YANCHEP CITY AGREED STRUCTURE PLAN NO.68

PART ONE - IMPLEMENTATION REPORT

(with Amendment Nos. 1-5)

September 2023

CLE Town Planning + Design

Title:	Yanchep City Agreed Structure Plan No.68 Part One - Implementation Report (with Amendment Nos. 1-5)
Prepared for:	Yanchep Beach Joint Venture
CLE Reference:	2214Rep253A
Date:	21 September 2023
Status:	Final
Prepared by:	CLE Town Planning + Design

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YANCHEP CITY

AGREED STRUCTURE PLAN NO. 68

PART ONE – IMPLEMENTATION REPORT

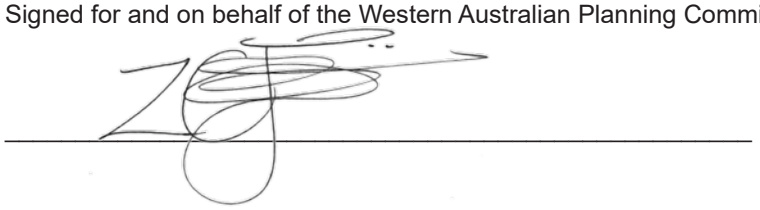
(with Amendments Nos. 1-5)

Originally adopted by WAPC on 10 June 2013 and by resolution of the Council of the City of Wanneroo on 18 September 2012

IT IS CERTIFIED THAT AMENDMENT NO. 5 TO YANCHEP CITY STRUCTURE PLAN NO. 68 WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

14 SEPTEMBER 2023

Signed for and on behalf of the Western Australian Planning Commission



an officer of the Commission duly authorised by the Commission pursuant to Section 24 of the Planning and Development Act 2005 for that purpose.

Table of Amendments

Amendment No.	Description of Amendment	Amendment Type	Finally Endorsed by WAPC
1	Rezone Part Lot 602 Yanchep Beach Road, Yanchep from 'Business R60-R100' to Residential R20-60'.	Major	18 July 2017
2	Minor amendment to include the Residential Medium Density Codes (RMD Codes) in accordance with the City of Wanneroo's Medium-Density Housing Standards *(R-MD) Local Planning Policy (R-MD Codes LPP.* Updates to Part 1 in accordance with the Planning and Development *(Local Planning Schemes) Regulations 2015*.	Minor	15 March 2017
3	• Include Lot 354 Capilano Avenue, Yanchep in the Structure Plan Area; • Designate 'Residential R20-R60' over Lot 354; • Delete Section 5.1: *Wastewater Treatment Plant from* Part One of the Structure Plan Text and the corresponding annotation on the Structure Plan Map.	Minor	26 June 2018
4	Reclassification of portions of Lot 9502 Toreopango Avenue from 'Mixed Use' and 'Business' to 'Residential' with a density coding of R20-R60 and R40-R60.	Minor	22 July 2022
5	Minor amendment Structure Plan Map relocating Public Open Space 'E'.	Minor	14 September 2023

1. STRUCTURE PLAN AREA

This Structure Plan shall apply to Lots 602, 603 and 904 being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (Plan 1).

2. STRUCTURE PLAN CONTENT

This Structure Plan comprises the:

(a) Implementation (Part 1);
(b) Explanatory Section (Part 2); and
(c) Appendices – Technical Reports.

3. INTERPRETATION

Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meaning given to them in the City of Wanneroo District Planning Scheme No.2 (the Scheme) including any amendments gazetted thereto.

4. OPERATION

This Structure Plan comes into operation when it is approved by the Western Australian Planning Commission (WAPC). This Structure Plan is given due regard when considering development or subdivision applications.

5. LAND USE AND SUBDIVISION

The Structure Plan (Plan 1) identifies zones and reserves to guide subdivision and development within the Structure Plan area. Part Two and all appendices are to be used as a reference only to clarify and guide interpretation and implementation of Part One.

5.1 Dwelling target

(a) Objective:

To provide for a minimum of 6,500 dwellings within the Structure Plan area.

(b) Subdivisions are to achieve a minimum average density of:

(i) 50 dwellings per site hectare within 400 metres of the Yanchep City Railway Station, and any other Railway Station.
(ii) 30 dwellings per site hectare within 400 metres of the district activity centre, which is located to the south of Yanchep Beach Road.
(iii) 25 dwellings per site hectare along neighbourhood connectors supporting future public transport routes.

5.2 Density

(a) Plan 1 defines the broad residential density ranges that apply to specific areas within the Structure Plan. Lot specific residential densities, within the defined residential density ranges, are to be subsequently assigned in accordance with a Residential Density Code Plan approved by the WAPC.

(b) A Residential Density Code Plan is to be submitted at the time of subdivision to the WAPC and shall indicate the Residential Density Coding applicable to each lot within the subdivision and shall be consistent with the Structure Plan, and the Residential Density Ranges identified on Plan 1 and locational criteria contained in Clause 6.4.

(c) The Residential Density Code Plan is to include a summary of the proposed dwelling yield of the subdivision.

(d) Approval of the Residential Density Code Plan shall be undertaken at the time of determination of the subdivision application by the WAPC. The approved Residential Density Code Plan shall then form part of the Structure Plan and shall be used for the determination of future development applications. Variations to the Residential Density Code Plan will require further approval of the WAPC.

(e) Residential Density Code Plans are not required if the WAPC considers that the subdivision is for one or more of the following:

(i) the amalgamation of lots;
(ii) consolidation of land for “superlot” purposes to facilitate land assembly for future development;
(iii) the purposes of facilitating the provision of access, services or infrastructure; or
(iv) land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential purposes.

5.3 Locational criteria

The allocation of residential densities on the Residential Density Code Plan shall be in accordance with the following criteria:

(a) R10-R20 Range

(i) Lower densities of R10 to R20 shall generally be provided surrounding the Sun City Country Club where there is an emphasis on tree retention, landscape amenity and/or where topographic constraints exist.

(b) R20-R60 Range

(i) A base density code of R20 shall be provided for all other residential lots within the Structure Plan.
(ii) Medium densities of R30 to R60 shall generally be provided in areas of high amenity including

within 400 metres of the local centre, primary schools, major public transport routes or neighbourhood connectors, and surrounding public open space.

(c) R40-60 Range

(i) Medium densities of R40 to R60 shall generally be provided in areas of high amenity, including within 400 metres of major public transport routes or neighbourhood connectors, and surrounding public open space. R60 is particularly encouraged adjacent to other areas coded R60.

(d) R60-R100 Range

(i) Higher densities of between R60 to R100 shall generally be provided within 800 metres of a train station and in the Mixed Use and Business zones

5.4 Residential zone

Development Intent

The intent is that the residential development in the Yanchep City LSP area will be of a density mix and built form character appropriate to its status as a city centre catchment, whilst also respecting the site's environmental assets. The objective is to create an urban character more intensive and vibrant than that typically created in greenfield locations on the urban fringe, thereby achieving more sustainable outcomes across the triple bottom line.

Provisions

(a) The provisions, standards and requirements of this zone are in accordance with those applicable to the same zone as are included in the Scheme, unless specified below.
(b) In addition to the uses permitted (classified 'P') within Table 1 of the Scheme, the following uses are permitted within the Residential zone:

- Home Business Category 2.
- Education Establishment in locations generally depicted on the Plan 1 – Structure Plan with the symbol 'PS', 'HS' or 'PR K-12' or as otherwise agreed to by the City of Wanneroo and Department of Education.

(c) Within land zoned Residential with a density code of R40-60 adjacent to Toreopango Avenue and Marmion Avenue, built form engagement at the street level and pedestrian movement between the Yanchep Strategic Metropolitan Centre is encouraged.

5.5 Centre zone

Development Intent

The City of Wanneroo recognises Yanchep City as the largest identified metropolitan centre outside of the Perth CBD. It is therefore important to take a highly focussed approach to the planning of the City Centre, in order to achieve the best outcomes in terms of robust networks and built forms – being an urbanism that will enable the city to evolve from one generation to the next.

Accordingly, the Yanchep City Centre itself has been classified under the Scheme's Centre zoning, which requires that a Structure Plan be adopted for the site prior to further subdivision or development (except in the circumstances outlined below). The Yanchep-Two Rocks District Structure Plan provides for an indicative retail net lettable area of 71,800m2 which will guide the preparation of the future Structure Plan for the Centre zone. An increase in retail floorspace may be approved where justified in accordance with State Planning Policy No. 4.2 Activity Centres for Perth and Peel.

Provisions

(a) No subdivision or development should be commenced or carried out in the Centre zone until an Agreed Structure Plan has been prepared and adopted under the provisions of Part 9 of the Scheme, except where:

  (i) Road, rail, public transport, services, and support infrastructure, identified on Plan 1, is required to be provided to service the Structure Plan Area; and
  (ii) Interim uses are proposed, including but not limited to, associated infrastructure related to the Yanchep City Centre Railway Station or interim bus station.

(b) In addition to the requirements of the Scheme, the Agreed Structure Plan shall identify the following uses:

  (i) Tertiary Education facilities including University and TAFE; and
  (ii) Appropriate health, district recreation and civic facilities that may include aquatic centre, library and civic buildings.

(c) Council will require the approval of an LDP for the interim uses as a means of demonstrating the form of the interim development prior to development approval (unless such uses are government-provided and do not therefore require development approval).

5.6 Mixed Use zone

Development Intent

A Mixed Use zoning has been strategically placed adjacent to the Centre zone and the Special Transit Boulevard, in order to allow a range of compatible uses to co-locate both adjacent to one another, and vertically in individual buildings. By allowing the opportunity for a mix of uses, the objective is to promote the development of Yanchep City as a vibrant and sustainable environment that integrates living, working and leisure opportunities.

The Mixed Use classification creates the opportunity for a wide variety of commercial uses that are compatible with residential use. Office and commercial floorspace would be appropriate on the ground floor of most street edge buildings.

There may also be circumstances where small-scale retail uses, functioning as local shops, are appropriate in strategic locations within the mixed use areas. Retail uses are not viewed as being prohibited in the Mixed Use zone.

In particular, the Mixed Use area marked 'Local Activity Centre' on the Structure Plan Map is intended to provide local retail services to the surrounding population.

Provisions

(a) The provisions, standards and requirements of this zone are in accordance with those applicable to the same zone as included in the Scheme, unless specified below.

(b) In addition to the uses permitted (classified 'P') within Table 1 of the Scheme, the following are also permitted within the Mixed Use zone:

- Aged or Dependent Persons' Dwelling
- Art Gallery
- Civic Building
- Grouped Dwelling
- Multiple Dwelling
- Nursing Home
- Pharmacy
- Residential Building

(c) In addition to the discretionary uses (classified 'D') within Table 1 of the Scheme, the following are also discretionary uses within the Mixed Use zone:

- Corner Store
- Laundromat
- Shop
- Supermarket
- Video Hire

(d) In addition to the discretionary uses subject to advertising (classified 'A') within Table 1 of the Scheme, the following are also discretionary uses subject to advertising within the Mixed Use zone:

- Liquor Store (excluding Drive-Through)
- Tavern

(e) In addition to the use permissibility outlined above for the Mixed Use zone, the following uses are also permitted (classified 'P') within the Mixed Use zone marked 'Local Activity Centre' on the Structure Plan Map:

- Shop
- Restaurant

(f) The 'Local Activity Centre' Mixed Use zone shall be main-street in nature.

(g) The 'Local Activity Centre' Mixed Use zone shall comprise a maximum retail net lettable area of 1,000 m2, with no maximum floorspace cap on individual tenancies.

5.7 Business zone

Development Intent

A Business zoning has been applied in strategic locations across the Structure Plan area, particularly on significant road linkages, transit-ways, and in the vicinity of other complementary uses including Mixed Use, Service Industrial and the Special Use – Yanchep Enterprise Park zone, which transition well into business uses. Business is a flexible classification, which accommodates a variety of business types, from office and retail through to service commercial uses.

Residential uses will also be permitted in the Business zone, as none of the uses permitted in this zone are incompatible with inner urban residential development. However, employment-generating uses are intended to dominate, particularly at street-level.

Provisions

(a) The provisions, standards and requirements of this zone are in accordance with those applicable to the same zone included in the Scheme, unless specified below.

(b) In addition to the uses permitted (classified 'P') within Table 1 of the Scheme, the following uses are permitted within the Business zone:

- Auction Room
- Bakery
- Video Hire

(c) In addition to the discretionary uses subject to advertising (classified 'A') within Table 1 of the Scheme, the following are also discretionary uses subject to advertising within the Business zone:

- Car Park

(d) Notwithstanding the provisions of Table 1, the following uses are not permitted (classified 'X') within the Business Zone:

- Aged or Dependent Persons Dwellings
- Amusement Facility/Parlour
- Bed and Breakfast
- Display Home Centre
- Grouped Dwelling
- Night Club
- Road House
- Single House
- Warehouse

(e) The provisions of Section 6.1 are to be addressed in the preparation of Local Development Plans to be prepared as a condition of subdivision approval within the Business zone.

5.8 Service Industrial zone

Development Intent

The Service Industrial zone is intended to develop in a similar way to a traditional Service Industrial zone. In this area it is proposed that typical light industry, storage and warehousing uses will locate, given its proximity to the freeway interchange, and the precinct's detachment from other sensitive uses which might be incompatible with some of the light industrial uses that will locate there.

However, some of the more general industrial uses that are typically found within a Service Industrial zone are considered incompatible within a precinct so close to a City Centre, so the following use class designations aim to preclude these uses here.

Provisions

(a) The provisions, standards and requirements of this zone are in accordance with those applicable to the same zone included in the Scheme, unless specified below.

(b) In addition to the uses permitted (classified 'P') within Table 1 of the Scheme, the following uses are permitted within the Service Industrial Precinct:

- Factory Unit
- Funeral Parlour
- Hardware Store
- Hire Services

- Lunch Bar
- Motor Vehicle Repairs
- Open Air Display
- Plant Nursery
- Salvage Yard
- Smash Repair Station
- Storage Yard
- Trade Display

(c) Notwithstanding the provisions of Table 1, the following uses are not permitted (classified 'X') within the Service Industrial Precinct:

- Industry (General)
- Industry (Rural)
- Fuel Depot
- Night Club
- Place of Assembly
- Place of Worship
- Video Hire

5.9 Special Use Precinct – Yanchep Enterprise Park

Development Intent

The Special Use Precinct is intended to accommodate research and development, and clean technology uses, in an environment similar to a technology park but with a finer grain, land intensive, more street-based built form characteristic. The Yanchep Enterprise Park aims to become a centre for innovation, more street-based built form characteristic. The Park aims to become a centre for innovation, bringing together leaders in manufacturing design, engineering, fabrication and education to provide a nucleus for innovation through R&D and extensive networks and partnerships.

Business and organisations will be attracted to the Park to focus on product advancement and innovation, to be dedicated to scientific research on a business footing. The association with higher education facilities in Yanchep City Centre will enhance the attractiveness of the park to such organisations.

The land use permissibility will allow these types of industries to flourish, in an environment that provides a vibrant, street-based, attractive place for people to work. In addition to development sites for businesses, the Park will offer shared resources and a mix of uses, offering considerable advantages to companies looking to locate there.

Provisions

(a) No subdivision or development should be commenced or carried out in the Special Use zone until an Agreed Structure Plan has been prepared and adopted under the provisions of Part 9 of the Scheme.

(b) Notwithstanding subclause 5.10 a), subdivision and development proposals preceding the preparation and adoption of a structure plan shall, in addition to other matters required by this Agreed Structure Plan, be subject to the following considerations:

(i) as an overriding consideration, the intent referred to in the preceding provision (a);
(ii) the desirability from a planning point of view of having an Agreed Structure Plan in place before development occurs; and
(iii) the interests of orderly and proper planning, and concern for the amenity of the relevant locality in the short, intermediate and long term.

5.10 Public Open Space

The provision of a minimum of 10% public open space is to be provided in accordance with the WAPC's Liveable Neighbourhoods. Strategic public open space is to be provided generally in accordance with Plan 1 and Table 1, with an updated public open space schedule to be provided at the time of subdivision for determination by the WAPC, upon the advice of the City of Wanneroo.

Table 1: Strategic Public Open Space Provision

No.	Strategic POS Site	Size (ha)
A	Landform and Vegetation Retention	5.5
B	High School Senior-sized Oval	2.5
C	Neighbourhood and Town Park, Landform and Vegetation Retention	17.6
D	Landform and Vegetation Retention	2.7
E	Landform and Vegetation Retention	1.6
F	Landform and Vegetation Retention	1.4
G	Primary School Senior-sized Oval	2.5
H	Landform and Vegetation Retention	3.7

5.11 Reports / Strategies / Information Required Prior to Subdivision

Prior to the lodgement of subdivisions and/or development applications the following report/strategies/ information are to be prepared/provided, as applicable, to the satisfaction of the relevant authority and provided at the time of subdivision:

(a) Noise Assessment Report for sensitive land use in adjacent to or in the vicinity of an existing or future major road or rail (DWER).
(b) Vegetation and Fauna Management Plan (City of Wanneroo).
(c) Karst Investigation Report (City of Wanneroo).

5.12 Conditions of Subdivision Approval

At the time of subdivision the City of Wanneroo may recommend conditions, as applicable, requiring the preparation and/or implementation of the following strategies:

(a) Urban Water Management Plan (City of Wanneroo / DWER).
(b) Geotechnical Report (City of Wanneroo).
(c) Landscaping Plan (City of Wanneroo).
(d) Karst Management Plan (only where karst is present) (City of Wanneroo).
(e) Vegetation and Fauna Management Plan (City of Wanneroo).
(f) Noise Assessment Report including notifications to be placed on title of lots of sensitive land uses affected by existing or future major road or rail (City of Wanneroo).

6. DEVELOPMENT

The Structure Plan Map (Plan 1) outlines land use, zones and reserves applicable within the Structure Plan area. The zones and reserves designated under this Structure Plan apply to the land within it as if the zones and reserves were incorporated into the Scheme.

6.1 Local Development Plans

(a) Prior to the lodgement of a subdivision application, a Local Development Plan is to be prepared in accordance with Part 6 and submitted for the Local Activity Centre in order for subdivision to be supported by the Council.

(b) As a condition of subdivision, Local Development Plans are to be prepared in accordance with Part 6 for:

- Lots within the Mixed Use, Business and Service Industrial Zones;
- Lots within the R10-R20 density range adjacent to the Sun City Country Club;
- Lots on which sensitive land uses have been identified within the approved Noise Assessment Report as requiring specific noise amelioration measures;
- Development in which interim uses are proposed; and
- Lots zoned Residential with a density code of R40-60 adjacent to Toreopango Avenue and Marmion Avenue.

(c) In addition to the matters identified in Part 6, Local Development Plans for lots within the Business zone are to include, inter alia:

- Built form, height and scale;
- Overshadowing;
- Interface with Residential development within the Structure Plan area and on the western side of Marmion Avenue; and
- Shared use of car parking and access arrangements.

Note: The terminology of Local Development Plan(s) or LDP(s)' in Part 1 refers to the terminology of 'Detailed Area Plan(s) or DAP(s)' in Part 2.

6.2 Residential Design Code variations

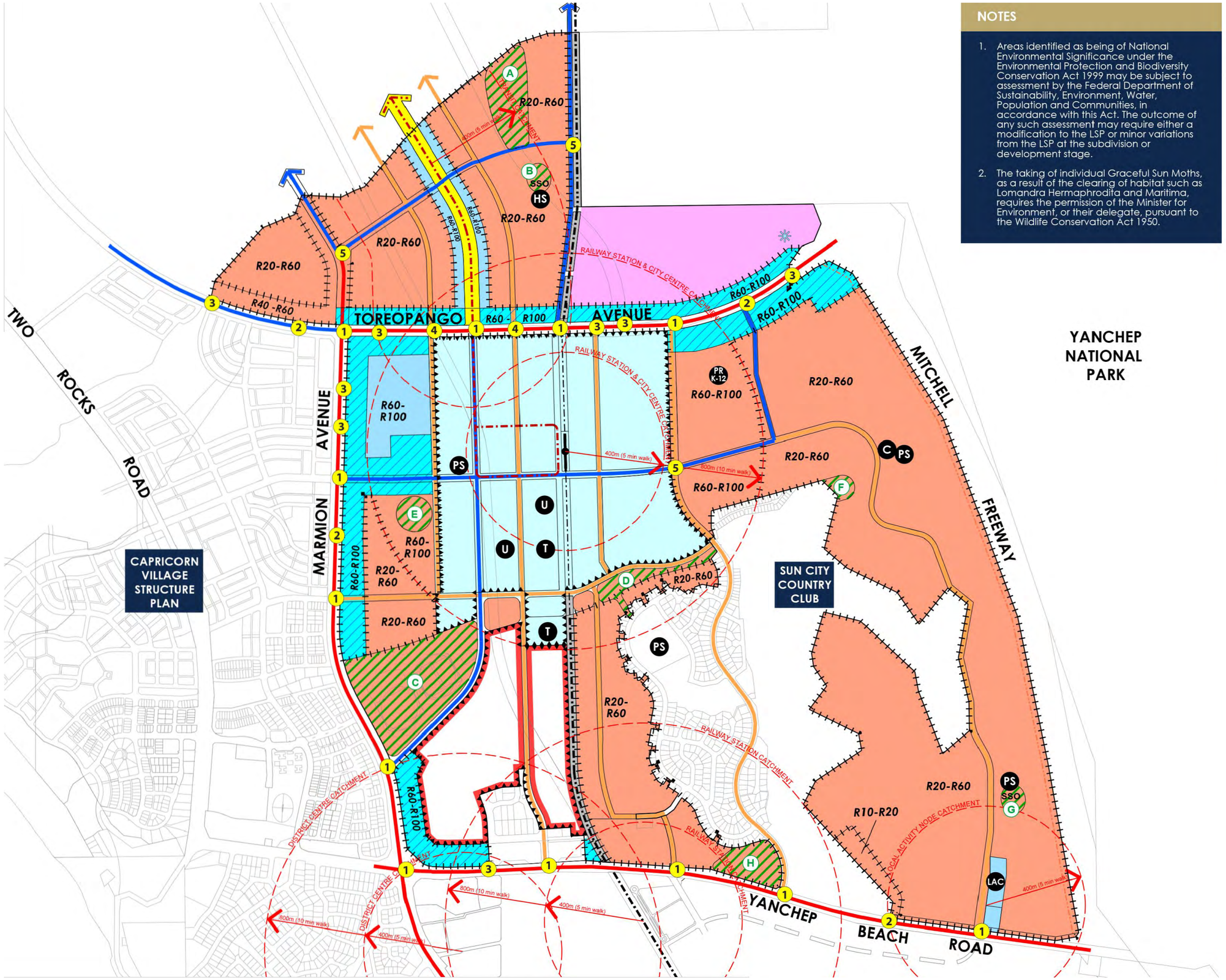
The City of Wanneroo's *'Medium-Density Housing Standards (R-MD) Local Planning Policy (RMD Codes LPP)* sets out acceptable variations to the deemed-to-comply provision of the R-Codes for lots coded R25 – R60. Except in a situation where an approved Local Development Plan imposing R-Code variations for lots coded R-60 or less applies, the variations set out in the R-MD Codes LPP apply to this Local Structure Plan and thereby constitute Acceptable Development within the Structure Plan area.

6.3 Showrooms / Bulky Goods

Showroom use, as outlined in the WAPC's State Planning Policy 4.2 - Activity Centres for Perth and Peel, is not to exceed 49,000 m2 NLA within the Structure Plan area. Development of Showrooms along regional roads should be in a manner consistent with SPP4.2.

7. MONITORING AND REVIEW

The Yanchep Two Rocks District Structure Plan is subject to monitoring and review by the City of Wanneroo and/or the Western Australian Planning Commission commencing in 2017. Any amendments to the Yanchep – Two Rocks District Structure Plan may result in consequential amendments to the local structure plan which must be consistent with the District Structure Plan.



NOTES

1. Areas identified as being of National Environmental Significance under the Environmental Protection and Biodiversity Conservation Act 1999 may be subject to assessment by the Federal Department of Sustainability, Environment, Water, Population and Communities, in accordance with this Act. The outcome of any such assessment may require either a modification to the LSP or minor variations from the LSP at the subdivision or development stage.
2. The taking of individual Graceful Sun Moths, as a result of the clearing of habitat such as Lomandra Hermaphrodita and Maritima, requires the permission of the Minister for Environment, or their delegate, pursuant to the Wildlife Conservation Act 1950.

LEGEND

- **STRUCTURE PLAN AREA BOUNDARY**
- **AREAS SUBJECT TO SEPARATE STRUCTURE PLANS**
- **ZONES**
  - RESIDENTIAL
  - MIXED USE
  - BUSINESS
  - SERVICE INDUSTRIAL
  - SPECIAL USE (subject to separate Structure Plan)
  - CENTRE (subject to separate Structure Plan)
- **STRATEGIC OPEN SPACE**
  - SSO - SENIOR SIZED OVAL (Indicative Strategic Open Space only. Balance of 10% to be provided as per WAPC requirements)
- **MOVEMENT AND TRANSIT**
  - DISTRICT DISTRIBUTOR ' A'
  - DISTRICT DISTRIBUTOR ' B'
  - NEIGHBOURHOOD CONNECTOR
  - FIXED ROUTE PUBLIC TRANSPORT (Bus/Light Rail)
  - SPECIAL TRANSIT BOULEVARD
  - RAILWAY LINE
  - RAILWAY LINE UNDERGROUND / STATIONS
- **COMMUNITY**
  - PS PRIMARY SCHOOL
  - HS HIGH SCHOOL
  - PR K-12 PRIVATE SCHOOL K-12
  - U UNIVERSITY
  - T TAFE
  - C COMMUNITY CENTRE (2,500m²)
- R20-R60 R-CODE BOUNDARY
- FUTURE 132kv OVERHEAD TRANSMISSION LINE EASEMENT (24m) Any variation in the easement width or alignment to be determined in consultation/agreement with Western Power at the subdivision stage.
- INDICATIVE LOCATION OF PROPOSED SUB-STATION
- LAC LOCAL ACTIVITY CENTRE
- 1 CONTROLLED INTERSECTION
- 2 T - INTERSECTION
- 3 LEFT IN - LEFT OUT
- 4 SPECIAL INTERSECTION CONTROL
- 5 ROUNDABOUT

Source: City of Wanneroo

PLAN 1 - STRUCTURE PLAN MAP

Yanchep City Structure Plan

plan no: **2214-243A-01**
date: 12 December 2022
scale: Not to scale

N

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Yanchep City
Local Structure Plan

August 2012

Prepared for
Yanchep Beach Joint Venture

PART TWO
EXPLANATORY REPORT

Taylor Burrell Barnett
Town Planning & Design

DOCUMENT HISTORY AND STATUS

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Author	Sarah Davies			
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Rev 4	July 2009	Emma Jeffcoat	Lex Barnett	July 2009
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Rev 6	August 2011	Shelley Bell		
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AMENDMENT NO.1 – SPN/0102M-1				
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1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Yanchep Beach Joint Venture (YBJV) has been formed to progress the planning for a 612 hectare area of land located approximately 60 km north of Perth, close to the existing communities of Yanchep and Two Rocks (see **Figure 1**).

The YBJV have engaged Taylor Burrell Barnett, in association with a team of specialist consultants, to prepare a Local Structure Plan (LSP) for the subject land, with a view to progressing to detailed subdivision and design work following adoption of the LSP by the City of Wanneroo and the Western Australian Planning Commission (WAPC).

The following consultants have been engaged along with Taylor Burrell Barnett, in the following roles:

Plan-E	Landscape Architect
Coffey Environmental	Environmental Consultant
Serling Consulting	Civil Engineer
Sinclair Knight Merz	Regional Transport Engineer
Bruce Aulabaugh	Local Traffic Engineer
Creating Communities	Facilities Planning
Design Urban Architect & Urban Designer	Peer Review
Prosperous Places	Employment and Economic Development
Patrick Partners	Retail Consultant

1.2 PURPOSE OF REPORT

Local Structure Plans are forward-planning documents prepared to provide an overarching scheme for the development or redevelopment of land. LSPs address broad land use and infrastructure matters, and establish the general principles, land uses and design layout to guide the unfolding of a development. LSPs are often a precursor to more detailed site and precinct planning.

This LSP has been prepared in accordance with the requirements of clause 3.14.3 of the City of Wanneroo District Planning Scheme No. 2 to:

- Facilitate the development of the land; and
- Provide evidence and supporting information to justify the lifting of the urban deferred status from a portion of the site.

The LSP has been approved by Council on 9 February 2010, and subsequently endorsed (with modifications) by the Western Australian Planning Commission on 4 August 2011.

Once endorsed, the Local Structure Plan and Report becomes the reference document for future subdivision and development within the subject site.

1.3 LAND AND OWNERSHIP

1.3.1 SUBJECT LAND DESCRIPTION

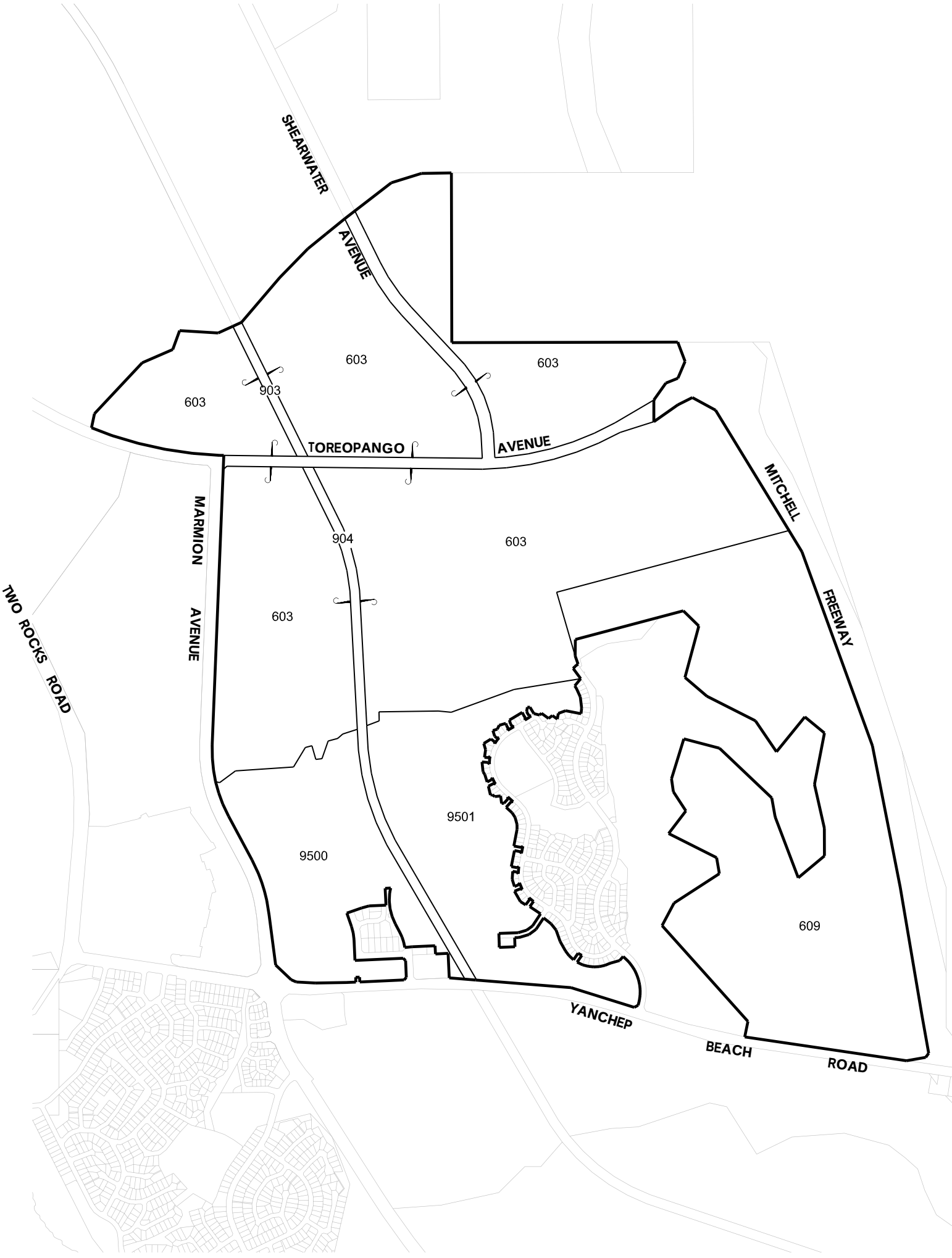
The subject land falls within the wider Yanchep – Two Rocks planning area, and is bounded generally by Yanchep Beach Road in the south, the Mitchell Freeway Reserve in the east, and the Marmion Avenue extension in the west. The northern boundary is as established in an existing approved plan of subdivision (WAPC 131632).

1.3.2 LAND OWNERSHIP DETAILS

The following **Table 1** outlines the legal title and ownership details for the land subject of the Local Structure Plan. **Figure 2** shows the location of the subject lots:

TABLE 1: LEGAL DESCRIPTION

Lot	Description	Vol/Folio	Area	Ownership
Lot 602	Yanchep Beach Road, Yanchep	2733/855 & 856	110.9926 ha	St Andrews Private Estate Pty Ltd/New Orion Investments Pty Ltd
Lot 603	Toreopango Avenue, Two Rocks	2688/585 & 586	332.6167 ha	St Andrews Private Estate Pty Ltd/New Orion Investments Pty Ltd
Lot 609	Yanchep Beach Road, Yanchep	2688/587 & 586	151.429 ha	St Andrews Private Estate Pty Ltd/New Orion Investments Pty Ltd
Lot 904	Rail Reserve	2097/796	9.1058 ha	Western Australian Planning Commission
Pt Lot 903	Rail Reserve	2097/792	2.4731 ha	Western Australian Planning Commission
Pt Shearwater Avenue Road Reserve		NA	6.1964 ha	



YANCHEP CITY STRUCTURE PLAN
LANDOWNERSHIP

figure **2**

client - Yanchep Beach Joint Venture
date - July 2009

2 STATUTORY AND POLICY FRAMEWORK

2.1 STATUTORY PLANNING CONTEXT

2.1.1 METROPOLITAN REGION SCHEME

The Study Area has various reservation classifications under the Metropolitan Region Scheme (MRS), as shown in **Figure 3** and described below:

- Toreopango Avenue and Shearwater Avenue are classified 'Other Regional Road';
- The land south of Toreopango Avenue road reserve is zoned 'Urban';
- The land north of Toreopango Avenue and west of Shearwater Avenue is zoned 'Central City Area';
- The land north of Toreopango and east of Shearwater Avenue is zoned 'Urban Deferred'; and
- There is a 'Railways' reserve running north to south through the western side of the project area.

2.1.2 CITY OF WANNEROO DISTRICT PLANNING SCHEME NO. 2

The majority of the site is zoned 'Urban Development' under the City of Wanneroo District Planning Scheme (DPS) No. 2, as shown in **Figure 4**. The portion of the site that is zoned 'Central City Area' under the MRS is zoned 'Centre' under DPS No. 2. Environmental Conditions apply to the subject land as defined in Schedule 12, Item 2 of Council's Scheme (see section 2.2.1 for further detail).

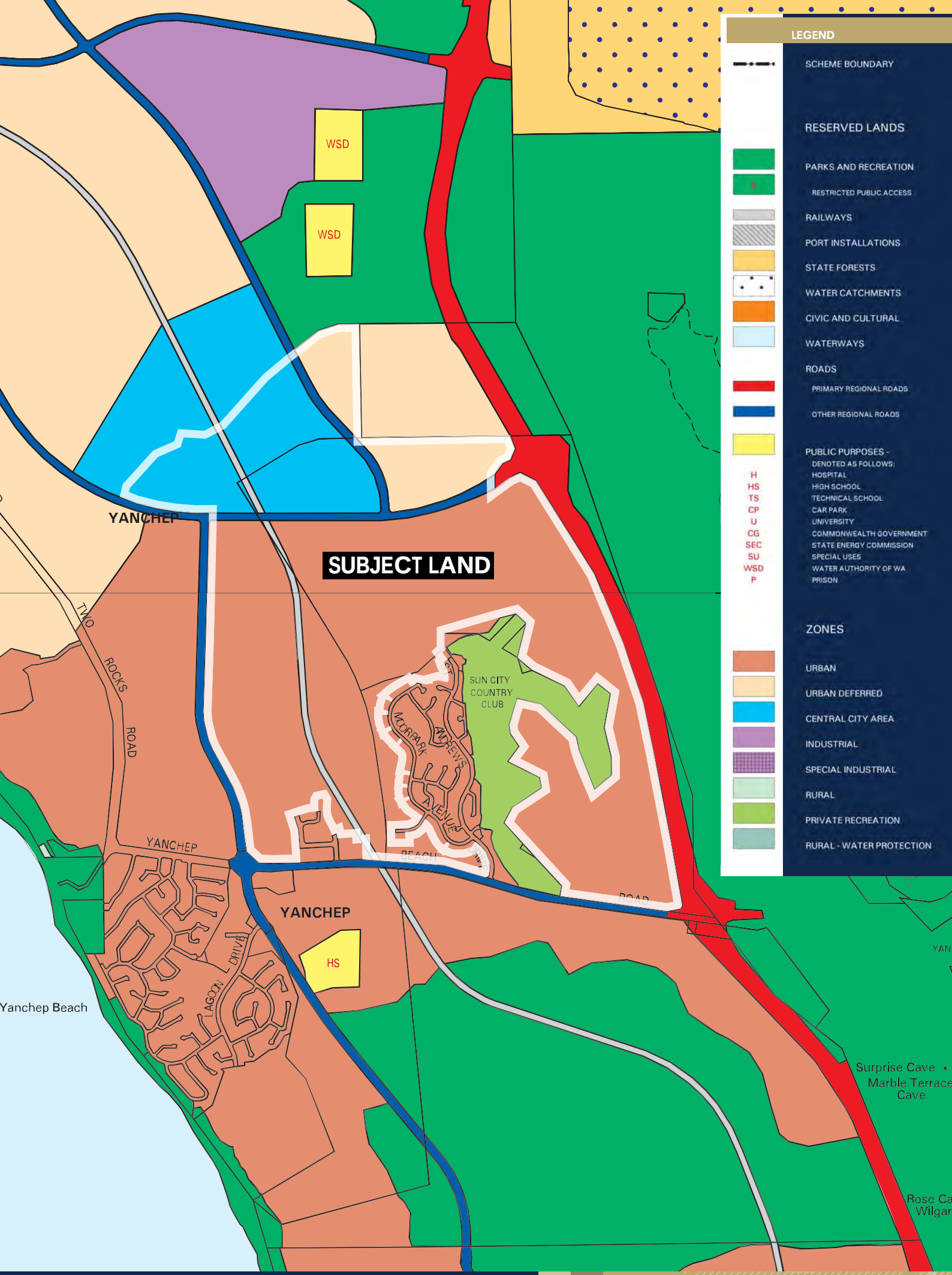
There is a small portion of land zoned 'Service Industrial' in the southern area of the site, adjacent to the existing light industrial lots on Stevenage Street and Bracknell Street.

2.2 STATUTORY ENVIRONMENT CONTEXT

2.2.1 ENVIRONMENTAL APPROVALS

The Yanchep - Two Rocks area was the subject of the City of Wanneroo TPS No. 1 Amendment 787 which required the preparation of an Environmental Review. The Environmental Review addressed the potential impacts of the rezoning on a number of issues and identified appropriate management measures to be implemented at various stages of the planning process. Issues addressed in the Environmental Review included:

- Biophysical
  - Vegetation Communities;
  - Declared Rare & Priority Flora;
  - Terrestrial Fauna;
  - Specially Protected (Threatened) Fauna;
  - Subterranean Fauna;
  - Groundwater Quantity; and
  - Karstic Landform.
- Pollution
  - Air;
  - Groundwater Quality;
  - Solid and Liquid Waste; and
  - Public Safety.

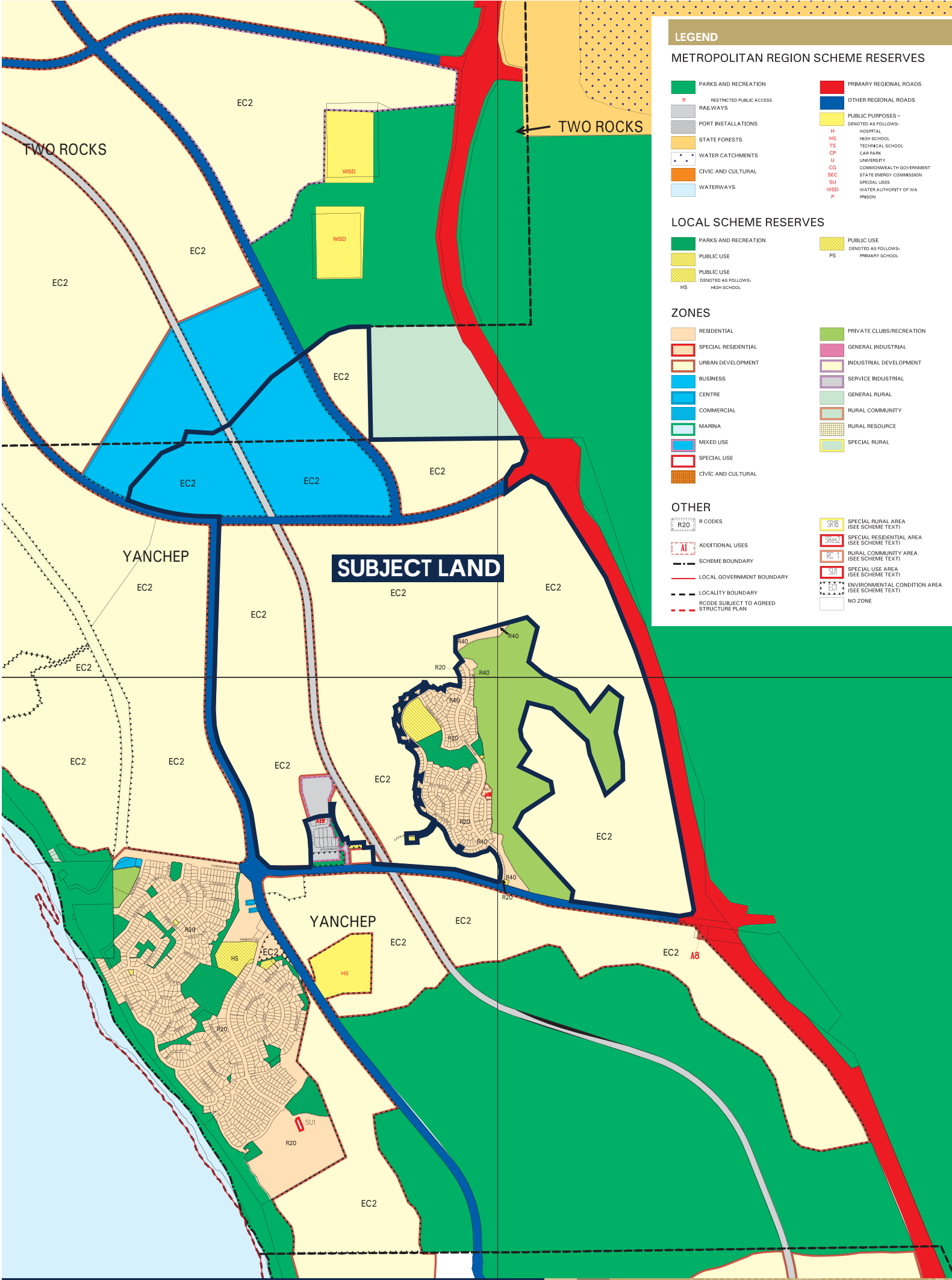


YANCHEP CITY STRUCTURE PLAN

METROPOLITAN REGION SCHEME

figure **3**

client - Yanchep Beach Joint Venture
date - July 2009



YANCHEP CITY STUCTURE PLAN

CITY OF WANNEROO DISTRICT PLANNING SCHEME NO.2

figure 4

client - Yanchep Beach Joint Venture
date - July 2009

Yanchep beach joint venture

- Social
  - Unexploded Ordnance (UXO); and
  - Aboriginal Culture and Heritage.

The TPS Amendment 787 and Environmental Review were formally assessed by the Environmental Protection Authority (EPA) under Section 48 of the *Environmental Protection Act 1986*. The EPA recommended that the rezoning be gazetted subject to a number of environmental conditions.

The environmental conditions now form part of Schedule 12-2 of Council's Scheme and are outlined in **Appendix A.**

2.3 STRATEGIC PLANNING CONTEXT

This report has examined the various reports relevant to this site and the key matters for consideration have been outlined below.

2.3.1 YANCHEP - TWO ROCKS DISTRICT STRUCTURE PLAN

The Yanchep - Two Rocks District Structure Plan (DSP), as **Figure 5**, shows the Structure Plan area in the context of the DSP. The DSP was advertised for public comment for a period of 42 days during September and October 2007, and was approved by the City of Wanneroo in September 2008. In September 2010, the DSP was subsequently endorsed by the WAPC establishing an important development framework for the delivery of urban form.

The DSP establishes the development framework for 7,550 hectares of land surrounding the Two Rocks and Yanchep settlements, to the west of the Yanchep National Park. The Plan is largely based on the previously prepared St Andrews District Concept Plan, which was advertised for public comment in 2005, and was generally supported by both the City of Wanneroo and the WAPC as being an appropriate guide to the future development of the area.

The Yanchep City LSP is required to have due regard to the development framework established in the DSP (**Figure 6** shows the advertised DSP overlaid on the subject site). Of particular note is the identification of the Yanchep City Strategic Regional Centre (the City Centre) on the YBJV land. The Yanchep City Centre will be the key centre for the northern area of the Perth metropolitan region, ultimately second only in size to the Perth CBD. The City Centre has a number of strategic regional land uses associated with it and identified in the DSP, including a Hospital, University, TAFE, High School, Regional Library, Performing Arts Centre, and Aquatic Centre. The Centre is on the northern suburbs rail extension, and a City Centre railway station is identified in the DSP. Finally, the DSP identifies a significant quantity of employment, mixed use, industrial and residential land uses close to the City Centre, within the YBJV project area.

The movement network established in the advertised DSP presented particular challenges, particularly the road layout through the City Centre itself. The DSP proposed a 'paired couplet' road system in all of its activity centres. The couplet system has been the subject of detailed analysis in the YBJV design process, and the outcomes of this, along with additional information on the movement network, is provided at sections 5.1.2 and 5.7.1.

2.3.2 ALKIMOS EGLINTON DISTRICT STRUCTURE PLAN

The Alkimos-Eglinton District Structure Plan refers to the land surrounding the existing Alkimos and Eglinton townsites, immediately south of the Yanchep-Two Rocks DSP area. The Plan was approved by the City of Wanneroo in June 2009 and endorsed by the WAPC on 22 March 2011, and designates the majority of the subject area for urban development, supported by a Regional Centre at Alkimos, a District Centre at Eglinton, and a Marina and Coastal Village to the west of Eglinton. The staging of the development front at Alkimos-Eglinton will impact on the progress of the YBJV, particularly as it relates to the delivery of key infrastructure items to Yanchep City. It has also been necessary for the YBJV planning to acknowledge the level of facilities, employment and residential land being developed at Alkimos-Eglinton when determining the optimum urban outcomes for the YBJV.

2.3.3 SURROUNDING LOCAL STRUCTURE PLANNING

Local Structure Planning activity on land to the south and to the west of the subject land has provided further context for the LSP design, and there are a number of key linkages and interface issues that have needed to be addressed as outlined below. The Local Structure Plans for adjacent land respect the development framework established in the DSP.

2.3.3.1 CAPRICORN VILLAGE LOCAL STRUCTURE PLAN

The Capricorn Village LSP for the land to the immediate west of the subject land has defined the location and reserve width of the Marmion Avenue extension, and also fixed the key east-west road linkages into the YBJV land from the west. These established parameters have been reflected in the Yanchep City LSP formulation. Meetings have been held throughout the formulation process with representatives of Capricorn Village to confirm that all interface issues have been dealt with in a collaborative way, to the benefit of both parties.

Issues that have needed to be addressed include:

- Form and function of Marmion Avenue extension;
- Form and function of east-west linking roads; and
- Relationship between Capricorn Village Centre and Yanchep City Centre.

2.3.3.2 LOT 102 LOCAL STRUCTURE PLAN

A LSP has also been prepared for Lot 102, south of the YBJV on the other side of Yanchep Beach Road. Some concerns were identified early in the Yanchep City LSP design process in relation to the location of north-south road linkages from Lot 102 into the YBJV land.

The then current LSP for Lot 102 precluded any direct linkage between the YBJV and Lot 102, due to the constraints associated with existing service industrial lots on the north side of Yanchep Beach Road. It was not possible to design a road within the YBJV land that led directly into a four-way intersection with either of the roads originally linking Lot 102 with Yanchep Beach Road. This issue has been unable to be addressed as the YBJV planning progressed, and there remains no optimum connection between the two areas.

2.3.4 INTERIM POLICY STATEMENT FOR THE NORTH WEST GROWTH CORRIDOR

The Interim Policy Statement for the North West Growth Corridor has been formulated by the Western Australian Planning Commission as a guiding framework to assist the WAPC in their consideration of the district structure plans for the major parts of the North West segment. It is to function as a mechanism to allow District and Local Structure Planning to proceed for the region whilst the NW Corridor Structure Plan is revised and finalised.

Comment on the Interim Policy Statement has been provided by the Yanchep Beach Joint Venture to reflect the various elements of the Policy Statement that impact on the Yanchep LSP. It is considered that the Policy Statement is an effective means of allowing progress in the structure planning for the area, subject to it incorporating a level of flexibility in its implementation principles, in order to ensure that optimum site specific outcomes can be achieved for the different areas of the NW Corridor, based on the best information and planning knowledge available at the time of district and local structure planning processes.

This flexibility and function of the Policy Statement as being a guide rather than a prescriptive planning mechanism is particularly important given the progress that has been made on District Structure Planning and local structure planning in Yanchep - Two Rocks, particularly, and the level of information that is available to the proponents of these plans that has not been available in the formulation of the NW Corridor Structure Plan.

It is clear that the knowledge of the sites and planning context that has been gained at this detailed planning level is likely to give substance and backing to the proposals contained within these detailed plans that is not necessarily present in the higher level Structure Plan. Where variances exist between the two levels of planning, it will be important to ensure that the site responsive plans that have been arrived at through detailed planning are not dismissed in favour of the contents of the NW Corridor Structure Plan proposals, which might have been formulated in the absence of this site and context specific information.

2.3.5 CITY OF WANNEROO SMART GROWTH STRATEGY

The City of Wanneroo Smart Growth Strategy provides the guiding framework against which the City will assess all proposed Structure Plans. The Strategy outlines various Smart Growth objectives, broadly based on sustainability principles, with which plans must be considered to comply. The Strategy is supported by the Smart Growth Assessment Tool, which allows the economic, environmental, social and governance elements of structure plans and subdivision plans to be assessed in a qualitative manner.

Planning for the YBJV land has been required to proceed in the context of eventual self-assessment, and assessment by the City, against the Smart Growth Strategy.

2.4 OTHER CONTEXTUAL ISSUES

2.4.1 STRATEGIC COOPERATION AGREEMENT

The St Andrews Strategic Cooperation Agreement describes joint initiatives and co-operation between Tokyu Corporation, Yanchep City Pty Ltd, the State Government (the Premier and Western Australian Planning Commission) and the City of Wanneroo, and foreshadows future detailed agreements, which will specify arrangements relating to the implementation of feasible jointly agreed initiatives.

The contents of the Agreement are as follows:

a) Shared Vision for the St Andrews (now Yanchep – Two Rocks) Project

b) The parties agreed a Shared Vision for Project, which has two key elements.

c) Firstly, the development of the St Andrews (Yanchep – Two Rocks) landholding generally will be based on the following potential outcomes:

- around 55,000 serviced residential lots with a population of some 148,000;
- 50,000 to 60,000 jobs, with the first 1000 over the next five years;
- a regional strategic commercial centre; and
- approximately 1,600 ha of Regional Open Space on land already ceded for this use along the Indian Ocean foreshore and in extensions to the Yanchep National Park.

d) Secondly, development of the land, should it proceed, is to be undertaken in a manner which:

- is environmentally, socially and economically sustainable;
- recognises and uses world best practice in urban design wherever possible;
- accords with relevant State and Local Government policies; and
- places a high priority on the encouragement of public transport use.

e) Strategic Projects

f) Subject to a successful feasibility study, conducive market conditions and business requirements, the Parties agreed to undertake the following as Strategic Projects: -

- Retrofit of Two Rocks Town Centre
- Continue Redevelopment of Two Rocks Marina
- Employment Generation through the IDEAS Project Feasibility Study
- Commencement of Residential Development
- Preparation of Access Study

2.4.2 IDEAS PROJECT

Economic development at Yanchep – Two Rocks is being pursued through the IDEAS (Innovation, Development, Employment, Application Strategy) Project. The objectives of the Project are to:

- Make an assessment of the possibility of sufficient suitable potential employers;
- Develop a framework and strategy to create a favourable and financially attractive environment to attract preferred industries to locate their businesses within the boundaries of an identified area of the property in an enterprise zone, science city or the like;
- Provide employment opportunities through the creation of 1,000 positions between 2003 and 2008 subject to demand and ultimately 50,000 to 60,000 positions; and
- Address the financial viability of the implementation of such a proposal.

The provision of 50,000 to 60,000 jobs at Yanchep – Two Rocks is a key component of the Shared Vision for the Project adopted by the parties to the Strategic Co-operation Agreement. Whilst the Vision anticipated some 1,000 of these jobs being provided in the first five years, it should be noted here that this was only a nominal figure based on the anticipated commencement of the IDEAS Project. An Economic Development Strategy is currently being prepared to guide delivery of these jobs.

3 EXISTING ENVIRONMENT

3.1 ENVIRONMENTAL

3.1.1 TOPOGRAPHY AND LANDFORM

The LSP area is on the western portion of the Swan Coastal Plain and comprises the typically undulating landscape associated with near coastal areas (see **Figure 7**). The study area generally comprises of gently undulating landform containing valleys and ridges. Two ridges run perpendicular to the coast in the southern portion of the LSP area. The southern ridge has elevations up to 45 m AHD while the northern ridge has elevations up to 30-35 m AHD. Flatter areas exist between these ridges with low points of approximately 10-15 m AHD. A number of conical hills with elevations of up to 55 m occur in the north and east of the study area adjacent to a basin area with low points of 10-15 m.

At the eastern extent of the study area elevation decreases in places with land trending towards the east. Low points in the eastern portion of the study area are approximately 10 m AHD.

The topography and landform of the LSP area presents no significant constraints to development and provides the opportunity to retain landscape features to provide character to different sections of the development.

3.1.2 SOILS AND GEOMORPHOLOGY

The study area occupies a coastal section of the Swan Coastal Plain (the site's geological character is shown in **Figure 8**). The Swan Coastal Plain is an undulating lowland separated from uplands to the east by the Darling-Gingin Scarp. The Swan Coastal Plain contains of several different geomorphological systems and corresponding soil types including the Quindalup and Spearwood Dune Systems, Bassendean Dunes, Pinjarra Plain, and Ridge Hill Shelf. In the LSP area only the Spearwood Dune System is present.

The Spearwood Dune System is the geomorphic expression of the Tamala Limestone geological unit. In the study area it lies under and to the east of the Quindalup System, extending from about 1 km of the coast to beyond the eastern margin of the site. The dunes rise from a maximum elevation of about 55 m within the LSP area.

The material comprising the dunes originally contained calcium throughout, but leaching by rainwater has removed carbonate from upper portions of the dunes and deposited it below, forming a hard calcretised cap. Material remaining in upper portions is mainly brown to yellow sand and covers much of the limestone within the study area, to depths often greater than 1 m. In the south-eastern portion of the study area the hard calcretised cap of many of the dunes has been exposed by wind action, this is evident in the area to the east of the St Andrews Golf Course.

3.1.3 SURFACE HYDROLOGY AND GROUNDWATER

Groundwater is present within three hydrological units underlying the study area. The Tamala Limestone is the shallowest and most productive aquifer in the area. It is overlain within the LSP area by calcareous dunal sands, but is exposed to the east as dune sands and solid limestone outcrop. Water in this superficial aquifer is derived from direct recharge by winter rainfall. Salt water from the ocean intrudes into parts of the aquifer near the coast. The Gnangara Mound is a large mound of groundwater underlying the Swan Coastal Plain to the east of the study area. The Mound lies between 20 m to 50 m above the level of the water table in the Tamala Limestone aquifer.

The Leederville formation is the most important confined hydrogeological unit underlying the study area. Most of the water in the formation is held in bands of sand that are generally less than 10m thick that comprise about half the formation. Recharge to the aquifer is from the overlying Tamala Limestone aquifer which occurs to the north of the study area (near Gingin).

The Yarragadee formation is a massive confined aquifer that underlies much of the Swan Coastal Plain. It consists of an interbedded sequence of sandstone, siltstone, and shale that contains minor claystone and conglomerate horizons. Most of the water in the aquifer is held in sandstone beds composed of medium to very coarse sand that are up to 30m thick. Recharge to the Yarragadee formation occurs by downward leakage from the Leederville Formation and superficial aquifer, in areas where intervening sediments are absent.

The LSP area is within a Priority 3 groundwater source protection area. Priority 3 areas are declared over land where water supply sources need to co-exist with other land uses such as residential, commercial and light industrial developments. Protection of Priority 3 areas is achieved through management guidelines rather than restrictions on land use. The Water Corporation currently draws water from the superficial aquifer for public supply and proposes to continue this practice.

The chemical composition of water from existing production bores meets guidelines for drinking water quality, although the hardness of the water, expressed as calcium carbonate, is about 200 mg/L indicating that the water may need to be treated before use for certain purposes.

There are no wetland areas or watercourses within the LSP area.

3.1.4 VEGETATION AND FLORA

3.1.4.1 VEGETATION

Approximately 240 ha of native vegetation occurs within the site, which represents about 35% of the study area (see **Figure 9**).

The most extensive Quindalup Dune vegetation type in the Yanchep-Two Rocks area is the *Melaleuca systena* Heath on Q1 dunes. Although restricted in distribution in the study area, the Q1 vegetation type extends from close to the coast up to 6 km inland to the north of the Two Rocks townsite. In the study area the Q1 vegetation type is restricted to narrow ridges, intermixed with Spearwood vegetation types. The main vegetation occurs on Spearwood dune soils.

The shallow sand over limestone and outcropping limestone vegetation types are mainly distributed in the central and eastern portion of the study area. The *Dryandra sessilis* Heath occurs on flat areas of limestone and low hills while the tall jagged limestone hills support *Melaleuca huegelii* and Mallee eucalypt species.

The deeper sand over limestone vegetation types are located in the central and eastern regions of the study area and include the Banksia Woodlands and isolated stands of Tuart trees. There is a distinct transition between the vegetation found on the limestone and the deeper sands.

The major vegetation associations can be grouped as follows:

- Vegetation associated with the older Quindalup dunes further to the east is dominated by *Acacia rostellifera, Acacia saligna, Xanthorrhoea preissii* and *Melaleuca systena*.

- Vegetation associated with the Limestone Heath Types in the central portion of the study area is dominated by *Dryandra sessilis, Calothamnus quadrifidus, Melaleuca huegelii* and *Melaleuca cardiophylla.*

- Vegetation associated with Sand over Limestone in the eastern and northern portions of the study area is dominated by *Banksia attenuata, Eucalyptus gomphocephala, Eucalyptus marginata* and *Eucalyptus todtiana.*

The condition of the vegetation in the study area ranges from Very Good to Completely Degraded (totally cleared) (see **Figure 10**). Approximately 100 ha of the study area has been totally cleared for agriculture or degraded as a result of associated agricultural activities.

3.1.4.2 FLORISTIC COMMUNITY TYPES

The vegetation surveys undertaken in 1992, 2001 and 2005 have not identified any Floristic Community Types (FCTs) in the LSP area listed as Threatened Ecological Communities (TECs) (English and Blyth, 1997). The study area however, does support two communities recommended for listing as Threatened. These comprise FCTs 29a and 29b, as shown in Table X below.

The *Melaleuca huegelii* vegetation occurring on the tops of some limestone hills is similar to the TEC FCT 26a, *Melaleuca huegelii – Melaleuca systena* shrublands of limestone ridges. Quadrat data collected suggest that the stands of *Melaleuca huegelii* correspond to FCT 24 rather than 26a. This is due to the absence of typical species usually recorded from FCT 26a.

TABLE 2: CONSERVATION STATUS OF FLORISTIC COMMUNITY TYPES RECORDED IN THE STUDY AREA

Floristic Community Type		Reservation Status	Conservation Status
24	Northern Spearwood Shrublands and Woodlands	Well Reserved	Susceptible
28	Spearwood Banksia attenuata or Banksia attenuata - Eucalyptus Woodlands	Well Reserved	Low Risk
29a	Coastal Shrublands on shallow sands	Poorly Reserved	Susceptible
29b	*Acacia* Shrublands on taller dunes	Poorly Reserved	Susceptible

3.1.4.3 FLORA

A total of 114 plant species were recorded within the site during the October 2001 and October 2005 flora surveys. The list includes 114 native species and 34 introduced (weed) species. The dominant families were *Proteaceae* (*Banksia* family – 15 native taxa), *Asteraceae* (Daisy family – 13 taxa; four introduced), *Myrtaceae* (Eucalypt family – 12 native taxa) and *Papilionaceae* (Pea family – 12 taxa; three introduced).

3.1.4.4 SIGNIFICANCE OF VEGETATION AND FLORA

VEGETATION

The majority of the vegetation within the Yanchep LSP area is classified as being in the Quindalup Complex. Small portions of the eastern extent of the study area comprise the Cottesloe Complex – North.

According to Bush Forever (Government of Western Australia) there is approximately 48% of the original extent of the Quindalup Complex and 70% of the Cottesloe Complex-North remaining, of which 20% and 64% is protected under the Bush Forever Strategy, respectively. Both complexes are above the minimum threshold of 10% of the pre-European extent of vegetation complexes recommended in Bush Forever, and are therefore not considered to be regionally significant.

FLORA

A search of the DEC's Declared Rare and Priority database was undertaken prior to the site investigation. No Declared Rare or Priority Flora species are known to occur in the study area or were recorded within the study area during the October 2005 survey. The timing of the survey was considered optimal for the identification of significant flora species listed on the DEC database search as potentially occurring within the site.

Regionally significant vegetation in the Yanchep to Two Rocks area has already been identified and protected in Parks and Recreation Reserves that are also listed as Bush Forever Sites 284, 288, 289, 397 and 406.

3.1.4.5 FAUNA

An assessment of vertebrate fauna within the study area was conducted in 1991. Further assessment of the study area was conducted in 2005. The 2005 survey recorded 2 amphibians, 27 reptiles, 59 birds and 6 mammals.

Four species (Carnaby's Cockatoo, Western Brush Wallaby, Black-striped Snake, Rainbow Bee-eater) of conservation significance that are listed under the *EPBC Act 1999* or the *Wildlife Conservation Act 1950* were recorded during the survey. In addition, four other species of conservation significance (Southern Brush-tailed Phascogale, Peregrine Falcon, Carpet Python, Southern Brown Bandicoot) have been recorded in the adjacent areas but not on site in this survey or previous surveys. Each of these species may be impacted by the proposed clearing. A ninth species (Chuditch) is known from the region, but was not recorded by ATA Environmental during this survey.

There are a number of cats and foxes present in the area. Other than the presence of Western Brush Wallaby there are no characteristics of the mammal assemblage or the species recorded on site to indicate that the mammal assemblage has particular conservation significance in the region. The bird assemblage recorded at Yanchep was typical of other surveys conducted in the region and desktop predictions from known distributions.

The species of mammals, reptiles, birds and amphibians present or likely to visit the study area would also be present or visit other similarly vegetated areas in the region. The site is used by breeding Rainbow Bee-eaters, and Peregrine Falcons have been recorded in the region. A large number of Carnaby's Black Cockatoos were recorded feeding in the *Dryandra* shrublands and *Banksia* woodlands most survey days. No trees suitable for breeding Carnaby's Black Cockatoos were located on site although anecdotal and unconfirmed reports of breeding have been made east of the site at Yanchep National Park.

3.1.4.6 SIGNIFICANCE OF FAUNA

In a regional context the vertebrate fauna in the study area is similar to that found elsewhere in the region within National Parks and Conservation Reserves, particularly Yanchep National Park. This park supports a range of terrestrial fauna habitats of high quality which host a diversity of animal species. Equivalent, but more extensive and considerably less disturbed near coastal habitats also occur at Wilbinga immediately north of the Yanchep-Two Rocks study area.

Areas of highest conservation value from a faunal perspective in the Yanchep LSP site are the *Banksia* woodlands and *Dryandra* shrublands. Regionally, the highest species richness for birds is likely to be in the shrublands, woodlands and forests with a limited understorey, but species richness is only one variable to consider in preserving biodiversity. The small sedentary, insectivorous species have a preference for a variety of habitats including dense shrubs, woodlands with open and dense understoreys. Areas supporting *Proteaceae* spp. are particularly important as a feeding resource for Carnaby's Cockatoo. The Southern Brown Bandicoot has a strong preference for habitats that have dense low vegetation, although the Western Brush Wallaby has a preference for open forests and woodlands. Reptiles will be distributed among a range of habitats with few in the open areas that have little vegetation cover. The Carpet Python will most likely be found in the more vegetated areas.

3.1.5 KARST

Karst features are surface or subterranean features that are formed by dissolution of limestone or other soluble rocks. The scale of these features can vary from millimetres to hundreds of metres or more and can include small underground voids or cavities, caves, dolines, collapsed caves and sculpting of limestone surfaces.

On a regional basis within the Swan Coastal Plain, the intensity and nature of karstification is variable, with limestone in some districts being massive, with no cavern development or comprising only a minor feature of the geology below residual sandy soils. The reasons for this variability are related to the heterogeneous composition of the limestone, the area of influence of groundwater on the limestone formation over time and critically, the chemical characteristics of the groundwater.

Karst features such as solution sculpting are common on the surfaces of the coastal limestone of the Perth region, including the Two Rocks area where solution sculpting forms the distinctive coastline of the area. Larger karst features such as caves, collapsed caves, and subsurface cavities are less common in the coastal limestone and, in the northern part of the Perth region, have generally been thought to be restricted to a linear zone which roughly corresponds with the Wanneroo wetlands chain including Loch McNess.

The size of potential karst features within the zone and thus their significance in terms of constraints to development varies according to a variety of factors including water chemistry, the strength of the limestone, and depth to groundwater from the surface.

Assessment of Stages 1-3 of the Yanchep - Two Rocks District Structure Plan including the area comprising the Local Structure Plan indicates that no major karstic features are present over the area. A shallow void was identified at 30m in the central eastern portion of the LSP area although initial geotechnical assessment indicates that shallow voids at this depth do not pose any constraints to development. Management of some areas of loose sand and pinnacle formations associated with the limestone in the south eastern portion of the LSP area will be required. It is anticipated that the management of these areas will comprise engineering works to be determined during general geotechnical assessment of the LSP area at the detailed design stage.

3.2 ABORIGINAL HERITAGE

Archaeological surveys indicate that one Aboriginal archaeological site (DIA Site 3394) is located approximately within the LSP area. The archaeological site is located on the eroding crest of an older Quindalup Dune and consists of up to 40 artefacts dominated by quartz. It includes one chert flake and one quartzite backed blade. This site is considered to be important as it represents one of few sites recorded on the Quindalup Dune System.

Schedule 12 of Council's Scheme requires the preparation of a Heritage Management Plan relating to this site (refer **Appendix B**). The following summary is provided:

- The site should be retained if possible.
- If the site is not retained in its entirety (including any landscaping or engineering/drainage works within the area), a Section 18 approval should be sought under the *Act*.
- If consent is granted, further work on site may be required prior to earthworks commencing (salvaging and cataloguing of artefacts).
- The site should be fenced prior to any earthworks commencing.
- The developer should report any finds of artefactual or skeletal material to DIA and the Police Service.

Ethnographic surveys have revealed no recorded information of Aboriginal habitation or ceremonial activities within the Yanchep-Two Rocks area. Discussions with local Aboriginal groups have identified the presence of a Waugal Dreaming track along coastal sand dunes that stretches from Two Rocks to Augusta. The Local Structure Plan area does not contain the coastal sand dunes characteristic of the Waugal Dreaming Track area.

3.3 LANDSCAPE

3.3.1 LANDFORM AND SITE CHARACTER

There are a variety of landform characters existing across the site: ridgelines, valleys, limestone outcrops, depressions, slopes and undulating terrain (see **Figure 11**). The undulating terrain in the western portion of the site is dominated by sand (and limestone) dunal formations reaching 30-40 metres high, potentially restricting physical access to the coast and foreshore reserve. There are two remnant parallel dunes running in an east-west direction which dominate the central third of the site, with the northwest corner of the site dominated by a chaotic dune formation.

The valleys and ridgelines generally follow an east-west formation with the ridgelines containing high points that provide views to the coast, ocean, Bush Forever site and surrounding landscape. Limestone outcrops, either single hillocks or forming part of a ridgeline, act as focal areas and are highly visible from across much of the site. The highest portion of the site is along a ridgeline on the eastern edge of the site.

Soils within the site consist of limestone, calcrete capping and brown/yellow sand, which are generally well drained. High levels of erosion to the top of ridgelines within the site appears to be the result of wind and rain erosion combined with pastoral and public use, resulting in large areas of exposed sand with minimal vegetation cover. A prominent hillock to the north of the site, covered with good quality *Banksia* woodland, provides a distinctive landmark element and offers views back across the site and towards the ocean.

3.3.2 VEGETATION

Vegetation condition across the site varies, ranging in quality from Very Good to Completely Degraded. The completely degraded areas occur mainly in the flatter, more gently undulating portions of the site where pastoral use was the most intensive. Very good and good quality vegetation predominantly occurs in the valleys and depressions of the site (between ridgelines) due to the more protected nature of these areas from strong summer easterly and salt-laden summer sea breezes and winter wet westerly winds. This vegetation consists mostly of *Banksia attenuata* Low Open Forest and *Dryandra sessilis* Heath. There are isolated pockets of Closed Heath (*Calothamnus quadrifidus, Melaleuca systena, Acacia rostellifera*).

There are very few tall trees on the site, and the retention of these therefore becomes more critical as they provide vertical relief, shade and amenity. A single grove and several single specimens of Tuarts worthy of retention are located in the north western sector of the site. There are also two planted avenues of significant mature Tuarts adjacent the site of Indigenous significance along the western boundary. In the south eastern corner of the site adjacent Yanchep Beach Road there are attractive groves and avenues of mature eucalypts (mostly planted specimens). The Aboriginal archaeological site previously mentioned in Section 3.2 is located along the western boundary of the site atop a significant ridgeline. This site is heavily degraded and contains two avenues of planted mature Tuart trees that are visible from all high points across the site.

3.3.3 ADJACENT LAND USES

The site has several adjoining land uses that provide attractive green development edges and interface opportunities:

- There is a significant Bush Forever site to the north containing pristine quality vegetation;
- The eastern boundary of the site is flanked by the future Mitchell Freeway reserve and Yanchep National Park to the east of this (in the long term the freeway will create a barrier); and
- A golf course to the south of the site, which also provides infrastructure and recreation opportunities to the development.

To the south, west and north-west, there is existing and/or proposed residential development that provide interface opportunities and constraints. Further west, in relatively close proximity, is the foreshore reserve, beach and ocean, which provides tremendous lifestyle and recreational amenity, as well as visual amenity from the most elevated parts of the site.

3.3.4 CLIMATIC INFLUENCES

The dominant winds affecting the site are from a westerly and north-westerly direction in winter bringing storms and sub-tropical weather systems, while in summer the winds are predominantly easterly (hot) in the morning and south-westerly in the afternoon resulting in a cooling sea breeze. The influence of these prevailing winds through the different seasons will need to be considered in the planning and design of opens spaces, particularly in relation to the orientation and placement of facilities and amenities.

3.4 CIVIL ENGINEERING

3.4.1 LANDFORM

Existing contour information of the development area has been provided by McMullen Nolan & Partners (MAPS).

Based upon public domain contour information, the landholding can be described as undulating coastal topography with peaks of up to 40 m AHD along the eastern boundary to lower areas of around 5m AHD along the southern boundary adjacent Yanchep Beach Road. An existing surface slope analysis has been undertaken (refer **Figure 12**). The steepness of the landform varies from less than 10% and increasing up to steeper than 15% on the sides of steeper dunal ridges scattered through the landholding. The dunal ridges generally have an east-west orientation with a north-south ridge running immediately to the east and northwards from the golf course.

A preliminary geotechnical investigation undertaken over the development by Coffey Geotechnical has identified some karst formations within the landholding (refer to **Appendix C**). Whilst it is understood that the karst formation is at a sufficient depth not to have an impact on the built form, nor the disposal of stormwater drainage, some further investigation is recommended in the SE corner of the landholding.

A desktop assessment of the likely nature of material to be found on the site and information on the suitability of the site for development is summarised below:

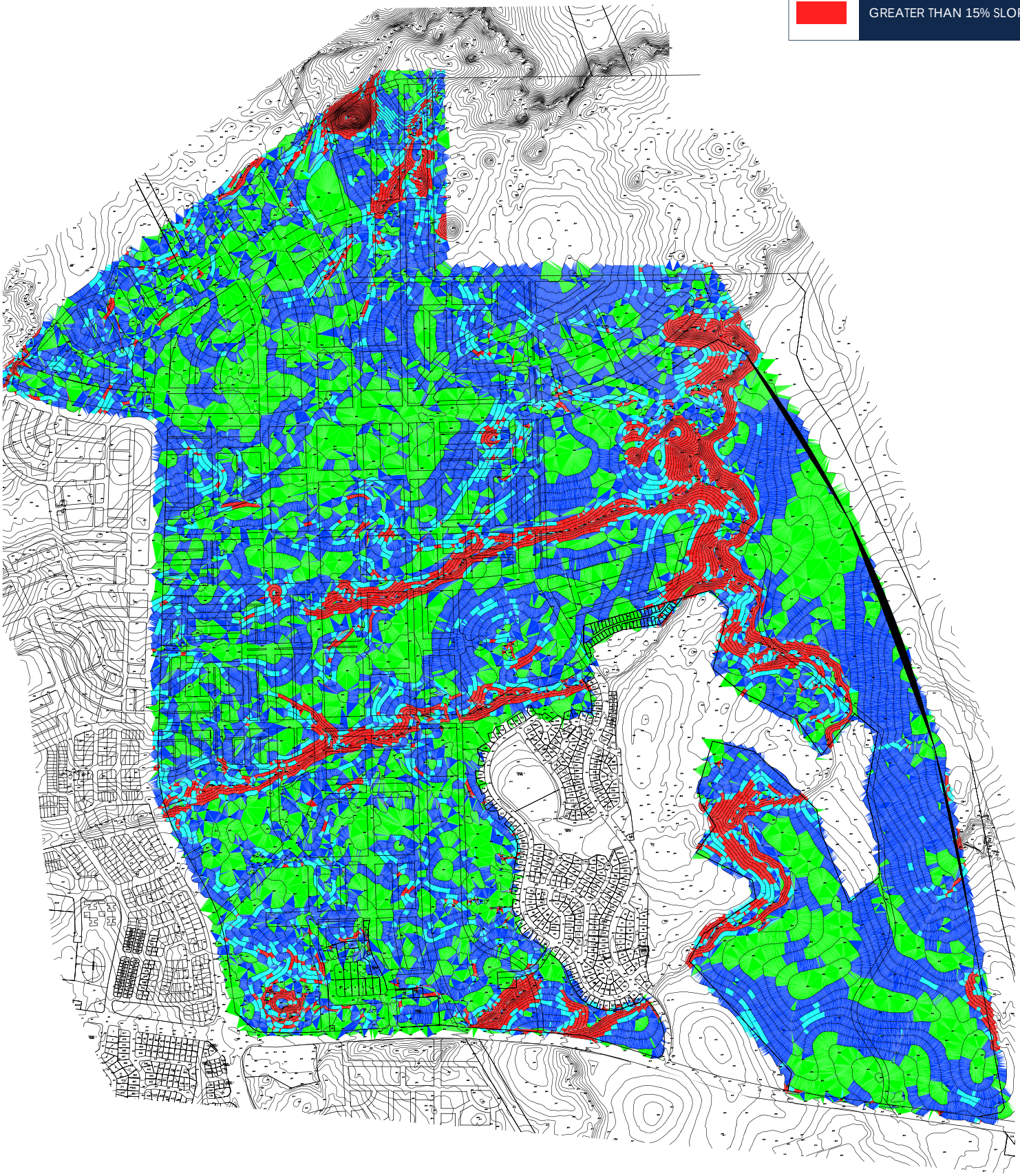
- Limestone (LS4) of the Safety Bay Formation located in an east-west line (approximately 100m wide) in the middle of the landholding totalling approximately 5% of the site. This material is reported to be easily excavated.
- Sand (S7) derived for Tamala Limestone located to the north east of the intersection of Yanchep Beach Road and Two Rocks Road. In general this material is easily excavated and can support residential development.
- Limestone (LS1) of the Tamala Limestone Formation over the balance of the development site, being a majority of the less undulating areas of the development to the east of the Calcareous Sand. This material is generally more difficult to excavate.

The main factors that will impact upon the development from a soil profile perspective are as follows:

- the proximity of limestone close to the surface that will determine the amount of clean granular material available for cut to fill and require services to be installed using sand bedding and backfill;
- the possible presence of thick organic matter in naturally low areas;
- the permeability of the natural materials for disposal of stormwater via soakwells for individual housing lots; and
- The presence of Acid Sulphate Soils (ASS) and Potential Acid Sulphate Soils (PASS) within the landholding.

The water table is at depth (in the order of RL 2m AHD) and will not be a consideration for either drainage or finished earthworks levels.

The desk top study and site investigations to date suggest that the majority of the site would be Class A in relation to building foundations. Areas where minimal cut may be located and the in-situ Calcareous Sand is loose or high in carbonate content may also warrant a more onerous Class S classification.



YANCHEP CITY STRUCTURE PLAN

EXISTING SURFACE SLOPE ANALYSIS PLAN

figure 12

client - Yanchep Beach Joint Venture
date - July 2009
source - Sinclair Knight Merz

3.4.2 UNEXPLODED ORDINANCE (UXO)

FESA have confirmed that the area has previously been used by the Australian and Allied defence forces for military exercises. There is a potential for unexploded ordnances (UXO) to be present within the Structure Plan area and therefore UXO surveys would be required over the landholding prior to construction being able to commence.

In general terms, FESA have advised that limited searches have been undertaken within the area that have found the presence of UXO, however the locations have generally been further north towards the Two Rocks townsite.

It will be a requirement of FESA that a Field Validation Survey (FVS), or 10% survey, be undertaken over the landholding to confirm the presence of UXO. In general, this will involve a 1-line kilometre traverse (1m wide) for every hectare of land. Depending upon the findings of this FVS, further initial and final searches prior to construction of the development and ultimate clearance of lots would be required.

3.4.3 ROADWORKS

The landholding currently has a frontage to Two Rocks Road to the west, Capricorn Village development and Marmion Avenue to the south west, Yanchep Beach Road to the south and Saint Andrews Drive and the Sun City Country Club development to the south east. The future freeway reserve makes up the eastern boundary.

The development of Capricorn Village has required the construction of both regional roads as part of the overall District Structure Plan (DSP), and subdivision roads to service individual lots within that development.

Marmion Avenue south of Yanchep Beach Road has been constructed and connects with a roundabout to Yanchep Beach Road. With the opening of Marmion Avenue in late 2008, the restriction on the number of lots that can be developed within the immediate Yanchep Beach Road area has been lifted.

Two Rocks Road is an existing two lane un-kerbed semi-rural standard road, with an asphalt surface and shoulders contained within a 60m road reservation, linking the towns of Yanchep and Two Rocks along the western side of the landholding.

3.4.4 STORMWATER

There is no formal stormwater system constructed within the landholding, other than that associated with the fronting roads of Two Rocks Road to the west, Capricorn Village development and Marmion Avenue to the south west, Yanchep Beach Road to the south and Saint Andrews Drive and the Sun City Country Club development to the south east.

Based upon the topography of the land, the subject site can be viewed as a series of natural stormwater catchment areas. The geology consists of primarily coastal dunal sands and limestone of relatively good permeability. There are no natural creeks, nor wetlands on the landholding. The deep water table and relatively good permeability gives the landholding a highly effective natural drainage system where infiltration occurs more or less at the point of impact.

Care would need to be taken to ensure that the main stormwater infiltration areas are not located in areas of karst formation.

3.4.5 WATER SUPPLY

The Water Corporation has confirmed that the Yanchep townsite and the Capricorn Village JV developments are currently serviced by the Water Corporation via a series of ground bores, distribution mains, ground mounted storage tanks and chlorination facilities generally in the south eastern corner of Lot 102, located south of Yanchep Beach Road and east of the newly constructed extension of Marmion Avenue. This system currently provides adequate potable water to the existing developments. There are no existing water supply facilities located within the landholding.

The current capacity of the bores and the water treatment plant is adequate for the initial stages of development of the landholding. The Water Corporation will install additional bores and expand the treatment facility in the future to cater for the increase in demand as development proceeds.

The implementation of the Water Corporation's Scheme Plan has Yanchep and Two Rocks being served from one scheme with the construction of an extended bore field, water treatment facilities, a reservoir or ground storage tanks and a high level system. The ultimate conveyance system for the water, once finalised by the Water Corporation, will determine the routes for the major infrastructure required through the development.

The Water Corporation was granted the operation licence in 2004 (valid up to 2021) to provide water supply service covering all the Yanchep and Two Rocks landholding.

3.4.6 SEWERAGE

The Water Corporation was granted the operation license in 2004 (valid up to 2021) to provide sewerage services covering all of the Yanchep and Two Rocks landholdings.

The Water Corporation has advised that there are no existing sewerage reticulation mains located within the subject landholding.

Portions of the Yanchep town site are sewered to an existing above ground package waste water treatment plant (WWTP) located approximately 150 metres north of Yanchep Beach Road within the southern part of the landholding. The Capricorn Village development is sewered to a new waste water pumping station (WWPS) located at the eastern side of the public open space at the corner of Yanchep Beach Road and Two Rocks Road. The sewerage from this WWPS is then pumped to the WWTP. The primary treated effluent is then pumped to an irrigation disposal area located in the south eastern corner of the landholding.

Whilst the existing WWTP remains in service there is a 350 metre odour buffer zone that affects the southern part of the landholding, between the location of the 406 mm water main and Yanchep Beach Road.

There has been a recent review of the Water Corporation's Capital Investment Program and whilst the timing of infrastructure has been delayed, the Water Corporation is undertaking necessary temporary upgrade works to ensure that there is no delay to the programmed release of lots in the area.

3.4.7 POWER SUPPLY

There are currently high voltage (22 kV) distribution aerial lines located along Yanchep Beach Road, Marmion Avenue and Two Rocks Road servicing existing subdivisions within the immediate locale of the landholding. It is understood that existing Western Power infrastructure has adequate capacity to provide the initial stages of the development with a high voltage point of supply. Western Power has undertaken a broader servicing planning study extending 132 kV power lines northwards from Alkimos to service the Yanchep/Two Rocks area. An additional option being investigated is for Western Power to bring the 132kV power lines from Pinjar to Two Rocks and then south to Yanchep.

3.4.8 TELECOMMUNICATIONS

Telstra have confirmed that there is existing infrastructure at the intersection of Marmion Avenue and Yanchep Beach Road that is capable of servicing the initial stages of the landholding. Telstra's optic fibre telecommunications will be extended from Butler along the western side of the new Marmion Avenue road reserve to service the Yanchep/Two Rocks area.

3.4.9 NATURAL GAS

The Yanchep – Two Rocks area currently has no reticulated gas network. WAGAS has confirmed that the nearest WAGAS infrastructure is located at the Shorehaven development approximately 8 km to the south of the Yanchep City LSP area.

3.5 REGIONAL TRANSPORT

3.5.1 ROAD LINKAGES TO YANCHEP CITY

Three major road linkages are proposed linking Yanchep City with the rest of the masterplan area to the south:

- Marmion Avenue – arterial road connection;
- Mitchell Freeway; and
- Yanchep Beach Road and Wanneroo Road.

The major road link to the north is proposed via a rural arterial road linkage between the Mitchell Freeway on the eastern boundary of The Yanchep LSP area and Wanneroo Road to the north of The Yanchep LSP area.

Current road linkages to the Great Northern Highway and the Brand Highway to the east are via Wanneroo Road and Reid Highway to Midland, Old Yanchep Road and Neaves Road to Bullsbrook and Gingin Brook Road to Gingin.

3.5.2 RAIL CONNECTION TO PERTH

It is proposed that the existing northern suburbs railway be extended from Clarkson to Yanchep - Two Rocks. Three station locations within Yanchep - Two Rocks have been identified in the District Structure Plan:

- South of Yanchep Beach Road;
- Yanchep City Centre; and
- Northern Yanchep.

The features of the railway stations are summarised in **Table 3** below:

TABLE 3: RAILWAY STATION FEATURES

Feature	Yanchep Beach Road Station	Yanchep City Centre Station	Northern Yanchep Station
Park & Ride	Approx 700 bays	In the short term – approx 700 bays	Approx 1000 bays
Public Transport Interchange	Minor bus interchange	Major interchange with high frequency transit and bus	None considered at this stage but could be reviewed later
Other	High density TOD around station	Major City Centre station – high density TOD around station	High density TOD around station

Source: Yanchep - Two Rocks District Structure Plan

3.5.3 PUBLIC TRANSPORT WITHIN YANCHEP CITY

The main elements of the proposed public transport system within Yanchep City are:

- A surface light rail, streetcar or busway system, with full priority for public transport vehicles, linking the Yanchep City Centre with the northern regional activity centre and the northern coastal village.
- An integrated bus feeder system linking residential neighbourhoods to activity centres and the regional rail system.
- A major transit interchange immediately adjacent to the City Centre rail station.

3.5.4 REGIONAL CYCLE PATHS

Two types of regional off-road pathway systems are proposed:

- Principal Shared Path; and
- Regional Recreation Path.

A major regional recreation path is proposed along the coast within Yanchep - Two Rocks with possible linkages into the Wilbinga National Park and to coastal recreational paths to the south.

Principal Shared Paths are proposed adjacent to the Mitchell Freeway, providing access to the north and south and adjacent to Marmion Avenue, providing access to suburbs/centres to the south of Yanchep - Two Rocks.

4 OPPORTUNITIES AND CONSTRAINTS

The site is characterised by a number of issues which are relevant in the formulation of the Structure Plan and may influence the design outcome. The outcomes of an opportunities and constraints analysis of the site area, from a planning and design perspective, are illustrated in **Figure 13**. The key environmental and landscape features have been identified (see section 4.3 for discussion of these elements), along with the issues, opportunities and constraints associated with the treatment of the site under the Yanchep - Two Rocks DSP. The following is a summary of the key opportunities and constraints.

4.1 LAND USE

Key linkages to surrounding areas are highlighted (and are described elsewhere in the report), as are existing features that have been respected in the design of the Local Structure Plan.

The following land use opportunities are evident in the LSP area:

- To create a unique 'sense of place' with a distinct local identity, lifestyle and community.
- To create a robust planning framework that allows development to evolve over time.
- Regional accessibility/land uses – the location/designation of the site makes it extremely accessible and over time will support a range of uses which will draw on a regional catchment.
- To create a City Centre destination for the northern corridor and its hinterland.
- Provide higher densities in the City Centre with social, economic, transport and environmental benefits, and increase the city's vitality.
- Configure the variety of land uses to optimise the relationship/benefits with transit, economic sustainability and good amenity for residential living.
- To create a stimulating, enjoyable and convenient place with a mixture of building forms, tenures and densities, to meet a variety of demands from the widest possible range of users, amenities and social groups.
- To create a landmark development with high quality architecture and urban design standards.
- The opportunity to fully integrate tertiary health and education facilities within a fine-grained City Centre context.

The following land use issues are evident within the LSP area:

- Staging/phasing of infrastructure and land uses, to achieve densities and built form outcomes in the early planning phases.
- Retain and enhance view/green corridors with infrastructure and topographical constraints.
- The compatibility between land uses will need to be planned for and managed.
- The impact of the existing railway alignment on creating effective land use precincts, particularly north to Toreopango Avenue.
- Relationship of Lot 102 District Centre and Yanchep City Centre to be managed carefully to ensure coordinated delivery and maximise economic viability of both.

4.2 ENVIRONMENT

4.2.1 VEGETATION AND FLORA

The following opportunities and constraints have been identified in relation to vegetation and flora within the LSP area:

- Two stands of Tuart trees are present within the north western portion of the LSP area and on a ridgeline in the south western portion of the study area. The retention of all or part of the stands would provide aesthetic value to the area and will also provide habitat for avifauna.
- Areas of *Banksia* woodland and *Dryandra* shrublands that have high fauna habitat value have already been incorporated into Regional Open Space areas through the delineation of Bush Forever sites adjacent to the LSP area. Large areas of vegetation containing *Dryandra* and *Banksia* dominated vegetation are also present within the LSP area. Given the dense urban landscape proposed for the area, it is unlikely that large areas of these vegetation types will remain following development. There is the opportunity to conserve areas of *Banksia* and *Dryandra* vegetation within green corridors and district and local open space areas.
- There is an opportunity to create additional flora habitat in areas that are currently degraded but will be retained for landform or heritage purposes.
- A Vegetation and Fauna Management Plan will be required prior to lodgement of a subdivision application.

4.2.2 FAUNA

The presence of the Western Brush Wallaby, Carnaby's Black-Cockatoo, Black-striped Snake, Rainbow Bee-eater and possibly the Southern Brown Bandicoot is an important consideration for the proposed development and any potential impacts to these species should be minimised.

The proposed development of the site will result in the loss of fauna habitat. It is recommended that where possible, the clearing of vegetation is restricted to those areas that are already degraded and disturbed, and where possible areas of high quality fauna habitat are left within the development. Adoption of this recommendation will minimise the development's impact on fauna assemblages and species of conservation significance.

The following opportunities and constraints have been identified with respect to fauna:

- The relocation and management of all conservation significant fauna species potentially located in the area will be required to be addressed in a Vegetation and Fauna Management Plan.
- There is an opportunity for areas of Public Open Space to be rehabilitated and landscaped with local *Banksia* and *Dryandra* species to provide supplementary feeding habitat for Carnaby's Black-Cockatoo and to provide habitat for smaller mammals and reptile species to move into these areas.

4.2.3 KARST

The following opportunities and constraints have been identified in relation to the district level karst assessment:

- Two cavity zones were encountered during the assessment. These zones are considered to be at a sufficient depth not to create a significant engineering risk for the proposed development.

- Loose sand zones and voids within shallow limestone are present in close proximity to the eastern boundary of the LSP area. Additional investigations are required at the engineering design stage to adequately manage development works within this area.

- A karstic investigation and management strategy is only required where karst is present. Given the absence of any direct indications of karstic features a Karst Management Plan is not required.

4.2.4 ABORIGINAL HERITAGE

- One Aboriginal archaeological site (DIA Site 3394) is located on the western portion of an east-west trending dune in the south western portion of the LSP area.

- The existing aboriginal site is required to be appropriately managed and protected in accordance with the Ministerial Conditions for Amendment 787 and the *Aboriginal Heritage Act 1972*.

- An Aboriginal Culture and Heritage Management Plan is required to be prepared as part of the LSP process.

4.3 LANDSCAPE PLANNING

The following are the key opportunities provided by the site characteristics in respect of landscape planning. These are illustrated in **Figures 14, 15 and 16**, with images of the site provided in **Figure 17**.

LANDFORM AND SITE CHARACTER

- Retain significant natural landscape features and landform characters across the site wherever possible to preserve the sense of place, and ensure some of these elements are captured within POS areas to provide a diversity of natural landscape character for the enjoyment of future residents.

- Utilise the Bush Forever site, Yanchep National Park, golf course and Yanchep Beach/Ocean to form strong and attractive visual edges to the site.

- Ridgelines provide a sense of enclosure and wind protection and contain views, and offer scope for defining precincts.

- Well drained sandy soils with limestone outcrops provide opportunity for passive stormwater infiltration with POS areas potentially located in depressions/valleys between ridgelines to capture stormwater for re-use.

VEGETATION AND OPEN SPACE

- Create greenbelts and public open space (POS) corridors in areas of good quality vegetation to facilitate fauna movement across the site, establish visual and physical links towards the ocean and to the Bush Forever reserve and Yanchep National Park, and minimise road crossings in these areas.

- Retain existing very good and good quality vegetation, where possible (especially Banksia woodland and Tuart/eucalyptus trees) for incorporation into POS and greenbelt areas to retain site character, ecological diversity and habitat.

- Retain the significant mature Tuart and other eucalyptus trees, where possible, as they provide a strong vertical landmark element to the site, and offer shade, amenity and screening potential.

FOCAL POINTS AND VIEWS

- Enhance and promote views from high points and ridgelines into the broader landscape context (towards the ocean, Bush Forever site, Yanchep National Park and golf course).
- Encourage and frame views from ridgelines and focal points into good quality vegetation both within and external to the site, and utilise these views to provide backdrops/settings to the urban development.
- Maintain and enhance ocean views from the high points of the site and develop these focal points into landmarks/orientation devices visible from most aspects of the site.
- Maintain the Aboriginal archaeological site as a prominent, recognisable landmark visible from most of the site and surrounding area and enhance its local and cultural significance in a regional context.

RECREATIONAL CONNECTIONS

- Aboriginal archaeological site offers a good opportunity for tree retention, enhancement of existing landforms and natural/cultural heritage, as well as an open space link westwards towards the beach.
- Create strong and legible recreational connections within the site that link open spaces.
- Create recreational connections that strengthen the relationship between the site and the surrounding amenities and facilities.
- Locate activity and recreation areas with consideration to solar orientation and the prevailing winds.

4.4 TRANSPORT PLANNING

The major constraint in providing transport infrastructure to service Yanchep - Two Rocks is the limited road connections and road capacity that can be provided to link Yanchep - Two Rocks with the remainder of the Perth Metropolitan Area. The demand for travel by road, based on current trends, is likely to be close to or greater than the practical road corridor capacity during peak periods, especially in the direction of the Perth CBD.

The recognition that an extension of current trends will not provide for sufficient transport capacity on a sustainable basis, has led to the adoption of the following strategies for the Yanchep - Two Rocks DSP area:

- A better balance of jobs and residents within the Yanchep - Two Rocks area. The projected 55,000 jobs within Yanchep - Two Rocks for a projected population of 155,000 people is estimated to increase the counter peak demand on the rail system to 35% at full development, as opposed to between 10% to 15% at present.
- A more balanced road and public transport system in which a much higher proportion of trips are made by public transport, with a commensurate reduction in dependence on car travel.

These strategies provide the opportunity to develop a more sustainable transport system for the entire north-west metropolitan sub-region.

4.4.1 ROAD LAYOUT AND REGIONAL ROAD HIERARCHY

The advertised District Structure Plan identified a network of distributor roads for the movement of traffic within Yanchep - Two Rocks. The advertised regional road network providing linkages to the Mitchell Freeway and Marmion Avenue is shown in **Figures 18 and 19**. (Also included on those plans are the proposed alterations to the regional road hierarchy as a result of the LSP design.)

4.4.1.1 'PAIRED COUPLET'

The Yanchep - Two Rocks District Structure Plan identified a 'paired couplet' street network for the City Centre, and other activity centres. This system is not, however, considered to align with the design principles behind the formulation of the Local Structure Plan, and indeed seems inappropriate generally to the YBJV context (the consequent removal of the couplet during design of the LSP is discussed further in Section 5.1.2).

(NB The District Structure Plan was subsequently modified to remove couplets from the plan, and the modified version of the Structure Plan was that adopted by Council).

4.4.1.2 MARMION AVENUE

The existing alignment and reserve width of Marmion Avenue is fixed by the detailed planning that has taken place to the west of the YBJV Local Structure Plan area.

However, potential has existed to alter the intended nature of the road during the design of the Local Structure Plan, in liaison with the proponents of the planning to the west, and this has been considered particularly necessary both in light of the removal of the paired couplet from the Yanchep City Centre road layout, and because the proposed realignment of Marmion Avenue under the District Structure Plan implied the majority of district through-traffic being directed through the City Centre itself.

This was considered untenable, with a preference instead to direct through-traffic around the edge of the City Centre.

4.4.1.3 FREEWAY INTERCHANGE LOCATION

The DSP identifies a freeway interchange for Yanchep City directly in line with the City Centre itself, with traffic moving on and off the freeway leading directly into the core of the Centre. This is considered to present problems, and it is felt that the position of the existing reserved freeway intersection, to the north of the City Centre, represents a better option, as it would ensure better separation of district through-traffic from City Centre traffic, cyclists and pedestrians.

4.4.2 RAILWAY ALIGNMENT

4.4.2.1 STATION LOCATION

The YBJV is strongly supportive of delivery of the railway to Yanchep City Centre at the earliest opportunity. This will be vital to ensure the employment and retail self-sufficiency, self-containment and early delivery of vital components of the City Centre and wider Yanchep - Two Rocks DSP area from as early in the life of the development as possible. To achieve this will require a cooperative approach between the developers and all levels of government.

4.4.2.2 RAIL ALIGNMENT

If the rail station is relocated, the proposed rail alignment under the DSP to the north of the City Centre becomes unworkable. The radii required to direct the rail line away from the City and back to the freeway, whilst avoiding the Bush Forever and National Park site that abuts the Freeway on its western side, are too tight for the trains to manage without excessive break-noise and an inability to gain speed out of the station.

4.5 COMMUNITY AND HEALTH PLANNING

4.5.1 UNIVERSITY

The need for a university within the Yanchep City Centre is identified in the Yanchep - Two Rocks District Structure Plan. The preferred approach is to design the City Centre as an Integrated University Town with university buildings interspersed with other retail, commercial and civic facilities. This approach will maximise the social and economic benefits that flow from synergies between university and private sector facilities and services.

In total approximately 10 hectares of land will be required for university buildings, in close proximity to the rail station and other public transport infrastructure. To facilitate research and training partnerships, co-location with public and private hospital facilities is also preferred, as is close proximity to the research and development precinct.

An exciting opportunity associated with integrated universities is the joint provision of shared-use community facilities. Strong potential exists in the YBJV development for public library, performing arts and sports facilities to be co-located and shared with the university. Apart from the obvious benefits of shared capital and operating expenses, these facilities will become key destinations within the City Centre, attracting and facilitating interaction between students, residents and employees. Through their built form and functionality they will contribute significantly to the formation of a cultural and civic heart for the region, creating a unique sense of place.

4.5.2 TAFE

The need for TAFE facilities within the Yanchep City Centre is identified in the Yanchep - Two Rocks District Structure Plan. Facilities for business, hospitality, community services and other non-trade TAFE courses should be located in the City Centre, integrated with university buildings and other complementary retail, commercial and civic facilities. In addition, approximately four or five trade training workshops will be required for a range of trade courses. Land for these workshops should be situated on a 2 ha site within a commercial area or adjacent to the research and development (technology park) precinct. Ideally TAFE administration buildings should be centrally located in close proximity to both non-trade and trade training facilities to minimise duplication and enable economical service delivery.

4.5.3 PUBLIC HIGH SCHOOL

A public senior high school (years 8-12) will be required north of the Yanchep City Centre to accommodate students graduating from the 4-5 feeder primary schools in and around the northern half of the project area. The site should be 10 hectares in size and located in close proximity to public transport. In addition, there is an opportunity to provide a 'second chance' senior college within the City Centre, integrated with university and TAFE facilities. This college would offer specialised subjects for year 11 and 12 students as well as older adults wanting to retrain or further their qualifications.

4.5.4 HOSPITAL/HEALTH CENTRE

The need for a hospital/health centre site to service the upper northern corridor was identified in the Yanchep-Two Rocks District Structure Plan. Preference is for a 12 hectare site located within walking distance to the train station/public transport and in close proximity to university and hotel facilities.

4.5.5 DISTRICT AQUATIC AND RECREATION FACILITIES

The Yanchep-Two Rocks DSP confirms the need for a district aquatic and recreation facility in the Yanchep City Centre. The preferred approach is to co-locate the district aquatic and recreation centre with university sporting facilities within the City Centre and in walking distance of public transport. The facility should incorporate indoor sports courts, a fitness gymnasium, leisure and lap pools, as well as studios for various martial arts, exercise and wellness classes.

4.5.6 REGIONAL LIBRARY

The Yanchep-Two Rocks DSP supports the need for a regional library within the Yanchep City Centre. Furthermore, the City of Wanneroo is currently planning to investigate the feasibility of providing an interim library in the Capricorn neighbourhood centre with the intention of ultimately augmenting and relocating this service to a regional library within the Yanchep City Centre.

The preferred outcome is for a shared-use library with the university, centrally located within the City Centre and in close proximity to public transport. This facility should be a landmark within the City Centre, contributing significantly to the civic heart of the region and facilitating interaction between students, business proprietors and residents. It should provide state-of–the-art information and library services, employing the latest in telecommunications technology. A City of Wanneroo customer service desk should also be incorporated within the library to provide access to general local government services.

4.5.7 PERFORMING ARTS CENTRE

The need for a performing arts centre in the Yanchep City Centre is confirmed in the Yanchep - Two Rocks DSP and supported by the community audit. As with the regional library, the preferred option is for the City of Wanneroo to partner the provision of a modern shared-use facility with the university. The aim should be to create an exciting hub for theatre, dance and music that will be a key point of intersection for university students and the broader community, and an icon of cultural life in the region.

4.6 RETAIL PLANNING

Retail planning has been based on definition of catchments for the variety of centres in the DSP and also references the approach taken to retail provision in the City of Wanneroo Centres Strategy. However, in a departure from the Strategy, Perth CBD is not placed at the top of the retail hierarchy Whilst a notional hierarchical approach is taken with respect to the DSP, the overall approach to retail provision in the area is based on principles of self containment, which is considered a more sustainable approach than requiring an extended travel burden to Perth CBD.

In terms of orderly centre development, a constraint exists in the usual timing lag between retail delivery (which is based on arrival of populations and is easy to predict) and mixed use centre development that delivers town or city, which is more difficult to predict and is partly based on qualitative factors. In terms of planning, the process needs to recognise that the ultimate or desired form of the city will not be delivered in one development cycle but will evolve over time.

A constraint therefore exists in an appreciation in statutory or strategic planning about the need to evolve the town and not snapshot the ultimate built form of town in the first development phase. However, the provision of retail in the centre is public realm focused so as to facilitate in due course a high level of mixed use activity.

The South Yanchep District Centre (Lot 102) provides some capacity to take early retail demand pressure off the Yanchep City Centre so that higher intensity development in the City Centre can be delivered at a later time but in the first stage. This encourages a more intensive Yanchep City Centre in the first development phase.

Related to the above point, an opportunity exists to fully coordinate centre delivery across the DSP area as a consequence of the aligned interests of the major landowners. Such an opportunity is rare if not unique in planning in WA.

5 YANCHEP CITY STRUCTURE PLAN

The Yanchep City Structure Plan has been prepared in two formats: as a conceptual Masterplan to guide the vision for the project (refer **Figure 20**), and the Statutory Structure Plan in Part One of this report.

The Masterplan and Structure Plan have been formulated following detailed site investigations, consultation with various key stakeholders and numerous design iterations.

5.1 PROJECT OBJECTIVES

5.1.1 PROJECT VISION

Yanchep City, and its environs, as the strategic regional centre for the North-West Corridor, will be a city for the new millennium, adapting the tested principles of traditional urban form to the rapidly evolving needs of a modern population, recognising that new cities must lead the way in the pursuit of sustainable living; Yanchep City will be a clean, green and healthy city, with transit, cycling and walking as the dominant transport forms, where health, education and recreation are key social elements, and where urban structure is balanced with natural landscape and heritage values.

5.1.2 OBJECTIVES

The following are the key objectives on which the Structure Plan is based. Note that sustainability is not a specific objectives, as sustainability principles are intertwined into all objectives.

1. The Yanchep City Structure Plan will:

    - Generally embrace the principles of relevant key planning policies of both the State and the City of Wanneroo, in particular:

        – The State Sustainability Strategy
        – Liveable Neighbourhoods; and
        – the City of Wanneroo Smart Growth Strategy,

        except where variation is justified.

    - Generally accord with the requirements and principles of the Yanchep – Two Rocks District Structure Plan, except where variation is justified.

2. Yanchep City will become a complete community in which people can live, work and play in an unrivalled urban environment. In pursuit of this the Yanchep City Structure Plan will promote the following key design principles:

    - 'Healthy Living' – through the delivery of above-standard recreational opportunities for all ages and interests, and an urban layout that encourages walking and cycling journeys;

    - 'Liveable City' – through the emphasis of human scale and social dividend – safe, attractive, legible and walkable streets and parks – that entice people out into public spaces;

    - 'Integrated City' – through the sharing of community, education and sporting facilities and services between private, public and education providers, the City can become a truly interactive and efficient place in which to live, work and recreate; and

- 'A City of Opportunity'
  - to pursue any vocation through diverse choices in tertiary education and training; and
  - to work within a cross-section of employment sectors that will establish in the City Centre or one of the many and varied employment/service precincts.

3. Yanchep City will strive to be a 'Transit City' rather than simply a city based around transit, meaning that people should be able to use public transport to travel the city and environs without needing a timetable.

4. The road network will be planned to:

   - integrate with the broader regional movement system; and
   - provide a permeable and legible internal movement system, designed to be shared with cars, cyclists and, sometimes, bus/light rail.

5. Housing choices will be highly diverse, from the traditional single detached family home to a variety of medium/high density housing options. Recognising the importance of maximizing the functionality and viability of the transit systems and activity centres, there will be a strong emphasis on concentrating population and promoting mixed use in close proximity to these areas.

6. Recognising that conservation and heritage goals will often conflict with effective urban structure, the Yanchep City Structure Plan will meet the challenge by recognising natural environmental and heritage values through either the retention of significant features or sites, or the interpretation of important values in landscape and public art, in such a way that they ultimately form an integral part of the urban fabric.

5.2 DESIGN FRAMEWORK

Certain key design principles and objectives have provided a context within which the formulation of the LSP has progressed. These objectives have become the framework for all design decisions, they are the 'rules' which have been followed when preparing the plan, and they are therefore considered to form an important part of the context for the Local Structure Planning. The following philosophies form the design framework for the Structure Plan.

5.2.1 TRANSIT SUPPORTIVE URBANISM

The proper functioning of the City Centre will depend on the existence of an effective transit system, with supporting built form that provides density, height and compactness in walkable catchments from the transit. With these two key elements of transit and density, a democratized urban form will result where every resident and visitor has the opportunity to access places by foot, bike or public transport, with no need to be dependent on a private car to get around.

An effective integration of uses will promote this walkability, vibrancy and amenity, particularly if all uses are provided in a street-based format, with activated street frontages and mixing of uses both horizontally and vertically throughout the City Centre. Buildings should be robust to deal with changes over time, with each use able to expand or contract as the context demands.

5.2.2 INTERCONNECTED STREET NETWORKS

An effective transit supportive urbanism outcome can best be achieved in combination with an interconnected street network model. Major activity streets with parallel supporting streets, linked by a series of east-west connecting streets, allow unconstrained movement of people and vehicles, and promote good connectivity between the various uses that are mixed throughout the City Centre.

Through this model, streets can perform particular functions, and, as with the street based built form being promoted, there is robustness in the interconnected street network that allows change in street function over time as population numbers grow and land uses alter.

Creation of an interconnected street network for the City Centre is therefore a strong design driver for the Yanchep City LSP.

As previously noted, the advertised Yanchep - Two Rocks DSP identified a 'paired couplet' street network for the City Centre, and other activity centres. This system is not, however, considered to align with the principles identified above, and indeed seems inappropriate generally to the YBJV context.

The couplet has been developed as a design solution to particular traffic movement problems most often experienced in the United States, where disconnected community planning results in high speed arterial roads linking towns, with resulting traffic and accident problems where these arterials meet the town edges, and particularly the town centres.

An assessment of the functioning of the couplet where it has been developed in the US, such as at San Elijo Hills near San Diego, has revealed that while the system may have some benefits in the context of traffic dispersal and accident prevention, it cannot produce the vibrant, high amenity City Centre environment that is being sought at Yanchep City.

In a Western Australian context, and particularly in the well integrated Yanchep and Two Rocks planning environment, it is considered that the traffic and accident management motivation behind the couplet is not relevant. In light of this, a City Centre design based on a more traditional interconnected street network principle has been favoured in preference to a couplet design.

5.3 PROPOSED LAND USES

The following sections explain the nature and location of the land use zoning classifications proposed in the LSP.

The vision for land use in the Structure Plan area is to create a place that offers new and exciting activity and living opportunities. The land use framework facilitates a diversity of commercial, retail, entertainment, hospitality, residential and community oriented uses.

A summary of the key land use outcomes defined by the Structure Plan include:

- Identification of the City Centre core;
- Identification of rail alignment and station location and associated TOD precinct;
- Identification of health and tertiary education requirements;
- A possibility to achieve approximately 6,500 dwelling units, one high school, one TAFE, three public primary schools, one private K-12 school (across the YC LSP and the future City Centre LSP);
- 75 ha of public open space and drainage; and

- Service industry, mixed use and business precincts.

The land use philosophy is to provide a predominance of residential, office, commercial, retail and entertainment uses. It is imperative that a mixed use approach to development would achieve a more sustainable environment, integrating living, working and leisure.

It is important to recognise that the mixed use character creates the opportunity for a wide variety of use compatibility.

The Structure Plan identifies a series of land use precincts that, by nature, are mixed use, and these are described in Section 5.3.

5.3.1 RESIDENTIAL

The intent is that the residential development in the Yanchep City LSP area will be of a density mix and built form character appropriate to its status as a City Centre catchment, whilst also respecting the site's environmental assets. The opportunity exists to create an urban character more intensive and vibrant than that typically created in greenfield locations on the urban fringe, and thus to ensure more sustainable outcomes across the triple bottom line.

On this basis, a density code range is proposed for all of the residential zones across the LSP, with various locational criteria applying, as follows:

- Higher densities between R60 and R100 are to be provided within 800m of the railway stations and/or within 400m adjacent to major public transport routes;
- Densities between R20 and R60 shall be provided in residential areas of high amenity including within 400m of the local centre, primary schools or neighbourhood connectors, and around public open space; and
- Low densities of R10 to R20 may apply as a transitional interface between the golf course and the R20-R60 density range, where tree retention and landscape amenity objectives are to be met and/or where topographic constraints exist.

Specific densities within the LSP area must adhere to the locational criteria outlined above, and will be defined through a Residential Density Code Plan, which shall be prepared and lodged with the WAPC prior to or in conjunction with any application for subdivision of the subject land.

Densities within the City Centre zone will be more clearly defined through a subsequent structure plan for that area.

Some of the LSP precincts have a greater propensity for accommodating density, reflecting their proximity to public transit or to retail centres. Within the walkable catchments of transit or retail, the residential densities are higher than those more remote from this amenity.

The densities applied are higher than what would normally be proposed in a greenfields or outer metropolitan location, however are considered to reflect the density required to support the urban form and structure planned for the Yanchep City Centre. The relative lack of existing residential development in the area provides the opportunity for these higher densities to be achieved without significant community impact, whilst the housing form will support the urban consolidation, public transport and sustainability objectives for the area.

In the interests of facilitating contemporary lifestyle choices at Yanchep City, and in accordance with the economic planning that is incorporated in the LSP (see section 5.10), it is also intended that work-live uses should be permitted in the project area, subject to the usual development and building approval processes and having regard for parking requirements and other details.

5.3.2 MIXED USE

A mixed use zoning has been strategically placed adjacent the City Centre, the Special Transit Boulevard, the northern extension of Marmion Avenue and western extension of Toreopango Avenue, in order to allow a range of compatible uses to co-locate both adjacent to one another, and vertically in individual buildings. By allowing the opportunity for a mix of uses, the objective is to promote the development of Yanchep City as a vibrant and sustainable environment that integrates living, working and leisure opportunities.

The Mixed Use zoning has been located in areas where it is considered that the market could, at some time, sustain some commercial use along with residential development, and where it would be appropriate for these types of uses to develop – along important road linkages and in the vicinity of the activity nodes.

It is not possible for the LSP to specify the types of commercial uses that should be established in these mixed use areas. Market demand for residential and commercial uses will fluctuate over time, and will depend on the progress of surrounding redevelopment. Given that the time period for development in the project area could be extensive, it is neither possible nor appropriate to dictate the types of commercial uses, the amount of floorspace and the number of residential units that should be established.

Instead, the LSP provides a framework for the variety of land uses that could be established in the project area. The mixed use classification creates the opportunity for a wide variety of commercial uses that are compatible with residential use, in accordance with the Scheme provisions contained in Part 1 of the LSP. Office and commercial floorspace would be appropriate on the ground floor of the vast majority of street-edge buildings.

There may also be circumstances where small-scale retail uses are appropriate in strategic locations within the mixed use areas. The overarching policy position should be to focus core retail activity in the activity nodes, however if a proposal for a lower order retail use in an alternative location would not compromise the viability of the area's activity nodes, such an application should be considered on its merits. Retail is not viewed as being a prohibited use in the mixed use land area.

In order to ensure that mixed use potential is created even at the early stages of development when the market might not yet support any non-residential use in a particular location, buildings should be constructed in a robust way that will allow for retro-fitting, particularly of the ground floor, at a later date. All land use and development proposals in the mixed use areas should be assessed by the relevant decision making authority based on this requirement.

5.3.3 BUSINESS

A Business zoning has been applied in strategic locations across the LSP area, particularly on significant road linkages, transit-ways, and in the vicinity of other complementary uses including Mixed Use, Service Industrial and the Special Use Precinct – Yanchep Enterprise Park, which transition well into business uses. Business is a flexible land use classification, which accommodates a variety of business types, from office and retail through to service commercial uses. Residential uses will also be permitted in the business areas, as none of the uses permitted in this zone are incompatible with residential development. However, employment-generating land uses are intended to dominate, particularly at street-level.

The business classification has been applied in the various locations for two main reasons: to activate important road linkages and provide easy vehicular and transit access to the business uses for employees and business users; and to ensure employment opportunities in the project area by providing enough suitably zoned and serviced land to promote the level of economic self-sufficiency that Yanchep City is aiming to achieve.

5.3.4 SERVICE INDUSTRY

The Service Industry zone, in the northern part of the LSP area, is intended to develop in a similar way to a traditional service industry zone. In this area it is proposed that typical light industry, storage and warehousing uses will locate, given its proximity to the freeway interchange, and the precinct's detachment from other sensitive uses (particularly residential development) which might be incompatible with some of the light industrial uses that will locate there. The site is well located to accommodate the necessary traffic and transport requirements, and is close enough to the City Centre to allow good amenity and convenience for the Precinct's workers.

However, some of the more heavy-duty, dirty or general industrial uses that are typically found within a Service Industry zone are considered incompatible within a precinct so close to a City Centre, so Part 1 of the LSP has been prepared to preclude these uses from establishing here.

5.3.5 SPECIAL USE PRECINCT – YANCHEP ENTERPRISE PARK

The Special Use Precinct proposed for south of the City Centre, abutting the University to the north, and the high-profile business corridor of Yanchep Beach Road in the south, is intended to accommodate research and development, and clean technology uses, in a technology park type of environment, albeit with a finer grain, more street-based built form characteristic. The Yanchep Enterprise Park aims to become a centre for innovation, bringing together leaders in manufacturing design, engineering, fabrication and education to provide a nucleus for innovation through R&D and extensive networks and partnerships.

Business and organisations will be attracted to the Park to focus on product advancement and innovation, to be dedicated to scientific research on a business footing. The association with higher education facilities in Yanchep City Centre will enhance the attractiveness of the Park to such organisations.

It is in this location that the research, technology and knowledge based businesses that it is intended to attract to Yanchep City will be located, particularly those in the following disciplines:

- Health Sciences and Biosciences;
- Environmental Sciences and Technology;
- Information and Telecommunications Technology;
- Clean/Renewable Technology; and
- Advanced Manufacturing (especially in these specialisations).

The land use permissibility for the Special Use Precinct – Yanchep Enterprise Park is intended to allow these types of industries to flourish in an environment that provides a vibrant, street-based, attractive place for people to work, with strong linkages north to the education and health precincts and the City Centre itself, and out to the adjoining high quality office development that is hoped will locate in the Business zone around the intersection of Marmion Avenue and Yanchep Beach Road. Built form guidelines and detailed planning will ensure that the intended high quality environment for the Precinct is created as development progresses.

As the Special Use Precinct is a significant employment generating area, it is appropriate that the development framework for the precinct be guided by a separate Structure Plan to ensure the required level of employment floorspace is delivered in this location.

The Structure Plan will detail the land use permissibility within the Special Use Precinct. During the preparation of such a Structure Plan, the following provisions should be duly considered:

a) Permitted Uses (classified 'P') within the Special Use zone – Yanchep Enterprise Park:

- Consulting Room
- Home business category 1,2 and 3
- Industry - Light
- Office
- Showroom

b) Discretionary Uses (classified 'D') within the Special Use zone – Yanchep Enterprise Park:

- Amusement Facility/Parlour
- Art Gallery
- Auction Room
- Caretaker's Dwelling
- Convenience Store
- Bakery
- Bank
- Child Care Centre
- Beauty Parlour
- Club (Non-Residential)
- Civic Building
- Corner Store
- Dry Cleaning Premises
- Car Park
- Education Establishment
- Factory Unit
- Grouped Dwelling
- Hire Service
- Hairdresser
- Hotel
- Hardware Store
- Laundromat
- Lunch Bar
- Liquor Store
- Medical Centre
- Multiple Dwelling
- Mast or Antenna
- Place of Assembly
- Park
- Public Exhibition Facility
- Pharmacy
- Place of Worship
- Residential Building
- Restaurant
- Recreation Centre
- Supermarket
- Service Station
- Shop
- Tavern
- Take-away Food Outlet
- Telecommunications Infrastructure
- Warehouse
- Video Hire

c) Any uses not listed at b) and c) will not be permitted (classified 'X') within the Special Use zone – Yanchep Enterprise Park.

5.3.6 CITY CENTRE

The Yanchep City Centre itself has been classified under the Scheme's Centre zoning, which requires that a Structure Plan be adopted for the site prior to further subdivision or development. As the largest identified metropolitan centre outside of the Perth CBD, it is important to take a highly focussed approach to its planning to achieve the best outcomes in terms of true TOD, robust networks and built forms – an urbanism that will enable the city to evolve from one generation to the next.

It is intended that a Structure Plan for the City Centre be completed at a later date, although the overall Yanchep City Structure Plan does aim to provide some guidance as to the intended form and function of the City Centre, and information as to how the development of the Centre should progress. This is included at section 6.0.

As identified in Table i of the Yanchep - Two Rocks District Structure Plan, an indicative retail floorspace allocation of 71,800 m^2 net lettable area (NLA) is specified. An increase in retail floorspace, however, can be considered where justified in accordance with the State Planning Policy No. 4.2 *Activity Centres for Perth and Peel*.

5.3.7 COMMUNITY AND HEALTH FACILITIES

Whilst the proposed community and health facilities are not accommodated in specific zones on the Structure Plan, it is useful to provide a description of the intentions for these significant uses as the need assessment and their location criteria have been central to the design of the Yanchep City LSP, and it is important that these intentions be progressed to the more detailed level of planning. The indicative locations for these key facilities are shown on **Figure 20**. The full Community Facilities Needs Assessment Report is included at **Appendix D** for reference.

Key to the vision for the Structure Plan area, and the City Centre, is to create an integrated place where community facilities and services can be provided in partnership by the various government, education and private sectors. Apart from the benefits of shared capital and operating expenses, these facilities will become key destinations within the Yanchep City area, attracting and facilitating interaction between residents, employees and students.

5.3.7.1 REGIONAL AND DISTRICT FACILITIES

UNIVERSITY

The preferred approach is to design the City Centre as an Integrated University Town with university buildings interspersed with other retail, commercial and civic facilities. This approach will maximise the social and economic benefits that flow from synergies between university and private sector facilities and services.

Five to ten hectares of land has been identified for university buildings, in close proximity to the rail station and other public transport infrastructure. Detailed design as part of the Centre Structure Plan will more closely define the site requirements. To facilitate research and training partnerships, co-location with public and private hospital facilities is also preferred, as is close proximity to the research and development precinct (Employment Precinct 2).

An exciting opportunity associated with integrated universities is the joint provision of shared-use community facilities. Strong potential exists in the development for public library, performing arts and sports facilities to be co-located and shared with the university. Apart from the obvious benefits of shared capital and operating expenses, these facilities will become key destinations within the City Centre, attracting and facilitating interaction between students, residents and employees. Through their built form and functionality they will contribute significantly to the formation of a cultural and civic heart for the region, creating a unique sense of place.

The successful joint provision of shared-use facilities will require a 'Heads of Agreement' or 'Memorandum of Understanding' between the City of Wanneroo, the university provider, and possibly the state government to confirm the commitment to, and intention of, a joint provision approach, and the roles and responsibilities of project partners. While preliminary consultation has been undertaken with university providers, negotiations regarding strategic agreements and planning of specific shared-use facilities should be undertaken collaboratively with all stakeholders following LSP approval.

In terms of timing, it is difficult to say when the university facilities could be viable. There are currently no tertiary facilities in Two Rocks-Yanchep, the closest facilities being in Joondalup, 30 km to the south. Consequently the demand for tertiary education services is already present on an individual basis, and will continue to increase concurrently with high rates of population growth until the overall demand makes provision of tertiary facilities viable. Aside from population growth, other key triggers for the development of university facilities will be the provision of major road infrastructure, affordable student accommodation and importantly, the Yanchep City train station.

A staged approach is supported that would see the university facilities developed incrementally. Initially, a limited number of targeted courses that link with local commercial and enterprise development could be offered. There is also potential for a number of interim uses in stage one of the university's' development (i.e. administration and student housing).

TAFE

The Structure Plan identifies site(s) for TAFE to be integrated with the City Centre fabric. Facilities for business, hospitality, community services and other non-trade TAFE courses should be located in the City Centre, integrated with university buildings and other complementary retail, commercial and civic facilities. In addition, approximately four or five trade training workshops will be required for a range of trade courses. Land for these workshops should be situated on a 2 ha site within a commercial area or adjacent to the research and development precinct (Employment Precinct 2). Ideally TAFE administration buildings should be centrally located in close proximity to both non-trade and trade training facilities to minimise duplication and enable economical service delivery.

Responsibility for funding and development of TAFE facilities lies with the State government through the Department of Education and Training. The department would normally undertake a staged development, initially providing priority facilities and designing them to enable future expansion.

PUBLIC HIGH SCHOOL

A public senior high school (years 8-12) has been identified north of the Yanchep City Centre to accommodate students graduating from the 4-5 feeder primary schools in and around the northern half of the project area. The site should be 10 hectares in size and located in close proximity to public transport. In addition, there is an opportunity to provide a 'second chance' senior college within the City Centre, integrated with university and TAFE facilities. This college would offer specialised subjects for year 11 and 12 students as well as older adults wanting to retrain or further their qualifications.

The WA Department of Education is responsible for acquiring land for and developing high school facilities. The initial priority for the Department is the development of a new senior high school south of the project area in Yanchep Estate (lot 102). This high school will replace the existing Yanchep District High School.

HOSPITAL/HEALTH CENTRE

The Structure Plan identifies a hospital/health centre site to service the upper northern corridor. Preference is for an 8-12 hectare site located within walking distance to the train station/public transport and in close proximity to university and hotel facilities.

The WA Health Department is responsible for the acquisition of the site and the development of infrastructure. The department supports a staged approach to the development of facilities on the site. The first stage would deliver a community health and medical. Ultimately, the site will accommodate a secondary public hospital with 300 beds as well as a private hospital.

DISTRICT AQUATIC AND RECREATION FACILITIES

The Structure Plan identifies a site for a district aquatic and recreation facility. The preferred approach is to co-locate the district aquatic and recreation centre with university sporting facilities within the City Centre and in walking distance of public transport. The facility should incorporate indoor sports courts, a fitness gymnasium, leisure and lap pools, as well as studios for various martial arts, exercise and wellness classes.

Ideally the university provider, the City of Wanneroo and the state government would partner the joint provision of a shared-use facility, co-located with outdoor sports fields, to create an exciting focal point for sports and physical activity within the city. The timing of this development will be activated by the development of the university and the Yanchep City train station.

REGIONAL LIBRARY

The Structure Plan supports the need for a regional library within the Yanchep City Centre. Furthermore, the City of Wanneroo is currently planning to investigate the feasibility of providing an interim library in the Capricorn neighbourhood centre with the intention of ultimately augmenting and relocating this service to a regional library within the Yanchep City Centre.

The preferred outcome is for a shared-use library with the university, centrally located within the City Centre and in close proximity to public transport. This facility should be a landmark within the City Centre, contributing significantly to the civic heart of the region and facilitating interaction between students, business proprietors and residents. It should provide state-of–the-art information and library services, employing the latest in telecommunications technology. A City of Wanneroo customer service desk should also be incorporated within the library to provide access to general local government services.

The timing of this project will be determined by the population growth rate, the demand for services and the development of the first stage of the university. The City Centre Structure Plan will need to accommodate a site for this purpose in consultation with the City of Wanneroo.

PERFORMING ARTS CENTRE

The Structure Plan supports the need for a performing arts centre. This is further supported by the community audit. As with the regional library, the preferred option is for the City of Wanneroo to partner the provision of a modern shared-use facility with the university. The aim should be to create an exciting hub for theatre, dance and music that will be a key point of intersection for university students and the broader community, and an icon of cultural life in the region.

The timing of this project will be determined by population growth, the demand for services and the development of the university. The City Centre Structure Plan will need to accommodate a site for this purpose in consultation with the City of Wanneroo.

5.3.7.2 LOCAL COMMUNITY FACILITIES

PRIMARY SCHOOLS

Current WA Planning Commission and Education Department Guidelines require the provision of one public primary school for every 1,500-1,800 residential lots.

The projected dwelling yield of the Yanchep City LSP area including the projected yield of the City Centre LSP area is approximately 9,000 dwellings (this figure includes the 375 existing dwellings in the St Andrews Golf Course Estate).

This indicates a requirement for 5 public primary schools across the two LSPs (note that the upper limit has been used given the large number of high density dwellings that will not be likely to house families with primary school-aged children – see below for further discussion on this point).

Discussions with the Department of Education have revealed plans for two public primary school sites just outside of the projects' northern boundary, which will pick up some of the catchment of the northern part of the Yanchep City LSP (City Urban 2 and City Urban 3). A commitment to provision of these two primary schools has been made by the landowners, who themselves form part of the Yanchep Beach Joint Venture.

In addition, the Department of Education already has a primary school site within the existing St Andrews golf course estate called the Sunningdale Primary School Site, the catchment for which will ultimately include additional residential dwellings identified in the Sun City West Precinct of the Yanchep City LSP.

An additional 3 primary schools therefore need to be provided across the two LSP areas. Two primary schools have been identified in the Yanchep City LSP, west of the St Andrews Golf Course, to serve the catchments of the Golf Estate Precinct and City Urban 4 Precinct.

The third primary school will be located in the City Centre LSP area, and has indicatively been identified south of the Central Park, to be provided as an urban character two-storey school building (to be confirmed during City Centre LSP formulation).

Given that approximately 1,350 of the estimated dwelling yield across the Structure Plan area has been calculated based on a density of R160 with average dwelling sizes of 62.5m^2, and a further 1,520 dwellings have been based on an average of 100m^2 at a density of R100, it is considered that the proposed provision of schools is entirely adequate. It is highly likely that up to 3,000 of the total 9,000 dwellings would not house school age children, thus reducing the primary school requirement by at least one, or possibly two, schools.

The research also identifies a need for a private K-12 school site within the Structure Plan area, which has been located within the walking catchment of the City Centre railway station.

Primary schools are important elements of local community hubs, providing focal points for community activity. Ideally they should be co-located with local community centres and public open space and, in some cases, neighbourhood shops, to provide integrated local community precincts.

The Department of Education is very supportive of providing shared-use junior ovals on primary school sites. This opportunity should be pursued as an additional strategy for the provision of local active open space (as shown in **Figure 20**).

LOCAL COMMUNITY CENTRES

Three local community centres will be required to meet the future needs of the YBJV community for meeting and activity spaces. The preferred strategy is to provide the following types of facilities:

- One shop front community centre in the City Centre: a two storey facility on a 1,500 m^2 site; should include function rooms, meeting facilities and multipurpose spaces.
- One multipurpose community centre: co-located with a primary school in the north-eastern sector of the LSP area, on a 2,500 m^2 site. In terms of functionality, this facility should accommodate a range of community activities including social functions, fundraising activities, community group meetings, playgroups, children's activities, youth activities, support groups and seniors programs.
- One local community centre: a standalone facility on a 5,000 m^2 site, designed to accommodate senior citizens activities.

Local community centres are normally the responsibility of local government however in recent years developers have taken up the opportunity to contribute to capital costs through early provision agreements. Aside from the obvious benefits of shared costs, the early provision of well planned local community facilities assists in developing local social capital early in the formation of a new community.

OTHER LOCAL COMMUNITY FACILITIES

The research highlights the need for a number of other local community facilities. These include:

- 3 child care centre sites: located in community hubs close to primary schools and local community centres to enable parents to 'park once' when dropping off children.
- 1 child health centre: incorporated within the hospital/health centre site.
- 4 or 5 private health centre sites: located in community hubs.
- 1 church site: located within the City Centre.
- 1 employment service/job network provider: located in the City Centre.

5.4 STRUCTURE PLAN PRECINCTS

To aid description and administration, the project area has been divided into a number of precincts defined by a range of considerations, including physical characteristics; proposed land use character; key roads; and context within the LSP area. The Precincts are shown on **Figure 20**.

This section of the report provides an outline and guide for the kind of land use, built form character and building heights considered appropriate for each precinct. It is intended that this guiding information be followed and implemented in the detailed design stages of the project area. This should ensure that the vision and objectives set for Yanchep City during the structure planning process are carried through into the future.

The thirteen precincts are:

- CBD Precinct
- Health Precinct
- Education Precinct
- Sport and Recreation Precinct
- City Urban 1 Precinct
- City Urban 2 Precinct
- City Urban 3 Precinct
- City Urban 4 Precinct
- Employment Corridor
- Employment 1 Precinct
- Employment 2 Precinct
- Sun City West Precinct
- Golf Estate Precinct

The following sections establish the development character guidelines for each of these precincts, and these should be followed during preparation of the City Centre Local Structure Plan and by the relevant decision-making authorities when considering all future plans, subdivision and development applications within the structure plan area.

5.4.1 CBD PRECINCT

The CBD Precinct is the retail core of the Yanchep City Centre zone. It encompasses the major retail floorspace of the City Centre, and should be developed as mixed use with high density residential permitted. Also incorporated in this City Centre hub is the Yanchep City central public open space area, which has the potential to provide a vibrant and attractive urban park setting for city users and residents (see section 5.6.3 for a Central Park Concept Plan).

The CBD Precinct directly abuts the Yanchep City Rail Station in its south-eastern corner, and will be traversed by the fixed route public transport service, providing excellent access to transit for the CBDs residents and visitors.

Further information on the intentions for the CBD Precinct, as part of the City Centre zone, is provided in section 6.0.

5.4.2 HEALTH PRECINCT

The Health Precinct also forms part of the City Centre zone. This is proposed to be the location of Yanchep City's public and private hospitals, with adjoining medical uses and supporting commercial development.

Like the CBD Precinct, the Health Precinct is well located in relation to transit options, with the Yanchep City Rail Station at its south-western corner, where the southern terminus of the fixed route public transport system is also situated. The LSP has been designed to ensure this excellent access to public transport for hospital and medical users, visitors and employees, and this intent should be carried through in future detailed design of the Precinct.

Further information on the form and function of the health facilities is provided in section 6.1.3.

5.4.3 EDUCATION PRECINCT

The intention for the Yanchep City Centre is that it will incorporate a street-based cluster of education uses, which will include representation from a number of tertiary education providers, including Universities, TAFE, and potentially other services such as adult education facilities. These will be located predominantly in the LSP's Education Precinct.

The University, TAFE and other education uses are to be delivered in an integrated form along with the other City Centre uses. Each University building should be provided in traditional street form, with active, or at least interactive, street frontages. Efforts should be made to mix education uses with other City Centre uses such as retail, office and residential, both vertically within individual buildings and horizontally along street blocks. All elements of the education uses should co-exist with the remainder of the City, and opportunities to share both facilities and public realm spaces, such as university parks, with other City users should be pursued.

The University, TAFE and other education facilities have significant potential to exploit the natural synergies between themselves and other key players at Yanchep City, particularly the Hospital, health and wellness facilities, and the businesses located in Employment Precinct 2. This integration should be encouraged, and will be facilitated by promotion of spatial linkages as well as linkages between faculties and academic disciplines.

The Structure Plan vision for an integrated place, where interaction between residents, employees and students is encouraged through the joint provision of community facilities and services, will be key to the creation of the Education Precinct, and to the Sport and Recreation Precinct described below. Further discussion on this integration is provided in the Community Facilities Needs Assessment Report, provided at **Appendix D**.

5.4.4 SPORT AND RECREATION PRECINCT

The Sport and Recreation Precinct has the potential to incorporate a private sporting arena in a prime position close to the City Centre, building on the wellness philosophy of the wider Yanchep City project which aims to promote and provide cutting edge sporting, recreation, health and physical science facilities and technologies for the area.

The Precinct has been identified as the site for the potential arena development, as it would allow for an excellent transit supportive, mixed use, street based, arena development opportunity, incorporating iconic buildings that could take advantage of views out to the ocean, across the adjoining Golf Course, and into the nearby Yanchep National Park area.

The Precinct would also support high density mixed use development, either with or without an arena, should this be the optimum outcome at the time of detailed design.

5.4.5 CITY URBAN PRECINCTS

The four City Urban Precincts are those precincts immediately surrounding the Yanchep City Centre zone and employment areas, which should be developed for a mix of medium to high density residential uses; mixed use residential and commercial development; and business uses along the major movement corridors.

The business uses will vary in nature depending on their location, although they should all reflect the opportunities provided by their access to major transport routes with significant levels of passing traffic and exposure. Along Marmion Avenue, it is intended that the lots fronting this road are developed for car-based commercial and retail uses, complementing the finer grain retail and commercial uses that will be provided for in the City Centre. Equally, along Toreopango Avenue, which all four City Urban Precincts front onto, the intent is that the business zone would accommodate car based commercial development that relies on good exposure and easy vehicle access for employees and customers.

The nature of the residential development across the four Precincts will vary depending on proximity to public transport options and activity nodes. Densities will be highest in the walkable catchments of these facilities, and will decrease as distance to transit and activity nodes increases.

City Urban Precinct 3 has been identified as accommodating a public high school, the site for which has been strategically placed to allow synergies between the school oval and adjacent public open space, and to be close to the public transport route and the Yanchep City Rail Station.

5.4.6 EMPLOYMENT CORRIDOR

The Employment Corridor surrounds the fixed route public transport corridor, as it leaves the Yanchep City Centre and travels north to the northern extent of the LSP area (and ultimately on to Two Rocks Town Centre in the north of the wider Yanchep - Two Rocks Region). The transit system is intended to support a corridor of mixed use development, particularly of office and commercial uses, with a transition into medium to high density residential use on adjacent streets to take advantage of the access to good transit and employment opportunities.

5.4.7 EMPLOYMENT PRECINCT 1

Employment Precinct 1, in the northern part of the LSP area, is the more traditional service industry zone. In this area it is proposed that typical light industry, storage and warehousing uses will locate, given its proximity to the freeway interchange, and the precinct's detachment from other sensitive uses (particularly residential development) which might be incompatible with some of the light industrial uses that will locate there. The site is well located to accommodate the necessary traffic and transport requirements, and is close enough to the City Centre to allow good amenity and convenience for the Precinct's workers.

5.4.8 EMPLOYMENT PRECINCT 2

Employment Precinct 2, in the southern part of the LSP area, is intended to accommodate research and development, and clean technology uses, in a technology park type of environment, albeit with a finer grain, more street-based built form characteristic.

It is in this location that the research, technology and knowledge based businesses that it is intended to attract to Yanchep City will be located, particularly those in the following disciplines:

- Health Sciences and Biosciences;
- Environmental Sciences and Technology;
- Information and Telecommunications Technology;
- Clean/Renewable Technology; and
- Advanced Manufacturing (especially in these specialisations).

The land use permissibility for Employment Precinct 2 is intended to allow these types of industries to flourish, in an environment that provides a vibrant, street based, attractive place for people to work, with strong linkages north to the education and health precincts and the City Centre itself, and out to the adjoining high quality office development that it is hoped will locate in the Business zone around the intersection of Marmion Avenue and Yanchep Beach Road.

Built form guidelines and detailed planning will ensure that the intended high quality environment for the Precinct is created as development progresses.

5.4.9 SUN CITY WEST PRECINCT

The Sun City West Precinct is a predominantly residential precinct, the majority of which is capable of supporting medium to high density development, given its proximity to both the Yanchep City Centre Rail Station and the Yanchep South Rail Station. The northern and southern sections of the Precinct fall within the 800m walkable catchments of these Stations.

The remainder of the precinct should be developed at densities of ranging from R20 to R60, the minimum supported residential densities for the structure plan area.

The linkages between the Sun City West Precinct and the existing St Andrews Estate development to its east will be very important, and should be given significant attention during detailed design. The built form product at the interface of the areas will need to be designed sensitively to allow a good relationship between the two. The road and pedestrian movement linkages will also need to be designed with particular attention to the existing movement network.

The relationship and interface between future residential development and the rail line to the west, and the significant landscape linkage to the north, will also require special focus during future design phases.

5.4.10 GOLF ESTATE PRECINCT

The Golf Estate Precinct forms the remaining section of the LSP area. This, like the Sun City West Precinct, is a predominantly residential precinct, and will generally be developed to a density ranging from R20 to R60, as it is located furthest from the City Centre itself.

Given these lower densities, the potential exists for the detailed design of this Precinct to respond effectively to the particular landscape characteristics of the site, so ensuring site responsive design should be a priority as planning of the area moves forward.

In the southern portion of the Precinct, a mixed use activity node has been identified, at an appropriate location on the highly trafficked Yanchep Beach Road, close to the freeway interchange and performing an important role for the residential communities in this eastern portion of the plan area that are not otherwise served by any commercial or retail uses. This activity node is also closely linked to the Primary School that has been identified on an adjoining site.

Detailed design of the Golf Estate Precinct will face particular challenges in its response to interface with adjoining uses – the Golf Course to the west, and the Mitchell Freeway to the east. Dwellings will need to be designed to be sensitive to these uses, with environmental issues a priority abutting the golf course, and sound and visual barriers required where homes back onto the freeway.

5.5 STRUCTURE PLAN YIELDS

Precise lot yields will only be known as detailed design of the subject site progresses. For the purpose of determining approximate dwelling yield and therefore determining the facilities and infrastructure required for the Yanchep City LSP and City Centre LSP areas, a calculation of the Gross Subdivisible Area is provided in **Table 4** below.

TABLE 4: LAND USE SCHEDULE FOR CALCULATING DWELLING YIELD

Total Area of LSP (excluding City Centre Zone – 102.8238 ha)	**509.9898 ha**
DEDUCTIONS	
Business / Commercial	55.848 ha
Special Use – Yanchep Enterprise Park	36.7702 ha
Retail (Local Activity Centre)	0.5590 ha
Service Industry	31.8430 ha
Primary School Sites	8.1942 ha
Public High School	10.0612 ha
Private High School (K-12)	5.5692 ha
Railway Reserve (Above Ground)	6.5896 ha
Special Transit Boulevard	2.9998 ha
POS Drainage (1:1yr Storm Event)	3.8900 ha
10% Required POS Provision	34.5581 ha
Total Deductions	**196.8823 ha**
Net Subdivisible Area for calculating Dwelling Yield	**313.1075 ha**

* *The Centre Zone will be subject to the preparation of a separate structure plan which will require the rationalisation of POS provision concurrently with this Yanchep City Structure Plan. Public open space identified within the Centre Zone does not form part of the POS provision outlined in Section 5.6 below.*

Based on a net subdivisible area of 313.1075 hectares and an average development potential of 20 dwellings per hectare, it is estimated that the Yanchep City Structure Plan area could yield in the order of approximately 6,262 dwellings.

On the basis that the City Centre Zone, whilst treated as a deduction for the purposes of Public Open Space calculation, will ultimately contain approximately 3,000 residential dwellings amongst the other uses, a total yield of approximately 9,000 dwellings for the two LSP areas is considered realistic.

5.6 PUBLIC DOMAIN

5.6.1 PUBLIC DOMAIN THEMING

The inspiration for Yanchep City's Public Domain Theming will derive from the existing site character and environs. **Figures 21-24** provide illustrations of the key elements, which are described in the following sections:

- The strongly coastal influence to the west of the site;
- The close proximity of the Yanchep National Park and Bush Forever Site to the east and north of the site;
- The diverse vegetation communities on the site; and
- The sands and limestone underlying the site.

Plant species endemic to the site will inspire both the planting palette for the development and may also provide the inspiration for artworks and other motifs.

The proposed landscape character will reflect the coastal location, with the use of materials and colours complementary to the area. These may include:

- Predominantly off-whites or creams in paved areas, possibly with exposed aggregate and shell grit in key areas;
- Limestone, rammed limestone and/or gabion feature walls;
- Galvanised steel and timber; and
- The use of predominantly endemic or native plant species. Limited use of exotic species is proposed in key areas for amenity and/or effect.

These elements will be combined in a contemporary style to reflect a modern, sophisticated, timeless look, appropriate to the intended regional centre status of this development.

5.6.2 LANDSCAPE VISION

The vision for the Yanchep LSP is to create a development with a strong sense of place and identity that is compatible with both its coastal location and its encapsulation of a major regional centre. The incorporation of sustainable design principles is an over-riding objective, with tree and vegetation retention in several major public open spaces a key priority wherever possible.

The creation of useful open space that fulfils several functions is a key objective; these functions include the following;

- Establishes significant green-link corridors incorporating retention of landform, vegetation and habitat, and promoting walkability;
- Provides a showcase for a variety of environmental features and practices to assist in community education and foster a sense of community pride, ownership and responsibility for the local environment; and
- Provides a diversity of visual and recreational opportunities and experiences.

An overall approach in the open space design will be to minimise areas of irrigated grass and to retain extensive areas of coastal heath and bushland. Grassed spaces will be incorporated into key nodes to enable a diversity of passive and active recreational activity to occur.

The design for the open spaces and public realm within the City Centre will establish a high quality and well detailed public environment in recognition of the increased density of development. An interesting and vibrant public realm will be established through the creative use of materials, colours, landscaping, detail design and public artworks, with a special sense of arrival created at major entry points into the City Centre. The open space design will be dominated by hard landscape elements to create a series of flexible civic and urban spaces able to accommodate high levels of pedestrian use associated with a transit orientated development.

5.6.3 PUBLIC OPEN SPACE ELEMENTS

The proposed Structure Plan incorporates a variety of public open spaces (see **Figure 25**), both large and small that will provide a diversity of recreational experiences and opportunities. The layout of the open spaces and their connection via a legible street network will facilitate a very "walkable" environment that will be further reinforced through the design of the open spaces. The key open space elements of the LSP, and the Landscape Concepts that have driven their design, are as follows.

5.6.3.1 WEST-EAST GREEN SPINE

The retention of the major west-east ridgeline formation and its associated coastal vegetation as an open space corridor will be a significant natural feature of the site and will contribute strongly to the coastal "sense of place," with the vegetation clad ridge breaking, softening and containing the built form. The ridgeline serves as a natural landmark and point of orientation within the area, offering panoramic 360º views over the surrounding area, including good views to the ocean.

A walking trail with logical links to the adjacent street network and other parks is proposed through the green spine to encourage passive use and appreciation of this unique natural resource (**see Figure 26**). Destination points will be provided along the route, such as seating areas, picnic areas and viewing decks, with public art and interpretive signage (highlighting environmental and cultural values) adding another level of interest and meaning. The green spine provides a key connection between Yanchep National Park to the east, and the ocean to the west of the YBJV LSP site.

5.6.3.2 ACTIVE OPEN SPACES

The LSP identifies the need for local active open space to accommodate sports training and competition fixtures for both adult and junior sport. The main park designed for this purpose has been located at the intersection of Marmion Avenue and Yanchep City's main north-south boulevard. This will create an impressive green entry statement for the City Centre, with the significant Aboriginal Heritage site (described below) visible at the crest of the park's ridgeline.

The space has been designed as a shared-use active open space for football (Australian Rules), cricket and soccer, that can accommodate two full-sized ovals. The active space of the main park will be levelled to provide a flat playing space.

This active sports facility could be jointly provided through a partnership between the university and the City of Wanneroo to cater for both university and community sports. Additional on-site amenities that will be required include a combined club and change room facility, floodlighting and parking for up to 120 cars. The facility has been co-located with the district aquatic and recreation centre, and it will be well-served by public transport.

In addition to the shared-use active open space, a shared-use senior sports oval should be provided adjacent to the high school site in the north of the LSP area and the south-eastern primary school site. Shared-use junior ovals should be provided adjacent to the other primary school sites.

Consideration should also be given to developing shared-use hard-courts with the university in the Yanchep City Centre. These courts could be co-located with the district aquatic and recreation centre and local active open space, contributing to the creation of a physical activity hub within the City Centre.

In addition there is a need to provide sports courts to cater for informal/casual use. The preferred option is to negotiate community use of future primary and high school courts.

5.6.3.3 ABORIGINAL HERITAGE SITE

To the north of the main active open space park is an Aboriginal archaeological site, located at the western end of the green spine ridgeline. This site contains two avenues of Tuart trees which provide vertical relief and a landmark element within the LSP area. A viewing deck is proposed in close proximity to the archaeological site to provide a desirable destination point for residents and visitors, while controlling pedestrian access around the site area. The site itself is proposed to be revegetated with indigenous species and protected by secure dog-proof fencing.

An Aboriginal Heritage Management Plan has been prepared as part of the LSP process (at **Appendix B**), and should be followed through in the detailed design and implementation phase.

5.6.3.4 LARGE PARKS - LANDFORM AND VEGETATION RETENTION

The larger parks have been located in areas of good quality landform and/or vegetation worthy of retention, and they have been included on the Part 1 Structure Plan given the importance of protecting these landform and/or vegetation features.

These parks will include both passive and semi-active recreation facilities, and an extensive dual use and cycle path network containing interpretation and information signs (see **Figure 27**). The existing vegetation and/or landform is to be enhanced with additional indigenous and native planting. Amenities will include paths, seating areas and possibly play facilities. Hard and soft landscape works within the larger parks are proposed to be sensitive to the existing environment and minimise impact on the key characteristics to be retained.

5.6.3.5 TOWN AND NEIGHBOURHOOD PARKS (PASSIVE OPEN SPACES)

A wide variety of quality public open spaces should be provided throughout the LSP area. The function and design of parks should complement the surrounding land use (i.e. children's play parks and kick about spaces in medium density residential areas; BBQ and picnic parks in high density residential areas; public gardens, urban civic spaces and public art within the business district; event spaces and public squares in retail areas). Depending on their purpose, these local parks should vary in size and be connected by walking and cycle paths.

The Masterplan at **Figure 20** identifies a wide distribution of numerous smaller parks, ensuring open space amenity is readily available to all residents. It is intended that as Detailed Area Planning and subdivision design progresses, local parks equivalent to those indicated on the Masterplan should be provided to meet the required 10% public open space provision, in addition to the significant open spaces identified on the Part 1 Structure Plan.

These parks will provide more intimate spaces for passive recreation and will possibly incorporate play facilities and open lawn areas for semi-active recreation (see **Figure 28**). Dual use and cycle path networks will ensure these parks are readily connected to the larger open space areas within the LSP. Stormwater drainage is to be treated in a positive manner and incorporated into naturalistic drainage systems.

The provision of youth spaces should also be considered. Given the high number of students expected within the City Centre, there is a need for informal areas to be designed into the civic spaces where young people can sit and chat, meet with friends, skate, eat and contemplate.

5.6.3.6 LINEAR PARKS & PUBLIC ACCESS WAYS

There are numerous linear parks and public access ways identified on the Masterplan that will provide intimate pocket parks and facilitate pedestrian and cycle linkages through the development. These spaces are key to creating a safe walkable community supported by the train network, local and regional bus routes, and should be included in Detailed Area Plans and subdivision design.

5.6.3.7 MAJOR BOULEVARDS

The major north-south and east-west streets will be developed as tree-lined boulevards, signifying their importance in the road hierarchy and also promoting their use as the primary pedestrian and cycle routes through the development. The network of boulevards combined with the open space linkages will provide a diversity of legible and attractive walking and cycle circuits within the development.

5.6.3.8 CITY CENTRE - CIVIC SPACES, TOWN SQUARES AND URBAN PARKS

During preparation of the City Centre Local Structure Plan several smaller parks adjacent retail, commercial and community/education facilities should be identified to be developed with a more urban feel, incorporating paved seating areas, shade and possibly public art, and facilitating pedestrian connections to parking areas and shops. The design of these spaces will focus on connectivity and linkages including pedestrian and public transport, and social sustainability in the form of community space and gathering areas, and their treatment will be more formal to reflect their urban context.

5.6.3.9 CITY CENTRE - CENTRAL PARK

The Central Park identified on the Masterplan is located at the heart of the City Centre, providing a strong recreational and visual focus. This Central Park should be included in the City Centre Local Structure Plan when it is prepared.

It has been strategically located on the main north-south road so that its visual prominence is reinforced. It is also physically connected to the light rail transit network, as well as the west-east chain of linear open space, forming an important and integral part of the primary open space network. Additionally, its location has been driven by a stand of significant Tuart trees in the northern half of the space which have been identified for retention.

The design philosophy for the Central Park focuses on developing a multi-functional, vibrant and active social hub to the heart of the City Centre (see **Figure 29**). This park will be a natural focal point with a more protected setting and north-facing landscaped areas. As the primary park, it will have a high level of treatment, including large open lawn areas for community events, informal active recreation, shaded seating and picnic areas and an extensive path network. This park incorporates the existing Tuart trees and retention of good quality indigenous vegetation in key locations. Artwork and interpretive signage will be used to explain the site history, with a structured water feature facilitating stormwater treatment and storage as well as providing a focal element and visual amenity.

5.6.4 PUBLIC OPEN SPACE CONTRIBUTION

As discussed in Section 5.5.3.5, WAPC policy requires a standard minimum of 10% of the gross subdivisible area be provided for public open space in residential developments.

The Masterplan at **Figure 20** identifies the provision of approximately 60 hectares of public open space throughout the subject land as outlined in **Table 5** below. With indicative drainage areas deducted where they intrude into the public open space (but not deducted from the developable land area) this still accounts for a POS provision of 13.44%, leaving significant scope for the detailed design process to result in the required 10% provision being exceeded.

TABLE 5: POS PROVISION (TOTAL LSP AREA)

Total Area of LSP (excluding City Centre Zone – 102.8238 ha)	509.9898 ha
DEDUCTIONS	
Business / Commercial	57.9328 ha
Special Use – Yanchep Enterprise Park	36.7702 ha
Retail (Local Activity Centre)	0.5590 ha
Service Industry	31.8430 ha
Primary Schools	8.1942 ha
Public High School	10.0612 ha
Private High School (K-12)	5.5692 ha
Railway Reserve (Above Ground)	6.5896 ha
Special Transit Boulevard	2.9998 ha
POS Drainage (1:1yr Storm Event)	3.8900 ha
Surplus Restricted POS (Not credited in excess of 2%)	16.1763 ha
Total Deductions	**178.5005 ha**
Net Subdivisible Area	**331.4893 ha**
Required Public Open Space (10%)	**33.1489 ha**
Unrestricted POS – minimum 80%	26.5191 ha
Restricted POS – maximum 20%	6.6298 ha
PUBLIC OPEN SPACE PROVISION	
Unrestricted Public Open Space	
Neighbourhood and Town Parks	34.1381 ha

Town Squares and Civic Parks	3.5785 ha
Community Purpose Site	0.2500 ha
Total Unrestricted Public Open Space	**37.9666 ha**
Restricted Open Space	
POS Drainage (1:5y Storm Event)	2.1300 ha
Landform and Vegetation Retention POS (Credited)	4.4581 ha
Total Credited Restricted Public Open Space	**6.5881 ha**
Total Credited Public Open Space	**44.5547 ha**
Percentage of Credited Public Open Space Provided (Unrestricted and Restricted POS Contribution)	**13.44 %**

Note: Whilst the Structure Plan shows POS as detailed above, the use and purpose of each POS area is subject to further detailed design and discussion with the City of Wanneroo, and the intention is to refine and review POS provision throughout the detailed design phase. The POS calculation will be monitored as detailed design progresses and as non-residential land uses are established, to ensure compliance with the WAPC's 10% provision requirement.

WAPC Liveable Neighbourhoods Policy requires the provision of a variety of different forms of public parkland across a structure plan area, ranging from local parks of up to 3,000 m^2, to district parks of 2.5-4.0 ha, each performing different functions and providing a balance between conservation and active and passive recreational uses.

The Yanchep City Masterplan, in accordance with these guidelines and the more detailed policy provisions relating to the different parkland forms, provides a range of different sized open spaces, each performing different functions and each well located to allow good access to parks from all future residents of the structure plan area.

As previously noted, the Part 1 Structure Plan identifies only those public open spaces that are most significant in terms of their landform or vegetation retention value. It is considered vital that these spaces be provided at the locations shown on the statutory Structure Plan. It is, however, acknowledged that additional public open space will be required across the LSP area in order to meet the 10% requirement, and it is intended that these additional spaces be provided at Detailed Area Planning and subdivision design stage in locations similar (but not necessarily identical) to those shown on the Masterplan.

5.6.5 PUBLIC ART

Public art will be an important and integral component of the landscape design within this development. Artworks will provide numerous benefits to the community, including the following:

- Enrich the built environment;
- Contribute to the creation of a local identity;
- Develop community pride;
- Interpret and express in a creative way the unique characteristics of this area (including natural, cultural and social characteristics);
- Provide landmarks as points of reference and orientation; and
- Contribute to the safety of a place and reduce vandalism.

A public art strategy and program will be developed to ensure the implementation of meaningful and relevant artworks throughout the development. Opportunities will be explored to involve local artists in specific projects.

5.7 MOVEMENT NETWORK

5.7.1 ROAD NETWORK

A detailed road network report has been prepared to support this report, incorporating road traffic modelling and analysis and discussion of road network form, function and hierarchy.

5.7.2 PUBLIC TRANSPORT

The focus on public transport within the Yanchep City area is the rail station in the heart of the City Centre and the public transport interchange facilitating transfer between rail, future light rail and feeder bus systems.

Both the rail and bus based public transport systems have been discussed with the Public Transport Authority. The proposed rail alignment and station locations, and the proposed bus routes within the Yanchep City LSP and future City Centre LSP areas are shown in **Figure 30**. More detail on public transport routes and stations/stops within the City Centre is provided in section 6.4.

5.7.2.1 REGIONAL RAIL

The proposed rail alignment and station locations accord with the alignment proposed by GHD (and endorsed by the PTA), as far north as the Yanchep City Centre. To the north of the City Centre station, the rail alignment is proposed to link up with the Mitchell Freeway Reserve. In December 2010 the rail alignment through the LSP area and north to the Freeway Reserve was endorsed by the PTA following a balanced consideration of town planning, transport and environmental issues..

The proposed rail reserve through the Yanchep LSP area and northwards to link up with Mitchell Freeway Reserve, adopts the indicative alignment endorsed by the approved Yanchep-Two Rocks District Structure Plan (DSP) including the location of the City Centre Rail Station strategically located within the City Centre Area. The rail alignment north of the LSP area adopts the notional alignment reflected by the DSP acknowledging that the DSP was adopted by the Western Australian Planning Commission on the basis that "*the alignment of the railway reserve passing through the 'Parks and Recreation' reserve to the north of the Yanchep City Centre'* was *'indicative only and requiring further detailed route alignment and environmental assessments*".

In line with the directive of the DSP, in February 2011 PGV Environmental undertook the preparation of an environmental assessment of the agreed rail alignment where it impacted upon the Bush Forever Site 288 to the north of the LSP area. The environmental assessment report documents the results of the fauna and spring flora survey undertaken by Coffey Environments in 2007 and assesses the impact of the variable width of the proposed MRS railways reservation. In summary, the results of the assessment conclude that:

- The proposed alignment clears the least amount of native vegetation possible when comparing any alternative alignment north of Reserve R9868;

- The vegetation within portion of the Bush Forever site potentially affected by the proposed rail alignment is predominantly mapped as *Melaleuca systena*, planted Tuarts, cleared areas and *Banksia attenuate* Low Open Forest. While *Banksia* woodland in the area is known to be foraging habitat for Carnaby's Black Cockatoo, the clearing is less than the 1ha threshold that the Commonwealth Department of Sustainability, Environment, Water, Populations and Communities consider to be a significant impact. The clearing, therefore, is determined to not have a significant impact on Carnaby's Black Cockatoos;
- No declared Rare or Priority flora species were recorded; and
- In regard to Graceful Sun Moth (GSM) habitat, portion of Bush Forever Site 288 contains a parabolic dune system on which the GSM are known to occur. The presence or absence of GSM in the dunes of the Bush Forever site north of Reserve R9868 (water block), will be determined during the rail construction phase, with the impact of the rail having to be assessed if GSM were to be found.

The Department of Planning has advised that in relation to the *Environmental Protection and Biodiversity Conservation Act 1999*, the proponent of the construction of the railway (the Public Transport Authority) will be required to comply with the requirements of the EPBC Act. In this regard, this includes undertaking any environmental studies relating to the presence of the Graceful Sun Moth if required.

It is proposed that the railway pass under Yanchep Beach Road at the southern boundary of the structure plan area and remain in cut until the approach to the City Centre.

Through the City Centre, it is proposed the railway be approximately 7 metres below the adjacent ground surface between vertical retaining walls. This will ensure the railway can be bridged or covered as a cut-and-cover tunnel, where economically feasible and beneficial. A notional cross section of the railway at the City Centre rail station and transit interchange is shown in **Figure 31**. Further discussion on the City Centre transit interchange is provided in section 6.4.

STATION LOCATION

During assessment of the City Centre movement network, it was recognised that the location of the City Centre rail station proposed under the DSP would not result in the most convenient and walkable outcome for the rail users, and City Centre visitors and residents. The Station is considered to be located too far south, on the south-eastern corner of the City, rather than central to both the main retail and business zone, and easily accessible to those uses that will rely most on public transport, including the Hospital, University and TAFE.

It is considered that the Rail Station would be better located further north than its location under the DSP, in order to improve useability of the rail and improve the functioning of the City Centre.

5.7.2.2 LIGHT RAIL OR RAPID BUS

Provision has been made in the LSP for light rail, streetcar or rapid bus[1]. The light rail route is proposed to be located in the centre of the transit boulevard that links the northern town centre (Two Rocks) with the Yanchep City Centre, as outlined in the Yanchep - Two Rocks DSP.

[1] In the following discussion, the term 'light rail' is used generically for light rail, streetcar or rapid bus

The route of the light rail through the City Centre is shown on **Figure 30**. The light rail will interchange with regional rail and buses at the Yanchep City Centre rail station. The location of the light rail station relative to the regional rail platforms and the bus interchange is shown in **Figure 31**.

Street widths within the City Centre have been planned and designed to provide dedicated space for light rail along the route. It is proposed that public transport (light rail and buses) will have exclusive use of this dedicated space, providing a high quality priority public transport system. Further detail on the public transport streets within the City Centre is discussed in section 6.4.

5.7.2.3 FEEDER BUSES

Discussions have been held with the Public Transport Authority on the feeder bus routes within the LSP area. They are generally in accordance with the proposed bus routes in the DSP.

Eight separate bus routes (in addition to the light rail route) are proposed to terminate at the City Centre Bus/Rail interchange. Half of these routes link through the LSP area to the Yanchep Beach Road rail station.

A bus station is proposed to be located immediately to the east of the rail station, providing easy interchange with both regional and light rail (refer **Figure 31**). The bus station has been designed with a capacity of ten loading/unloading/layover platforms. An indicative layout is shown in **Figure 32**.

5.7.3 PARKING

It is proposed that kerbside parking be provided on both sides of most streets within the LSP area – local streets, neighbourhood connectors, City Centre streets, and District Distributor B roads - in accordance with the guidelines provided in the DSP. Kerbside parking would not be permitted on District Distributor A roads.

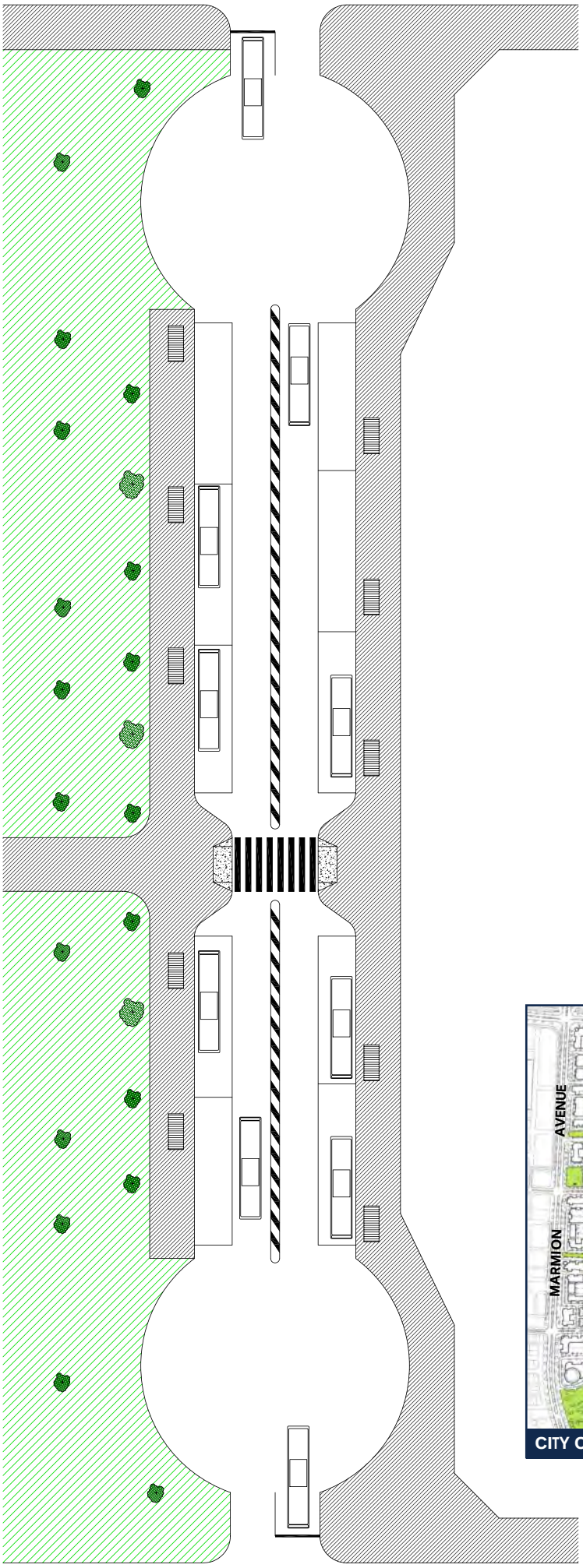
The amount of off street parking required for residential, commercial, retail and other uses will be determined at the development approval stage. However, it is appropriate to discuss the City Centre parking strategy and the park and ride parking framework in the LSP. This discussion is included in section 6.3.

5.7.3.1 PARK AND RIDE

It is proposed that a significant amount of park and ride parking be provided at the station to the north and south of the City Centre. Based on discussions with the Public Transport Authority, 700 park and ride bays have been proposed at the Yanchep Beach Road station and 1,000 bays at the northern station.

In the very long term, it would be desirable that no specified park and ride bays be provided at the City Centre station. Access to this station would be via an excellent light rail and bus feeder system and 1000 park and ride bays would exist at the northern town centre station.

In the shorter term, and particularly before the railway is extended to the northern town centre station, park and ride bays will be required to cater for the Yanchep City Centre station. The District Structure Plan has specified that about 700 park and ride bays be provided.



CITY CENTRE PRECINCT LOCATION PLAN NTS

YANCHEP CITY STUCTURE PLAN

BUS STATION INTERCHANGE PLAN

figure 32

client - Yanchep Beach Joint Venture
date - July 2009
source - Sinclaire Knight Merz

It is proposed that a 2 ha site be made available for interim use as park and ride close to the City Centre station. This would provide for up to 1,000 parking bays. A possible location would be on land set aside for future hospital development. This land is not immediately adjacent to the station, but is close enough to provide good accessibility to the station, whilst allowing opportunities for transit oriented development in the immediate station precinct. It is unlikely that the hospital precinct site would be fully required in the short to medium term. Thus there would be potential for City Centre park and ride to remain for many years – until the feeder public transport system is well developed and until the railway has been extended to the northern park and ride station.

5.7.4 PEDESTRIANS AND CYCLISTS

The Structure plan's path network is shown in **Figure 33**, and the pedestrian and cyclist movement strategy is described below.

5.7.4.1 PEDESTRIANS

Walking is a very important means of access within the LSP area. The district structure planning estimated that 17% of all trips within Yanchep City will be walking trips. Because the City Centre is within the LSP area, the percentage of walking trips is likely to be considerably higher in this area. Walking is also an important part of most public transport trips.

Within the City Centre, walking will be the dominant mode of transport. The City Centre street network will be designed to reflect the importance of walking. Key features of the City Centre design will be:

- broad/wide footpaths with shade trees;
- footpaths generally separated from moving traffic by parked cars;
- signalised intersections with short signal phases to reduce pedestrian waiting time; and
- all paths will be designed to universal access standards for safe movement for people with disabilities.

Outside of the City Centre, footpaths will be provided on both sides of most streets. Exceptions where a footpath may only be provided on one side are short, poorly connected sections of street, with very low traffic volumes. Footpaths will be a minimum width of 1.5 metres. In the vicinity of schools, shops or community facilities, the minimum footpath width will be 2.0 metres.

Where shared use is permitted with cyclists, the minimum width of paths will be 2.5 metres. Principal Shared Paths will have a minimum width of 3.0 metres and major recreational shared paths a minimum width of 3.5 metres.

5.7.4.2 CYCLING

It is envisaged that cycling will continue to become a more popular mode of transport in the future. The following factors are likely to encourage people to cycle more:

- growing awareness and importance of health and fitness;
- affordability issues relating to driving and parking, with petrol prices likely to continue to rise; and
- increased desire by individuals to contribute to reduced greenhouse gases.

The District Structure Plan notes that cycling could increase to 6% of all trips within Yanchep City in the future.

A major feature of street planning within the LSP area is that all local and district distributor roads outside of the City Centre will have on street cycle lanes. The higher volume district distributor roads will have 1.5 metre wide cycle lanes. Neighbourhood connector road cycle lanes will generally be 1.2 metres wide.

In addition, there will be shared use paths along both sides of district distributor roads and along one side of neighbourhood connector roads to provide safe movement for less experienced cyclists, including children.

In the City Centre, it is generally not appropriate to mix pedestrians with cyclists on busy footpaths in retail and mixed use areas. Consequently, shared use paths will not be provided on most City Centre streets.

Most City Centre streets have been designed to provide for only one lane of traffic in each direction. Where street parking is provided, it is proposed that wide traffic lanes of about 4.25 metres be provided adjacent to 2.5 metre parking lanes to enable cars to safely pass cyclists at low speeds.

5.8 ENVIRONMENTAL IMPLICATIONS

5.8.1 LOCAL WATER MANAGEMENT STRATEGY

A Local Water Management Strategy (LWMS) was prepared to support the Yanchep City Structure Plan in accordance with the environmental conditions of the TPS Amendment No 787 and was endorsed by the Department of Water on 19 March 2011 and the City of Wanneroo on the 13 March 2011. The principle objective of the LWMS is to maintain site water balance and protect groundwater quality within the Structure Plan area.

5.8.1.1 STORMWATER COLLECTION AND CONVEYANCE

Stormwater drainage from roads and other public facilities will be collected via a combination of gully and side entry pits and conveyed via underground pipes and surface swales located within road medians and verges. This system will be designed to accommodate up to 1 in 5 year annual recurrence interval (ARI) storm events.

Stormwater runoff from less frequent storm events up to 1 in 100 year ARI will generally be accommodated via swales and infiltration basins within open space areas. The top water levels of the swales will be designed to ensure that buildings are higher than the 1 in 100 year event and remain flood free.

Runoff from building roofs and paved areas within private lots will be contained and infiltrated within lots via soak wells and infiltration sumps.

In all cases, the hydrology and hydraulic design of the drainage collection and conveyance system would be in accordance with the standards and specifications of the City of Wanneroo.

5.8.1.2 STORMWATER DISPOSAL

A water sensitive urban design (WSUD) approach will be adopted to maximise local recharge of the groundwater aquifer. In general, this approach will be based on the current water sensitive design guidelines, principles and objectives of the Department of Water for urban stormwater management including the storage of runoff in infiltration sites.

In general, infiltration sites will comprise a combination of landscaped basins and swales as incorporated into areas of POS as well as progressive infiltration throughout the drainage network. The location of these infiltration sites will be strategically dispersed throughout the development to maximise groundwater recharge at point of capture within stormwater catchments.

Within the City Centre area, the use of 'no-flow' piped systems and below ground infiltration systems such as StormTech are proposed to minimise the land take and to provide a drainage system sensitive to the amenity of the land use zoning.

The LSP area is generally free draining and the depth of the water table will not be a constraint to the infiltration of the storm water. Nutrient loads in the stormwater drainage runoff would be naturally filtered through the sandy soils prior to recharge into the aquifer. It is not, at this stage, considered necessary to incorporate surface nutrient stripping facilities.

5.8.1.3 STORMWATER MAINTENANCE

The stormwater management system will require regular maintenance to ensure efficient operation. The design and construction of the system is with regard to the minimisation of ongoing maintenance of bio-infiltration areas to be undertaken by the City of Wanneroo. Features of the system design and construction include:

- Design of the collection and conveyance system with bio-infiltration mechanisms (plantings and micro-organism);
- Incorporation of silt and gross pollutant traps upstream of outlets to open basins and swales; and
- Suitable plantings that require minimal maintenance of bio-infiltration areas.

In all cases, infiltration facilities will be designed to suit the particular conditions which exist at each storage site. Geotechnical investigations will be necessary to determine the nature of engineering works required, long term infiltration characteristics of soils and the levels and seasonal variations of the underlying groundwater table.

5.8.1.4 NUTRIENT MANAGEMENT

The LSP area does not contain any surface water bodies, and as such, nutrient management is restricted to the protection of groundwater quality. Nutrient management within the LSP area will be focused on source control mechanisms. Source control involves the minimising the generation of excessive runoff and/or pollution of stormwater at or near its source. Source control techniques can be categorised into either structural, or non-structural, as discussed below. The detailed drainage designs to be submitted at the subdivision stage of development will finalise the various structural and non-structural measures to be implemented to reduce nutrient loadings throughout the LSP area.

Non-structural techniques are preventative measures that aim to reduce the amount of pollutants that enter stormwater systems. They can include community education, council management activities, operations and maintenance activities and land use and site planning. Non-structural source control within the LSP area will include the following:

- Landscape treatments in POS areas will incorporate native plantings where practicable with low nutrient and water requirements. Areas of garden beds adjacent to remnant bushland areas will be trickle irrigated to prevent overspray.

- Fertiliser application and irrigation of turfed areas will be kept to the minimum required for healthy growth. Regular mowing of grassed areas, and the removal of cuttings from the site, will assist the removal of nutrients.

- Regular maintenance of stormwater and drainage infrastructure, as well as street sweeping programs will result in a reduction in the levels of nutrients entering the stormwater system, and minimise the volumes of sediments, heavy metals and hydrocarbons entering the system.

- Source control addressing residential gardening and fertilising practices through community education, has been identified as a very cost-effective and potentially significant means of addressing stormwater quality and will be encouraged as the development progresses.

Structural source controls aim to reduce the quantity and/or improve the quality of stormwater at or near its source, commonly through filtration and detention. These controls include swales, buffer strips, infiltration basins, below ground infiltration systems and trenches for quantity control, and small stormwater treatment measures such as stormwater pit gross pollutant traps for quality control.

The preliminary drainage design proposes a variety of infiltration basins, below ground infiltration systems and swales for water detention and infiltration. The detailed drainage designs to be developed at subdivision stage will finalise the design and function of primary stormwater storage sites and drainage catchments within the LSP area.

Residential development within the LSP area will be connected to deep sewerage.

5.8.1.5 WATER MANAGEMENT

The Yanchep area is currently serviced by the Water Corporation's local groundwater supply system, comprising bores and distribution water mains located on Lots 102, 103, 301 and 310, together with further bores, collector and distributor water mains, storage tanks and a chlorination treatment plant located within the Regional Open Space (ROS) south of Yanchep Beach Road. There are no existing water supply facilities located within the LSP area.

Past investigations by the Water Corporation have confirmed the capacity of the local groundwater aquifer, to supply future urban development. The security of future supply will also be assured via a connection of the local system to the Corporation's proposed Barragoon borefield, located north-east of Two Rocks.

Groundwater bores installed to upgrade the capacity of the existing water supply system will ultimately become a part of the longer term permanent scheme, planned and located by the Water Corporation.

5.8.2 VEGETATION AND FAUNA MANAGEMENT STRATEGY

A Vegetation and Fauna Management Strategy was prepared in accordance with TPS Amendment 787 and has been endorsed by the City of Wanneroo on 15 July 2011. The following sections contain information and principles that have been incorporated into the Vegetation and Fauna Management Stategy. Detailed Flora and Fauna Assessment Reports are provided at **Appendix F** and the endorsed Vegetation and Fauna Management Strategy is provided at **Appendix G**..

5.8.2.1 RETENTION OF VEGETATION WITHIN OPEN SPACE

The LSP contains a number of POS areas, the most significant of which are designated within the Part 1 Structure Plan, and which have been located strategically to protect significant vegetation and landform on the site. Wherever appropriate, and particularly in these significant POS areas, native vegetation and stands of trees will be retained in POS. As outlined in Section 5.5, the POS areas will be designed for active and passive recreation for the community. Given the high density nature of the development, in some instances there may be limited opportunity to retain intact vegetation due to the requirement for the provision of grassed areas and associated subdivision earthworks.

Where drainage functions will be incorporated into POS areas, consideration will be given to infrastructure design to maximize the retention of native vegetation where possible.

Pre-construction activities to be implemented prior to any clearing being undertaken within the LSP area will include:

- Identify appropriate plants for relocation prior to earthworks;
- Implementing a fauna trapping and relocation program prior to the clearing of native vegetation; and
- Implementing measures to protect native vegetation to be retained and effectively manage native vegetation to be cleared during construction activities.

5.8.2.2 PLANT RELOCATION

The collection of grass trees (*Xanthorrhoea preissii)* and zamia palms (*Macrozamia riedlei*) will be undertaken prior to clearing in areas where significant numbers of these species exist.

This will contribute positively to on-going biodiversity within the study area and further ensure the retention of local indigenous species.

5.8.2.3 FAUNA TRAPPING AND RELOCATION PROGRAM

A fauna trapping program will be undertaken prior to the commencement of development activities. The program will be undertaken in two stages with the first stage conducted in spring to target selected species of mammals and the second stage undertaken directly prior to clearing to target reptiles and amphibians. All trapping will be conducted in accordance with DEC requirements

5.8.2.4 CLEARING OF VEGETATION

The location and limit of clearing of vegetation within all work areas will be clearly identified on site and delineated on appropriate plans. These will be supplied to contractors and personnel prior to commencement of works.

The work areas will include:

- Road carriage way widths plus adjacent service corridors;
- Service corridors away from roads;
- Areas of bulk earthworks; and
- The construction operations area.

Where necessary, a temporary standard of fencing will be installed around areas of POS to prevent unauthorised entry and degradation during earthworks.

Cleared native vegetation will be used to generate chipped mulch material. This will be used in areas requiring stabilisation and rehabilitation. Mulching of cleared native vegetation will be conducted as a concurrent operation with clearing works and the mulched material will be stockpiled close to the source of mulch for reuse within the immediate proximity, where appropriate.

The Site Engineer will require contractors and nominated subcontractors to adhere to the following clearing procedures within the development area:

GENERAL:

- Native vegetation to be cleared will be removed in a systematic manner and stockpiled for mulching and/or chipping for later use in rehabilitation and landscaping works.
- The stockpiling of cleared vegetation of a poor quality will be separate to that of good quality to minimise the spread of weeds into conservation areas. Only vegetation of good quality will be used for mulch and rehabilitation.
- Stockpile larger logs that may be suitable for rehabilitation works, site stabilisation and access control and deliver to rehabilitation stockpiles.
- Cleared areas will be temporarily stabilised with water or hydro-mulch or other stabilising material until final use can be implemented.
- No burning of cleared vegetation will be permitted during any stage of construction.

BEFORE WORKS COMMENCE:

- Engineers and/or surveyors to check and validate all survey markings and pegs.
- Contractor to install temporary fence (or cordon off with visible pickets and marker tape) to keep earthmoving equipment out of vegetated areas that are to be retained.
- Identify significant trees with additional marker tape or signage, providing a 2m buffer.
- Site supervisor and engineer to walk site with equipment operators to explain the procedure, clarify any queries and the scope of work, highlight areas of significance, discuss the methods to be employed and provide contact details for any further queries.

DURING WORKS:

- Daily inspection of temporary fencing and marker tape to ensure protective barriers are maintained.
- Regular meetings with operators to raise awareness of environmental issues and desired outcomes.
- Equipment operators to be held personally responsible for removal of vegetation that is not part of the prescribed earthworks plan.

The procedures detailed above are intended to guide site works. Any specific changes to the procedures will be communicated to the City of Wanneroo as required.

5.8.2.5 BLACK COCKATOO HABITAT

The central LSP area contains areas of vegetation that includes feeding habitat for Carnaby's Black Cockatoo which is listed under the *EPBC Act 1999*. However, the Minister for the Environment's approval of TPS Amendment 787, which zoned the land 'Urban Development' under the Local Planning Scheme, is dated 15 February 2000, and the *EPBC Act 1999* states that an action does not require assessment or approval under the *Act* if it had been approved before 16 July 2000 and therefore no further environmental authorisation is necessary to allow the proposed development to be undertaken lawfully.

5.8.3 ABORIGINAL HERITAGE MANAGEMENT PLAN

In accordance with the requirements of TPS Amendment 787 an Aboriginal Heritage Management Plan has been prepared for the LSP area (see **Appendix B**). A summary of management recommendations is given below:

- It is recommended that DIA Site ID 3394 Yanchep Beach be retained and enhanced to the greatest extent possible.
- Where it is not practicable to retain the site in its entirety, the proponent should apply for permission to use the land upon which the site is located in accordance with Section 18 of the *Aboriginal Heritage Act 1972* (AHA). This may require consultation with members of the Aboriginal community and/or the engagement of a suitably qualified archaeologist to undertake more detailed recording of the archaeological material including an assessment of the site's subsurface potential.
- If consent is granted to use the land containing the site, additional archaeological mitigation may also be required. This could include the engagement of a suitably qualified archaeologist to undertake a data recovery/salvage programme at the site with Aboriginal community involvement. Such a data recovery programme could include but not be limited to:
  - Surface recording, mapping and collection of archaeological material;
  - Archaeological excavation and/or subsurface evaluation;
  - Radiometric dating (where possible or applicable);
  - Analysis of recovered material; and
  - Provision by the proponent for long-term storage and curation of recovered archaeological material.
- All staff and contractors associated with the development be briefed with regard to Aboriginal heritage issues to ensure ongoing compliance with respect to AHA and any future requests of the local Aboriginal community.
- All staff and contractors be made aware of the protocols and practices to be followed in the event of any additional Aboriginal site(s) being encountered during the course of the development including human skeletal remains.

In order to avoid impacting the site during construction and into the longer term, the following recommendations have also been made:

- The site to be protected by the erection of suitable fencing until all construction activities have ceased in the surrounding area.

- No major disturbance should take place within the portion of POS containing the archaeological site.
- Any future landscaping within the POS containing the site should be of a minor nature and should include the restoration of native flora where possible.
- It is recommended that a Landscape Plan be prepared for the POS and that this plan include planting shallow-rooted native vegetation (e.g. grasses) over the site to obscure and protect the artefacts.
- Site capping with a stabilising medium such as a membrane or geotextile should be considered prior to any landscaping of the portion of POS containing the site.
- The developer is encouraged to seek guidance from the Registrar of Aboriginal Sites under Regulation 10 of the *Aboriginal Heritage Regulations 1974* with regards to minor works that can be undertaken at the site without Section 18 approval.
- If the POS is to be developed in the future (including major landscaping or the installation of subsurface reticulation and/or recreational amenities), consent would be required from the Minister for Indigenous Affairs under Section 18 of the AHA.
- It is recommended that signage and interpretive panels be provided to acknowledge former Aboriginal use of the heritage area. These should be placed in such a way as to minimise disturbance to the archaeological site itself.

5.9 INFRASTRUCTURE AND SERVICING

5.9.1 SITEWORKS

The extent of the earthworks within the landholding will ultimately depend upon the developer's design requirements for lots, environmental constraints and objectives, servicing issues and suitable road and lot grades to conform to the City of Wanneroo, PTA and MRWA requirements.

The City of Wanneroo guidelines indicate that, where retaining walls are not proposed as part of the re-contouring of the development, the maximum grade across blocks shall be 1:8. Furthermore, when limestone is encountered, the top 600 mm of lots are to be ripped and raked to remove all stones over 150 mm to aid in the installation of services. In general, the maximum height of retaining walls permitted in the City of Wanneroo is 3.0m.

The City of Wanneroo has indicated that variance from their guidelines associated with lot and road grades is possible; however, the consulting engineer will need to provide sound engineering arguments as to why their guidelines should be varied. Where proposals also fall outside of Australian Standards, these will be referred to the Council for approval.

The final levels of the development would be constrained by the requirement to match the proposed design levels of Marmion Avenue, existing developments adjacent to the Yanchep Golf Course, the need to retain aboriginal heritage site(s) along the existing dunal ridge, proposed concept designs of the freeway (east of the landholding), and the railway that runs through the middle of the landholding. In general the landholding would need to be extensively earthworked to accommodate more conventional housing construction. The use of retaining walls within these areas is also likely to achieve level blocks to allow for economical housing construction considering the higher density proposed for this development.

Within the city centre the road longitudinal grades would be restricted to between 1% and 3%, whilst the balance of the site would be restricted to a maximum of up to 10% in isolated areas.

A concept earthworks cut to fill model has been prepared (refer **Figure 34**) to achieve a balanced cut to fill scenario that protects areas of significant landform and vegetation. This model would be refined at the detailed design stage during the subdivision of the landholding to take into consideration development detail such as retention of additional existing vegetation and natural topography where applicable. This model shows that the concept rail level of RL 27.0m AHD as proposed by the PTA through the city centre would need to be lowered to approximately RL 26.0m AHD to achieve grade separation on the east – west road system.

The water table is at depth (in the order of RL 2.0m AHD) and will not be a constraint for drainage design nor finished earthworks levels. It is also understood that the maximum level allowed within the landholding for the supply of scheme mains water without boosting is RL 29.0m AHD.

5.9.2 ROADWORKS

The City of Wanneroo has confirmed that as part of development it will be a requirement for the developer to contribute 50% of the cost of the first stage of Marmion Avenue within the 52 m reservation. The scope of works would comprise of:

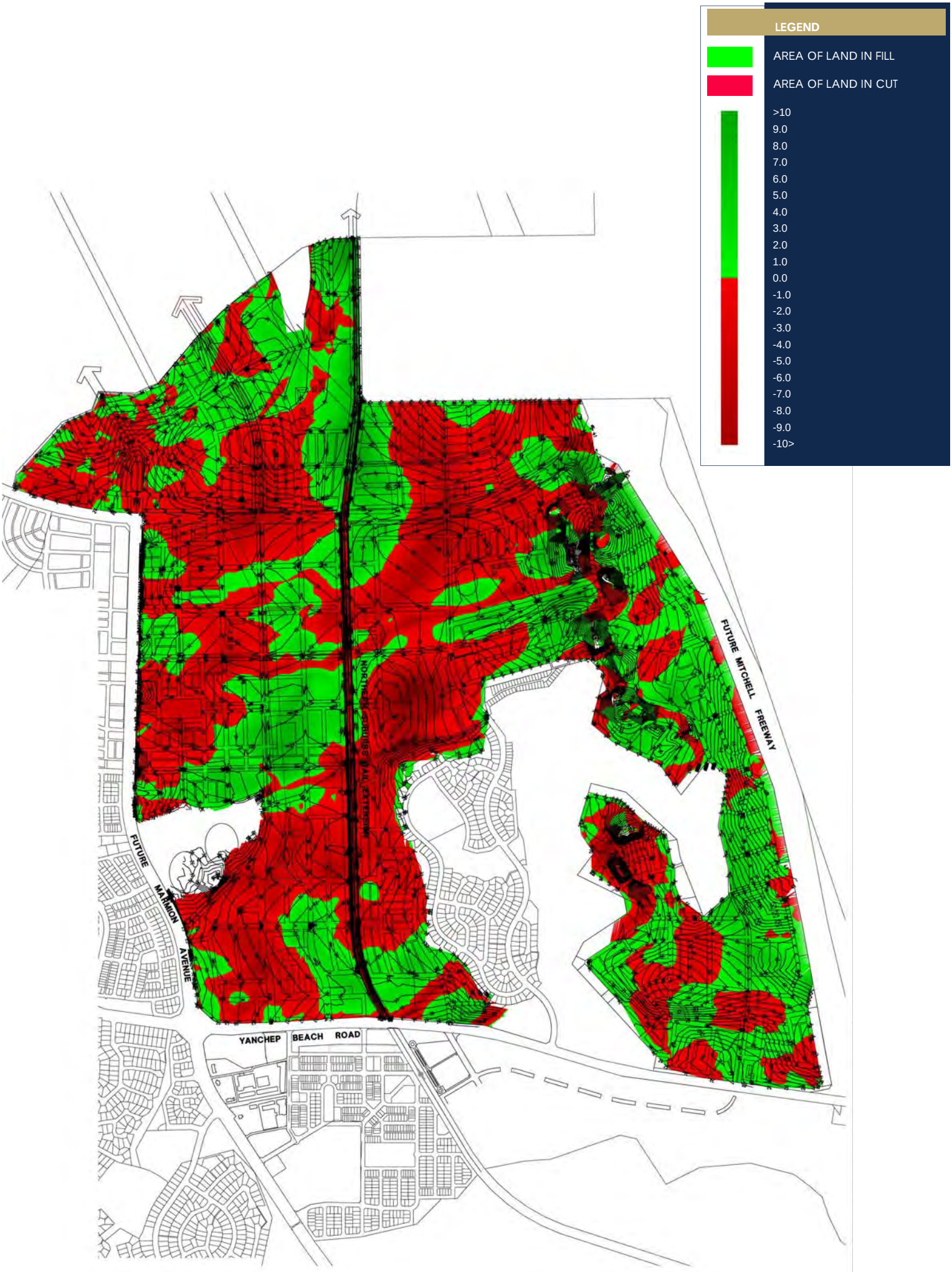
- complete earthworks within the road reservation for the ultimate duplication of Marmion Avenue;
- one two-lane 12.2m carriageway with a minimum single coat seal, with associated sealed shoulders;
- asphalt and kerbed intersections;
- intersection channelisation;
- the installation of minimum piped drainage crossings (approximately every 200m) and a piped outfall to drainage infiltration facilities;
- the construction of pedestrian crossing facilities (generally underpasses) at locations to be agreed with the City of Wanneroo; and
- a dual use path along one side of the carriageway.

The City of Wanneroo has confirmed that it will be satisfactory for Marmion Avenue to be constructed to this more rural standard described above. However, in more built up areas, Marmion Avenue will need to be constructed to a more residential standard with an asphalt surface, kerbs and more traditional piped system drainage.

Further investigations and design will need to be undertaken in consultation with Main Roads WA and the City of Wanneroo in relation to signalisation and signage of the area to ensure that safety concerns are addressed.

The City of Wanneroo has confirmed that as part of development and in accordance with the Deed of Infrastructure, it will be a requirement for the developer to contribute 50% of the cost of the first stage of Toreopango Avenue. The scope of works would comprise of:-

- complete earthworks within the road reservation for the ultimate duplication of Toreopango Avenue;
- a two-lane 12.2m lane carriageway with a minimum single coat seal, with associated sealed shoulders;
- asphalt and kerbed intersections;
- intersection channelisation;
- the installation of minimum piped drainage crossings (approximately every 200m) and a piped outfall to drainage infiltration facilities; and
- a dual use path along one side of the carriageway.



YANCHEP CITY STRUCTURE PLAN

CONCEPT EARTHWORKS STRATEGY PLAN

figure **34**

client - Yanchep Beach Joint Venture
date - July 2009
source - Sinclair Knight Merz

With the exception of Marmion Avenue, all roads within the landholding will need to be constructed to an urban standard comprising of asphalt sealed road surfaces, kerbs and a piped drainage system, in accordance with the requirements of the City of Wanneroo and WAPC policy DC 2.6. Depending upon the Developer's requirements, the use of brick paving and coloured asphalt within the landholding may be used to demarcate precincts and/or provide a level of beautification for the development.

Consideration will need to be given during the preliminary design phase to address the interface in levels fronting the existing Yanchep Golf Course and Marmion Avenue.

Under clause R27 of the *Liveable Neighbourhoods* planning policy, pathways are generally required along both sides of roads. Clause R27 permits that pathways may be reduced to one side where traffic volumes are less than 1,000 vehicles per day and be totally omitted where the road carry less than 300 vehicles per day.

5.9.3 STORMWATER DRAINAGE

It is a requirement of the City of Wanneroo to design the storm water drainage system such that all storm water generated from the development is retained within the development site through the use of infiltration/retention basins.

In general, infiltration of stormwater at source using water sensitive design guidelines is highly recommended.

Based upon the topography of the land, the subject site can be viewed as a series of stormwater catchment areas. It is proposed that the storm water drainage system will be catered for through a progressive infiltration piped drainage system discharging into infiltration basins constructed within the POS areas located in the lower areas of the development. The piped system and the infiltration basins are designed to cater for 1:5 and 1:10 ARI storm event durations respectively.

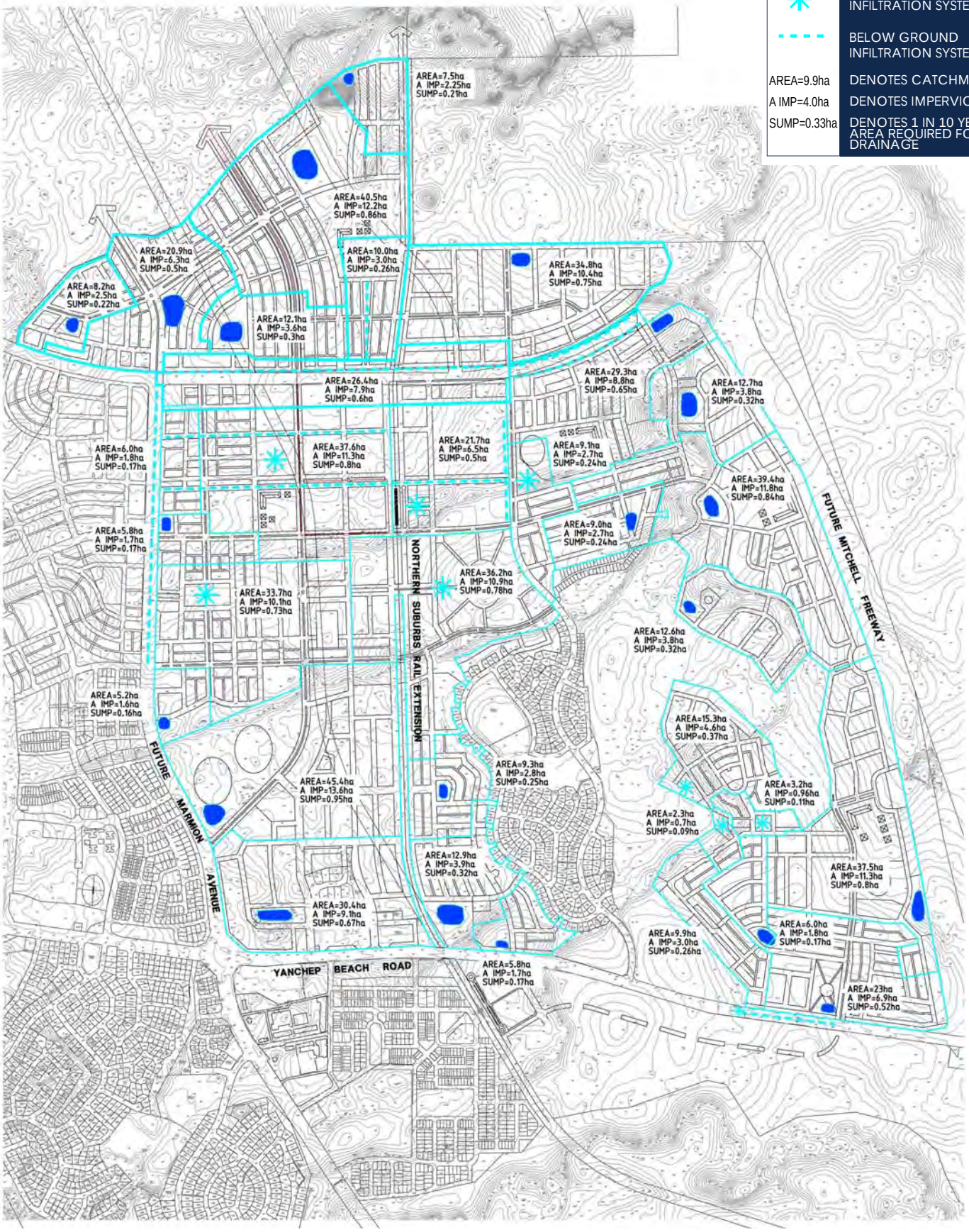
Care would need to be taken to ensure that the main stormwater infiltration areas are not located in areas of karst formation.

Run-off within private landholdings, that is the lots created within the development, will need to be contained within the lots via soakwells or infiltration sumps, or below ground infiltration systems for larger commercial/grouped housing developments.

In addition to catering for minor events, stormwater run-off in 1:100 ARI storm events and above are proposed to be directed via overland flow routes as part of the road system into areas of POS with surface levels designed so that private building and infrastructure are flood free during these events.

The landholding has been divided into natural stormwater catchments and a preliminary drainage strategy plan has been produced (see **Figure 35**). The City of Wanneroo has approved a Local Water Management Strategy on 13 April 2011 and by the Department of Water on 19 March 2011.

Within the city centre area, the use of 'no-flow' piped systems and below ground infiltration systems are proposed to minimise the land take and to provide a drainage system sensitive to the amenity of the land use zoning. The below ground infiltration systems may be placed within the road reserve, within the POS areas, and under carparks located within the commercial and larger multipurpose lots.



YANCHEP CITY STRUCTURE PLAN

CONCEPT DRAINAGE STRATEGY PLAN

figure 35

client - Yanchep Beach Joint Venture
date - July 2009
source - Sinclair Knight Merz

Where stormwater is directed into open infiltration basins located within POS areas, the City of Wanneroo require that these be designed with maximum side slopes of 1:8 and have a maximum depth of inundation of 900 mm. These basins will need to contain a 1:10 ARI from the piped system and 1:100 ARI from the development when forming part of the overall flood routing stormwater strategy.

5.9.4 WATER SUPPLY

The current capacity of the bores and the water treatment plant is adequate for the initial stages of development. The Water Corporation will install additional bores and expand the treatment facility in the future to cater for the increase in demand as developments proceed. The Developer has provided an easement to the Water Corporation for the future bore site within the Land holding (North East).

Water Corporation has confirmed that the development of the initial stages of the LSP area north of Yanchep Beach Road will require the extension of a distribution main from the intersection of Lagoon Drive and Marmion Avenue northwards along Marmion Avenue and along Yanchep Beach Road to the intersection of Two Rocks Road. The extension to Yanchep Beach Road is programmed into the Water Corporations capital works for the 2011-2012 financial year. Any additional extension of this main will require pre-funding by the developer. This main will eventually be required to link to the distribution main located north of the current Yanchep townsite to ensure supply is maintained until the new storage facility is constructed.

Development of the landholding would be subject to the payment of Standard water supply Headworks Contributions.

The Water Corporation currently has plans for a new Two Rocks reservoir storage facility located north of the Yanchep City LSP area. This will ultimately link the Two Rocks storage tanks and Yanchep storage tanks to supply the entire Yanchep – Two Rocks area. Currently supply is limited to an RL 40m AHD, the maximum height of the development without boosting would be RL 29m AHD, and all developments higher than this will require water booster stations in the interim until the Two Rocks reservoir is constructed. It is planned to connect the facilities with a combination of large diameter mains. These will be located throughout the Yanchep City LSP area and surrounding areas and will need to be planned for accordingly. When these large diameter mains are required, any future distribution mains to be constructed within the landholding will be funded directly by the Water Corporation. Should development proceed at a pace that exceeds the agreed development program, the developer may be required to pre-fund the distribution extensions. Reimbursement of the costs would be likely to take place within 12 months of completion. Reticulation sized mains within the development of the landholding would be at the cost of the developer.

5.9.5 SEWERAGE

The Water Corporation has commissioned the new Alkimos Waste Water Treatment Plant (WWTP) south of the Yanchep City LSP Area.

A type 180 Waste Water Pump Station (WWPS) is programmed to be constructed near the intersection of Marmion Avenue and Lagoon Drive (current location of Type 6 WWPS) and 7.5km of Pressure Main (PM) to Alkimos. This will initially serve the Yanchep City LSP area. The type 180 WWPS design has been completed and tender, with commissioning mid/late 2013. It is assumed there will be approximately a 16 month construction period.

The ultimate planning for the Yanchep-Two Rocks area is for all effluent to be directed southwards via a trunk gravity sewer along the eastern side of the extension of Marmion Avenue. The initial sections of the main will act as overflow storage from the pump station until the entire route is constructed. The Alkimos WWTP is located approximately 8.5 km south of the landholding.

The existing above ground WWTP, located within the Yanchep City LSP area, is nearing capacity but will stay in operation until the pump station is commissioned. If there are any delays with the pump station the Water Corporation will be required to tanker.

Other than the sewerage outfall to Alkimos, construction of the permanent WWPS and PMs required to service the subject landholding would be undertaken as prefunded items through Customer Constructed Works Agreements (CCWAs) between the Water Corporation and the developer. The prefunded period for the CCWAs is likely to be in the order of five years.

CCWAs would need to be set in place with the Water Corporation to get clearance approvals for the proposed development, including a tankering agreement should the WWPS be delayed.

5.9.6 BORE MAINS

The Water Corporation advised that some of the existing bores within the Yanchep – Two Rocks area will be upgraded and a new bore (Y4) will be installed in 2013 and will eventually be fed back to the existing Yanchep tanks to assist with supply within the Yanchep City LSP area.

There will eventually be requirements by the Water Corporation to install bores throughout the Yanchep and Two Rocks areas. During structure planning phases the location of each will need to be accurately determined. It is likely the majority will be located within POS areas. The bore main feeder lines will need to be designed and constructed as subdivision development proceeds. These will be located within the road reserves traversing through the developments.

5.9.7 POWER SUPPLY

Western Power has confirmed that the existing aerial network within Yanchep Beach Road has approximately 400 residential lots of spare capacity to support the initial stages of the development with the Yanchep City LSP area. In order to provide power to service the development of the entire landholding beyond the spare capacity in the network, Western Power has undertaken a broader servicing planning study extending 132kV power lines northwards from Alkimos to service the Yanchep-Two Rocks area.

Western Power has confirmed that upgrading of the existing high voltage lines and components within the substation will be required. The upgrading of the substation located in Romeo Road and reinforcement of the electrical system within the Yanchep area could be via additional connections to Western Power's high voltage network to the east of Wanneroo Road. These would be undertaken by Western Power.

Western Power is currently assessing two options to extend the 132kV overhead power lines into the Yanchep – Two Rocks area. Option 1 proposes an extension of the 132kV overhead power lines from the existing Romeo Road substation to be constructed within a service corridor adjacent to the Mitchell Freeway reserve on the western side. Option 2 proposes an extension of the 132kV overhead power line from the existing Pinjar substation. The overhead line would traverse rural properties heading west and eventually head south along the Mitchell Freeway reserve.

Both options will terminate at a substation located within the proposed industrial area immediately north of the proposed Toreopango Avenue and west of the Mitchell Freeway. The benefit of Option 2 means there would be no requirement for an overhead line between the proposed Alkimos substation and the Yanchep City substation. It will also lessen the required load and upgrade on the Romeo Road substation.

Existing aerial lines across the landholding servicing Club Capricorn and other facilities will require undergrounding when development of the landholding proceeds. Power supply to the development would be via underground network, comprising of high voltage lines to ring main units and transformers, that reticulate electricity to individual lots via a low voltage underground cable system.

A connection to the high voltage aerial lines and associated high voltage equipment required as part of development of the landholding would be covered under Western Power's System Charge Policy. As with typical residential developments, the cost of low voltage services and street lighting within the development is not included in the System Charge and as such, will remain the responsibility of the developer.

5.9.8 TELECOMMUNICATIONS

Telstra have confirmed that there is existing infrastructure at the intersection of Marmion Avenue and Yanchep Beach Road that is capable of servicing the initial stages of the landholding. . The developers are committed to extend the conduits from Butler along the western side of Marmion Avenue to link into the existing Telstra infrastructure located at the intersection of Marmion Avenue and Yanchep Beach Road to further reinforce the capacity of the telecommunications system.

Telstra is currently upgrading the exchange at Glenrothes Crescent. This exchange is located within the Yanchep City LSP area. The upgrading of the exchange prepares it to accept additional fibre optic cables in the near future. Yanchep is not currently serviced with fibre optic. The line currently terminates at the Shorehaven development some 8km south of Yanchep. The developers are currently seeking prices to trench this distance in preparation of Telstra installing fibre optic cabling. This will consist of two conduits along the western side of Marmion Avenue to link into the existing Telstra infrastructure located at the intersection of Marmion Avenue and Yanchep Beach Road.

Telstra have confirmed that should development initially proceed northwards from the intersection of Marmion Avenue and Yanchep Beach Road, no headworks charges would be levied by Telstra.

Services to the development would be via underground cable connections that would be progressively extended as part of development of the landholding.

5.9.9 NATURAL GAS

The developer is committed to extending the infrastructure north from the Shorehaven development. Other developers may extend the infrastructure as the development front continues northwards. Reticulated gas is not considered to be an essential service and as such is not required as a condition of subdivision. It is usual practice to install gas reticulation network for the subdivision will be installed within the common trench at no cost to the developer. If there is an extension required to connect to the nearest high pressure gas main the developer will be required to pay for the trenching to the gas main as a headworks cost.

5.10 ECONOMIC PLANNING

The Yanchep City Centre has a pivotal role to play in:

- Providing the broadest range of goods and services for Yanchep - Two Rocks local resident population and its hinterland.
- Providing the broadest range of goods and services for Yanchep - Two Rocks employees, businesses, employers and its economic hinterland.
- Providing superior business settings to attract creative, high value-adding, export orientated and high employment research, technology and knowledge based businesses.
- Providing superior locations for major institutions, integrated into the main urban fabric of the City Centre, where they will provide the greatest benefits for businesses, for employees and for the community in general.
- Providing exceptional, informal, outdoor recreational and socialising opportunities, and quality entertainment, retailing and personal services to attract residents, tourists and day visitors from the Greater Perth Region.
- Providing exceptional, recreational, personal development and professional development opportunities to attract creative and talented people "who can live wherever they wish".
- Providing diverse, residential, quality of life and lifestyle opportunities.
- Providing multiple opportunities for creativity and innovation from accidental and casual meetings between people from different backgrounds, industries, experience and interests.
- Providing opportunities to attract business visitors to conferences, meetings and workshops, who will stay overnight and frequently return with colleagues, family and friends.

In these ways the Yanchep City Centre can attract creative, high value-adding, export orientated and high employment research, technology and knowledge based businesses, research and development and related clean production, especially in:

- Health Sciences and Biosciences;
- Environmental Sciences and Technology;
- Information and Telecommunications Technology;
- Advanced Manufacturing (especially in these specialisations); and
- Clean technology.

5.10.1 SERVICE INDUSTRIAL LAND

The Service Industrial land available in the LSP area (including Employment Precinct 2, the Special Use – Yanchep Enterprise Park) is considered best used for:

- Technology Based Research and Development and Clean Production in:
  - Environmental Science and Bio-technology
  - Information and Telecommunications Technology

- Bio-technology based Food& Beverage Production
- Advanced Materials Technology
- Advance Technology Small Production
- Scientific & Electronic Machinery and Equipment Production
- Health& Beauty Products Production
- Printing, Publishing & Multi-media Products

- Limited Local Resident Population Serving Activities (in order of priority):

  - Light Industries: up to 2 ha
    (Based on the Yanchep City Centre supplying 67% of demand)
  - Construction & Service Trades: up to 8 ha
    (Based on the Yanchep City Centre supplying 67% of demand)
  - Vehicle Sales & Services: up to 11 ha
    (Based on the Yanchep City Centre supplying 67% of demand)
  - Bulky Goods Retailing: up to 4.5 ha
    (Based on the Yanchep City Centre supplying 67% of demand)
  - Small-scale Storage/Distribution: up to 24.5 ha
    (Based on the Yanchep City Centre supplying 35% of demand)

This priority for the allocation of area's Service Industrial land is based upon:

- The importance of attracting high value-adding, export orientated, high employment creative, knowledge, research and technology based businesses;
- The importance attached to achieving the high level of employment self-sufficiency, and the importance the Yanchep City LSP area must play in achieving this outcome;
- The land's high amenity; its proximity to regional research, education and health institutions, and to the Yanchep City Centre's quality employee, business and community facilities;
- The land's prominence, exceptional accessibility, high visibility and exposure to passing trade; and
- The lands convenience to public transport, including the proposed Yanchep City Centre rail station.

The LSP shows how these opportunities will be realised through creating suitable business settings.

For Yanchep City to meet its substantial local employment targets, land uses designed to facilitate employment generation will provide for a high density of workers by offering high amenity and opportunities for value-adding, and by attracting highly skilled workers.

There are other, more appropriate, locations to cluster low density and lower value employment activities, in expanding nearby industrial areas elsewhere (including at Wangara, Landsdale and Neerabup).

Therefore, no provision of industrial land is proposed in, or near, the Yanchep City Centre for:

- General Industries;
- Large-scale Transport and Distribution Activities;
- Large, or extensive, Storage and Warehousing; and

- Large Timber and Construction Yards and Utility Depots.

5.10.2 BUSINESS SPACE

At least 222,700 m^2 of office space can be justified for the Yanchep City LSP and City Centre LSP areas given their strategic importance and its proposed role in attracting, incubating and growing information and technology based businesses.

This is equivalent to 72% of the projected demand for 310,000 m^2 of office space proposed to be provided in the Yanchep - Two Rocks DSP Area.

In providing this space, the Yanchep City and City Centre LSPs will be designed to provide superior business settings to accommodate, at least:

- 59,200 m^2 of prestigious, high quality office space
  (80% of projected DSP demand)
- 36,800 m^2 of medium quality, moderate price office space
  (80% of DSP demand)
- 126,700 m^2 of good quality, affordable, office space
  (67% of DSP demand, an equivalent % to its share of retail space)

Affordable small office space will be clustered to;

- Create a credible business address;
- Be close to public transport;
- Be within convenient walking distance of business facilities and services; and
- Be close to quality employee recreational, entertainment and personal services.

At least 21,400 m^2 of affordable office space will be provided in superior business settings at prominent locations in the City Centre frame area, close to the retail heart where there will be good exposure and high potential passing trade to support the effective local grow-out and successful graduation of these home based businesses.

The LSP shows how these opportunities will be realised by creating suitable superior business settings in and around the City Centre.

5.10.3 ECONOMIC AND EMPLOYMENT OPPORTUNITIES

The Yanchep City LSP has also been designed to provide superior locations for major institutions, fully integrated into the main urban fabric of the City Centre, (where they will provide the greatest benefits for businesses, for employees and for the community in general).

These include well integrated, high profile sites for important Heath and Educational opportunities:

- Public Hospital and Health Centre;
- Private Hospital (200 beds);
- Medical Services and Allied Health Services;
- University (desirably embracing the above specialisations);
- TAFE (desirably embracing the above specialisations);

- Public Schools (both primary and secondary); and
- A Private School (pre-school to senior college).

There are important economic, training, business and employment benefits from having these institutions integrated into the Yanchep City Centre.

These institutions are essential prerequisites for attracting creative and talented people; new business founders and investment and employment in information, knowledge and technology based businesses.

Other businesses and the community can benefit most from having these institutions and their employees integrated into the City Centre, rather than located on separate, isolated, individual campus locations.

Having these institutions well integrated into the city's urban fabric provides greater opportunities for innovation, creativity, and building business social capital from casual, accidental and planned meetings, and from people from different industries, with different backgrounds, experience and interests, socialising and recreating together.

The LSP is also aimed at offering important opportunities for personal and professional development and opportunities for Yanchep City employees, and their families, to socialising, recreate and access the broadest variety of quality, personal and community services and facilities.

This is particularly important for attracting and retaining employees, and forming the friendships essential for attracting and locking into this location creative and talented people "who can live wherever they wish".

The focus on providing exceptional, informal, outdoor recreational and socialising opportunities, combined with diverse, quality entertainment, retailing and personal services and facilities will also enable Yanchep City to attract residents, tourists and day visitors from the Greater Perth Region. Tourism is an important economic and employment contribution that the Yanchep City development can provide, with the opportunity for 2,200 hotel rooms and an additional 200 to 250 back-packer beds. It is important that these tourists and day visitors stay longer and spend more by being attracted and spending quality time in and around the Yanchep City Centre.

They will also serve to attract business visitors to conferences, meetings and workshops.

These opportunities, combined with the comprehensive opportunities for personal and professional development, will further foster 'innovation and creativity' by bring staff, students, researchers, business people and key institutional, information technology and knowledge workers together, to share their needs, knowledge and experience.

5.10.4 PROJECTED EMPLOYMENT

By pursuing these land use priorities and business place making initiatives, it is projected that the Yanchep City LSP and City Centre LSP areas could achieve their desired employment provision of about 22,500 jobs.

This is equivalent to 45% of the employment targeted for the whole of the Yanchep - Two Rocks DSP area.

The sources of this employment can be summarised as follows:

BUSINESS AREAS:

Core Retail Area	6,389
Mixed-use Business Areas	5,557

Bulky Goods & Retail Showrooms	340
Vehicle Sales & Services	480
Total Business Areas	**12,766**

INDUSTRIAL AREAS:

R&D & Clean Production Area	3,380
Service Industrial Areas	1,385
Total Industrial Areas	**4,765**

HEALTH AND EDUCATION AREAS:

University	440
TAFE	270
Public Hospital and Health Campus	800
Private Hospital	580
Medical and Health Precinct	486
Public & Private Schools	120
Total Health & Education	**2,696**

COMMUNITY SERVICES:

Public Administration	590
Civic and Community Activities	429
Total Community Services	**1,091**

RESIDENTIAL AREAS:

Retirement Villages	250
Hotels and Motels	240
Home based Businesses	424
Total Residential Areas	**914**

This total represents 42% of the 52,770 jobs necessary to achieve the target of 75% employment 'self-sufficiency' for the whole Yanchep - Two Rocks project area. This means that the Yanchep City Centre alone will be creating about the same proportion of jobs as is typical for the whole North West Metropolitan Growth Corridor (43% in 2001).

This leaves only 30,600 jobs to be created in all the other centres, and throughout the rest of Yanchep - Two Rocks project area to achieve the target of 75% employment 'self-sufficiency' for the whole Yanchep - Two Rocks project area. An Economic Development Strategy is currently being prepared to guide delivery of these, and the City Centre, jobs.

5.11 RETAIL STRATEGY

The Yanchep City Centre is intended to sit at the top of the regional retail hierarchy, as a component of a mixed use town or City Centre. The retail component is therefore required to act to facilitate a wider and intensive mixed use condition with the LSP area. The retail strategy is based on many of the principles contained in the *Liveable Neighbourhoods* operational policy and is also based on principles contained within State Planning Policy 4.2 *Activity Centres for Perth and Peel*.

A separate structure plan is required for the Yanchep City Centre precinct, with the intention of producing a more fine-grained plan designed to deliver a detailed street-based Regional City Plan for Yanchep City.

The retail component of the centre is intended to cover most of the demand profile of the regional population. Whilst detailed planning is yet to be progressed, the Yanchep City Centre is proposed to contain around 70,000 square metres of retail floorspace (excluding bulky goods). In terms of the anchor stores this will at completion comprise one or more department stores, two or more discount department stores and possibly one or more urban-capable supermarkets. The supermarkets are unlikely to be in the core retail areas of the centre, but will be within the defined City Centre LSP area. The retail therefore sits at the top of the centres hierarchy for the region and will also serve some existing populations outside of the DSP area.

The LSP recognises the higher order role of the Yanchep City Centre and the need to balance this role against the desire for higher levels of self containment within neighbourhoods in the DSP area. As the Yanchep City Centre will also serve a local community it will also have some local service retail facilities. However, it is likely that the majority of local service retail will be provided outside of the City Centre at the South Yanchep District Centre (Lot 102), and in a small local centre planned in the south-eastern corner of the LSP area, as a counterpoint to the regional role of the Yanchep centre.

As stated earlier, the South Yanchep District Centre is intended to be used in the early stages of the development to relieve the catchment pressure for a local centre at Yanchep City. The role of the Yanchep City Centre is unlikely to be realised until late in the development cycle of the DSP as its retail role requires a substantial catchment. Consequently, some elements of convenience retail, but more importantly specialty retail, will form a component of fine grained mixed use buildings in the Yanchep City Centre in the early stages, but most likely as a subservient component of other land uses.

In terms of timing of the major anchor stores in the Yanchep City Centre, the discount department store is likely with a trigger population of 30,000-40,000 across the whole DSP area, with another possible at 60,000. The department store/s is likely if the population is projected to exceed 100,000, but may arrive some time before this threshold.

The plan seeks to use movement networks to assist to define the commercial capacity and extent of City Centre retail. Consequently the plan allows a range of retail settings across the City Centre. This approach is a characteristic of traditional town centres and encourages a range of tenants and operators across a range of price points. The approach facilitates higher levels of business formation and more local tenants in the centre (a key objective of the employment strategy).

The LSP design approach is intended to deliver a permeable, grid-based movement network that provides for the widest range of business settings. At the core of the movement network are two key north-south streets that have the potential to form traditional main streets. The future LSP for the City Centre precinct will plan for these streets to deliver the core retail area of the City Centre and have strong relationships through a series of direct connections to the rail station and the proposed university. The street structure allows for the retail to grow along major movement spines and evolve in character and intensity over time.

The structure also allows for heavier grain retail, which is unsuitable for the more intense, mixed use town centre, to be located in close proximity to the core area on the heavy traffic routes on the edges of the LSP area.

5.11.1 LOCAL CENTRE

The design of the local centre is based on a number of economic, social and environmental principles.

It is proposed the centre be street-based, not a shopping mall, for the following reasons:

- It provides a democratic focus for community life and social exchange.
- It provides the opportunity for a broader base of jobs in the future.
- It provides an improved interface with high density residential density around it.
- It delivers a sense of place and improves public domain performance.
- It provides greater flexibility for future economic development.

Based on the relative proximity to the City Centre and the South Yanchep District Centre, it is considered the local centre should provide in the order of 800-1,000 m^2 of retail floorspace. This will accommodate convenience goods and associated facilities for the local catchment and potential passing trade.

5.12 COMMUNITY FORMATION AND INTEGRATION

The development of the Yanchep City LSP area will play a pivotal role in the evolution of Yanchep and Two Rocks. It will bring much needed amenity to the area and act as a focal point for the community in the future.

A well implemented approach to social planning will be central to both the success of the project and how well it meets the current and future needs of the population. Towards this end YBJV will implement a well considered approach to delivery of community infrastructure, staging of the development, integration with the existing community and activation of the City Centre. A detailed Social Planning Scoping Paper has been prepared for the project, and is included at **Appendix H**.

5.12.1 LOCAL CONTEXT

Yanchep is one of the most socially disadvantaged areas in the Perth metropolitan area. The community is less educated than in other areas, has poor access to public transport, services and facilities, has lower levels of health, decreasing affordability and high youth unemployment.

Despite these challenges or because of them, community life in Yanchep has flourished. Much like a country town that can develop strong social ties and community networks to counteract isolation, Yanchep has a very active community life evidenced by the number of community associations, sporting clubs and other special interest groups. These groups host a variety of community events and activities throughout the year.

Developers in the area are augmenting these activities by supporting local groups and activities, as well as making other contributions to the social and economic opportunities available.

New development in the area is also beginning to increase the level of provision of community infrastructure including a new primary school and the Churches of Christ aged care facility. A new community centre, Surf Life Saving Club, TAFE and high school are also planned to be delivered in the next five to ten years.

5.12.2 SOCIOLOGICAL REVIEW OF STRUCTURE PLAN

The Yanchep City LSP and future City Centre LSP plan for the delivery of much needed amenity to the Yanchep and Two Rocks communities and the areas will act as a focal point for the community in the future. The proposed range of uses will significantly address the root causes of much of the social disadvantage in the area specifically: access to public transport, health services, recreation facilities, community facilities, a range of education options and employment. This is likely to have significant positive impacts on local wellness and quality of life.

The integration of the university campus and hospital into the mixed use district, as well as the co-location of research and development areas will facilitate the formation of networks of trust between individuals, organisations and businesses. This will make the task of developing social capital much more achievable. Strong social capital will be crucial in the development of a robust community and local economy. Trust among community members and people's ability to work together can:

- Reduce problems, such as violence, by enforcing shared values and norms of behaviour;
- Increase business opportunities by providing informal access to credit and reducing transaction costs;
- Improve the quality of education and the accessibility of health services; and
- Be an important safety net when formal safety nets are absent or inadequate.

Human capital will also be reinforced as a result of the increased range of education and employment that the project will generate. This will benefit people living in Yanchep and Two Rocks as well as the local economy as a whole.

The Structure Plans also provide well networked spaces for rest and recreation. This includes a series of 'green links' that connect across the site. These spaces will be important for the mental and physical health of people living, working and studying in the project area.

The range of civic uses such as the library, community centres, city squares and piazzas will be important for community events and activities. They will help establish the City Centre as the community hub of the region and will be important in establishing a sense of place for people.

5.12.3 SOCIAL PLANNING CONSIDERATIONS

YBJV is committed to rigorous social planning and investment in implementation to ensure that Yanchep City becomes a thriving hub for the local community and economy which integrates well with Yanchep and Two Rocks. This will be achieved through a reinterpretation of the local distinctiveness of Yanchep. The arts and community will become the lynchpin for an intensive social program aimed at making the City Centre the cultural and civic heart of the region. The integrated University city will be a focus for this activity.

While it is crucial to understand the local context for social planning on the project, it is important to recognise that the Yanchep City Centre will radically change the area: attracting a different demographic; providing a far greater variety in services, facilities and businesses; and creating a new hub for the region. For this reason social planning on the project cannot simply extrapolate requirements for future communities based on what is needed today. It will need to anticipate the needs and opportunities presented by all the variables on the project and cater for this accordingly.

The following requirements are the result of a preliminary assessment by Creating Communities and will be further expanded in a Community and Economic Development Plan (note this is different to the Economic Development Strategy referenced in Section 5.9 of the Report):

- Recreational links with the surrounding areas.
- Facilities and services for young families, 'empty nesters', singles households and the aged.
- Regular and more frequent public transport.
- Local employment and community enterprise opportunities.
- Local upper secondary school and tertiary education.
- Community and recreation centre facilities.
- Activities and services to respond to the needs of diverse age groups.
- Community self–governance and leadership programs.
- Programs and initiatives to develop social cohesion.
- Affordable housing.

5.12.4 SOCIAL PLANNING AND COMMUNITY ENGAGEMENT APPROACH

YBJV will commence an on-going social planning and community engagement process which will include the following:

- Establishment of a Community Life Working Group. This group will have representation from key local community groups, local Aboriginal representation, the City of Wanneroo, education providers, the hospital and business representatives.

- Establishment of a Youth Community Life Working Group to have input into the social planning process.

- Development of a Community and Economic Development Plan (CEDP) in consultation with the Community Life Working Group. This should include strategies to:

  - Integrate the University via activation.
  - Recognise and enhance cultural and community characteristics.
  - Facilitate the formation of a cultural and community hub.
  - Celebrate the Aboriginal heritage of the area.
  - Provide well staged delivery of community infrastructure.
  - Ensure provision of activities and services to respond to the needs of diverse age groups.
  - Encourage the formation of social capital.
  - Promote local leadership and youth development.
  - Support local clubs and associations in developing capacity to service the YBJV City Centre.
  - Reduce socio-economic disadvantage.
  - Deliver a range of education options for upper secondary school and tertiary as soon as possible.
  - Improve access to local health services in a timely manner.
  - Deliver affordable housing options.
  - Engage local groups in appropriate environmental management projects.

- Commence research into longitudinal quality of life, wellness and social capital.
- Establish a City Community Vision Group to have input into the roll out of the CEDP.
- Implement the CEDP.

The proposed goals for the social planning component of the Yanchep LSP are to:

- Involve the local community in social planning for the project.
- Establish the Yanchep City Centre as the community and cultural hub for the region.
- Activate the integration of the University.
- Support the existing social fabric of Yanchep and facilitate integration.
- Encourage the formation of an active and healthy community.
- Raise education levels in the local community.
- Deliver affordable housing options.
- Build social capital between institutions, organisations, business, community groups and individuals.

6 YANCHEP CITY CENTRE PRECINCT

The Yanchep City Centre precinct will form part of a separate Local Structure Plan prior to further subdivision or development. Whilst this Local Structure Plan will be completed at a later date, the following section aims to provide some guidance as to the intended form and function of the City Centre, and information as to how the development of the centre should progress.

The intentions for the detailed design of the City Centre have been key to the unfolding of the wider LSP design, and the relationship of the various land uses, movement network features and open space locations. Accordingly, the guidance provided in this section should be given due regard by the relevant decision making authority when considering future proposals for the City Centre design and development.

Figure 36 has been prepared to demonstrate how the City Centre precinct can be accommodated within the LSP structure. This plan is indicative only and subject to detailed design.

6.1 LAND USE

The intention for land use designations within the City Centre zone is not to be overly prescriptive about the definition or permissible mixing of uses, providing that the uses proposed can demonstrate:

- positive contribution to promoting a vibrant mixed use urban environment;
- contribution to a continuous active street frontage; and
- encouragement of pedestrian use of the streets.

A number of significant uses are to be included in the City Centre, incorporated within this street-based, mixed use environment, sharing space both vertically within single buildings, and horizontally along street-blocks.

The following are the key land uses that will be located within the City Centre, with a brief description of their intended form and function.

6.1.1 RETAIL

At the core of the City Centre, the key north-south and east-west streets will have the potential to form traditional retail streets. These streets will deliver the core retail area of the City Centre and have strong relationships through a series of direct connections to the rail station and the proposed university. The street structure will allow for the retail to grow along major movement spines and evolve in character and intensity over time.

In terms of form, the retail component of the City Centre is ultimately what will establish the settings for high intensity mixed use development. It therefore should be designed to activate the public realm and to promote high levels of amenity in the streets. The objective is for the retail-on-ground component of the town centre to assist with the following functions of town:

- Allow safe and interesting walking between various town destinations (such as the rail station and the university);
- Act as a catalyst to subsequent demand for offices and high density residential development;
- Act as a catalyst for higher density development, to improve the performance of public transport;
- Increase levels of walking within the entire LSP area;
- Improve levels of social interaction through increased levels of local tenancies and activation of quality public space; and

- Improve cultural connections with place through the activation of fine-grained ground floors of distinctive buildings that contribute to a sense of street.

6.1.2 COMMERCIAL

- The City Centre will be home to the kind of office and commercial uses that are typical to any well-functioning central business district. These uses will benefit from proximity to excellent public transit opportunities; an urban residential catchment that includes contemporary living choices (including home-based work opportunities); and synergies with the City's health, education and technology precincts.

- It is important that the office and commercial uses are integrated well with the other City Centre functions, to ensure that employees are exposed to a twenty-four hour work, recreation and lifestyle environment, and to avoid the kind of nine-to-five activity period that is typical to Perth's CBD, to the detriment of the lifestyle of the City's workers.

- The potential for the Yanchep City office and commercial uses to be part of a vibrant, high amenity activity area, to the benefit of workers and visitors, will be enhanced by the intent to ensure that Yanchep City has a significant City Centre residential population (see below). By making Yanchep City a competitive place to work in this way, it will assist in assuring that the employment targets for the region are met and sustained.

6.1.3 HEALTH FACILITIES

The City Centre, at ultimate build-out, will include a full health precinct, with public and private hospitals, medical uses, urban-based retirement living, all supported by sport and recreation facilities including potentially a mixed use, street based sports arena, with associated health and wellness facilities.

The Health Precinct and adjacent Sport and Recreation Precinct are to be located in close proximity to the City Centre rail station, the retail core, and the Education Precinct (see below), to make optimum use of the potential synergies between these uses and the amenity that the transit and the City Centre itself can offer to employees, residents, and visitors to the health facilities.

It is proposed that the Health facilities, including the hospital, be provided in a street-based, rather than purely campus-based format, and discussions with the Health Department during formulation of the LSP have confirmed their in-principle support for this approach.

6.1.4 EDUCATION FACILITIES

The intention for the Yanchep City Centre is that it will incorporate a street-based cluster of education uses, which will include representation from a number of tertiary education providers, including Universities, TAFE, and potentially other services such as adult education facilities.

The University, TAFE and other education uses are to be delivered in an integrated form along with the other City Centre uses. Each University building should be provided in traditional street form, with active, or at least interactive, street frontages. Efforts should be made to mix education uses with other City Centre uses such as retail, office and residential, both vertically within individual buildings and horizontally along street blocks. All elements of the education uses should co-exist with the remainder of the City, and opportunities to share both facilities and public realm spaces, such as university parks, with other City users should be pursued.

The University, TAFE and other education facilities have significant potential to exploit the natural synergies between themselves and other key players at Yanchep City, particularly the Hospital, health and wellness facilities, and the businesses located in Employment Precinct 2. This integration should be encouraged, and will be facilitated by promotion of spatial linkages as well as linkages between faculties and academic disciplines.

6.1.5 RESIDENTIAL

In all areas of the City, where retail uses, commercial uses, health facilities, and education uses are provided, residential development should be permitted.

The intention for Yanchep City is to create a truly contemporary mixed use, street-based City Centre unlike any so far provided in the Perth Metropolitan Region. This can only be achieved by ensuring that people are able to live, work and play in the same location, promoting twenty-four hour use of the city's streets and facilities, and ensuring a truly walkable and short-trip transit environment.

Residential use should be promoted on all City Centre development sites and mixed either horizontally or vertically with other City Centre uses. Residential dwellings can be provided along with retail uses, incorporated in office environments, throughout the education areas, and even within the health precinct to allow for worker and affordable accommodation options.

In this way, Yanchep City can provide a real diversity of dwelling opportunities, and a successful, vibrant, active and diverse community can be ensured into the future.

6.2 PUBLIC REALM

The public realm within the City Centre Precinct is to have a timeless, elegant, robust quality that captures a coastal feel to reflect the proximity of the development to Yanchep Beach and the Indian Ocean.

A limited palette of hard and soft landscape materials will be used, combining materials and colours complementary to the area in a contemporary style, and may include the following:

- Predominantly off-whites or creams in paved areas, possibly with exposed aggregate and shell grit in key areas;
- Limestone, rammed limestone and/or gabion feature walls;
- Galvanised steel and timber; and
- The use of predominantly endemic or native plant species. Limited use of exotic species is proposed in key areas for amenity and/or effect.

The high quality attention to detail design of all landscape elements will be a reflection of both the regional centre status of the development, and the function of the City Centre as a transit orientated development.

The public realm within the City Centre Precinct includes the boulevards, streets, laneways, linear parks, urban parks and squares, offering a diversity of spaces with a high level of amenity to cater to a variety of needs and uses. The consistency of landscape treatments and finishes through these spaces will reinforce the unique characteristics of the site and create a distinctive, legible and cohesive public realm.

The variety of spaces includes large civic spaces for larger community events, gatherings, outdoor performances, which are located centrally within the development primarily adjoining community and education facilities. Smaller civic spaces generally occur in the retail and commercial areas of the City Centre, readily accessible to shoppers and workers, comprising small, semi-private spaces for meeting, gathering and lunchtime use. Urban parks consist of a well-detailed public realm for informal passive and semi-active recreation, and intimate spaces for seating, contemplation and people-watching.

Play and discovery facilities that cater for both older and younger children will be situated in the larger civic spaces and urban parks to provide an element of dynamism and 'play' to the City Centre while attractive shaded footpaths, cycle routes and streetscapes with appropriate street furniture, such as seats, bins, cycle racks, provide legible pedestrian and movement corridors that are pleasant and safe at all times of the day.

6.3 PARKING STRATEGY

In the City Centre, it is proposed that most non-residential parking be public parking as distinct from parking provided exclusively for the use of tenants of particular buildings. As a guide, it is proposed a target be set to achieve a ratio of public to tenant parking of 3:1 (i.e. at least 75% of all non-residential parking to be public parking). Experience has shown that where this level of public parking is provided, the total parking provided can be reduced by as much as 20%, resulting in more efficient use of the parking resource.

To avoid excessive use of cars for travel to the City Centre, and to provide a good amenity for residents and visitors and the safe movement of pedestrians, the number of parking bays will need to be set at an appropriate level. Desirably, both a maximum and a minimum level would be established by the City, in its City Centre policy settings.

The most practical means of obtaining funds for the construction of public parking is to mandate a minimum level of cash-in-lieu contribution be paid to the City per gross floor area of development in accordance with an agreed formula. The rate would need to be set to cover the cost of land and construction of the public parking facilities. The cash-in-lieu contributions would be held in trust by the City for a specific purpose such as for the purpose of building and maintaining public car parks and for making contributions to walking, cycling and public transport within the City Centre area.

To ensure incentives exist for developers to take up the option of cash-in-lieu and to enable the target of 75% public parking to be met, the following principles are proposed:

- no minimum amount of parking on site;
- maximum amount of parking on site set at half the overall maximum total parking allowance;
- a minimum cash-in-lieu allowance be set at half the maximum parking allowance; and
- a minimum overall parking allowance be set at 80% of the maximum parking allowance, in the case when no parking is provided on-site.

An example of how this could operate in practice is shown below:

Type	Maximum (per 1000 m^2 GFA)	Minimum (per 1000 m^2 GFA)
Parking on site (Tenant)	2.5	Zero
Cash-in-lieu (for public parking)	4.0	2.5
Total	**5.0**	**4.0**

In accordance with the above table, a development of 50,000 m^2 of gross floor area could provide for parking in a number of ways, including:

- 125 bays on-site (tenant) and 125 cash-in-lieu payment (total 250);
- 0 bays on-site and 200 cash-in-lieu payment (total 200); and
- 50 bays on-site and 185 cash-in-lieu payment (total 235).

6.4 TRANSIT

The City Centre is being planned and designed as a 'transit city', as opposed to a city with transit. A transit city is generally defined as a city with very frequent transit, where the use of timetables is not required for most of the day. Because of the high number of transit vehicles, on street priority is generally provided to enable the delivery of reliable frequent service.

The City Centre transit system comprised the following elements:

- central rail station and bus/light rail/rail interchange;
- central rail system linking this interchange through the City Centre, via the transit boulevard, to the northern City Centre; and
- a variety of feeder routes linking the surrounding urban areas to the City Centre and the rail/light rail/bus interchange.

It is important in structure planning to demonstrate how the transit can be fully integrated into the urban design of the City Centre. This requires consideration of where the major transit stops or on street stations will be located.

Each of the transit streets have been designed uniquely to ensure the transit system can fit comfortably into the street, whilst providing room for shops/stations, on street parking, other traffic and wide footpaths in the mixed use and retail areas.

The light rail system has been positioned centrally within the north/south City Centre street. A street width of 33 metres is required to accommodate the light rail in its own right of way and meet other requirements such as wide footpaths.

A conceptual plan of the north/south transit street, including cross sections, is shown in **Figure 37.**

Each of the streets where the light rail loops around in a one-way direction past the station has a different character and cross section. These are shown conceptually in **Figure 38.**

Road A to the north of the rail station where the light trail travels towards the station in a west to east direction will have a cross section similar to that shown in **Figure 38** (cross section 1). A major feature of this street is a wide linear park which forms a median between the opposing traffic flows. The light rail route travels in a west to east direction to the south of the median, providing the opportunity for a station to be provided within the linear parkland.

The light rail then travels in a north to south direction immediately to the west of the rail station. The light rail vehicle station is immediately adjacent to the main rail station. The cross section through the station, including the street to the west of the station is shown conceptually in **Figure 31.**

Road B immediately to the south of the rail station is an important street connecting through the City Centre to residential areas to both the east and the west of the City Centre. It is also a major bus route for numerous feeder bus services accessing the bus interchange adjacent to the station. For this reason, it is considered that this street have two traffic lanes in each direction. This street also needs to make provision for light rail travel in a westbound direction between the rail station and the north/south transit boulevard.

A cross section of the portion of this street to the east of the north/south transit street is shown conceptually in **Figure 38** (cross section 2). A street width of 32 metres is required to accommodate the transport infrastructure along the length of the street.

To the west of the north/south transit street, there is no need to accommodate the light rail. However, it is suggested the same street width of 32 metres be continued as far west as the major north/south distributor road along the boundary of the LSP area. A cross section along this section of street is shown conceptually in **Figure 38** (cross section 3).

The north/south transit street, which forms the final portion of the light rail city loop, is similar to the transit street to the north, except that it only provides for northbound light rail. The same 33 metre street width has been retained, allowing for a wider landscaped median to be provided. A cross section of this street is shown conceptually in **Figure 38** (cross section 4).

7 IMPLEMENTATION

In order for the LSP to fulfil its function as a formal component of the planning framework, the following are the key actions required:

- Statutory Planning Requirements;
- Commitment and Responsibilities; and
- Developer Contributions.

7.1 STATUTORY PLANNING REQUIREMENTS

7.1.1 ADOPTION OF LOCAL STRUCTURE PLAN

The LSP should therefore be formally adopted under clause 9.6 of the Scheme, as outlined in Part 1 of the LSP Report.

Once adopted, this LSP will provide the basis for guiding subdivision and development within the subject area.

A separate Structure Plan will be required for the City Centre zone as identified in the LSP.

7.1.2 METROPOLITAN REGION SCHEME

Modifications will be required to the MRS to:

- Relocate the Central City Area to a location south of Toreopango Avenue to align with the proposed Centre location contained in the LSP and zone accordingly;
- Relocate the existing Rail Reserve to match the proposed rail alignment contained in the LSP area and reflect the land as Railways Reserve and Central City Area Zone;
- Extend the Railways Reserve north of the LSP Area to link up with the Primary Regional Roads reservation (Mitchell Freeway) and reserve accordingly;
- Reclassify the existing Railways reserve to City Centre Area, Urban and Urban Deferred;
- Reclassify the Shearwater Avenue Other Regional Roads reservation from its northern extent to Toreopango Avenue at its southern extent, to Railway Reserve, Urban and Urban Deferred; and
- Rationalise the zoning of the former Central City Area as Urban and Urban Deferred.

A request to modify the MRS has been lodged with the WAPC. The proposed modified MRS is shown at **Figure 39**.

7.1.3 CITY OF WANNEROO DPS NO. 2

Modifications will be required to the Planning Scheme to:

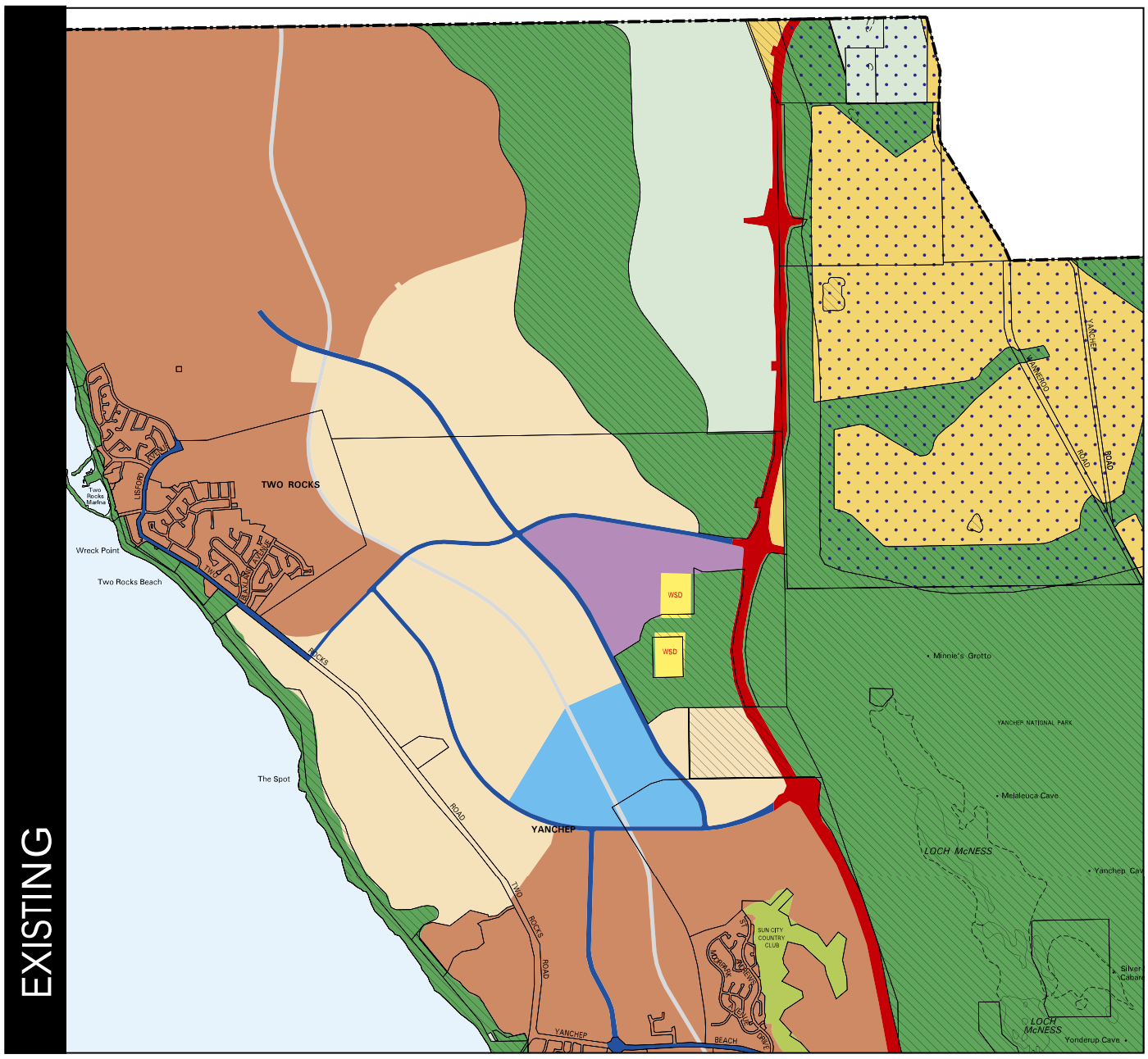
- Relocate the 'Centre' zoned land to accord with the LSP;
- Relocate the Railways reserve consistent with the MRS modifications in section 7.1.2 above;
- Rationalise the zoning of the former Centre zone and Shearwater Avenue as Urban Development; and
- Introduce the Yanchep City Centre into Schedule 3 – Centres and Commercial Zones.

The proposed modified DPS is shown at **Figure 40**.

YANCHEP CITY STRUCTURE PLAN

Proposed Metropolitan Region Scheme Zoning

EXISTING



MRS LEGEND

- SCHEME BOUNDARY

RESERVED LANDS

- PARKS AND RECREATION
- RAILWAYS
- STATE FORESTS
- WATER CATCHMENTS
- WATERWAYS

ROADS

- PRIMARY REGIONAL ROADS
- OTHER REGIONAL ROADS

PUBLIC PURPOSES - DENOTED AS FOLLOWS:

- HS HIGH SCHOOL
- WSD WATER AUTHORITY OF WA

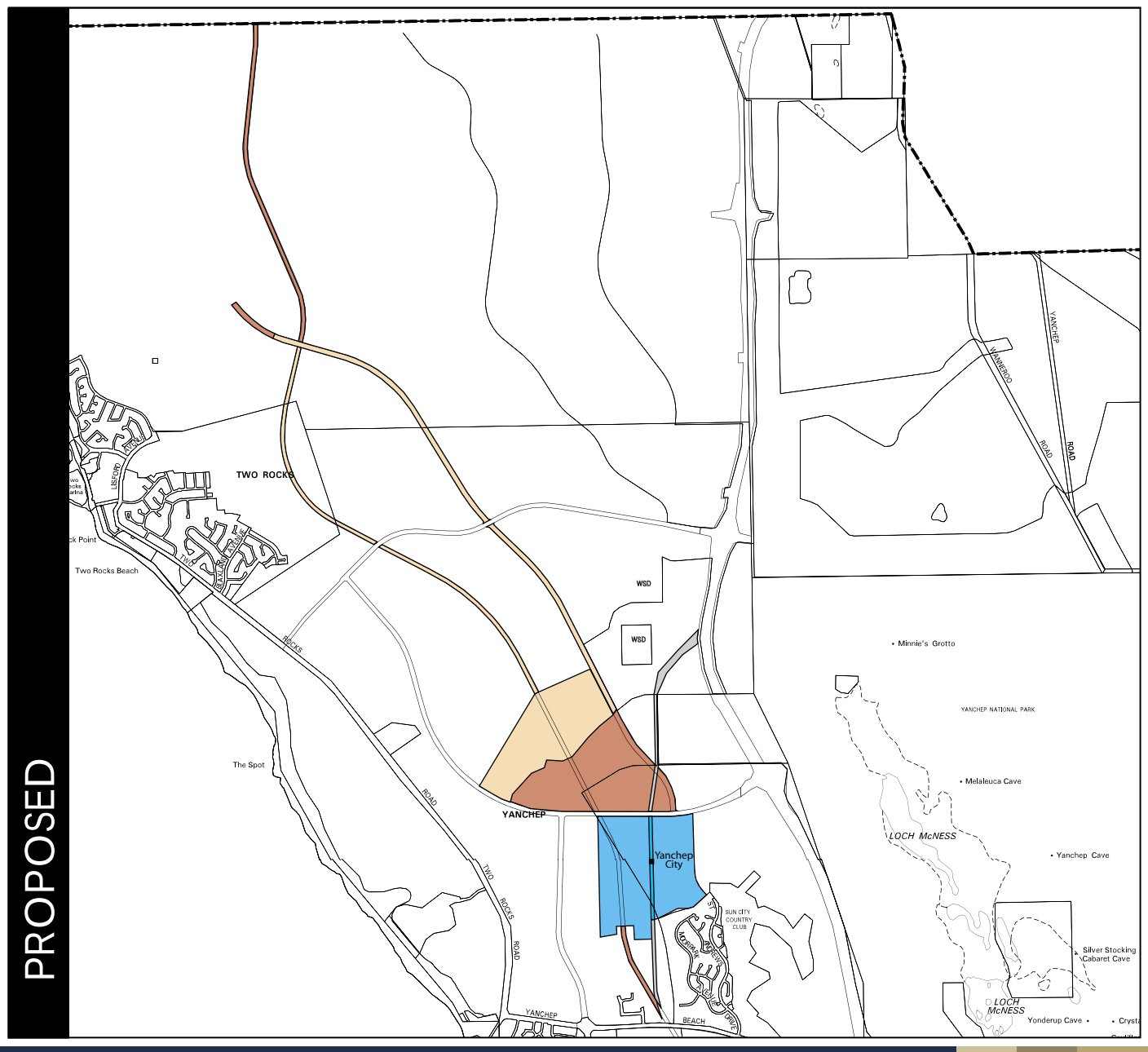
ZONES

- URBAN
- URBAN DEFERRED
- CENTRAL CITY AREA
- INDUSTRIAL
- RURAL
- PRIVATE RECREATION

NOTICE OF DELEGATION

- BUSH FOREVER AREA

PROPOSED



MRS LEGEND

RESERVED LANDS

- RAILWAYS

ZONES

- URBAN
- URBAN DEFERRED
- CENTRAL CITY AREA

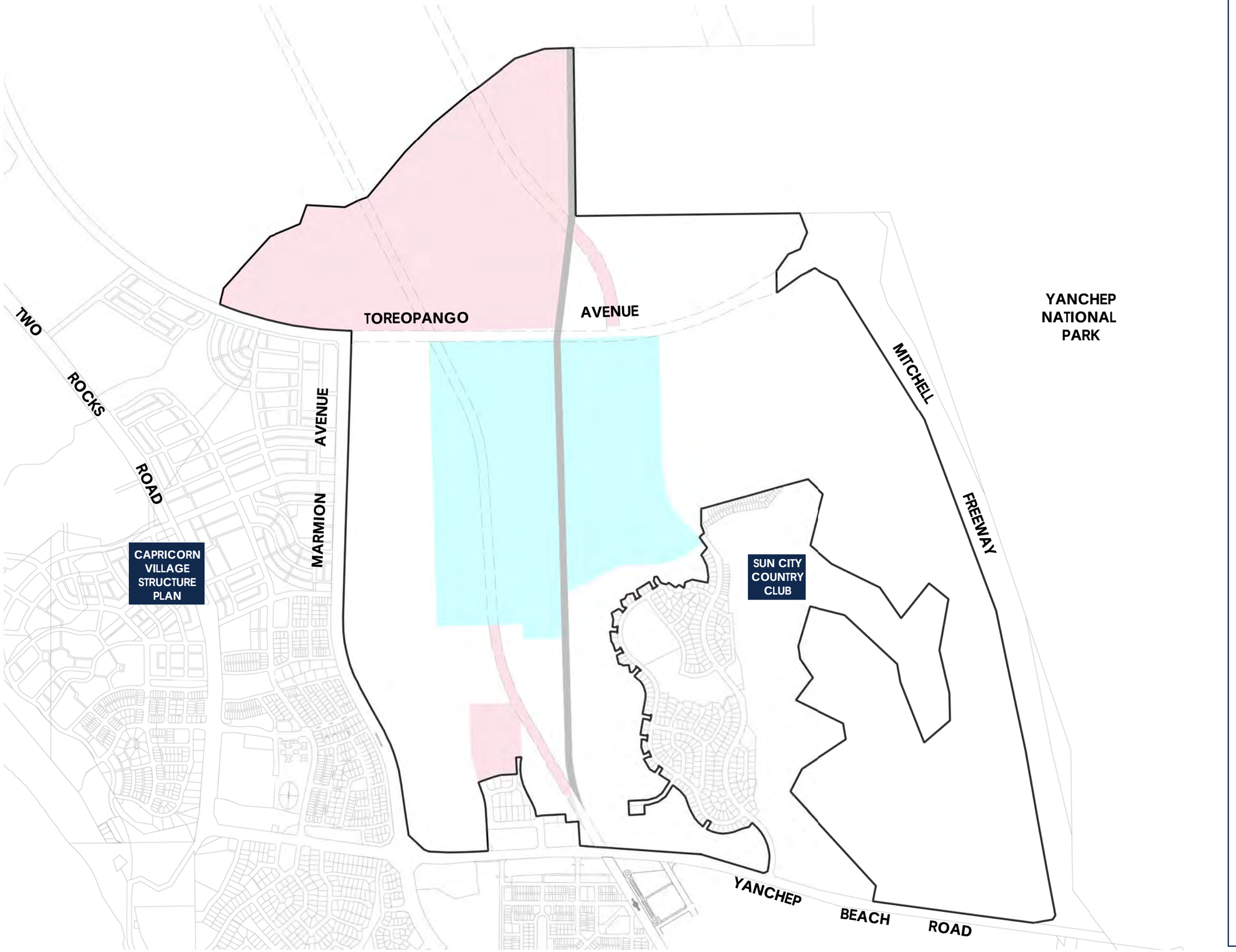
YANCHEP CITY METROPOLITAN REGION SCHEME AMENDMENT

PROPOSED METROPOLITAN REGION SCHEME ZONING

figure **39**

client - Yanchep Beach Joint Venture
date - November 2011
date - 07/004/G022B
source - MRS as at 29 April 2011
Sinclair Knight Merz

Yanchep beach joint venture



LEGEND

METROPOLITAN REGION SCHEMES RESERVES
RAILWAYS

ZONES
CENTRE

URBAN DEVELOPMENT

YANCHEP CITY STRUCTURE PLAN

PROPOSED CITY OF WANNEROO DISTRICT PLANNING SCHEME NO.2

figure **40**

client - Yanchep Beach Joint Venture
date - July 2009

Yanchep beach joint venture

7.1.4 REGIONAL ROAD AND RAIL RESERVE CLOSURES

Concurrent with the proposed MRS modifications to the road and rail reserves, it will be necessary to progress the closure and devesting of the existing Shearwater Avenue Road Reserve and the Railway Reserve.

7.1.5 DEVELOPMENT CONTROL AND DESIGN GUIDELINES

The LSP establishes the framework and theme for development within the plan area. In addition to this guidance, specific development controls and design guidelines should be adopted and applied to provide a complementary assessment framework for any subsequent development application. These can be applied through use of Detailed Area Plans (DAPs) and Design Guidelines (as has been applied traditionally) or through the development of Place Based Codes.

DAPs provide a tool for enabling variance to the Residential Design Codes, where applicable, and placing detailed design controls on built form, height and private open space, and to ensure climatically responsive and energy efficient development outcomes. Within a context of higher density development and the desire to create a specific urban form it is anticipated that DAPs will be extensively applied.

To complement the DAPs, Design Guidelines are essential to establish the architectural style and detail which would be applied within different precincts. Design Guidelines would specify architectural elements such as roof pitch, material/colour schemes and suitable detailing, and would detail requirements for climate responsiveness and energy efficiency.

The use of DAPs and Design Guidelines is likely to be applied should the development of the area be within the context of the existing planning framework.

Should a different implementation mechanism be established the use of Place Based Codes offers an alternative approach to achieving these ends. The benefit of specific codes is that there is greater flexibility through not being required to specify residential density within the confines of the Residential Design Codes or land use within the context of existing scheme provisions. Place Based Codes would enable greater prescription and control on built form, however they are yet to be broadly tested within a Western Australian context.

7.2 DEVELOPER CONTRIBUTIONS

In accordance with SPP3.6 *Developer Contributions for Infrastructure* (November 2009), a suite of infrastructure items have been identified for shared cost contributions, refer **Table 5**. These infrastructure items are considered to be contributed via apportioning costs between the relevant landholdings, to be calculated in a cooperative agreed manner. The contributions for these shared infrastructure items will be established in accordance with the principles outlined in section 5.2 of SPP3.6.

At the time of preparing this LSP, the infrastructure contributions were yet to be formulated and agreed between relevant stakeholders. It is expected that these contributions would be satisfied in accordance with section 5.6 of SPP3.6.

The Yanchep - Two Rocks District Structure Plan report (September 2010) addressed the issue of developer contributions for key infrastructure within the DSP area. The Yanchep - Two Rocks DSP report suggested that, in circumstances where there is a substantial development area controlled by only a small number of landowners, then "*direct negotiation and agreement between adjacent landowners is the usual approach to cost sharing for engineering infrastructure".*

This is supported as the most pragmatic and effective approach to major infrastructure development in the Yanchep - Two Rocks DSP area. This principle is embraced in the Memorandum of Understanding between the City of Wanneroo and Tokyu Corporation (Yanchep Sun City) in which the Tokyu Corporation agreed (inter alia), *"to work with the City of Wanneroo to ensure that appropriate mechanisms are in place for the provision of regional and local infrastructure, and that suitable arrangements are adopted for its provision should land be sold to third parties*".

This commitment has been substantially honoured with the preparation of a Deed of Infrastructure between the WAPC and Tokyu Corporation which set out an agreement in relation to infrastructure contributions, vesting of lands and obligations to road construction. This Deed has since been modified to include St Andrews Private Estate Pty Ltd and New Orion Investments Pty Ltd, which are the joint venture partners in the land the subject of this Local Structure Plan.

At present, the Deed of Infrastructure defines the respective obligations of Tokyu and the joint venture partners in relation to contributions towards the construction of various sections of the following roads:

- Yanchep Beach Road;
- Marmion Avenue;
- Toreopango Avenue;
- Shearwater Drive; and
- Reef Break Drive.

The Deed of Infrastructure also includes a covenant by the joint venture partners that they will not dispose of any part of the subject land without first requiring any future purchaser to effectively become party to the Deed and its various obligations.

The Deed of Infrastructure appears to be an appropriate mechanism for managing the particular developer contribution requirements for the Yanchep - Two Rocks DSP area, and in particular the obligations of the current (and future) owners/developers within the subject LSP area. The Deed is sufficiently robust and variable as to be modified from time to time to include additional infrastructure contribution requirements, even when they become apparent, and also to include additional landowners in the event that the LSP area, or part thereof, is transferred to another party.

It is important to ensure that formal developer contribution arrangements, such as the Deed of Infrastructure, are not over-complicated by the inclusion of unnecessary components. For example, where the developer's obligations are already clearly enunciated through other State policy, subdivision conditions, etc., then it is unnecessary to duplicate the requirement through a separate contribution mechanism. In considering the future development of the YBJV structure plan area, it is possible that the land may be divided into smaller superlot parcels for future sale or joint venture partnership with other developers. This would not occur, however, until the DSP is approved (or at least substantially advanced) and therefore the provisions defining more specifically the infrastructure requirements within the YBJV structure plan area will have been defined and embodied within the LSP.

Future purchasers or joint venture partners will make their investment decisions in the knowledge of the rules and obligations that the structure plan would impose on their area of interest. If this is considered to be an insufficient level of control, then such requirements could be embodied in a similar deed (or deeds) of agreement to the Deed of Infrastructure applying to the overall Yanchep - Two Rocks DSP area.

The Yanchep - Two Rocks DSP report also identified a number of other infrastructure items in order to clarify funding responsibilities. This table is reproduced below:

TABLE 5: FUNDING ARRANGEMENTS

Item	Funding Responsibility	Comments
Wastewater treatment	Water Corporation	Standard headworks charges apply to development.
Wastewater headworks, sewers, pumping stations, etc.	Water Corporation	To service frontal development.
	Developers	Prefunding of permanent/interim headworks for non-frontal development. Funding temporary works for non-frontal headworks.
Water supply reservoirs and treatments plants	Water Corporation	Standard headworks charges apply to development.
Water supply headworks	Water Corporation	To service frontal development.
	Developers	Prefunding of permanent/interim headworks for non-frontal development. Funding temporary works for non-frontal development.
Drainage	Developers	Local roads drainage collection, conveyance and disposal including land for disposal basins, swales or sumps.
Electricity headworks	Western Power	Power generation, transmission lines and zone sub-stations including land.
Electricity distribution	Developers	Included in 'Scheme Charges'.
Gas	WAGAS	To service frontal development.
	WAGAS/Developer	By agreement for non-frontal development.
Telephone	Telstra	To service frontal development.
	Telstra/Developer	By agreement for non-frontal development.
Foreshore	Developer	Foreshore Management Plan and associated foreshore works.
ROS	Appropriate authorities	ROS development works.
Pedestrian and cycle paths	Developer/Council*	Regional and district pedestrian cycle paths.
Recreational facilities	State and Local Government*	District and regional (part) recreational facilities.
Community facilities	Council*	District community facilities.
Public transport	Public Transport Authority*	District public transport facilities and operation.

** Any developer contribution for these items is subject to further discussion.*

In essence, the primary division of responsibility between the government service providers and developers is generally consistent with the principles enunciated in SPP3.6. Most of these items are subject to normal headworks or other funding arrangements negotiated with the individual service providers. The issues that are yet to be clarified in detail relate more to community facilities, such as pedestrian/cycle paths, recreational facilities, community facilities and public transport infrastructure. Traditional developer obligations towards these matters are well established and clearly expressed; however, the DSP noted that the proportion of developer contributions for these items, in respect of the DSP area, is subject to further discussion.

At this stage, the Yanchep City LSP does not propose to identify any additional infrastructure items to be subject to specific developer contributions, either external to, or within, the LSP area.

7.3 STAGING

7.3.1 FRAMEWORK OUTLINE

The development of the Yanchep City Local Structure Plan (YC LSP) area needs to be staged appropriately to ensure timely delivery of residential land; employment land; community infrastructure; public transport; roads; and services. An appropriate balance must be achieved between the residential population, employment opportunities and services available at all stages of the development of the YC LSP area, and the City Centre LSP area in the future. The aim is to ensure that Yanchep City is as self-sufficient as possible, as early in the development process as possible.

A number of factors make it impracticable to provide a comprehensive staging strategy outlining exact timing or location for delivery of land and services. A prescriptive staging strategy is both inappropriate and counter-productive for a number of reasons, including:

- The significant scale and complexity of the LSP area;
- The presence of the future City Centre LSP area, intended to ultimately provide the large proportion of employment land and community infrastructure for the wider Yanchep-Two Rocks District Structure Plan area, at the core of the Yanchep City LSP; and
- The influence of development outside the LSP area on demand for community, commercial and employment facilities. The LSP area will provide employment and services for a substantial part of the region; it is therefore not possible to connect employment and service delivery of these areas to the rate of residential development solely within the LSP area.

A policy framework for staging is proposed that promotes orderly progression of development, and a balanced delivery of urban land and services, based on the fulfilment of certain parameters. This progression would not necessarily need to be spatially sequential; indeed it is likely that development must occur on independent fronts to deliver housing choice, employment and community facilities in parallel.

Accordingly, the principles outlined below have been formulated to provide a framework for the staged delivery of land in the YC LSP area. All, subdivision, detailed area plans and development applications should be considered by the relevant decision-making authorities in the context of the principles outlined below.

7.3.2 PRINCIPLES

RESIDENTIAL LAND SUPPLY

- A range of housing types should be provided at all stages, to ensure a diversity of available housing choice, while recognising that certain housing types (such as high density apartments) can only feasibly be supplied in later stages when they can be supported by appropriate services and infrastructure.
- Having regard for point 3, multiple residential development fronts can be supported to the extent that this provides a competitive housing market and will offer housing choice in product and location.

EMPLOYMENT LAND

- Delivery of land for employment must occur concurrently with the growth of population across the LSP area, in order to attain local employment self-sufficiency targets. This will be difficult to deliver in the first stages of development, by virtue of a lack of either a consumer catchment or a local source of workers, but will become more attainable as the area matures. The challenge will be to maximise employment creation as the area grows; the Economic Development Strategy will be pivotal in this regard.
- Importantly, the YC LSP area will deliver an employment base for a substantial part of the Yanchep-Two Rocks DSP population. The population generated within the LSP area itself will only account for a fraction of the overall catchment influencing employment generator demand in and around the City Centre.

COMMUNITY INFRASTRUCTURE

- Development should be focused on establishing a small nucleus of neighbourhoods in the first instance to create cohesive communities early in the process. This will allow for the necessary level of support to sustain retail, community and public transport services as soon as possible.
- New community infrastructure, including public open space and other recreational facilities, schools, public meeting facilities etc, should be provided in parallel with the delivery of residential development (unless sufficient nearby facilities already exist), to ensure new residents are not socially excluded.
- A Community Infrastructure Plan should be prepared prior to Detailed Area Planning to guide timely management and equitable funding of community infrastructure across the LSP area.

PUBLIC TRANSPORT

- New public transport services should be provided in parallel with the delivery of residential development, to ensure new residents are not socially excluded. This is typically the responsibility of the Public Transport Authority to deliver services as demand requires and therefore cannot necessarily be controlled by the developer; however private developers may consider the merits of providing, or subsidising, public transport in the initial stages to promote viable alternatives to private car usage at the outset.
- Whole-of-government commitment (across Federal and State tiers in particular) to the early delivery of rail services to the LSP area will be crucial for ensuring effective transit-based development outcomes.

ROAD INFRASTRUCTURE

- In order to minimise the upfront cost of road infrastructure, and to aid in the early establishment of viable public transport options, development should begin close to existing arterial roads and should generally advance progressively away from them.

- Non-sequential spatial distribution of development fronts can be acceptable if there is reasonable justification, such as proximity to community facilities or other utility services, and if this will help to promote the early provision of additional land for housing, employment and community infrastructure.

UTILITY SERVICES

- In order to minimise the upfront cost of major utility services, development should begin close to existing services and should generally 'roll-out' progressively away from them.

- Non-sequential spatial distribution of development fronts will be permitted if a developer is willing to fund upfront the extension of utility services infrastructure, and if this will help to promote the early provision of additional land for housing, employment and community infrastructure.

STAGING OF DEVELOPMENT IN-SITU

- The need for the LSP area (and later the City Centre LSP) to evolve and intensify progressively over time must be accommodated in the release of land for development and in built form outcomes. Ultimate residential densities and non-residential land uses reflecting the near-City Centre location may not be feasible in the short to medium term, but the early development of such areas to a lesser density or an alternative interim land use may be beneficial in establishing the foundations of the City Centre. Therefore a transitional approach to development roll-out should be permitted – the road grid and street block pattern needs to be robust to accommodate future generations of development that will evolve to deliver the long term vision for the City; however there should be a flexible approach in considering interim land uses and densities provided these do not compromise the ability to change and intensify over time.

7.3.3 TIMELY DEVELOPMENT OF EMPLOYMENT AND COMMUNITY INFRASTRUCTURE

It is an important aim to produce land for employment creation and community infrastructure at a rate that keeps pace with the emerging population and creates economic and social self sufficiency from the earliest possible stage. However, it is not practicable to mandate delivery of these elements ahead of a viable catchment, and the rate, type and location of provision will be the subject of more detailed analysis through specific strategies.

EMPLOYMENT

It is proposed that the timely generation of employment opportunities in a manner that will keep pace with population growth and meet the Smart Growth objectives, will be achieved through implementation of the Economic Development Strategy (refer Section 5.9.4). Future timing/staging of employment-based land development will be strongly guided by the principles described above and the more detailed implementation requirements to be contained in the Economic Development Strategy.

The Economic Development Strategy may also offer guidance for private developers in terms of potential development/funding initiatives that may promote early establishment of business enterprises, to accelerate the creation of local employment opportunities.

COMMUNITY

The building of a community through (in part) the early development of key community infrastructure will be achieved through:

- The Community and Economic Development Plan (CEDP)(refer Section 5.11.4); and
- The Community Infrastructure Plan (refer Section 8.11.2).

These documents will, among other things, define population thresholds, at which key levels of community infrastructure need to be in place. Importantly, the CEDP will also provide strategies for social engagement to assist in the building of a sense of community – beyond simply building the physical infrastructure.

All of these documents are proposed to be completed prior to any development occurring.

7.4 COMMITMENTS AND RESPONSIBILITIES

To ensure successful implementation of the project, it is necessary for the works and ongoing project responsibilities to be clearly defined at the outset of the project:

7.4.1 ENVIRONMENTAL MANAGEMENT PLANS

Section 5.8 has identified the various environmental Management Plans that will need to be prepared and implemented. These are as follows:

- Drainage, Nutrient and Water Management Plan;
- Flora and Fauna Management Plans;
- Karst Management Strategy;
- Solid and Liquid Waste Management Plan;
- Unexploded Ordinances Management Plan; and
- Noise Management Strategy.

An Aboriginal Heritage Management Plan has already been prepared (see **Appendix B**), and the recommendations and actions contained within will be implemented during future design and development stages.

Karst assessment undertaken for the LSP indicated that stygofauna and/or troglobitic fauna assemblages were highly unlikely to be present in the study area. A stygofauna and troglobitic assessment will be undertaken to confirm that this is the case.

7.4.2 COMMUNITY PLANNING

One of the key challenges of the YBJV project will be to balance the requirement to meet the needs of the local community with the realities of building a city.

There is urgent need for the provision of health services, community and recreation facilities, upper school and tertiary education options and local employment. The following staging/strategies have been proposed by Creating Communities to address this, and should be considered during implementation of the LSP:

- Development of the Community and Economic Development Plan.
- Establishment of Community Life Working Group and Youth Community Life Working Group to have input into CEDP and project staging.
- Establishment of an education annex in partnership with providers to deliver on-site training.
- Further facilities planning.
- Development of a Community Facilities Plan to guide the staged delivery of local, district and regional facilities (refer to YBJV Facilities Needs Assessment).
- Establishment of fund to sponsor local groups in activities related to the city development.
- Commencement of longitudinal quality of life, wellness and social capital research.

Also necessary will be the development of a Community Infrastructure Plan, incorporating a draft facility provision strategy; a draft financial plan; and a draft facility provision timetable. This is a requirement of the City of Wanneroo.

7.4.3 COMMUNITY CONSULTATION

Community consultation on the Yanchep City LSP has included a range of meetings with stakeholders throughout the development of the plan.

Local community representatives, the City for Wanneroo and other stakeholders also participated in a Structure Planning Workshop early in the plan's development.

Further consultation is planned during advertising of the structure plan and will include:

- Advertising in local papers;
- An open day; and
- A questionnaire to open day attendees.

The results of the consultation will be documented in a consultation report and forwarded to the City of Wanneroo.

7.4.4 SMART GROWTH ASSESSMENT

The Local Structure Plan has been prepared in recognition of the City of Wanneroo's Smart Growth Strategy, and it is understood that a Smart Growth assessment of the Plan and proposals will be required by both the City and the proponent as part of the City's consideration of the LSP.