and State Forest area maintaining existing environmental values and rural activities, unchanged.
22	Hawkins Road	0	A rural area with opportunity for low-intensity tourism and recreational uses adjacent to Lake Jandabup.
23	Eastern Industrial	0	A strategic industrial asset with long term potential to provide for clean energy generation and intensive food production utilising innovative technologies. The structure planning requirements for these precincts will be considered as part of future reviews of the EWDSP.
24	Pinjar Industrial	0	An industrial area serving as an expansion of the Neerabup Industrial Estate. The structure planning requirements for these precincts will be considered as part of future reviews of the EWDSP.
25	East Gnangara	6,000	A long-term urban expansion area necessitating future planning studies, including water management, infrastructure and services, vegetation and fauna surveys, traffic impact assessment, transport noise and retail assessment. The structure planning requirements for these precincts will be considered as part of future reviews of the EWDSP.
26	Neaves Road Rural Residential	0	A rural area where the existing residential and equine uses are maintained, with no subdivision potential.
27,28	State Forest	0	An area of State Forest maintained in its current use.

5 Local Structure Plan Requirements

5.1 Local Structure Plan inputs

Inputs in the preparation of a local structure plan (LSP) shall comprise the necessary studies and documentation. The items listed in the table have been prepared based on the district level analysis done through the EWDSP process and may not be exhaustive. Further analysis through the LSP process may identify the need for additional information or studies to be prepared which are not listed in the table below.

The following documentation is required for all local structure plans:

- Local Water Management Strategy
- Bushfire Management Plan
- Aboriginal Heritage Investigation and consultation with the Whadjuk Working Party
- Traffic Impact Assessment
- Infrastructure and Servicing Assessment

Table 1.1: Local Structure Plan inputs

Precinct name		Environmental Assessments				Water and Drainage Assessments		Movement Network and Infrastructure Assessments		Economic Assessments	
		Flora and Fauna Survey	Basic Raw Materials Assessment	Contour Plan (Pre-/Post-Basic Raw Materials Extraction)	Landscape Assessment	Foreshore Strategy	Wetland Buffer Assessment	Traffic Noise Assessment	Parking Strategy	Economic Assessment	
01	Mary Street	✓						✓			
02	Bebich Drive	✓						✓			
03	Elliot Road	✓						✓			
04	High Road	✓			✓			✓			
05	Belgrade Road	✓			✓	✓		✓			
06	Edgar Griffiths Park	✓			✓	✓		✓			
07	Lake Mariginiup	✓			✓	✓		✓			
08	Ranch Road	✓				✓					
10	South Pinjar		✓	✓			✓	✓			
11	Lakelands	✓									
12	Gnangara District Centre	✓			✓			✓	✓		✓
13	Trichet Road	✓	✓	✓	✓	✓	✓				
15	Central Mariginiup	✓	✓			✓	✓	✓	✓		✓
16	North Mariginiup		✓	✓			✓				
18	Leach Way	✓									✓
20	Lorian	✓					✓	✓			
22	Hawkins Road					✓	✓				

5.2 Local Structure Plan outputs

Local structure plan (LSP) outputs comprise the text provisions and mapping required to be included in the Part 1 implementation section of a LSP. LSP preparation should be consistent with the City of Wanneroo District Planning Scheme No. 2, WAPC policy for the preparation of structure plans including Liveable Neighbourhoods and the WAPC's Structure Plan Framework (August 2015). The structure plan outputs listed below have been identified through the district structure planning process and will need to be addressed in greater detail by LSPs. Further analysis during the LSP preparation may identify the need for additional structure plan outputs which are not listed in the table below.

Table 1.2: Local Structure Plan inputs

[illegible]

5.3 Precinct Development Contribution Items

The EWDSP identifies development contribution items for each precinct based on district level considerations. Additional precinct level items (including local community infrastructure) may be included based on the outcomes of the local structure planning process.

Table 1.3: Development contribution items

Precinct name		Public Open Space	Local Road Network	Drainage
01	Mary Street	✓	✓	✓
02	Bebich Drive	✓	✓	
03	Elliot Road	✓		✓
04	High Road	✓		✓
05	Belgrade Road	✓		✓
06	Edgar Griffiths Park	✓		
07	Lake Mariginiup	✓		
08	Ranch Road	✓		
11	Lakelands	✓		✓
12	Gnangara District Centre	✓		✓
13	Trichet Road	✓	✓	✓
15	Central Mariginiup	✓		✓
16	North Mariginiup	✓		✓
18	Leach Way			✓
20	Lorian	✓		
22	Hawkins Road	✓		✓

6 Staging of Development

Development of the EWDSP area is expected to proceed through the extension and sequential roll-out of existing water, wastewater and power services from the western edge of the structure plan area, pushing east from the existing suburbs. Figure 1.16 - Staging Plan, identifies the broad timing and sequencing of development.

Development extending sequentially eastward is likely to be a more cost-effective scenario for service infrastructure provision. The fragmented nature of landownership across the EWDSP area may mean that some more consolidated landholdings can be initiated ahead of the development front. In these situations, it will be the responsibility of a proponent to make the case why this should occur, demonstrate adjacent precincts are not disadvantaged or development potential compromised, demonstrate support from service providers and pre-fund the capital costs associated with necessary infrastructure provision.

The take-up of existing servicing capacity will generally be on a first come, first serve basis until exhausted. Additional capacity will be brought on-line by the service providers in accordance with their capital programs and in response to market demand. The EWDSP anticipates the areas shown Urban Deferred under the MRS will be zoned Urban in advance of the rezoning of other areas.

The precinct descriptions set out in Part 2 identifies how particular staging considerations are likely to impact on the timing of development within that precinct.

6.1 Timeframes and Review Period

For the purpose of interpretation, the EWDSP refers to short, medium and long-term timeframes. Short term is broadly defined as the 10-year period 2021 to 2031, medium term is defined as the 20-year period 2031 to 2051

and long term is the period post-2051. These timeframes are the estimates based on known constraints and planning processes associated with the implementation of the EWDSP.

The timeframes are not set requirements as the rate of future development will be influenced by a range of variables, particularly the performance of the WA economy, which may shorten or lengthen anticipated timeframes.

The EWDSP is to be reviewed and updated 10 years after the date on which it is first approved by the WAPC.

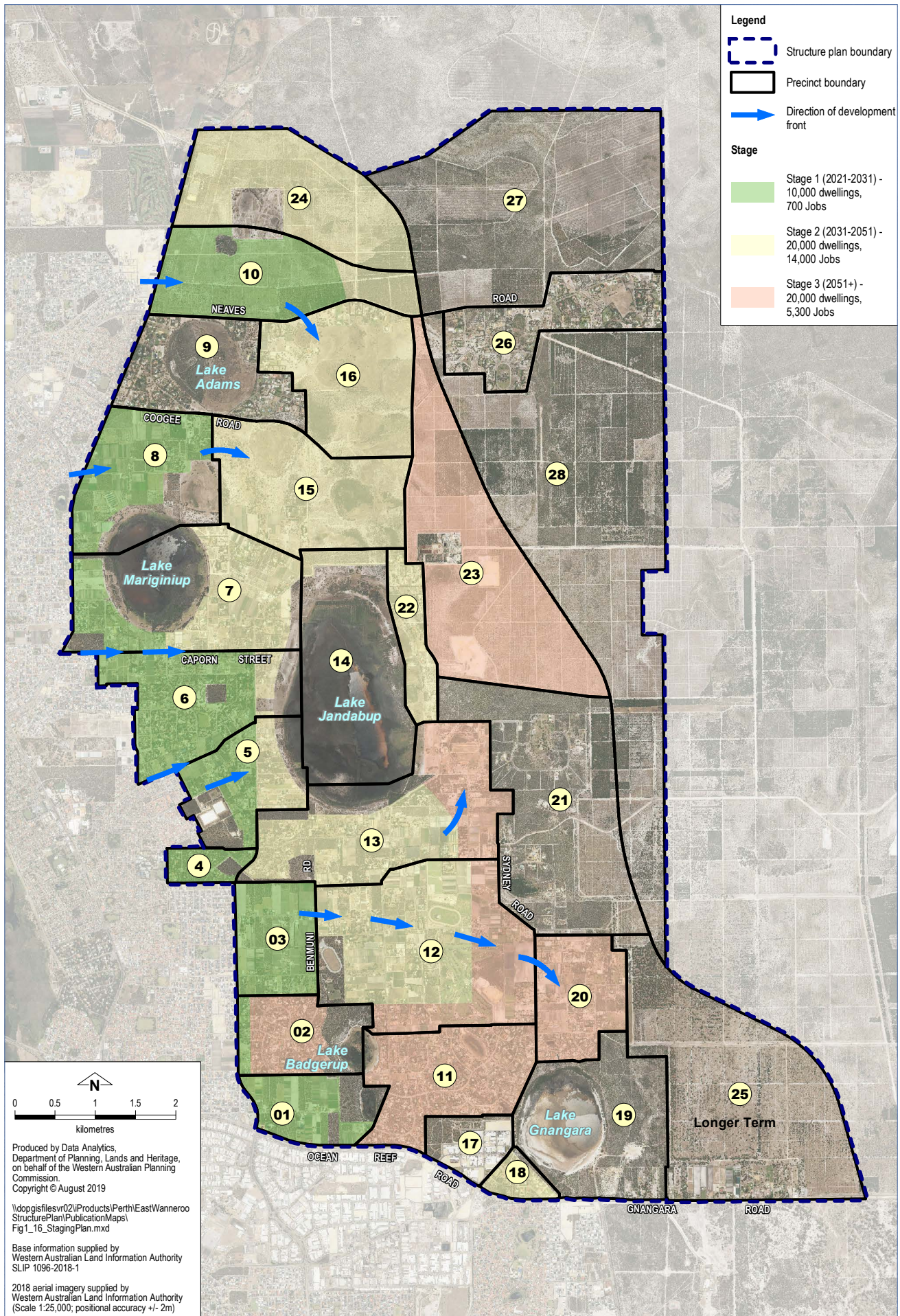


Figure 1.16: Staging Plan

Part Two: Explanatory Section

1 Introduction and Purpose

Part 2 of the East Wanneroo District Structure Plan (EWDSP) explains the rationale and provides guidance and information to inform and assist with the subsequent stages of planning, and in particular, the preparation of local structure plans (LSP). These issues and information requirements are based on the technical information gathered for the EWDSP and are not exhaustive. Other issues may arise and need to be resolved as part of detailed investigation at the LSP stage.



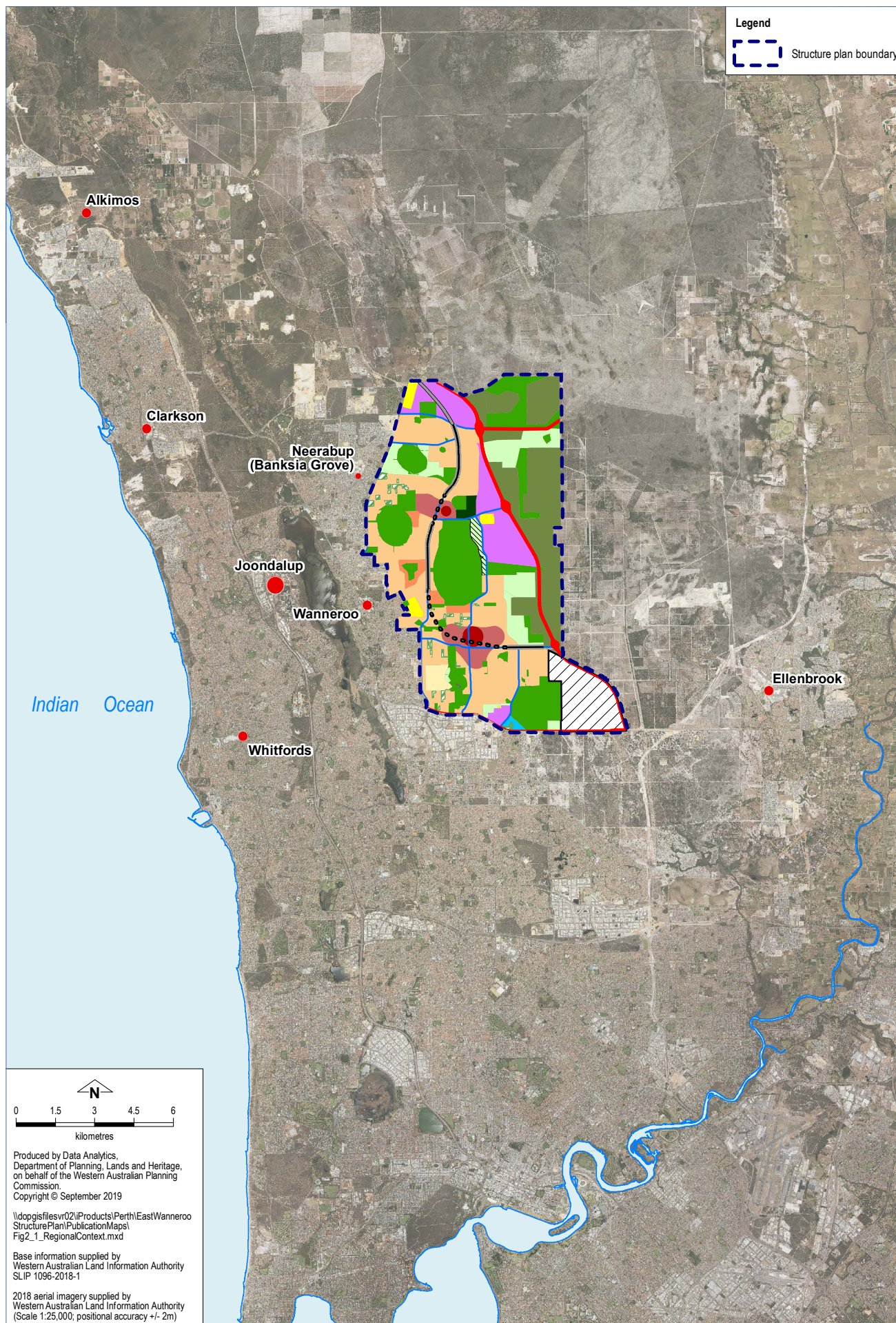


Figure 2.1: Regional Context

2 Background Studies

The preparation of the EWDSP has been informed by the following reports:

- Integrated Water Management Framework (RPS July 2019) – Appendix A
- Environmental Assessment Study (Emerge - October 2018) – Appendix B
- Strategic Bushfire Hazard Level Assessment (Lush Bushfire and Planning) – Appendix C
- Community Facilities Plan (City of Wanneroo April 2019) – Appendix D
- East Wanneroo District Rail Alignment – Land Reservation Study (Arup - August 2018) – Appendix E
- Road Planning Study (Cardno - August 2019) – Appendix F
- East Wanneroo Economic Development and Employment Study (Far Lane November 2018) – Appendix G
- Engineering Servicing Report (Cossill Webley - January 2019) – Appendix H
- Assessment of Proposed Environmental Outcomes (August 2019) – Appendix I
- Preliminary Environmental Assessment of Planning Investigation Areas (October 2018) – Appendix J

3 Existing Land Use

The EWDSP area comprises approximately 8300ha within the localities of Wanneroo, Mariginiup, Gnaragarra, Jandabup and Pinjar. It is located about 25km north of the Perth CBD and is about 12km north to south and 7km east to west. Figure 2.1 shows East Wanneroo in a regional context. The EWDSP sits adjacent to the existing urban areas of Banksia Grove, Tapping, Sinagra, Wanneroo - including the Wanneroo town centre, Hocking, Pearsall and the Wangara industrial area. The area is currently a mix of rural type land uses including market gardening, equestrian activities, broad acre grazing and rural lifestyle properties. It is characterised by a highly fragmented pattern of land tenure which is particularly pronounced in its southern half.

The area comprises numerous wetlands and lakes sitting within an ancient system of dunes which contains significant pockets of remnant native vegetation.

The area includes a number of local recreation facilities that service a wide population catchment. Local sporting grounds and facilities are located at Edgar Griffiths Park. Equine uses including the Nanovich Park trotting track and the Wanneroo Horse and Pony Club are located in the southern part of the EWDSP area within Parks and Recreation reserves. The Lakelands Country Club (Inc.) Golf Course is located in the central southern part of the EWDSP area.

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Extensive parts of the EWDSP area to the north and east, are basic raw material (sand) extraction areas. Much of this is located on land reserved as State Forest and is the subject of mining tenements and leases. Figure 2.2 shows areas of the EWDSP that are affected by the presence of BRM extraction and existing poultry farms.

The Environmental Protection Authority's Guidance for the Assessment of Environmental Factors: Separation Distances between Industrial and Sensitive Land Uses (2005) includes recommendations for separation distances between residential areas and these activities. Draft SPP 2.4 Basic Raw Materials provides the following general guidance on the separation distance to be applied from quarrying operations:

- 300-500 metre buffer for sand and limestone quarries.



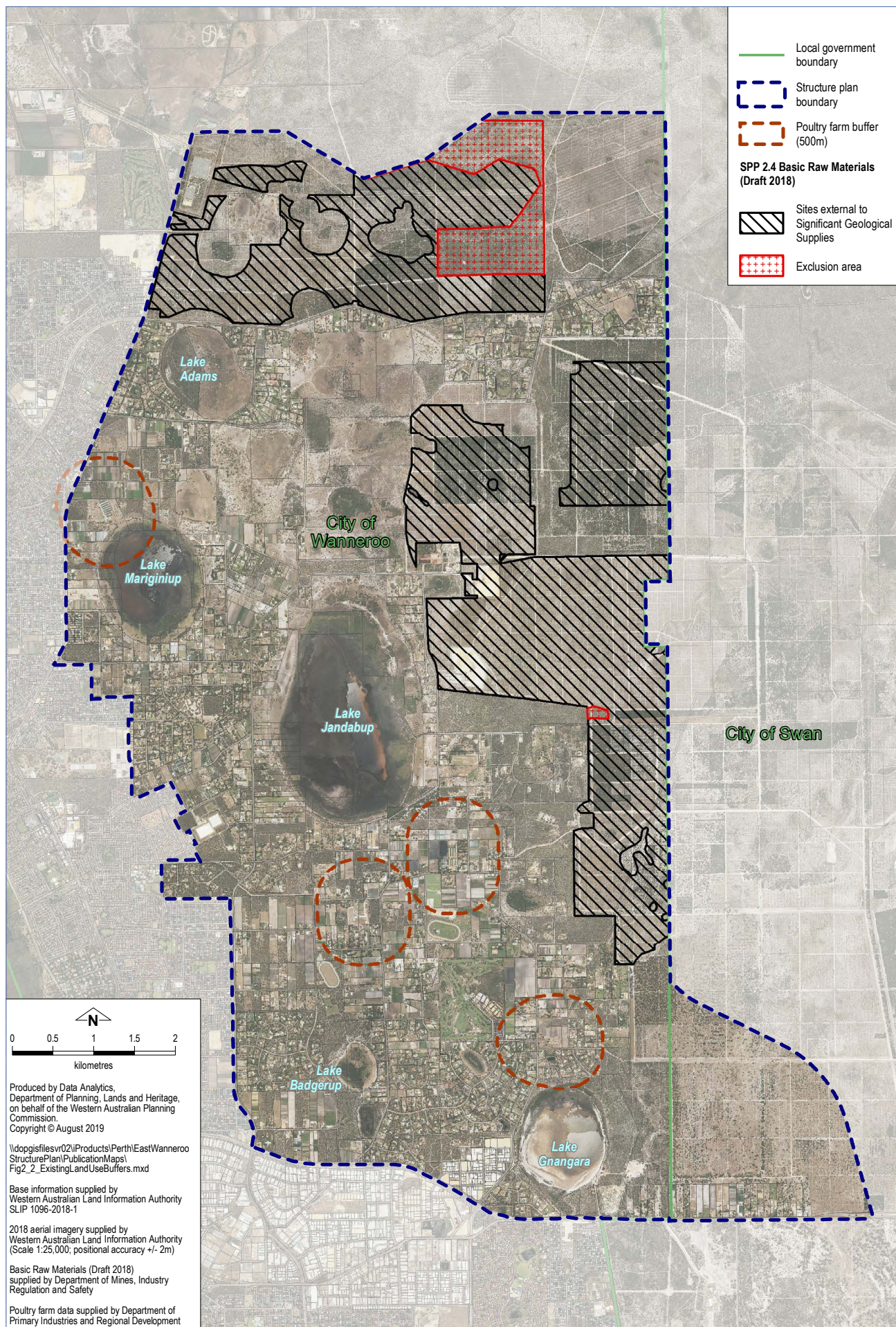


Figure 2.2: Existing Land Use Buffers

4 Planning Framework

4.1 Regional and Sub-Regional Planning

4.1.1 Perth and Peel @ 3.5 million and the Northwest Sub-Regional Planning Framework

The *North-West Sub-regional Planning Framework* (Sub-regional Framework) was delivered as part of the suite of documents prepared under *Perth and Peel @ 3.5million*. The Sub-regional Framework provides guidance for managing urban growth and achieving the increased urban consolidation and residential housing diversity required to accommodate the anticipated long-term population growth in the North-West sub-region. The key land use proposals relevant to the study area are illustrated in Figure 2.3.

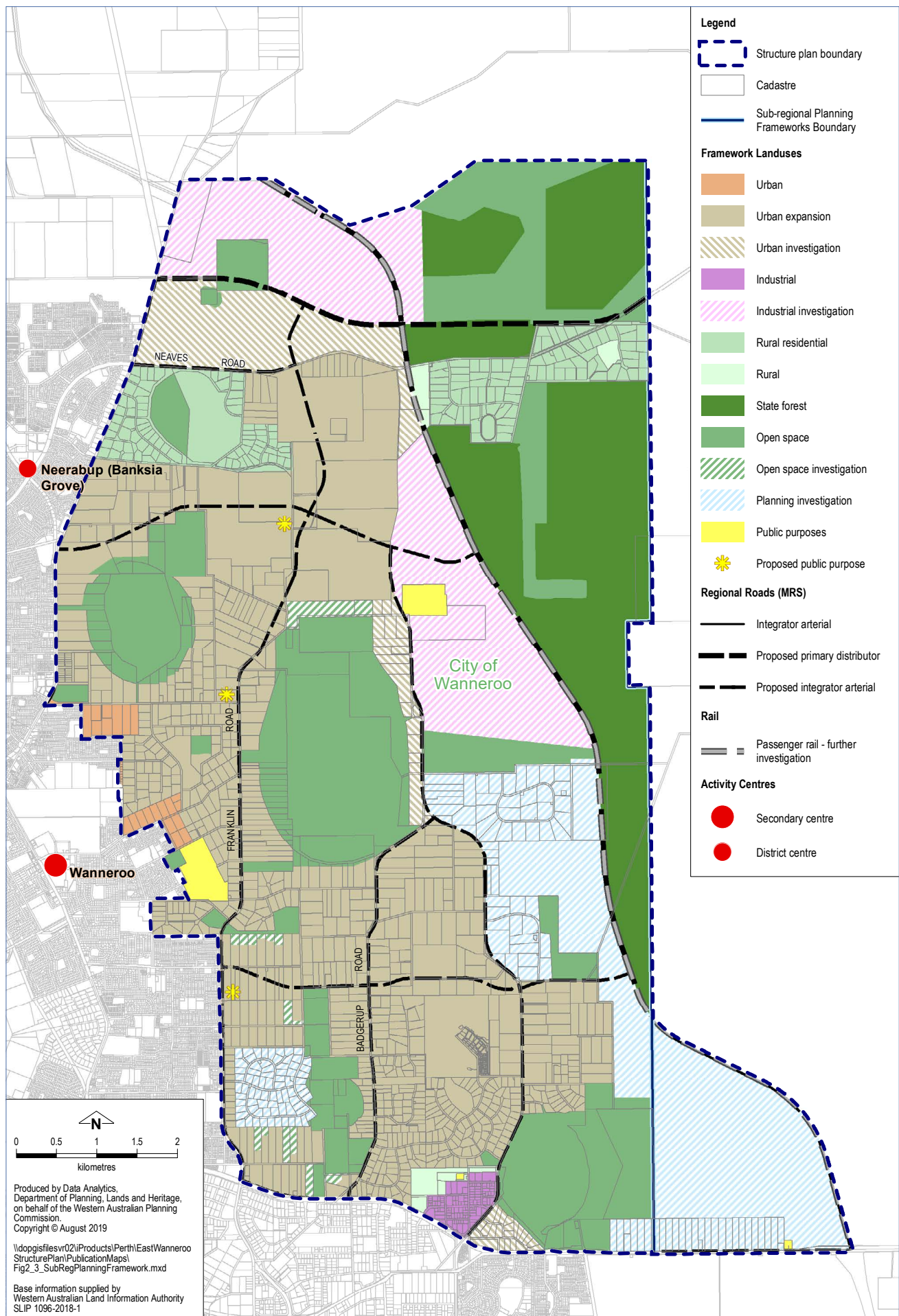


Figure 2.3: Sub-Regional Planning Framework

4.1.2 East Wanneroo Structure Plan (2011)

The East Wanneroo Structure Plan (EWSP) provided a high-level response to the opportunities, issues and constraints within the area and an implementation framework for early MRS amendments and district structure planning. The EWSP identified the East Wanneroo area for urban development as it represented a sustainable option making use of the area's proximity to existing infrastructure and services and strengthened the function of the Joondalup Strategic Metropolitan Centre and the Wanneroo Secondary Centre. The EWSP recommended that a district structure plan be prepared due to the multiplicity of landholdings in the area and the need to coordinate and stage the provision of required infrastructure and facilities.

4.2.2 City of Wanneroo District Planning Scheme No. 2 (DPS No. 2)

Under DPS No. 2, the East Wanneroo area is primarily zoned General Rural. However, other zones within the structure plan area include: Rural Resource, Special Rural, Rural Community, Private clubs/Recreation, and General Industrial. Local reservations are shown as Conservation, and Parks and Recreation. (see Figure 2.5).

4.2 Zoning and Reservations

4.2.1 Metropolitan Region Scheme

The MRS is the regional land use planning scheme for the Perth metropolitan area. The MRS defines the future use of land and prescribes planning rules for zones and reservations shown on the MRS Map. Figure 2.4 reflects the current MRS mapping relevant to the study area.

A large part of the EWDSP area is zoned Urban Deferred. However, some land is zoned Rural and Industrial. Several MRS reservations are also located within the study area. These include: public purpose (Water Authority of WA), Parks and Recreation, and State Forest. Ocean Reef Road, at the southern boundary of the structure plan area, is reserved under the MRS as other regional road.

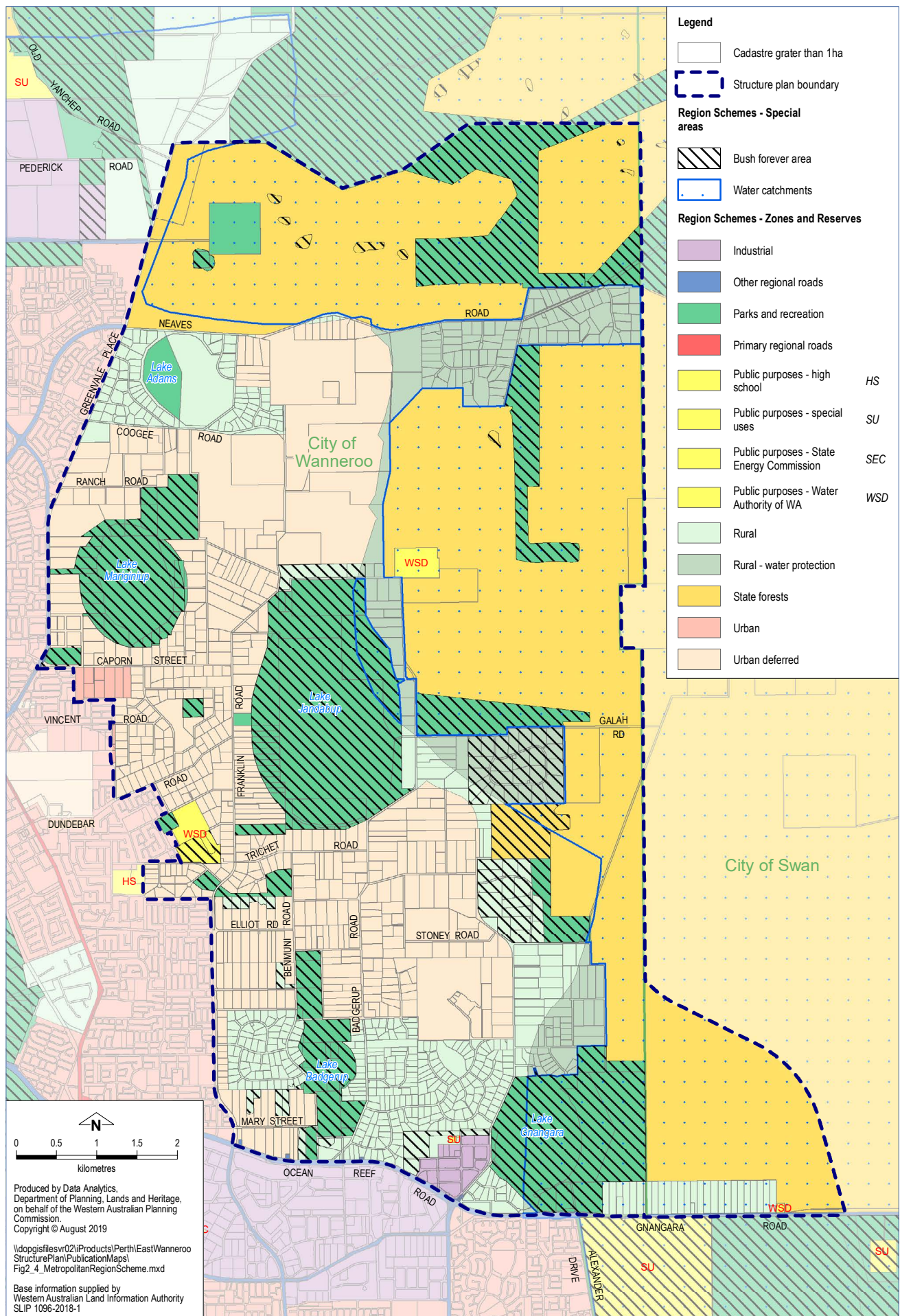


Figure 2.4: Metropolitan Region Scheme

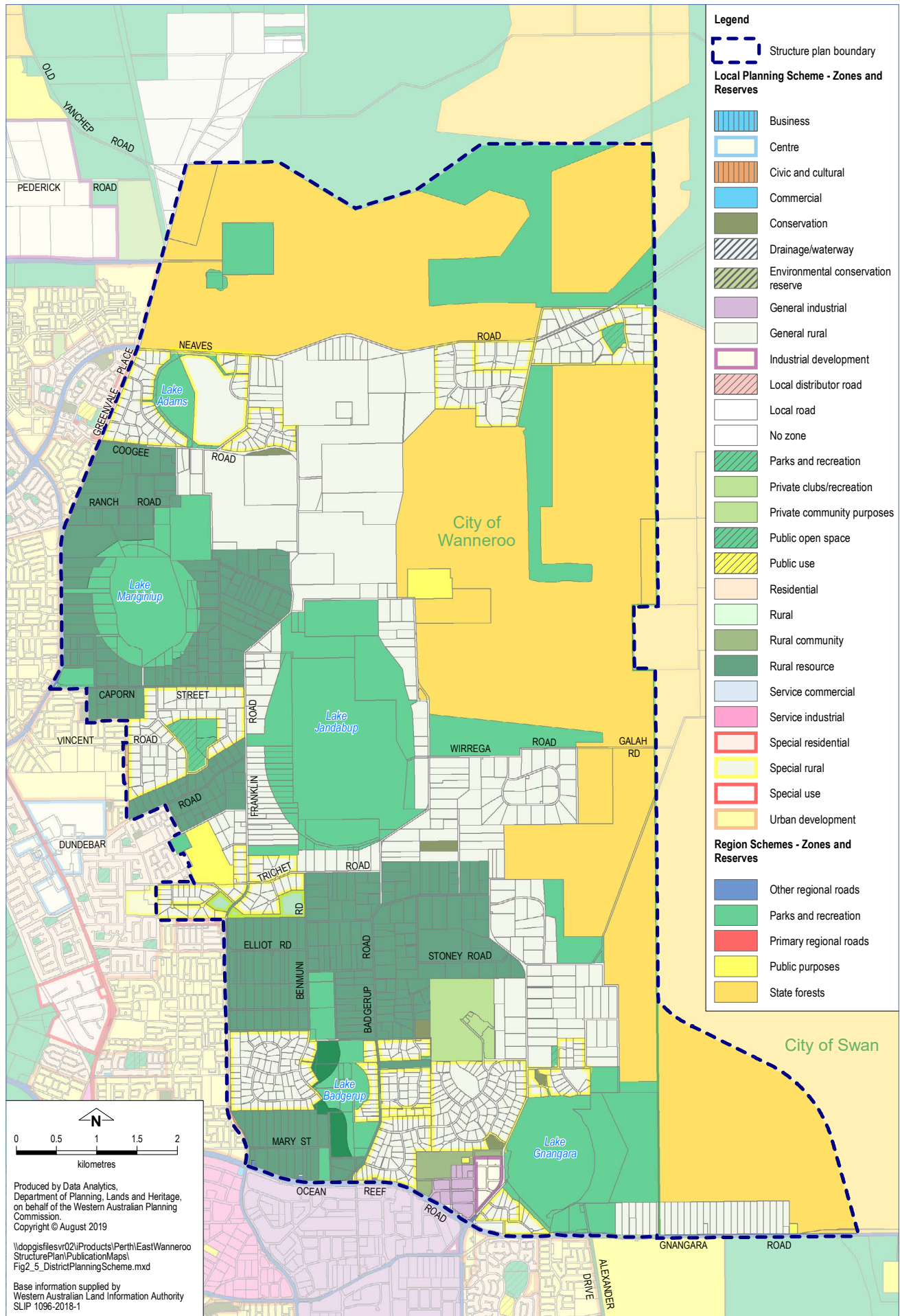


Figure 2.5: City of Wanneroo District Planning Scheme No. 2

4.3 State Planning Policies

The following State planning policies are relevant to the East Wanneroo area and have significantly shaped this district structure plan:

- State Planning Policy 2 - Environment and Natural Resources (SPP 2)
- State Planning Policy 2.2 - Gnangara Groundwater Protection (SPP 2.2)
- State Planning Policy 2.4 - Basic Raw Materials (SPP 2.4)
- State Planning Policy 2.5 - Rural Planning (SPP 2.5)
- State Planning Policy 2.7 - Public Drinking Water Source (SPP 2.7)
- State Planning Policy 2.8 - Bushland Policy for the Perth Metropolitan Region (2.8)
- State Planning Policy 2.9 - Water Resources (SPP 2.9)
- State Planning Policy 3.0 - Urban Growth and Settlement (SPP 3)
- State Planning Policy 3.5 - Historic Heritage Conservation (SPP 3.5)
- State Planning Policy 3.6 - Development Contributions for Infrastructure (SPP 3.6)
- State Planning Policy 3.7 - Planning in Bushfire Prone Areas (SPP 3.7)
- State Planning Policy 4.2 - Activity Centres for Perth and Peel (SPP 4.2)
- State Planning Policy 5.4 - Road and Rail Transport Noise and Freight Considerations in Land Use Planning (SPP 5.4)
- State Planning Policy 7 - Design of the Built Environment (SPP 7)
- State Planning Policy 7.3 - Design of the Built Environment: Residential Design Codes Volumes 1 and 2 (SPP 7.3)

4.3.1 Liveable Neighbourhoods

Liveable Neighbourhoods (LN) is an operational policy which guides the design and assessment of structure plans (regional, district and local) and subdivision of new urban areas.

The EWDSP is informed by LN and it will be the primary planning policy for the assessment of neighbourhood design and layout at the local structure planning and subdivision stages.

The EWDSP supplements LN with additional provisions that respond to local characteristics and the vision for the area.

4.4 Consultation

The EWDSP has been produced with the benefit of, and input from, a Steering Group of key government agencies, specialist consultants working on behalf of the Department of Planning, Lands and Heritage, the City of Wanneroo, a community reference group, and the Whadjuk Working Party

The Steering Group included representatives from the following State agencies:

- Department of Water and Environmental Regulation (DWER)
- Department of Biodiversity, Conservation and Attractions (DBCA)
- Department of Fire and Emergency Services (DFES)
- Department of Education (DoE)
- Department of Health (DoH)
- Department of Transport (DoT)
- Public Transport Authority (PTA) / METRONET
- Main Roads Western Australia (MRWA)
- Water Corporation
- Western Power

A Community Reference Group (CRG) was established and comprised a cross-section of local residents from the East Wanneroo area. Two workshops, coordinated by the Department

of Planning, Lands and Heritage, were held in 2018 to establish a community-led vision and objectives for the EWDSP area. Information from these workshops has been used to inform the vision and objectives of the EWDSP.

Information gathered from these forums and specialist studies, as well as site visits have combined to enable the identification of opportunities, constraints and key issues affecting the area.

The EWDSP will be further refined based on the submissions received during advertising.

5 Existing Land Conditions

5.1 Landform, Landscape and Soils

The East Wanneroo area is situated at the transition between the Spearwood Dunes and Bassendean Dunes. The Spearwood Dunes system runs north-south through the western part of the EWDSP area and typically consists of sand over limestone, with undulating terrain. The Bassendean Dune system is characterised by lower relief, with variable depth to groundwater, consisting of low sandy hills interspersed with a chain of permanent and seasonal wetlands. Surface elevations range from approximately 45 metre Australian Height Datum (AHD) in low-lying wetlands to 100 metre AHD on the western boundary of the site. As the site is a dunal system, there are several high and low points. Figure 2.6 shows the main elements of landform and topography.

The EWDSP is a highly variable landscape including rural market gardens, bushland areas, high vegetated ridges and low-lying rural grazing lands. The highest quality landscape elements are associated with the transition between the Spearwood and Bassendean landforms. This provides for significant views eastward over Lake Jandabup and beyond to the Darling escarpment in the distance. The higher elevations of the Spearwood system have significant stands of remnant vegetation, particularly in the High Road/Trichet Road area and around Edgar Griffiths Park. These vegetated ridgelines are visible from many parts of the EWDSP area, particularly Lenore Road, Franklin Road and from the north-east.

Lake foreshore areas and wetlands are also highly scenic environments, providing a range of environments from heavily forested wetland vegetation to open flat areas with long views. The north-western foreshore of Lake Jandabup offers a large spacious area of open land with high scenic value.

The wetland chain is also associated with acid sulfate soils occurring within three metres of the surface. The western part of the area has no known risk of acid sulfate soils. There are no registered contaminated sites within the EWDSP area, however current and past intensive agricultural uses may have resulted in contamination through the use of pesticides, herbicides and fertilisers. The preparation of LSPs will need to further investigate the potential risks arising from acid sulphate soils and contamination from historical land use activities.



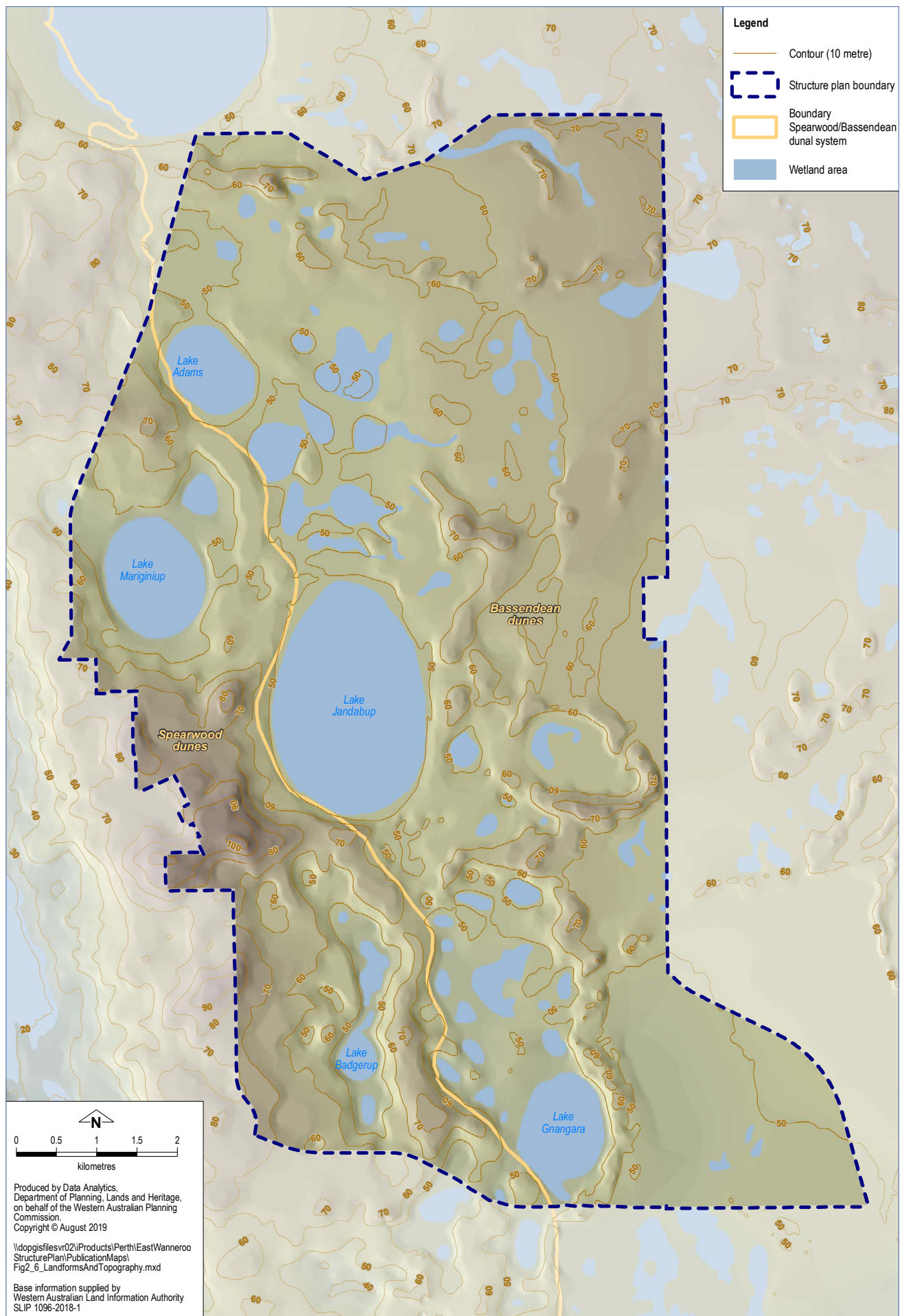


Figure 2.6: Landforms and Topography

5.2 Water

The EWDSP is characterised primarily by a series of groundwater dependant lakes and wetlands. The largest lakes form a chain at the base of the Spearwood Dunes. Smaller lakes and wetlands are interspersed between the flatter Bassendean Dunes. The larger lakes are Conservation Category Wetlands, have good fringing vegetation and are well protected as Parks and Recreation reserves under the MRS. Smaller wetlands are in varying condition and include resource enhancement and multiple use wetlands. (Figure – 2.7 Wetland Classifications)

There are no streams, creeks or major drains in the EWDSP area. Stormwater runoff generally flows via undefined overland flow paths until it infiltrates into the groundwater system. The groundwater system flows from east to west, surfacing at the lakes and wetlands supporting their ecological values. Monitoring of these wetlands has shown a decline in water levels over the past 30 years due mainly to horticultural abstraction, abstraction for public water supply, a reduction in rainfall and the existence of pine plantations in State Forest areas. The groundwater decline has stabilised in recent years due to the harvesting of these plantations and direct recharge back into the groundwater.

The structure plan area is made up of 94 water catchments, 41 of which drain internally to Conservation Category Wetlands (CCWs) or Resource Enhancement Wetlands (REWs), 43 drain internally to localised depressions, and 10 catchments discharge to points outside of the area.

The site is located within the Gnangara groundwater system which is a major source of drinking water for the Perth metropolitan area. The system incorporates the superficial Mirrabooka, Leederville and Yarragadee aquifers. Many groundwater management sub-areas within the system are currently over-allocated.

There are 17 Water Corporation abstraction bores within the EWDSP area and a Water Corporation groundwater treatment plant located to the north-east of Lake Jandabup. Eastern parts of the EWDSP are classified mostly as Priority 1 (P1) water source protection areas (as explained in SPP 2.2 Gnangara Groundwater Protection) with some Priority 2 and 3 areas.

An Integrated Water Management Framework (**Appendix A**) has been prepared which explains the prevailing hydrological conditions within the EWDSP area and establishes the water management principles to be applied as the area is developed.



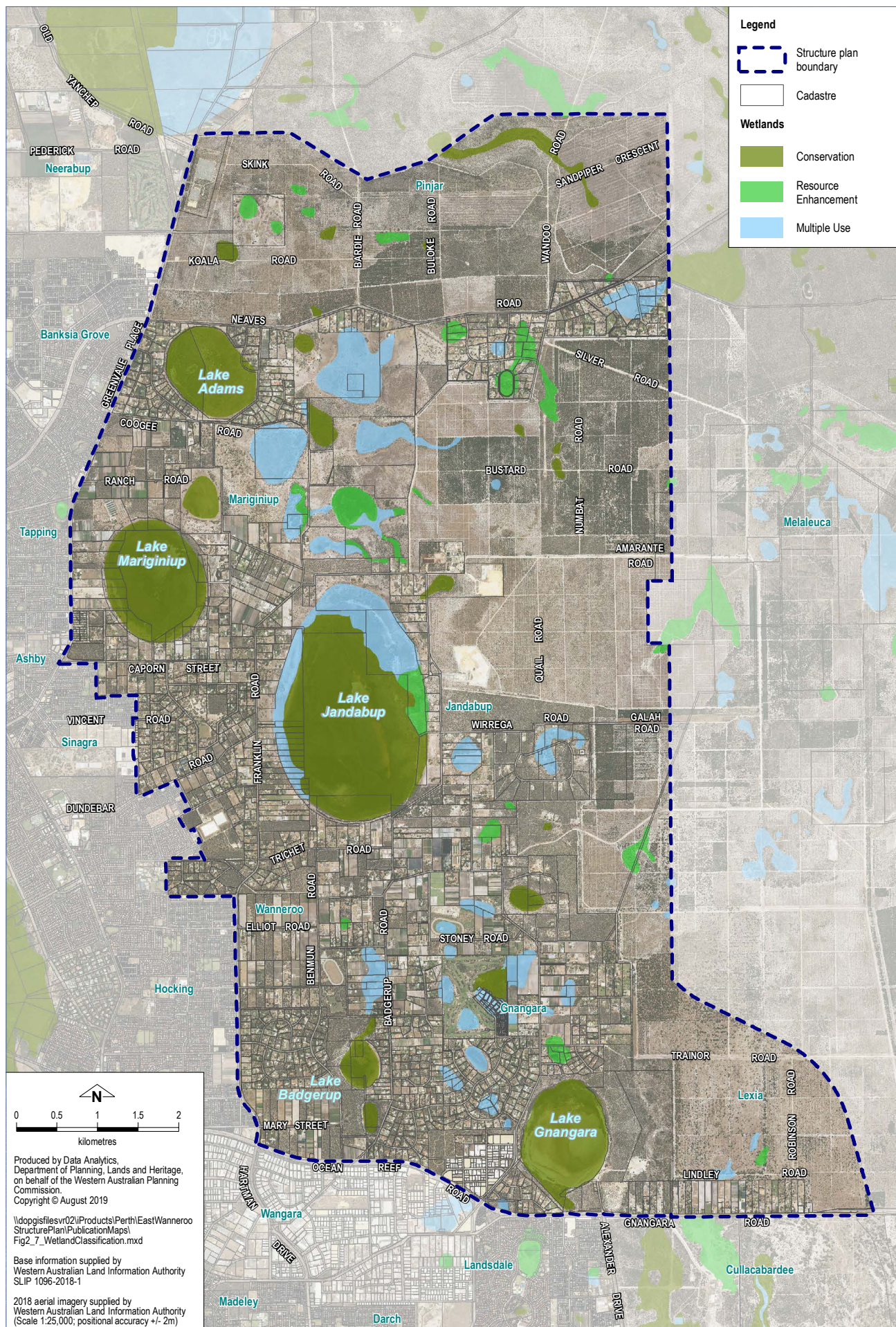


Figure 2.7: Wetland Classification

5.3 Remnant Bushland and Biodiversity

Approximately 20 per cent of the EWDSP area is remnant vegetation. An Environmental Assessment Study (EAS) (**Appendix B**) was undertaken to provide a broad scale assessment of the environmental values present. The assessment, desktop analysis and roadside observation, provides reliable information on the potential presence and likely distribution of these values. Further detailed flora and fauna surveys will be required at the local structure planning stage to confirm the full extent of these values.

The area contains a range of Floristic Community Types (FCT) including Banksia Woodlands and Tuart Woodlands (TW) which are listed as Threatened Ecological Communities (TEC) under Federal environmental legislation.

A subset of Banksia Woodland – known as FCT 20a – is likely to occur in the southern and western parts of the EWDSP area. FCT 20a is a type of Banksia Woodland with an understorey of high biodiversity and species richness and is listed as a TEC under State environmental legislation.

The area contains a diverse range of vegetation complexes, some of which are now represented, on the Swan Coastal Plain, at less than 30 per cent of their original extent before European settlement. These include the Karrakatta Central and South, Bassendean Central and South and the Pinjar Complex. Opportunities exist for these vegetation complexes to be protected and rehabilitated.

The EWDSP proposes a Parkland network which will protect a significant portion of the remanent vegetation present. Opportunities for rehabilitation and increasing the extent of remanent vegetation are available through the Foreshore Management Plans prepared for wetlands. Local structure plan proponents should liaise with the WAPC on how this can be comprehensively achieved near where residential areas abut Parks and Recreation Reserves. In particular this will benefit the Pinjar vegetation

complex which is locally significant and is represented at less than 30 per cent of its pre-European settlement extent.

There are 82 geomorphic wetlands distributed across the area including 24 Conservation Category Wetlands (CCWs), 25 Resource Enhancement Wetlands (REWs) and 33 Multiple Use Wetlands (MUWs). A desktop review of wetlands has identified which of these may warrant reclassification or modification of their mapped extent.

A range of fauna species potentially occur including Chudtich, Quenda, various migratory and wetland bird species and Carnaby's Black Cockatoos. The area provides extensive foraging habitat for Black Cockatoos which generally aligns with Banksia Woodland vegetation.

Approximately 74 per cent of the native vegetation in the area is already protected through such mechanisms as Bush Forever sites, MRS Parks and Recreation reserves, local conservation reserves and conservation category wetlands. The EAS has additionally identified high value vegetation types which form larger, more ecologically viable patches and recommends these become Priority Areas for Further Investigation. The EAS also identifies regional ecological linkages based on existing protected areas and these Priority Areas. See Section 6.4 and Figure 2.13 for more detail.

5.4 Bushfire Hazard

The Strategic Bushfire Hazard Level Assessment prepared for the EWDSP area (Appendix C) identifies most of the area as currently containing extreme or moderate levels of bushfire hazard. The extent of the hazard will be significantly reduced as the area is progressively urbanised, however, significant hazards will remain particularly in the eastern parts of the EWDSP area close to pine plantations, large Bush Forever sites and conservation reserves. These constraints can be largely overcome by avoiding land use intensification in these areas.

Most areas of the structure plan considered suitable for urban development will still need to address bushfire hazards at the local structure planning stage because of their proximity to wetland and remnant bush areas. Detailed bushfire management plans prepared in accordance with SPP 3.7 will be required to be submitted as part of local structure plans. Necessary mitigation will include extending and connecting road networks and landscape treatments to ensure bushfire constraints and environmental values are appropriately balanced.

5.5 Aboriginal and European Heritage

5.5.1 Aboriginal Heritage

Archaeological evidence and oral tradition confirm that Aboriginal people have inhabited the Swan Coastal Plain and the adjoining Darling Scarp for over 40,000 years. Ethnographic and historical documents highlight the importance of wetlands to Noongar land use patterns, ceremonial cycles and mythological tracks.

There are 12 Aboriginal heritage places generally in the western and southern parts of the EWDSP area (Figure 2.8 Aboriginal Heritage Sites Map).

Eight of these have been assessed as being sites protected by the *Aboriginal Heritage Act 1972* (AHA) and appear on the Register of Places and Objects. The remaining four are yet to be formally assessed and may also be Aboriginal sites that are protected under the AHA. The value of these places to Aboriginal people warrants them being protected from unsympathetic development. Any disturbance to Aboriginal sites requires Ministerial consent in accordance with Section 18 of the *Aboriginal Heritage Act 1972*.

In addition to registered heritage sites, the EWDSP recognises the entire EWDSP area has been used by Aboriginal people for a variety of purposes, many of which are associated with the area's wetlands. The retention and enhancement of wetlands is therefore a critical part of recognising the significance the area holds for Aboriginal people. Consultation with the Whadjuk Working Party (as part of the South-west Aboriginal Land and Sea Council) is therefore required when local structure plans are being prepared so that this significance can find appropriate expression in the identity and sense of place created for different parts of the area.



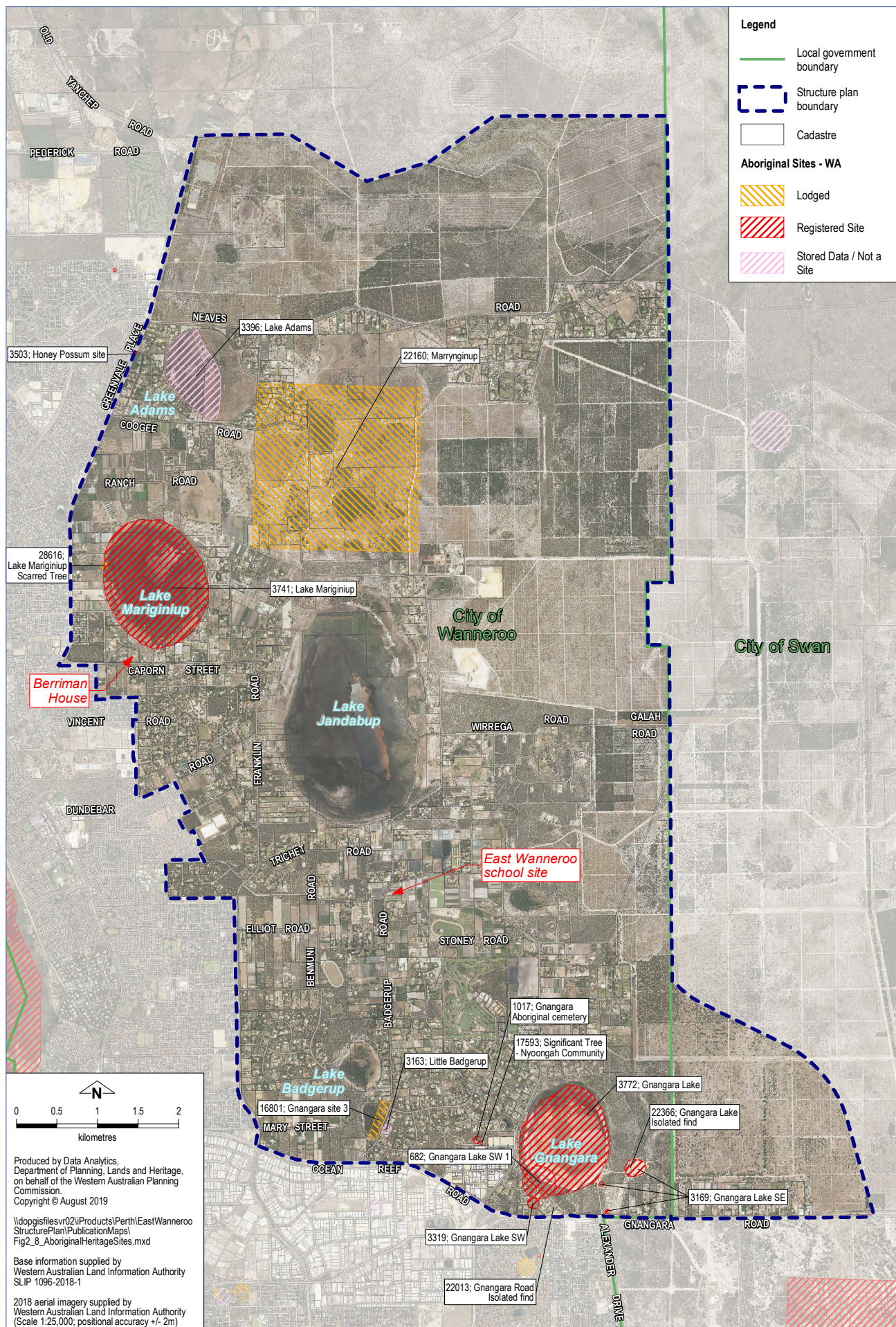


Figure 2.8: Aboriginal Heritage Sites

5.5.2 European heritage

Since European settlement, East Wanneroo has historically been characterised by farming. Initially used for broad acre grazing and grape growing, the area transitioned into market gardens over the latter part of the 20th century, and has provided livelihoods for various communities from southern and eastern Europe and South-East Asia.

The City of Wanneroo Local Heritage Survey (2016) identifies two sites of significance in the EWDSP area. Berriman House at 89 Caporn Road was constructed in 1914, and has significance as a simple and intact late federation-style residence associated with the early European settlement of the Mariginiup area. The East Wanneroo School site at 500 Badgerup Road, contained a one classroom school which has been relocated to Buckingham House.



6 District Structure Plan Response

6.1 Urban Structuring

The aim of the EWDSP is to deliver a coherent urban structure comprising compact and well connected, walkable neighbourhoods that are sensitively integrated with the natural environment. Walkable neighbourhoods are conceptually defined by a 400m radius representing the walking distance from a central point of community focus to the area's perimeter. They are positioned where the catchment is maximised and not disrupted by major environmental features or movement corridors (Figure 2.9 Walkable Catchments).

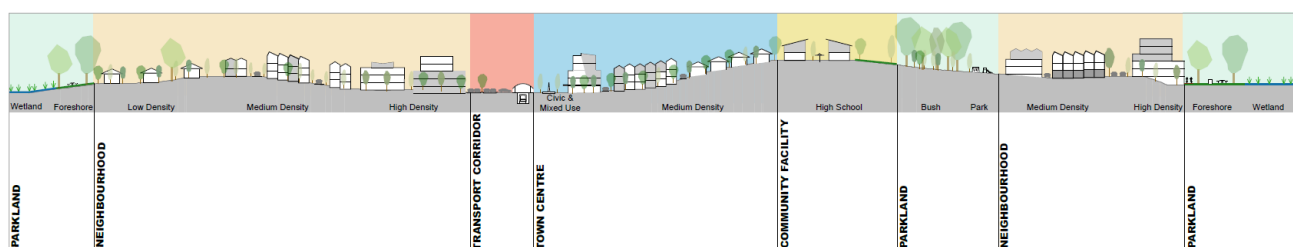
Neighbourhoods will provide predominantly for residential living with an identity derived from their relationship with natural features combined with the intended level of intensity of the built form. This will result in a diverse set of environments which transition from protected and enhanced natural settings, through to high-intensity urban neighbourhoods and activity centres, generating interest and providing wide housing choice.

Each neighbourhood is intended to have a focal point of social interaction provided in the form of a recreation node, parkland, primary school, local centre/corner store or a combination of

these. These focal points are also opportunities for higher density residential development to further promote social interaction. The natural environment is intended to be a prominent aspect of the new neighbourhoods created and every effort is to be made to retain features such as stands of mature trees, and local high points.

The analysis of urban opportunities across the structure plan area has identified the following strategic elements:

- Centres
- Urban Neighbourhoods
- Suburban Neighbourhoods
- Special Residential Neighbourhoods
- Character Areas



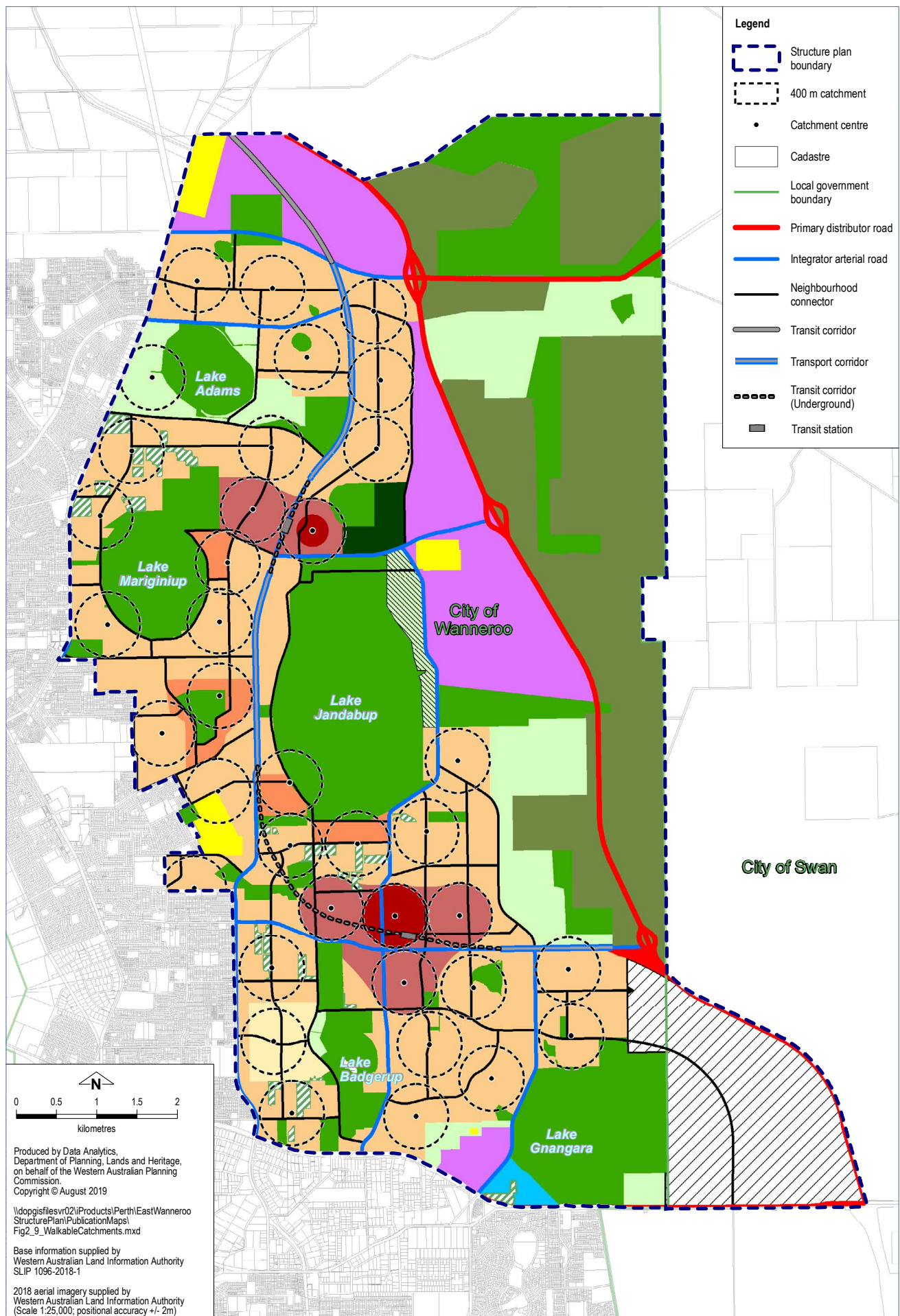


Figure 2.9: Walkable Catchments

6.1.1 Activity centres

The district and the neighbourhood activity centres will form the key focal points of commercial and social activity in East Wanneroo. They are positioned alongside transit stations to maximise opportunities for activation of land uses and transit patronage.

activity and employment for the East Wanneroo community and to provide for high density urban living in medium rise building formats.

The strategic considerations used to determine the positioning of the centre are summarised in the table below and Figure 2.10.

District centre

The district centre is located between Badgerup and Carmignani Road, to the north of the future east-west alignment of Elliot Road. It is intended to become the focal point of economic

Table 2.1: District centre positioning - strategic considerations

CRITERIA	Considerations
<i>Topographical features</i>	Topography and geotechnical conditions conducive to high-intensity development. Earthworks to be minimal.
<i>Hydrology - wetlands</i>	Low points and wetlands are available for drainage and high-amenity feature on the periphery.
<i>Walkable catchment</i>	The district centre is positioned to: <ul style="list-style-type: none"> i. maximise amount of developable land in its core (400m radius) ii. maximise development intensity around the transit station iii. maximise the opportunities for high-density living within 800m iv. provide for a high school site and a large civic park within walkable distance of the core.
<i>Access - land use integration</i>	The district centre is positioned to: <ul style="list-style-type: none"> i. be highly accessible but not dissected by integrator arterials; arterials on the edge of the centre are treated as slow-speed city streets ii. provide for a pedestrian focused retail core/main street iii. enable transit corridor and station to be situated below ground to maximise land use integration in the centre iv. facilitate large format retailing and showrooms located on integrator arterials for easy vehicular access and exposure.

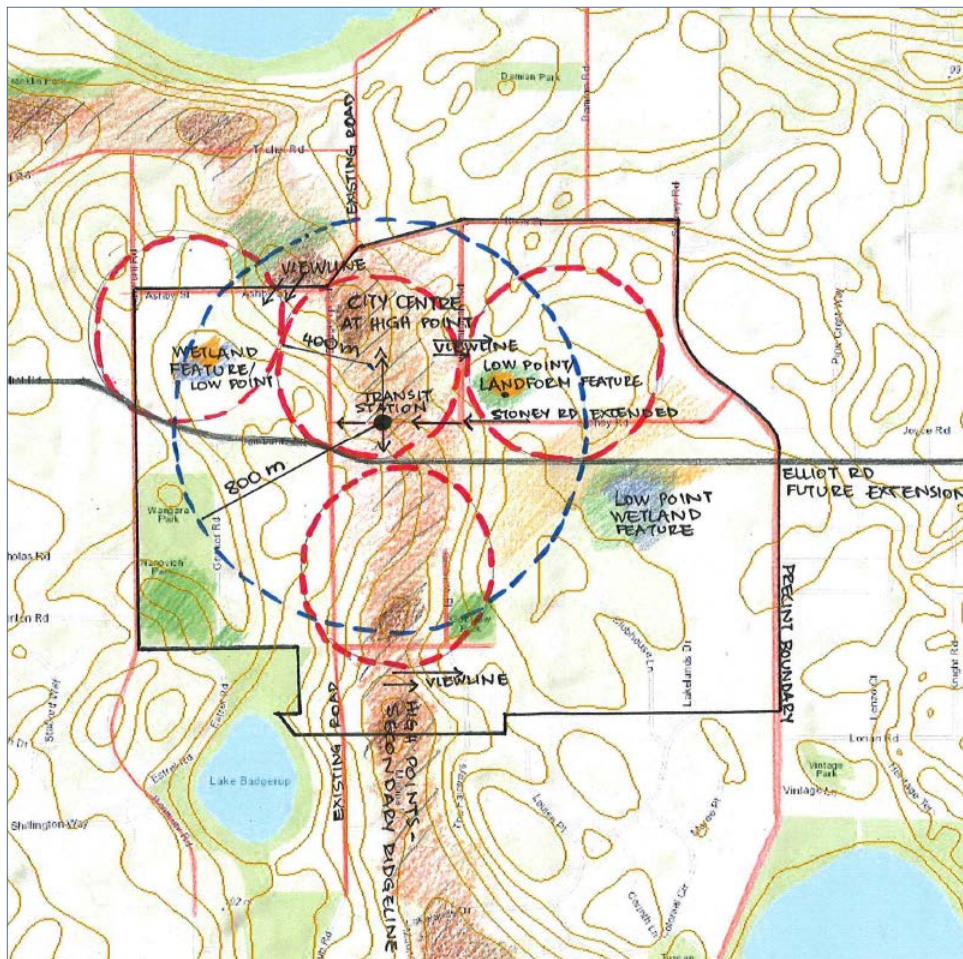


Figure 2.10: District centre strategic considerations

Economy and community activity

The district centre will service a substantial residential population and benefit from the significant number of passengers using the transit station. It will offer significant investment opportunities for shopping and services as well as healthcare, education, community and entertainment. The centre is expected to be developed in stages, with lower-intensity business activity and residential uses on the periphery in the mid-term, making way for higher-intensity uses and activity as the centre matures.

Based on projected floorspace demand, it is anticipated that the core economic activities will require a land area of about 20ha. A detailed economic analysis to establish viable and appropriate floor space requirements for the district centre, together with an employment strategy, are to be undertaken as part of local structure planning.

Retail uses requiring larger floorspace and window frontage are suitable for Badgerup and Elliott roads within mixed use building formats, for ease of access and business exposure from passing vehicle traffic. Drive-through and stand-alone large format commercial uses are not proposed in the district centre.

Table 2.2: Projected floor space demand for the district centre (m²/net leaseable area)

Land use	2031	2041	2050
Shops (retail)	4,089	12,519	30,563
Office	4,773	6,395	14,424
Health/community	2,800	3,349	8,382
Entertainment/cultural	481	253	758
Residential	374	481	1,016
Service industry	1,253	1,612	3,402
TOTAL (m²)	13,770	24,609	58,545

Source: Economic Development and Employment Study for East Wanneroo, FAR Lane, November 2018 (Appendix G)

Community facilities in the district centre will be consolidated in street-based building formats. A facility incorporating community centre, performing arts centre, library and art gallery is intended to anchor the northern end of the main street. An aquatic centre including an indoor recreation centre is to be situated on the north-east periphery of the centre appropriately integrated with surrounding residential uses and a high school.

Neighbourhood centre

The neighbourhood centre will be east of Rousset Road and north of the Lakeview Road extension connecting to the proposed Whiteman Yanchep Highway. It will become the focal point of commercial and community activity for the northern part of the district structure plan, and provide for residential living in medium-rise building formats.

The strategic considerations in determining the positioning of the centre are summarised in the table below and Figure 2.11.

Table 2.3: Community facilities in the East Wanneroo district centre

Facility	Requirements - Considerations
1 Community centre Performing arts centre (300) Library Art gallery	i. Co-locate these facilities in a consolidated building format. ii. Locate at the opposite (northern) end of Main Street from transit station as bookend. iii. Urban design - architectural response required to create a landmark building.
2 Aquatic centre and indoor recreation centre	i. Co-locate these two facilities in a consolidated building format. ii. Locate on the periphery of the district centre (not in the core) integrated within a street block format (not a campus style facility) with easy vehicle access, and careful integration with surrounding residential uses.

TABLE 2.4: Neighbourhood centre positioning - strategic considerations

CRITERIA	Considerations
<i>Topographical features</i>	Topography and geotechnical conditions should be conducive to high-intensity development with earthworks to be minimal.
<i>Hydrology - wetlands</i>	Wetlands to be preserved on the periphery of the centre as a landscape feature and for drainage.
<i>Walkable catchment</i>	The neighbourhood centre is positioned to: <ul style="list-style-type: none"> v. maximise developable land in its core (200m radius) and surrounding urban frame (400m radius) vi. be in close proximity with a direct line of sight to the transit station on its western edge.
<i>Access - land use integration</i>	The neighbourhood centre is positioned to: <ul style="list-style-type: none"> i. be highly accessible from a neighbourhood connector but not dissected by arterial road or transit infrastructure ii. enable the transit corridor to be below ground for better integration with adjacent urban uses iii. deliver a mixed-use street linking the centre with the transit station iv. provide direct street linkage between the neighbourhood centre and the proposed Regional Sporting Complex to the east.

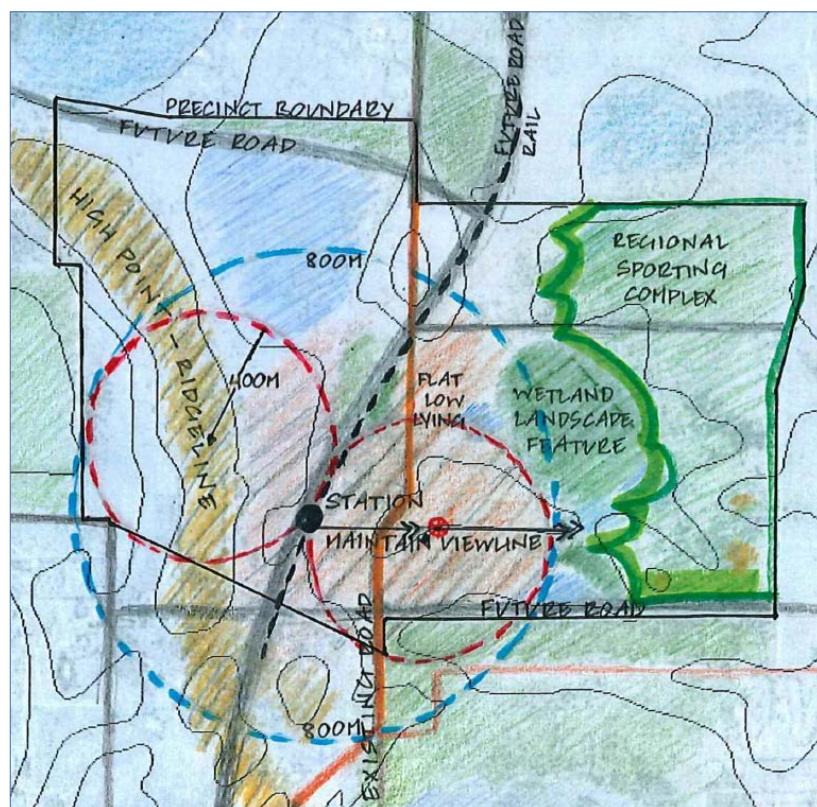


Figure 2.11: Neighbourhood Centre Strategic Considerations

Economy and community activity

The neighbourhood centre is anticipated to be developed before the district centre, as a sizeable residential catchment in the north-western part of the structure plan is likely to be developed in the short term. The centre will serve as a hub for community activity and day-to-day shopping for local residents, centred around a pedestrianised main street.

In addition to its retail and commercial uses, the centre will provide community, education and health services, in combination with residential living. An estimate of retail and office floorspace demand in the neighbourhood centre is presented below.

Community facilities

The neighbourhood centre will include a **library and a community hub**, anchoring the main street. Sports facilities (multipurpose hard courts) are to be provided in Parkland outside the core of the centre. These facilities should be co-located with other recreational facilities (cafe, restaurant, for example) adjacent to the Parklands area, and the Regional Sporting Complex to the east.

6.1.2 Urban neighbourhoods

Urban neighbourhoods are proposed to be medium to high-density residential areas located adjacent to activity centres. They will provide medium-rise apartment or townhouse living in a fine grain building format. The EWDSP proposes

three urban neighbourhoods surrounding the district centre and two urban neighbourhoods surrounding the neighbourhood centre.

The urban neighbourhoods located close to the district centre offer diverse opportunities based on topography and spatial relationship to the district centre:

- The urban neighbourhood situated east of the centre presents an opportunity to create a city park at a natural low point in the landscape and to make this a central feature. A high school and an indoor recreation/aquatic facility are intended in the northern part of this neighbourhood in multi-storey building (as opposed to campus) formats. Apartment buildings are intended along Elliot Road, set back and landscaped to create high residential amenity.
- The urban neighbourhood between Badgerup Road and Golfview Place to the south of the district centre is intended to capitalise on the high point in the landscape and views to the east. Along Elliott Road, land uses are intended to be mixed use in built formats mirroring the northern side of the road.
- The urban neighbourhood to the west of the district centre will transition from the mixed-use, large format retail buildings fronting Badgerup Road, to residential uses. Land immediately north of Elliot Road provides the opportunity for drive-through uses. Careful integration with residential uses to the north will need to occur through appropriate layout and built form design considerations.

TABLE 2.5: Projected commercial floor space yields within the East Wanneroo neighbourhood centre (m²/net leaseable area)

Land use	2031	2041	2050
Shops (retail)	2094	1786	4181
Office	920	785	1838
TOTAL (m²)	3,014	2,571	6,019

Source: Economic Development and Employment Study for East Wanneroo, FAR Lane, November 2018 (Appendix G)

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The urban neighbourhoods located close to the neighbourhood centre will have a strong relationship with the transit station and surrounding natural features:

- The urban neighbourhood framing the neighbourhood centre will provide for mixed-use development along a main street that connects to the transit station. It will provide direct links through to the Parkland feature and the regional sporting fields to the east.

- The urban neighbourhood west of Franklin Road will cater for a high school close to Lakeview Road. Its layout should provide an appropriate interface to Parkland at Little Mariginiup Lake and integrate well with the character area to its south-west.

Local structure plans for urban neighbourhoods will include detail about the intended urban form, including street blocks, lot layout and dwelling types.



6.1.3 Suburban neighbourhoods

Suburban neighbourhoods make up a large part of the EWDSP area. Their character will derive from topography and proximity to natural features which include undulating areas with significant views, level areas for recreational opportunities, neighbourhoods in bushland settings and lakefront amenity. The predominant built form will be single detached dwellings with building setbacks providing for mature trees, rainfall infiltration, children's play, domestic utility and neighbour interaction.

More intense medium-density housing is appropriate adjacent to public open space where reduced private open space is offset by proximity to Parkland. Medium-density terrace (rear access) housing is encouraged along transport corridors and medium-density apartment living around local centres. Liveable Neighbourhoods provides guidance on the design and layout of suburban neighbourhoods and Section 8 of the EWDSP identifies the character elements for individual precincts.

6.1.4 Character areas

Character areas are identified where strong environmental or topographic features provide distinctive opportunities for sensitively designed residential areas.

Lake Jandabup Southern Ridge

The southern shore of Lake Jandabup abuts a pronounced high point in the Spearwood dune creating steeply sloping land with excellent northerly and north-easterly views across the lake to the Darling Escarpment. An opportunity exists to create a residential environment utilising the topography to maximise these views. The local road network should follow the slope to connect Trichet Road with a new foreshore road.

Housing here is proposed to be medium-density, terraced townhouses with small dwelling footprints, ensuring terracing respects the landform.

Belgrade Road Lakeside

A local centre is proposed adjacent to the south-eastern foreshore of Lake Jandabup to take advantage of local traffic using the proposed foreshore road. There is an opportunity to position a primary school alongside the centre to help create a focal point of community activity. The foreshore itself is forested and suited to passive recreation. The local centre and primary school should be positioned on higher, level ground to gain views across Lake Jandabup. Medium to high-density residential development will add vibrancy to the centre and can be located on steeper land utilising small building footprints.

Edgar Griffiths Park

Edgar Griffiths Park is already a well-used community asset. Land surrounding the park is identified for medium-density residential development comprising attached terraced housing, two to three-storeys in height with vehicular access arrangements being from the rear.

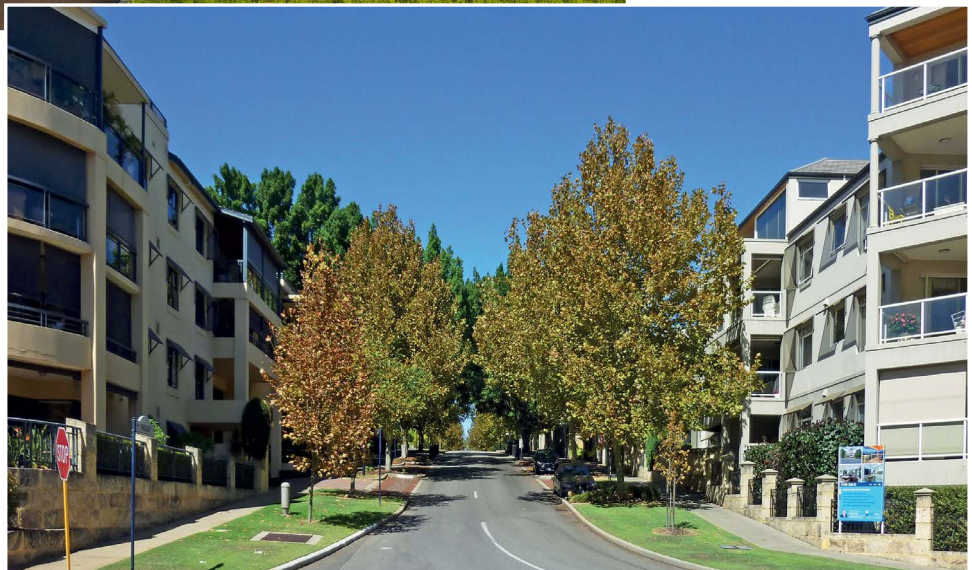
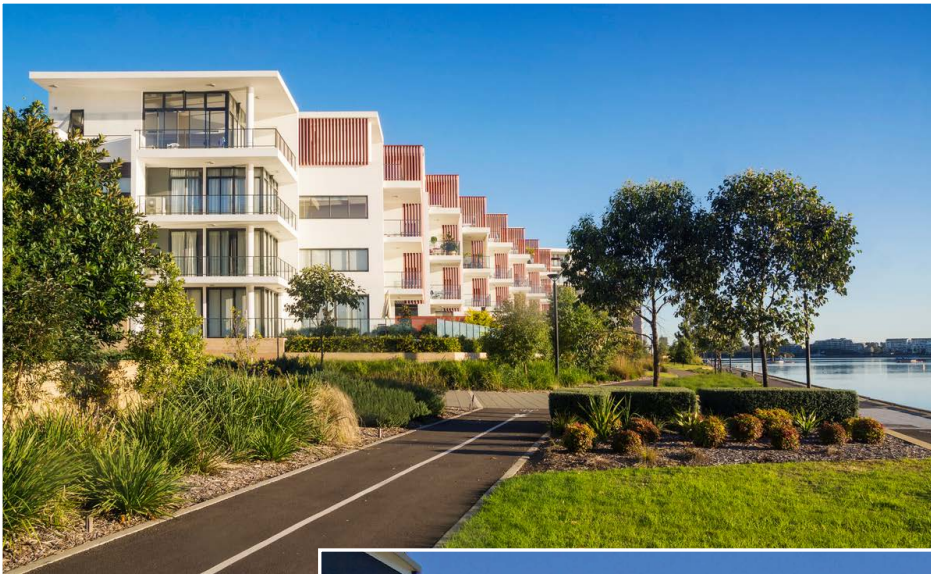
The area east of Casuarina Way is appropriate for taller buildings taking advantage of eastern views across Lake Jandabup towards the Darling Escarpment. Development in this area should be detached with space between buildings for landscaping. Significant trees should be kept within development sites and road reserves to maintain the existing landscape character and local roads should be oriented to facilitate view corridors. A local centre located along Garden Park Drive would contribute to vibrancy and activity within and around the park.

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Mariginiup Lakes

This **character area** sits adjacent to the eastern and southern margins of Mariginiup Lake and Little Mariginiup Lake respectively. The area is characterised by prominent stands of trees, large generally open foreshore areas and gently undulating topography. The area presents an opportunity for higher-density residential living which retains existing vegetation and incorporates measures to protect and enhance the lake environments. Apartments should form a significant part of the dwelling mix throughout this area, particularly fronting the lakes.



6.1.5 Special residential areas

A large portion of Precinct 2 (Bebich Drive) is an area of rural lifestyle lots generally 1 ha in size containing various housing types, extensive gardens, remnant trees and vegetation and providing for equine activities and other rural hobbies. There is the opportunity to retain these intrinsic values while allowing a limited amount of further subdivision. The EWDSPP identifies this as a **special residential area** where lot sizes of 2000m² or larger are appropriate to respond to existing environmental and character features.

6.1.6 Residential density

The diversity of residential environments proposed for the EWDSPP area provide a wide range of housing types. High-density residential development is suitable close to activity centres catering for many different affordability requirements, with lower densities providing for lifestyle choice.

The dwelling targets identified for the precincts shown in Figure 1.15 are based on the average density targets below in Table 2.6.

The density ranges (low-medium-high) referred to in this document correspond to the Rcodings (Table 2.7) used in State Planning Policy 3.1.

Table 2.6: Dwelling targets

Neighbourhood classification	Density target (dwellings/ gross ha)	Density
District Centre	30	High
Neighbourhood Centre (200m)	25	High
Urban Neighbourhoods	20	Medium to high
Character Areas	20	Medium to high
Suburban Neighbourhoods	15	Low to medium
Special Residential Neighbourhoods	3-4	Low

Table 2.7: Applicable R-codings

Density	Applicable R-codings
LOW	R5–R20
MEDIUM	R25–R60
HIGH	R80–R160 R - AC4 (Neighbourhood Centre) R - AC3 (District Centre)

6.2 Schools and Community Facilities

6.2.1 High schools

Five government high schools will be required to cater for the anticipated population. These are distributed through the EWDSP area based on residential catchments. Generally high schools are positioned on level sites, along neighbourhood connectors.

Two high schools are proposed within urban neighbourhoods and are intended to have a street-based building format as opposed to occupying a large campus. The schools have been positioned to form an integral part of the urban fabric with good access to public transport and community facilities. Their design should be compact and reflect the prevailing built form and urban character.

The remaining three high schools are in suburban neighbourhoods and may be constructed in a typical campus format. The positioning of the high school within the Lorian Precinct No. 20 will be influenced by further planning for the East Gngarara Precinct (No. 25).

The precise fixing of the location and size of high school sites is to be undertaken early in the preparation of local structure plans in consultation with the Department of Education, to enable land requirements to be reserved under the MRS, prior to the LSPs being formally submitted to the local government.

6.2.2 Primary schools

Primary schools will form an integral part of the urban and suburban neighbourhoods and act as focal points for the community. Twenty-five to 30 primary schools are likely to be needed. The location and configuration and size of primary school sites will be determined at the LSP stage in accordance with Liveable Neighbourhoods and in consultation with the Department of Education.

In addition to Liveable Neighbourhoods locational requirements, the EWDSP encourages primary schools to be located adjacent to Parkland Links and co-located with local centres to help reinforce these focal points for community interaction and activity.

6.2.3 Community facilities

The City of Wanneroo has prepared a Community Facilities Plan for East Wanneroo (**Appendix D**) which provides a variety of facilities such as recreation centres, libraries and galleries. These are to be predominantly located within the district and neighbourhood centres where they can be easily accessed. Other smaller community facilities may be required and the EWDSP encourages these facilities to be in local or regional Parkland areas or co-located with school sites and local centres.

6.3 Movement Network

The East Wanneroo area has an established network of rural roads that are well connected to existing suburbs to the west and to Ocean Reef Road to the south. The north-south roads connecting to Ocean Reef Road are Lenore, Badgerup and Sydney, while the east-west connections of Elliot, Dundobar, Caporn, Coogee and Neaves Roads, provide good access to the west, including Wanneroo town centre.

The existing road network, incorporating necessary extensions and upgrading, will form the spine of an interconnected network of streets, providing for regional and local movements (see Figure 2.12). Streets in combination with transit, walking and cycling infrastructure are intended to facilitate efficient and safe movement based on the following principles:

- integration of East Wanneroo with surrounding urban areas and provide connections to nearby employment hubs
- provide efficient connections to key destinations such as activity centres and major recreation areas

- connect East Wanneroo to surrounding areas with an efficient public transport service and provide for multi-modal transport alternatives, including cycling and walking
- create street environments that contribute to place making.

6.3.1 Whiteman Yanchep Highway

The EWDSP shows the intended alignment of the Whiteman Yanchep Highway between Old Yanchep Road and Gnangara Road and it forms the eastern edge of urbanisation in East Wanneroo. The land area needed for the highway is located mainly in State Forest and will be the subject of a formal reservation process under the Metropolitan Region Scheme. It is intended the road will be a six-lane, controlled access highway with grade separated interchanges at all crossroads. A 22-metre median will be provided to enable the possibility of a future railway line (the EWRL).

6.3.2 East Wanneroo Rail Link (EWRL)

A possible future rail link connecting the proposed Ellenbrook METRONET line with the Joondalup line is identified in *Perth and Peel @3.5 million: The Transport Network* (March 2018) and is shown in the *North-West Sub-regional Planning Framework*. The EWRL is long-term METRONET project for which there is currently no funding allocated. Detailed studies will need to be undertaken before a firm government commitment is made to the alignment and timing of this link. The EWDSP provides two options for the alignment of the EWRL.

Option 1 utilises the median of the proposed Whiteman Yanchep Highway. Option 2 utilises a 70-metre wide corridor which departs from the Whiteman Yanchep Highway alignment and runs through the urban areas of the EWDSP serving stations at the district and neighbourhood centres.

Option 2 is informed by a District Rail Alignment Study (**Appendix E**) and is intended to be below ground between Sydney Road and Franklin Road to facilitate better integration of land uses within the district centre. It returns to a surface alignment just north of Belgrade Road in combination with the corridor needed for the upgrading of Franklin Road. A shared pedestrian/cycle bridge over the corridor is proposed as part of a Parkland Link through to Lake Jandabup. North of Caporn Street, Option 2 is intended to return below ground, to avoid grade separation of the new eastbound arterial at Lakeview Road, and to maximise land use integration at the neighbourhood centre. It returns to a surface alignment north of the neighbourhood centre alongside Franklin Road, through to Flynn Drive.

The Gnangara station at the district centre is predicted to cater for 11,000 passengers per day, and the Mariginiup station at the neighbourhood centre 10,000 passengers per day. A park-and-ride facility is to be provided in proximity to the Mariginiup station at the intersection of Lakeview and Franklin Roads.

The Option 2 alignment is informed by a Land Reservation study (**Appendix E**) which assumes a corridor width of 70 metres to provide for design flexibility. Future more detailed design work will most likely reduce the width of the necessary reserve. Figure 1.1 refers to the option 2 alignment as a **Transit Corridor** reflecting the likelihood of it being used initially as a dedicated bus corridor but with the capability in the longer term of becoming part of an expanded METRONET network.

Option 2 is the preferred alignment as it delivers the optimal planning outcomes for the area.

6.3.3 Integrator arterial network

The Road Planning Study (**Appendix F**) identifies the grid of integrator arterial roads needed to facilitate regional traffic movement and provide access to key destinations. These corridors are Lenore/Franklin Road extending from Ocean Reef

Road in the south to Flynn Drive in the north, Elliot Road extending from Lenore Road through to an interchange onto the Whiteman Yanchep Highway in the east and Lakeview Road, a new east-west road connecting Franklin Road with the Whiteman Yanchep Highway, north of Lake Jandabup.

These corridors will be typically 35 metres wide and are intended as four-lane roads designed to carry high traffic volumes, high-frequency bus services, pedestrians and cyclists. These alignments are consistent with the *North-West Sub-regional Planning Framework* (Figure 2.3) except for the proposed alignment of Lakeview Road. Dundobar Road, Caporn Street and Coogee Road are not intended to become integrator arterials; however, they will function as important connections from the EWDSP area to the existing road network in the west.

The traffic modelling carried out indicates that the western portion of Elliot Road outside of the structure plan area connecting through to Wanneroo Road may need to be widened in the future in response to traffic generated by development within East Wanneroo. This is unlikely to be necessary for a significant period of time. Future reviews of this EWDSP will monitor traffic growth and identify appropriate action.

The design of arterial road corridors will vary depending on the location and the nature of adjoining land use. Where they run adjacent to the district and neighbourhood centres, they will be designed for lower vehicle speeds in response to greater pedestrian movements, on-street parking and more frequent access points to local streets. The incorporation of appropriately spaced mature native species trees in the verge and median are intended to provide a near continuous canopy of shade particularly within and adjacent to the neighbourhood centre and district centre. Typical cross-sections are shown in Part 1 Figures 1.6 - 1.11 and Figure 2.12 shows where signalised intersections are proposed on these routes.

6.3.4 Other roads and streets

The EWDSP depicts a grid of neighbourhood connectors that utilises the existing network of local roads. They are intended to accommodate slow-speed vehicle movement and be safe and attractive spaces for pedestrian and cycle use.

Neighbourhood connectors are to be complemented by access streets that will define the finer grain and character of neighbourhoods. Their design will contribute to the amenity of these places. There is a significant opportunity to retain mature trees as part of the future streetscape for East Wanneroo, and this should be considered as an integral part of the local structure plans prepared for each precinct.

6.3.5 Street design and place-making

Street design is of primary importance for the activation of land use and place-making across East Wanneroo. It should be responsive to topography, function and cater appropriately for pedestrians and cyclists.

The design and treatment of **integrator arterials** is critical in avoiding visual and perceived separation between neighbourhoods. Adjacent to the district and neighbourhood centres slow speed and decreased road reservations, appropriate paving treatments and an established, continuous tree canopy, will be required to deliver a quality street environment which contributes to the activation of adjoining land uses and gives pedestrians priority at intersections.

Local structure plans will need to demonstrate how urban structuring (street blocks and local streets) and development will interfere with arterial corridors. Noise walls and back fences are not considered an acceptable design response, except in limited situations where they are justified from a design perspective, and neighbourhood integration is not compromised.

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6.3.6 Bus services

Bus services will link through neighbourhoods to transit stations and other key destinations in the surrounding locality. A rapid bus service route has been identified on the Movement Network (Figure 2.12) linking Wanneroo town centre with the Gnangara district centre using Dundebur, Franklin, Elliott and Badgerup roads. Local bus service routes will be identified at the local structure plan stage.

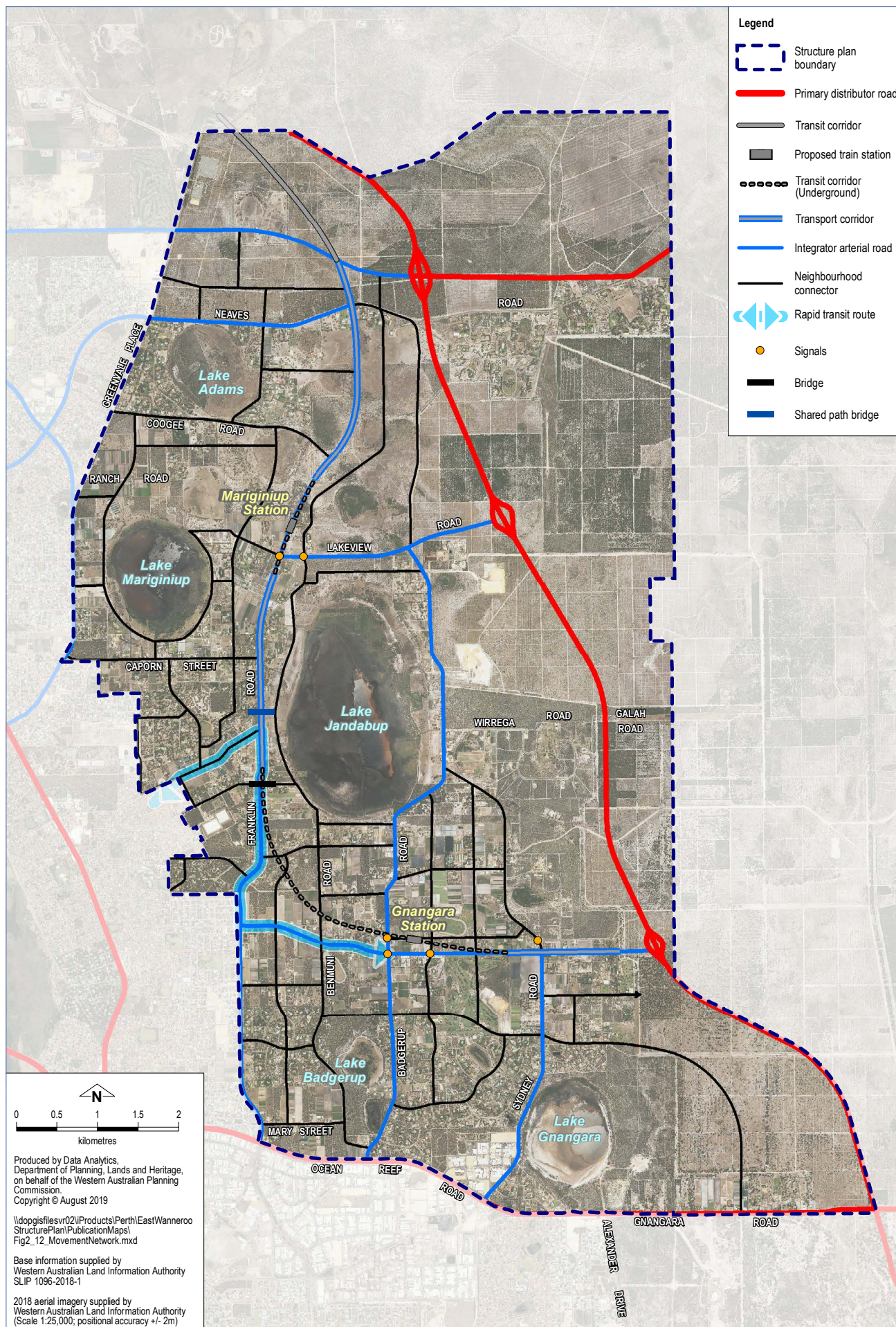


Figure 2.12: Movement Network



6.4 Parklands

The EWDSP provides for a network of Parklands consisting of wetland areas, bushland vegetation, regional sporting facilities and local Parkland interconnected by **Parkland Links**. Parklands are intended to be multifunctional spaces promoting nature and biodiversity conservation, sport and active Recreation, cultural and social interaction and environmental education.

Parkland areas will consist of the following:

- land currently protected as Parks and Recreation reserves in the MRS
- new areas to be reserved for Parks and Recreation in the MRS
- potentially new areas to be reserved for Parks and Recreation subject to confirmation
- Bush Forever sites subject to a negotiated planning outcome
- a 50ha Regional Sporting Facility
- Conservation Category Wetlands
- existing local reserves
- **Parkland Links**.

Figure 2.13 shows this network of elements. In addition to Parkland identified in Figure 1.1, local structure plans will identify local public open space (see section 6.4.5).

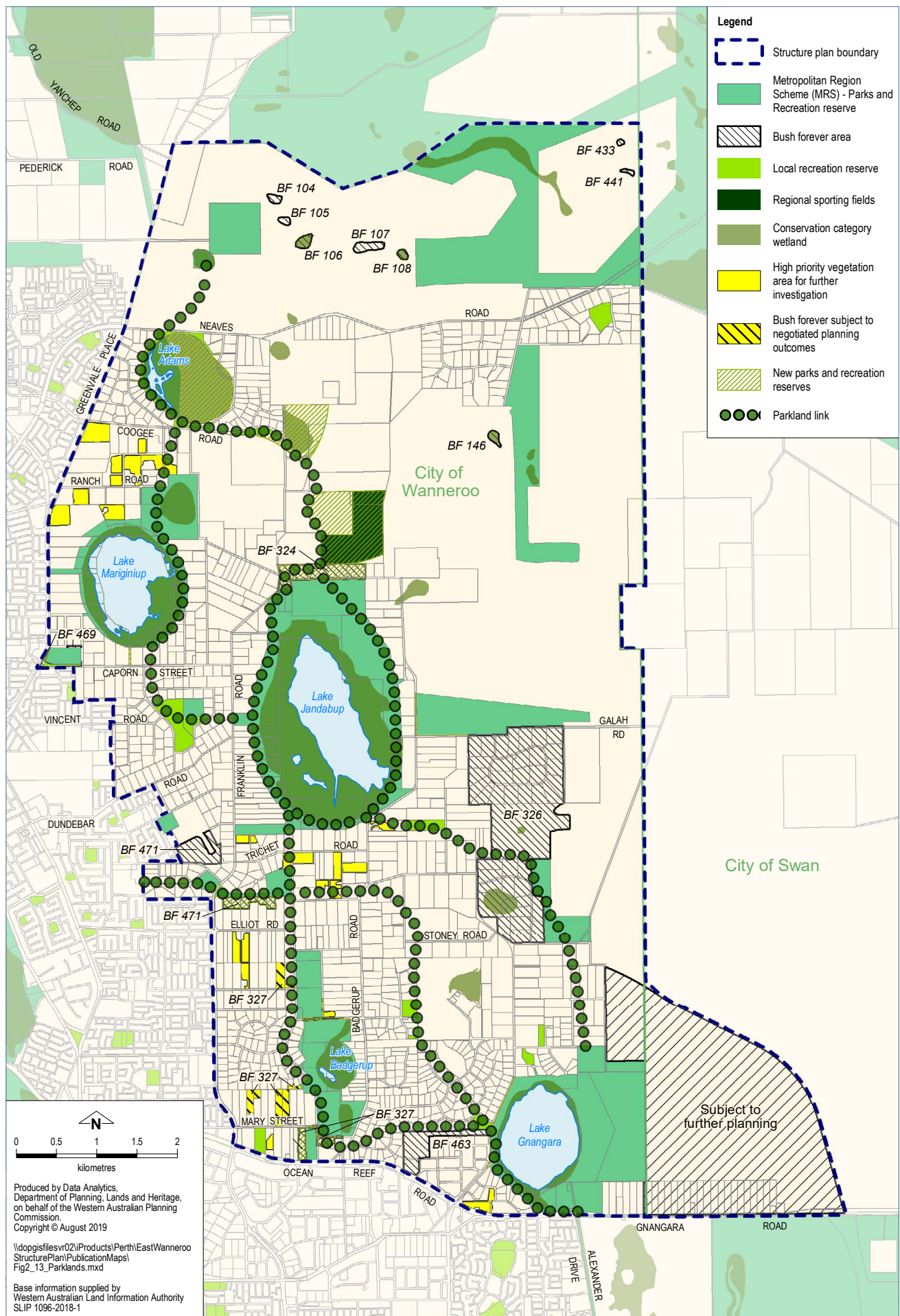


Figure 2.13: Parklands

6.4.1 New Parks and Recreation Reserves

The EWDSP identifies seven new Parks and Recreation reserves to be incorporated into the MRS as detailed in Table 2.8.

Table 2.8: New Parks and Recreation reserves

No.	Name	Explanation
1	Lake Adams	Lake Adams is classified as a conservation category wetland (CCW); its western portion is already reserved Parks and Recreation under the MRS. The EWDSP proposes to reserve the balance of the wetland.
2	Coogee Park	The CCW located at the east end of Coogee Road will be reserved Parks and Recreation under the MRS and be extended to include areas containing high-quality Pinjar vegetation complex around its northern and north-eastern margins and along its south-western edge to link with the local reserve Coogee Park. This will provide a natural edge to the urban area and contribute to the Parkland Link from Lake Adams to Lake Jandabup.
3	Regional sporting facility	The <i>North-west Sub-regional Planning Framework</i> identifies a need for a 50-hectare regional sporting facility in the East Wanneroo locality. Land for this purpose is identified to the east of the neighbourhood centre with good access to the Whiteman Yanchep Highway and Lakeview Road. This area is relatively flat and contains sections of resource enhancement wetland and remnant bushland which can be incorporated into the structural landscaping of the facility.
4	Wetland 15443	Wetland 15443 is a resource enhancement wetland (REW) containing remnant vegetation. It is a relatively large wetland located adjacent to the proposed regional sporting and will contribute to the Parkland Link from Lake Adams to Lake Jandabup. It will also provide a natural backdrop to the neighbourhood centre.
5	Townsend Road Bushland	The <i>North-west Sub-regional Planning Framework</i> identifies bushland north of Townsend Road as Open Space Investigation. This Bush Forever Site (324) contains Banksia Woodland and provides Carnaby Cockatoo foraging habitat. Its environmental values and functionality as part of the Parkland Link extending southward to Lake Jandabup warrants its reservation.
6	Bush Forever Site 471	Bush Forever Site 471 contains Banksia Woodland of the Karrakatta Central and South Vegetation complex and links two existing Parks and Recreation Reserves. It forms part of a significant landscape feature proposed as a Parkland Link .
7	Lake Badgerup Reserve	Two areas identified for Parks and Recreation reserve are adjacent to Lake Badgerup Reserve. These areas make up Bush Forever (BF327) and are a logical extension to the Lake Badgerup Parks and Recreation.

6.4.2 Potential Parks and Recreation reserves subject to further investigation

Various pockets of remnant vegetation were identified in the Environmental Assessment Study (**Appendix B**) as a high priority for further investigation for protection. These sites are likely to contain:

- Threatened Ecological Communities
- Carnaby Cockatoo foraging habitat
- Representation of the regional vegetation complexes of Karrakatta Central and South and Pinjar
- Declared rare flora.

Detailed flora and fauna surveys will be required to assess the condition of these sites and determine their suitability as Park and Recreation reserves. This analysis is to be undertaken early in the preparation of local structure plans stage in consultation with the Department of Planning Lands and Heritage, to enable their land requirements to be reserved under the MRS, prior to the LSPs being formally submitted to the local government. The opportunity to consolidate larger contiguous portions of bushland to provide links between bushland areas should be investigated.

6.4.3 Bush Forever sites subject to negotiated planning outcomes

Three portions of Bush Forever Site 327 are identified as suitable for negotiated planning outcomes in SPP 2.8 - Bushland Policy for the Perth Metropolitan Region. The sites are currently zoned Rural under the MRS, but are surrounded by land zoned Urban Deferred. They will ultimately be within a suburban neighbourhood, and consideration of their long-term viability should occur. A negotiated planning outcome will test if they can be incorporated into cohesive and functional neighbourhoods.

6.4.4 Wetlands

The EWDSP identifies all Conservation Category Wetlands (CCWs) as Parkland. This recognises the requirements of Liveable Neighbourhoods that CCWs be ceded to the Crown free of cost at the time of subdivision. Resource enhancement wetlands and multiple use wetlands are not identified on the Figure 1.1 as Parkland, but will likely form part of the drainage network incorporated into local open spaces providing the opportunity to restore and enhance the biodiversity, of these features.



6.4.5 Local Parkland

Figure 1.1 identifies all existing local reserves as Parkland, as they are established reserves and contribute to the network of parkland links. Additional Parkland will ultimately be reserved through subdivision. WAPC policy generally requires 10 per cent of the gross subdivisible area of residential neighbourhoods to be given up for local open space. Subdivisible area excludes land identified for government schools, integrator arterials, public utility sites and other non-residential land uses.

Local structure planning will also identify additional areas of remnant vegetation and recommend appropriate conservation mechanisms as part of the urban structure, for example within local parks, road reserves, or within lots where mature trees are preserved in setback areas.

6.4.6 Parkland Links

The Northwest Sub-Regional Planning Framework identifies ecological linkages through the East Wanneroo area. These linkages pass through cleared farmland and market gardens but are not currently continuous. Urban development will provide an opportunity to connect these areas using lakes, wetlands and remnant vegetation. The amenity and connectivity of these corridors will provide for district-wide cycling, pedestrian movement and nature-based education and are identified on Figure 1.1 as Parkland Links.

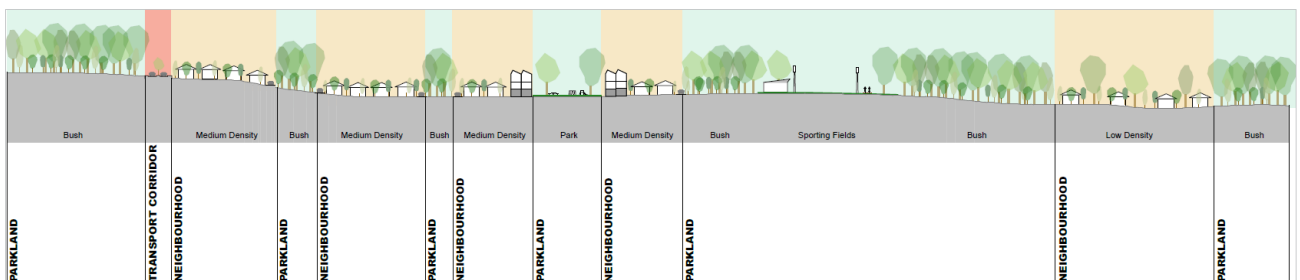
Parkland Links can comprise linear parks or landscaped boulevards. They will deliver an urban environment within neighbourhoods promoting a mature tree canopy and extensive landscaping within the corridor or road reserve. Where links cross arterial roads and transit corridors, they should provide safe and convenient pedestrian access.



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Detailed studies at the local structure plan stage should identify the features to be retained as part of the links. Their final alignment, width, and integration with adjacent urban form will provide a strong character element of the neighbourhoods, and can be counted as part of the 10 per cent local parkland contribution.



6.5 Water Management

The Integrated Water Management Framework (IWMF) (**Appendix A**) explains the hydrological issues likely to be encountered in the EWDSP area and details the principles and responsibilities for water management. It sets out the intended drainage strategy and further studies to be done in completing a District Water Management Strategy (DWMS) prior to finalising the EWDSP.

6.5.1 Groundwater

The urbanisation of East Wanneroo and harvesting of pine plantations within adjoining State Forest areas will cause a substantial increase in groundwater recharge rates and groundwater levels in the superficial aquifer are predicted to rise. Modelling conducted by the Department of Water and Environmental Regulation (DWER) to predict future groundwater levels by 2030 suggests groundwater levels will increase by three to four metres over most of the EWDSP Area. This would result in large parts of the central and eastern structure plan being inundated with groundwater particularly where there are geomorphic wetlands.

The model used (PRAMS) is a regional model which is relatively coarse grained in its analysis and assumes full build-out of the structure plan area by 2030. Full build-out of the EWDSP is likely to happen over a much longer timeframe (50 years) meaning groundwater level rise is likely to be more gradual. However, in the absence of coordinated action to manage groundwater at a pre-determined level, substantial fill would be required to make certain areas developable. This would add significantly to the cost of construction and impact negatively on the affordability of dwellings in these areas.

The WAPC's position set out in Draft SPP 2.4 Basic Raw Materials, makes it clear that the use of BRM for filling land should be minimised. A critical design criterion to be identified in the District Water Management Strategy (DWMS)

is a controlled groundwater level across the EWDSP area. This will be established through a more detailed groundwater modelling exercise to be conducted whilst the draft DSP is being advertised.

6.5.2 Drainage management methods

Water-sensitive urban design will be implemented across the area to ensure groundwater resources including public drinking water sources and wetlands are protected. Stormwater management will ensure adequate flood protection is provided.

Stormwater runoff from constructed impervious surfaces generated by the first 15 mm of rainfall is to be managed, retained and treated at source. This means that stormwater will be retained and infiltrated within lot boundaries. For lots with low clearance to groundwater, subsoil drainage may be used to ensure sufficient clearance to groundwater. The road drainage network is to be designed to remain passable in the 20 per cent AEP event. This will be achieved through pipeless systems including rain gardens, tree pits and roadside swales. Where pipeless systems are not practical, stormwater will be piped and treated at downstream biofiltration areas, planted with appropriate nutrient up-taking species.

In major rainfall events, runoff that does not infiltrate into the ground will flow into the road network or drainage swales and living streams and be directed to wetlands or detention basins. Further hydrological modelling work and consultation with the Department of Biodiversity, Conservation and Attractions (DBCA) will be required prior to designing stormwater systems that utilise wetlands for flood storage.

Maintenance of the existing drainage characteristics is a guiding principle and to this end the EWDSP requires all surface and groundwater within individual precincts to be managed within that precinct, based on the following approach:

- All surface and groundwater within a precinct must be managed within that precinct. Run-off from one precinct is not be allowed to drain to an adjacent precinct. An exception to this may be permitted where designated green areas flow to a Conservation Category Wetland (CCW) or Resource Enhancement Wetland (REW).
- All existing CCWs and REWs will be maintained and runoff will be discharged to these where they are entirely or partially within a precinct, or on the boundary of an adjacent LSP area.
- There are at least 15 catchments without CCWs or REWs which drain internally through infiltration. LSPs will cater for these through the use of infiltration basins.

Most catchments contain existing wetland features, classified variously as CCW, REW or MUW, which can be utilised for flood storage and drainage retention. Where no wetlands exist, the IWMF has identified precincts that will need to provide flood storage. All categories of wetland may be used for drainage retention and flood management purposes. Ultimately this will result in the enhancement or reinstatement of wetlands throughout the EWDSP area.

6.5.3 Acid sulphate soils

The IWMF identifies that the majority of the eastern third of the EWDSP area has a moderate to low risk of acid sulphate soils occurring within three metres of the natural soil surface. Areas close to wetlands or with peaty clay soils, have a high to moderate risk of acid sulphate soils occurring within three metres of the natural soil surface. The western portion of the site has no known risk.

A rise in ground water levels from urbanisation has the potential to re-saturate oxidised soils and cause elevated levels of acidity and metals in the shallow groundwater table. Given this is largely a trapped hydrogeological catchment there is a risk that environmentally sensitive areas could experience acidified groundwater. Acid sulphate soil investigations will need to be conducted for potentially affected areas and managed appropriately. Reference should be made to the DPLH Acid Sulphate Soils: Planning Guidelines (Dec 2008).



6.6 Employment Opportunities

The *North-west Sub-regional Planning Framework* identifies that the region currently provides relatively low levels of employment opportunity which results in much of the resident population seeking employment outside of the area. The Framework sets an employment self-sufficiency target of 60 per cent and the Economic Development and Employment Strategy (EDES) (**Appendix G**) identifies the challenge for East Wanneroo in responding to this is to:

- develop a vibrant local economy
- leverage investment in major transport infrastructure through the area
- support the development of new and diverse traded economies.

The EWDSR responds to these challenges by allocating significant land for activity centres, industrial areas and service commercial development. Additionally, it also seeks to ensure that existing Rural businesses can continue to operate effectively as the area gradually transitions from rural to urban. The provision of educational services will further supplement available employment opportunities.

Activity centres and schools

The East Wanneroo District Centre will function to service the growing local residential catchment while realising the significant inbound and outbound opportunities that transit-oriented development can offer. Once fully complete, the district centre will provide about 2,000 jobs in a variety of service roles. The neighbourhood centre will generate about 250 jobs.

Given the large number of schools generated by a population of 150,000, it is estimated 2,500 education-related jobs are likely to be created.

Industrial Investigation Area North

The area has a range of potential comparative advantages including:

- Strong east-west linkages for freight and passenger transport resulting from the extension of Flynn Drive (connecting to Neaves Road).
- Potential ability to leverage available service and shared infrastructure located either within the Neerabup industrial area or East Industrial Precinct (23).
- Potential ability to develop linkages with surrounding horticulture and other intensive food production and manufacturing activities.

Overall, the location of the site suggests that it may be suitable to act as a potential industrial expansion area to the nearby Neerabup Industrial Area. Analysis conducted for the City of Wanneroo's Employment Lands Study, however, indicates that there is likely to be sufficient industrial lands within the City, suggesting that this is a long-term strategic asset.

The site may also be an appropriate location for agri-industry and business-related activities, as well as for large-scale renewable energy infrastructure dependent upon the ultimate needs of surrounding industry. A wide range of employment yields between 6,625 and 9,200 may result from development of the industrial precinct.

Industrial Investigation Area East

The precinct is a substantial land asset with the potential to perform an important economic function over the medium-long term. Given its scale, and the potential timeframes before development, there is significant uncertainty over the highest and best uses for the site. However, given the area's planning constraints, it is strongly positioned to utilise some, or all, of the groundwater and stormwater assets generated from adjacent urban development, as well as producing sustainable power and water

generation infrastructure (including a potential micro-grid) to deliver cheap sustainable energy. In particular, if a combination of low-cost water and energy is made available, out-of-soil horticulture may be a competitive use in this location. The potential job yield from this precinct is between 1,010 and 5,120.

Service Commercial development: Leach Way and the Northlink Industrial Estate

The proximity of the Leach Way precinct to the Northlink Industrial Estate and its easy access onto Gnangara and Sydney Roads, suggests it is likely to be suitable for a targeted highway service commercial offer servicing passing trade and complementing activities at the Wangara Industrial Estate. Leach Way plus the undeveloped capacity of the Northlink Industrial Estate could ultimately yield between 1,000 and 1,500 jobs.

7 Servicing and Infrastructure

7.1 Reticulated Water

The EWDSP will be serviced with water from the Wanneroo Reservoir tank site located on Steven Street in Wanneroo. This tank is currently fed from the existing Wanneroo Groundwater treatment plant (WGTP) located in the east of the EWDSP area. Ultimately, an additional bore main from the WGTP to the Wanneroo Reservoir is proposed, which will be augmented via a new supply from the proposed Alkimos Desalination plant (anticipated 2028).

Existing water infrastructure has some limited capacity to service new development at the western and southern extents of the EWDSP area. Once exhausted, water headwork infrastructure extensions will be required for new development, and water storage at the Wanneroo Reservoir site will need to be expanded. The Engineering Servicing Report (**Appendix H**) shows the proposed water supply scheme concept for the EWDSP area.



From a water infrastructure perspective, a development front commencing along the central western edge in proximity to the Water Corporation's Wanneroo Reservoir is likely to be more cost-effective than commencing large-scale development in the far south, north or east of the area.

7.2 Wastewater

The EWDSP falls into two sewer catchments with the Neerabup Sewer District Plan covering the area north of Neaves Road. The area to the south of Neaves Road falls within the Jandabup Sewer District Plan.

North-western areas of the EWDSP area (north of Neaves Road) may be able to utilise spare capacity within the Neerabup Interim WWPS. The Water Corporation anticipates there is capacity to service approximately 3,000 lots in this area. This capacity is in place to service the undeveloped portions of the Neerabup Sewer District catchment, comprised largely of the Banksia Grove residential area and Neerabup Industrial Estate. Depending on the development rate in these areas, some of this capacity will be absorbed.

South of Neaves Road, the Water Corporation has indicated that some pockets of land along the western boundary of the EWDSP could possibly be developed in the short term, subject to available capacity in the adjoining sewerage networks. Each development proposal will be considered on its merits, and technical investigations will need to be undertaken to examine options for pump station locations and possible discharge points. Preliminary investigations indicate there is spare capacity to service approximately 5,000 residential lots in the short to medium term on a first come, first served basis.

The ultimate wastewater servicing solution for the EWDSP is to deliver the wastewater northwards to the Alkimos WWTP via an approximately 2km long extension to the Quinns Main Sewer. The future main wastewater pump station for the EWDSP area will be the Jandabup PS 'A'. This pump station will not only serve the Jandabup catchment, but also ultimately receive bulk wastewater transfers from the Ellenbrook, Bullsbrook and West Swan Sewer Districts.

Jandabup PS "A" will require a land area of approximately two hectares, with an ultimate odour buffer of 150 metres radius. While Jandabup PS 'A' will become the main pump station for the sewer district, it is likely this pump station will comprise multiple stages as the area develops. The need and staging will be dictated by developer interest in the immediate catchment of the main WWPS, and the size of the developments proposed. Small, temporary pump stations may be employed if there is discharge capacity available in the neighbouring network.

The capital cost of the Quinns Main Sewer is estimated to be in the order of \$35 to 40 million and is expected to be in place in 2022, subject to need, capital availability and obtaining the necessary Federal and State approvals. Development in advance of this will need to design, fund and construct its own temporary wastewater infrastructure to convey wastewater into the Neerabup WWPS.

From a wastewater infrastructure perspective, staging development from the north-western end of the EWDSP area heading southwards may be more efficient. Following the extension of the Quinns Main Sewer and first stage of the Jandabup PS "A", further areas to the east may be capable of servicing. The Engineering Servicing Report (**Appendix H**) shows the existing wastewater network and proposed wastewater supply strategy for the EWDSP area.

7.3 Electricity Network

The EWDSP area is currently serviced from the existing Wanneroo and Wangara Zone Substations. It is envisaged that the Wanneroo substation should meet short-term load demands, and the Wangara substation could be upgraded to include two additional transformers if required. Western Power has also identified a future potential zone substation in the eastern part of the EWDSP area within Precinct 23. A possible location has been identified adjacent to the Water Corporation's Groundwater Treatment Plant. The need for the zone substation is uncertain at this time but is likely to be in the medium to long term, if required.

Supply to the new zone substation will require the extension of a number of high voltage transmission lines. The final route and associated restriction zones are still to be determined. The need for an additional double circuit 132kV line may be necessary beyond 2028. These transmission lines are proposed to run from the Neerabup terminal to the intersection of Badgerup and Jambanis Roads, from where they may continue as two single circuits along separate routes. The proposed location of these transmission lines will, where possible, be located within existing road reserves.

Further investigation for alignments should be undertaken as part of the Local Structure Plan process. The transmission lines will also be required to cross an existing high-pressure gas main along Neaves Road. The route requires more detailed planning and alignment investigation. The Engineering Servicing Report (**Appendix H**) shows the proposed power network for the EWDSP area.

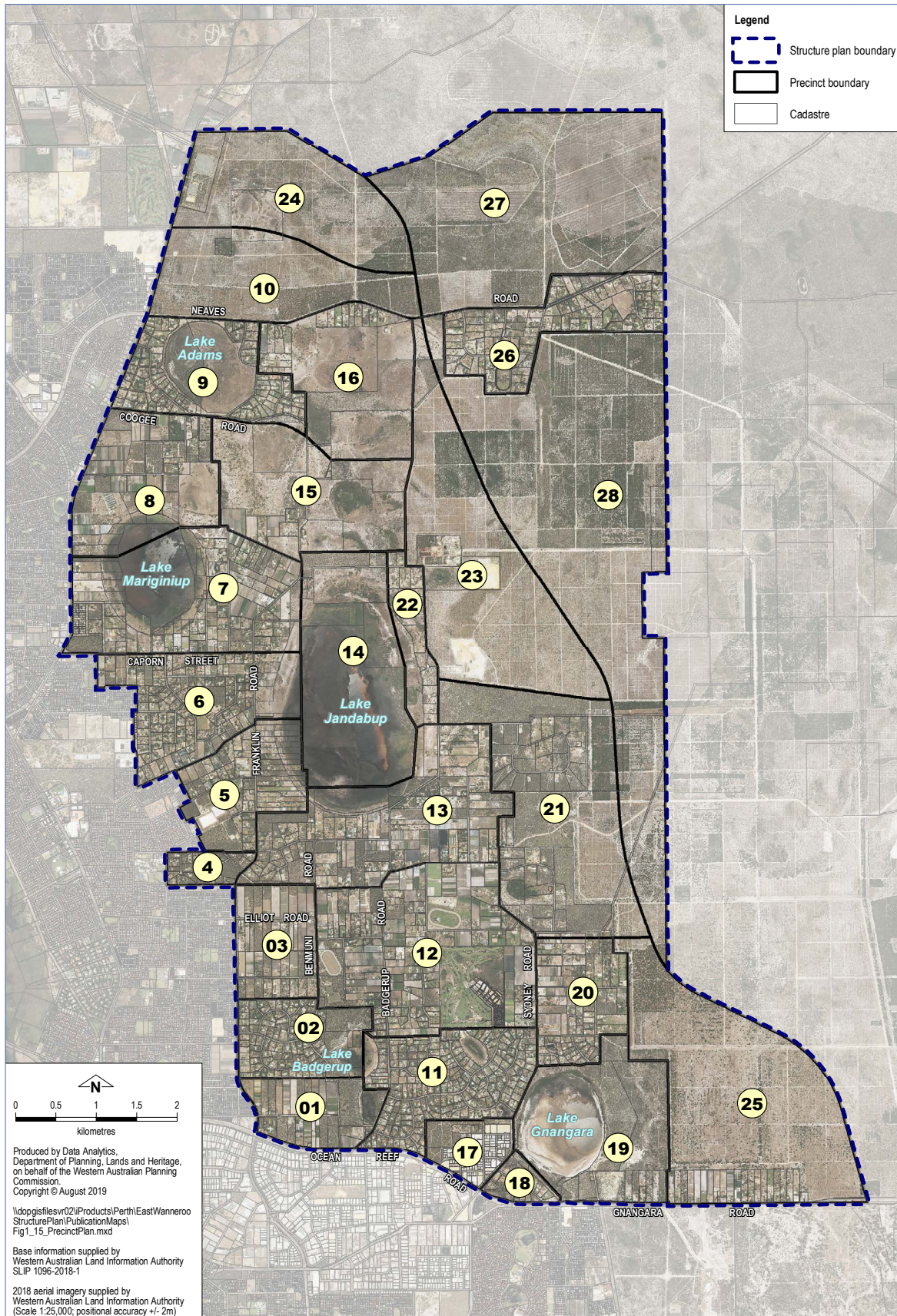
7.4 Reticulated Gas

The EWDSP area is not currently serviced with reticulated gas infrastructure, however there is an existing high-pressure gas main located in the Neaves Road reserve. The incoming supply from the east is a DN250 steel 6,900 kPa high pressure supply, which reduces to 1,900 kPa in the vicinity of Bardie Road, Mariginiup. A 750m-radius Pressure Reduction Zone is centred on the location of the change and is deemed a high-risk area. There are no restrictions on development within the zone however, ATCO must be advised of any proposed works. Future servicing of the EWDSP will be via the extension of high, medium and low-pressure reticulation gas mains.

7.5 Telecommunications

The Perth International Telecommunications Centre (PITC) is located immediately south of the EWDSP area, south of Gnangara Road and east of Landsdale. The site includes 37 substantially-sized antennas providing a wide range of satellite communication functions. Development located within a north-west arc of the PITC has the potential to generate Radio Frequency Interference (RFI), due to the orientation and tracking paths of the satellites. This could have significant detrimental impact on the PITC's operations. Residential areas with a proposed density coding of greater than R20 and commercial or industrial areas have potential to create RFI issues. The preparation of Local Structure Plans for precincts 18, 19 and 25 will therefore require consultation with Telstra.

8 East Wanneroo Precincts



Precinct 01 Mary Street

Mary Street precinct is identified as Urban Expansion in the *North-West Sub-regional Planning Framework*. It is predominantly used for market gardening but also contains a convention centre and rural lifestyle dwellings. The precinct has significant remnant vegetation, some of which is Bush Forever. The EAS identifies priority and high-priority vegetation throughout the area and suggests Bush Forever on Lots 5 and 6. Mary Street may be reviewed. All bushland within the precinct must have detailed vegetation surveys to determine whether and if the bushland is to be protected.

Mary Street is a long cul-de-sac and is currently of significant bushfire risk given the remnant bush present. In order to mitigate this risk, Mary Street is to be connected eastward through the Badgerup Reserve to Badgerup Road and northward to Benmuni Road to provide multiple points of exit.

Local Structure Plan requirements

- Precinct 1 is suitable for a suburban neighbourhood.
- The location and distribution of bushland reserves will be determined in the local structure plan and balance protection of significant environmental values with a coherent layout.
- Lots 5 and 6 may be considered for a negotiated planning outcome under SPP 2.8 Bushland policy for the Perth Metropolitan Region.
- The connection of Mary Street and Benmuni Road are identified on Figure 1.1, and will be constructed as a local road at subdivision stage.
- Benmuni Road residential lots will be low density (2000m² or larger) to maintain rural character.
- Construction of the extension of Mary Street to Badgerup Road will be funded through a development contribution.
- A development contribution scheme will provide equitable cost distribution for drainage basins.

Servicing and Staging

- Mary Street precinct is serviced by overhead power and reticulated water.
- Provision of reticulated sewer may be available depending on the capacity of the adjoining sewer network in Pearsall.
- Its location and servicing availability make the precinct a short-term development opportunity.

Precinct 02 Bebich Drive

The Bebich Drive precinct is a Planning Investigation Area in the *North-West Sub-regional Planning Framework*. Its distinctive character consists of vegetated 1ha rural residential properties sloping gently east toward Lake Badgerup. It has a curved street pattern with large, character homes. Many lots contain remnant Banksia Woodland which is potentially Carnaby Cockatoo foraging habitat. Bushfire risk is significant due to remnant vegetation and lack of access both to the south and east. Constraints are to be managed through local structure planning.

Local Structure Plan requirements

- Distinctive landscape characteristics in the eastern part of the precinct are to be retained.
- Lots within the special residential area are to be 2000m² or larger.
- The area immediately east of Lenore Road is suited to suburban residential development, with structured landscaping along Lenore road.
- The interface between the suburban neighbourhood and the special residential area requires sensitive landscaping.
- Seven rural residential properties east of Benmuni Road are to remain Rural, as a buffer to Lake Badgerup reserve and maintain landscape amenity along Benmuni Road.
- The extension of Benmuni Road southwards will ensure full connectivity with the Mary Street Precinct and to address bushfire risks. The extension of Benmuni Road will be constructed as a local road at subdivision stage.
- Additional vehicular access to the north and south is required for connectivity with, and permeability through to the Elliott Road and Mary Street precincts respectively.

Servicing and Staging

- Bebich Drive precinct is serviced by overhead power and reticulated water.
- Provision of reticulated sewer may be available depending on the capacity of the sewer network in neighbouring Hocking and Pearsall.
- Being relatively recent, existing housing stock of hobby farms and equestrian activities are anticipated to gradually subdivide into smaller special residential lots over time.
- While the suburban neighbourhood adjacent to Lenore Road is capable of being developed in the short term, the special residential portion of the precinct is expected to be delivered in the medium to long term.

Precinct 03 Elliot Road

The Elliot Road precinct is an Urban Expansion area in the *North-West Sub-regional Planning Framework*. It occupies a high point in the landscape providing views out to the east. The precinct comprises mainly market gardens and rural dwellings. There is an Eastern Orthodox church near to the eastern end of Elliott Road creating a strong reference point in the landscape.

The precinct contains high priority vegetation and Bush Forever sites likely to include Banksia Woodland Floristic Community Type 20a. The area generally has a self-contained drainage catchment.

Local Structure Plan requirements

- Precinct 3 is suitable for a suburban neighbourhood.
- Bush Forever sites adjacent to the existing Parks and Recreation reserves and are to be included in the reserves. The EWDSP identifies these sites as future Parks and Recreation reserve under the MRS.
- Detailed flora surveys of all existing remnant vegetation is to occur to inform the appropriate size and configuration of bushland retention.
- Elliot Road will become an Integrator Arterial Road. Adjacent residential development must respond to potential vehicle noise and vibration in accordance with SPP 5.4 Road Rail and Noise.
- A primary school is to be located south of Elliot Road.
- A development contribution scheme with equitable cost distribution for consolidated drainage basins identified in the IWMF is required. If drainage areas form part of the public open space network, they are also to be funded through the development contribution.

Servicing and Staging

- Elliot Road precinct is currently serviced by overhead power and a Western Power substation is proposed in the *Northwest Sub-Regional Framework*. Consultation with Western Power is to inform local structure planning to confirm timing for the substation.
- Some areas are serviced by reticulated water and reticulated sewer may be available depending on capacity of the adjoining Hockey sewer network.
- Given its location and servicing availability, the precinct is a short-term development opportunity.



Precinct 04 High Road

High Road precinct is an Urban Expansion area in the *North-West Sub-regional Planning Framework*. Located immediately adjacent to existing urban development to its north and south, it is west of the Wanneroo Senior High School.

The precinct slopes distinctly from north to south. It is characterised by rural lifestyle bushland properties with large areas of remnant vegetation on lots of 1-2ha. The precinct includes a 4.8ha bushland reserve. Priority remnant vegetation exists in the southern part of the precinct. This and the precinct's elevated position create a distinctive woodland landscape, especially as viewed from Lenore Road and Hocking. Managing bushfire risk requires a link between two cul-de-sacs in the centre of the precinct for vehicular access as well as a neighbourhood connection to Paltara Way in the south-west.

Local Structure Plan requirements

- Precinct 4 is suited to low-density development as a suburban neighbourhood with lots generally greater than 1000m².
- Identification and protection of significant trees within lots and road reserves.
- The Parkland Link through the precinct is to connect to Wanneroo Senior High School.
- Bushfire risk is to be addressed by providing vehicular access between Aqanita and Chicquita Places and access through to Paltara Way.
- A development contribution scheme is to provide equitable cost distribution for consolidated drainage basins identified in the IWMF.

Servicing and Staging

- High Road precinct is serviced by overhead power and reticulated water. Reticulated sewer may be available depending on the capacity of the sewer network in neighbouring Hocking and Wanneroo.
- High Road precinct may be developed in the short term.

Precinct 05 Belgrade Road

The Belgrade Road precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It presents the opportunity to continue the expansion of the Wanneroo Townsite east toward Franklin Road and Lake Jandabup. The area slopes from west to east and enjoys significant views over Lake Jandabup to the Darling Escarpment. Belgrade Road is a key connection point from the Wanneroo Town Centre to Franklin Road and provides opportunity to connect with a neighbourhood connector road along the Lake Jandabup foreshore.

The precinct contains a mix of rural lifestyle uses. No priority vegetation has been identified by the EAS, however the precinct contains small patches of Tuart Woodland that should be incorporated into local open space wherever possible. Bushfire risk associated with large reserved areas abutting the south of the precinct will need to be addressed.

Local Structure Plan requirements

- West of Franklin Road is suitable for development as a suburban neighbourhood.
- East of Franklin Road presents an opportunity for a character area as described in Section 5.1.4 including a local centre and primary school.
- The EWDSP proposes to continue Belgrade Road through to Lake Jandabup to connect a new road along the foreshore.
- The foreshore itself is suited to passive recreation.
- Subdivision of the character area east of Franklin Road, must not prejudice the future development of detached apartment buildings.
- A development contribution scheme is to provide equitable cost distribution for a consolidated drainage basin west of Franklin Road identified in the IWME.

Servicing and Staging

- The western portion of Belgrade Road Precinct is serviced by overhead power and reticulated water.
- Reticulated sewer may be available depending on the capacity of the adjoining sewer network in neighbouring Hocking and Wanneroo.
- Western parts of the precinct abutting the Wanneroo town-site are expected to be developed in the short-term.
- Development east of Franklin Road is expected to occur over the medium term.

Precinct 06 Edgar Griffiths Park

Edgar Griffiths Park precinct is an Urban Expansion area in the *North-West Sub-regional Planning Framework*. Representing a logical extension of the Wanneroo town site, the precinct provides for major recreation and environmental features in Edgar Griffiths Park and the Lake Jandabup foreshore. The area slopes generally west to east and has significant views over Lake Jandabup and on to the Darling Escarpment.

Other than Bush Forever site 470 in the central part of the precinct, no priority vegetation has been identified by the EAS, the precinct contains some patches of Tuart Woodland that should be incorporated into local open space wherever possible.

Local Structure Plan requirements

- Precinct 6 is suitable for a suburban neighbourhood. A character area is identified surrounding Edgar Griffiths Park.
- A pedestrian/cycleway crossing over Franklin Road is proposed to provide access to the Lake Jandabup foreshore. The foreshore in this location is wide and flat, suitable for recreation and leisure activities.
- Residential development adjacent to the Lake Jandabup Foreshore must be low-rise, single or grouped dwellings transitioning to medium densities toward the Belgrade Road precinct and toward the Mariginiup neighbourhood centre.
- A primary school site will need to be provided within the precinct to the west of Franklin Road.

Servicing and Staging

- Edgar Griffiths Park Road precinct is serviced by overhead power and reticulated water in parts.
- Provision of reticulated sewer may be available depending on the capacity of the sewer network in neighbouring Wanneroo.
- Areas near the existing urban front are expected to be developed in the short term.
- Development of areas around the Lake Jandabup foreshore are expected over the medium term.

Precinct 07 Lake Mariginiup

The Lake Mariginiup precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*.

It comprises sloping land which drains towards Lake Mariginiup with an eastern portion draining to Lake Jandabup. The precinct is mainly market gardening. Lake Mariginiup has a relatively large drainage catchment which extends beyond the precinct boundary.

The precinct contains Bush Forever sites 147 and 469 associated with Lake Mariginiup and Caporn Park. No other priority vegetation is identified, however there are some pockets of remnant vegetation which will require further survey.

Lake Mariginiup is identified as an Aboriginal Heritage site associated with hunting and mythology. A scarred tree is located in the precinct and will need to be sensitively addressed as part of the local structure planning process.

Berriman House located at 89 Caporn Road was constructed in 1914 and has significance as a simple and intact late Federation style residence associated with the early settlement of the Mariginiup area.

Local Structure Plan requirements

- The majority of Lake Mariginiup is suited to suburban neighbourhood, focusing on amenity opportunities associated with Lake Mariginiup.
- Apartments and terrace housing is proposed for the character area at the north-eastern shore of Lake Mariginiup.
- Subdivision within the character area must not occur in a manner prejudicing future development of detached apartment buildings.
- Management of the Lake Mariginiup foreshore must provide for enhancement of the Pinjar vegetation complex.

Servicing and Staging

- Lake Mariginiup precinct is serviced by overhead power and reticulated water in parts.
- Provision of reticulated sewer may be available depending on the capacity of the sewer network in neighbouring Wanneroo. The precinct is adjacent to the proposed Jandabup Sewer Pump Station.
- The western part of the precinct is capable of development in the short-term and the more easterly sections, in the medium term.



Precinct 08 Ranch Road

The Ranch Road precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It occupies an elevated, flat area which slopes southward down to Lake Mariginiup and Little Lake Mariginiup. The precinct contains a mix of market gardens, intensive agriculture (poultry farm) and rural lifestyle properties and includes several lots with remnant native vegetation.

Much of the remnant vegetation is identified for protection in the EAS as it is likely to contain Banksia Woodland of Floristic Community Type 20a. The precinct presents significant bushfire management issues.

Local Structure Plan requirements

- Precinct 8 is suitable for a suburban neighbourhood.
- Remnant vegetation within the precinct is likely to warrant reservation as Parks and Recreation reserve given its likely conservation significance.
- Management of the Lake Mariginiup foreshore must provide for the enhancement of the Pinjar vegetation complex.

Servicing and Staging

- Ranch Road precinct is serviced by overhead power but not reticulated water or sewer.
- Reticulated sewer may be available depending on the capacity of the sewer network in neighbouring areas. The precinct is adjacent to the proposed Jandabup Sewer Pump Station.
- Precinct 8 is capable of being developed in the short term.

Precinct 09 Lake Adams

The Lake Adams precinct is a Rural Residential Area in the *North-West Sub-regional Planning Framework*. It comprises 1-2ha rural residential properties, many of which are used for equestrian purposes. The area includes a series of bridle trail reserves at the rear of rural lots and around parts of Lake Adams. The western portion of Lake Adams is a Conservation Category Wetland (CCW).

The EAS does not identify any remnant vegetation throughout the precinct of environmental value, however rural residential properties and in particular the bridle trails, contain significant trees that may be worthy of protection. An Aboriginal heritage site is located in the western part of the precinct.

The CCW located in the heart of the precinct will be reserved in its entirety for Parks and Recreation under the MRS. Foreshore management is to provide for the enhancement of foreshore vegetation of the Pinjar complex.

No land use change is proposed for this precinct.

Precinct 10 South Pinjar

The South Pinjar precinct is an Urban Investigation Area in the *North-West Sub-regional Planning Framework*. It encompasses approximately 270 ha of land, currently contained within State Forest No.65 and within single Government ownership.

South Pinjar is a gently undulating area. The precinct is mostly cleared of native vegetation except for two conservation category wetlands. The area is currently State Forest (former pine plantation) and is identified as an extraction area for basic raw materials (sand) under Draft State Planning Policy 2.4 Basic Raw Materials (SPP 2.4). The area is also mostly classified as a Priority 1 Drinking Water Supply area under State Planning Policy 2.2 Gnambarra Groundwater Protection (SPP 2.2). Water Corporation bores are located to the north of the Koala Road/Bardie Road intersection and Neaves Road/Whiteman Yanchep Highway.

Local Structure Plan requirements

- Precinct 10 is suitable for a suburban neighbourhood.
- Prior to urban development, the MRS will need to be amended to remove the Water Catchment reservation from the land. Arrangements will also need to be made for basic raw materials to be extracted or otherwise utilised in accordance with draft SPP 2.4. There may be opportunities to utilise existing sand resources within the site to address high groundwater levels.
- The precinct represents a logical extension of the Banksia Grove residential area, and will need to cater for two primary schools and a high school.
- A relatively large local centre is expected to be required and should be positioned in a location central to residential catchments.
- An existing conservation category wetland has been identified as part of a Parkland Link extending from Lake Adams.
- The interface with Flynn Drive and the Pinjar Industrial Precinct must be addressed to ensure residential amenity is maintained.
- Existing Parks and Recreation reserves are proposed to be retained within the precinct to contain a conservation category wetland and to act as a buffer to Flynn Drive.
- Potential risks associated with a gas pipeline in Neaves Road will need to be addressed through the local structure plan process.

Servicing and Staging

- There are number of planning and other constraints to urban development which will need to be addressed prior to urban rezoning and local structure planning including:
 - Removal of State Forest and Water Catchments overlay
 - Reclassification of public drinking water source area and to address existing bores and bore mains
 - Mining interests which will need to be reconciled.
- Servicing is available to the site by extending the existing infrastructure services in Banksia Grove.
- The precinct is capable of being developed in the short to medium term, subject to the above matters being resolved.

Precinct 11 Lakelands

The Lakelands precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It is characterised by an elevated western half and a relatively flat, low-lying eastern half, which is likely to experience high ground water levels in the future.

The eastern half contains small lakes and other depressions in the landscape. Two wetlands currently identified as Multiple Use may be understated in terms of their management category. Remnant vegetation throughout the precinct include pockets of priority vegetation adjoining Bush Forever area (Site 463) located north of the Northlink Industrial Estate. Bush Forever site 463 represents a significant bushfire risk to adjacent areas.

Land ownership in the precinct is highly fragmented.

Local Structure Plan requirements

- Precinct 11 is suitable for a suburban neighbourhood.
- Residential density across the precinct should transition from being relatively higher close to the Gwangara District Centre, to being lower in areas to the south.
- Opportunities exist to restore existing multiple use wetlands within the precinct for drainage and amenity purposes as part of the public open space and **Parkland Link** network.
- A development contribution scheme is to provide equitable cost distribution for consolidated drainage basins and restoration of wetlands.

Servicing and Staging

- Lakelands precinct is serviced by overhead power and reticulated water, but does not have connection to the reticulated sewer network.
- Existing housing stock is relatively new, this coupled with a complex curved street pattern is likely to result in the slow uptake of urban development.
- Lakelands precinct is not expected to be delivered until the long term.

Precinct 12 Gngangara District Centre

Gngangara District Centre precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It comprises of gently undulating topography with a prominent north-south ridgeline running parallel and to the east of Badgerup Road. Vistas are offered along Benmuni road over to the east, Ashby Street over to the south, and along Golfview Place to the east. Predominant land uses are market gardening and equestrian uses. The south-eastern portion of the precinct contains a 69ha private golf course (Lakelands Country Club) and a retirement lifestyle village (Lakelands Leisure Village). A poultry farm currently operates close to the intersection of Badgerup Road and Ashby Street.

Local Structure Plan requirements

- The precinct will comprise the district centre with three urban neighbourhoods on its periphery, and suburban neighbourhoods beyond.
- Dwelling densities and yields for the precinct are shown in Table 2.9.
- A future transit corridor will traverse the precinct in an east-west direction, with a station positioned in the precinct's district centre.
- The corridor and station are intended to be delivered below ground to maximise opportunities for transit oriented development in the district centre and surrounding urban area.
- A local structure plan is required for the entire precinct, identifying the area of the district centre requiring a separate activity centre plan.
- A development contribution scheme is to provide for consolidated drainage basins and restoration of wetlands.

Servicing and Staging

- Regional road and transit alignments and reservations must be confirmed prior to structure planning.
- Construction of the transit corridor should precede subdivision and development in the precinct.
- Sewer connection will not be available until the urban front reaches the precinct or pre-funding of a substantial extension to the sewer main is provided.
- With the servicing constraints and lead in time for the delivery of transport infrastructure, it is expected the district centre will be developed in the medium-long term.

Table 2.9: Gngangara district centre precinct - Residential density and population targets

	Gross site area minus reservations (ha)	Density target ¹ (dwellings/gross ha)	Number of dwellings	Occupancy ² (people per dwelling)	Population estimate
District centre	50	30	1500	2.20	3300
Urban neighbourhoods	150	20	3000	3.03	9090
Suburban neighbourhoods	200	15	3000	3.03	9090
Total	400		7500		21480

¹ For district centres, SPP 4.2 sets a desirable residential density target of 30 dwellings per gross hectare and a minimum density of 20 dwellings per gross hectare. Liveable Neighbourhoods- Element 1 prescribes 30-40 dwellings/site hectare for areas in 400m of town centres and metropolitan railway stations.

² The North-West Sub-regional Planning Framework provides occupancy rates of 2.2 people per dwelling for infill urban areas, and 3.03 people per dwelling for new urban areas.

Precinct 13 Trichet Road

The Trichet Road precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It has high environmental and landscape values, particularly in the western portion of the precinct and is the most elevated point in the EWDSF. Land adjacent to Lake Jandabup is steep facilitating views to the north and east. This area is highly visible from all sides of the lake.

Remaining areas of the precinct are undulating with slight to medium gradients. A resource enhancement wetland is mapped in the eastern part of the precinct, however may be subject to review given that some areas have been cleared for market gardens. The wetland is located in a low point in the landscape and may be utilised in a modified form for flood storage.

Significant areas of priority vegetation occur within the site including Carnaby Cockatoo habitat and potential occurrences of floristic community type 20a. Some of this vegetation is contained within local and regional reserves with the remainder located on private landholdings. Existing land uses generally comprise a variety of market gardens, rural lifestyle and plant nurseries.

The north-eastern part of the precinct is identified in the Sub-Regional Framework as Urban Investigation and Planning Investigation areas. These areas are generally suitable for urban development as they are contiguous with future urban areas, have good access to the regional road network and amenities associated with Lake Jandabup and the Gnangara District Centre. The area east of Hawkins Road contains a degraded wetland (Little Dundobar Swamp) which should be restored in a modified form and utilised as part of the overall drainage solution for the area.

Local Structure Plan requirements

- The majority of Precinct 13 is suitable for a suburban neighbourhood.
- Higher density housing is proposed around the southern edge of Lake Jandabup taking advantage of the topography and views and is proposed as a character area.
- High priority vegetation sites, wetlands and existing reserves (Damian Park) are shown as forming a Parkland Link through the east of the precinct.
- Three primary schools are likely to be required within the precinct and must be positioned in conjunction with remnant bushland and the Parkland Links.
- A development contribution scheme is to provide equitable cost distribution for consolidated drainage basins and restoration of wetlands.
- Development contributions will also be required to provide for the extension of Benmuni Road northward to the proposed Lake Jandabup foreshore road.
- Foreshore management plans must provide for the rehabilitation of vegetation of the Pinjar complex.

Servicing and Staging

- Trichet Road precinct is serviced with overhead power and limited reticulated water in the west. The area is remote from the existing reticulated sewerage network.
- The precinct is expected to be developed in the medium-term.

Precinct 14 Lake Jandabup

The Lake Jandabup precinct contains Lake Jandabup and foreshore areas along its northern edge. An area of remnant native vegetation (Pinjar Complex) is situated north of Townsend Road and is identified as Open Space investigation under the *North-West Sub-regional Planning Framework*. Townsend Road bushland will be reserved as Parks and Recreation under the MRS given its quality and contiguity with the adjacent Lake Jandabup reserve. Foreshore management plans are to provide for the enhancement of the Pinjar vegetation complex.

Precinct 15 Central Mariginiup

The Central Mariginiup precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It is generally flat except for a ridgeline along its western boundary marking the transition from the Bassendean to the Spearwood dunal system. The precinct currently contains market gardens, homesteads and equestrian facilities.

The Resource Enhancement wetland to the east of Rousset Road contains extensive natural vegetation and is of high scenic value. It provides the opportunity to utilise a landmark natural feature as part of the character and sense of place created for this precinct.

The precinct contains an important Aboriginal heritage place (Aboriginal Heritage Register No. 22160) comprising several cultural components and has historical and ongoing contemporary significance to Aboriginal people. The place has been lodged with the Registrar of Aboriginal Sites but has not yet been formally assessed. Consultation with the Whadjuk Working Party is required to determine how the local structure plan can protect the values associated with this place.

Local Structure Plan requirements

- The precinct is suitable for two urban neighbourhoods and a neighbourhood centre. It will comprise of suburban neighbourhoods and a 50ha regional sporting facility.
- A target of 3,850 dwellings is set across the precinct in accordance with the densities and yields shown in Table 2.10.
- A development contribution scheme is to provide equitable cost distribution for public open space given the fragmented landholding in the northern part of the precinct.

Servicing and Staging

- Reservation of regional transport corridors under the MRS must be confirmed prior to local structure planning.
 - Construction of the transit corridor (underground) must precede subdivision and development in the precinct.
 - Sewer connection will not be available until the urban front reaches the precinct or pre-funding of a substantial extension to the sewer main is provided.
 - A local structure plan is to be prepared for the entirety of the precinct, identifying the area of the District Centre as subject to the preparation of a separate activity centre plan.
- With the servicing constraints and lead in time for the delivery of transport infrastructure, development is expected in the medium term.

Table 2.10: Central Mariginiup precinct - Residential density and population targets

	Gross site area minus reservations (ha)	Density target ³ (dwellings/gross ha)	Number of dwellings (rounded)	Occupancy ⁴ (people per dwelling)	Population estimate
Neighbourhood centre (200m)	12.5	25	312	2.2	686
Urban neighbourhoods	87.5	20	1750	3.03	5302
Suburban neighbourhoods	120	15	1800	3.03	5454
Total	220		3862		11442

³ For neighbourhood centres, SPP 4.2 sets a desirable residential density target of 25 dwellings per gross hectare and a minimum density of 15 dwellings per gross hectare. Liveable Neighbourhoods - Element 1 prescribes 20 to 30 dwellings per site hectare for areas in 400m of neighbourhood centres and in 250m of main bus routes, and 30-40 dwellings/site hectare for areas in 400m of town centres and metropolitan railway stations.

⁴ The North-West Sub-regional Planning Framework provides occupancy rates of 2.2 people per dwelling for infill urban areas, and 3.03 people per dwelling for new urban areas.

Precinct 16 North Mariginiup

The North Mariginiup precinct is an Urban Expansion Area in the *North-West Sub-regional Planning Framework*. It's generally flat and low lying, containing a number of wetlands including two conservation category wetlands, and is likely to be affected by high groundwater levels in the future.

The precinct is held mostly in large landholdings except for pockets of rural small holdings in the north and north-west of the precinct. These contain a variety of businesses such as equine parks and boarding kennels.

The precinct contains an important Aboriginal heritage place (Aboriginal Heritage Register No. 22160) comprising several cultural components and has historical and ongoing contemporary significance to Aboriginal people. The place has been lodged with the Registrar of Aboriginal Sites but has not yet been formally assessed. Consultation with the Whadjuk Working Party is required to determine how the local structure plan can protect the values associated with this place.

Local Structure Plan requirements

- The precinct is suitable for a suburban neighbourhood.
- Rising groundwater levels in the future will need to be managed to minimise the amount of fill material needed to create areas for development. An assessment of the amount of basic raw material required and where it will be sourced will need to be carried out at the local structure planning stage in accordance with SPP 2.4.
- Alternative earthworks strategies and construction methods should be investigated to reduce the amount of fill required and the use of public open space in low lying areas for drainage purposes is encouraged.
- A development contribution scheme is to provide equitable cost distribution for public open space given the fragmented landholding in the northern part of the precinct.

Servicing and Staging

- North Mariginiup precinct is largely unserviced with limited power and reticulated water available at the margins.
- The precinct will need to respond to the Neaves Road gas pipeline and future 132kv powerlines proposed in the eastern part.
- Large consolidated landholdings within the precinct may be capable of bringing forward connection to services through pre-funding mechanisms, however given the distance from Jandabup Pump Station and the environmental constraints on the site it is expected that the North Mariginiup Precinct would be a medium-term development prospect.

Precinct 17 Northlink Industrial Park and Gngangara Rural Community

This precinct is an Industrial and Rural Area in the *North-West Sub-regional Planning Framework*. The precinct is subject to approved local structure plans being: the Wangara Industrial Extension Area Agreed Local Structure Plan No. 96 and Gngangara Rural Community Agreed Local Structure Plan No. 99. The area also contains Bush Forever site 463.

No change is proposed to the current planning framework for this precinct.

Precinct 18 Leach Way

Leach Way is an Urban Investigation Area in the *North-West Sub-regional Planning Framework*. It is used for rural residential purposes and accessed by cul-de-sacs at Leach Way and Becher Way. The site is bound by Gngangara Road to the south to which access is not available, Sydney Road to the west and the Gngangara Lake reserve to the north and east. Land ownership in the precinct is significantly fragmented.

The precinct has significant remnant vegetation including Banksia Woodland potentially containing floristic community type 20a. A multiple use wetland is mapped in the southern part of the area; however, this mapping may be understated, and the wetland could potentially be reclassified to a higher category.

The precinct contains two Aboriginal heritage sites which will need to be investigated as part of the local structure planning process.

The precinct is located within 2km of the Perth International Telecommunications Centre and its development has the potential to create interference for satellite communications. Consultation with Telstra, the operator of the facility, must be undertaken to inform the local structure plan.

Local Structure Plan requirements

- The precinct's location, access constraints and proximity to bushfire hazard in the Lake Gngangara Reserve make it better suited to service commercial development than residential.
- A development contribution scheme is to provide equitable cost distribution for a consolidated drainage basin and restoration of wetlands.

Servicing and Staging

- Leach Way precinct is serviced with overhead power and reticulated water. The reticulated sewerage network has been brought to the adjacent Northlink Industrial estate. Capacity in the existing network may be able to accommodate early stages of service commercial development.
- While there may be demand for service commercial development in the short term, the precinct is currently developed with large, relatively new houses which are likely to remain in place for an extended period. The precinct's development for service commercial use is therefore expected to be a medium-term prospect.

Precinct 19 Lake Gngara

The Lake Gngara precinct contains Lake Gngara and adjacent bushland areas. The precinct is mostly reserved as Parks and Recreation under the MRS, with a small area in the south-eastern corner, comprising seven rural lifestyle properties, identified as Planning Investigation area in the *North-west Sub-regional Planning Framework*. Remnant vegetation within the Parks and Recreation reserve presents a significant bushfire hazard. This combined with the precincts constrained accessibility means development potential is limited.

No change is proposed to the current planning framework.

Precinct 20 Lorian

The Lorian precinct is an Urban Expansion area in the *North-West Sub-regional Planning Framework*. It comprises undulating land which is low-lying in places and is still in active market gardening use.

Patches of remnant banksia woodland exist, which should be retained as part of an ecological link between Lake Gngara and Bush Forever site 397 located on the northern edge of the precinct. Significant bushfire hazard exists on the northern, eastern and southern edges of the precinct. These constraints are manageable provided appropriate interface and management regimes are implemented. Existing cul-de-sacs will need to be linked or extended to the broader road network to provide safe access to and from the precinct.

Local Structure Plan requirements

- Precinct 20 is suitable for a suburban neighbourhood.
- The reserves necessary for the Integrator Arterial Roads forming the western and northern edges of the precinct will need to be secured prior to local structure planning.
- Suitable road connections between Precincts 20 and 25 will need to be identified.
- The precinct is partially affected by a Priority 2 drinking water supply protection area which will need to be lifted when the area is rezoned to Urban.
- A development contribution scheme is to provide equitable cost distribution for consolidated drainage basins as identified in the IWMP.

Servicing and Staging

- The precinct is currently serviced with overhead power and some areas are serviced with reticulated water but is not serviced with reticulated sewer. The precinct will therefore be dependent on the progress of the urban front and associated extension of the sewerage network.
- Given its location and servicing requirements, it is expected that the precinct will be a long-term development prospect.

Precinct 21 East Jandabup

East Jandabup precinct is a Planning Investigation Area in the *North-West Sub-regional Planning Framework*. It includes land zoned Rural and reserved State Forest under the MRS. The Rural zoned portion is characterised by rural residential development and the State Forest includes substantial areas of native bushland and harvested pine plantation. 280 hectares of this area is currently identified as Bush Forever No. 326.

Vegetation is classified as Banksia Woodland with various floristic community types and contains Carnaby Cockatoo habitat. This is a large contiguous area of remnant vegetation which forms part of an ecological link between Lake Jandabup and Land Gnangara and contains two Conservation Category wetlands and one multiple use wetland. Given its environmental values, it is appropriate that the precinct remain Rural, with the current MRS designations of State Forest Reservation and Bush Forever remaining.

No change is proposed to the current planning framework.

Precinct 22 Hawkins Road

The Hawkins Road precinct is an Urban Investigation Area in the *North-West Sub-regional Planning Framework*. The area is isolated and disconnected from other areas proposed to be urbanised and is adjacent to land that will ultimately be developed for industrial use.

The area is characterised by rural activities, has good access to the north-eastern foreshore of Lake Jandabup and enjoys extensive westward views. Portions of the precinct are affected by a designated public drinking water supply area.

Local Structure Plan requirements

- The precinct is to remain a rural area with tourism opportunities to capitalise on the lakefront amenity and rural character as well as the potential synergies with the regional sporting facility located to its north.
- Rural-based tourism and food and beverage offerings would benefit from being closer to the lake front and should maintain a low scale rural aesthetic.
- Recreational and sporting related uses would be suitable in the northern part of the precinct where synergies with the regional sporting facility can be developed.
- Local structure planning must enhance the foreshore environment and provide improved access opportunities.
- Foreshore management plans must maintain and enhance foreshore vegetation (Pinjar complex).

Servicing and Staging

- The precinct is not serviced with reticulated sewer and will therefore be dependent on the progress of the urban front and extension of the sewerage network. Alternative effluent disposal measures for rural type uses may be investigated to allow earlier development of this area.

Precinct 23 East Industrial

The Eastern Industrial precinct is an Industrial Investigation Area in the *North-west Sub-regional Planning Framework*. It is made up of undulating Bassendean dune systems with a conservation category wetland and a small resource enhancement wetland located on its western edge. The precinct is mostly cleared of native vegetation except for the two wetlands.

The Wanneroo Groundwater Treatment Plant is located in the western part of the precinct and a number of Water Corporation production bores traverse the Western edge of the precinct. The whole area is classified as a Priority 1 or Priority 2 Drinking Water Supply area under State Planning Policy 2.2 *Gnangara Groundwater Protection* (SPP 2.2)

The area is currently State Forest (former pine plantation) and has pockets of land identified as an extraction area for basic raw material (sand) under Draft State Planning Policy 2.4 *Basic Raw Materials* (SPP 2.4). Extraction activities are currently being undertaken within the area.

Local Structure Plan requirements

- Eastern Industrial precinct is a long-term strategic asset where future industrial uses will need to be compatible with the area's environmental values and suburban neighbourhoods to the west.
- Local structure planning must consider in consultation with the Water Corporation how development can be made compatible with the retention of the production bores.
- The precinct area is strongly positioned to accommodate clean energy infrastructure and micro-grid technology, out of soil horticulture may also be a viable use into the future.
- Prior to industrial development, arrangements will need to be made to reclassify the drinking water supply classification under SPP 2.2. Local structure planning will need to provide for the operational needs of the Wanneroo Groundwater Treatment Plant and the possibility of a Western Power substation.

Servicing and Staging

- Prior to development the following matters will need to be resolved:
 - Removal of State Forest and Water Catchments overlay
 - Reclassification of public drinking water source area and to address existing bores and bore mains
 - Mining interests.
- Development of this precinct is considered to be a long-term prospect.

Precinct 24 Pinjar Industrial

The Pinjar Industrial precinct is an Industrial Investigation Area in the *North-west Sub-regional Planning Framework*. It is characterised by undulating Bassendean dune systems punctuated by a series of wetlands. The wetlands include one conservation category wetland and four resource enhancement wetlands. Two of the resource enhancement wetlands are completely degraded and the EAS identifies that the management category may be overstated.

The precinct is mostly cleared of native vegetation except for the three remaining wetlands. The area is currently State Forest (former pine plantation) and is an extraction area for basic raw material (sand) under Draft State Planning Policy 2.4 *Basic Raw Materials* (SPP 2.4). The area is also mostly classified as a Priority 1 Drinking Water Supply area under State Planning Policy 2.2 *Gnangara Groundwater Protection* (SPP 2.2). A Water Corporation production bore is currently situated on the precincts northern edge.

A large Parks and Recreation reserve is currently located within the central part of the site; however, this area is cleared and highly degraded. A major electricity substation is currently constructed in the western part of the precinct and a new 330kv transmission line is proposed running east-west through the site. The precinct will have access to the Whiteman Yanchep Highway and Flynn Drive/Neaves Road.

Local Structure Plan requirements

- The precinct is suitable as an expansion to the Neerabup Industrial area accommodating a range of industrial activities.
- A portion of the precinct is located east of the proposed Whiteman Yanchep Highway. This area has poor accessibility and is constrained by a significant bushfire risk. It is intended this eastern portion remain as State Forest.
- Local structure planning must consider in consultation with the Water Corporation how development can be made compatible with the retention of the production bores.
- The precinct contains significant basic raw material resource which will need to be extracted prior to industrial development occurring.
- Prior to industrial development, arrangements will need to be made to remove the water catchments reservation in the MRS.

Servicing and Staging

- Prior to development the following matters will need to be resolved:
 - Removal of State Forest and Water Catchments overlay
 - Reclassification of public drinking water source area and to address existing bores and bore mains
 - Mining interests.
- Development of this precinct is considered to be a medium-term prospect.

Precinct 25 East Gngangara

The East Gngangara precinct is a Planning Investigation Area in the *North-west Sub-regional Planning framework*. It is relatively flat, comprising 22 freehold rural lots, mostly 3ha in area, and a 470ha portion of State Forest (formerly pine plantation) which has been cleared. Historically, the area has been significantly disturbed and does not appear to contain any significant environmental values.

The area is relatively flat and low-lying and contains a small, degraded resource enhancement wetland. The freehold rural lots contain a variety of land uses including plant sales, pottery, horse agistment and rural lifestyle.

Local Structure Plan requirements

- The precinct is suitable for urban expansion in the longer term and will therefore be subject to further investigation, including studies considering water management, infrastructure and services, vegetation and fauna surveys, traffic impact assessment, transport noise and retail assessment.
- The land is remote from existing and proposed urban areas with unresolved issues associated with high groundwater and access.
- The size and location of the area will enable it to be relatively self-contained, although road connectivity with the Lorian precinct will be necessary, linking through to an intersection onto Gngangara Road.

Servicing and Staging

- The area is remote from services and facilities except for reticulated water and power along Gngangara Road and is constrained by public drinking water source protections.
- The precinct will be further investigated for urban development in the longer term.

Precinct 26 Neaves Road Rural Residential

The Neaves Road East Rural Residential precinct is identified for rural residential purposes in the *North-West Sub-Regional Planning Framework*. It is characterised by rural lifestyle and equine uses with pockets of remnant vegetation throughout. Its restricted accessibility and proximity to bushfire hazards from adjacent State Forest make it unsuited for further subdivision.

No change is proposed to the current planning framework.

Precinct 27 & 28 State Forest

Existing land uses within the State Forest include timber harvesting, prospective mining tenements and incidental recreational uses.

No change is proposed to the current planning framework

9 Definition of Terms

Used in Table 4.1 and 4.2

Basic Raw Materials Assessment

An assessment of the requirements for basic raw materials, including a strategy to minimise the importation of basic raw materials in accordance with State Planning Policy 2.4 *Basic Raw Materials*.

Economic Assessment

An assessment of the opportunities for economic and employment development including a strategy to maximise economic and employment development in accordance with State Planning Policy 4.2 *Activity Centres for Perth and Peel*.

Foreshore Strategy

A foreshore strategy details the proposed functions, broad development layout and conservation areas within the foreshore reserve.

Bushland Interface

The local structure plan is to detail bushland interface treatments including roads and public open space accounting for environmental, bushfire and amenity considerations.

Foreshore/Wetland Interface

The local structure plan is to provide guidance on road alignment and construction, built form and land use within neighbourhoods adjacent to foreshore areas having regard to the foreshore strategy.

Subdivision Options and Guidelines

The local structure plan should demonstrate the proposed land use, roads and public open space can facilitate an orderly and logical subdivision layout.

Public Realm Guidelines

Guidelines for the design and construction of public roads and public open space delivering Part 1 Planning Outcome provisions for the precinct.

Development Guidelines

Guidelines addressing built form, access and landscaping necessary to deliver Part 1 Planning Outcome provisions for the precinct.

Bushfire Management Staging

The local structure plan should explain how progressive development/staging may be implemented as identified in the Strategic Bushfire Hazard Level Assessment (Appendix C).

Public Open Space

Local public open space forms a significant structural component responding to existing environmental or topographic features, or co-located with a school site.

Abbreviations

EWDSP	East Wanneroo District Structure Plan
LSP	Local Structure Plan
MRS	Metropolitan Region Scheme
DPS No. 2	City of Wanneroo District Planning Scheme No. 2
DWMS	District Water Management Strategy
EAS	Environmental Assessment Study
EDES	Economic Development and Employment Study
BMP	Bushfire Management Plan
R Codes	State Planning Policy 7.3 - Residential Design Code