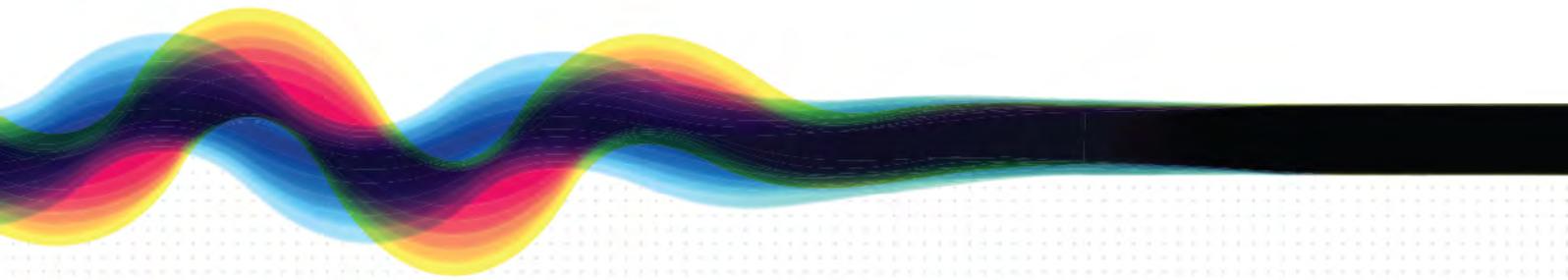


Casuarina - East of Freeway

Local Structure Plan

May 2019 | 17-769



element.
the art and science of place

Document ID: PG Planning/PG 2017 - WorkflowMax/17-769 Casurina, Thomas Road/7 Final Documents/1 Lodged/Casuarina LSP V4.indd

Issue	Date	Status	Prepared by		Approved by	
			Name	Initials	Name	Initials
1	18.06.18	Draft	Sam Jeleric	SJ	Murray Casselton	MC
2	27.06.18	Final	Sam Jeleric	SJ	Murray Casselton	MC
3	30.08.18	Revised Final	Sam Jeleric	SJ	Murray Casselton	MC
4	22.05.19	Modified Final	Lewis Shugar	LS	Murray Casselton	MC

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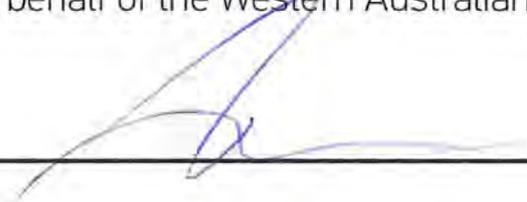
ENDORSEMENT PAGE

This Local Structure Plan is prepared under the provisions of the City of Kwinana Local Planning Scheme No. 2.

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

10 June 2019

Signed for and on behalf of the Western Australian Planning Commission:



an officer of the Commission duly authorised by the Commission pursuant to section 16 of the Planning and Development Act 2005 for that purpose, in the presence of:

Taym Cox Witness

11 June 2019 Date

10 June 2029 Date of Expiry

Table of Amendments

Amendment No.	Summary of the Amendment	Amendment Type	Date approved by WAPC

Executive Summary

Overview

This Local Structure Plan (LSP) has been prepared to guide the development of land totalling 26.44 hectares in area, and encompasses Lot 1199 (No. 740) Thomas Road, Casuarina, Lot 3 on Diagram 86318, Lots 9011 and Part Lot 9012 and 9013 on Plan 410834 (the Local Structure Plan area) within the City of Kwinana (the City).

The LSP area is located approximately 30.5 kilometres to the south of the Perth Central Business District, 3.5 kilometres east of the Kwinana Town Centre and 3.95 kilometres to the coastline. The subject site is located in the growth corridor on the eastern side of the Kwinana Freeway between Thomas Road to the north and Mortimer Road to the south.

The subject site is located approximately 100 metres from an existing local structure plan area on the northern side of Thomas Road, identified as the Anketell South Local Structure Plan and on the opposite side of the Kwinana Freeway from the 'Casuarina - West of Kwinana Freeway' Local Structure Plan.

This LSP has been prepared on behalf of the landowner 'Aigle Royal Properties Pty Ltd' and has been informed by investigations undertaken by the following consultant team:

- **element** – town planning and urban design
- PGV environmental – environment assessment and significant tree survey
- JDA Consulting Hydrologists – local water management
- Cossill & Webley consulting engineers– engineering and servicing
- Transcore – traffic assessment
- Emerge – bushfire management and landscape master plan

Purpose

The intent of this LSP is to provide a planning framework to guide and facilitate the development of the subject land for a range of showrooms and bulky goods retail land uses, as well as other land uses which may be typically permissible in a Service Commercial zoning.

Although this LSP does not cover the entirety of the Casuarina area east of the freeway, future separate planning processes are expected to fill in the gaps between Thomas Road through to Mortimer Road which will include predominantly residential land being made available.

The approach taken will allow for the staged development of the area in response to prevailing market conditions at the time.

Design Approach

The design of this LSP is a product of a multidisciplinary approach which was predicated on the need to respond to a number of site issues and constraints in order to deliver a balanced outcome for the site in accordance with the Structure Plan Framework Guidelines as prepared by the Western Australia Planning Commission (WAPC). This LSP has been informed by the following studies:

1. Preparation of an environment assessment report and a significant tree survey (PGV) to identify any potential impacts to the environment resulting from the development of the LSP area and identify management actions.
2. Preparation of a Local Water Management Strategy (LWMS) (JDA Consulting Hydrologists) to identify local surface water and ground water conditions and to make recommendations on how to manage the ongoing hydrology area, including in respect of pre-existing drainage assets.
3. Preparation of a servicing and infrastructure report (Cossill and Webley) to identify strategic engineering opportunities and constraints within the LSP area.
4. Preparation of a transport assessment (Transcore) to accommodate the modeled traffic movement that would be generated by the resultant bulky goods retail development within the LSP area.
5. Preparation of a bushfire hazard level and bushfire attack level assessment (Emerge) in response to the bushfire risk imposed by vegetation currently located in and around the LSP area.
6. Preparation of a landscape master plan (Emerge) to guide the landscaping approach for the future development of the area and tie in with other water management and proposed initiatives.

Executive Summary Table

Item	Data	Local Structure Plan Ref (Section No.)
Total area covered by the Local Structure Plan	26.44 ha	Part 2 – Section 12.2 CT's – Appendix A
Estimated Area of each land use proposed:		
<u>Zones</u>		
• Service Commercial	13.91 ha*	Part 2 – Section 4.2.1
• Special Use	6.5 ha*	Part 2 – Section 4.2.2
	*includes 2.16 ha of power lines easement	
<u>Reserves</u>		
• Drainage Area / Watercourse	3.25 ha	Part 2 – Section 4.2.3
• Road Reserves	2.78 ha	Part 2 – Section 4.3
Total estimated lot yield	Not applicable	Not applicable
Estimated maximum floor space	127,750 m ² GFA**	Not applicable
Estimated number of dwellings	Not applicable	Not applicable
Estimated maximum jobs provided	2,555 jobs***	Part 2 – Section 4.5
Estimated population	Not applicable	Not applicable
Number of primary schools	Not applicable	Not applicable
Number of high schools	Not applicable	Not applicable
Public open space	Not applicable	Not applicable

** based on plot ratio of 0.7 for developable area in the Service Commercial and Special Use zones (18.25 hectares)

*** based on 20 employees per 1,000m² floorspace

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Part One – Implementation

Structure plan area

- (a) This LSP applies to several lots in Casuarina on the southern side of Thomas Road and east of Kwinana Freeway comprising Lot 1199 (No. 740) Thomas Road, Lot 3 on Diagram 86318, Lot 9011 and Part Lots 9012 and 9013 on Plan 410834 being the inner edge of the line denoting the Local Structure Plan area boundary (Plan 1).

Operation

- (a) This LSP commences operation on the day on which it is endorsed by the WAPC.

Staging

- (a) The development of the LSP area will be implemented in multiple stages due to the significant size of the future development area and the nature of service commercial land uses that will occupy the area. Final development staging and composition will also be dependent upon a number of other factors, including market demand, servicing and infrastructure considerations.
- (b) Staging of road, connections and accessways is anticipated, with new public roads being provided generally in accordance with this LSP and as identified on Plan 1, to service staged development.

Subdivision and Development Requirements

Land Use Permissibility

- (a) The Local Structure Plan Map (Plan 1) outlines zones and reserves within the LSP area. Where applicable the intention of zones and land use permissibility within the LSP area shall be in accordance with the corresponding zone or reserve purpose under the City of Kwinana Local Planning Scheme No. 2 (LPS 2).
- (b) Land use permissibility for the 'Service Commercial' zone shall be in accordance with the associated LPS 2 provisions.
- (c) The following uses are permitted (P) within the 'Special Use' zone:
- Bulky goods showroom
 - Car park
 - Consulting rooms
 - Eating house
 - Liquor store
 - Motor repair station
 - Petrol filling station
 - Service station
 - Warehouse
- (d) The following use is incidentally permitted (IP) within the 'Special Use' zone:
- Shop
 - Fish shop

Minimum Lot Size

No minimum lot size is to be allocated to the 'Service Commercial' and 'Special Use' zones in the LSP area.

Development Requirements

Development requirements for both the 'Service Commercial' zone and 'Special Use' zones as set out in the LSP are to be in accordance with the requirements as set out within clause 6.6 of LPS 2, unless otherwise specified by the City or via an approval Local Development Plan (LDP).

Conditions of Subdivision and/or Development Approval

- (a) Table 1 prescribes the regulatory provisions of the Local Structure Plan pertaining to requirements and prerequisites for subdivision within the LSP area, pursuant to the *Planning and Development (Local Planning Schemes) Regulations 2015*.
- (b) At the time of subdivision, the City may recommend conditions to the WAPC, as applicable, requiring the preparation and/or implementation of conditions as outlined in Table 1.

Table 1 – Conditions of Subdivision and/or Development

1. Stormwater Management	<p>1.1 Prior to the commencement of subdivision or development works, an Urban Water Management Plan (UWMP) is to be prepared and approved to the satisfaction of the City.</p> <p>The UWMP is to be prepared in consultation with the Department of Water and Environmental Regulation and the Water Corporation.</p>
2. Movement Networks	<p>2.1 The movement network within the Local Structure Plan area shall be provided generally in accordance with this LSP and as identified on Plan 1.</p> <p>2.2 Prior to the creation of the main entrance to the LSP area, Bombay Boulevard is to be modified so that it no longer connects directly to Thomas Road but is realigned to connect to the main road running generally south from the main entrance.</p>
3. Traffic and Pedestrian Management Plan	<p>3.1 A Traffic and Pedestrian Management Plan (TPMP) shall be prepared and approved to the satisfaction of the City which identifies reciprocal rights of access to facilitate co-ordinated and efficient vehicle access between the Service Commercial and Special Use areas; and provide for safe pedestrian/cycle connectivity between the Service Commercial and Special Use areas.</p>
4. Infrastructure	<p>4.1 The subdivider is to re-align the existing services corridor running from the Kwinana Freeway to Thomas Road along a replacement 18m wide local road reserve as depicted on the LSP (Plan 1).</p>
5. Landscaping	<p>5.1 An approved landscape plan shall be provided to the satisfaction of the City generally in accordance with the landscape master plan prepared to support the LSP.</p> <p>As a minimum requirement, the landscaping plan shall include appropriate acknowledgment of the old Armadale – Rockingham road alignment which intersects the site. This is to be interpreted through the proposed landscaping at the development application stage.</p>
6. Landscape Feature and Tree Retention Plan	<p>6.1 A Landscape Feature and Tree Retention Plan should be prepared in accordance with Local Planning Policy No. 1, to ensure that the retention of significant trees is optimised as part of the civil design and earthworks. This plan should be developed in consultation with the City at the detailed design stage.</p>

Local Development Plans

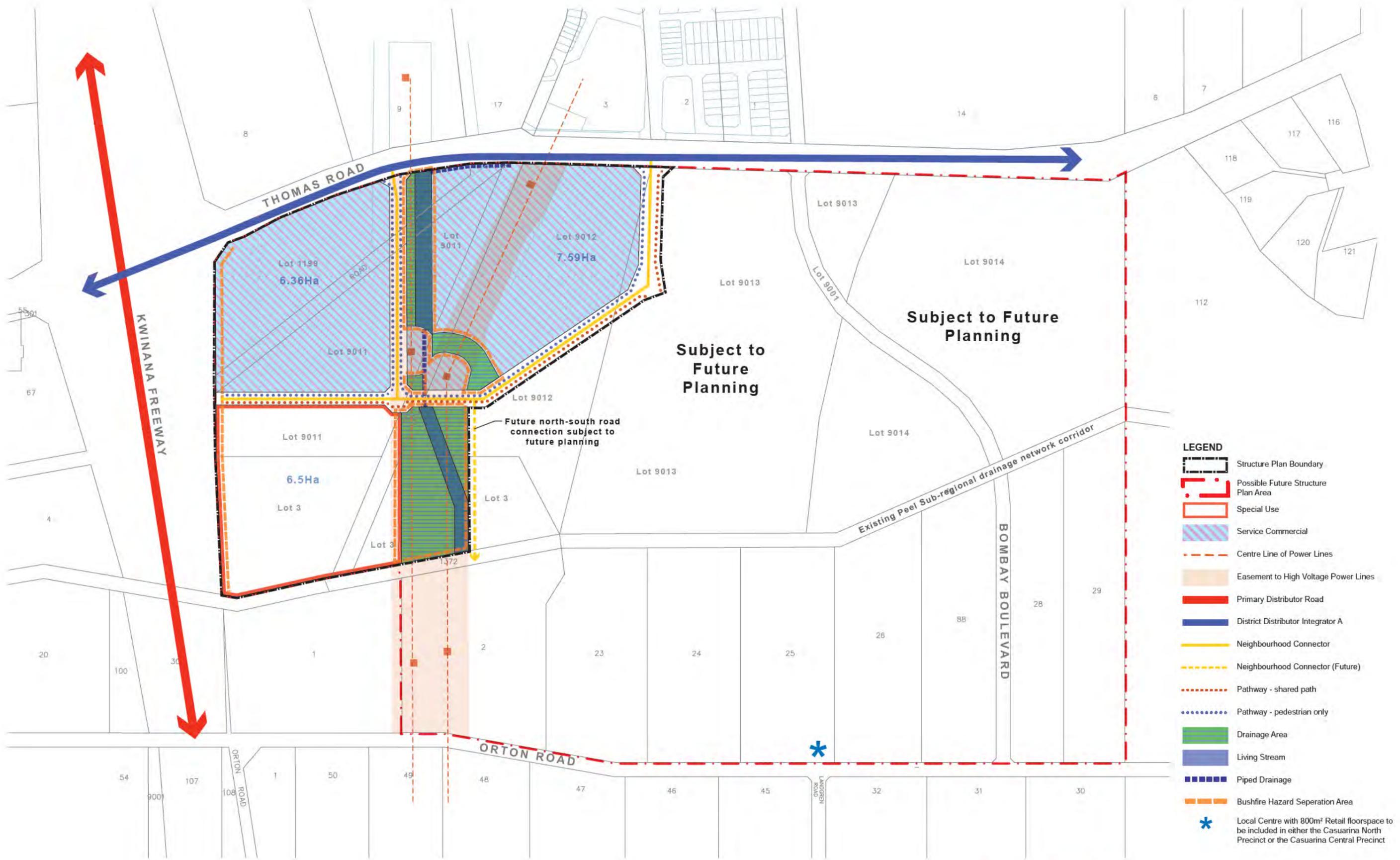
Where considered necessary to augment LPS 2 development requirements, LDPs may be required to be prepared as a condition of subdivision approval for land within the LSP. LDPs are to be used as a means of setting out specific and detailed guidance for future development and may include, but not necessarily be limited to the following:

- (a) Height
- (b) Plot Ratio
- (c) Setbacks
- (d) Interface Treatments
- (e) Landscaping
- (f) Car Parking
- (g) Vehicle and pedestrian access and egress

Where a comprehensive development application is proposed or already approved, addressing the above matters, the requirement for an LDP will be waived.

Development Contribution Arrangements

Developer contributions are to be in accordance with the Scheme.



Plan 1: Local Structure Plan

Lots 9011, 9012, 9013, 1199 & 3 Thomas Road, Casuarina

0 50 100m
 Project Manager: MC Date: 22 May 2016
 Drawn: OP Scale: 1:5,000 @ A3
 Checked: MC Drawing No. 17-769 ST-1 A

element.
 the art and science of place
 Level 18, 191 St Georges Terrace
 Perth Western Australia 6000
 Telephone +61 8 5289 6200
 Facsimile +61 8 9221 4796
 www.elementa.com.au



Part Two – Explanatory Report

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PLAN 1 – Local Structure Plan

Figure 1 – Location Plan

Figure 2 – Aerial Plan

Figure 3 – Site Plan

Figure 4 – Metropolitan Region Scheme

Figure 5 – City of Kwinana Local Planning Scheme No. 2

Figure 6 – Jandakot Structure Plan

Figure 7 – ERIC

Figure 8 – Draft Local Planning Strategy Spatial Plan

Abbreviations

AHD Australian Height Datum

ASS Acid Sulfate Soils

BAL Bushfire Attack Level

BAM Biosecurity and Agriculture Management Act 2007

BMP Bushfire Management Plan

CoK City of Kwinana

DAFWA Department of Agriculture and Food Western Australia

DEC Department of Environment Conservation

DPLH Department of Planning, Lands and Heritage

DBCA Department of Biodiversity, Conservation and Attractions

DWER Department of Water and Environmental Regulation (Formerly DOW)

DWMS District Water Management Strategy

EPA Environmental Protection Authority

EPBC Act Environmental Protection and Biodiversity Conservation Act 1999

ERIC Draft District Structure Plan - Eastern Residential Intensification Concept

JSP Jandakot Structure Plan

JUWPCA Jandakot Underground Water Pollution Control Area

JWRMS Jandakot Water Resources Management Strategy

LCACS City of Kwinana Local Commercial and Activity Centres Strategy

LDP Local Development Plan

LSP Local Structure Plan

LPS 2 Local Planning Scheme No. 2

LWMS Local Water Management Strategy

POS Public Open Space

PTA Public Transport Authority

REW Resource Enhancement Wetland

RNA Retail Needs Assessment

SPP State Planning Policy

SPP 2.3 State Planning Policy 2.3 – Jandakot Groundwater Protection Policy

SPP 3.7 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

SPP 4.1 State Planning Policy 4.1 – Industrial State Buffer

UWMP Urban Water Management Plan

UWPCA Underground Water Pollution Control Area

WAPC Western Australian Planning Commission

WSUD Water Sensitive Urban Design

WWPS Wastewater Pump Station

1. Planning background

1.1 Introduction and purpose

This Local Structure Plan (LSP) has been prepared by Element Advisory Pty Ltd (**element**) on behalf of the landowner (Aigle Royal Properties Pty Ltd) to guide the future subdivision and development of land on Lot 1199 (No. 740) Thomas Road, Casuarina, Lot 3 on Diagram 86318, Lot 9011 and Part Lots 9012 and 9013 on Plan 410834 (the Local Structure Plan area) within the City of Kwinana.

This non-statutory (explanatory) section constitutes Part 2 of the proposed LSP. The LSP will primarily facilitate the development of the LSP area and allow for a range of uses generally consistent with the Service Commercial Zone as set out in LPS 2, with minor use additions for the proposed and Special Use area. This LSP has been prepared for the north-western portion of the Northern Precinct of the Casuarina Urban Development Zone and is intended to fulfill the requirements of the WAPC's Structure Plan Preparation Guidelines and the City of Kwinana's Local Planning Scheme No. 2 (LPS 2).

This LSP will be used by the WAPC, Landowners, the Department of Planning, Lands and Heritage (DPLH), the City and State Government agencies to inform further detailed planning and provide certainty for future development over the subject lots.

Supporting documentation in the form of separate technical reports have been prepared to inform this LSP and are appended to this document. These documents include:

- *Environmental Assessment (2017) and Significant Tree Survey (2018) prepared by PGV;*
- *Local Water Management Plan (2017) prepared by JDA;*
- *Traffic Assessment (2018) prepared by Transcore;*
- *Engineering Services Report (2017) prepared by Cossill & Webley;*
- *Bushfire Hazard Level and Bushfire Attack Level Assessment (2017) prepared by Emerge; and*
- *Landscape Master Plan prepared by Emerge.*

This LSP comprises Part 1 - Implementation Section, Part 2 Explanatory Section and associated technical appendices.

Part 1 - Implementation Section sets out the provisions that apply to the LSP.

Part 2 - Explanatory Section provides supporting information and explanation as to the background of the Part 1 provisions. The content and format of Part 2 responds to the requirements of the WAPC's Structure Plan Preparation Guidelines.

1.2 Structure Plan Area

The Local Structure Plan area comprises a significant part of the Northern Precinct of the Casuarina Urban Development Zone and focuses on the establishment of 'Service Commercial' and 'Special Use' zones with the intention of establishing a new bulky goods retail and showroom precinct in the first instance, with the remainder of the structure planning for the Northern Precinct (primarily the residential component) to be prepared in due course as part of future stages.

It is noted that a staged approach such as this is supported by the following components of the applicable statutory framework:

- The City's LPS 2 provides that structure plans may be prepared and implemented in stages, pursuant to Clause 6.17.3.2.
- The LSP is broadly consistent with the Draft District Structure Plan – Eastern Residential Intensification Concept (ERIC), and the Jandakot Structure Plan.
- *The Planning and Development (Town Planning Schemes) Regulations*, under Part 4 – Section 15 provides the following, with respect to when structure plan may be prepared:

A structure plan in respect of an area of land in the Scheme area may be prepared if —

(a) the area is —

(i) all or part of a zone identified in this Scheme as an area suitable for urban or industrial development; and

(ii) identified in this Scheme as an area requiring a structure plan to be prepared before any future subdivision or development is undertaken; or

(b) a State planning policy requires a structure plan to be prepared for the area; or

(c) the Commission considers that a structure plan for the area is required for the purposes of orderly and proper planning.

- Local Planning Policy No. 6 – Guidelines for Structure Planning in the Casuarina Cell, was recently adopted by the City. The policy objective is as follows:

To provide guidance on the district planning matters that should be considered during the preparation of Local Structure Plans (LSPs) within the Casuarina Urban Development zone (Casuarina Cell), to ensure that subdivision and/or development proceeds in an orderly and proper manner across the whole Cell.

As alluded to, the subject site is located within the 'North Precinct' under this policy. The policy provides the following key guideline applicable to this LSP:

Bulky Goods and Showroom uses should be located adjacent to Thomas Road and the Kwinana Freeway to make best use of the access and exposure provided by these roads. Supermarkets and small format shops are not permitted in this area. The balance of the precinct should be used for residential purposes.

The LSP as proposed meets the guideline requirements for the North Precinct as set out under the Policy.

In addition to staged structure planning being envisaged under the planning framework requirements applicable to the subject site, the proposed extent of the LSP is considered to be representative of orderly and proper planning for the following reasons:

- The proposed development of the land for bulky goods retailing and showroom uses will facilitate the provision of early services and employment opportunities for the local community that are currently lacking.
- All servicing related matters have been resolved as they relate to the Local Structure Plan area.
- The LSP provides a well-defined and appropriate internal road network that will frame and service future subdivision and development within the Local Structure Plan area while allowing for extensions to facilitate the future orderly and proper planning of the wider Northern Precinct.
- The LSP is responsive to current market conditions in the sense that there is no immediate intention to develop the remainder of the precinct, allowing future structure planning over this area to be responsive to conditions at the time.
- The location of the development envisaged under the LSP meets the locational criteria for bulky goods retailing and mixed business as set out in Clause 5.6.1(6) of State Planning Policy 4.2 – Activity Centres for Perth and Peel (SPP 4.2), with the LSP outcome therefore aligning with the WAPC's Structure Plan Framework intent of aligning with applicable State Planning Policies.

This staged approach does not in any way compromise the future development of the balance area, and is therefore considered to be compatible with orderly and proper planning.

1.3 Land description

1.3.1 Location

The area subject to this LSP comprises several lots being Lot 1199 (No. 740) Thomas Road, Casuarina, Lot 3 on Diagram 86318, Lots 9011 and Part Lots 9012 and 9013 on Plan 410834 (the LSP area). The LSP area is located within the municipality of the City of Kwinana, approximately 30.5 kilometres to the south of the Perth CBD, 3.5 kilometres to the east of the Kwinana Town Centre and around 4 kilometres to the coastline.

The LSP area is located in an urban growth corridor on the eastern side of the Kwinana Freeway broadly between Thomas Road on its northern boundary and Mortimer Road to the south. The LSP area is strategically located adjacent to the Kwinana Freeway, which provides a strong north-south regional connection within the Perth Metropolitan Region. Thomas Road also affords the site a strong east-west sub-regional linkage.

The LSP area is also located on the opposite side of the Kwinana Freeway from land zoned already zoned under LPS 2 for compatible mixed business purposes.

The LSP area is also approximately 100 metres south of an establishing local structure plan area on the opposite side of Thomas Road being identified as the Anketell South Local Structure Plan. This land is primarily identified for residential development with localised components of commercial and service commercial uses fronting Thomas Road.

The LSP area is currently vacant except for high voltage power transmission lines which traverse the site and a pocket of vegetation located in the north-western corner, adjacent to the Kwinana Freeway/Thomas Road intersection.

Refer to Figure 1 – Location Plan

1.3.2 Area and land use

The LSP area has a combined site area of 26.44ha. It is vacant and is broadly described as 'degraded' without any existing building improvements either within or immediately surrounding the LSP area.

Historically, the LSP area has remained vacant and has been set aside for future development, pending the preparation of various guiding planning documents being prepared for the land and surrounding precinct.

An established mushroom farm is located immediately to the south of the site.

Refer to Figure 2 – Aerial Plan

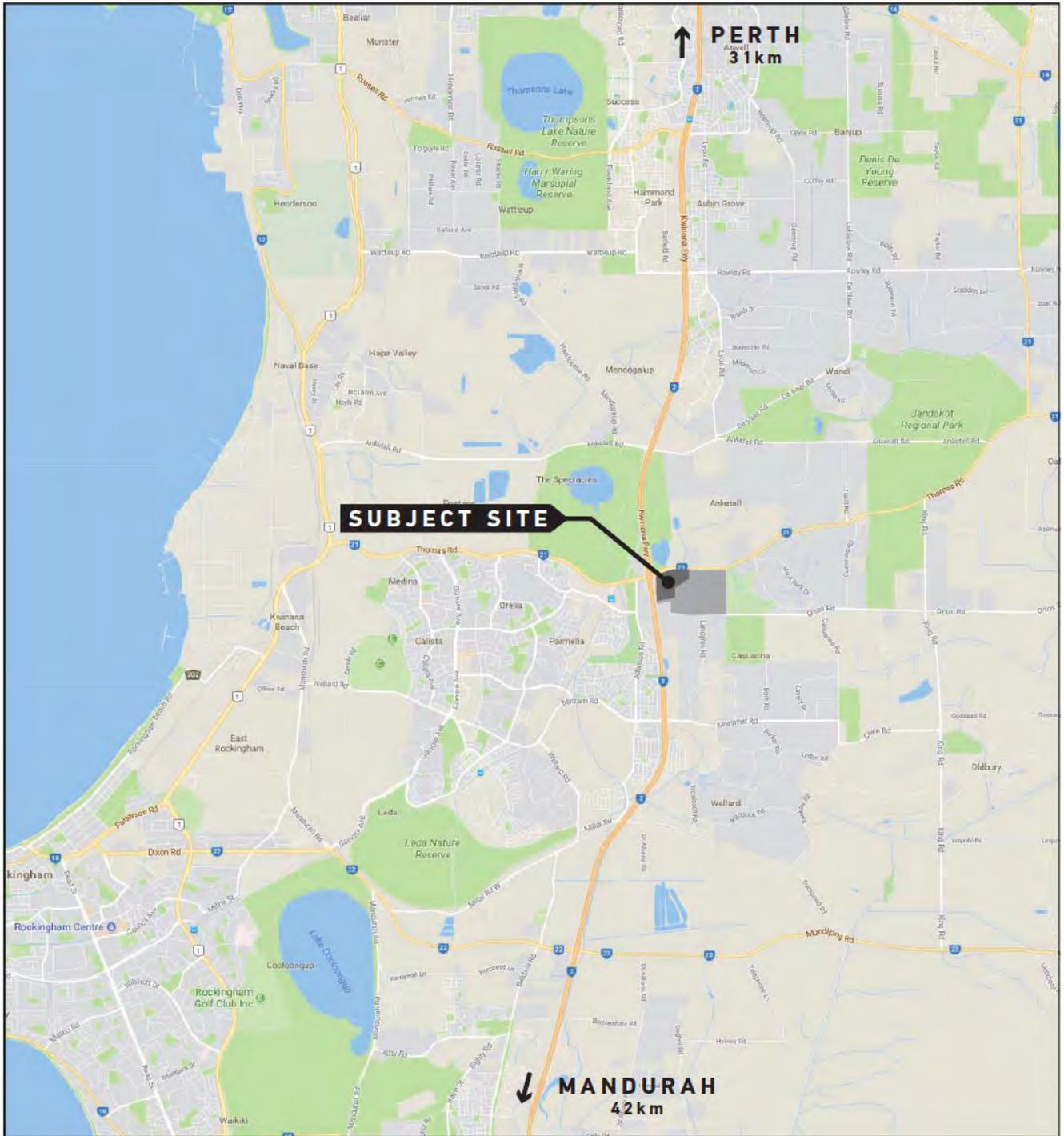


Figure 1. Location Plan



Figure 2. Aerial Plan

1.3.3 Legal description and ownership

The LSP area comprises several lots in Northern Precinct of the Casuarina Urban Development Zone. The details of the relevant Certificates of Title are provided in the following table.

Table 2 – Certificate of Title Details

Lot No.	Street Address	Volume/ Folio	Plan	Area	Owner
1199	740 Thomas Road, Casuarina	2817/293	203629	3.9451 ha	ARP No. 1 Pty Ltd (Share title)
1199	740 Thomas Road, Casuarina	2817/294	203629	As above	ARP No. 1 Pty Ltd (Share title)
3	No Street Address	2817/295	86318	3.5890 ha	ARP No. 4 Pty Ltd (Share title)
3	No Street Address	2817/296	86318	As above	ARP No. 4 Pty Ltd (Share title)
9011	No Street Address	2926/375	410834	6.6714 ha	ARP No. 7 Pty Ltd
9012	No Street Address	2926/376	410834	9.5253 ha	ARP No. 8 Pty Ltd
9013	No Street Address	2926/377	410834	15.4275 ha	ARP No. 9 Pty Ltd
Other land in the LSP area (to be acquired or adjusted)					
1372	No Street address – Sub Drain	LR3099/50	D79285	1.5692 ha	State of WA
P Road	Part of road to be closed	N/A	N/A	1.0349 ha	State of WA

In addition to the Aigle Royal Properties landholdings, a portion of a pre-existing sub-regional drain (Lot 1372) is to be re-aligned and incorporated in to the local drainage system (as discussed in further detail in the supporting LWMS prepared by JDA, Refer Appendix C), while a portion of the existing P Road (encompassing a section of the original Armadale to Rockingham Road) which intersects the site is to be closed, acquired and amalgamated into the overall LSP area. All existing services / utilities which currently run within the P Road are to be redirected into a new 18m wide local road reserve as shown on Plan 1. The landowner is currently in discussions with the State regarding these two acquisitions, and have received in principle support in this regard.

Refer to Figure 3 – Site Plan

Refer to Appendix A – Certificates of Title

1.3.4 Limitations and Encumbrances on Title

The encumbrances noted on the existing titles primarily concern taking orders and easements associated with the power transmission lines, as follows.

- I653596 – Easement to Western Power Corporation – See DP33420
- I653596 – Easement to Western Power Corporation – See DP410834
- C110527 – Easement to the State Energy Commission of Western Australia

Refer to Appendix A – Certificates of Title

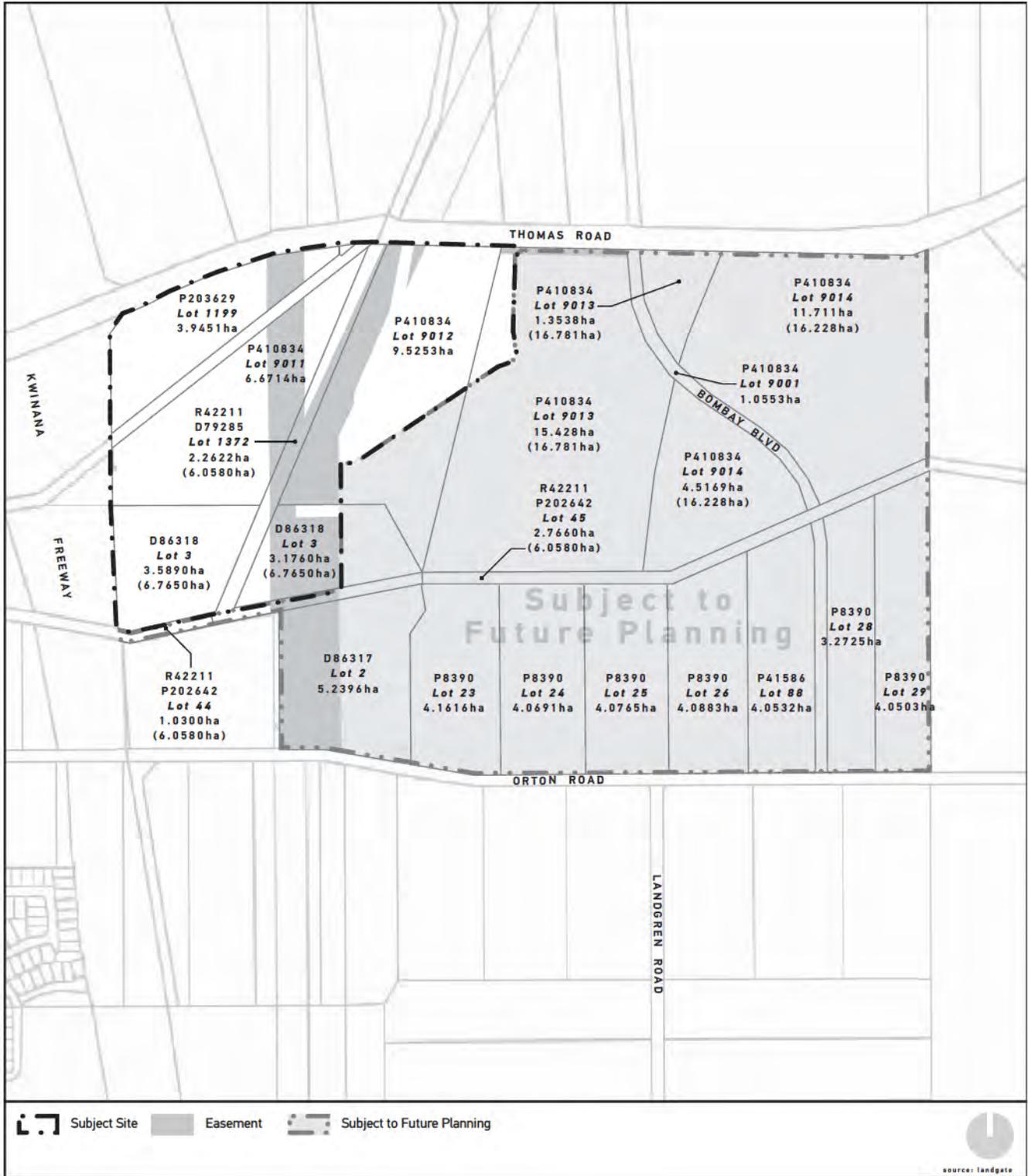


Figure 3. Site Plan

2. Planning framework

2.1 Zoning and reservations

2.1.1 Metropolitan Region Scheme

Under the provisions of the Metropolitan Region Scheme (MRS), the subject site is entirely zoned 'Urban'.

The subject site immediately abuts the Kwinana Freeway, which is identified as 'Primary Regional Road' and Thomas Road which is identified as an 'Other Regional Road'.

Refer to Figure 4 – Metropolitan Region Scheme Plan

2.1.2 City of Kwinana Local Planning Scheme No. 2

Under the provisions of the City of Kwinana Local Planning Scheme No. 2 (LPS 2) the subject site is zoned 'Development'. As provided for under Clause 6.15 of the Scheme, the objectives of the Development zone are to:

- (a) designate land for future development;
- (b) provide a planning mechanism for the identification and protection of areas of conservation value whilst facilitating the growth of the Town;
- (c) provide for orderly and proper planning of large areas of land for residential, commercial, industrial and associated purposes through a comprehensive structure planning process;
- (d) enable planning to be flexible and responsive to changing circumstances throughout the development stages of the area;
- (e) provide sufficient certainty for demand forecasting by service providers.

The LSP area also includes a special control area being identified as an 'Area of landscape protection'. Clause 6.16.2 of the Scheme states the following in this regard:

6.16.2.1 Councils objective in setting aside Areas of Landscape Protection is to conserve areas of natural ecological value or landscaping amenity whilst at the same time allowing development as provided in Zoning Table No. 1 of the Scheme.

6.16.2.2 No person shall, in any Area of Landscape Protection, without Council's Planning Approval in writing;

- (a) Carry out clearing of trees or other vegetation;
- (b) Carry out any filling, dredging or changes to the contour of the land;
- (c) Erect any advertising sign,
- (d) Erect or construct any building or outbuilding,
- (e) Degrade any natural wetland system,
- (f) Detract from the amenity of the locality.

Notwithstanding this identified 'Area of landscape protection', it is noted that a clearing permit has been granted for the whole site, and is expected to be acted upon in due course. Accordingly, it is anticipated that in due course, the associated Scheme map designations will also be updated to the remove the area of landscape protection previously identified over the LSP area.

The City provides its respective requirements for the preparation and adoption of Structure Plans under Clause 6.17 – Division 14 - Structure Plans. Among other things, it states that all subdivision, use and development of land shall be in accordance with an approved LSP. Accordingly, this Local Structure Plan proposal has been prepared with a view to guide those future development aspects.

Refer to Figure 5 – City of Kwinana Local Planning Scheme No. 2

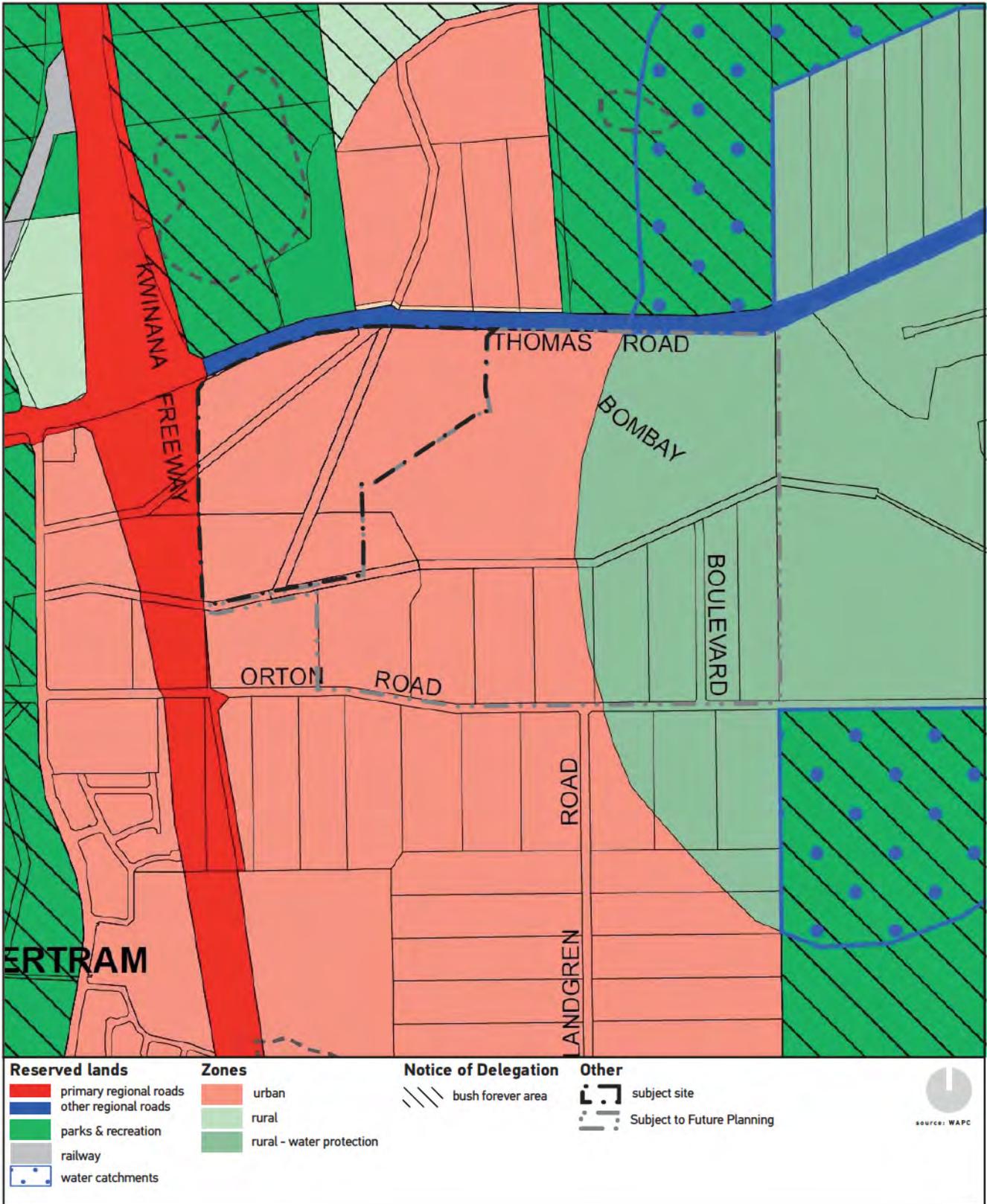


Figure 4. Metropolitan Region Scheme Plan



Figure 5. City of Kwinana Local Planning Scheme No. 2

2.2 Regional and sub-regional structure plan

2.2.1 Jandakot Structure Plan

In 1993, a Select Committee Report on Metropolitan Development and Groundwater Supplies reviewed the boundaries of the Jandakot Underground Water Pollution Control Area (JUWPCA). This review decreased the extent of the JUWPCA and as a result, revealed an area that was now without any strategic planning for future use or development. The Jandakot Structure Plan (JSP) was subsequently prepared over this subsidiary piece of land and, consequently was formally adopted in August 2007.

The JSP sets the broad strategic planning framework for the land generally surrounding the 'Jandakot Proclaimed Underground Water Pollution Control Area' which includes land in several different local governments. In the City of Kwinana however it covers an area of land up to Rowley Road to the north down to around Orton Road in the south, dealing explicitly with both groundwater and storm water management issues. The JSP requires that a Local Water Management Strategy (LWMS), consistent with the Jandakot Water Resources Management Strategy (JWRMS) be prepared and lodged with any subsequent Local Structure Plans (LSP).

The JSP outlines general locations for conservation areas, primary schools and transport links as well as providing a population projection of around 40,000 residents. The specific details on matters such as remnant vegetation protection were limited however and formed the basis for further investigations which went into the associated with Draft District Structure Plan - Eastern Residential Intensification Concept (ERIC) through the Local Government.

Under the JSP, the LSP area is identified as 'mixed use' and is therefore broadly consistent with its provisions. Given the age of the Structure Plan (dating back to 1993), it is clear that the subject site has been earmarked to form part of the mixed use/business precinct for some time, most likely due to its strategic location at the intersection of a major freeway interchange.

Refer to Figure 6 – Jandakot Structure Plan

2.2.2 Draft District Structure Plan – Eastern Residential Intensification Concept (Eric)

The Draft District Structure Plan – Eastern Residential Intensification Concept (ERIC) was prepared by the then (Town) of Kwinana in 2005 and aimed to address several additional levels of details where the JSP fell short. It expands upon the opportunities and constraints inherent to the land and *'defines a framework by which urban subdivision and development is able to occur in an orderly and co-ordinated manner'*.

ERIC identifies the LSP area as having a primary land use of 'Mixed Business', with south-western portion indicating 'Community Facilities' and a 'Local/District Recreation' reserve to the south-west of the site. This LSP proposal is generally considered to be in accordance with this District Structure Plan.

Furthermore, as requested in ERIC, the LSP responses to more detailed site-specific analysis such as urban water management, traffic management and other requirements which stem from State Planning Policies (SPPs).

Refer to Figure 7 – ERIC

2.3 Planning Strategies

2.3.1 Directions 2031 and Beyond

Directions 2031 and Beyond (Directions 2031) is the high-level spatial planning framework and strategic plan for the Perth and Peel metropolitan region. Directions 2031 provides a framework for the detailed planning and delivery of housing, infrastructure and services necessary for various growth scenarios presented within the document.

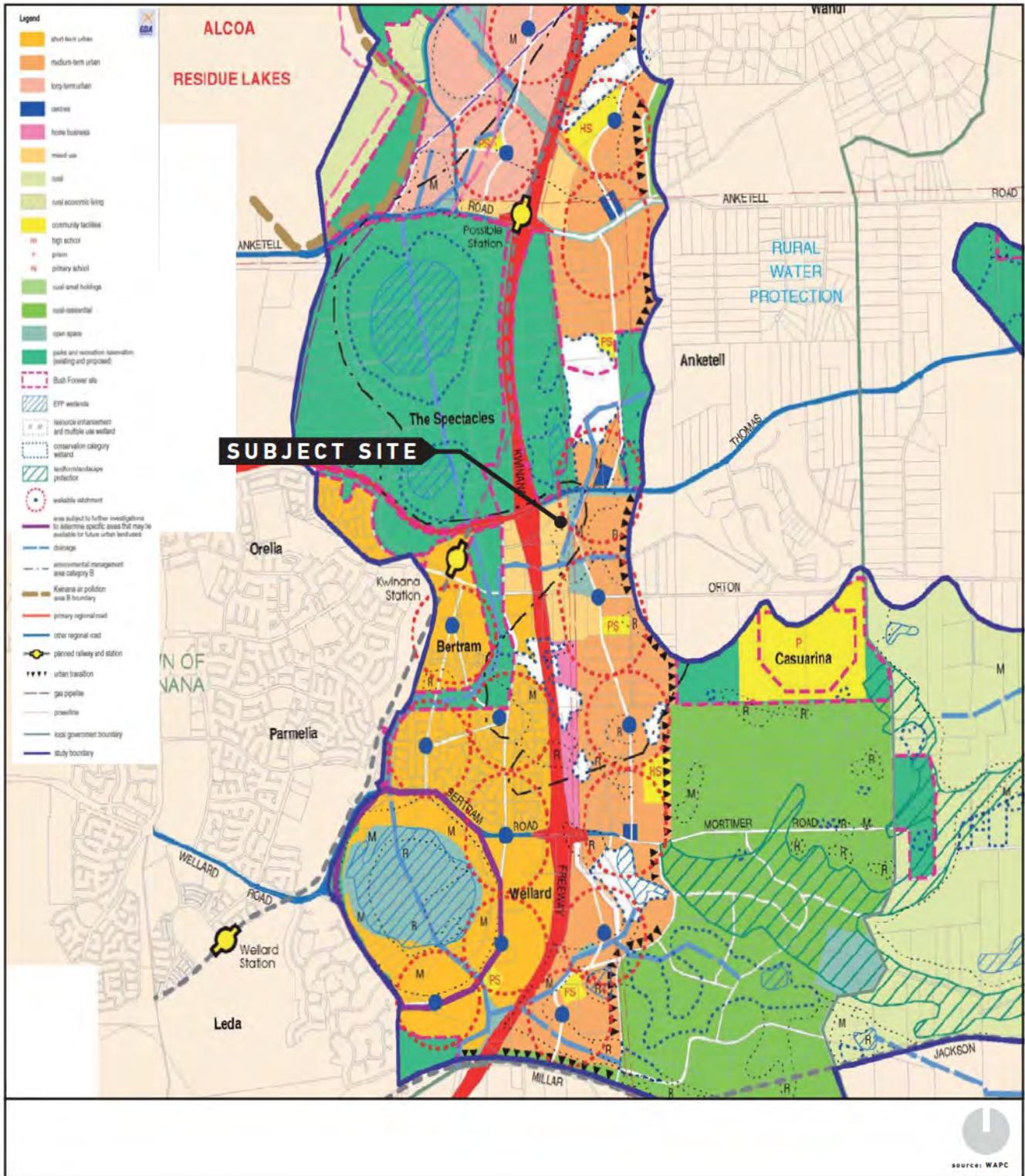


Figure 6. Jandakot Structure Plan

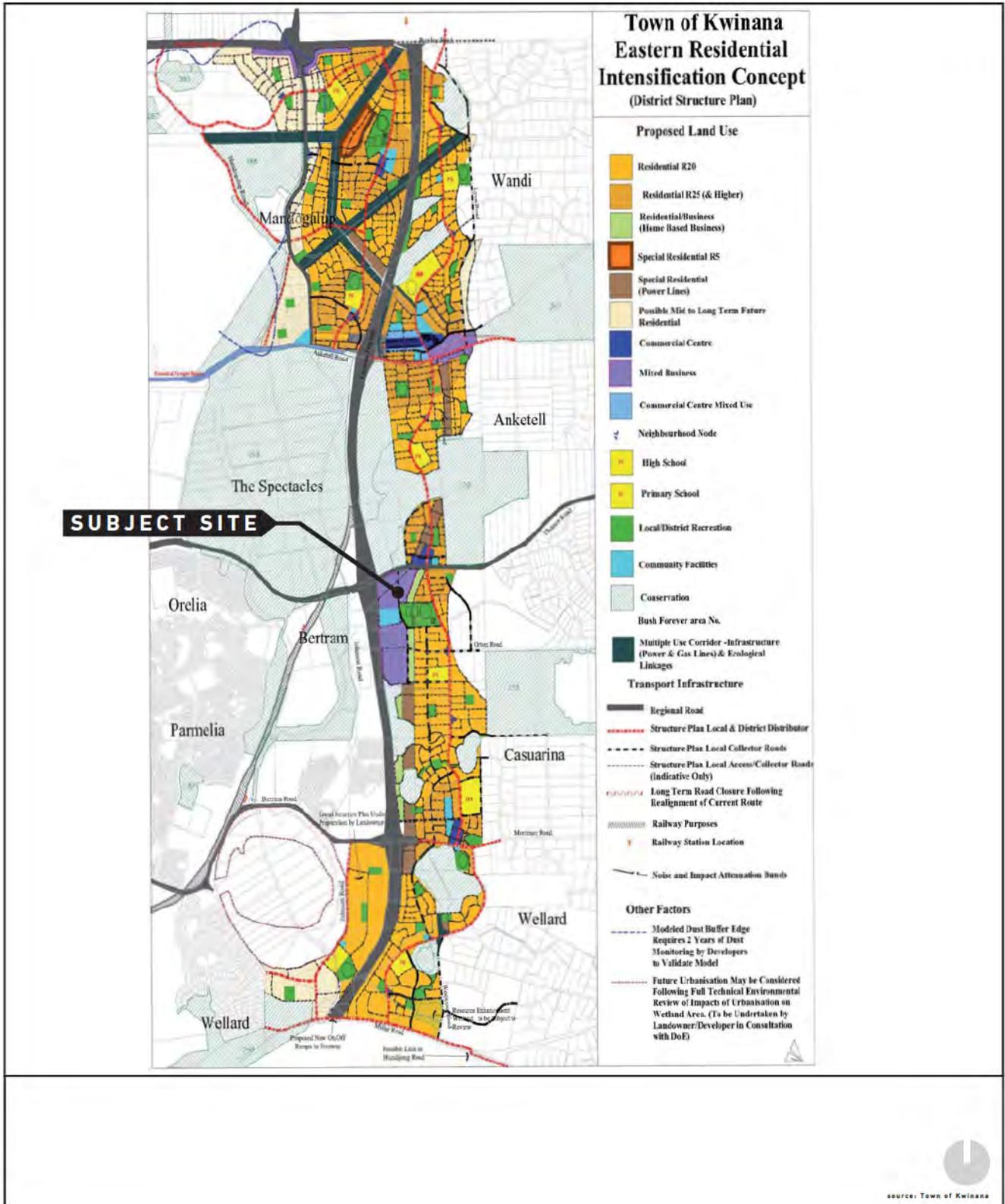


Figure 7. ERIC

Directions 2031 identifies growth scenarios for low, medium and high-density rates of infill and greenfield development. The Connected City scenario is identified as the preferred growth scenario, which was then modeled to determine the area of greenfield land that will be required for a city of 3.5 million people. Consistent with the outcomes of this approach, Directions 2031 set a target of 15 dwellings per gross urban zoned hectare of land in development areas.

Directions 2031 is supported by a series of Sub-Regional Strategies (as noted below) which provide information about the levels of expected population growth in individual local government areas. The Sub-Regional Strategies also identify development opportunities and prospects for increased density within greenfield areas to facilitate achievement of the housing targets set in Directions 2031.

The LSP is considered to be broadly consistent with Directions 2031 insofar as the precinct will aid in creating localised employment opportunities which complement the local economy, with future development stages on the eastern and southern portions of the site being able to accommodate the necessary residential yield to support the expected population growth in the region.

2.3.2 Perth and Peel @ 3.5 million

It is anticipated that more than 3.5 million people will live in Perth and Peel by 2050. The Perth and Peel @ 3.5 million plan provides a strategic planning framework on how to accommodate this substantial population increase without impacting on our way of life, natural environment and physical infrastructure. The four sub-regional planning framework illustrates where important environmental assets should be avoided and protected. The Perth and Peel @ 3.5 million document builds upon the principles established by *Directions 2031 and Beyond* as they relate to urban development and is not considered to have any significant impact on the LSP area.

2.3.3 South Metropolitan Peel Sub-Regional Planning Framework Towards Perth and Peel @ 3.5 Million

The South Metropolitan Peel Sub-Regional Planning Framework represents a whole State Government Approach to managing the future urban form within the sub-region. The South Metropolitan Peel sub-region is proposed to accommodate more than 1.26 million people. The sub-regional Planning Framework identifies sufficient land to meet the increased demand for residential dwellings inclusive of the LSP area. The subject land is identified as "Urban" on the Sub-Regional plan, consistent with its zoning under the MRS.

Whilst this LSP does not provide for housing opportunities, as noted above future stages of planning will incorporate a strong residential component into the eastern portion of the subject landholdings. Accordingly, the LSP is considered to be broadly consistent with the South Metropolitan Perth and Peel Sub-Regional Strategy.

The target dwelling yield of 15 dwellings per gross hectare of urban zoned land is carried over from Directions 2031 and Beyond. This proposed density target ensures the subject land is helping deliver a consolidated urban form in accordance with the State Government objectives and strategic planning policy. Given the significant constraints associated with the subject site, all residential components will be accommodated within the future development of the eastern landholdings, which will ultimately aim to meet the density target. Furthermore, it aims to improve employment self-sufficiency to reach the target, consistent with Strategic direction/priority of the Planning Framework.

2.3.4 Liveable Neighbourhoods

Liveable Neighbourhoods was prepared by the WAPC to implement the objectives of the State Planning Strategy and deliver the strategies and actions of metropolitan spatial frameworks. As an operational policy of the WAPC, it guides the design and assessment of Structure Plans (regional, district and local), subdivision and development for new urban area. Its aims include promoting the design of walkable neighbourhoods, places that offer community a sense of place, mixed uses and active streets, accessible and sustainable parks, energy efficient design and a variety of lot sized and housing types.

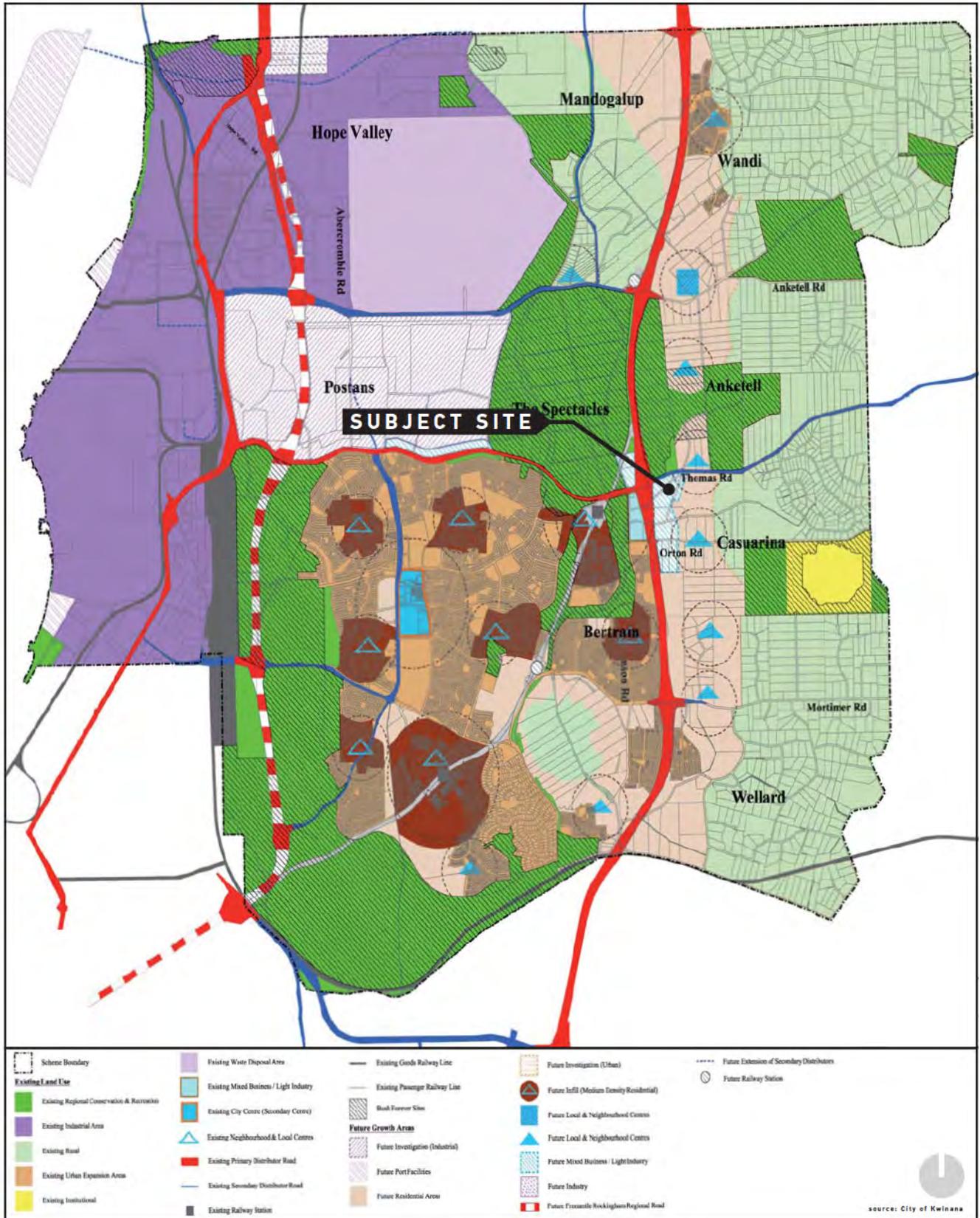


Figure 8. Draft Local Planning Strategy Spatial Plan

As far as the LSP is concerned, the development of the precinct will create a strategic location to cater for a wide range of business and employment opportunities, consistent with Element 7 of Liveable Neighbourhoods. It will generate activity areas and encourage as many locally based jobs as possible to accompany the surrounding residential areas.

2.3.5 Local Planning Strategy

We understand that the City of Kwinana Local Planning Strategy is currently under review. However, the Draft Local Planning Strategy Map 2015 identifies the subject site primarily as "Future Mixed Business/Light Industry" with the adjoining sites to the east being "Future Residential Areas". The LSP is therefore considered to be consistent with the Local Planning Strategy.

Refer to Figure 8 – Draft Local Planning Strategy Spatial Plan

2.3.6 City of Kwinana Local Commercial and Activity Centres Strategy

The City of Kwinana Local Commercial and Activity Centres Strategy states that there are no significant service commercial areas in the City of Kwinana, other than a small precinct on the eastern side of the city centre.

On the Strategy Plan, existing and future mixed business areas are identified adjacent to both sides of the Kwinana Freeway and Thomas Road intersection due to the locational advantages presenting at this important node. Furthermore, the Retail Needs Assessment (RNA) indicates that the area has excellent long term potential for 'other retail and bulky goods' uses.

In light of the above, the proposed LSP is considered to be entirely consistent with guidance set out in the Local Commercial and Activity Centres Strategy.

2.4 Planning policies

2.4.1 Statement of Planning Policies

State Planning Policies form part of the State Planning Framework, which provide a hierarchy for the planning policies, strategies and guidelines and importantly, a context for decision making on land use and development in Western Australia.

Development of land must generally be consistent with any relevant state planning policies (SPP) which are prepared and adopted by the WAPC under statutory procedures set out in Part 3 of the Planning and Development Act 2005. The WAPC and local governments must have due regard to the provisions of SPP's when preparing or amending regional and district planning schemes and when making decisions on planning matters. Details of the SPPs relevant to the site are provided below.

2.4.2 State Planning Policy 2.3 – Jandakot Groundwater Protection Policy

State Planning Policy 2.3 – Jandakot Groundwater Protection (SPP 2.3) was initially approved by the WAPC in 1998 and was prepared to ensure that development over the Jandakot groundwater mound is compatible with the long-term use of the groundwater for human consumption. The policy has recently been revised and updated, with a new version being released in January 2017.

SPP 2.3 proposes various compatible land uses in the Rural – Water Protection zone, which provide a guide for local governments planning schemes and land use permissibility, and include for example, special rural residential subdivision.

The Department of Water (previously the Water and Rivers Commission) defined three priority protection levels within the 'Jandakot Underground Water Pollution Control Area' (UWPCA). Priority 1 and Priority 2 correlate directly to the boundary reflected in the Metropolitan Region Scheme (MRS) for the below zones:

- Water Catchment Reservation (corresponds to Priority 1)
- Rural – Water Protection Zone (corresponds to Priority 2)

Priority 3 areas aren't reflected in the MRS. However, they include areas where water-supply needs to co-exist with other land uses such as housing, commercial sites and light industry and are subject to management controls to mitigate any impacts on the water environment.

Approximately a third of the (extended) subject site is located in Priority 2 area which is reflected in the Rural – Water Protection zoning under the MRS. Priority 2 normally includes private rural with few buildings, with low-intensity land use. These areas have a high priority for public water supply use. The management objective is to ensure there is no increased risk of pollution to the water source. Restricted development may take place under specific guidelines. Notwithstanding, the LSP area of this proposal does not include any of the same restrictions.

2.4.3 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

The State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP 3.7) states that higher order strategic planning documents such as frameworks, region schemes and sub-regional structure plans should include high level consideration of relevant bushfire hazards when identifying or investigating land for future development.

SPP 3.7 forms the foundation for land use planning to address bushfire risk management in Western Australia. It will inform and guide decision makers, referral agencies and proponents on achieving acceptable fire protection outcomes on planning proposals in bushfire prone areas.

Further to the provisions of SPP 3.7 and pursuant to State Planning Policy 3.4 – Natural Hazards and Disasters', the Planning for Bushfire Protection Guidelines sets out a range of matters that need to be addressed at various stages of the planning process, to provide an appropriate level of protection to life and property from bushfires, and avoid inappropriately located or designated land use, subdivision and development on land where a bushfire risk is identified.

The identification of bushfire prone areas within any portion of the site requires further assessment of the bushfire hazard implications on proposed development to be undertaken in accordance with State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) (WAPC 2015) and the Guidelines for Planning in Bushfire Prone Areas Version 1.2 (the Guidelines) (WAPC and DFES 2017). Accordingly, a Bushfire Management Plan has been prepared by Emerge to inform this LSP.

Refer to Appendix F – Bushfire Management Plan

2.4.4 State Planning Policy 4.1 – Industrial State Buffer

State Planning Policy 4.1 – Industrial State Buffer (SPP4.1) provides a consistent statewide approach for the protection and long-term security of industrial zones, transport terminals (including ports) other utilities and special uses, and provides for the safety and amenity of surrounding land uses while having regard to the rights of landowners who may be affected by residual emissions and risk.

The objectives of SPP4.1 are:

- *To provide a consistent statewide approach for the definition and securing of buffer areas around industry, infrastructure and some special uses.*
- *To protect industry, infrastructure and special uses from the encroachment of incompatible land uses.*
- *To provide for the safety and amenity of land uses surrounding industry, infrastructure and special uses.*
- *To recognise the interests of existing landowners within buffer areas who may be affected by residual emissions and risks, as well as the interests, needs and economic benefits of existing industry and infrastructure which may be affected by encroaching incompatible land uses.*

The LSP addresses the objectives of the SPP4.1 by not proposing sensitive land uses that may be incompatible with nearby developments.

2.4.5 EPA Guidance Statement No. 3 - Separation Distances Between Industrial and Sensitive Land Uses

In 2005, the Environmental Protection Authority (EPA) prepared Guidance Statement 3: Separation Distances between Industrial and Sensitive Land Use (GS3). GS3 relates to the EPA's environmental factors of human health and amenity which may be impacted by gaseous and particulate emissions, noise, dust and odour generated from industry, and makes reference to a range of industries which require separation from sensitive land uses, and goes on to provide the recommended separation distances.

The purpose of GS3 is to:

- *Identify the need for specific separation distance or buffer definition studies; and*
- *Provide general guidance on separation distances in the absence of site- specific technical studies.*

The LSP addresses the objectives of GS3 by not proposing sensitive land uses that may be incompatible with noise and odour from nearby developments.

Refer Appendix B - Environmental Assessment Report

2.4.6 Draft Environmental Assessment for Separation Distances Between Industrial and Sensitive Land Uses

More recently the Environmental Protection Authority (EPA) has prepared the draft Environmental Assessment Guideline for Separation Distances between Industrial and Sensitive Land Uses (EAG), which was released in 2015. This is expected to replace the existing Guidance Statement 3: Separation Distances between Industrial and Sensitive Land Use (GS3).

Further to GS3, the purpose of draft EAG is to:

- *Provide advice on which land uses require separation, and recommend the appropriate separation distances;*
- *Outline the EPA's expectations on the application of separation distances for schemes and scheme amendments in the environmental impact assessment process; and*
- *Support strategic and statutory land use planning and development decisions by planning authorities where proposed land uses have the potential to adversely impact on human health and amenity.*

In this instance there are no sensitive land uses proposed associated within the LSP area. Accordingly, mitigation or design responses to nearby pre-existing uses are to be addressed only for future planning stages where residential or other sensitive land uses are concerned.

2.5 Local Planning Policies

2.5.1 Local Planning Policy – Planning for Bush Fire Protection Guidelines

We understand that this Local Planning Policy essentially adopts the current WAPC's Planning for Bush Fire Protection Guidelines and any subsequent revisions, for enforcement by the City of Kwinana.

Consistent with the policy and Guidelines, a Bushfire Management Plan (BMP) for the LSP has been prepared by Emerge and is appended in this regard.

Refer Appendix F – Bushfire Management Plan

2.5.2 Local Planning Policy No. 6 – Guidelines for Structure Planning in the Casuarina Cell

Local Planning Policy No. 6 (LPP 6) provides guidance on the district planning matters that should be considered during the preparation of local structure plans within the Casuarina Urban Development zone (Casuarina Cell), to ensure that subdivision and/or development proceeds in an orderly and proper manner across the whole Cell.

The policy divides the Casuarina area into three broad precincts. The subject land is located within the northern precinct. In certain circumstances the policy allows for part local structure plans to be prepared within a given precinct subject to fulfilment of certain requirements. Compliance is detailed in Table 3 as follows:

Table 3 – City of Kwinana Local Planning Policy No. 6 – Policy Application Assessment

Requirement	Compliance
Objectives of Local Planning Policy	As per section 1.2 above and Table 5 below
Demonstrated that LSP can be considered in isolation	As per section 1.2 above and Table 5 below
Areas comprises of at least 30% of the precinct	Area exceeds 30%
Preparation of a concept plan for the balance of the precinct	Refer Appendix G – Concept Plan and Table 5,

The policy also requires consultation with other owners within the northern precinct as part of the preparation of a concept plan as per policy requirement. Details of consultation with other owners, including outcomes, are summarised in Table 4 below.

Table 4 – Consultation With Other Landowners in North Precinct

Subject land holding	Date of consultation	Form of consultation	Outcomes of consultation
Lot 23 Orton Rd, Casuarina	20th June 2018	Email of concept plan, Local Planning Policy No. 6 "Guidelines for Structure Planning in the Casuarina Cell". Follow up phone discussion between landowner from Aigle Royal Group.	Details of concept plan noted.
Lot 2, 24 & 25 Orton Rd, Casuarina	20th June 2018	Meeting and presentation of concept plan and Planning Policy No. 6 "Guidelines for Structure Planning in the Casuarina Cell".	Landowner objection to mushroom farm buffer and possible location of district open space on Lot 25 Orton Road.
Lot 44 Orton Road, Casuarina (Costa Mushrooms)	22nd June 2018	Email of concept plan and follow up discussion between landowner and Aigle Royal Group.	Details of concept plan noted.

With respect to the North Precinct (the LSP area), the following specific district and significant local planning matters are to be addressed, with responses/comments provided accordingly:

Table 5 – Local Structure Planning Guidelines (North Precinct)

The North Precinct should include the following:

Matters to be addressed	Comment
i. <i>Bulky Goods and Showroom uses should be located adjacent to Thomas Road and the Kwinana Freeway to make best use of the access and exposure provided by these roads. Supermarkets and small format shops are not permitted in this area. The balance of the precinct should be used for residential purposes.</i>	Compliant – The LSP area is located directly adjacent to Thomas Road and the Kwinana Freeway. It is intended to include bulky goods and showroom uses predominantly, with the remainder of the northern precinct to be used for residential purposes.
ii. <i>Primary access from Thomas Road should allow a four way intersection with the approved Anketell South local structure plan. This access should become the primary north-south route through the broader Casuarina cell and should link to existing Landgren Road in the adjacent Central Precinct.</i>	Compliant – Access to the LSP area is provided via a four way intersection and in coordination with the Anketell South LSP.
iii. <i>The City may support the use of the land within the power line easements for car parking associated with the adjacent commercial and recreation uses.</i>	Compliant – As noted elsewhere, the power line easement is to incorporate parking associated with the permissible land uses.
iv. <i>Development of a District Sporting Ground to be acquired by the Development Contribution Plan in accordance with the adopted Community Infrastructure Plan (or most recent version).</i>	Compliant – The District Sporting Ground indicated by ERIC does not fall within the confines of this LSP. However, a 3.0 ha area of District Open Space has been indicatively identified adjacent to Orton Road as shown on the concept plan (Refer Appendix G). This matter will be the subject of further discussions between the City and the relevant landowners. From discussions with the City of Kwinana, it is understood that the DOS is likely to include a series of hard courts, primarily used for netball.
v. <i>A maximum of 80% of the total POS requirement in the North Precinct shall be provided within the precinct with the shortfall (maximum 20%) being provided as a cost contribution through the DCP.</i>	N/A – no POS contribution is required within the local structure plan area. This matter will be subject of further discussions between the City and landowners within the North Precinct.
vi. <i>The identification of a site for Local Centre (commercial and activity centre) (800m² retail floor space) should be provided at the intersection of Landgren Road and Orton Road, either in the Northern Precinct or the Central Precinct.</i>	N/A – a Local Centre site is to be identified during the detailed design stage of the remainder of the North Precinct, at the Landgren Road and Orton Road intersection. However as noted, it may be better located within the Central Precinct. This matter will be subject of further discussions between the City and landowners within the North Precinct.
vii. <i>As part of the submittal of a LSP, the applicant shall consider and address the key land uses proposed in the Jandakot Structure Plan and Eastern Residential Intensification Concept for this Precinct area.</i>	Compliant – Refer to Section 2.2.1 and 2.2.2 of this report. The Jandakot Structure Plan primarily identifies the LSP area as a 'mixed use' site, while ERIC identifies it as a 'mixed business' site. Given the LSP area is entirely dedicated to formalizing a Service Commercial precinct, it is therefore considered to generally be in-line with key land uses envisaged by these strategic documents.

To assist with addressing the relevant matters contained in LPP 6, a concept plan has been prepared to broadly identify appropriate locations for the abovementioned North Precinct features.

Indicative Concept Plan

The design of the indicative concept plan (provided at Appendix G) as required under LPP 6 to allow for partial local structure planning of the North Precinct has taken into consideration pre-existing site constraints and other influencing factors proximal to the precinct, including:

- The pre-determined location of a Main Roads WA controlled strategic four way intersection as approved in the Anketell South Local Structure Plan (2014) on Thomas Road linking to the development area to the north of Thomas Road and providing primary site access to the Kwinana Freeway to the west.
- A logical north-south road structure designed to tie in with the existing alignment of Landgren Road to the south in the adjacent Central Precinct.
- A logical internal road structure to support the future development of the identified sub-areas within the LSP and to maximise the exposure potential of future developments..
- Relocation of pre-existing drainage assets where necessary, including the Peel Sub Drain, and the provision of a more contemporary Water Sensitive Urban Design (WSUD) drainage solution including living streams and piped drainage in key locations. Other functional sections of the Peel Sub Drain have been retained where relocation has been considered unnecessary.
- Relocation of infrastructure and services from pre-existing road reserves to deconstrain the development of the North Precinct, with such services relocated as appropriate within the new proposed road layout.
- A strategic approach to the use of land within the power line easements for car parking, landscaping and drainage purposes associated with adjacent commercial uses.
- Co-location of the District Open Space (DOS) with a potential primary school and local centre that are likely to be situated on the Orton Road and Landgren Road intersection.
- Responding to the need to separate built form from the high voltage power line corridors, and the base of the towers.

Refer Appendix G - Concept Plan

3. Site conditions and constraints

3.1 Biodiversity and natural area assets

A Flora and Fauna Assessment dated June 2012 was initially undertaken by GHD to provide details to be used to inform the concept design process, highlight potential environmental approvals processes and assist in identifying further environmental investigations. PGV Environmental have provided further clarification as to environmental issues which impact the site, with a combination of desktop and field investigations. The results of the assessment are summarised below and explored in further detail in Appendix B – Environmental Assessment.

3.1.1 Flora and vegetation

Two vegetation and flora surveys have been undertaken over the whole Aigle Royal landholding including the balance of the lots to the east of the structure plan area (GHD, 2012; Bennett Environmental, 2010). The GHD Survey was conducted in May 2012 and a follow-up spring survey of the area was conducted in October 2012 by Bennett Environmental. A total of 133 species have been recorded on the whole site, of which 79 were native species and 54 introduced. None of the species are Threatened or Priority flora. Three weed species listed below recorded on the site are Declared Pests under the Biosecurity and Agriculture Management Act 2007 (BAM Act):

- Cotton Bush (*Gomphocarpus fruticosus*);
- Cape Tulip (*Moraea flaccida*); and
- Paterson's Curse (*Echium plantagineum*).

Significant Tree Survey

A significant tree survey was undertaken by PGV in March 2018, where the following observations were made:

A total of 38 trees with a DBH of 500mm or greater, measure using the AS4970 method were recorded in Precincts 1 and 2 of the proposed mixed use development on Thomas Road, Casuarina.

Sixteen of the trees were rated in Fair condition, eight in Good condition and fourteen in Poor condition. The overall low rating of the trees was largely due to the impacts of regular fires.

None of the 38 trees had any particular feature that would recommend them for retention in a future development.

Most of the trees would not be able to be retained due to safety issues over the tree's structural integrity.

Based on the above conclusions in PGV's report, there is not considered to be any trees of significance within the LSP area worthy of retention.

Refer Appendix B – Significant Tree Survey

3.1.2 Fauna

Conservation Significant species that may occur on the site are:

- *Calyptohynchus latirostris* (Carnaby's Black Cockatoo);
- *Calyptohynchus baudinii* (Baudin's Black Cockatoo);
- *Calyptorhynchus Banksii naso* (Forest Red-tailed Black Cockatoo);
- *Ardea ibis* (Cattle Egret);
- *Merops ornatus* (Rainbow Bee-eater);
- *Lerista lineata* (Perth slider, Lined Skink);
- *Neelaps colonotos* (Black-striped Snake); and
- *Isodon obesulus fusciventer* (Southern Brown Bandicoot, Quenda).

3.1.3 Wetlands

There are no significant wetlands located within the LSP area.

There is however a Resource Enhancement Wetland recorded along the eastern portion of the extended subject site. Whilst the EPA urges that all reasonable measures are taken to minimise the potential impacts on Resource Enhancement wetlands and appropriate buffers, the assessment undertaken in the Flora and Fauna Report highlights the wetlands as being highly degraded. There is potential for this wetland to be downgraded to a Multiple Use category following due process with representatives from the DBCA (formerly DEC or DPAW).

3.2 Landform and soils

3.2.1 Topography, soils and geology

Topography is gently undulating and there are no outstanding topographical features which represents no significant constraint to development. Refer to Figure 2 in the Appendix B - Environmental Assessment Report for the sites topography.

The site is mapped as part of the Bassendean System and consists of very low relief, leached, grey siliceous Pleistocene sand dunes, intervening sandy clayey swamps and gently undulating plains. These soils are very leached, infertile and mildly acidic.

The soils on the site have been described by the Department of Agriculture and Food Western Australia (DAFWA) (2017) as:

- Bassendean B1 Phase (212Bs_B1) which are described as deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2m. These soils occur on extremely low to very low relief dunes, undulating sandplain and discrete sand rises; and
- Bassendean B3 Phase (212Bs_B3) are soils on closed depressions and poorly defined stream channels. These soils are moderately deep, bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam.

The B1 phase is located on the western part of the site and the B3 on the eastern. The B3 soils are associated with the lower lying areas on the site

Refer Appendix B – Environmental Assessment Report

3.2.2 Acid Sulfate Soils

The Department of Environment Conservation describes Acid Sulfate Soils (ASS) as naturally occurring soils and sediments containing sulfide minerals, predominately pyrite (an iron sulfide).

A review of the Western Australian Planning Commission's Acid Sulfate Risk Map for the site indicates that it has a moderate to low risk of acid sulfate soils occurring within 3 metres of the natural soil surface.

A review of the Australian Soils Resource Information System indicates that the site is located in an area of Low Probability of Occurrence of ASS.

Refer to Appendix Cossill & Webley report (Figure 7) for the respective Acid Sulfate Soil risk map.

3.3 Groundwater and surface water

3.3.1 Groundwater

The Perth Groundwater Map shows the top of the groundwater table at 11m to 13mAHD and is approximately 3 to 5m below the ground surface. Groundwater is generally flowing to the west (DWER, 2017). The groundwater around the wetland has geological formations that have been grouped into three distinct aquifers:

- Superficial Swan Aquifer;
- Leederville Aquifer; and
- Yarragadee North (DWER, 2017b)

3.3.2 Surface water

Surface water flow will be limited due to the permeable nature of the sandy b1 phase soils. Any overland flows are likely to drain to the eastern lower lying areas and drainage line to the south of the site.

Refer Appendix B - Environmental Assessment Report for further details regarding ground and surface water

3.4 Bushfire hazard

The LSP area is currently identified as a "bushfire prone area" under the state-wide Map of Bush Fire Prone Areas prepared by the Office of Bushfire Risk Management OBRM 2017), as shown below in Plate 1. The identification of bushfire prone areas within any portion of the LSP area requires further assessment of the bushfire hazard implications on proposed development to be undertaken in accordance with State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) (WAPC 2015) and the Guidelines for Planning in Bushfire Prone Areas Version 1.2 (the Guidelines) (WAPC and DFES 2017).

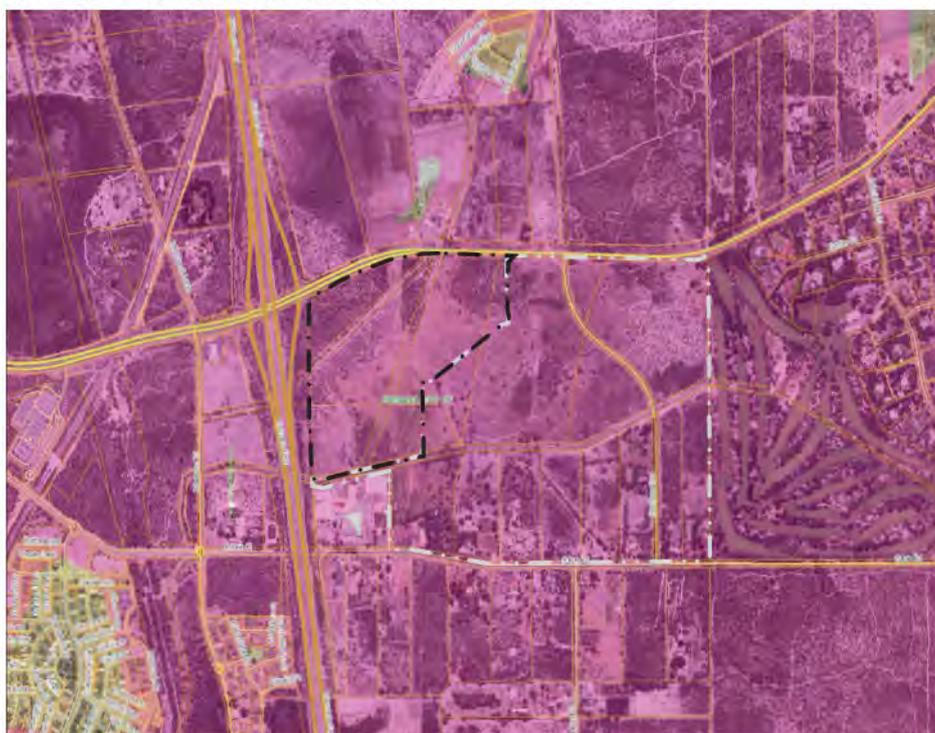


Plate 1: Areas within and surrounding the site identified as "bushfire prone areas" (OBRM 2017)

A Bushfire Management Plan (BMP) has been prepared for the site by Emerge Associates and Bushfire Safety Consulting Pty Ltd (2017), and is provided in Appendix F. The BMP includes:

- An assessment of classified vegetation and associated bushfire hazard levels in the vicinity of the site (within 150 m).
- Identification of how the development will satisfy the bushfire protection criteria, as outlined in the Guidelines, by ensuring:
 - o Development can be located, sited and designed to ensure that an appropriate level of bushfire threat applies to the site (i.e. BAL-29 is not exceeded), supported by a Bushfire Attack Level (BAL) assessment. Where applicable, this includes consideration of Asset Protection Zone requirements.
 - o Vehicular access to and egress from the development is safe if a bushfire occurs.
 - o Water is available to the development, so that life and property can be protected from bushfire.
- An outline of the roles and responsibilities associated with implementing the BMP.

Existing bushfire hazards identified within the site and surrounding 150 m include areas of woodland (Class B), scrub (Class D) and grassland (Class G) vegetation. The areas of woodland and scrub vegetation are considered 'extreme' bushfire hazards, while areas of grassland are considered 'moderate' bushfire hazards.

In the post-development scenario, it has been assumed that the primary bushfire hazard to development within the site will be vegetation outside the site that is present at the time of development, with the majority of areas within the site assumed to be 'low threat' in accordance with Section 2.2.3.2 of Australian Standard 3959 - 2009 Construction of buildings in bushfire prone areas (AS 3959). An exception is the 'drainage' and 'living stream' areas within the high voltage powerline easement, which have been classified as 'scrub' (Class D) vegetation. This is based on a worst-case scenario of no management of vegetation within these areas and that the landscape planting will be limited to species which grow up to a maximum height of 3 m, due to height restrictions associated with the overhead high-voltage powerlines.

The outcomes of the BMP indicate that future development is able to achieve an 'acceptable solution' for all four of the bushfire protection criteria (as outlined within Appendix Four of the Guidelines), summarised below:

- **Element 1 - Location:** upon completion, all areas within the LSP area proposed to accommodate future commercial land uses will be located in an area considered low bushfire hazard. While areas of moderate and extreme bushfire hazard will exist within the vicinity of future development areas, future built form can be located so that a BAL rating of BAL-29 or less achieved.
- **Element 2 - Siting and Design:** future commercial development can be suitably sited to ensure buildings are not located in an area that can or will, on completion, be subject to a BAL rating greater than BAL-29. This can be achieved through the provision of suitable setbacks (in the form of an 'asset protection zone') that can be accommodated by the location of future public roads, public open space, carpark areas, well-maintained gardens and/or internal access roads. The minimum setback distances are outlined within Figure 7 of the BMP.
- **Element 3 - Vehicular Access:** the proposed structure plan provides two connections to the existing public road network to the north (Thomas Road), allowing vehicles to move through the site easily and safely at all times. Thomas Road provides a connection to roads to the east and west and in particular the Kwinana Freeway which is adjacent to the western boundary of the site. Progression of planning and development for future commercial and urban areas to the south and east of the site will further expand the local public road network, ultimately providing additional access and egress routes to and from the site once developed.
- **Element 4 - Water:** the development will be serviced by a permanent and secure reticulated water supply, to be installed in accordance with the standard Water Corporation specifications (including fire hydrants as required).

Overall, the BMP demonstrates that while the site is identified as bushfire prone in the state Map of Bush Fire Prone Areas (OBRM 2017), the proposed LSP design will allow for the type of commercial development as envisaged to be implemented such that an appropriate level of bushfire threat will apply to those land uses within the site. If required, an updated BMP will be prepared in support of subdivision and/or development applications within the site, and will outline how the bushfire protection criteria will be addressed based on the proposed detailed designs.

Refer Appendix F - Bushfire Management Plan

3.5 Aboriginal and European Heritage

3.5.1 Indigenous Heritage

A search of the Department of Department of Planning, Lands and Heritage (DLHA) Aboriginal Heritage Inquiry System indicates there are no Registered Aboriginal Sites within the subject site.

3.5.2 European Heritage

A search of the State Heritage Council's 'InHerit Heritage Register' indicates that there are no places of heritage significance located on the site.

The City of Kwinana have however advised that the unconstructed P Road which intersects the site once formed a section of the original road network connecting Rockingham and Armadale as identified on the City of Kwinana's Municipal Inventory. The road is currently functioning as an informal track which is distinguished by the remains of limestone roadbase. As part of the future development of the area the road will be closed and integrated into the new development area. Appropriate acknowledgment of this historic feature is to be interpreted through the landscaping response for the site with details to be determined at the development application stage.

3.6 Context and other land use constraints and opportunities

3.6.1 Overhead Power Transmission lines and Easement areas

The site is heavily constrained by Western Power overhead powerline easements which intersect the site in a north-south direction and provide power to the wider Perth metropolitan grid. The easement areas have historically been cleared of vegetation and left as scrub regrowth. It is noted that Western Powers does not own the land, but preserves the functionality of the current overhead power line easement. In this case, the easement area is to be used only for drainage and car parking purposes.

3.6.2 Adjacent Property – Mushroom Farm impacts

Located immediately south of the subject site is Lot 1 (No. 45) Orton Road which contains an existing Mushroom Farm (referred to as Costa Mushrooms). It is a significant local employer for the district and considered to have potential impacts on 'sensitive uses' in terms of odour and noise. 'Sensitive Use' — is defined under the provisions of SPP 4.1, which states that a Sensitive Use:

includes residential dwellings, major recreational areas, hospitals, schools and other institutional uses involving accommodation

The LSP addresses the presence of the mushroom farm by not permitting sensitive land uses that may be incompatible. The interface between the mushroom farm and sensitive land uses will however be addressed as part of future planning stages in the remainder of the northern precinct where residential uses are proposed/incorporated.

Further information in relation to the Mushroom Farm is appended to this report at Appendix B – Environmental Assessment Report

3.6.3 Peel sub drain

The Peel main drain is a rural open drainage system which collects surface water and forms a regional drainage network that extends generally in a north-south direction eventually terminating at the Peel-Harvey Estuary. The system includes some sub drains and local government authority drains. In this case a section of the peel sub drain (identified as Peel Sub P Drain) intersects the LSP area in the general alignment of the easternmost powerline easement and then flows into another section of Peel Sub P Drain and Peel Sub P1 drain on the southern edge of the LSP area and then onto the Peel Main drain on the opposite side of Kwinana Freeway.

With development of Peel Sub P drain catchment, the drainage system design must be such that flows into the Peel main drain are maintained at pre-development levels.

4. Land use and subdivision requirements

4.1 Local Structure Plan

4.1.1 Design response to site constraints

The western power transmission lines which transect the site, present a major physical barrier to development of the site. Notwithstanding, to assist utilisation of this space, it is proposed to incorporate the drainage system (inclusive of a realignment of the Peel Sub drain), and living stream within the easement area. The result of which is that lots have been formed to either side of the easement corridor.

The existing utilities / services (located in the P Road area) which intersect the site from Kwinana Freeway through to Thomas Road is proposed to be realigned in an 18m wide local road reserve which now cuts into the proposed alignment of the north-south Neighbourhood Connector.

The Optus fibre optic cable which currently runs within the transmission corridor is also be moved, given it runs within the proposes drainage areas of the LSP. This is likely to be moved at the subdivision stage.

4.2 Land Use

The proposed LSP provides primarily for larger format commercial showroom and bulky goods retail land uses, drainage and existing infrastructure. The lots have been configured to respond to the constraints of the land with consideration for the established power transmission line easements.

In discussions with the City of Kwinana and in accordance with the policy framework for the site, it was established that the majority of the land is within the LSP area would be best served by a 'Service Commercial' zoning as well as incorporating a 'Special Use' zone component.

Where possible drainage areas have been positioned to allow for the retention of natural low points on site and to maintain the established drainage flow of the Peel sub-regional drainage system.

A summary of the LSP land uses and its key elements is provided in Table 6 below.

Table 6 - Land Use Summary

Item	
Total area covered by the Structure Plan	26.44 ha
Estimated area of each land use proposed:	
Service Commercial	13.91 ha*
Special Use	6.5 ha*
	*includes 216 ha of power lines easement
Road Reserve	2.78 ha
Drainage Reserve	3.25 ha

4.2.1 Service Commercial Zone

The intent of this LSP is primarily to provide for showroom and bulky goods retail type uses. It is understood that this will typically fall under as a 'showroom' land use definition under the City of Kwinana's LPS 2. Land use permissibly within the Service Commercial zone is to generally be in accordance with the zoning table and any associated provisions contained within LPS 2. It is noted that a 'Showroom' is a (P) permitted land use in the Service Commercial zone, consistent with the development intent for the precinct.

Refer Appendix I - Potential Scale and Character of Service Commercial Area

4.2.2 Special Use Zone

LPS 2 states the following in relation to the Special Use zone under 'Division 11 – Special Use Zones':

Land within a Special Use Zone may be used for the purposes specified on the Scheme Map and in the Third Schedule and for purposes incidental thereto and for no other purpose. 6.14.1 The site requirements of lot area, minimum effective frontage, development type, plot ratio, car parking, setbacks and other development provisions shall be determined by Council in its absolute discretion, providing that such standards are not less than that pertaining to similar uses under the Scheme.

The following uses are permitted (P) within the 'Special Use' zone:

- Bulky goods showroom
- Car park
- Consulting rooms
- Eating house
- Liquor store
- Motor repair station
- Petrol filling station
- Service station
- Warehouse

The following use is incidentally permitted (IP) within the 'Special Use' zone:

- Shop
- Fish shop

4.2.3 Drainage Reserve

Given the importance of the POS spine in the creation of amenity and providing drainage retention basins to the site, Emerge Associates have prepared a Landscape plan, which is provided at Appendix J. The plan details functional, locational and character theming aspects of the POS design and displays a photo montage of the fundamental design features to be incorporated at the development stage.

The POS helps to dictate the design of major features including the location of movement networks, water management features and links to the future residential areas to the east and south. This is expected to be further defined by the planting of primary and secondary trees.

Refer Appendix J - Landscape Masterplan

4.2.4 District Open Space

A district open space (3.0 ha in area) has been indicatively positioned adjacent to Orton Road, as shown on the Concept Plan (see Appendix G). Preliminary discussions with the City of Kwinana indicate that this district open space area is likely to be used for "hardcourts" such as netball courts.

The rationale for positioning the district open space in the nominated position is that the location is consistent with the strategic framework for the locality, including ERIC, the Jandakot District Structure Plan and the criteria in LPP6. Additionally, it is positioned at the intersection of Orton Road and the logical intersection with Landgren Road which will provide for good access to the site for users.

4.3 Movement Networks

4.3.1 Road network

The proposed road network is summarised in table 7 below:

Table 7 – Key Characteristics of the proposed LSP Road Classifications

Road Classification	Indicative upper volume (VPD)	Indicative road width (m)	Indicative road pavement width (m)
Integrator A	35,000	40m	2 x 8.5m (incl. cycle lanes) + 6m median
Neighbourhood Connector A	7,000	24m	2 x 5m (incl. cycle lanes), 2m median and embayed parking
Access street	3,000	18m	2 x 3.5 plus embayment parking

It should be noted that the outline reservation widths are indicative only and are subject to further adjustment in consultation with the Department of Planning, Lands and Heritage (DPLH) and the City of Kwinana during detailed subdivision design process.

Refer Appendix E – Traffic Assessment

4.3.2 Intersection treatments

The proposed road network to accommodate the LSP traffic volumes has been detailed in previous section of this report, including the details of the proposed road hierarchy.

Two roundabouts are proposed at the intersections along the proposed main spine road and Road 1 and intersection of Road 1 / Road 2. These roundabouts will help manage the circulation of traffic flows and assist with speed management on major roads. A roundabout is proposed at the intersection of the main spine road/Thomas Road.

The western access intersection on Thomas Road is priority controlled T-intersection with a right turn lane on Thomas Road to Road 1 but without right turn out from Road 1 to Thomas Road.

4.3.3 Path network

In accordance with Liveable Neighbourhoods Guidelines, shared paths are proposed on one side of the main north-south spine road with a footpath on the other side. Thomas Road is proposed to have on-road cycle lanes and shared paths on both sides.

The network of paths will provide an excellent level of accessibility and permeability for pedestrians and cyclists within the proposed LSP area.

4.3.4 Public transport

According to the information obtained from Public Transport Authority (PTA), it is anticipated that all the new developments to the east of the Kwinana Freeway including Wandí, Anketell and Casuarina would be served by bus route 527 when the demand arises. The existing bus route 527 is most likely to traverse southbound on continuation of Honeywood Avenue though Anketell and onto the future Casuarina LSP area.

4.4 Water Management

A Local Water Management Strategy (LWMS) has been prepared by JDA in support of this LSP proposal and is appended to this report at Appendix C. The LWMS provides the framework for the application of total water cycle management to the proposed urban structure within the Structure Plan, consistent with the District Water Management Strategy (DWMS) and the Department of Water and Environmental Regulation (DWER) principles of Water Sensitive Urban Design (WSUD) described in the Stormwater Management Manual (DoW, 2007).

A summary of the LWMS design principles and objectives is presented in Table 1 of Appendix C.

Refer to Appendix C – LWMS

4.5 Employment

Potential employment opportunities for the Northern Precinct are likely to be confined predominantly to the LSP area once fully developed and operational. Additional employment opportunities may be associated with a future local centre at the intersection of Landgren and Orton Road.

It is estimated that the LSP area will have a maximum potential floorspace of approximately 127,750m². Due to the nature of showrooms and bulky goods retailing requiring a higher degree of car dependence, there is typically a need to dedicate around half the site for car parking. In this case an assumed plot ratio of 0.7 has been used to calculate potential floorspace, as a result of the likely need to offset a portion of the required car parking to be within the high voltage powerline easement.

Accordingly, based on this developable site area and the assumed maximum plot ratio of 0.7 an estimated maximum employment figure of approximately 2,555 jobs will be accommodated within the LSP area.

4.6 Infrastructure coordination, servicing and staging

An Engineering Servicing Report has been prepared by Cossill & Webley and is appended to this report at Appendix D. The report concludes that no major issues preclude the development of the LSP area. A summary of finding from the Engineering Servicing Report is provided below.

4.6.1 Road works

All newly created roads, drainage and footpaths will need to be designed and constructed to the satisfaction of the

City of Kwinana. Upgrading works along Thomas Road will need to be approved by Main Roads WA.

Thomas Road

The MRS identifies Thomas Road as a 'blue' road (Other Regional Road) and will therefore be subject to Main Roads WA approvals.

Within City of Kwinana's draft Developer Contribution Plan No.3 report for Casuarina/ Anketell, Thomas Road is classified as a District Distributor A Road. It is currently constructed as a single carriageway road in the vicinity of the Site and is required to be upgraded to a dual carriageway with a four way roundabout intersection and three other left-in, left out access points. The draft report also indicates that both Thomas Road and Mortimer Road to the south will be subject of development contributions to cover the costs of these roads where they adjoin Development Area 3. Costs are proposed to be shared on the basis of proportional land area.

Timing of the development of the Site will dictate the size and layout of the intersection that will provide the Site with its primary access off Thomas Road. If development of the Site proceeds prior to the Thomas Road upgrade, the developer will likely be required to construct a temporary or interim roundabout to provide the Site with access. If development follows the Thomas Road upgrade, it is assumed the ultimate intersection will have been constructed.

Bombay Boulevard

Bombay Boulevard is a rural-style private road outside the Site that currently provides access for a small number of properties in the area, with the majority of the traffic stemming from Casuarina Prison staff and visitors travelling from the Kwinana Freeway. Bombay Boulevard is constructed within private land and not within a road reserve.

Other Infrastructure

The Water Corporation's open cut main drain will need to be retained or realigned. Road crossings across the drain would need to ensure the predevelopment flows are catered for adequately.

It is anticipated that due to the close proximity of the Site to Kwinana Freeway, a noise wall may be required along the western boundary. However, due to the proposed land use being for commercial development, this may not be necessary. A suitable qualified acoustic engineer should be engaged during detailed design.

4.6.2 Sewer

Water Corporation's wastewater planning strategy for the area is attached as Appendix D (of PGV report). The Site's sewer strategy will involve grading into the future Kwinana Type 90 Wastewater Pump Station (WWPS) 'L' which is planned to be located 100m south of the Site.

WWPS 'L' will pump wastewater via a pressure main to Orton Road and head west before eventually discharging into a gravity sewer manhole on Datchet Turn. The pressure main route is 1,700m long and will require boring in several locations to minimize disturbance in existing suburban areas.

The pressure main and WWPS 'L' are not currently on the Water Corporation's CIP. The developer will need to apply to have WWPS 'L' placed on the CIP in the early stages of planning during Water Corporation's yearly review of the CIP.

Proceeding with development of the Site prior to the inclusion of WWPS 'L' on the CIP will result in tankering for an unknown length of time, or funding of the WWPS construction by the developer.

Based on recent sewer design (November 2016) undertaken north of Thomas Road, it appears part of the Site along Thomas Road may be gravity fed to a sewer catchment north of Thomas Road.

4.6.3 Water

The Water Corporation has advised that preliminary water reticulation planning for the site has been undertaken and is attached as Appendix D. There is an existing DN250 water pipeline recently constructed from Johnson Road through the northern part of the Site which supplies the Treeby Park development north of Thomas Road. The existing DN250 water pipeline can also provide water supply to the Site.

The DN250 water pipeline traverses through future Precinct 1 within an unmade road reserve along with power and gas services, and therefore it may be preferable to realign the road reserve and services to provide better utilization of Precinct 1. A possible realignment for the services and road reserve is along the southern boundary of Lot 9011.

Ultimately, the DN250 water pipeline will extend south along Bombay Boulevard and connect onto a future distribution main on Orton Road. Planning information provided in Appendix D indicates a DN500 steel main along Orton Road. Water Corporation has advised the sizing, timing and staging of the distribution main has yet to be determined and will depend on the demand for water supply following the development of nearby land.

For the water reticulation network to have the capacity to service the ultimate demand of the Site, it is possible that the distribution main on Orton Road will need to be constructed. Although not included on the Water Corporation Capital Investment Program (CIP), it is likely the Water Corporation will fund this infrastructure through the CIP. However, this would need to be confirmed with Water Corporation closer to the time development takes place.

4.6.4 Power

Western Power High Voltage Transmission Lines

There are two 330kV high voltage overhead transmission lines traversing the Site that contain 30m easements either side of the centre of the tower. Refer Figure 9 below. Where the alignments of the transmission lines become parallel, the easement width becomes 110m total, including 30m either side of both lines. A large portion of the easement contains the existing Water Corporation open cut main drain, conveniently allowing for an overlap in land use, and influencing where a majority of the site's POS may be located.

The project team met with Western Power Transmission team on 23rd October 2017 to discuss the draft Structure Plan which was issued to Western Power prior to the meeting. Western Power indicated their objectives in assessing development within their easements included:

1. **Access** for maintenance of WP assets needs to be provided, particularly access to transmission towers;
2. **Safety** of the public is a priority. Clearances to conductors will also need to be checked with respect to possible encroachments caused by the development

(eg road crossings). An Earth Potential Rise (EPR) study will also be required at subdivision stage.

3. **Environmental** objectives, which are to be addressed by the project team in conjunction with the Structure Planning documentation.

It is noted the Structure Plan includes a road running parallel to a transmission line, providing an environment to generate electromagnetically induced currents in parallel conductors. A Low Frequency Induction (LFI) study will need to be undertaken at subdivision stage to assess the possible generation of induced currents in metallic elements (pipes, fences etc) which run parallel to the transmission lines.

Power supply

It is anticipated that the high voltage overhead power adjacent the Site on Thomas Road will be capable of supplying the development of the Site with power and that undergrounding the portion of overhead power adjacent the Site will be a condition of development. Refer Figures in Appendix D.

The existing high voltage overhead power line on Thomas Road is fed from the power infrastructure on Johnson Road west of the Freeway, which is undergrounded and enters the Site before transferring to above ground power lines approximately 135m from the northern Site boundary.

The angle of the existing combined services easement within the site runs adjacent to an area of natural bushland offset by approximately 20m. There is an opportunity to keep the existing power alignment if the area adjacent the bushland is created as a road that runs parallel. Barring that, the power will need to be relocated within the Site before eventually connecting to its original location near the freeway reserve. As discussed in section 6, a possible realignment for the services and road reserve is along the southern boundary of Lot 9011.

There is also high voltage overhead power line on Orton Road that could potentially supply the Site with power if extended up Bombay Boulevard. This option however, would require extending the power through existing roads and feature quite a significant extension distance.

4.6.5 Gas

There is an existing 160mm diameter PE gas main contained within an unmade road reserve extending from the Freeway reserve through the Site onto Thomas Road. Refer Figures in Appendix D. It is anticipated that this gas main has sufficient capacity to service the Site, as there is currently minimal demand from the development to the north of Thomas Road.

The gas main may need to be relocated within the Site, similarly to existing water and power services. As discussed in section 6, a possible realignment for the services and road reserve is along the southern boundary of Lot 9011.

A proposal to relocate the existing DN160 PE gas was discussed with ATCO Gas in October 2017. There appears to be no fatal flaw in the proposed relocation. ATCO Gas will consider the proposal in detail when submitted as part of subdivision civil works.

The ultimate servicing of the Site may require infrastructure upgrades, and given it is a commercial development this infrastructure is anticipated to be at the Developer's expense, although subject to negotiation with a gas utility service provider such as ATCO.

There is an additional 80mm diameter steel gas main on Orton Road that may be extended to the Site if required. ATCO will need to confirm the servicing strategy prior to development.

4.6.6 Telecommunications

NBN Co has advised that due to the size of the Structure Plan area and likelihood of density, NBN Co will be aiming to install fixed line Fibre to the Premise (FTTP) network. There are a number of NBN new developments along Thomas Road and cable exists in the area. An assessment of backhaul requirements can be made closer to the time of development. Backhaul charges would apply to the development in accordance with NBN Co's policy.

Alternative telecommunication providers could also be considered to service the Site.

An existing Optus cable traverses the Site in a north-south direction as shown in Figure 11 (Appendix D). The cable will need to be surveyed to determine the exact location and depth. Subject to results of the survey, the cable may also need to be relocated, either vertically or horizontally or both, in close proximity with the existing alignment in order to accommodate development objectives such as site regrading, road crossings, living stream excavation and services installations.

4.6.7 Drainage

The Site is located within the Jandakot Drainage and Water Management Plan for the Peel Main Drain Catchment. The "Peel Sub P Drain" is a Water Corporation open cut main drain that flows through the Site within a 20m wide reserve.

A Local Water Management Strategy (LWMS) for the Structure Plan Area has been prepared simultaneously with this report, and as such, the generic advice below may change to accord with the LWMS.

Stormwater runoff from the Site will be collected and conveyed via a combination of open swale and piped drainage network prior to discharge into the "Peel Sub P Drain". Modifications to the drain, such as reshaping and landscaping for aesthetic appeal, will need to ensure that the capacity of the drain to convey large storm events from upstream is maintained to pre-development conditions. This will need to be confirmed by the hydrologist preparing the LWMS.

Prior to entering the main drain, stormwater flows will need to be compensated to reduce the peak outflow discharge rate. Also, stormwater quality should be improved through the adoption of 'Best Management Practices' which promote the disposal of runoff via water pollution control facilities, including vegetated swales, basins and gross pollutant traps and the implementation of non-structural source controls, including street sweeping, community education and low fertiliser landscaping regimes.

The Structure Plan provides areas for drainage either side of the main drain, to facilitate discharge attenuation and environmental requirements.

Within allotments, soakwells should be constructed when properties are developed to contain stormwater runoff generated from new buildings and hardstand areas. Drainage from newly created public roads would be collected via conventional gullies or open swales depending on the nature of the adjacent land uses, grades and the extent of traffic and pedestrian activity.

A condition of subdivision for the Site will be the preparation and approval of an Urban Water Management Plan (UWMP) prior to the commencement of development.