August 2020

East Landsdale Cell 9 - LOCAL STRUCTURE PLAN NO. 57 (As amended)

EAST WANNEROO CELL 9
LOCAL STRUCTURE PLAN

(AS AMENDED)

STRUCTURE PLAN NO.57

ADOPTED: 30 NOVEMBER 2015

This Structure Plan is prepared under the provisions of the City of Wanneroo District Planning Scheme No.2

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Wanneroo District Planning Scheme No. 2.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

30 NOVEMBER 2015

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the Planning and Development (Local Planning Schemes) Regulations 2015.

Date of Expiry: **08 DECEMBER 2030**

Record of Amendments made to East Wanneroo Cell 9 Local Structure Plan

Amendment No.	Summary of the Amendment	Amendment type	Date approved by WAPC
1.	To allow the land use 'Plant Nursery' as an Additional Use on Lot 601 (No.15) Queensway Road, Landsdale	Minor	15 January 2016
2.	To redistribute the Public Open Space allocation on Lots 163 and 165 Kingsway Road, Landsdale;to reconfigure the road alignment on Lots 164 and 165 Kingsway Road and to code the northern portion of Lot 165 as Residential 20/30	Minor	13 January 2013
7	Modify the proposed road network over Lot 1981 Gnangara Road, Landsdale to correspond with future subdivisional boundaries; Remove the Commercial zone and replaces it with Residential Precinct	Minor	12 September 2016
8	Expand the southern Commercial zone and provide more flexibility in the design and layout of the neighbourhood centre in East Landsdale whilst also introducing additional urban design and management measures in order to facilitate an appropriate interface with the adjoining residential areas.	Minor	23 October 2018
9	Inserting a new Map 2.1 – R-MD Codes Plan and applying the R-MD standards to various portions of land designated Residential R-30 within Lot 1981 Gnangara Road, Landsdale. Inserting the following new provision into Part 1: 12.1.1 R-MD Codes The City of Wanneroo's Local Planning Policy 4.19: Medium-Density Housing Standards (R-MD) sets out acceptable	Minor	8 February 2018

	variations to the deemed-to-comply provisions of the R-Codes for lots coded R25- R60. The variations setout in LPP 4.19 apply to all lots designated R-MD on ASP No.57 and thereby constitutes acceptable development within the Structure Plan area. Renumbering the existing provisions in Section 12.1 accordingly.		
10	To: a) Update the Structure Plan to be consistent with Part 4 of the deemed provisions of the Scheme; and b) Modify the Structure Plan to modify/delete provisions that will be incorporated into Scheme Amendment 146 which provides for the introduction of Special Control Area 2 into Schedule 17 of the Scheme relating to the area subject of East Wanneroo Cell 9 East Landsdale – Approved Structure Plan No. 57.	Minor	08 June 2021
11	Various amendments made to the text and maps pursuant to Clause 29A(2) of the deemed provisions, to coincide with Amendment No. 221 to District Planning Scheme No. 2	DPS 2 Amendment No. 221 gazetted 03 February 2026. Structure Plan amended in accordance with Schedule 2 - Deemed Provisions, Clause 29A on 19 March 2026.	

OVERVIEW

Clause 9.8 of the City of Wanneroo District Planning Scheme No.2 (hereinafter called “the Scheme”) provides, amongst other things, that a provision, standard or requirement of a Structure Plan approved under Part 9 of the Scheme, shall be given the same force and effect as if it was a provision, standard or requirement of the Scheme. It is hereby provided that such force and effect shall only be given to Part 1 of this Structure Plan. Part 2 of the Structure Plan is for explanatory purposes only, providing a descriptive analysis of the Structure Plan initiatives.

Clause 9.8.3(f) of the Scheme states that, in the event of there being any inconsistency or conflict between any provision, requirement or standard of the Scheme and any provision requirement or standard of an Approved Structure Plan, the provision, requirement or standard of the Scheme shall prevail.

A key element for the special development provisions included in this Structure Plan is to ensure the ongoing compatibility between residential development and the Perth International Telecommunications Centre (PITC) located on the eastern side of Alexander Drive. The PITC is sensitive to the emission of Radio Frequency (RF) interference that can be produced in urban environments. The following development controls will assist in minimising those impacts and assist in the ongoing compatibility between urban uses and the PITC.

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APPENDICES

Appendix 1: Economic Employment Strategy, Syme Marmion & Co, August 2007.

Appendix 2: Environmental Assessment Report, Coffey Environments, July 2007.

Appendix 3: Traffic Report, Riley Consulting, May 2008 – Update Transcore, June 2009

Appendix 4: Engineering Report, TABEC, May 2008

Appendix 5: Memorandum of Understanding (Deed) between Telstra and Stockland.

Appendix 6: East Landsdale Structure Plan Area Water Management Framework.

Part 1
Implementation

1.0 STRUCTURE PLAN AREA

This Structure Plan shall apply to all of the land bounded by Gnangara Road to the north, Alexander Drive to the east, Hepburn Avenue to the south and existing residential development in Lansdale to the west, generally following the alignment of Broadview Drive and Warradale Park, being the land contained within the inner edge of the broken black line shown on the Structure Plan Map (Map 1).

2.0 STRUCTURE PLAN CONTENT

This Structure Plan comprises the:

a) Implementation (Part 1).
b) Explanatory Section (Part 2).

3.0 INTERPRETATION

The words and expressions used in this Structure Plan shall have the respective meanings given to them in the Scheme, or where not defined in the Scheme, as set out in this document.

'The Scheme' shall mean the City of Wanneroo District Planning Scheme No.2 (as amended) or such amendments or modifications thereto that may be current.

4.0 OPERATION DATE

In accordance with Clause 28 of the deemed provisions, this Structure plan shall come into operation on the date that the Western Australian Planning Commission approved the Structure Plan.

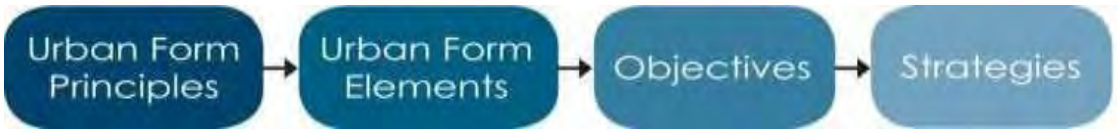
5.0 RELATIONSHIP WITH THE SCHEME

In accordance with the provisions of Part 4 of the deemed provisions:

a) The decision maker is to have due regard to the provisions, standards and requirements specified by this Structure Plan when deciding on a subdivision or development application.
b) In the event of there being any inconsistencies or conflicts between the provisions, standards or requirements of the Scheme and provisions, standards or requirements of this Structure Plan, then the provisions, standards and requirements of the Scheme shall prevail.

6.0 PLANNING PRINCIPLES, ELEMENTS, OBJECTIVES AND STRATEGIES

This section details a number of Urban Form Principles, Elements, Objectives and Strategies which are intended to inform and guide the detailed planning process:



The Principles are broad statements derived from *Liveable Neighbourhoods* and Council's *Smart Growth Strategy,* to guide the detailed design and development.

The various strategies referred to in the Structure Plan are generally to be implemented as part of the future subdivision and development of the Structure Plan Area.

6.1 Urban Form Principles

The following urban form principles underpin the Structure Plan:

- To create a sustainable development that aims to achieve key 'triple bottom line' outcomes whilst fostering the development of a strong local identity and sense of place within the community.
- To create a vibrant, sustainable and interactive community that provides a wide range of residential, recreational, retail, education and mixed use areas within walkable neighbourhoods allowing for a variety of living, employment and leisure opportunities.
- To create an urban form which encourages a range of lot and housing types enhancing lifestyle and affordability opportunities.
- To provide an efficient movement network which facilitates safe and pleasant walking, cycling and driving, improving access to public transport systems, local employment, retail and community facilities.
- To provide an integrated approach to the retention of key environmental areas, urban servicing and design of open space.
- Identify and articulate discernable neighbourhoods, addressing *Liveable Neighbourhoods* Policy (as updated from time to time).

6.2 Urban Form Elements

Urban Form Elements within the Structure Plan are generally guided by the key elements contained within Western Australian State Operational Policy - *Liveable Neighbourhoods*:

- Movement Network.
- Housing.
- Sustainability, Environment and Open Space.
- Community and Schools.
- Infrastructure.
- Activity Centres & Employment.

6.2.1 Movement Network

Primary Objectives:

- To provide an interconnected movement network providing convenient and safe linkages for vehicles, cyclists and pedestrians to and throughout the residential areas, activity centres, open space and other areas of interest within or adjoining the development.
- To provide a street network and design which creates a pleasant public realm and encourages walking, less reliance on the private car and enhances public transport use.
- To ensure efficient use of land through the application of *Liveable Neighbourhoods* road design principles and standards.

Strategies:

- To locate neighbourhood connectors and major intersection points generally consistent with the locations depicted in the Structure Plan.
- A highly interconnected street network to provide focus on the Activity Centre with strong links both within and external to the Structure Plan Area, maximising safety, encouraging walking and cycling, supporting public transport and minimising the impact of through traffic.
- Locate a road interface to areas of public open space, unless it can be demonstrated in a particular instance that an alternative form of interface treatment is appropriate.
- Design the street network in a way that provides for development orientation toward major roads.
- Identify a conveniently positioned bus route network, providing maximum accessibility in conformance with PTA policy.
- Locate a public transport node and access points within the Activity Centre.
- The design and character of major roads, to provide an environment amenable to pedestrians, cyclists, homes and businesses.
- Design and locate local streets to create safe low vehicle speed environments embracing Liveable Neighbourhood standards for widths, cross sections, truncations, street trees and other matters.
- Provide a road network that facilitates energy efficiency in accordance with Liveable Neighbourhood standards.

6.2.2 Housing

Primary Objectives:

- To ensure the provision of choice and a range of housing product, responsive to community needs and sustainability principles.
- To promote efficient use of land through the appropriate spatial allocation and sitedesign.
- To minimise the impact of development on landform, to realistically reflect the constraints and opportunities posed by landform and topography in the design of subdivision.
- To ensure ongoing compatibility between residential development and the Perth International Telecommunications Centre (PITC).

Strategies:

- Provide the Structure Plan with densities, consistent with targets outlined in Clause 10.0 –

Residential Density Codes, to facilitate variety and affordability of housing product.

- Design a road network that allows the creation of residential lots that can be developed in a manner that facilitates solar passive design.
- Promote housing layouts that incorporate energy efficiency and passive solar design through purchaser information.

6.2.3 Sustainability, Environment & Open Space

Primary Objectives:

- To deliver triple bottom line sustainability outcomes being:
  - Economic – commercial success for all.
  - Environment – preservation and response to natural features, energy, water and waste minimisation.
  - Social – a vibrant and safe community.
- Create a range of recreational opportunities within the Structure Plan Area (including active and passive recreation spaces, integrated bushland areas within open space and conservation areas), which generally reflect WAPC subdivision policy requirements and the City of Wanneroo's environmental policy framework.
- Retain natural landscape character through local vegetation retention, native landscape themes and the reuse of native vegetation.
- Provide for the co-location, integration and sharing of public open space areas and recreation facilities with schools.
- Create an area of quality community open space in the vicinity of the ActivityCentre.
- Locate open spaces to ensure good pedestrian accessibility and to enhance pedestrian movement opportunities throughout the Structure Plan Area.
- Ensure surveillance of public open space areas to enhance security.
- Promote solar passive design.
- Promote water efficiency through rainwater collection and grey water reuse to enhance sustainability of the development.
- Objectives for Sustainable Wetland Development:
  - To maintain a sense of place through retention of existing good quality natural vegetation, use of indigenous plant species and the protection and enhancement of the existing natural wetland processes.
  - To achieve up to 100% open space credits for buffers surrounding any identified Resource Enhancement Wetland (REW) and Conservation Category Wetland (CCW).
  - To enhance regional connectivity of the existing wetland systems.
  - To ensure all development storm water runoff is stripped of nutrients prior to entering an existing wetland system.
- Objectives for Streetscapes and Public Open Space (POS):
  - Use the site's ecology as a design tool to retain, develop and enhance the site's existing landscape and landforms with an Australian native, wild flower character.
  - Maintain the sense of place through the retention of existing good quality natural vegetation, local planning theming and reuse of indigenous local species to rehabilitate degraded vegetation communities.
  - Locate open space areas within the Structure Plan Area in a manner that facilitates good

pedestrian access and connectivity both within the development and regionally.

- Integrate opportunities for stormwater runoff infiltration source to replenish ground water systems.
- Integrate Crime Prevention through Environmental Design principles and practices.
- To protect locally significant natural areas.

- Objectives for Urban Water Management:
  - Implement water sensitive urban design in accordance with the Water Management Framework (Appendix 6);
  - Optimise efficient use and re-use of water resources.
  - Demonstrate capacity of the land to sustain urban development, considering (where relevant) acid sulphate soils, surface and groundwater biodiversity and other land uses in the Structure Plan Area.
  - Incorporate objectives relating to performance of the development with regards to potable water consumption, groundwater and stormwater quality and quantity.
  - Encourage water conservation.
  - Enhance water related environmental issues.
  - Protect water sensitive ecosystems, including wetlands.

Strategies:

- Provide a mixed use public open space corridor as indicated on the Structure Plan and a central POS network.
- A minimum of 10% of the total site at full development is to be set aside as POS in accordance with WAPC policy and should achieve the following:
  - Provide a practical balance between the protection of local vegetation, community requirements and provision of active and passive parkland.
  - Provide a range of passive 'pocket parks' with a high amenity focus.
  - Provide good connectivity to and through the open spaces and ensure most residents are no more than 450 metres from an open space.
  - Selectively retain native vegetation in road reserves and POS.
  - Integrate drainage into multiple use open space corridors in addition to the 10% POS areas. This does not preclude the use of drainage basins where appropriate.
  - Use native landscape themes for public open spaces, street trees and private landscape packages.
- Strategies for Sustainable Wetland Development:
  - Identify buffers surrounding the REW and CCW wetlands for inclusion in public open space as local conservation areas for passive recreation and up to 100% credit, based on calculations in accordance with *Liveable Neighbourhoods*.
  - Identify and retain good to pristine quality condition vegetation within the wetland buffers.
  - Undertake seed collection and propagation of indigenous plant species within the identified wetlands for rehabilitation of degraded sites and buffers.
  - Identify wetland processes, local flora and fauna for interpretation opportunities.
  - Integrate boardwalks and site responsive pedestrian access within nominated wetland buffers, to increase pedestrian connectivity within the Structure Plan Area.
  - Incorporate interpretative signage, about the natural environment the residential development is set in, with shade structures, for educational purposes.
  - Identify drainage requirements and appropriate "at source" infiltration techniques throughout the development streetscape network and appropriate non-structural source

controls. This would allow for nutrient stripping prior to the runoff entering the wetland systems.

- Develop Wetland Concept and Management Plans for the CCW and REW including, but not limited to, weed control mechanisms and barriers, controlled pedestrian access, interpretation and recreation within buffers, re-vegetation and on-goingmaintenance.

- Strategies for Streetscapes and Public Open Space:
  - Evenly distribute POS throughout the Structure Plan Area, generally consistent with the Structure Plan, to maximise accessibility for all residents.
  - Provide a north-south open space corridor aligned with the main "Green Spine" road, as shown on the Structure Plan, to allow for conservation, passive and active recreation opportunities and connection to Gnangara Reserve Regional Open Space.
  - Identify and protect, where practicable, good to pristine quality condition vegetation within the POS areas and streetscapes, to protect and retain a sense of place and provide instant amenity.
  - Integrate drainage solutions throughout the development in streetscapes and POS areas to promote best practice water sensitive urban design.
  - Undertake seed collection and propagation of indigenous plant species within the identified good to pristine quality condition vegetation for rehabilitation of degraded sites and reuse in identified natural conservation areas.
- Strategies for Urban Water Management :
  - Land owners to develop Urban Water Management Plans to the satisfaction of the City of Wanneroo and the Department of Water prior to lodgement of a subdivision application with the Western Australian Planning Commission.
  - Incorporate stormwater treatment into the landscape through implementation of Urban Water Management Plans.
  - As far as practicable, develop coordinated approaches to urban water management through cooperation in the development of urban water management plans across landholdings.
  - Optimise the use of existing resources.

6.2.4 Community Facilities and School

Primary Objectives:

- To create a distinctive and responsive built form, enhancing a sense of neighbourhood and community identity, place and character.
- Provide community facilities and services (including retail, education, recreation, etc), a variety of housing choice and a legible street network to facilitate community interaction, and support different needs and lifestyles.
- Provide educational facilities that meet the needs of the existing and future community.
- Promote efficient land use through innovative design and site planning solutions.
- Promote the co-location of educational facilities with areas of active open space and community uses.

Strategies:

- To provide for location of a public Primary School within the Structure Plan Area, generally

in the location shown on the Structure Plan.

- Educational facilities are to be located to comply with Telstra requirements and designed to encourage contemporary urban form outcomes.
- Promote, where appropriate, sharing of school infrastructure with the broader community through partnerships with Local Government.

6.2.5 Infrastructure, Tree Retention and Earthworks

Primary Objectives:

- To optimise the use of existing infrastructure and assets within and surrounding the site.
- To ensure that infrastructure is provided in an appropriately staged manner, as development proceeds.
- Objectives for tree retention and earthworks:
  - Achieve minimum 1.2m freeboards above AAMGL.
  - Minimise earthworks requirements across developments.
  - Retain significant vegetation (where practicable) within POS reserves and road reserves.
  - Minimise height of retaining walls (where practicable) below 3m.
  - Ensure existing and future development levels are compatible between adjoining subdivisions which respond and / or consider issues in relation to legal boundaries.
  - Land owners are encouraged to consider consolidated earthworks design to gain efficiencies and to achieve desired objectives.

Strategies:

- Provide communications infrastructure within the Structure Plan Area to improve local employment opportunities.
- Strategies for tree retention and earthworks:
  - Achieve minimum 1.5m freeboard above AAMGL to accommodate onsite infiltration of storm water management.
  - Liaise with adjoining landowners to achieve above objectives.
  - Landowners to prepare (at subdivision stage) an earthworks management plan.
  - In the event of any significant trees being identified for retention, management plans to be prepared to ensure tree retention.
  - Detail design to consider minor variations to road alignments and lot boundaries to facilitate, where practical, tree retention.

6.2.6 Activity Centres and Employment

Primary Objectives:

- To establish an accessible and amenable Activity Centre to serve the commercial, social and employment needs of the community and act as a focus point for community activity and interaction.
- Create a robust urban framework within and around the Activity Centre, which enhances the opportunity for mixed use and local based employment.

Strategies:

- Develop a vibrant Activity Centre, incorporating best practice design and sustainability principles to act as a focus and attractor for the local community.
- Create a centre for commercial activity and provide opportunities for local employment,

consistent with Liveable Neighbourhoods.

- Promote good access to the centre through its location on higher order roads and public transport, pedestrian and cycle routes.
- Maximise on-street parking at the centre to enable appropriately reduced private parking, make best use of urban land and encourage alternative modes of transport.
- Incorporate a diversity of land uses within the centres.

7.0 OPERATION OF STRUCTURE PLAN

Subdivision applications shall be generally consistent with the intent of the Approved Structure Plan. At the time of lodging an application for subdivision, the proponent shall provide supporting information pertinent to the relevant area detailed on the Structure Plan Map (Map 1) to demonstrate how the objectives and strategies detailed in section 6.0 will be addressed. This information will include, where relevant, amongst other things, strategies, preliminary concepts and objectives for the following supporting technical documents, with the detailed Management Plans being required as a condition of subdivision:

- Wetland Management Plan(s)
- Vegetation Management Plan(s).
- Native Fauna Management Plan(s).
- Landscape Concept Plan(s).
- Local Road Network Plan.
- Intersection Improvement Plan for Alexander Drive.

8.0 STRUCTURE PLAN MAP

The Structure Plan Map (Map 1) outlines the planned pattern of development for the Structure Plan Area. All development should be carried out in accordance with the principles outlined in this document and described on Map 1.

9.0 ZONES

Map 3 – Zoning Map delineates and depicts the zones applicable to the Structure Plan Area according to the legend thereon.

9.1 Additional Use

Notwithstanding anything contained in Schedule 1 of the Scheme or in Section 12.1 of this structure plan, the land specified in Schedule A of the East Wanneroo Cell 9 – East Landsdale LSP 57 may be used for the specific use listed in addition to any uses permissible for the zone in which the land is located, subject to the conditions set out therein.

SCHEDULE A

NO.	STREET/LOCALITY	PARTICULARS OF LAND	ADDITIONAL USE AND CONDITIONS
1	15 Queensway Road, Landsdale	Lot 601	Garden Centre CONDITIONS: i) Provision of a minimum of 3.0 metre wide firebreak along the western and southern boundaries; ii) A minimum of a 3.0 metre wide vegetated buffer to be planted and maintained along the western and southern boundaries abutting the firebreak; iii) Any future development to be setback at a minimum distance of 7.5 metres from the western and southern boundaries and from Alexander Drive and Queensway Road; iv) In the event the whole or apart of the land is subdivided for residential purposes in accordance with Approved Local Structure Plan No. 57, the additional use provisions relating to the use of the subject land as a Garden Centre shall cease to apply to that part; v) Vehicular access to and from Lot 601 is limited to Queensway Road only; and vi) A 1.8m high fence of shade cloth or other porous material being constructed and/or maintained within 1m of the southern and western boundaries.

10.0 RESIDENTIAL DENSITY CODING

Map 2 - Residential Coding Map delineates and depicts the residential density codes applicable to the Structure Plan Area according to the legend thereon.

The residential density codes designated under this Structure Plan apply to the land as if the residential density codes were incorporated in the Scheme.

10.1 Residential Density Coding Provisions

a) A base coding of R20 applies to the structure plan area;

b) R30 may be provided in the following circumstances:

- 400m from Commercial/Retail centres
- 250m from Public Open Space
- 250m from Bus Routes;

c) at the time of subdivision, an R-Code plan is to be submitted allocating R- Codes in accordance with clauses a) and b) above, for the assessment of development applications;

d) subdivision is to achieve a minimum average site area of not less than 500m^2 per dwelling.

11.0 PUBLIC OPEN SPACE SCHEDULE

A minimum of 10% of the total site at full development is to be set aside as public open space (POS) in accordance with WAPC Policy *DC 2.3 Public Open Space in Residential Areas* and *Liveable Neighbourhoods* requirements and the following POS Schedule. Any drainage requirements to be located in POS areas will be in addition to the 10% POS areas.

POS	Lot	Area	POS Area	Credited Area	Total Credited Area
1	152	6900		6900	
	154	5000		5000	
	155	6015		6015	
	156	4917		4917	
	404	200	**23032**	200	**23032**
2	52	10026		10026	
	404	4500	**14526**	4500	**14526**
3	55	6901		6901	
		2170	**9071**	2170	**100% Credit (wetland buffer)**
	56	14688		14688	**100% Credit (wetland buffer)**
		2283		2283	
		6029	**23000**	0	**No Credit (wetland core)**
	57	4500	**4500**	4500	**30542**
4	72	1370		1370	
		2930	**4300**	2930	**100% Credit (wetland buffer)**
	73	1226		1226	
		4494		0	**No Credit (wetland core)**
		11380	**17100**	11380	**100% Credit (wetland buffer)**
	74	7952		7952	**100% Credit (wetland buffer)**
		685		0	**No Credit (wetland core)**

POS	Lot	Area	POS Area	Credited Area	Total Credited Area
		12163	**20800**	12163	
	75	7800	**7800**	7800	**44821**
5	58	2271		2271	
	59	2064	**4335**	2064	**4335**
6	60	4716	**4716**	4716	**4716**
7	62	2435		2435	
	602	5381	**7816**	5381	**7816**
8	670	5209	**5209**	5209	**5209**
9	66	1403		1403	
	65	4372	**5775**	4372	**5775**
10	65	6587		6587	
	64	5427	**12014**	5427	**12014**
11	128	2021		2021	
	163	4842	**6863**	4842	**6863**
12	165	13449		13449	
	166	19690	**33139**	19690	**33139**
13	150	4970	**4970**	4970	**4970**
14	152	4000	**4000**	4000	**4000**
POS:			**21.2966**	**Credited:**	**20.1758**

Total Area	Deductions		Total Deductions	Gross Sub-divisible Area	Public Open Space Provision 10%	Public Open Space Provided	Surplus / Deficit
215.5515	Road Widening	0.3376	**13.7934**	**201.7581**	**20.1758**	**20.1758**	**0.0000**
	Centre Zone	1.0000					
	Gnangara Road Drainage	0.2600					
	Resource Enhancement Wetland Core	0.6029					
	Private School	4.3800					
	Road Widening	0.0630					
	Conservation Category Wetland Core	0.5179					
	Primary School	4.0000					
	Commercial	2.5288					
	Road Widening	0.1032					

12.0 GENERAL PROVISIONS

12.1 Residential Precinct

This section relates to the Residential Precinct were shown on Plan 3. In the context of this Structure plan,

the Residential Precinct does not relate to land which is zoned Residential under the scheme.

Provisions, standards and requirements of the Residential Precinct are in accordance with those applicable to the Residential zone as included in the scheme and the Residential Design Codes.

Land use permissibility in the Residential Precinct is the same as prescribed for the Residential zone in the Special Control Area Provisions of the Scheme (for SCA 2). An Additional Use of Garden Centre can be considered for Lot 601 Queensway Road, Landsdale, subject to the provisions of Section 9.1 of this structure plan.

12.2 Local Scheme Reserves

The provisions, standards and requirements of any Local Scheme Reserve are in accordance with those applicable to the same Reserves as are included in the Scheme.

12.3 Other Provisions

12.3.1 Landscaping

A landscape plan is to be prepared by landowners (at subdivision stage) and adopted by Council to establish evergreen vegetation within public open space and road reserves.

The landscape plan shall include species identified for the relevant locality type in the Street Tree Master Plan. Wherever practical, Australian native vegetation should be used.

It should be noted that the clearing of habitat for the Graceful Sun Moth such as Lomandra Hermaphrodita and Banksia Woodland requires the approval of the Minister for the Environment, or their delegate, pursuant to the Wildlife Protection Act 1950.

Species diversity, density and planting size (when planted along Alexander Drive), should be generally as recommended in Figure 1 - Alexander Drive Species and Densities, planted utilising a mounded buffer zone as described in Figure 2 - Alexander Drive Buffer Concept Plan.

12.3.2 Subdivision Process

At the time of subdivision of land within East Wanneroo Cell 9 Structure Plan Area, Council may consider recommending the following condition(s) on any subdivision approvals in order to minimize the potential for adverse radio frequency emissions to the PITC:

Measures being taken to ensure that:

a) Lighting along Alexander Drive is incandescent or halogen type rather than sodium or mercury type light;
b) Street lighting has a metal cap installed over the top of the light and mesh installed around the open portion of the light;
c) Street lighting utilises energy efficient lights and practices, in consultation with Telstra and Western Power;
d) Natural vegetation in any existing and proposed public open space is retained to a reasonable extent; and
e) During subdivision works earthmoving equipment is diesel powered, materials used are prefabricated, and where reasonably possible, no arc welding is undertaken.

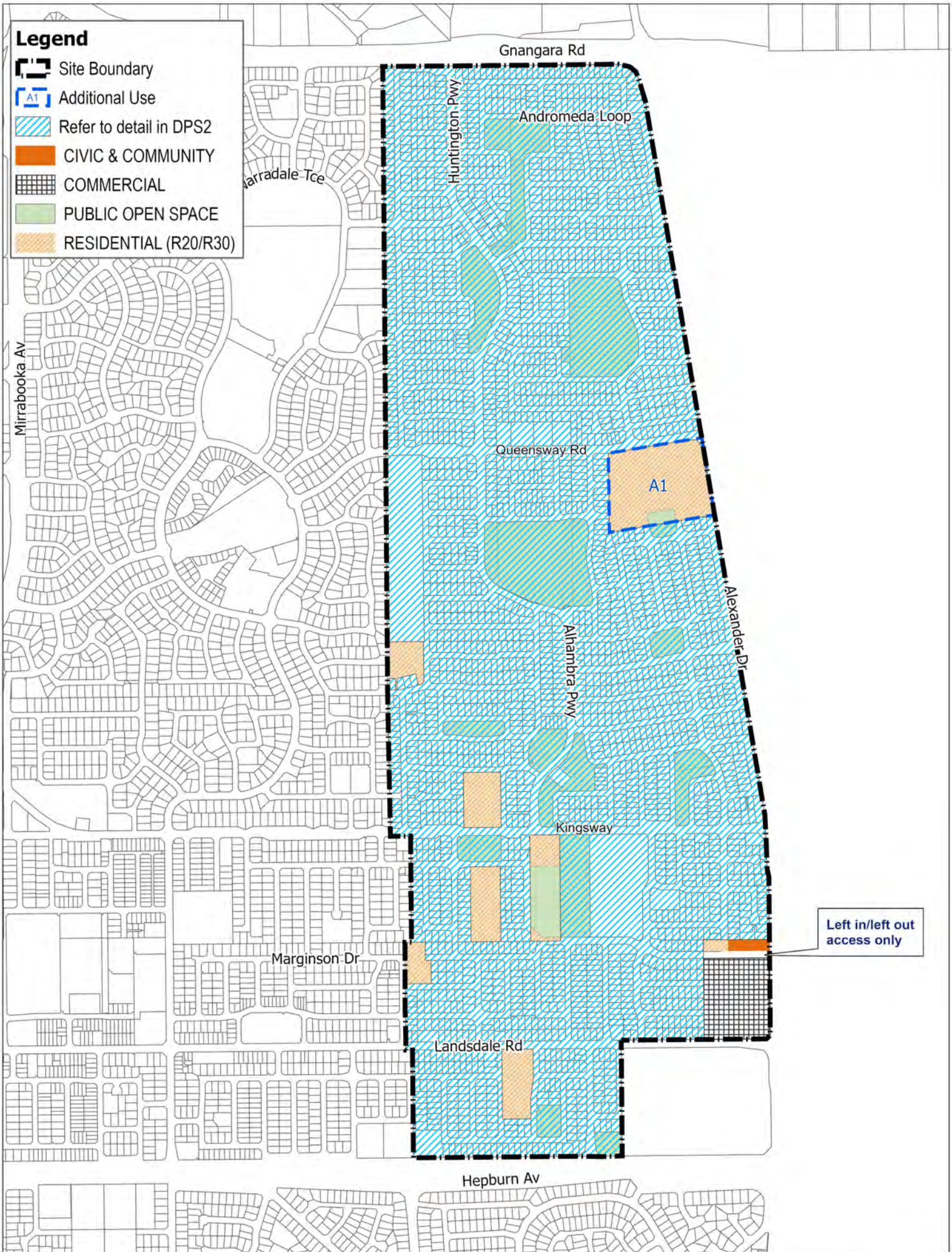
12.3.3 Orientation of Roads

Roads within Cell 9 must be aligned to a predominantly east-west system, generally as shown on Map 1 – Structure Plan.

Appropriate connections be provided to Grayswood Court, Mossfiel Retreat and Strathpine Chase at the time of subdivision of the adjoining land within the Structure Plan Area. A road connection is to be provided to Kevo Place at the time of subdivision.

12.3.4 Transitional Provisions

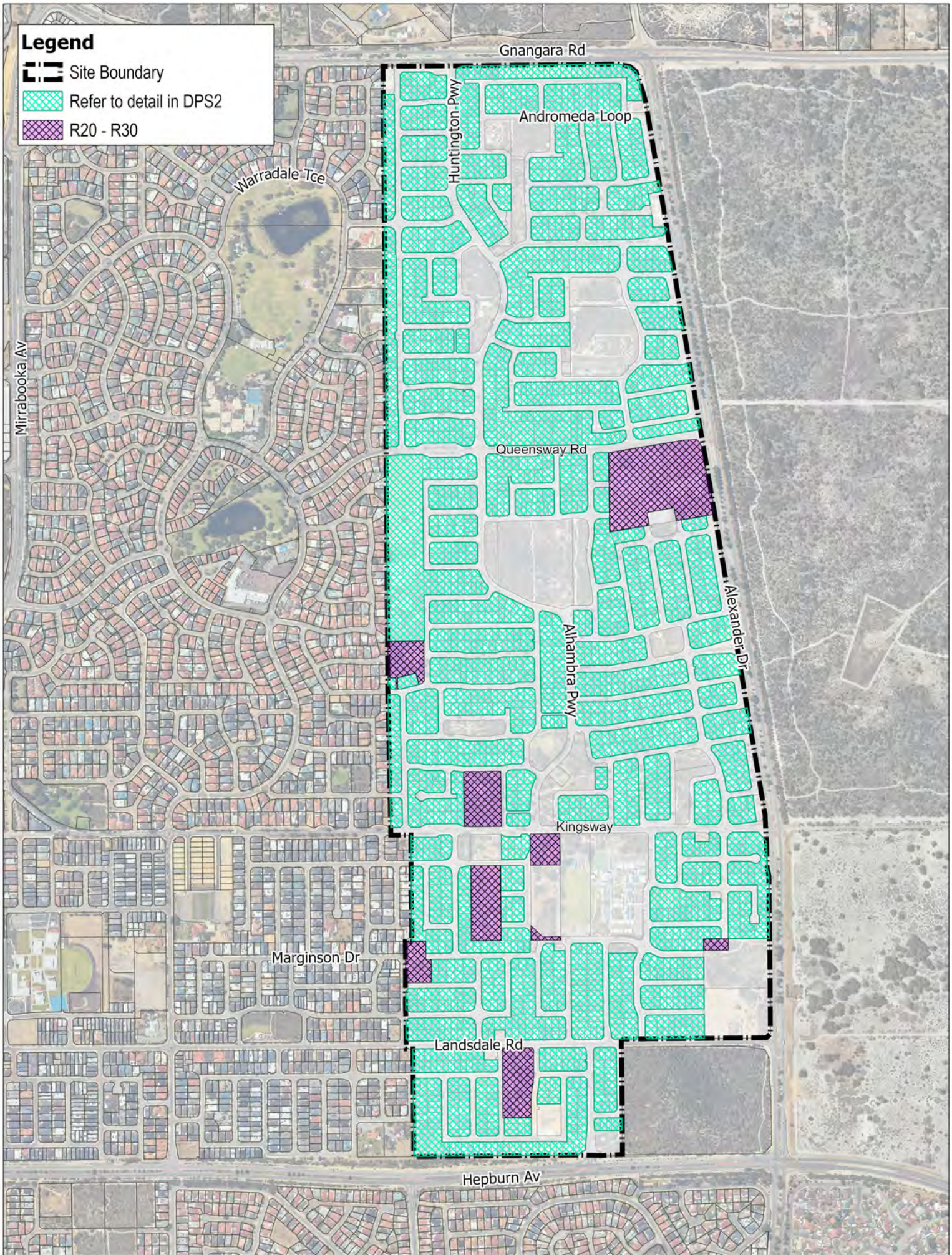
Prior to the revocation of the Structure Plan, the provisions included in Part 1 are to be incorporated into the Scheme.



Map 1 - STRUCTURE PLAN
EAST LANDSDALE

City of Wanneroo

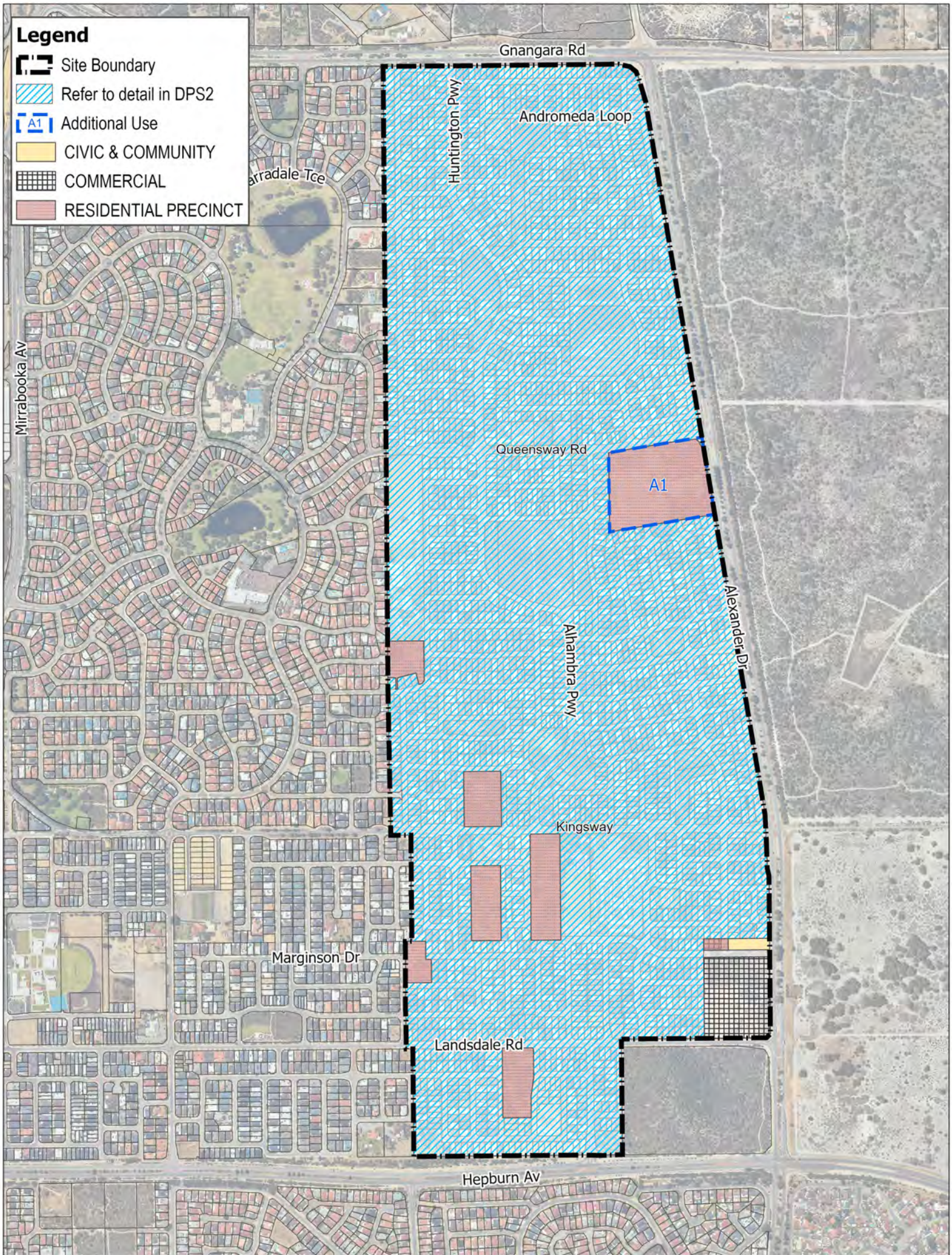
Produced by Customer & Information Services
21/05/2025
KACE : 116138



Map 2 - RESIDENTIAL CODING PLAN
EAST LANDSDALE

City of Wanneroo

Produced by Customer & Information Services
21/05/2025
KACE : 116138



Map 3 - ZONING PLAN
EAST LANDSDALE

City of Wanneroo

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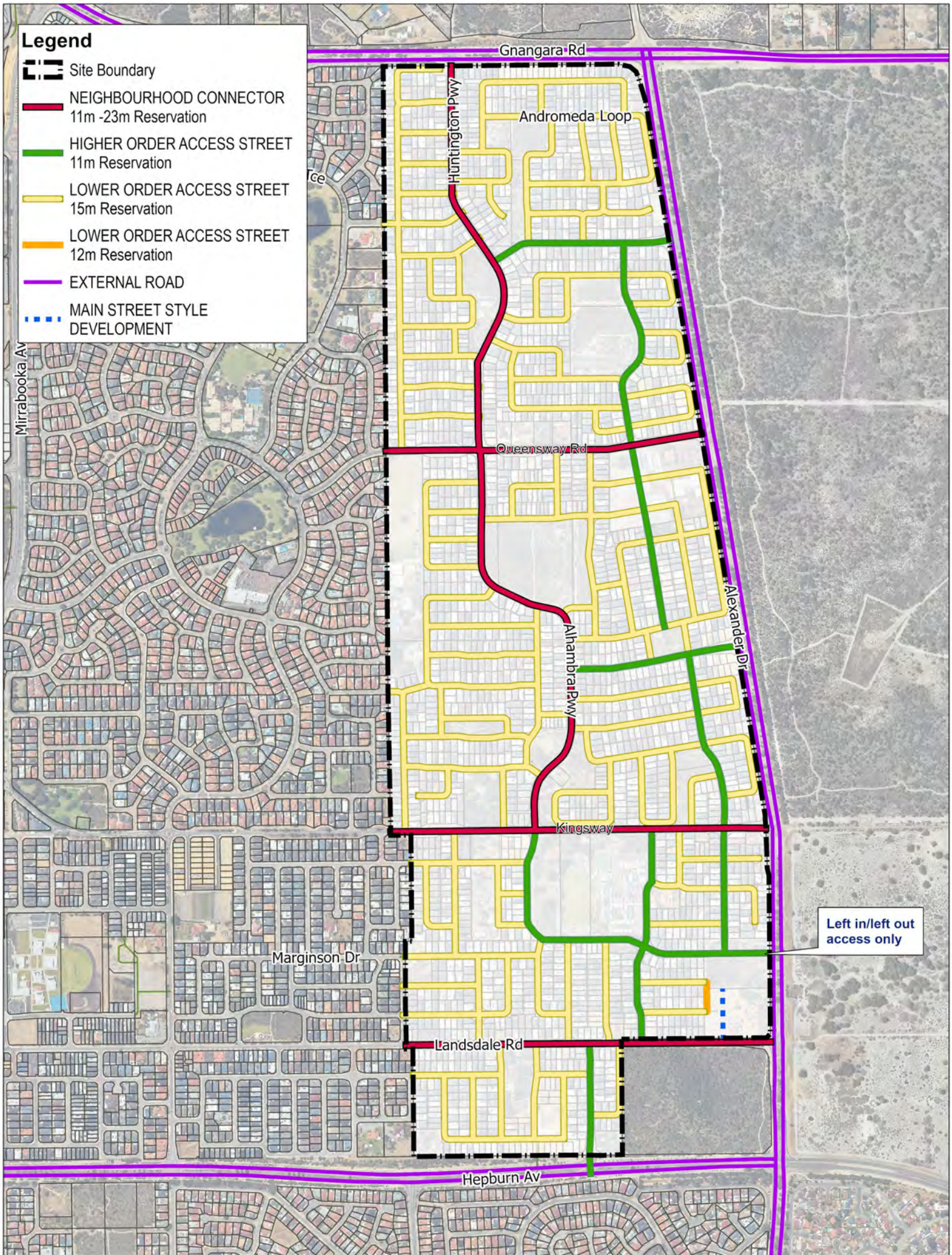
KACE : 116138



Map 4 - ROAD HIERARCHY PLAN
EAST LANDSDALE

City of Wanneroo

Produced by Customer & Information Services
21/05/2025
KACE : 116138

Map 5 – POS Plan

SPECIES	COMMON NAME	MATURE HEIGHT	WANNEROO COMPLIANT	TELSTRA COMPLIANT	ECOSCAPE RECOMMENDATION
Trees					
Agonis flexuosa	WA Peppermint	10m	•		•
Allocasuarina fraseriana	Common Sheoak	5 - 15m	•	•	•
Angophora costata	Smooth Barked Apple Gum	15m	•		
Banksia attenuata	Candle Banksia	4-12m	•	•	•
Banksia ilicifolia	Holly-Leaf Banksia	10m	•	•	•
Banksia menziesii	Firewood Banksia	10m	•	•	•
Callistemon 'KPS'	Kings Park Special	3 - 6m			•
Callistemon viminalis	Weeping Bottlebrush	5 - 10m	•		•
Casuarina cunninghamiana	River Sheoak	20m	•		•
Casuarina obesa	Swamp Sheoak	10m	•		•
Corymbia calophylla	Marri	40m		•	•
Eucalyptus marginata	Jarrah	30m	•	•	•
Eucalyptus nicholii	Willow Leaf Peppermint	15m	•		
Eucalyptus rudis	Flooded Gum	10 - 20m	•		
Eucalyptus scoparia	Wallangara White Gum	6 - 12m	•		
Eucalyptus sideroxylon 'Palens'	Red Ironbark Gum	10 - 30m	•		
Eucalyptus todtiana	Coastal Blackbutt	5 - 15m	•	•	•
Melaleuca preissiana	Modong	6 - 10m	•		•
Melaleuca quinquenervia	Broad Leaf Paperbark	10m	•		
Melaleuca rhaphiophylla	Swamp Paperbark	0.2 - 10m			•
Shrubs (Large)					
Acacia pulchella	Prickly Moses	to 2m			•
Adenanthos cygnorum	Common Woolybush	to 4m		•	•
Agonis flexuosa 'nana'		to 3m			•
Banksia menziesii (dwarf form)	Firewood Banksia	to 2m			•
Eremaea pauciflora		to 4m		•	•
Gompholobium scabrum		0.4 - 2.3m		•	•
Grevillea olivacea	Olive Grevillea	1 - 4.5m			•
Hakea varia	Variable-leaved Hakea	1 - 4m		•	•
Jacksonia furcellata	Grey Stinkwood	0.4 - 4m		•	•
Jacksonia sternbergiana	Stinkwood	1.5 - 5m		•	•
Melaleuca huegelii	Chenille Honey myrtle	to 3m			•
Olearia axillaris	Coastal Daisybush	0.5 - 3m			•
Pericalymma ellipticum	Swamp Tealtree	to 3m		•	•
Taxandria linearifolia	Swamp Peppermint	to 5m		•	•
Shrubs					
Acacia sessilis		0.3 - 1m		•	•
Acacia stenoptera	Narrow Winged Wattle	0.2 - 0.7m		•	•
Acacia willdenowiana	Grass Wattle	0.3 - 0.6m		•	•
Beaufortia elegans		0.3 - 1m		•	
Beaufortia squarrosa	Sand Bottlebrush	0.5 - 2m			•
Calytrix fraseri	Pink Summer Calytrix	0.2 - 1m		•	
Conospermum stoechadis	Common Smokebush	0.3 - 2m		•	•
Conostephium pendulum	Pearl Flower	0.15 - 0.7m		•	
Dasypogon bromeliifolius	Pineapple Bush	0.3 - 1m		•	
Daviesia decurrens	Prickly Bitter-pea	to 1m		•	
Daviesia physodes		0.4 - 1.8m		•	
Ficinia nodosa	Knotted Club Rush	to 1m			•
Grevillea saccata	Pouched Grevillea	0.25 - 0.5m			•
Hibbertia subvaginata		0.15 - 1.2 m		•	
Hypocalymma angustifolium	White Myrtle	to 1.5m		•	
Hypocalymma robustum	Swan River Myrtle	0.4 - 1m		•	•
Lomandra hastilis	Mat Rush	0.45 - 1.5m		•	•
Loxocarya cinerea		0.1 - 1m		•	
Melaleuca seriata		0.25 - 1m		•	
Patersonia occidentalis	Purple Flag	0.25 - 0.7m		•	
Persoonia saccata	Snottygobble	0.2 - 1.5m		•	
Petrophile linearis	Pixie Mops	0.2 - 1m		•	
Schoenus curvifolius		0.4m		•	
Scholtzia involucrata	Spiked Scholtzia	0.2 - 1.5		•	
Stirlingia latifolia	Blueboy	0.2 - 1.5m		•	
Verticordia densiflora	Compacted Featherflower	0.25 - 2m		•	•
Verticordia nitens	Morrison Featherflower	0.5 - 2m		•	
Westringia dampieri	Coastal Rosemary	0.2 - 1.5m			•
Groundcovers					
Adenanthos cuneatus	Coastal Jugflower	0.3m			•
Banksia blechnifolia		0.3m			•
Eremophila glabra 'prostrata'	Tar Bush	0.2m			•
Grevillea christmatifolia 'prostrata'	Prostrate Grevillea	0.2m			•
Grevillea nudiflora		0.2 - 1.8m			•
Grevillea thelemanniana	Spider Net Grevillea	0.3m			•
Hemiandra pungens	Snakebush	0.1m			•
Lomandra mucronata	Mat Rush	0.05 - 0.2m			•
Rhodanthe chlorocephal ssp rosea	Pink and White Everlastings	0.05 - 0.2m			•

Eremaea pauciflora

Melaleuca huegelii

Corymbia calophylla

Acacia pulchella

Banksia menziesii

Melaleuca preissiana

Banksia attenuata

Eucalyptus todtiana

Jacksonia sternbergiana

Allocasuarina fraseriana

Verticordia densiflora

Allocasuarina humilis

Callistemon 'KPS'

Callistemon 'KPS'

Rhodanthe chlorocephala ssp rosea

general planting recommendations

1. The species highlighted green in the adjacent schedule are the recommended species for trees and large shrubs. The recommended species are a combination of the Telstra list and City of Wanneroo Street Tree Master Plan; Ecoscape have then reviewed the list and made further recommendations based on sustainability, availability and practicalities for the purpose of the buffer.

2. Ecoscape recommends planting the dunal earth mounds with pioneer species and species which will establish in a short amount of time provide rapid screening & create a sheltered environment for succession species to develop over 5 to 8 years.

3. The majority of the species here are currently only available as tube, 200mm, 10Lt, 25Lt or 45Lt stock, as opposed to Telstra's requirement for 200Lt stock. Based on research and experience in the industry the smaller stock will outgrow the more mature stock within 2 to 3 years post installation. Furthermore, the smaller stock will be stronger as it would be site hardened and develop a stronger root system in its first summer to support the growth of the plant.

4. Ecoscape recommends planting the stock after the first winter rains to maximise the natural rainfall and reduce the need for irrigation. If this is not possible Ecoscape recommend installing a temporary irrigation system or tanker watering the stock for two summers post installation, slowly reducing the amount of watering over that period of time.

5. Evaporation reduction through mulching and establishment of low groundcovers is recommended; this treatment will also suppress weed growth & competition with planted / seed stock.

6. Ecoscape recommends utilising Pink and White Everlastings (Rhodanthe chlorocephala ssp rosea) as a cover crop for the stabilising of streetscapes particularly where an aesthetic result is required as well as erosion control; as opposed to the traditional use of sterile rye & barley or hydromulching. Generally it would be sown as soon as the first rains have occurred and the seeding rate should be about 10kgs/ha.

7. Ecoscape recommends locating large and non-frangible species at a setback of 4.5mfrom the kerb to meet Main Roads' requirements. The options shown on SK 06 meet the MRWA requirements should Alexander Drive be duplicated as a dual carriageway road in the future.

8. The shrubs and groundcovers recommended comply with heights specified in MRWA site line requirements.

planting size & density recommendations

TREES
+ The dominant street tree proposed for Alexander Drive is: Callistemon Kings Park Special (Callistemon 'KPS') @ 45Lt pot size and planted at 2m centres (staggered & randomly clumped).
+ The secondary street tree proposed for Alexander Drive is: Sheoak (Allocasuarina fraseriana), Jarrah (Eucalyptus marginata) and Marri (Corymbia calophylla) @ 200mm pot size and planted at 3m centres.
+ Trees to 10m height @ tubestock or 200mm pot size and planted at 5m centres.
+ Trees to 20m height and above @ tubestock or 200mm pot size and planted at 10m centres.

LARGE SHRUBS
+ All large shrubs nominated should be planted as tubestock and at 1m centres.
+ Pioneer and succession species should be evenly distributed at 1m centres.

SHRUBS
+ All shrubs nominated should be planted as tubestock and at 2 plants per m2.

GROUNDCOVERS
+ Prostrate groundcovers which have a spread of more than 1m should be planted as tubestock at a density of 1 plant per m2.
+ All other groundcovers should be planted as tubestock at a density of 3 plants per m2.

rev A
SK 06
APR 2007

east landsdale
Alexander Drive Species & Densities

STOCKLAND

Scale 1:500 @ A3
Project No. 9736-06

ecoscape

Figure 1: Alexander Drive Species and Densities

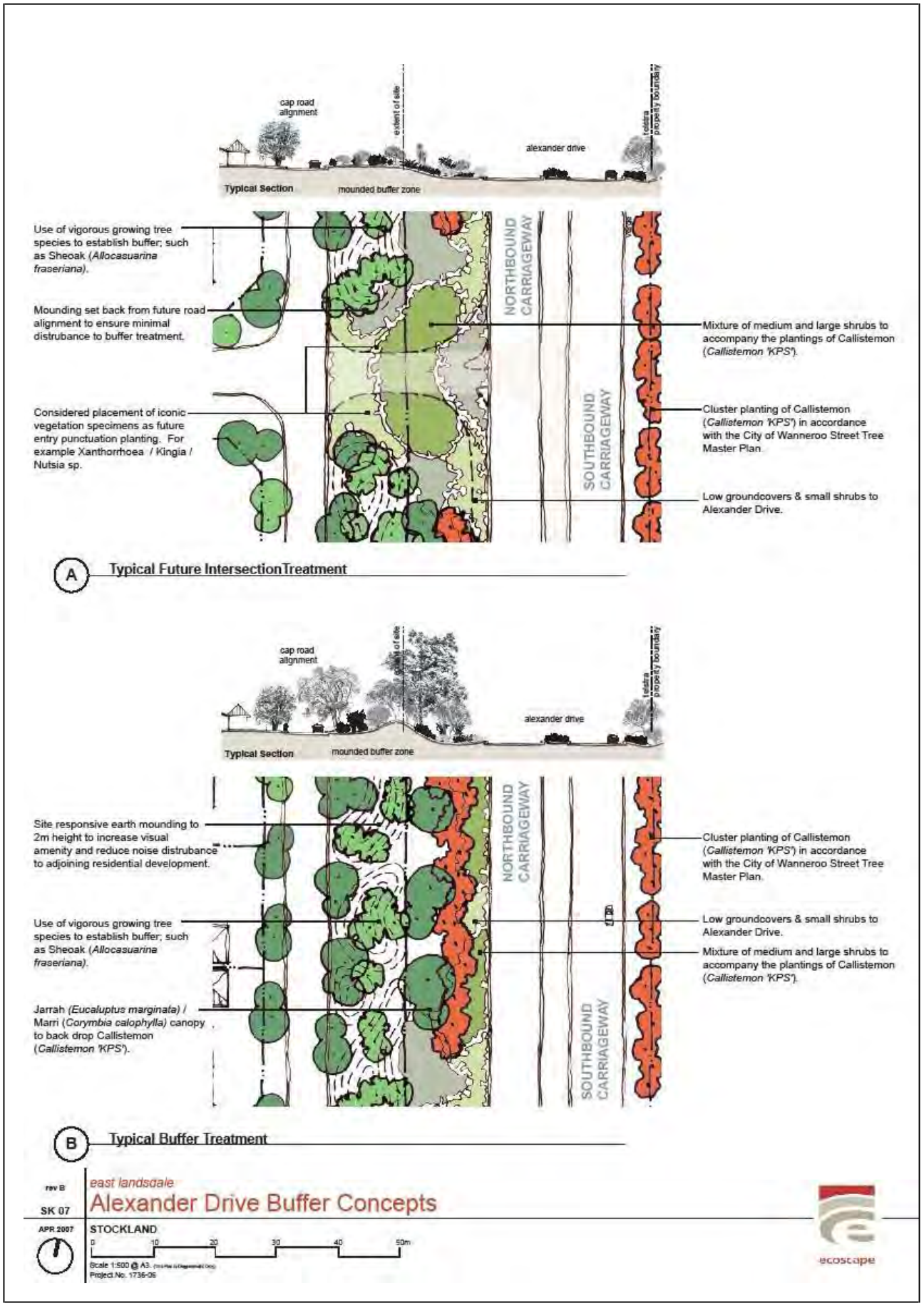


Figure 2: Alexander Drive Buffer Concepts

Part 2
Explanatory

13.0 INTRODUCTION

This report has been prepared for submission to the City of Wanneroo in support of a request to approve the East Wanneroo Cell 9 Local Structure Plan (the Structure Plan), also referred to as 'Precinct 64' in the explanatory report.

The Structure Plan Area comprises approximately 215 ha of land in East Landsdale locality and is in multiple ownership.

The purpose of this Structure Plan is to provide a general planning framework to guide future development into an integrated residential estate.

Given the strategic location of East Landsdale, a significant opportunity exists to create a fully integrated residential community that will provide an attractive eastern entrance into the City of Wanneroo.

13.1 Background

In early 2001, the Department for Planning and Infrastructure (formerly Ministry for Planning) established the Landsdale Land Use Planning Working Group to assist the coordination and progression of land use planning in the East Landsdale area, identified as 'Precinct 64' in the Gnangara Land Use and Water Management Strategy.

The Working Group comprised representatives from the City of Wanneroo, Telstra, Water and Rivers Commission, Water Corporation, Department of Environmental Protection, Department for Planning and Infrastructure and Precinct 64 Urbanisation Association.

In November 2001, the Western Australian Planning Commission (WAPC) endorsed the recommendations of the Landsdale Land Use Planning Working Group. The Group concluded that the subject land was considered appropriate for urban development, subject to successful negotiations between Telstra and the Department for Planning and Infrastructure. This would enable future expansion of the Perth International Telecommunications Centre (PITC) on land to the east of the existing PITC site within Whiteman Park.

An Amendment to the Metropolitan Region Scheme (MRS Amendment No. 1089/33), initiated to rezone the land to 'Urban', was finalised and took effect in April 2006.

In July 2003, the City of Wanneroo Council initiated Amendment No. 25 to its District Planning Scheme No. 2 to rezone the land to 'Urban Development Zone'. Amendment No. 25 is currently awaiting final approval by the Hon. Minister for Planning and Infrastructure.

14.0 SITE CONTEXT AND PLANNING FRAMEWORK

14.1 Location

The subject land is located approximately 15km from the Perth Central Business District and approximately 10km from the Joondalup Regional Centre, within the Municipality of the City of Wanneroo (Figure 3 refers).

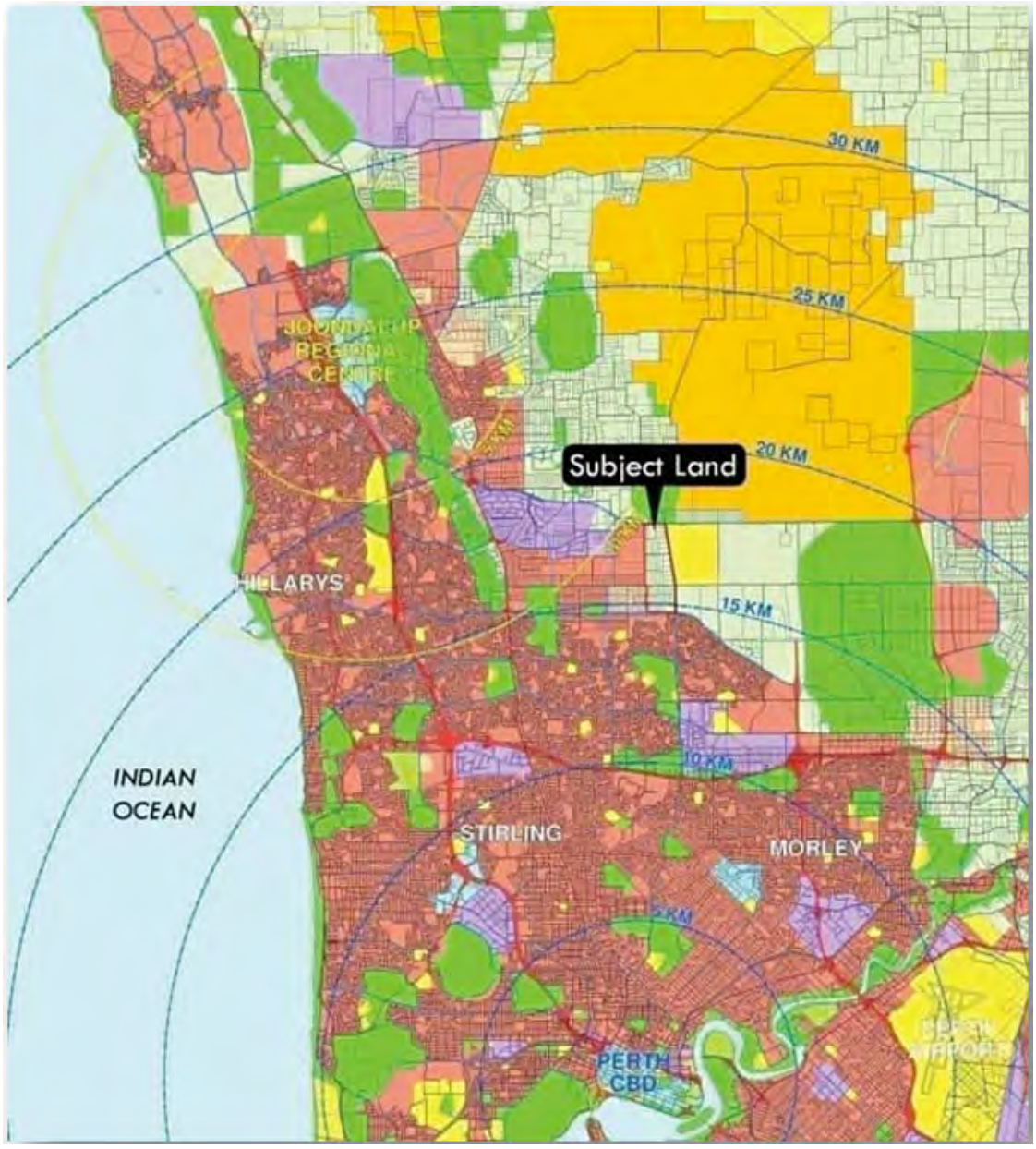


Figure 3: Location Plan

The subject land is bound by Gnangara Road to the north, Alexander Drive to the east and Hepburn Avenue to the south. To the immediate west is the Landsdale Garden Residential Estate (Figure 4 refers).

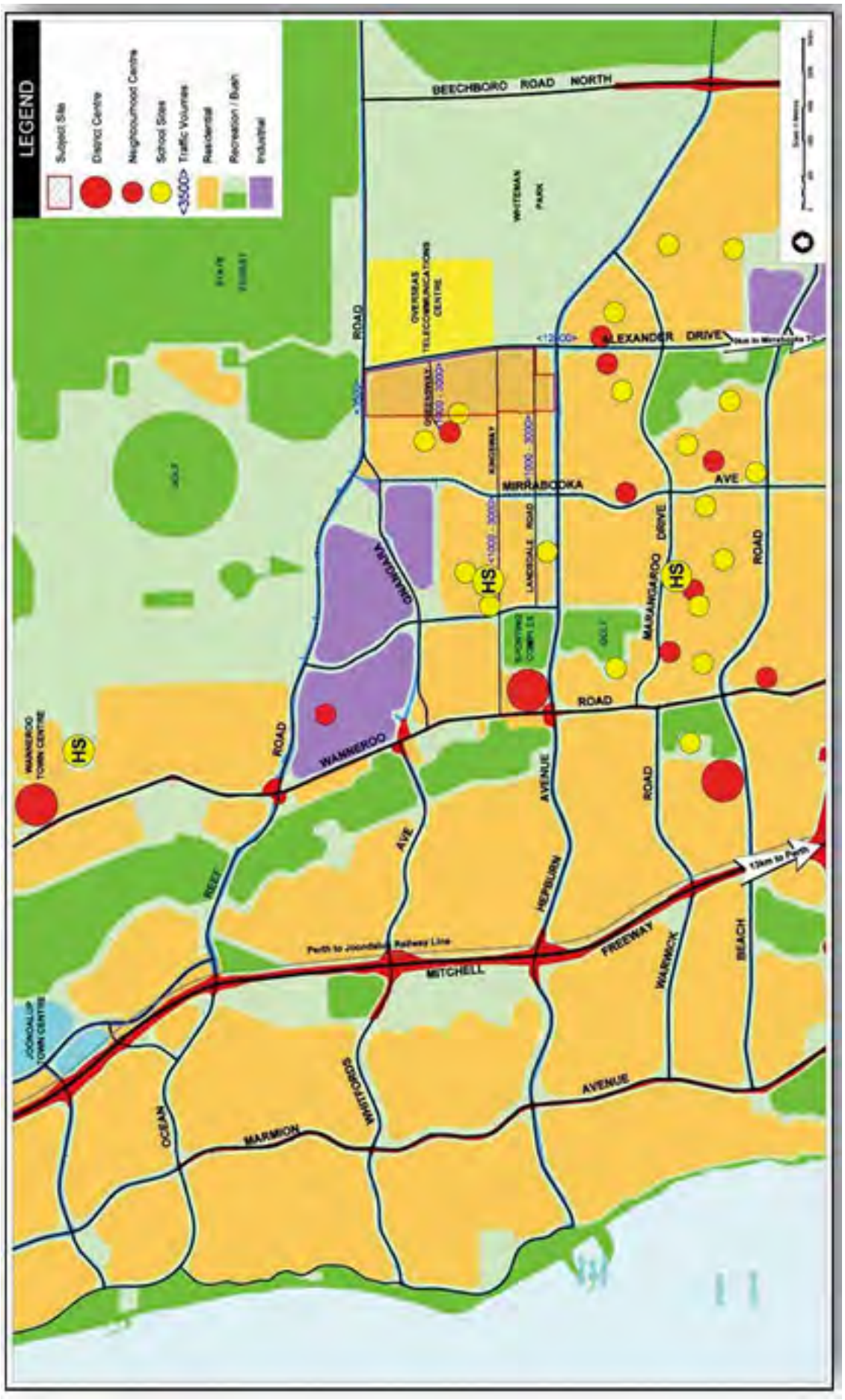


Figure 4: Context Plan

14.2 Land Ownership

The subject land comprises 66 allotments which range in size from 1400m^2 to 4ha, all of which are in private (multiple) ownership. The Structure Plan Area excludes an existing reserve for Recreation at the corner of Alexander Drive and Hepburn Avenue. The total area of the subject land is approximately 215 ha. The land is generally rectangular in shape.

Figure 5: Orthophoto (December 2005)

14.3 Statutory, Strategic and Policy Considerations

14.3.1 Metropolitan Region Scheme

Pursuant to the Metropolitan Region Scheme (MRS), the whole of the subject land is zoned 'Urban', except for small portions of lots fronting Gnangara Road, which are Reserved as 'Other Regional Roads', being proposed for widening of Gnangara Road (Figure 6 refers).

The MRS Amendment No. 1089/33, rezoning the subject land from 'Rural' to 'Urban' was finalised and took effect from 2 April 2006.

Figure 6: Current MRS Zoning

14.3.2 City of Wanneroo District Planning Scheme No. 2

The subject land is currently zoned 'General Rural', 'General Rural' (Additional Use - Plant Nursery), and 'Private Clubs/ Recreation' pursuant to the City of Wanneroo District Planning Scheme No. 2 (Figure 7 refers).

In July 2003 the City of Wanneroo Council initiated an amendment to DSP No.2 to rezone the subject land to 'Urban Development Zone'. The Amendment also proposed to introduce infrastructure contribution arrangements for the area, described as East Wanneroo Planning Cell 9.

The Amendment is currently awaiting final approval by the Hon. Minister for Planning and Infrastructure.

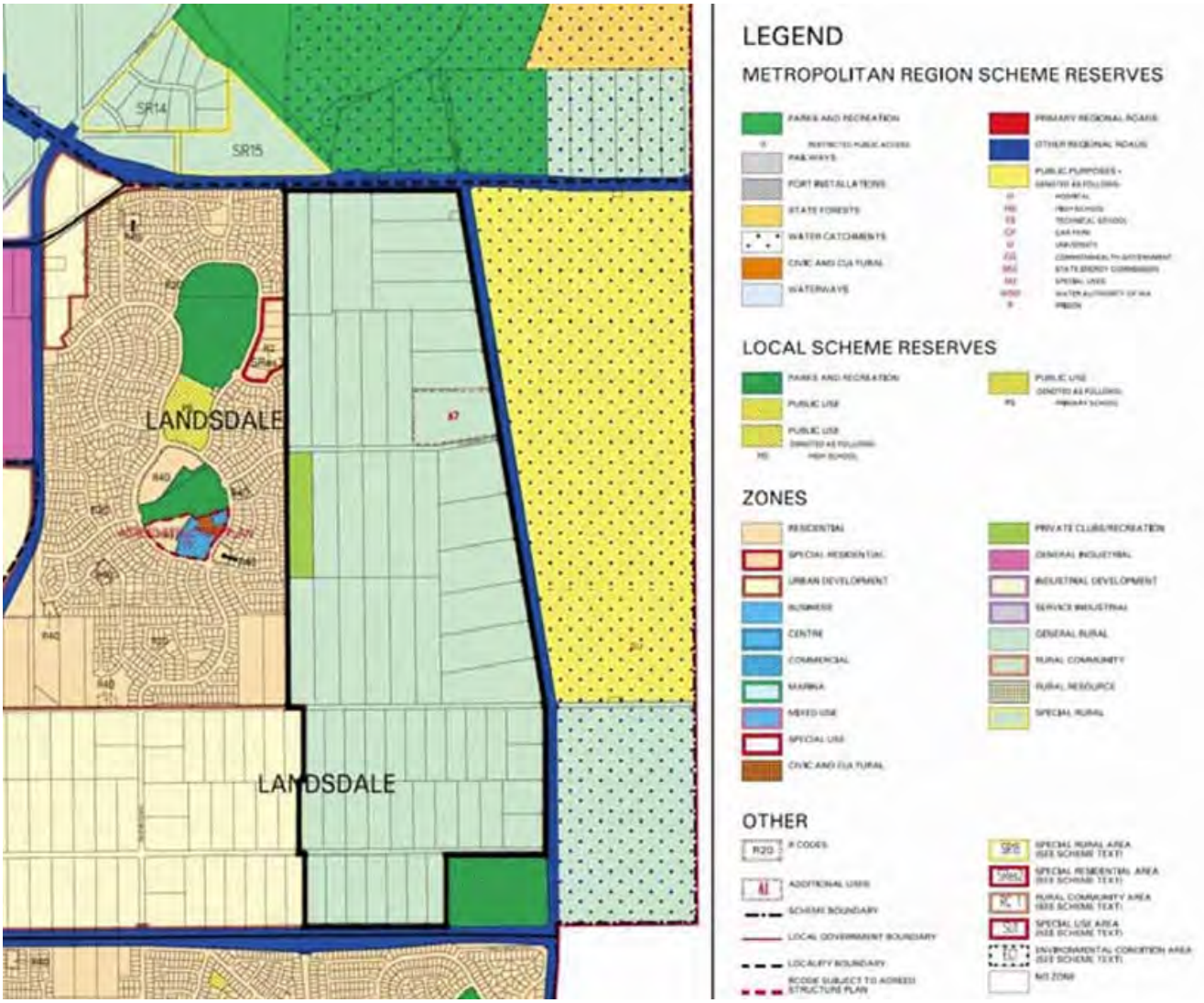


Figure 7: Current DSP No. 2 Zoning

14.3.3 State Sustainability Strategy

The *State Sustainability Strategy* is the first attempt in this State to meet the needs of current and future generations through integrating environmental protection, social advancement and economic prosperity. The purpose of the *State Sustainability Strategy* is to illustrate how the State government will respond to the sustainability agenda by adopting the sustainability framework and highlighting actions across government that give meaning to the framework.

A Local Structure Plan will provide a guide to subsequent levels of more detailed subdivision planning, and eventual development.

Sustainability objectives and key principles have been developed for the Structure Plan Area using the *State Sustainability Strategy* and the City of Wanneroo's Smart Growth Assessment Tool for guidance.

One of the key guiding principles identified by the Structure Plan has been the promotion of sustainable urban development.

Another key guiding principle identified by the Structure Plan is that the project should utilise 'best practice' to ensure excellence in environmental outcomes. This is to be achieved through the design which preserves areas of highest conservation value on site, conserves examples of the different natural areas on the site, incorporates natural areas into the new urban fabric, provides linkages through the project area to nearby parks, and interprets the existing landscape and site memory in the development areas.

14.3.4 Network City

Network City: Community Planning Strategy for Perth and Peel (Network City) provides the overarching, long term metropolitan planning strategy for the Perth region. The Structure Plan is consistent with the key planning principles and strategies espoused by *Network City,* as follows:

Spatial Plan & Strategy*:* The Concept Plan included in *Network City* identifies the subject land as being adjacent to 'future communities designed around networks and centres' and adjacent to 'Transport Corridor for cars, trucks and express busses'. It is to be noted that at the time of *Network City* going to publication, the subject land was still zoned 'Rural' pursuant to the MRS.

The Structure Plan responds to the spatial *Network City* context of the broader East Landsdale area consistently with the key actions identified by the policy. These responses include adopting urban design principles aimed at achieving high levels of amenity and functionality for users; providing a major contribution to limiting urban sprawl by accommodating a significant number of dwellings; and by providing an important example of a well integrated, medium density development.

Governance & Process: *Network City* encourages development which is designed to deliver a better quality of life, a city with 'urban energy', creativity and vitality, and planning processes which involve the community.

The development contemplated by the Structure Plan is consistent with the objectives of *Network City*, by providing a diverse range of land uses that respond to the existing context of the project area.

Preliminary stakeholder consultation was undertaken during the formulation of the Structure Plan. The Structure Plan incorporates many of the features which emerged as desirable outcomes from that process. The Structure Plan approval process will allow continuing refinement of the plan through further stakeholder consultation.

Planning for a Liveable City: *Network City* promotes the development of identity and pride in local places and the enhancement of social and cultural capital, through the co-location of a mix of land uses, housing diversity, the provision of lifestyle opportunities with equitable access, and the revitalisation of centres and suburbs through enhanced attractiveness, amenity and economic, social and cultural vitality.

The Structure Plan is consistent with these strategies. It will facilitate a sense of place through its unique character and excellent location. The project will ensure that all residences have good access to a range of facilities and a significant amount of open space.

Economy & Employment: *Network City* promotes urban growth within the Network City pattern, to promote the provision of a wide range of facilities within centres on a local basis, and ensuring that employment is created in centres.

The Structure Plan fits within the *Network City* economic and employment pattern, by facilitating provision of employment opportunities for residents in the area supported residential development.

The Structure Plan incorporates a detailed economic and employment analysis and strategy demonstrating its level of economic sustainability (Appendix 1 refers).

Environment & Heritage: *Network City* promotes the protection of the natural environment, open spaces and heritage through conservation and preservation.

The design of the Structure Plan is consistent with these principles. It includes strategies to conserve and enhance environmental and heritage values and, where appropriate, remediate and manage existing degraded areas.

Transport: The key transport-related objectives of *Network City* are to accommodate urban growth within a *Network City* pattern, particularly by locating high and medium density centres around public transport nodes and adopting design principles to reduce car dependency.

Whilst there are limited opportunities for the Structure Plan to align closely with these objectives, given the limited scale of the project, the design provides for local services within walkable distances of much of the residential development.

Infrastructure Coordination: *Network City* outlines a number of strategies with respect to infrastructure, with the essential objective of promoting its efficient use and coordinated delivery.

The Structure Plan is fundamentally consistent with this objective and seeks to maximise the efficient use of infrastructure where possible.

A key strategy of *Network City* is to manage urban growth to limit the urban sprawl of Perth. Infill development and development within the existing urban fabric is an important technique to manage the urban growth of Perth in accordance with this strategy.

The Structure Plan has been developed based on the underlying philosophy of Network City. The context of the proposed development is one where there is a unique opportunity to meet a significant demand for new housing in an area where it is also proposed to enhance the conservation and biodiversity values.

The Structure Plan responds positively to the Network City policy in a manner which is appropriate both in a regional and local context.

14.3.5 Liveable Neighbourhoods

Liveable Neighbourhoods has been prepared to implement the objectives of the State Planning Strategy, which aims to guide the sustainable development of Western Australia to 2029.

Liveable Neighbourhoods is an operational policy for the design and assessment of Structure Plans and subdivision for new urban areas in the metropolitan area and country centres.

Liveable Neighbourhoods replaces editions 1-3 and incorporates many of the development control policies relating to Structure Planning and subdivision. It has been adopted by the WAPC as an operational policy, to be followed in the design and approval of urban development. The policy applies to Structure Planning and subdivision of greenfield sites and for the redevelopment of large brownfield and urban infill sites.

The policy provides an important mechanism for the assessment of major development in Western Australia.

The Structure Plan is consistent with the principal aims of *Liveable Neighbourhoods*.

14.3.6 City of Wanneroo Smart Growth Policy and Assessment Tool

The City of Wanneroo has developed a Strategic Plan with four goals, environmental sustainability, healthy communities, economic development and corporate management and development.

The City has prepared a *Smart Growth Strategy* and related *Smart Growth Policy*, which gives effect to these four strategic goals through six Smart Growth principles.

The Structure Plan complies with these principles as follows:

Lifestyle and Housing Choice: the Structure Plan provides for a variety of housing types (within the R20 / R30 base code) and the enhancement of lifestyle options;

Effective Use of Land and Infrastructure: the Structure Plan represents the effective use and development of land for the benefit of the local area;

Long Term Health of the Environment: the Structure Plan minimises environmental impact and conserves and enhances natural areas;

Identity, equity and inclusiveness*:* the Structure Plan creates opportunities to enhance and develop the identity of places and people;

Long term economic health*:* the Structure Plan promotes job creation and long term economic health;

People and government*:* the approvals process for the Structure Plan encourages citizen and stakeholder participation in governance and development decisions.

14.3.7 City of Wanneroo Local Housing Strategy

The City of Wanneroo's *Local Housing Strategy* is aimed at guiding future housing development in new residential areas; protecting existing residential areas from inappropriate development and ensuring adequate housing choice is available to meet the changing social and economic needs of the community.

The *Local Housing Strategy* is a key component of the City's *Smart Growth Strategy* - and together the two strategies indicate the commitment the City of Wanneroo has to planning for the future needs of the community as well as facilitating and supporting effective growth management.

Additional objectives of the Strategy are to ensure that an adequate supply of affordable housing is provided, particularly for first home buyers, and to promote appropriate forms of housing close to existing and proposed community facilities and services.

The Structure Plan complies with the key objectives of the Strategy as follows:

- Restrictions on residential density within the Structure Plan Area (due to the possible impact on the operation of the adjacent Telstra site) limit the opportunity for housing diversity. Within the R20/R30 density base code, there is, however, potential to facilitate a range of residential lots, to meet the changing social and economic needs of the community.
- Promotes innovative, cost-effective and well-designed forms of housing which incorporate environmentally beneficial features.
- Promotes appropriate forms of housing, close to proposed community facilities and services to enable their more efficient and effective use.
- Facilitates the design of residential areas for all people of all ages and abilities.
- Provides certainty to developers and the community in the development of new housing areas at East Landsdale.

14.3.8 City of Wanneroo Local Employment Strategy

The City of Wanneroo's primary economic goal is to decrease the amount of people having to travel out of the region to access suitable employment opportunities. This is intended to be achieved through the implementation of an *Economic Development Strategy*.

The *Economic Development Strategy* for the City of Wanneroo is designed to build upon the project initiatives already in place and being pursued by the City and introduce new initiatives in line with the Strategic Plan. According to the *Economic Development Strategy*, the promotion of Wanneroo as an investment and employment destination can only occur if it is understood that all regional stakeholders can contribute to growing the economic base of the region through their actions.

The Structure Plan will achieve an estimated job self sufficiency of 22% (Appendix 1 refers). The total number of jobs, however, resulting from the development and estimated to be 1,367, produces 54% employment self sufficiency, based on jobs generated in the wider area.

The 22% self sufficiency is below the target 40% set out in the City of Wanneroo Smart Growth Assessment Tool. The restrictions on certain activities within the Structure Plan area that may have possible impact on the operation of the adjacent Telstra site, restrict the opportunity to increase this figure any further. However, given that there is a significant capacity for industrial jobs at the adjacent Landsdale and Wangara industrial areas, a significant proportion of the local workforce are likely to work within the region.

The underlying purpose of the 40% employment self sufficiency target is to guard against losing workers to other areas such as the Perth CBD and thereby creating dormitory suburbs. In this

instance it is appropriate to consider the impact of development on employment self sufficiency for the wider area.

The overall employment outcome for the suburb as a result of the additional development is broadly consistent with the goals of the City of Wanneroo Economic Policy which informs the 40% employment self sufficiency goal, given the high provision of existing and future employment opportunities in the suburbs.

14.3.9 City of Wanneroo Employment Policy

The City of Wanneroo's Employment Policy is designed to establish a framework which encourages and retains local employment within the City of Wanneroo.

The Policy contains a schedule of strategies at district, local and sub-division levels to indicate the type and scale of initiatives that are expected when planning development of various sizes.

Policy requires proponents of any large-scale residential development within the City of Wanneroo to prepare a strategy to encourage local employment self sufficiency and maximise resultant local containment of the workforce.

An *Economic and Employment Strategy* has been prepared by Syme Marmion & Co. for the Structure Plan Area (Appendix 1 refers).

14.3.10 City of Wanneroo Local Centres Strategy

The City of Wanneroo's *Centres Strategy* was prepared to determine the location, size, land use, mix and planned future commercial centres within the City of Wanneroo.

The *Centres Strategy* was adopted by Council in 2005, prior to East Landsdale being rezoned to 'Urban' under the MRS and therefore the Strategy does not identify any retail outlets within the Structure Plan Area.

14.3.11 Statement of Planning Policy No. 4.2 - Metropolitan Centres Policy (2000)

The *Metropolitan Centres Policy* was prepared by the State Government under S*ection 5AA of the Town Planning & Development Act 1928* (as amended). The purpose of the policy is to provide a broad regional planning framework to coordinate the location and development of retail and commercial activities within the metropolitan region.

It is mainly concerned with the location, distribution and broad design criteria for the development of commercial activities at the regional and district level, with Local Planning Strategies prepared by Local Governments providing more detailed guidance for planning and development control at the local level.

The allocation of retail space in the Structure Plan Area has been based on the analysis undertaken by Syme Marmion & Co, taking into consideration guidelines contained in the Metropolitan Centres Policy and the City of Wanneroo *Centres Strategy* (Appendix 1 refers).

15.0 SITE ANALYSIS

15.1 Landtorm, Geology and Soils

Cell 9 is located on the Bassendean Dune System near the boundary between the Bassendean Dune System and more westerly located Spearwood Dune System (Gozzard, 1986).

The Bassendean Dune System consists of low to very low relief dunes, with intervening swamps and undulating sand plain. Upland areas are typically flat or gently sloping interspersed with interdunal swales.

Available contour information indicates the site is gently undulating and is bounded by two main high points at 60m AHD at the northern boundary on Gnangara Road and towards the south-western boundary on Landsdale Road.

The central region of the study area comprises minor high points rising to a maximum of 50m AHD but is generally low-lying undulating between 42m and 48m AHD.

The eastern portion of the site comprises light grey over yellow fine to medium grained quartz sand of aeolian origin associated with Bassendean Sand. In the western region of the site the soils are pale/olive yellow medium to coarse grained derived from Tamala Limestone.

15.2 Wetlands

Two wetlands occur in the subject area as mapped on the Western Australian Land Information System (WALIS) database:

- A dampland in the central portion of the area on lots 73 and 74 Queensway Road, The wetland is vegetated with native vegetation, consisting of scattered Paperbarks (*Melaleuca preissiana*) as well as *Banksia ilicifolia, Banksia attenuate* and *Banksia menziesii* trees over an Open Heath to Shrubland of *Scholtzia involucrata, Verticordia densiflora, Adenanthos cygnorum* and *Xanthorrhoea preissii*. The management category for this wetland is identified as Conservation (C). The wetland is surrounded by native Banksia woodland vegetation in Very Good condition.

- A wetland in the north-east section of the site on Lot 54 Queensway Road and Lots 56 and 57 Alexander Drive, which has been significantly modified with more than half cleared for market garden activities. The remaining vegetated section consists of scattered Paperbarks and *Banksia attenuata, B. menziesii, B, ilicifolia* trees over an Open Heath. A submission by ATA Environmental in 2003 to re-classify the management category boundaries of this wetland was supported by the Water and Rivers Commission together with a small extension to the northern boundary of the wetland.

Accordingly, the northern portion of this wetland is classified as a Resource Enhancement wetland and the southern portion as Multiple Use.

None of the wetlands on the site are protected under the *Environmental Protection (Swan Coastal Plain Lakes) Policy, 1992*.

15.3 Biological Environment

15.3.1 Vegetation - Regional Context

Cell 9 is located in the Drummond District of the South-west Botanical Province of WA as defined by Beard (1980). The District is more or less equivalent to the Swan Coastal Plain (SCP) and has a considerable variety of vegetation types found in it, as well as a rich flora.

Within the SCP, the area is mapped as comprising vegetation of the Bassendean Central and South Vegetation Complex, with a small band of the Karrakatta Central and South Vegetation Complex located along the south-western boundary.

The Bassendean Central and South Complex is highly variable, ranging from Jarrah-Banksia-Sheoak on upland areas to a Low Woodland of *Melaleuca* spp. and sedgelands on the low-lying interdunal depressions and swamps.

The area represents the northern extent of this Complex which reaches the southern limit of its range near Mandurah.

The Karrakatta Central and South Complex consists predominantly of an Open Forest of Tuart-Jarrah-Marri with common species including *Banksia attenuata, B. menziesii*, *B. grandis* and *Allocasuarina fraseriana*. Shrub species include *Jacksonia sternbergiana, J. furcellata, Acacia cyclops, A. saligna, Hibbertia* sp., *Allocasuarina humilis, Calothamnus quadrifidus* and *Grevillea thelemanniana*.

The area of Karragatta Central and South vegetation adjacent to Kingsway Road is classified as Degraded and Completely Degraded and is therefore not of sufficient quality to warrant retention. There is a very small amount of this vegetation complex in the reserve south of Landsdale Road which will be retained in the reserve.

15.3.2 Vegetation Types

A vegetation survey of the Cell 9 area was undertaken by ATA Environmental in September 2002. The vegetation types of the study area are shown in Figure 8. Since the 2002 survey several lots have been cleared. The vegetation map that was initially prepared following the 2002 survey has been amended to reflect the current status of remnant vegetation in the area.

The vegetation can be described and delineated according to changes in soil types, topography

and depth to groundwater.

In general, the site is dominated by a Banksia Woodland with scattered Jarrah and Marri over Heath vegetation on the upland areas and a Banksia Woodland interspersed with Melaleuca preissiana and Banksia ilicifolia on the low-lying areas.

Figure 8: Vegetation Types

15.3.3 Vegetation Condition

Cell 9 includes a number of remnant vegetation parcels which have generally remained intact despite clearing of the surrounding land. Edge effects such as weed invasion and rubbish dumping has degraded the periphery of most of these bushland areas, however in most instances the large bushland parcels are in very good condition, as shown in Figure 9.

Smaller, fragmented bushland parcels are scattered over the site and vary from degraded to good condition. Common weed species in the disturbed bushland areas include Gladiolus (Gladiolus caryophyllaceus), Blowfly Grass (Briza maxima), Perennial Veldt Grass (Ehrharta calycina), Buffalo Grass (Stenotaphrum secundatum), Fleabane (Conyza bonariensis), Cactus (Opuntia stricta), Flat Weed (Hypochaeris glabra).

15.3.4 Floristic Community Types and Threatened Ecological Communities

The Floristic Community Type study of vegetation on the Swan Coastal Plain (SCP) was developed by Gibson et al. (1994) and is based on an underlying concept that flora species occur in groups as a response to environmental factors and that defining such groups of species over the SCP would enable individual stands of vegetation to be assigned to a group of sites with similar flora composition. In general, floristic community types comprise groups of flora that consistently occur together (Trudgen, 1995).

No Threatened Ecological Communities occur in the Structure Plan Area. A site inspection of several properties by officers from CALM's Threatened Species and Communities Unit in 2005 confirmed that the vegetation did not correspond to any Threatened Ecological Communities.

15.3.5 Flora

A total of 135 species of flora, including 119 native and 16 introduced species, were recorded in the study area during the 2002 survey conducted by ATA Environmental on 26 September 2002. The timing of the survey ensured that annual and ephemeral species such as orchids could be recorded from the study area.

All species recorded are flowering plants, except one cycad (Macrozamia fraseri). Of the plants recorded during the survey, the greatest representation was recorded from the Myrtaceae family (17 native species), Proteaceae family (15 native species), Papilionaceae (Pea family) (14 native species).

Since 2002, several large parcels of native vegetation have been cleared. It is possible that some of the species on the 2002 list do now not occur in the Structure Plan Area.

Figure 9: Vegetation Condition

15.3.6 Significant Flora

A review of the Department of Conservation and Land Management's Declared Rare and Priority Flora database (September, 2002) revealed one Declared Rare and eight Priority Flora species have been recorded at or in the vicinity of the study area, as listed in the following table.

Table 1

Significant flora recorded in the vicinity of the precinct 64 study area:

Species	Conservation Code
Acacia benthamii	2
Caladenia huegelii	R
Conostephium minus	4
Cyathochaeta teretifolia	3
Jacksonia sericea	3
Nemcia axillaris	3
Pityrodia axillaris	1
Sarcozona bicarinata	3
Stachystemon axillaris	4

The CALM list identified several species that had previously been recorded from the vicinity of the study area, all but one of which are perennial species.

The Declared Rare Orchid species Caladenia huegelii has previously been recorded from the vicinity of the study area, however this record is more than 50 years old, and although the vegetation associations and soil types of the area may support this species, it was not recorded at the site. The flora investigation of the site in 2002 was conducted at an appropriate time of year to ensure species of orchids could be identified.

Small populations of two Priority Flora species, Conostephium minus (P4) and Acacia benthamii (P2), have previously been recorded in Lot 60 and 61 Alexander Drive during previous investigations by ATA Environmental in 2001 (ATA Environmental, 2001). Conostephium minus has since been deleted from the DEC Priority flora list. The Acacia benthamii population consisted of two plants recorded from the more disturbed areas of the Mixed Low Heath association. All of the vegetation from Lots 60 and 61 has been cleared since 2002.

15.3.7 Conservation Value

A significant portion of the Bassendean Central and South Vegetation Complex has been cleared for the establishment of pine plantations, rural and urban development. As a result, approximately 24% of the original distribution of this complex remains uncleared on the SCP.

While most of the Complex occurs south of the Swan River, a significant portion of the original

extent of the Complex to the north of Perth is protected, or proposed for protection as part of Bush Forever in the conservation estate. In particular, good examples of this Complex are protected in nearby reserves including Gnangara Lake (Bush Forever Site 193), Whiteman Park (Bush Forever Site 304), the Beechboro Road Bushland encompassing approximately 431ha (Bush Forever Site 198) and Gnangara Road Bushland including approximately 236ha of bushland (Bush Forever Site 196).

The implementation of Bush Forever will increase the reservation of this Complex on the SCP from approximately 6% to 13%.

The bushland contained in the Structure Plan Area did not meet the criteria for identification as regionally significant and was not included in Bush Forever (Government of WA, 2000).

15.3.8 Vertebrate Fauna

Faunal surveys undertaken in the nearby upland vegetation surrounding Gnangara Lake by the Western Australian Museum in 1977/1978 identified a range of native species could be expected to occur within the upland vegetation (Western Australian Museum, 1978).

The Structure Plan Area comprises similar vegetation to that found at Gnangara Lake including a Banksia dominated Woodland which although fragmented, the larger parcels are relatively intact.

On this basis, it is expected that a diverse range of fauna still persist at the site. Banksia woodlands typically support a relatively highly diverse fauna, particularly avifauna. Many of the birds utilising the area will be seasonal or opportunistic visitors to the area depending on conditions.

As well as, the bushland surrounding Gnangara Lake, large areas of bushland are located to the east of the study area within the telecommunications site and Whiteman Park, allowing some connectivity and fauna movement within the area.

Continual disturbance and degradation of the remnant bushland from surrounding land uses, uncontrolled access and inappropriate activities such as rubbish dumping impacts on the habitat and associated fauna it supports.

Residential properties to the west and south are likely to have increased disturbance and introduce additional predators such as cats that may have significant impact on local faunal populations over time.

An increase in the frequency and extent of fire within the area also has significant impact on fauna. In some instances, disturbance factors may result in local extinction of susceptible species, such as the Southern Brown Bandicoot and Honey Possum.

15.3.9 Significant Fauna

A search of the CALM Threatened Fauna database was undertaken by ATA on 25 October 2002 and identified that the following Threatened and Priority Fauna have been recorded in the study area:

Schedule 1 - Fauna that is Rare or likely to become Extinct: Carnaby's Black Cockatoo (Calyptorhynchus latirostris).

This species moves around in flocks to feeding areas through the Perth Metropolitan area but breeding occurs mainly in the eastern forests and wheatbelt. The cockatoo is likely to occasionally feed on the Banksia habitat that occurs on the site.

Schedule 4 - Fauna which is otherwise Specially Protected: Peregrine Falcon (Falco peregrinus). This species is an occasional visitor to areas of open woodland and along margins with cleared land. It may occasionally fly over the area in question.

Carpet Python (Morelia spilota imbricata).This species has been recorded on the coastal plain north of Wanneroo and could possibly occur in remnant bushland in the study area.

Priority 4 Taxa: Quenda (Isodon obesulus fusciventer). This species is still moderately common in parts of the coastal plain where dense understorey vegetation occurs, particularly around lakes and swamps and along riverine gullies. This is a record from nearby Snake Swamp in Jandabup.

Carnaby's Black Cockatoo, Peregrine Falcon and the Carpet Python are all listed Threatened Species under the Commonwealth's *Environment Protection & Biodiversity Conservation Act 1999*. Under this Act any action that has the potential to significantly affect listed threatened species must be referred to the Commonwealth Department of Environment and Heritage (DEH) to determine an appropriate level of assessment.

Suitable habitat for these species occurs in the area immediately to the east and north of the site in secure conservation reserves. Also, some of the native vegetation in the study area will be retained in reserves.

Therefore, it is unlikely that any proposals to clear vegetation will significantly affect listed threatened fauna species and therefore would not need to be referred to the DEH.

15.4 Potential Site Contamination

Previous land uses within the Structure Plan Area included horticultural activities such as market gardening and nurseries.

These land uses have been identified by the Department of Environmental Protection (DEP) as potentially contaminating land uses (Potentially Contaminating Activities, Industries and Landuses, December 2001).

The main soil contamination issues identified with this land use include heavy metals, organochlorine pesticides (OC), and organophosphate pesticides (OP). Based on this, it is likely that a soil contamination assessment will be required by the local authority and government agencies to identify any existing soil contamination. This issue is to be addressed by individual proponents at the time of subdivision.

15.4.1 Acid Sulfate Soils

According to the WAPC's Planning Bulletin 64 on Acid Sulfate Soils, the western half of the Structure Plan Area has a low to no risk of Actual or Potential Acid Sulfate Soils occurring at depths of greater than 3m.

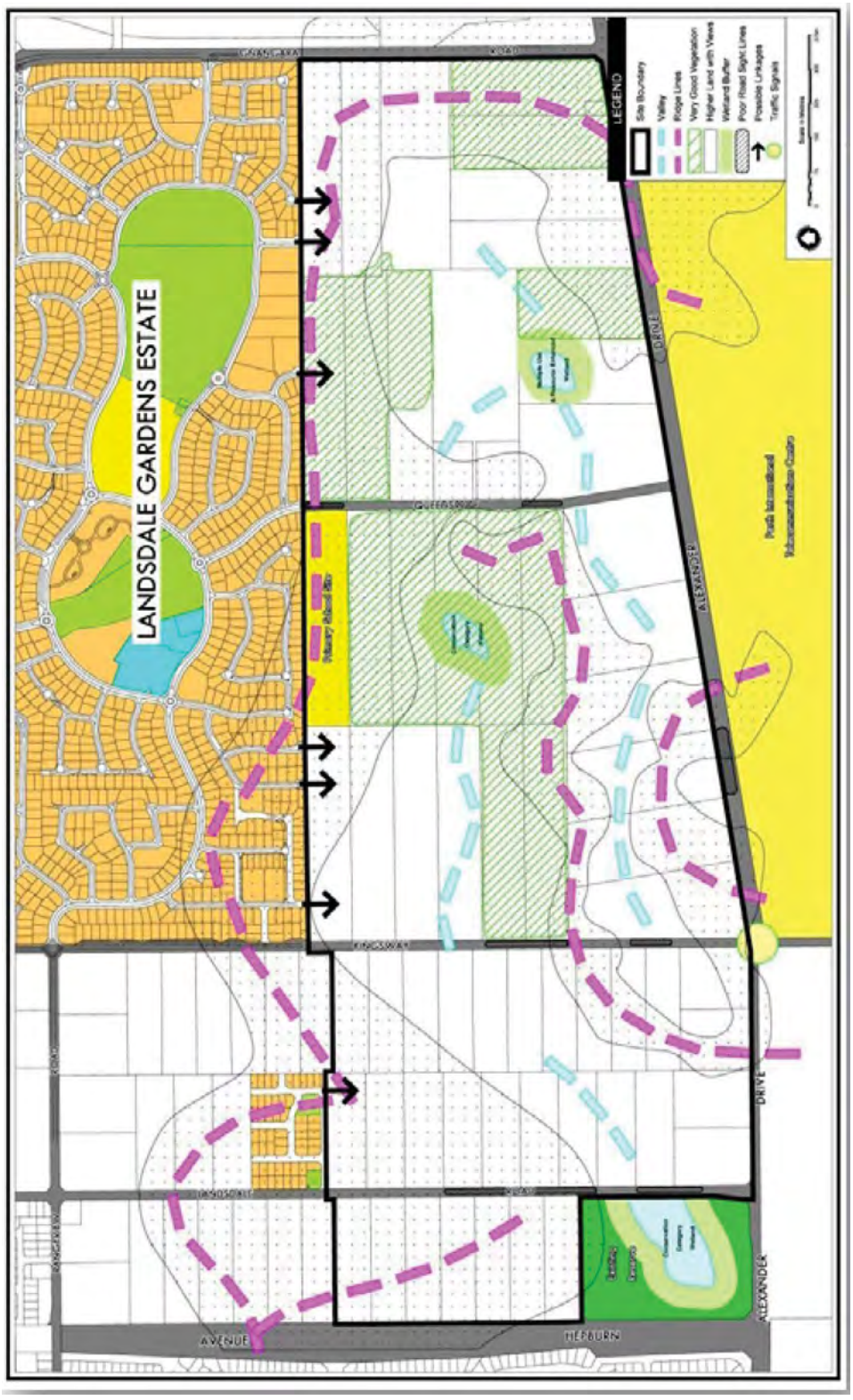
The eastern half of the area has a moderate to low risk of Actual or Potential Acid Sulfate Soils occurring at depths of greater than 3m. The Planning Bulletin requires on-site testing if the risk is high or could be high based on local knowledge and certain ground-disturbing activities are carried out.

On the basis that the risk is mapped as low and moderate to low, no soil testing will be required.

15.5 Opportunities and Constraints

15.5.1 Physical Attributes of the Site

The site's natural attributes represent opportunities and constraints to development (Figure 10 refers). Contextual appreciation of the site is shown on Figure 11.



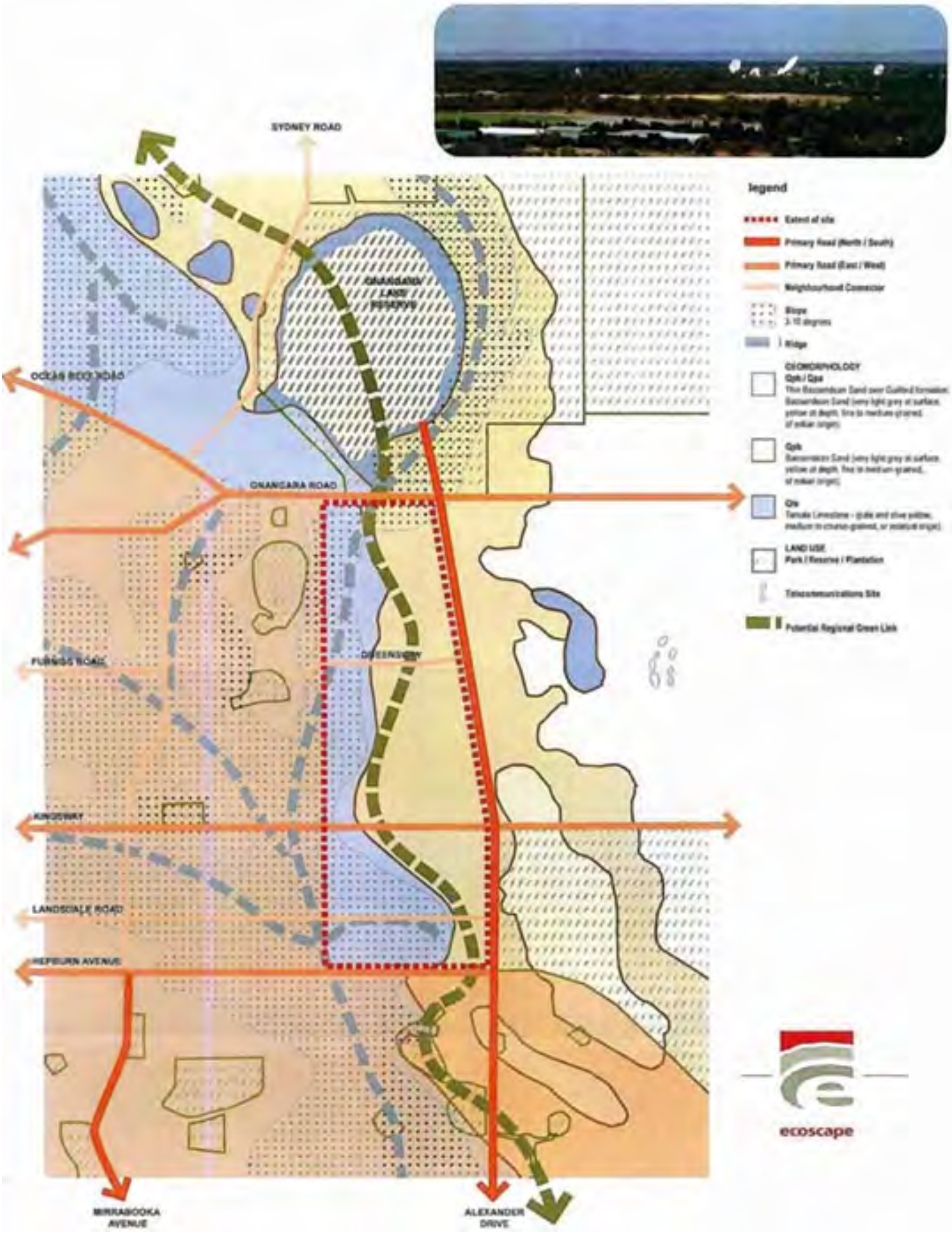


Figure 11: Contextual Appreciation.

15.6 Buffers to Existing Land Uses

There are a number of existing land uses within the Structure Plan Area (such as existing market gardens, nurseries etc) that may require a buffer from residential areas.

Experience and precedent in the Wanneroo area indicate that market gardens within urban expansion areas are treated as 'transitional' land uses. Buffers around these land uses can be determined on a case by case basis, following detailed appraisal of each of these areas at the subdivision application stage.

15.7 Environmental Constraints and Management

15.7.1 Protection and Management of Remnant Vegetation

The assessment of the flora and vegetation in the Structure Plan Area confirmed that it does not comprise attributes of regional significance (Appendix 2 refers). An environmental constraints plan is shown on Figure 12.

No Threatened Ecological Communities listed under State and Commonwealth legislation and no Declared Rare or Priority Flora occur in the Structure Plan Area.

The site does, however, include a number of remnant parcels of bushland in very good condition. These areas comprise a number of "elements of local significance" as defined in the Urban Bushland Strategy (Government of WA, 1995) including:

- One of the better examples of a local vegetation type.
- Having biodiversity value but unlikely to include Declared Rare Flora.
- Ideally having an area greater than 4 hectares but smaller areas may be of significance depending on how much remains in the locality.
- Suitable for passive recreation by the local community.
- Use, or potential for use, by local schools.
- Having local heritage value.
- Shape could be made to be suitable for ongoing management.

On this basis, in preparing the Structure Plan for this area, consideration was given to retaining representative portions of the bushland in POS while balancing the need to provide active and passive open space to maintain the values of local significance.

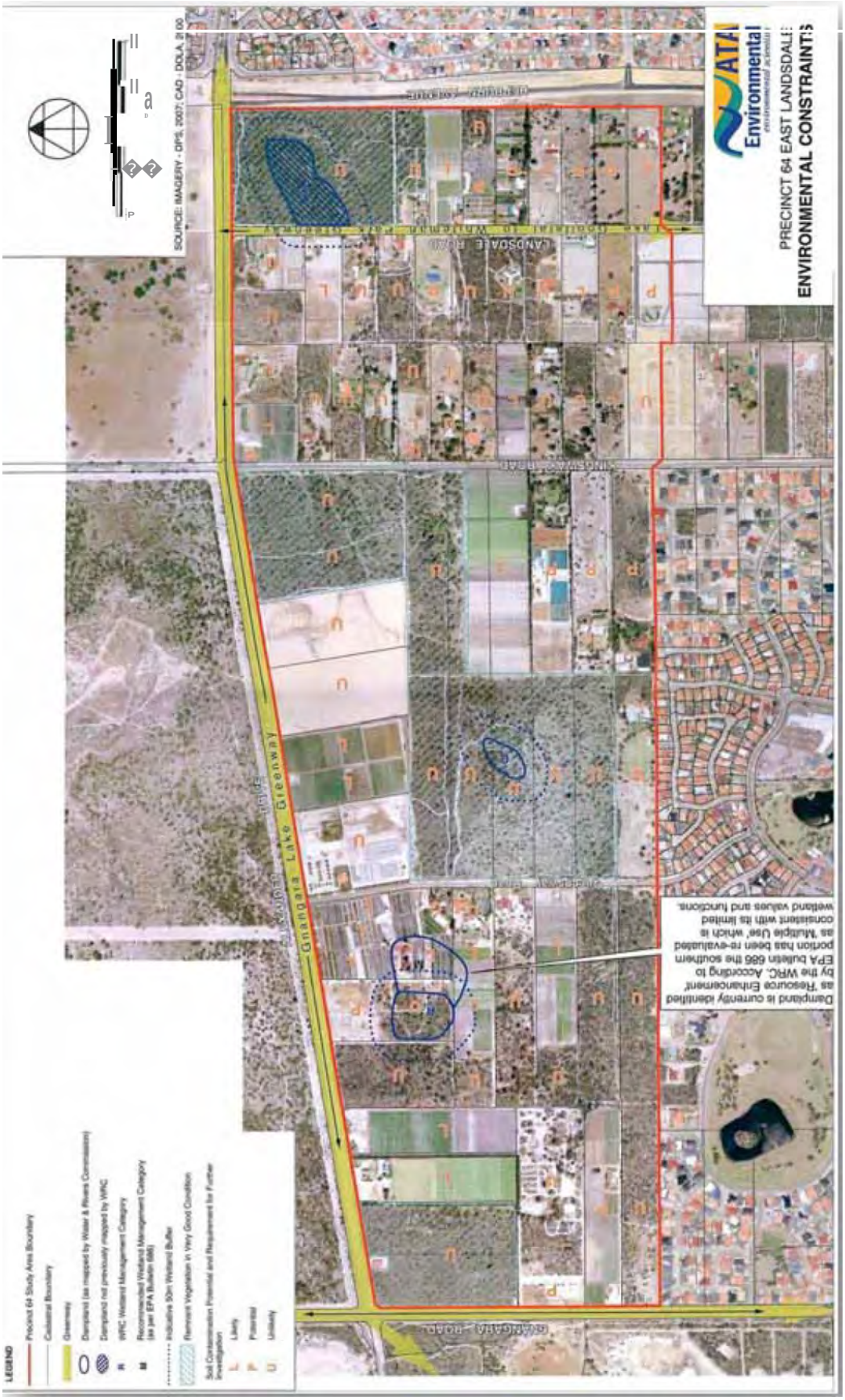


Figure 12: Environmental Constraints

15.7.2 Maintenance of Corridors and Linkages

To ensure the maintenance of biodiversity and linkages between areas of significant bushland, the retention of bushland within the Structure Plan Area give consideration to recognised greenways as identified in 'A Strategic Plan for Perth's Greenways' (Alan Tingay & Associates, 1998).

Bush Forever highlighted the importance of greenways in integrating the open space network at a regional and local level by providing a link between bushland remnants. Opportunity exists within the Structure Plan Area to maximise linkages between the adjacent bushland areas by considering bushland retention along the designated greenways as identified in Figure 12.

15.7.3 Wetlands

The Structure Plan Area includes two wetlands, one recognised by the DEC as Conservation Category (CC) and one wetland with a mix of Resource Enhancement (RE) and Multiple Use (MU). The CC wetland is in very good condition however, the RE/MU wetland has been significantly modified particularly in the area mapped as MU.

Conservation Category wetlands are the highest priority wetlands where the objective is to preserve the wetland attributes and functions. The DEC does not support any activity such as residential development that may lead to the degradation or loss of a CC wetland.

Resource Enhancement wetlands are also priority wetlands where the ultimate objective is to manage, restore and protect these wetlands to improve their conservation value. The DEC recommends protection through various mechanisms where possible.

The Multiple Use management category recognises that the use, development and management of the wetland needs to be considered in the context of strategic planning and therefore does not preclude development. Retention of this wetland is not a priority and given its completely degraded condition it is not recommend that the wetland be retained unless it is for drainage or Public Open Space purposes.

The DEC recommends a dryland buffer be retained around CC and RE wetlands. The buffer width typically recommended is a minimum of 50m or 1m AHD higher than the outer edge of wetland dependent vegetation, whichever is the largest although other factors such as topography, fauna habitat and the proximity of threatening processes can also influence the width of the buffer.

The CCW wetland and the RE wetland are recommended to be protected in any future development and their nominal 50m buffers (shown on Figure 12) are proposed to be incorporated within public open space reserves.

The northern boundary of the CC wetland on Reserve 34683 (located outside the Structure Plan Area) abuts Landsdale Road. The land to the north of Landsdale Road, which falls within the nominal 50m buffer, has all been cleared of native vegetation and contains domestic dwellings and areas used for horticultural uses.

Given that Landsdale Road will remain as an important road in the future development of the Structure Plan Area and the land north of the road has all been developed, it is considered unnecessary to include the land north of the road as part of any wetland buffer.

The 50m buffer surrounding the CC wetland on Lots 73 and 74 Queensway Road consists of native Banksia woodland in very good condition.

The wetland is located in the centre of a residential area and will be an attraction for local people who like to walk through the bush for exercise or nature-based activities. The native vegetation should be largely retained around the central wetland. Therefore, the wetland areas and surrounding buffer should be protected within POS.

The buffer area should cater for some controlled passive recreation activities such as the inclusion of a dual use path, seating, and possibly a limited grassed area. The construction of a raised boardwalk linking the path to the edge of the central wetland or even through the wetland could also be included without compromising the native vegetation. The addition of interpretive signage in the buffer and wetland would enhance the general public's understanding of dampland wetlands.

The buffer surrounding the RE wetland on Lot 56 Alexander Drive includes native vegetation on the northern side, cleared land on the western and eastern sides and partly cleared and developed land on the southern side. The southern portion includes a portion of the MU wetland. The northern vegetation part of the buffer should be retained intact with provision for a dual use path through the bush. The cleared parts of the buffer could be managed to include some revegetation where there are remnants of native vegetation as well as grassed passive recreation area and some stormwater treatment structures.

The Department of Water (DoW) will need to approve any stormwater design that incorporates treatment structures within the buffer or overflow into the wetland and buffer areas.

A Wetland Management Plan detailing the proposed management measures for retained wetlands should be prepared as a condition of subdivision prior to development of areas that contain the CC wetland on Lots 73 and 74 Queensway Road and the RE wetland on Lot 56 Alexander Drive.

15.7.4 Fauna

Protection of selected areas of the native vegetation, including wetland areas, will assist in preserving vertebrate fauna habitat at the site. In addition, the site is located in close proximity to the existing conservation reservations of Gnangara Lake and Whiteman Park and the regionally significant bushland of the Telecommunications Centre to the east. These significant parcels of bushland will provide habitat to species that may be displaced by future development of the Structure Plan Area.

The report prepared by ATA Environmental (Appendix 2 refers) considers that any clearing will not have a significant impact on any species listed as Threatened under the EPBC Act. A referral under the EPBC Act is therefore considered unnecessary.

15.7.5 Drainage and Groundwater

Some areas of the site are subject to water table levels within 0 – 2m of the surface and therefore appropriate drainage control will be an important consideration for the future development of the site.

At the detailed subdivision stage, hydrological and drainage studies may be required to identify the drainage requirements and management options. It may be necessary to introduce fill in low-lying areas to ensure housing and infrastructure will not be impacted by groundwater levels.

The drainage design and strategy for the site will need to account for wetlands both within the site that may be affected by drainage management. Drainage management options associated with development of the site should be based on the principles of water sensitive urban design and best management practices, including the designation of areas for the infiltration of stormwater on site. The drainage design will need to ensure adequate management of first-flush stormwater events and treatment of drainage waters particularly adjacent to wetland areas.

15.8 Groundwater Protection

The Gnangara Land Use and Water Management Strategy (WAPC, 2001) located in Precinct 64 within the Mirrabooka Underground Water Pollution Control Area (UWPCA) of the Gnangara Mound, a large shallow groundwater aquifer which occurs between the Swan River and Gingin Brook (WAPC, 2001). The Gnangara Mound is a major water source, supporting a number of groundwater abstraction schemes by the Water Corporation, and private abstraction for agriculture, industry, and recreational and domestic use.

According to the Gnangara Land Use and Water Management Strategy (WAPC, 2001) and the State Planning Policy 2.2 Gnangara Groundwater Protection (WAPC, 2005) the study area was considered a Priority 2 Source Protection Area with the potential to change to a Priority 3 area subject to the resolution of planning issues and environmental issues.

Recently, Precinct 64 has been re-gazetted from Priority 2 to Priority 3.

Regional groundwater contour mapping of the area suggests average maximum groundwater levels lie at about 44m AHO in the northern section of the site and 39m AHO at the southern boundary (DOE, 1997). Based on this information the groundwater is expected to be approximately 6m below the natural surface at high points and within 0-2m in low-lying areas. The contours suggest groundwater flow is in a south-westerly direction.

15.9 Perth International Telecommunications Centre

The Perth International Telecommunications Centre (PITC) is located immediately to the east of Alexander Drive, adjacent to the site. The Centre provides support and services for space research, satellite tracking, maritime rescue, distance education and communications (Figure 13 refers).

Figure 13: PITC Site Location

During the MRS rezoning process, Telstra expressed their concern about potential adverse impact of urbanisation of Precinct 64, on the PITC facility.

Telstra and Stockland, being the largest land owner in the area, have entered into a Memorandum of Understanding (MOU) in September 2005, followed by a Deed in September 2007, to ensure that proposed development has minimal adverse impact upon the communications facility. Measures to mitigate the impact include but are not limited to:

- Limitations imposed on land uses and their location within Precinct 64 and in particular a

neighbourhood shopping centre and a school to be located south of Kingsway Road.

- Limitations imposed on residential density applicable to the Structure Plan Area.
- Specific design requirements applicable to the neighbourhood shopping centre:
  - Any eastern facing walls should be solid and without openings,
  - The height of the buildings must not exceed 5.5m above the finished ground levels,
  - All roofs must have a pitch of at least 10 degrees,
  - Any car parking spaces must be located to the west of the neighbourhood shopping centre and in the lee of the buildings,
  - Vehicular access to the neighbourhood shopping centre must not be provided off Alexander Drive.
- Predominantly east-west orientation of roads thus facilitating predominantly north south orientation of lots with major openings facing to the north and south,
- Specific design requirements applicable to residential development:
  - Double brick construction for all external walls of buildings except garages and domestic sheds,
  - If external walls are not double brick construction, overlapping sisalation must be installed between the outer wall and abutting inner wall located on the eastern side of the building,
  - All roofs must have a pitch of at least 10 degrees,
  - All garages must be enclosed on the eastern side and including garage doors, at least 2 other sides, but may be open on 1 side and where practicable, have north or south openings,
  - Antennae connected to equipment that has transmit capabilities must not be installed without prior written approval of Telstra,
  - The height of any domestic shed must not exceed 2.7m,
  - Where practicable, windows must be located on the northern and southern side of residential dwellings,
  - Where practicable, kitchens must be located on the western side of residential dwellings.
- Vegetation requirements throughout the Precinct within public open spaces and road reserves. In particular, wider road reserves abutting Alexander Road, heavily landscaped (Figure 19 refers).
- Restrictive covenants to be placed on lots outlining the restrictions on the use and type of construction.
- Limitations on street light design.
- All power and broadband cabling to be underground (standard practice).
- Ensuring use of diesel powered equipment for construction. (typical practice)
- Pitched roof design for houses.

The design of the Structure Plan addresses matters raised by Telstra relating to allocation of land uses and residential density, lot/road orientation, landscaping requirements associated with Alexander Road and allocation of public open space. Special Development Control Provisions applicable to the Structure Plan are contained in Part 1 of this report.

Copy of the MOU (Deed) between Telstra and Stockland is enclosed as Appendix 5.

16.0 THE STRUCTURE PLAN

16.1 Community Design

The general principles of new urbanism have been employed in the design of the Structure Plan in order to create a sense of community as well as providing a legible and robust environment. The existing road structure of the East Landsdale area lends itself to dividing the subject land into three (3) separate sub-precincts, being:

- "North" - area between Gnangara Road and Queensway Road.
- "Central" - area between Queensway and Kingsway Roads, and
- "South" - area between Kingsway Road and Hepburn Avenue.

Each precinct has natural distinct features which enable land uses to be designed to ensure community focal points centrally within each of the precincts.

Planning and urban design objectives identified for the three sub-precincts are as follows:

- Ensure comprehensive planning of the sub-precinct taking into account multiple land ownership.
- Respond to the existing physical characteristics of the subject land.
- Promote balance mix of housing in close proximity to activity centres and public transport nodes.
- Promote connectivity and interface between the established residential area to the west.
- Conserve and enhance the existing wetlands.
- Promote water sensitive urban design.
- Provide a range of employment opportunities.
- Facilitate infrastructure provisions and equitable cost sharing.
- Facilitate best practice 'energy principles' through correct solar orientation.

The application of these principles will facilitate a sustainable residential environment.

Wherever possible and practicable all lots within the Structure Plan Area should be capable of being developed independently. POS is subject to overall Structure Plan provisions. Existing dwellings are proposed to be retained (where requested by landowners during the preliminary consultation process) and have been incorporated into the overall design, with subsequent development/subdivision of these lots being able to occur in the context of the Structure Plan without requiring modification to the surrounding road network (potential road alignments have been shown over several of the 'homestead' lots).

16.2 Proposed Land Uses

The predominant land use proposed is residential. A 'Centre Zone' site has been located on the corner of Alexander Drive and Landsdale Road. Provisional amount of retail / commercial floor space has been determined based on preliminary analysis undertaken by Syme Marmion & Co (Appendix 1 refers). The ultimate retail floor space shall be as per the provisions of the City's Centres Strategy.

A 1 ha Centre Zone site has also been located on the corner of Alexander and Gnangara Roads.

A primary school site of 4 ha has been provided in conjunction with 3.5 ha of active open space. This would enable co-location and sharing of active open space (full size senior oval and associated infrastructure) between the school site and general public.

There are a number of existing land uses (private school, nurseries, St John ambulance, market gardens) within the Structure Plan Area, that will continue to operate in the foreseeable future (as indicated by land owners during preliminary consultation).

16.3 Movement Network

A Traffic Report has been prepared for the Structure Plan Area by Riley Consulting (Appendix 3 refers). Gnangara Road, Alexander Drive and Hepburn Avenue are reserved as 'Other Regional Roads' pursuant to the MRS and provide excellent regional access to and from the subject land. In addition to the regional road network, Queensway, Kingsway and Landsdale Roads provide important east west district level access to surrounding areas, particularly Landsdale Gardens Estate

Due to the undulating nature of the site, the location of new road connections into the existing east west road network has been influenced by the need to ensure safe sight distances.

A range of appropriate road reserves for each street type is proposed (Figure 14 refers) based on current planning guidelines. Detail of the actual road reservation may be adjusted at the time of subdivision to be cognisant of adjacent land uses, parking requirements and Liveable Neighbourhoods provisions.

Detailed design of streets adjacent to POS areas needs to accommodate on street parking embayments.

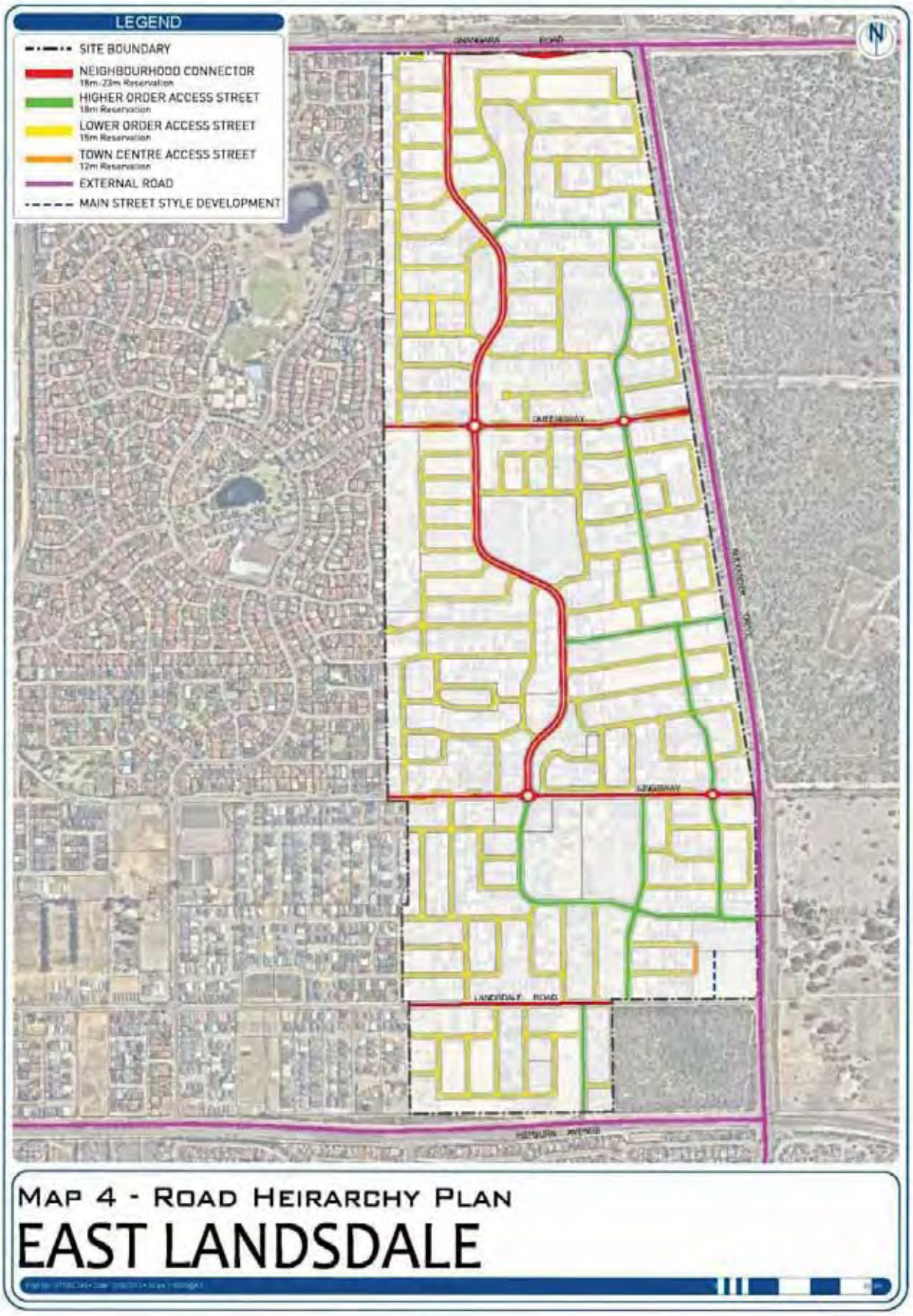


Figure14: Road Hierarchy

The proposed road hierarchy incorporates a north south 23m "Boulevard" road as the central spine. The north-south spine road is to be developed as a boulevard style road within a 23.0 metre road reservation to provide drainage within a bushland median. Figure 15 shows the cross-section of this road type. A sealed carriageway of 4.5 metres is provided with a 3.5m traffic lane and 1.0 metre cycle lane. The alignment is curvaceous in its alignment to reduce high traffic speeds and provide a more interesting streetscape.

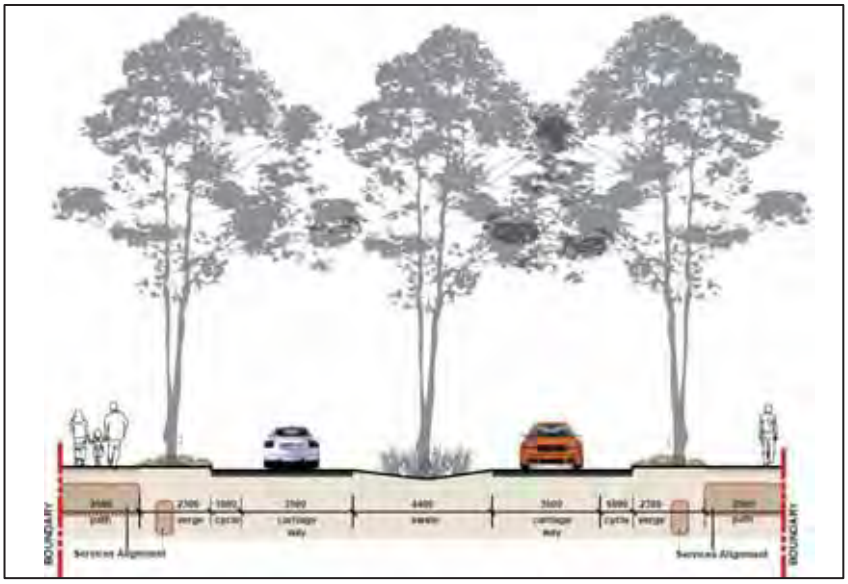


Figure 15: Cross-section of 23m Drainage Boulevard

Where a drainage function is not required, the median can be removed to provide a single 9.0 metre carriageway providing two 3.5 metre traffic lanes and 1.0 metre cycle lanes. A verge of 4.7 metres is shown on Figure 16 with parking embayments to one side.

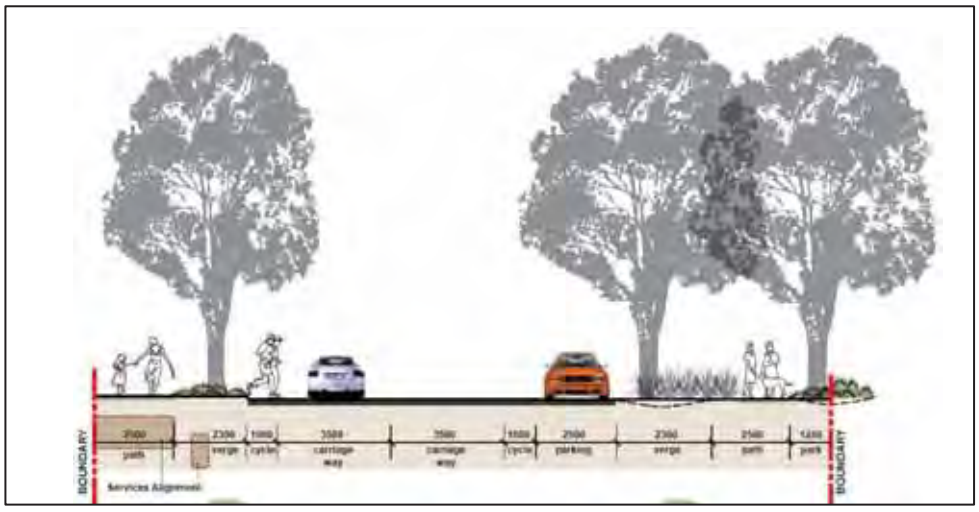


Figure 16: Cross-section of 23m Boulevard

Where a boulevard style road is not required, a standard road cross-section will be used. An 18.0 metre road reservation provides appropriate width to allow a 7.0 metre carriageway with residual verges of 5.5 metres. The reservation will also allow a 7.4 metre carriageway (suited to Transperth bus services) with residual verges of 5.3 metres. Figure 17 shows the suggested road cross-section.

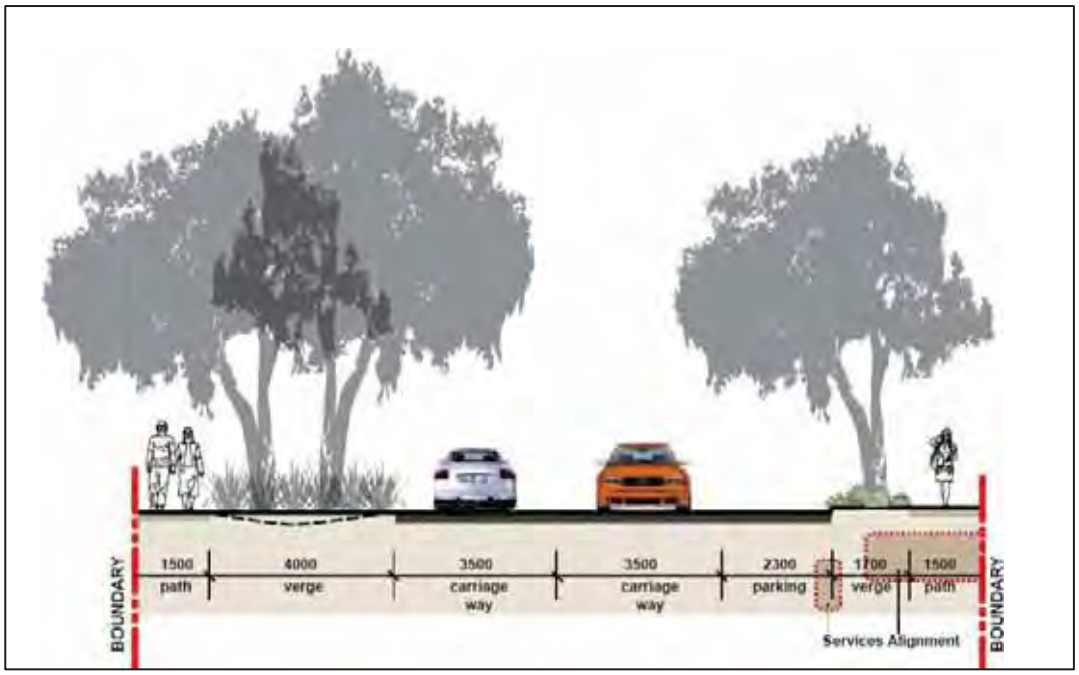


Figure 17: Cross-section 18m road

The remaining "access" roads are to be contained within a 15m road reserve (6m carriageway). Figure 18 show typical cross-sections of an 18m road and an access street.

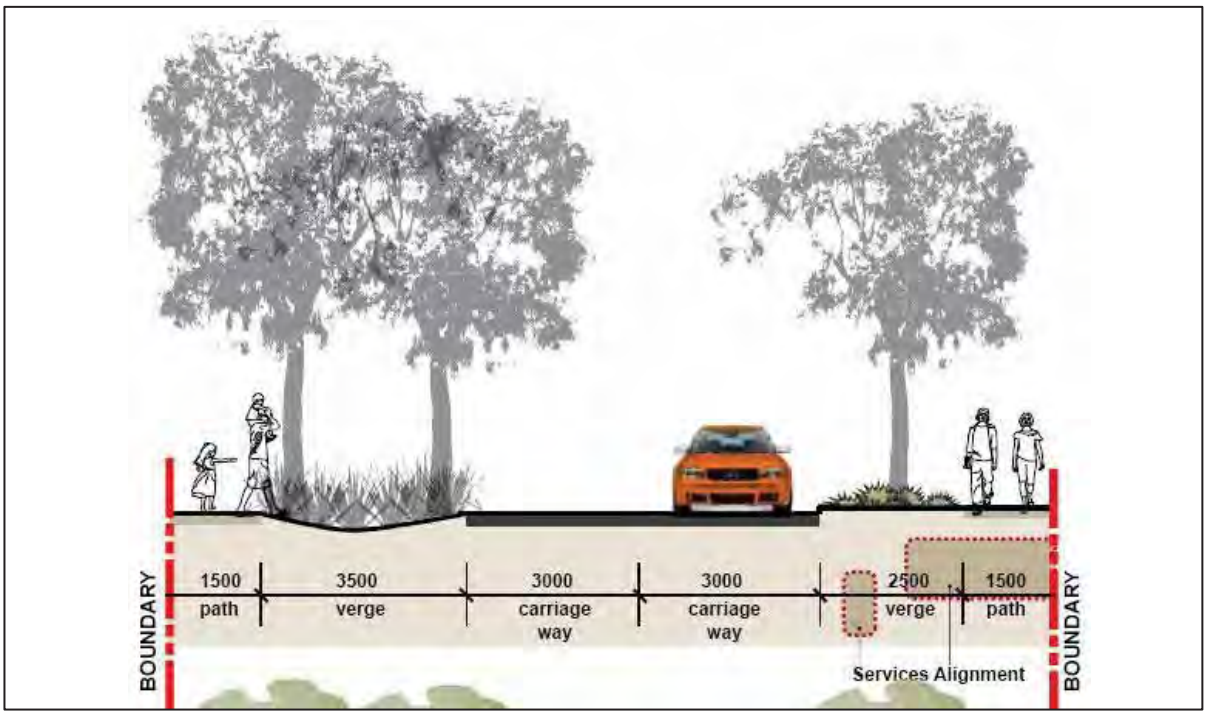


Figure 18: Access Street Cross-section

The north/south road spine is to be utilised as a bus route and forms a central focal point for the Structure Plan Area. The spine roads run at the base of the "valley" which naturally occurs over the subject area. The majority of access roads within the SP area have been orientated on an east/west axis, complying with the requirements of the Telstra MOU.

A wider road reserve has been utilised, in parts, where the Structure Plan abuts Alexander Drive, designed to incorporate dense landscaping to address Telstra's requirements. An indicative cross-section of the treatment is shown on Figure 19.

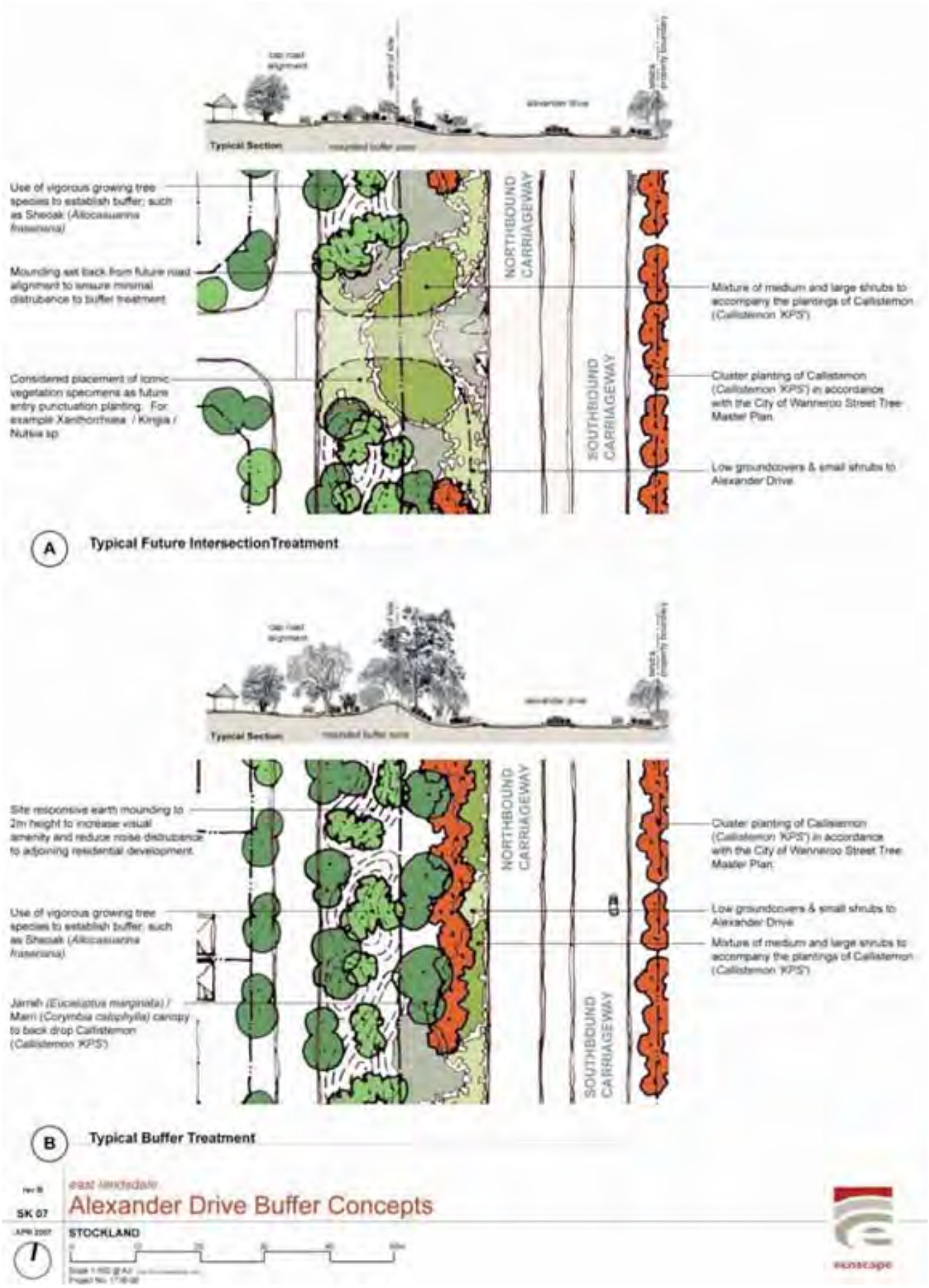


Figure 19: Alexander Drive Landscaping Treatment

16.4 Public Transport

There is currently a bus servicing Landsdale, which passes through the East Landsdale area, along Queensway Road. The service operates between Mirrabooka and Landsdale on an hourly service during the day. A connecting service is provided to the City at Mirrabooka. The travel time to / from the City is approximately 45 minutes. Figure 20 shows the existing service route.

Figure 20: Existing Bus Service Route

Based on a local distributor road pattern proposed for the Structure Plan Area, a general bus route is proposed as shown on Figure 21. The proposed local road network will be designed to accommodate the bus route with detailed planning at the subdivision stage. Figure 21 also shows roads that should be designed to accommodate future bus services and the walkable catchments.

The proposed bus route will provide a comprehensive public transport system for the area, providing an accessible public transport service to the primary school, active sporting facilities, retail area and ultimately connecting to major public transport nodes in the immediate area for easy access into the Perth Central Business District.

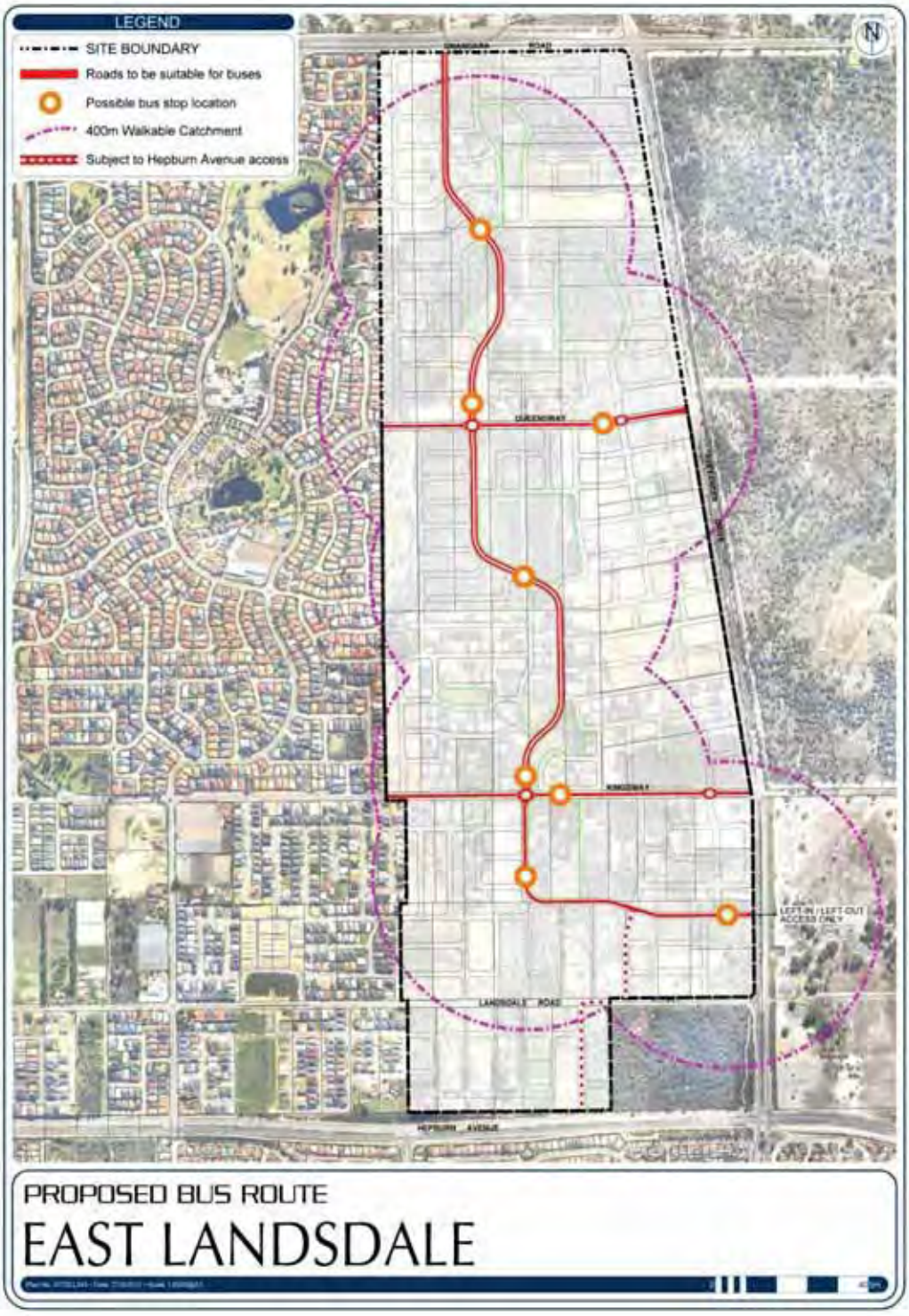


Figure 21: Proposed Bus Route, Road Network Designed to Accommodate Bus Route, Walkable Catchments

16.5 Pedestrian and Cycle Networks

Pedestrian and cycle movements across the Structure Plan Area are proposed to be accommodated by a series of interconnected dual use paths as shown on Figure 22.

The location and alignment of these dual use paths will be further refined during detailed subdivision design stages. The general philosophy for the provision of dual use paths is to connect areas of interest with residential neighbourhoods. It is anticipated that the pedestrian / cycle network will connect areas such as public open space, wetland areas, retail and commercial nodes and community facilities / recreation.

Current planning guidelines suggest that a footpath should be provided to every street and this philosophy is supported where development fronts the street. In areas where public open space is provided there is minimal requirement to provide a footpath adjacent to the road if paths are provided within the public open space. The only time when a path should be provided is where a pedestrian desire line can be expected, such as on route to the local centre.

Footpaths should be a minimum 1.5 metres wide and be widened to 2.0 metres in the vicinity of schools, shops and other activity centres. Shared paths should be 2.5 metres wide. Footpaths should be offset from the boundary by 0.3 metres or provided at a width of 1.8 metres. A north-south pedestrian spine parallel to Alexander Drive is indicated in Figure 22 linking to the local centre. It is desirable to provide a wider footpath along this spine to provide a focal route. Beyond the 800 metre catchment a standard footpath would be sufficient.

The local centre footpaths should be designed cognisant of the adjacent land use to ensure that adequate width for alfresco trading and dining is available if applicable.

Figure 22 shows roads where a footpath is required and where shared paths should be provided. Regional paths are also indicated adjacent to Gnangara Road, Alexander Drive and Hepburn Avenue. Appropriate paths should have been provided at the time these roads were upgraded. It is questionable whether a shared path is required to Alexander Drive as on-street cycle lanes should be provided. A footpath would be sufficient as the majority of local residents would be expected to use internal streets. Any deficiencies to the external footpath network should be provided by the City of Wanneroo (and can be funded through scheme costs). It is also noted that shared paths extend to existing development and it is the responsibility of the City of Wanneroo to ensure that appropriate extension of the proposed paths are made through existing subdivisions.

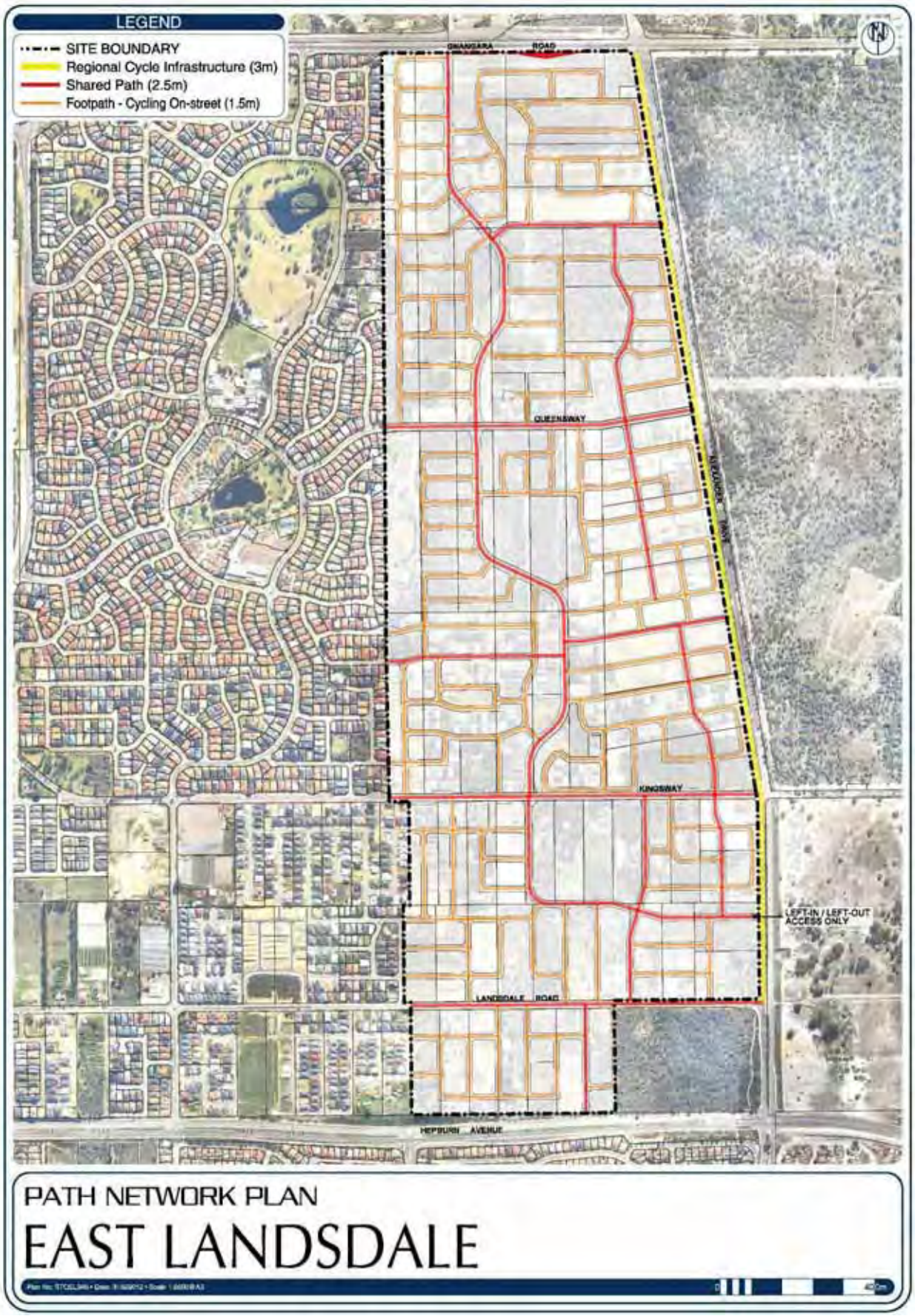


Figure 22: Path Network

16.6 Residential

The Structure Plan identifies the majority of the subject land for residential development with a split coding of R20 / R30. The split coding requires subdivision to adhere to the minimum lot size of 270m ^{2} (R30), whilst maintaining an overall lot average of 500m^2 (R20).

Given Telstra's concerns about potential adverse impact of urbanisation of the Structure Plan area on the PITC facility, and in order to ensure that proposed development has minimal adverse impact upon the communications facility, an average density target of R20 is proposed to apply to the overall Structure Plan Area. The split coding will enable a diverse lot mix, whilst adhering to the requirements of Telstra, with all subdivision applications to maintain a lot average of 500m^2 (R20).

The projected dwelling yield for the Structure Plan Area is approximately 2,150. Assuming that the demographic profile of residents will be similar to 2006 ABS census, it is expected that a ratio of 3.28 persons per dwelling is reasonable for the purposes of projecting the likely population at full development (Appendix 1 refers). Therefore, it is expected that the site will house approximately 7,000 persons when fully developed.

Predominant east-west orientation of roads will facilitate north-south orientation of lots, achieving good solar orientation. Street blocks vary in depth accommodating lots from 28-35m in depth.

Overall, the Structure Plan establishes a neighbourhood road pattern that provides for the ultimate creation of regular shaped lots, with the ability to accommodate a wide variety of individual housing design options.

16.7 Local Activity Centre

The Economic and Employment Strategy has been prepared by Syme Marmion & Co (Appendix 1 refers). The 'Centre Zone' site has been located on the corner of Alexander and Landsdale Roads.
The provisional amount of retail / commercial floor space has been determined based on the analysis of the projected population and labour force figures, Metropolitan Centres Policy (SPP 9) and the City of Wanneroo Centres Strategy (revised 2005). The ultimate retail floor space shall be as per the provisions of the City's Centres Strategy.

Conclusions of the Syme Marmion Economic and Employment Strategy were as follows:

- Additional population will create the need for approximately 3700m^2 of neighbourhood and local retail floor space. This is a reasonable amount of floor area and would justify a neighbourhood centre with convenience shopping, office uses and local services with some community facilities.
- A centre with 3700m^2 of retail will also generate the need for other uses resulting in a centre with a total floor area of around 6,900m^2.
- Analysis of land area to floor area ratios for centres of similar size and type in the Perth metropolitan area suggest that for every hectare of commercial land, approximately 3,200m^2 of retail and

commercial floorspace is accommodated. Therefore, a centre of 6,900m^2 in total is likely to require about 21,600m^2 of land to accommodate the buildings and parking.

The original Structure Plan included a Commercial area at the northern extent of the Structure Plan on the corner of Alexander Driver and Gnangara Road and a Commercial area at the southern extent on the corner of Landsdale Road and Alexander Drive. The northern Commercial area was removed through Amendment Number 7 and was included in the Residential Precinct. The Commercial floorspace that was removed from the northern Commercial area was offset in the southern Commercial area through the 'rounding off' of the southern Commercial area resulting from Amendment Number 8.

An indicative concept plan for the southern Commercial area is contained in Figure 23. A Local Development Plan will be required prior to the approval of development in the Commercial area.

Figure 23: Indicative Concept Plan

16.8 Education Facilities

The Department of Education and Training (DET) require a primary school site to be provided within the East Landsdale area.

Preliminary discussions with DET confirmed that based upon defined school catchment areas, the most appropriate location for a primary school site is south of Kingsway Road, on a relatively flat site. The proposed location of the school site is consistent with the requirements of Telstra/Stockland MOU.

A primary school site of 4 ha has been provided south of Kingsway Road in conjunction with 3.5 ha of active open space to allow for a full size senior oval and associated infrastructure.

An existing private primary school site is located on Lot 70 Queensway Road and the Structure Plan reflects the retention of the private primary school site in this location.

16.9 Community Facilities

A senior oval, co-located with a primary school site south of Kingsway Road is proposed. It will accommodate a range of sporting codes in a highly accessible location.

A 5000m^2 Community Purpose Site (as required by the City of Wanneroo) is to be provided within the local centre site on the corner of Alexander and Landsdale Roads, for future acquisition by the City (part of cell works).

16.10 Public Open Space, Streetscape and Landscaping

Public Open Space (POS) has been evenly distributed throughout the Structure Plan Area to ensure maximum accessibility for future residents.

The Structure Plan integrates a "green spine" traversing the site in a north south direction. The open space network seeks to incorporate areas of "active", "passive" and "conservation" areas, through a joint network of green spaces and pedestrian path networks. The allocation of POS (north south oriented link) addresses Telstra's requirements raised in the MOU.

Each precinct (north, central and south) is self sustainable with regard to open space provision of 10%. Open space credits and contributions have been established in accordance with the provisions of the Western Australian Planning Commission's Liveable Neighbourhoods. A detailed POS schedule is included in Part 1 Section 11.0 – Public Open Space Schedule.

Drainage is required to be accommodated by individual future subdividers and accordingly, no credits for drainage areas within public open space areas are being sought.

Up to 100% open space credit is to be sought for the buffers surrounding the Resource Enhancement Wetland (REW) located within the northern precinct, and the Conservation Category Wetland (CCW) located in the "Central" precinct, on the basis that the buffer areas can be utilised as POS. Credits for these buffers have been calculated in accordance with the provisions of the Western Australian Planning Commission's Liveable Neighbourhoods.

In accordance with the Liveable Neighbourhoods, credit for these buffer areas is permitted up to a maximum of 20% of the total open space provision. Crediting of these areas has been taken into account and reflected in the open space schedule.

In both cases, the public can use these areas for passive recreation using designated pathways through the bush. A variety of recreational uses are envisaged for these areas such as leisure (picnicking, strolling, children's playground), daily exercise (jogging, walking, cycling) and educational purposes (nature interpretation).

The intended use of the POS areas (active, passive,) is shown on Figure 24.

A Public Open Space Strategy has been prepared and is shown on Figure 25.

Figure 24: POS Provision

Figure 25: POS Strategy

A 'Street Masterplan' has also been prepared (Figure 26 refers) providing for streetscaping across the entire Structure Plan Area.

Figure 26: Street Tree Master Plan

Kings Park's Botanical Gardens were used as design inspiration for the streetscape theming process. The experiential sequence of formal through to natural bushland setting stylishly showcases the landscape character of the site.

The species selection for the street trees has been based on a number of site responsive criteria to retain a unique sense of place within the development and compliment existing tree amenity within the development. The site's geomorphology and associated vegetation communities were analysed and appropriate street tree species selected using the City of Wanneroo's Street Trees Masterplan as an underlying reference document.

Species selected will provide habitat and pollen corridors for fauna, particularly avifauna, traversing the site. The species list has been reviewed by Kings Park and Botanic Garden's staff to ensure there is a seasonal variety of flowering species within the development. Areas of good quality vegetation recommended for further investigation at subdivision stage and / or retention in POS areas are shown on Figure 27.

Figure 27: Areas of Vegetation in POS Areas

16.11 Servicing Intrastructure

16.11.1 Siteworks and Earthworks Regime

Mapping sourced from Water Corporation indicates an undulating site with minimum levels in the vicinity of RL 41.0m AHD and maximum levels 60.0mAHD. The lower portions of the site are relatively flat, particularly in a north-south axis however there are existing gradients as steep as 1 in 8 in some parts of the site. Generally, the site is less undulating than the adjacent Landsdale Gardens precinct.

Regional groundwater contour mapping indicate an average maximum groundwater level (AAMGL) at approximately 44.0mAHD in the north-west section of the site grading to 39.0mAHD at the south-east corner of the site. The lower depressions within the site are at or only just above AAMGL. At these locations, wetland vegetation is evident. Further discussion on the wetlands can be found in Environmental Assessment (refer Appendix 2). Precinct 64 is located within the Mirrabooka Underground Water Pollution Control Area of the Gnangara Mound.

The site is typical of Bassendean Dune System with characteristics of low to very low relief dunes, with intervening swamps and undulating sand plain.

A requirement of future development will be to ensure that a minimum of 1.2m freeboard above AAMGL is achieved for all new lots. The 1.2m is regarded as a minimum and an increase to at least 1.5m will be required in order to accommodate on-site infiltration for individual lot stormwater drainage. To facilitate sufficient freeboard, the lower portions of the site will need to be filled by approximately 1m. Material will be sourced by excavating the higher portions of the site (dune type areas) that will have the additional benefit of reducing gradients and therefore the frequency and height of retaining walls. Notwithstanding the above, it is anticipated that in limited areas, retaining walls up to 3m high may be required. This is considered to be an extreme case and in most instances where retaining walls are required, the height of the wall will be in the order of 1.0 to 1.5m.

Areas of the site used for market gardening or other commercial activities will require testing for contamination. Any contamination found will require remediation to be carried out as part of the development process. Refer environmental report for further discussion on this matter.

Location of POS has in part been determined by a desire to retain significant existing vegetation within POS. In areas where significant trees are located within road reserves and the front setback zone of residential lots, developers should endeavour to retain trees. Retention of trees within road reserves will require some flexibility from City of Wanneroo with respect to traditional engineering design criteria.

16.11.2 Roadworks

The proposed Structure Plan indicates a number of locations where access to the existing road network is required. Based on the contour information available, horizontal and vertical geometry has been assessed at all proposed intersections with existing roads. In all cases, intersections with existing roads are located where sufficient horizontal and vertical sight distance can be achieved.

Four new intersections on Alexander Drive are proposed. The southernmost intersection is located approximately midway between Kingsway and Queensway within Lot 172. Two new intersections with Gnangara Road are proposed between Kingsway and Queensway Roads, one being within Lot 62 adjacent to the northern boundary and the other within lot 59 approximately 40m from the southern boundary. The fourth intersection is located between Queensway and Gnangara Roads within Lot 156 adjacent to the southern boundary. It is expected that all of these new intersections will have both left and right turning movements in and out of the proposed subdivision.

A fifth major access is proposed along the northern boundary of the site at Gnangara Road. The proposed intersection is located at the common boundary of Lots 152 and 1981. As for the intersections with Alexander Drive, it is expected that this intersection will have both left and right turning movements in and out of the proposed subdivision.

Proposed intersections with both Kingsway and Queensway Road occur more frequently which is reflective of the lower traffic volumes on these roads.

While there is a predominance of east-west roads to satisfy concerns Telstra had with their nearby facility, the internal road layout has taken consideration of the fragmented land ownership within Cell 9. Where possible, roads are positioned to be sympathetic to existing site gradients whilst taking into consideration the land ownership issues.

The internal road network will consist of a north south boulevard type road that runs from Gnangara Road through to Kingsway connected to a network of local access streets. Road reserve widths within Precinct 64 will vary between 15m for local access streets up to 23m for the boulevard road. Further detail on road reserve widths and traffic related matters is provided in the Riley Consulting traffic report (Appendix 3 refers).

16.11.3 Stormwater Drainage

Based upon the natural topography across the site, various drainage catchment areas have been identified. Future bulk earthworking of the site to suit urban development will likely not substantially affect the catchment areas. The site is undulating and in most cases, the valleys or low areas have only 0 to 1.5m freeboard above published Average Annual Maximum Groundwater Level (AAMGL) contours. As a consequence of this the use of fenced steep sided deep infiltration basins (which

minimize land area required) is limited. For the purpose of calculating basin sizes throughout the development area an average depth of 1.5m has been allowed for. This methodology lends itself more to landscaped basins / infiltration areas.

The drainage areas indicated on the plan are based on City of Wanneroo criteria of 1330 cubic metres of storage for every hectare of equivalent impervious area. This criteria is appropriate as all drainage basins are located at low points.

Notwithstanding the abovementioned criteria for the sizing of basins, it would be appropriate to review basin sizing with respect to actual site permeability and basin layout as part of future detailed design.

Contributing areas have taken consideration of existing roads surrounding the site. It is noted however that an existing drainage sump for Alexander Drive is located east of Alexander Drive between Landsdale Road and Kingsway. Opportunities to replicate this situation for Alexander Drive between Kingsway and Gnangara Road exist and are appropriate with current and expected land use, i.e. Telecommunications infrastructure and buffer.

All detailed drainage design will take into consideration objective and principles of best practice water sensitive urban design. Notwithstanding that drainage areas are based on conventional drainage systems, opportunities to provide infiltration at close to source will be explored and utilized where appropriate. This will include infiltration swales along the median of the boulevard road and infiltration pits and cells within road reserve verges. This approach will require City of Wanneroo to review traditional engineering design criteria for subdivisions whereby all stormwater is transferred via a pipe and pit system to a single basin or sump.

As a result of fragmented land ownership some drainage sumps will be required (though discouraged) upstream of natural low points. Effectively each existing property will be required to accommodate its own drainage on site unless agreement is reached with adjacent landowners on a shared drainage facility or if one landowner is in control of a number of lots.

16.11.4 Sewer Reticulation

Discussions with Water Corporation have indicated that Precinct 64 can be serviced however headworks infrastructure will be required.

Water Corporation planning provides for two sewer pumping stations within Precinct 64. A Type 90 sewer pumping station is planned immediately north of Kingsway in Lot 55, 56 and a Type 40 is planned toward the western boundary of Lot 56 Alexander Drive. Discharge from the Type 40 is towards the proposed Type 90. Discharge from the Type 90 is directed to the East Wanneroo sewer catchment via a pressure main to be installed in Kingsway.

Due to the fragmented ownership within the subject area, there may be a requirement to install temporary pumping stations should access for a deep sewer through existing undeveloped properties not be available. This situation is not expected to affect the Structure Plan.

Due to the near surface water table in portions of the site, dewatering will be required in order to install some of the gravity sewer infrastructure. In each case where dewatering will be required, the proponent will need to prepare a dewatering management plan including acid sulphate soil assessment in order to obtain a licence to extract water.

16.11.5 Water Reticulation

Existing Water Corporation pipelines are located in Gnangara Road (dia. 250 and dia. 700 for full extent of frontage and within existing Landsdale Gardens Estate which abut the western margin of Precinct 64. There is no existing water supply infrastructure within Alexander Drive, (except in front of Lot 1981 and south of Kingsway), and only limited infrastructure within Landsdale Road, Kingsway and Queensway Roads, within Cell 9.

To service a fully developed Precinct 64, installation of both 500mm diameter and 450mm diameter water supply pipelines are required.

The nature and inherent flexibility of water reticulation is such that it will not affect the Structure Plan layout.

16.11.6 Power Supply and Other Services

Western Power has indicated that there is no existing or proposed infrastructure within Precinct 64 that will constrain the Structure Plan layout. Extension to the existing network abutting and through the site is required to facilitate power reticulation.

As development proceeds, existing aerial power supply will be converted to underground supply where existing lines front new development.

Gas and communications services are available in adjacent Landsdale Gardens Estate. These services will require extension to reticulate development within Precinct 64.

Telstra operate a major communications facility immediately to the east of Alexander Drive, adjacent to the site. Telstra and Stockland entered into a Memorandum of Understanding in September 2005 to ensure that proposed development does not adversely impact upon the communications facility. Measures to mitigate the impact include but are not limited to:

- Predominantly east-west orientation of roads.

- Construction of a 2.0m nominal height bund along Alexander Drive.
- Planting vegetation on the abovementioned bund.
- Limitations on street light design.
- All power and broadband cabling to be underground (standard practice).
- Ensuring use of diesel powered equipment for construction (typical practice).

16.12 Implementation

16.12.1 City of Wanneroo District Planning Scheme No. 2

Amendment No. 25 to the Scheme, which proposes to rezone the subject land to 'Urban Development' zone, will require to be finalised. The Amendment also proposes to introduce infrastructure contribution arrangements for the area, described as East Wanneroo Planning Cell 9.

The Amendment is currently awaiting final approval by the Hon. Minister for Planning and Infrastructure.

16.13 Cost Sharing Arrangements

As for similar areas within City of Wanneroo where development occurs in an area where fragmented ownership is prevalent, it is intended that some major items of expenditure are funded by a scheme works charge.

Within the Structure Plan Area, it is likely that scheme works charges will be levied for the following items:

- Land acquisition for POS;
- Hepburn Avenue construction;
- Alexander Drive reconstruction;
- Ancillary costs and administration charges.

16.14 Summary of Key Environmental Recommendations

The environmental issues of most importance in relation to the development of Cell 9 for residential purposes are considered to be those associated with the wetlands and bushland parcels in very good condition. The following key recommendations have been prepared by Coffee Environmental (Appendix 2 refers) to manage the environmental opportunities and constraints presented by the existing environment in Cell 9, in order to minimise potential environmental impacts associated with the development of the area for residential purposes:

- Retain and protect the CC and RE wetlands, including a minimum 50m buffer where appropriate. Proposed land uses surrounding the wetland and buffer should be designed to ensure that the existing values and function of the wetland are maintained. This would include retention of most of

the native vegetation in very good condition and the incorporation of passive recreation features such as a Dual Use Path, boardwalk, limited grassed areas and seating within the buffer.

- Retain representative portions of the native vegetation in very good condition while balancing the requirements of passive/active recreation to preserve areas of local significance.
- Consider the maintenance of vegetation along recognised greenway linkages. In addition, consider the provision of vegetated or treed linkages between the wetlands and other areas of native bushland wherever possible, and retention of as many mature wetland and dryland trees as possible throughout the development area.
- Prepare a Wetland Management Plan as a condition of subdivision for those development proposals that include the CC wetland on Lots 73 and 74 Queensway Road and the RE wetland on Lot 56 Alexander Drive.
- Prepare a Local Water Management Strategy (LWMS) as a condition of subdivision, which should adhere to the principles of water sensitive urban design and provision of sufficient area to manage and treat stormwater on-site. Drainage design should promote infiltration and enhance and complement the natural features of the site.
- Soil and groundwater contamination investigations should be undertaken for land uses which have been identified as likely to have some contamination. These investigations should be required as a condition of subdivision approval.

17.0 CONCLUSIONS

The Structure Plan provides a framework for future development of the Structure Plan Area.

The principles of the Structure Plan are consistent with the principles and objectives of relevant strategic and statutory planning documents applicable to the land. The result is a vision for the Structure Plan Area to create a high quality residential development encouraging strong community focus and environmental sustainability.

The Structure Plan builds on the opportunities and constraints of the site and addresses the issues raised by the Landsdale Land Use Planning Working Group, Gnangara Land and Water Management Strategy and the principles and agreements outlined in the MOU between Telstra and Stockland.