

Plan 1 Development Area 2 Structure Plan

The cover features a large, bold, red diagonal shape that cuts across the page from the top left towards the bottom right. The background is white, and there is a red horizontal band at the bottom. The text is centered in the white area.

latitude³²
INDUSTRY ZONE

LATITUDE 32
DEVELOPMENT AREA 2 STRUCTURE PLAN

March 2017

DESCRIPTION	VERSION	DATE	DISTRIBUTION
Draft for Review	1	11/07/2014	LandCorp, Local Governments
Final for PDCC	2	21/07/2014	LandCorp
Final for Advertising	3	01/08/2014	Public Advertising
Updated Transport Assessment (Appendix F)	4	13/08/2014	LandCorp, Local Governments, Landowners
Updated for Readvertising	5	04/03/2016	Main Roads WA, Department of Transport and Commercial Owners
Post Advertising Modifications for PDCC	6	06/04/2016	LandCorp
Updated in accordance with WAPC schedule of modifications	7	09/03/2017	Western Australian Planning Commission

Acknowledgements

This text is published by LandCorp to provide information on the Hope Valley-Wattleup Redevelopment Project / Latitude 32. The particulars and plans in the document are believed to be correct at the time of publication but are subject to change without notice and are supplied for general information only. The information is provided in good faith, neither LandCorp nor its Directors, employees or agents give any warranty or accept any liability arising as a result of reliance upon the information contained herein. This disclaimer is subject to any contrary legislative provisions.

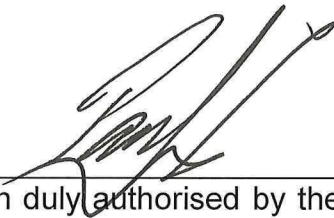
THIS DOCUMENT HAS BEEN PREPARED BY URBIS FOR LANDCORP



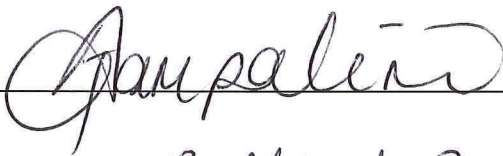
This structure plan is prepared under the provisions of Clause 6.2.9.2 of the Hope Valley Wattleup Redevelopment Project Master Plan.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON: **13 MARCH 2017**.

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:



Witness

13 March 2017

Date

Date of Expiry: 13 MARCH 2027

Table of Modifications

TABLE OF MODIFICATIONS TO PART ONE AND THE STRUCTURE PLAN MAP

MODIFICATION NO.	DESCRIPTION OF MODIFICATION	ADOPTED BY THE WESTERN AUSTRALIAN LAND AUTHORITY	APPROVED BY THE WESTERN AUSTRALIAN PLANNING COMMISSION

Contents

Executive Summary	i
Part One: Statutory Section	ii
1 Part One	iii
1.1 Structure Plan Area	iii
1.2 Structure Plan Content	iii
1.3 Interpretation and Relationship to the Hope Valley-Wattleup Redevelopment Project Master Plan.....	iii
1.4 Land Use, Subdivision and Development Requirements	iii
Part Two: Explanatory Section	1
1 Introduction	2
1.1 Introduction and Purpose	2
1.2 Latitude 32 Background	2
1.3 Relationship to the Master Plan	5
2 Site Context	6
2.1 Land Description.....	6
2.2 Legal Description and Ownership	6
2.3 Structure Plan Area	6
2.4 Surrounding Environment	9
3 Planning Background	10
3.1 Planning Framework	10
4 Site Conditions	13
4.1 Biodiversity and Natural Area Assets.....	13
4.2 Landforms and Soils.....	14
4.3 Groundwater and Surface Water	15
4.4 Contaminated Sites	15
4.5 Vibration and Acoustics	17
4.6 Bushfire Hazard.....	17
4.7 Heritage.....	18
5 Opportunities and Constraints	22
5.1 Summary	22
5.2 Opportunities.....	22
5.3 Constraints	23
6 Structure Plan	26
6.1 Structure Plan Area	26
6.2 Structure Plan Design Formulation.....	27
6.3 Land Use.....	31
7 Movement Network	41
7.1 Movement Network	41
7.2 Movement Network – Strategic Considerations	45
7.3 Proposed Road Reserve Widths.....	49
7.4 Heavy Vehicles on Wattleup Road.....	51
7.5 Road Contributions	53
7.6 Public Transport and Pedestrian and Cycling Infrastructure	53
8 Water Management	54
8.1 Water Use Sustainability Initiatives	54

8.2	Stormwater Management Strategy	54
8.3	Groundwater Management	57
8.4	Subdivision and Urban Water Management Plans	57
8.5	Groundwater Monitoring	57
8.6	Implementation	57
9	Infrastructure and Servicing.....	59
9.1	Earthworks	59
9.2	Roads.....	59
9.3	Drainage	59
9.4	Water	60
9.5	Sewer	60
9.6	Power.....	61
9.7	Communications	62
9.8	Gas.....	62
10	Landscape Master Plan.....	64
11	Implementation	65
11.1	Roles and Responsibilities	65
11.2	Staging	66
11.3	Road Alignment.....	66
11.4	Development Contribution Arrangements.....	67
11.5	Additional Requirements.....	68

Appendices

Appendix A:	Environmental Assessment Report
Appendix B:	Bushfire Management Plan
Appendix C:	Heritage Strategy
Appendix D:	Aboriginal Archaeological Survey
Appendix E:	Transport Assessment
Appendix F:	Draft DCP Items
Appendix G:	Local Water Management Strategy
Appendix H:	Landscape Design Report
Appendix I:	Engineering Strategy
Appendix J:	Glossary of Terms

Figures

Plan 1	Development Area 2 Structure Plan	v
Figure 1	Latitude 32 Indicative Development Areas Plan	3
Figure 2	Locality Plan	4
Figure 3	Structure Plan Location Plan	7
Figure 4	Development Area 2 Land Ownership Plan	8
Figure 5	Development Area 2 Key Natural Areas and Ecological Linkages	14
Figure 6	Development Area 2 Contaminated Sites	16
Figure 7	European Heritage Assets	20
Figure 8	Opportunities and Constraints Plan	25
Figure 9	Non-Statutory Structure Plan Map	29
Figure 10	Development Area 2 Levels Plan	30
Figure 11	Commercial Node Extract	33
Figure 12	Wattleup Historical Corner Concept Plan and Perspective	38
Figure 13	Movement Network Plan	44
Figure 14	Existing Access Arrangements	46
Figure 15	Medium Term Access Arrangements	47
Figure 16	Long Term Access Arrangements	48
Figure 17	Proposed Road Reservation Width and Cross-Section for the Local Distributor Road	49
Figure 18	Proposed Road Reservation Width and Cross-Section for the Local Distributor Road and Local Road including Ecological Linkage	50
Figure 19	Proposed Road Reservation Width and Cross-Section for the Local Roads	51
Figure 20	Existing Restricted Vehicle Access in Proximity to the Structure Plan area	53
Figure 21	Stormwater Management Plan	56
Figure 22	Infrastructure and Servicing Plan	63

Tables

Table 1	Structure Plan Area Description	6
Table 2	Structure Plan Area Surrounding Environment	9
Table 3	Development Area 2 Contaminated Sites	16
Table 4	Structure Plan Opportunities and Design Responses	22
Table 5	Structure Plan Constraints and Design Responses	23
Table 6	Structure Plan Design Parameters	28
Table 7	Additional Use Provisions	31
Table 8	Land Use Assets Summary	37
Table 9	Utilities and Infrastructure Summary	40
Table 10	Summary of WSUD	55
Table 11	Implementation, Roles and Responsibilities	58
Table 12	Roles and Responsibilities	65
Table 13	Road Realignment Process	66
Table 14	Additional Requirements Prior to Subdivision and/or Development	68

Executive Summary

The Fremantle Rockingham Industrial Area Regional Strategy 2000 (FRIARS) was undertaken to protect and optimise the Kwinana Industrial Area, given the recognition of the Kwinana Industrial Area's importance to the State.

In accordance with the recommendations of FRIARS, the Hope Valley-Wattleup Redevelopment Project was established. It was rebranded as Latitude 32 in 2006. Latitude 32 is governed by the Hope Valley-Wattleup Redevelopment Act 2000 (the Act) and excises the Act area, by repealing the relevant planning schemes. These are replaced by the Hope Valley-Wattleup Redevelopment Project Master Plan 2005 (as amended December 2015) (the Master Plan). The Master Plan, for all intents and purposes acts as the Planning Scheme for the Redevelopment Area.

Located approximately 25km south-west of the Perth CBD, 20km south of the Fremantle GPO and 10km north of the Rockingham CBD, in close proximity to existing and planned service and transport infrastructure, Latitude 32 comprising a total area of approximately 1,400 hectares, is located within the municipal boundaries of the Cities of Cockburn and Kwinana.

In order to meet the statutory requirements of the Act and the Master Plan, it is necessary to prepare a structure plan that provides for certainty and flexibility, enabling land development and the timely release of industrial land that responds to market requirements.

This Structure Plan, including an area of 58.6ha, has been prepared for Development Area 2 (the Structure Plan area), being just one of six (existing and proposed) Development Areas within Latitude 32.

The Structure Plan has been prepared pursuant to Part 6 of the Master Plan to:

- Enable general industrial development through establishing an appropriate planning framework and design concepts;
- Allow for the limited continued use of the existing commercial node; and
- Guide and support subsequent subdivision and development proposals.

The Structure Plan comprises a Part One – Statutory Section; Part Two – Explanatory Section providing context and justification to the preparation of the Structure Plan; and Appendices - Including all specialist consultant reports and documentation used in the preparation of, and to support the Structure Plan.

In order to guide and support subdivision and development proposals, Part Two of this Structure Plan includes indicative lot layouts to ensure the Structure Plan area can be appropriately developed for industrial purposes. There has been extensive engineering design undertaken relative to the existing and finished levels, including the design of services in response to the extraction of primary resources, together with the significant road infrastructure proposed within and adjacent to the Structure Plan area. Where practicable, lot sizes and gradients have been designed around existing cadastre to allow for landowners to develop at an individual level.

Due regard is to be given to the design principles and design rationale contained within the Structure Plan at the time of subdivision and development.

latitude³²
INDUSTRY ZONE

Part One: Statutory Section

1 Part One

1.1 Structure Plan Area

The Structure Plan applies to the land identified within the black dashed line on the Structure Plan Map – *Plan 1* (the Structure Plan area). The Structure Plan is identified as the Development Area 2 Structure Plan (the Structure Plan).

1.2 Structure Plan Content

The Structure Plan comprises:

- **Part One – Statutory Section**

Part One of the Structure Plan includes the Structure Plan Map and provisions and requirements that have statutory effect.

- **Part Two – Explanatory Section.**

Part Two of the Structure Plan provides context, justifies and clarifies the provisions contained in Part One, and is used as a reference guide to interpret and implement Part One.

- **Appendices**

Includes all specialist consultant reports and documentation used in the preparation of and to support the Structure Plan.

1.3 Interpretation and Relationship to the Hope Valley-Wattleup Redevelopment Project Master Plan

The Structure Plan has been prepared under Part 6 of the Hope Valley-Wattleup Redevelopment Project Master Plan (the Master Plan). The terms used in the Structure Plan shall have the same meanings given to them in the Master Plan or where not defined in the Master Plan as defined in the Structure Plan. Pursuant to clause 6.2.11.2 of the Master Plan, if any provision, standard or requirement of the Structure Plan is inconsistent with a provision, standard or requirement of, the Master Plan, then the Master Plan prevails to the extent of the inconsistency.

1.4 Land Use, Subdivision and Development Requirements

Land use permissibility within the Structure Plan shall be in accordance with the land use permissibility prescribed by the Master Plan for the Precinct within which the subject land is located.

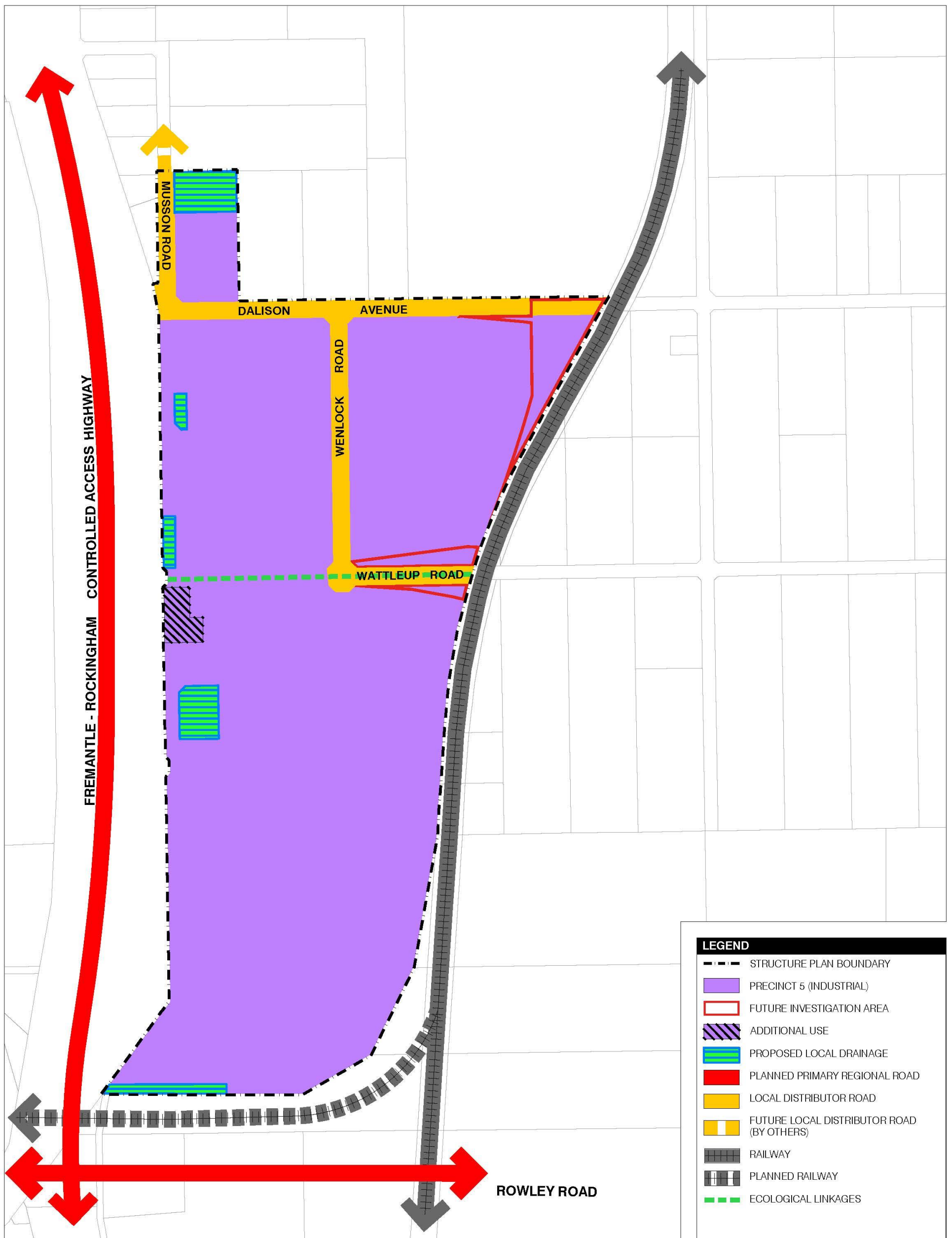
The subdivision and development of the land is to be generally in accordance with the Structure Plan.

The Structure Plan is located within Precinct 5 as described in Appendix 1 of the Master Plan. Land uses within the Structure Plan are to be in accordance with the land use permissibility prescribed by

Table 1 of the Master Plan for Precinct 5, with the exception of the Additional Uses listed in Schedule 2 of the Master Plan for the land identified as Additional Use - Commercial on the Structure Plan.

In accordance with clause 6.2.3.2 and clause 6.2.3.3 of the Master Plan, the Structure Plan is to be given due regard when considering the subdivision and development of land within the Structure Plan area.

Subdivision and development should not be approved until a Development Contribution Plan (DCP) is in effect upon incorporation into Schedule 12 as per clause 6.3.4.



Plan 1 Development Area 2 Structure Plan

latitude³²
INDUSTRY ZONE

Part Two: Explanatory Section

Contents

Executive Summary	i
Part One: Statutory Section	ii
1 Part One	iii
1.1 Structure Plan Area	iii
1.2 Structure Plan Content	iii
1.3 Interpretation and Relationship to the Hope Valley-Wattleup Redevelopment Project Master Plan.....	iii
1.4 Land Use, Subdivision and Development Requirements	iii
Part Two: Explanatory Section	1
1 Introduction	2
1.1 Introduction and Purpose	2
1.2 Latitude 32 Background	2
1.3 Relationship to the Master Plan	5
2 Site Context	6
2.1 Land Description.....	6
2.2 Legal Description and Ownership	6
2.3 Structure Plan Area	6
2.4 Surrounding Environment	9
3 Planning Background	10
3.1 Planning Framework	10
4 Site Conditions	13
4.1 Biodiversity and Natural Area Assets.....	13
4.2 Landforms and Soils.....	14
4.3 Groundwater and Surface Water	15
4.4 Contaminated Sites	15
4.5 Vibration and Acoustics	17
4.6 Bushfire Hazard.....	17
4.7 Heritage.....	18
5 Opportunities and Constraints	22
5.1 Summary	22
5.2 Opportunities.....	22
5.3 Constraints	23
6 Structure Plan	26
6.1 Structure Plan Area	26
6.2 Structure Plan Design Formulation.....	27
6.3 Land Use.....	31
7 Movement Network	41
7.1 Movement Network	41
7.2 Movement Network – Strategic Considerations	45
7.3 Proposed Road Reserve Widths.....	49
7.4 Heavy Vehicles on Wattleup Road.....	51
7.5 Road Contributions	53
7.6 Public Transport and Pedestrian and Cycling Infrastructure	53
8 Water Management	54
8.1 Water Use Sustainability Initiatives	54

8.2	Stormwater Management Strategy	54
8.3	Groundwater Management	57
8.4	Subdivision and Urban Water Management Plans	57
8.5	Groundwater Monitoring	57
8.6	Implementation	57
9	Infrastructure and Servicing.....	59
9.1	Earthworks	59
9.2	Roads.....	59
9.3	Drainage	59
9.4	Water	60
9.5	Sewer	60
9.6	Power.....	61
9.7	Communications	62
9.8	Gas.....	62
10	Landscape Master Plan.....	64
11	Implementation	65
11.1	Roles and Responsibilities	65
11.2	Staging	66
11.3	Road Alignment.....	66
11.4	Development Contribution Arrangements.....	67
11.5	Additional Requirements.....	68

Appendices

Appendix A:	Environmental Assessment Report
Appendix B:	Bushfire Management Plan
Appendix C:	Heritage Strategy
Appendix D:	Aboriginal Archaeological Survey
Appendix E:	Transport Assessment
Appendix F:	Draft DCP Items
Appendix G:	Local Water Management Strategy
Appendix H:	Landscape Design Report
Appendix I:	Engineering Strategy
Appendix J:	Glossary of Terms

1 Introduction

1.1 Introduction and Purpose

The Structure Plan has been prepared for Development Area 2 (as described on *Figure 1 Latitude 32 Indicative Development Areas Plan*).

The Structure Plan has been prepared pursuant to Part 6 of the Master Plan to:

- Enable general industrial development through establishing an appropriate planning framework and design concepts; and
- Guide and support subsequent subdivision and development proposals.

1.2 Latitude 32 Background

The Fremantle Rockingham Industrial Area Regional Strategy 2000 (FRIARS), was undertaken to protect and optimise the Kwinana Industrial Area (KIA), given the recognition of the KIA's importance to the State.

In accordance with the recommendations of FRIARS, the Hope Valley-Wattleup Redevelopment Project, hereafter referred to as Latitude 32 was established. Latitude 32 is governed by the Hope Valley-Wattleup Redevelopment Act 2000 (the Act) and excises the Act area (Redevelopment Area) by repealing the relevant planning schemes. The Master Plan, gazetted in 2005, for all intents and purposes acts as the Planning Scheme for the Redevelopment Area.

Latitude 32, incorporating approximately 1,400 hectares of land, is strategically located within the Western Trade Coast (WTC) (refer *Figure 2 Locality Plan*). The WTC is made up of four estates, of which one is Latitude 32. Latitude 32 has been planned to complement the other estates within the WTC by supplying general and transport industrial land to support the strategic heavy and special industrial projects.

Latitude 32 is located in close proximity to existing and planned service and transport infrastructure, including access to road, rail and sea.

Latitude 32 is required to meet the statutory requirements of the Act and the Master Plan and ensure the planning framework provides for certainty and flexibility, enabling land development and the timely release of industrial land that responds to market requirements.

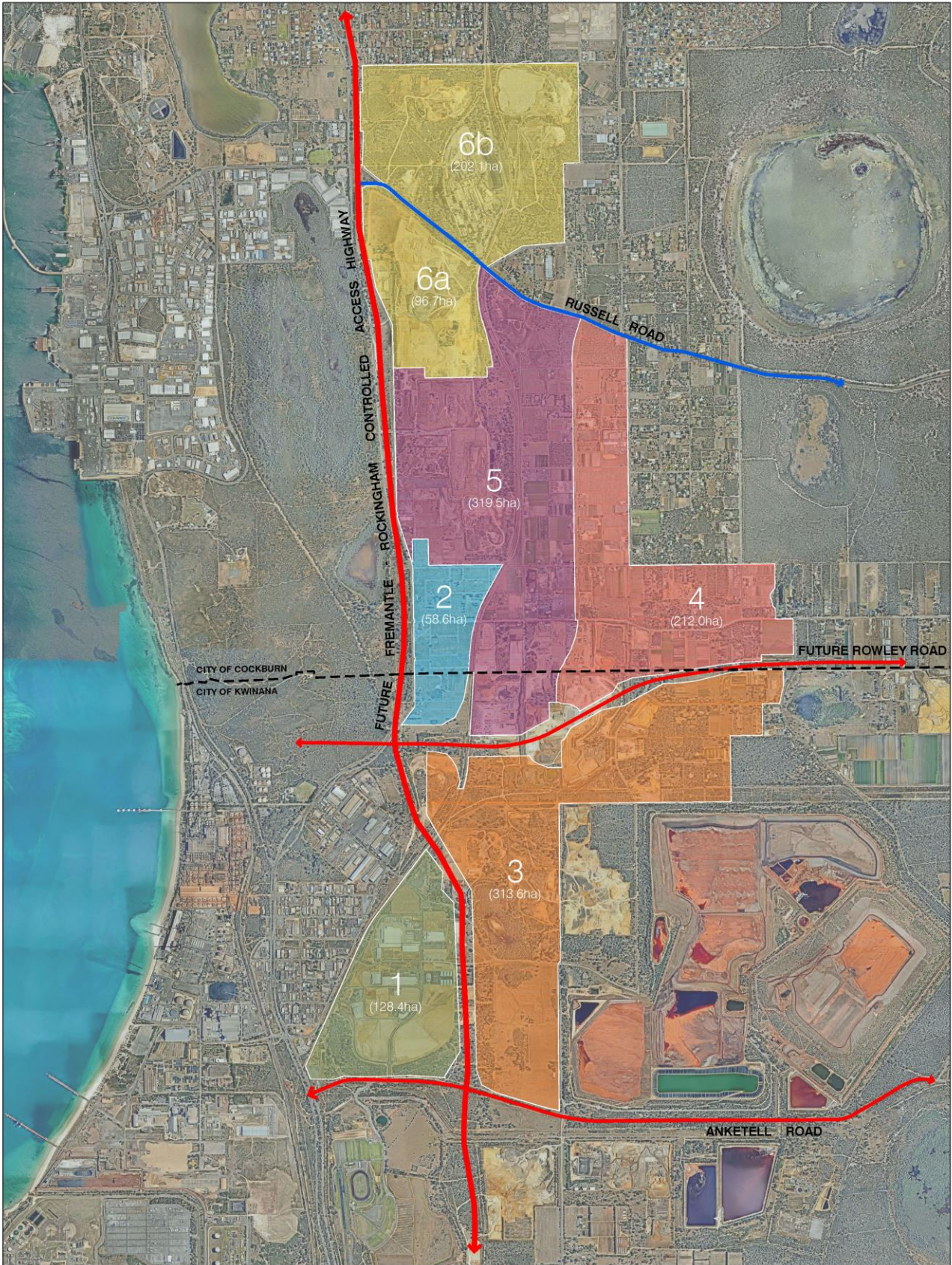


Figure 1 Latitude 32 Indicative Development Areas Plan

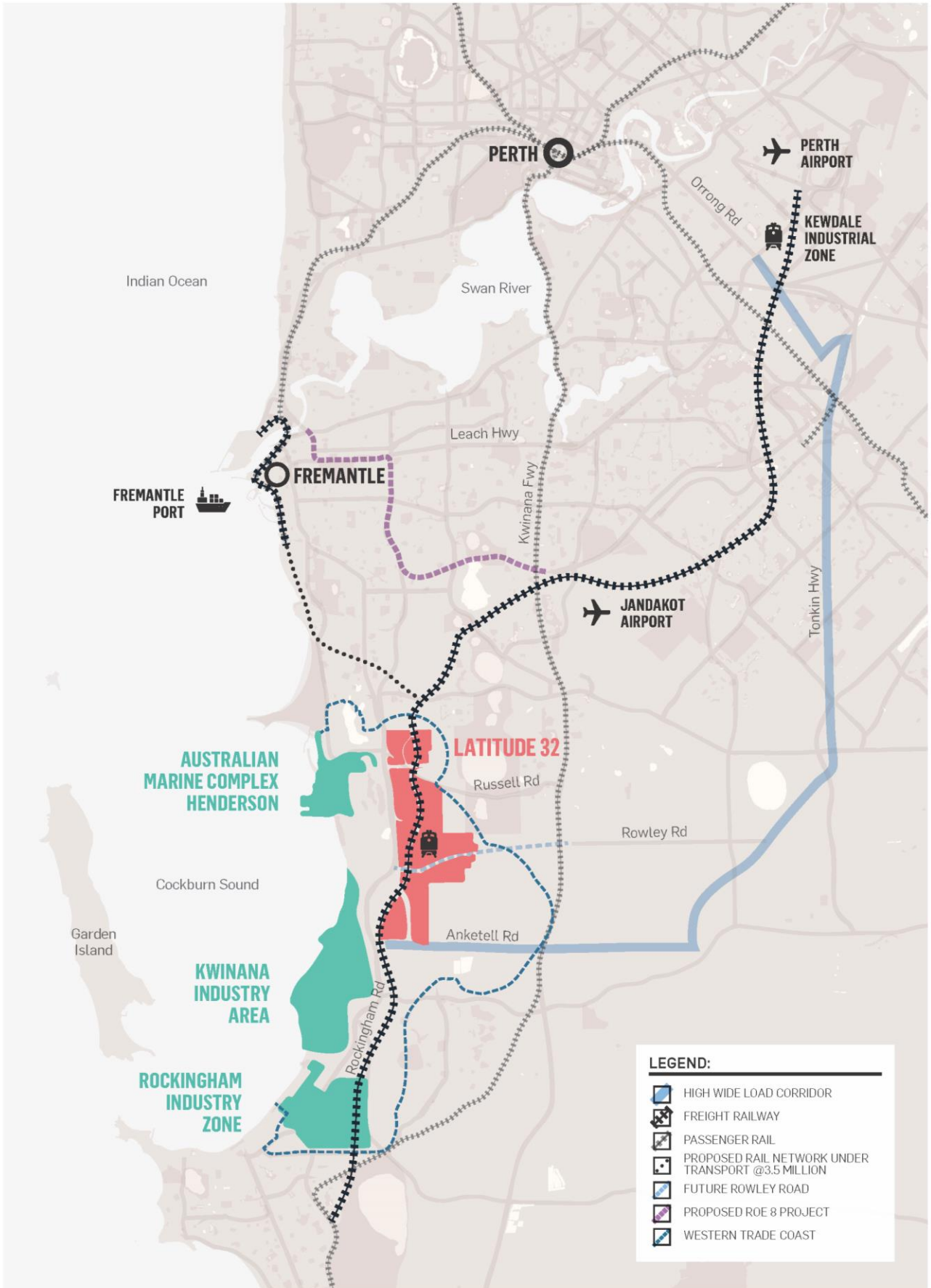


Figure 2 Locality Plan

1.3 Relationship to the Master Plan

As the key planning instrument for Latitude 32, the Master Plan is responsible for:

- Land use permissibility;
- Requirements for planning approval;
- Development contributions; and
- Protection of the environment and heritage.

To allow for the adoption of the Structure Plan, amendments to the Master Plan are required. As such, Amendment No.11 (approved December 2016) was progressed concurrent with this Structure Plan in order to consolidate a number of Precincts and associated land use permissibility as well as align the Development Area and Development Contribution Area boundary with the Structure Plan to enable subdivision and/or development of land. The specific changes within Amendment No.11 included:

- Amending Table 1 – Precinct Land Use to:
 - replace the text '5 Wattleup Local Commercial' with '5'; and
 - change land use permissibility within proposed Precinct 5.
- Amending Schedule 2 – Additional uses to include additional uses relative to the Commercial Node.
- Amending Schedule 11 – Development Areas to replace the text 'Wattleup Local Commercial' with '5'.
- Amending Schedule 12 – Development Contribution Plans to replace the text 'DCA II' with 'DA 2'.
- Amending Appendix 1 – Hope Valley Wattleup Redevelopment – Master Plan Map to reflect the changes made to Precinct boundaries, as detailed on Figure 3.
- Amending Appendix 3 – Hope Valley Wattleup Redevelopment – Development Areas and Development Contribution Areas Map to ensure alignment of the Development Area and Development Contribution Area boundaries with the Structure Plan.

The modification of Development Areas, Precinct boundaries and land use permissibility was undertaken to:

- Provide consistency with the proposed Structure Plan for revised Development Area 2 and Precinct 5.
- Broaden the land use permissibility for revised Development Area 2 and Precinct 5 whilst avoiding land use conflict.
- Enable additional uses within a specific location to provide land use flexibility for the continuation of existing commercial activities within the existing commercial node.
- Enable the integrated development of revised Development Area 2.

The boundaries for Development Areas 4, 5 and 6 (*Figure 1 Proposed Latitude 32 Development Areas Plan*) will be reflected in future structure planning and supporting Master Plan amendments to align the boundaries with the Master Plan.

2 Site Context

2.1 Land Description

The Structure Plan area covers 58.6ha of land in the west of Latitude 32, as identified on *Figure 3 Structure Plan Location Plan*. It is located within the City of Cockburn and the City of Kwinana, approximately 25km south-west of the Perth CBD, 20km south of the Fremantle GPO and 10km north of the Rockingham CBD.

The Structure Plan area is largely vacant due to its history as the Wattleup town-site which was acquired by Government in the mid 2000's. The Structure Plan area contains a number of management reserves, the existing commercial node (including shops and a tavern) and a number of private landholdings include uses such as rural residential and market gardens.

2.2 Legal Description and Ownership

The Structure Plan area is fragmented, with a total of 13 landowners wholly or partially located within the Structure Plan boundary. *Figure 4 Development Area 2 Land Ownership Plan* depicts the landownership arrangements within the Structure Plan area.

LandCorp is the primary landholder within the northern two thirds of the Structure Plan area, with a number of City of Cockburn freehold land parcels sitting amongst LandCorp owned land. Private landowners are largely located to the south of Stamford Road with only a couple being located within the northern portion. It is noted that a number of state owned parcels are scattered across the Structure Plan area.

2.3 Structure Plan Area

The Structure Plan area has been determined based on the following factors in order to ensure it is both consistent with statutory boundaries under the Master Plan, and known alignment of key infrastructure items as outlined in *Table 1*:

Table 1 Structure Plan Area Description

BOUNDARY	DETERMINING FACTORS
North	The northern boundary has generally been aligned with the existing Dalison Avenue road reserve. The north-west corner of the Structure Plan area includes a portion of Musson Road and a lot to the north of Dalison Avenue. This irregular portion has been included within the Structure Plan area in order to provide a drainage basin for the northern aspect of the Structure Plan area in an appropriately located low point of the catchment.
East	The eastern boundary has been determined by the existing rail reserve as set out in Appendix 2 – Hope Valley-Wattleup Redevelopment Reserves Map of the Master Plan.
South	The southern boundary has been determined via the design of the proposed Rowley Road extension (as at 31/01/2014, source: Main Roads WA). It is considered that the alignment as discussed and confirmed by Main Road Western Australia (Main Roads WA) is the most appropriate boundary in order to provide certainty for landowners, and to ensure the development does not encroach into the land required for the Rowley Road extension.
West	The western boundary has been determined by the Road Reserve set out within Appendix 2 – Hope Valley-Wattleup Redevelopment Reserves Map of the Master Plan. This depicts the boundary of the Road Reserve for the Fremantle-Rockingham Controlled Access Highway (FRCAH).



Figure 3 Structure Plan Location Plan



Figure 4 Development Area 2 Land Ownership Plan

2.4 Surrounding Environment

As outlined in *Table 2* below, the area surrounding the Structure Plan currently comprises a wide range of land uses from industrial to rural residential and recreation.

Table 2 Structure Plan Area Surrounding Environment

SURROUNDING ENVIRONMENT	EXISTING LAND USE	KNOWN FUTURE LAND USE
North	<ul style="list-style-type: none"> – Rural residential development consisting of former market gardens, turf farms and similar horticultural activities. – City of Cockburn's Henderson Waste Recovery Park (Resource Recovery Site). – Quarrying activities. – Some temporary hardstand and storage uses have been established to support the demand for container storage and locating construction materials. 	<ul style="list-style-type: none"> – Industrial development as part of Latitude 32. These areas constitute Development Areas 5 and 6. – The Resource Recovery Site / Solid Waste Management to remain operational for the foreseeable future.
East	<ul style="list-style-type: none"> – Midland to Kwinana Railway (MKR). – Quarrying and hardstand activities. – Rural residential uses including agricultural and horticultural activities. 	<ul style="list-style-type: none"> – MKR and spur lines. – Future Intermodal Terminal (IMT) intended to accommodate a freight/container handling facility with likely uses including a container park, offices, warehouses and a distribution centre. This area constitutes Development Area 5. – Further east is future industrial development as part of Latitude 32. This area constitutes Development Areas 4.
South	<ul style="list-style-type: none"> – Emerging industrial within Flinders Precinct as part of Latitude 32. 	<ul style="list-style-type: none"> – Rowley Road extension and interchange with the FRCAH. – Flinders Precinct - General and Transport Industrial as part of Latitude 32.
West	<ul style="list-style-type: none"> – Rockingham Road (Primary Regional Road). – Beelihar Regional Park including Mt Brown, Lake Mt Brown and Brownman Swamp are located to the west of the Structure Plan area. – Further west to the north and south of the Beelihar Regional Park and making up part of the WTC are the Naval Base, Kwinana Power Station and Kwinana Industrial Area. 	<ul style="list-style-type: none"> – The FRCAH once constructed will result in a physical edge to the Structure Plan area. – The land to the west of the future FRCAH, being Beelihar Regional Park, is outside of the Structure Plan area and Latitude 32 and will continue to be protected and managed as regional open space.

3 Planning Background

3.1 Planning Framework

The following section sets out the key documents applicable to the preparation of the Structure Plan.

3.1.1 Fremantle to Rockingham Industrial Area Regional Strategy 2000 (FRIARS)

FRIARS investigated the planning issues including development and redevelopment opportunities within the Fremantle to Rockingham corridor.

FRIARS aimed to provide for the future planning, in particular the provision of additional land for industrial uses in an area which was strategically recognised at that time as the best location for industrial land within the Perth Metropolitan Region. FRIARS also took into account existing and potential land use conflicts, the protection of the Kwinana Industrial Area and management of associated buffers along with the protection and enhancement of key natural assets within the vicinity of the Structure Plan area and the need to provide certainty to landowners.

FRIARS investigated a number of development options in consultation with key stakeholders and the community. The recommendations of FRIARS included an expanded industrial area to provide a land use transition buffer between the Kwinana Industrial Area and sensitive land uses. The creation of a Redevelopment Area was to be implemented through specific legislation, a master plan and an implementing agency.

3.1.2 Hope Valley-Wattleup Redevelopment Act 2000 (the Act)

In accordance with the recommendations of FRIARS, development within Latitude 32 is governed by the Act. The area the subject of the Act is referred to as the Redevelopment Area.

The Act excises the Redevelopment Area by repealing the planning schemes in operation within the area, being the Metropolitan Regional Scheme and local planning schemes of the Cities of Kwinana and Cockburn. In response to this, the Act sets out key functions and the statutory mechanisms which guide land use and development in Latitude 32 including the requirement for a master plan.

The Act specifies the Authority, being the Western Australian Land Authority (trading as LandCorp) and its function under the Act to plan, undertake, promote and coordinate the development and redevelopment of land in the Redevelopment Area.

3.1.3 Hope Valley-Wattleup Redevelopment Project Master Plan 2005 (as amended December 2015) (the Master Plan)

Prepared in accordance with the requirements of the Act, the Master Plan for all intents and purposes acts as the local planning scheme for the Redevelopment Area. The Act provides for, and guides the preparation of the Master Plan in order to:

“Promote the orderly and proper planning, development and management of the redevelopment area, including any provision that may be made by a local planning scheme under the Planning and Development Act 2005.”

In summary, in accordance with the intent of FRIARS and the Act, the Master Plan aims to resolve land use conflicts, protect and conserve heritage and environmental assets, provide for development in the area in a proper and orderly way, and distribute costs of common infrastructure.

The Master Plan provides for the procedure to establish statutory documents including; Structure Plans, Design Guidelines and Planning Policies, along with the requirements for Planning Approvals and measures in which to control and guide land uses and development.

The Structure Plan is prepared in accordance with Part 6 of the Master Plan and is consistent with the aims for development within the Redevelopment Area.

The Master Plan and any amendments to the Master Plan are to be considered by the Western Australian Planning Commission (the Commission) and approved or refused by the Minister for Planning. The Master Plan provides for the approval of structure plans by the Commission and approval of Design Guidelines by the Authority or the Commission.

3.1.4 Hope Valley-Wattleup Redevelopment Project Water Management Strategy 2007 (the WMS)

The WMS provides additional guidance in achieving the intentions of the Redevelopment Area, in particular meeting water quality objectives, targets and criteria. The WMS objective is to protect the key hydrological resources within and surrounding the Redevelopment Area.

The WMS develops an implementation framework and actions which guide the detailed investigations. The Strategy includes the requirement for a Local Water Management Strategy (LWMS) which addresses the objectives, design criteria and guidelines when preparing Structure Plans.

The Structure Plan has been prepared in accordance with the principles and requirements of the WMS as is outlined within Section 8 of this report. A LWMS has been prepared for the Structure Plan area. The LWMS has been approved by the Department of Water on 26 July 2016 (refer **Appendix G**).

In 2013, the Latitude 32 District Water Management Strategy (DWMS) was prepared to update the WMS in accordance with the Commission's *Better Urban Water Management (2008)*. The DWMS was approved by the Department of Water (DoW) in May 2013.

3.1.5 Hope Valley-Wattleup Redevelopment Project Biodiversity Strategy 2007 (the Biodiversity Strategy) and Biodiversity Strategy (as amended 2015)

Condition 2 of Ministerial Statement 667 required a Biodiversity Strategy to be prepared for the project area.

The Biodiversity Strategy identifies Key Natural Areas (wetlands and remnant vegetation), provides for public open space, and identifies processes, policies and monitoring mechanisms to conserve

and enhance biodiversity in the Redevelopment Area and adjacent environments. In providing guidance on the direction for biodiversity, the Biodiversity Strategy has assessed all flora, fauna and related biophysical attributes associated with the Redevelopment Area.

Strategic and management actions have been outlined to ensure the future planning and development of Latitude 32 is consistent with the objectives and direction of the Biodiversity Strategy.

Clause 7.1.5 of the Biodiversity Strategy requires a five-year review to ensure that the Biodiversity Strategy reflects current planning outcomes, current policies and best management practices in biodiversity and is updated and improved as more information and data becomes available. A review of the Biodiversity Strategy commenced in 2014 and the key outcomes of the review reflect the current environmental and localised structure planning for Latitude 32.

The Biodiversity Strategy (as amended 2015) has been supported by the OEPA on a number of occasions, most recently in 2016 (refer Letters dated 14 September 2014, 21 May 2015 and email dated 22 July 2016 at Appendix 2 of the Environmental Assessment Report at **Appendix A**).

The Structure Plan is consistent with the objectives, principles and management requirements of the Biodiversity Strategy (as amended 2015). Additionally, the Structure Plan has given consideration to the requirements of the Biodiversity Strategy (as amended 2015) when providing for remnant vegetation and Ecological Linkages as outlined within Section 4.1 of this report.

4 Site Conditions

4.1 Biodiversity and Natural Area Assets

An environmental assessment of the Structure Plan has been undertaken and a copy of the Environmental Assessment Report (EAR) is located within **Appendix A**. This EAR addresses the following key environmental factors including:

- Vegetation and Flora; and
- Fauna.

The EAR provides a summary of the existing Structure Plan area conditions and provides an outline of how the design of the Structure Plan responds to these site conditions creating a balance between protecting the biodiversity and natural assets whilst allowing for industrial development.

4.1.1 Vegetation and Flora

Vegetation and Flora Surveys over the Structure Plan area were undertaken in 2005 and again in 2014 in line with the requirements of the Biodiversity Strategy.

There are no Bush Forever sites within the Structure Plan area.

The condition of vegetation within the Structure Plan area was found to be completely degraded with no native vegetation types mapped. Many of the remaining trees are noted to be exotics and non-local species such as Palm Trees, Pine Trees and Gum Trees planted within the old Wattleup town-site at the time of development. One natural Tuart remains adjacent the southern boundary of the Structure Plan area, with a small stand of native shrubs located within the centre, south of Wattleup Road.

4.1.2 Fauna

A fauna assessment undertaken in 2005 concluded that it is highly unlikely that any fauna species were to occur within the Structure Plan area as a result of the highly modified environment and clearance of potential fauna habitat. Any fauna is noted to be limited to avian fauna.

4.1.3 Ecological Linkages

In accordance with the Biodiversity Strategy (as amended 2015), the Structure Plan incorporates one Ecological Linkage, as depicted on *Figure 5 Development Area 2 Key Natural Areas and Ecological Linkages*.

The Ecological Linkage is located along the southern side of Wattleup Road and connects north along the eastern side of Pearce Road. The Ecological Linkage will provide for avian movement and habitats through the planting of a variety of endemic species of an appropriate size.

Refer to section 6.3.4 for details of the design principles for Ecological Linkages.

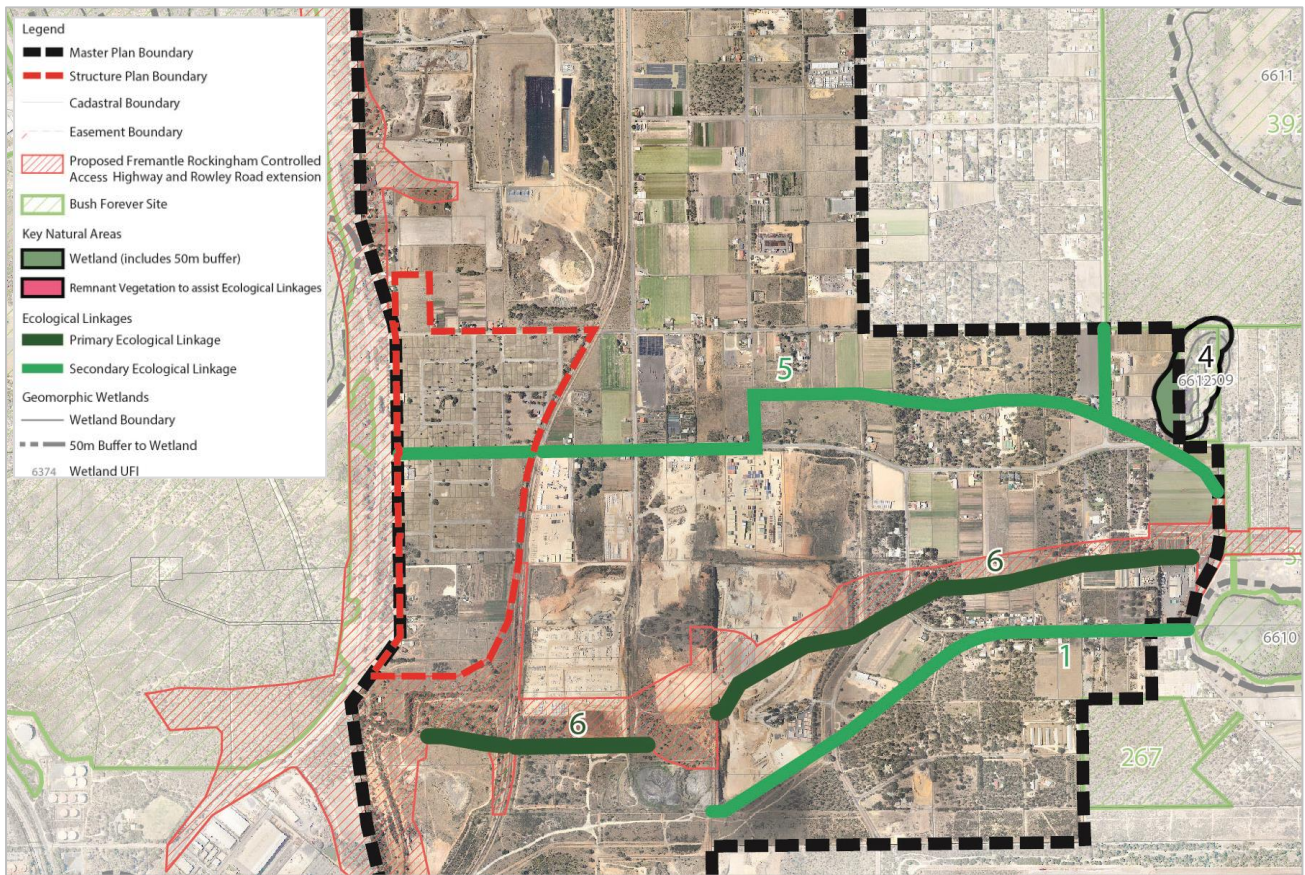


Figure 5 Development Area 2 Key Natural Areas and Ecological Linkages

4.2 Landforms and Soils

A desktop assessment concluded that the land is generally undulating with slope grading gently downwards from approximately 15m AHD in the east to approximately 5m AHD in the west.

The Structure Plan area is located in the Swan Coastal Plain within the Spearwood Dune System. The Structure Plan area is underlain by the sands and limestone of the Tamala Limestone formation with limestone predominantly being located to the east of the sit and sands dominating the west.

The Acid Sulphate Soil (ASS) Risk Map, Swan Coastal Plain identifies the Structure Plan area as having no risk of Acid Sulphate Soils and Potential Acid Sulphate Soils at depths greater than 3m.

4.3 Groundwater and Surface Water

The Structure Plan area is located within the Valley Groundwater System, a part of the broader Cockburn Groundwater Area. The area is underlain with a superficial limestone, marl and cemented sand aquifer. The aquifer is recharged by rainfall and some upward leakage from the Leederville aquifer which is located further below. Groundwater flows in a westerly direction through the Structure Plan area to Cockburn Sound.

Preliminary geotechnical investigations have determined that the groundwater depth ranges from 1m AHD to 17m AHD below the existing natural surface.

Three groundwater monitoring bores were installed in May 2013 and are monitored monthly to monitor groundwater quality and levels. The bores were constructed suitably for groundwater quality monitoring, and installed to the top of the superficial aquifer. Groundwater quality was found to be typical of that expected for land which has been historically utilised for residential and market garden uses.

The Structure Plan area does not contain any flowing surface water features (streams, creeks, drains). The majority of road drainage generally runs off road pavement and infiltrates within the verge.

4.4 Contaminated Sites

The nature of the historic land uses within the Structure Plan area leads to the potential for contamination of the soil and water. In particular potential contamination could be a result of the previous service station, market garden and residential septic systems.

A search of the Department of Environment Regulation's (DER) Contaminated Sites Database noted three contaminated lots within the Structure Plan area. These sites relate to the former service station which was located across three lots as depicted in *Figure 6 Development Area 2 Contaminated Sites*.

The DER classification and constraints relating to the three contaminated sites is outlined within *Table 3*:

Table 3 Development Area 2 Contaminated Sites

DER SITE	LOT/ADDRESS	CLASSIFICATION / CONSTRAINTS
15243	Lot 1078 Rockingham Road, Wattleup	<ul style="list-style-type: none"> - Classification – Remediated for restricted use - Nature and extent of contamination – Isolated hydrocarbon impacted ground water and soil at approximately 1.5m below ground level. - Constraints – The land use of the site is restricted to commercial / industrial use which excludes sensitive uses with accessible soil. The site should not be developed for sensitive uses without further remediation. - Any construction of the site is restricted to slab on ground construction.
56067	Lot 1082 Rockingham Road, Wattleup	
40997	Lot 2165 Rockingham Road, Wattleup	



Figure 6 Development Area 2 Contaminated Sites

4.5 Vibration and Acoustics

The eastern boundary of the Structure Plan area is located directly adjacent the Midland Kwinana Railway. It is acknowledged that this may result in noise and vibration effects on the landholdings within the Structure Plan area.

A Noise and Vibration assessment (refer Appendix 2 of the Environmental Assessment Report at **Appendix A**) has been undertaken in relation to the existing railway line and any potential future duplication of this line and potential effects on development. The results of the assessment have identified the following:

- A recommended setback of 15m to ameliorate any impacts from vibration, from the centre of the rail to the offices and workshops is required to ensure these structures will meet the requirements of AS2107:2000; and
- Amelioration (orientation, design and materials) for noise impacts on offices in the contour range of 75<80 db (A) may be required to meet AS2107:2000. This is in the order of 40m.

Provisions to ensure development will comply with the noise and vibration recommendations are included within the Latitude 32 Design Guidelines which provide the design principles and lot specific design criteria that apply to all development within Latitude 32 .

4.6 Bushfire Hazard

A Bushfire Management Plan has been prepared for the purpose of identifying and reducing the threat of bushfire on the future development of the Structure Plan area. A copy of this report is located in **Appendix B**.

Due to the current extent of adjacent vegetation to the south, west and northeast, portions of the Structure Plan area are designated as bushfire prone, as outlined on the Western Australian Map of Bush Fire Prone Areas. The Bushfire Management Plan has been prepared in accordance with the Guidelines for Planning in Bushfire Prone Areas (the Guidelines) to meet planning requirements triggered under State Planning Policy 3.7 Planning in Bushfire Prone Areas.

The majority of the Structure Plan area and adjacent land has been cleared of native vegetation due to past disturbances for development. A pre-development bushfire hazard level assessment identifies the majority of the site as having a Moderate bushfire hazard level, reflecting that the majority of native vegetation has been cleared from the site and confirming that development will avoid areas of Extreme bushfire hazard level. Given that proposed development will result in clearing and/or management of the remaining on-site vegetation, the post development state of the site will result in even lower hazard levels.

Adjacent bushfire hazards associated with vegetation within the Rockingham Road reserve and Beeliar Regional Park to the west of the Structure Plan area will remain post development of the site. Portions of this hazard will be reduced in the longer term as a result of development of the FRCAH within the Rockingham Road reserve.

The bushfire risks posed to future development by these post development hazards can be managed through the standard application of acceptable solutions under the Guidelines, including

provision for, and implementation of Asset Protection Zones, relevant bushfire building construction standards, provision of adequate emergency water supply and vehicular access, as well as through a direct bushfire suppression response if required.

Bushfire Attack Level (BAL) contour mapping prepared over the Structure Plan area demonstrates that minimum separation distances for a BAL-19 rating or lower can be achieved for all proposed development areas in the form of Asset Protection Zones consisting of either road reserves or building setbacks. Potential development areas impacted by a BAL-19 rating are minimal, with the majority of development areas impacted by a BAL response being limited to BAL-12.5. The majority of Development Area 2 is subject to a BAL-Low rating, requiring no specific construction requirements.

Given the staged nature of proposed development surrounding the subject site, vehicular access arrangements in the short, medium and long term duration of development have been addressed to ensure that all occupiers and visitors are provided with at least two vehicular access routes at all times.

Temporary on-site bushfire hazards will be managed through the creation and maintenance of 100 m wide cleared or low fuel buffers around each development stage, to ensure that buildings can be constructed to the identified BAL rating and construction is not impacted by temporary on-site vegetation.

These responses are being factored in to proposed development early in the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.

4.7 Heritage

A summary of heritage associated with the Structure Plan area is summarised in in this section (with the full Heritage Strategy at **Appendix C**).

The Structure Plan does not incorporate any specific European Heritage sites.

Assessment of the Aboriginal heritage associated with the Structure Plan area has also been undertaken as per the reports located within **Appendix D**. These studies have found that there are no previously recorded Aboriginal archaeological or ethnographic sites.

4.7.1 European Heritage

A search of the State Heritage Office's 'inHerit' database has identified no places of historic heritage value within the Structure Plan area.

After undertaking investigations into the history and potential heritage of the whole of Latitude 32, it became apparent that it had a unique and layered history that was no longer readily apparent. Accordingly an interpretation strategy was prepared, which sought to develop strategies to:

- Understand and reveal the natural, Aboriginal and historic heritage found within the study area; and

- Promote public understanding and elicit curiosity about the change to the landscape which has occurred.

Whilst containing no tangible heritage sites, the Structure Plan area has an interesting history worthy of interpretation.

The Structure Plan area once contained the town-site of Wattleup, which emerged in 1961 after the subdivision of market gardens between Rockingham Road and the railway line. Development Area 2 is in proximity to the location of a former well (commonly referred to as the ten-mile well), where horses and people obtained water when travelling south from Fremantle as noted on *Figure 7 European Heritage Assets*. An Oral History with a family who once resided in the area has recently been undertaken which has provided a valuable insight into the former community and town-site of Wattleup.

To interpret the history of Wattleup and the Ten-Mile Well, the following initiatives have been nominated in the Interpretation Strategy:

- The Local Drainage within Development Area 2 (south of Wattleup Road) is to incorporate 'Wattleup Historical Corner' within 'Wattleup Park' (refer section 6.3.5 for details of the proposed concept).
- Former residents could be included in the naming of new streets within the Structure Plan area.

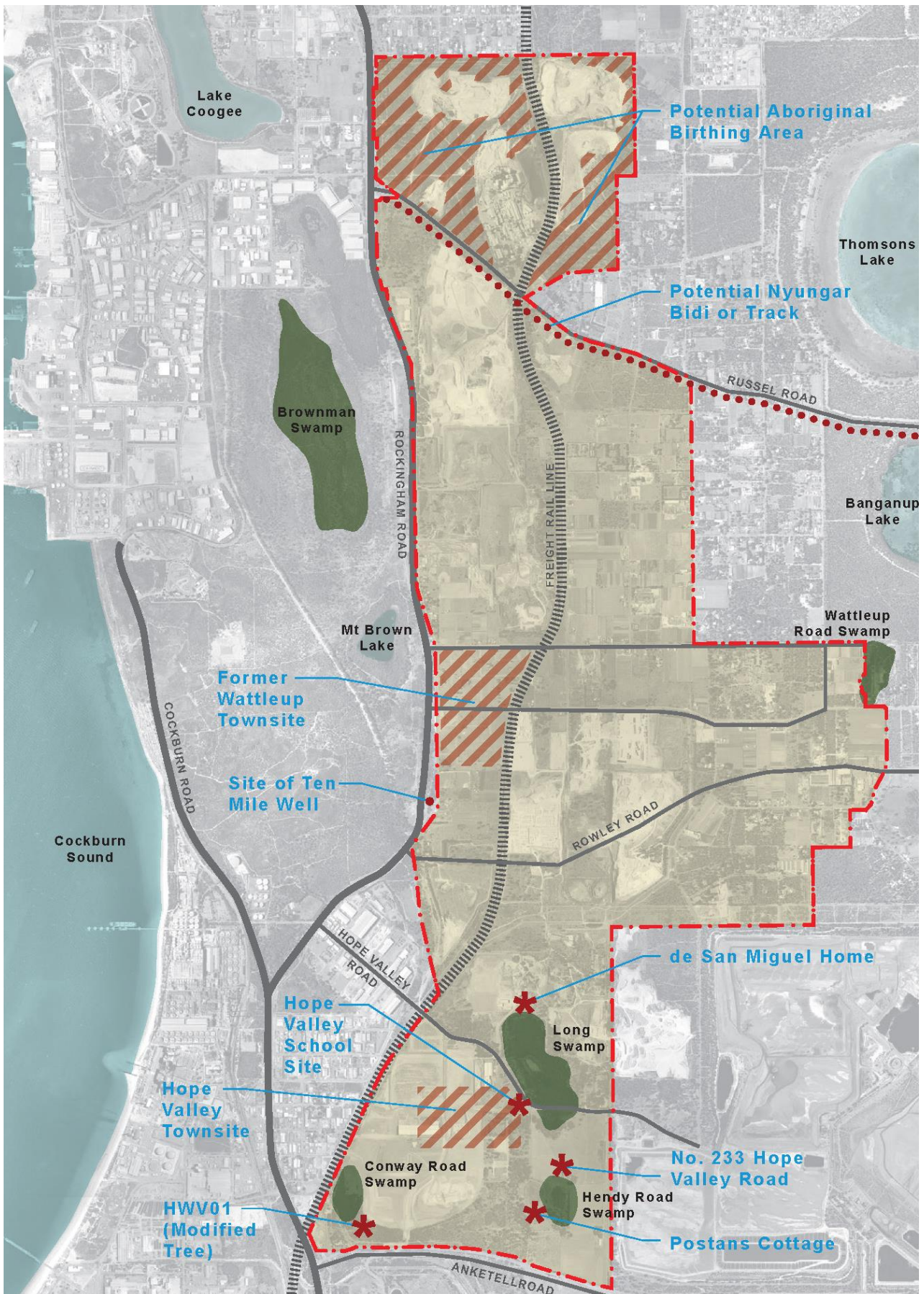


Figure 7 European Heritage Assets

4.7.2 Aboriginal Heritage

Two reports have been prepared addressing Aboriginal heritage in relation to the Structure Plan area (refer **Appendix D**). These include:

- Aboriginal Archaeological Heritage Assessment; and
- Ethnographical Survey.

The research has found that there are no previously recorded Aboriginal archaeological or ethnographic sites located within the Structure Plan area. However, there is the potential to contain currently unidentified archaeological sites. Consequently it is recommended that all works within the Structure Plan area must have regards to the requirements of the *Aboriginal Heritage Act 1972* and that any suspected sites must be reported to the Department of Aboriginal Affairs (DAA).

5 Opportunities and Constraints

5.1 Summary

In order to gain an insight to the development parameters, site particulars and to guide design outcomes for the preparation of the structure plan and the ultimate industrial development, an Opportunities and Constraints Plan has been prepared and is summarised below (*Figure 8 Opportunities and Constraints Plan*):

- Existing utilities and services running through and adjacent to the Structure Plan area;
- Existing land uses including the commercial activities along Rockingham Road;
- Characteristics including existing structures, heritage, vegetation;
- Movement network including the future FRCAH, and Rowley Road;
- Opportunities relating to Ecological Linkages, consolidated landownership, accessibility, , existing land uses and development;
- Constraints relating to accessibility, natural topography, site contamination, and uncertainties surrounding the potential IMT; and
- The ability to achieve the appropriate levels to accommodate development.

5.2 Opportunities

The opportunities for the Structure Plan area can be broken down into three distinct categories being: Existing Land Use and Development, Natural Environment, and Access. A summary of the relevant opportunities are set out in *Table 4* below along with responses, where appropriate, as to how these have been incorporated into the design of the Structure Plan.

Table 4 Structure Plan Opportunities and Design Responses

OPPORTUNITY	DESIGN RESPONSE
Existing Land Use and Development	
The Wattleup commercial node including the tavern.	The Structure Plan provides for retention of the existing commercial node and development of viable supporting activities through allowing for additional uses within the commercial node (albeit under certain conditions) and providing guidance on the form of development within the Latitude 32 Design Guidelines.
Ten Mile Well and Wattleup town-site historic places.	The Structure Plan recognises the significance of the former Wattleup town-site and whilst technically outside of the Structure Plan area, the Ten Mile Well historic place. This is recognised through the Interpretation Strategy and the inclusion of the Wattleup Historical Corner within Wattleup Park, located within the Local Drainage south of Wattleup Road.
LandCorp owns a majority of land in the north of the subject area.	The Structure Plan design has taken into account LandCorp ownership and has endeavoured, where practicable, to provide infrastructure items on this land. This will avoid significant impacts or losses of land on private landowners, and create certainty for the provision of that infrastructure.
Natural Environment	
Development is located outside of the 200m buffer to Lake Mt Brown and Brownman Swamp.	N/A
Ecological Linkages can be provided	The Structure Plan design has provided for an Ecological Linkage

OPPORTUNITY	DESIGN RESPONSE
from Beeliam Regional Park through the Structure Plan area and beyond.	along the southern edge of the Wattleup Road reserve in accordance with the Biodiversity Strategy (as amended 2015).
The soils are suitable for the infiltration of stormwater.	N/A
Groundwater levels are approximately 1m AHD.	N/A
Opportunity to minimise and/or simplify verge treatments in favour of strategic large scale planting to reduce capital and maintenance costs.	The Landscape Master Plan included within the Landscape Design Report which supports the Structure Plan has taken into account the reduction of costs and maintenance requirements in developing the species list and planting quantities for the Structure Plan area.
Access	
Potential for grade separated crossing to be required at Wattleup Road and/or Dalison Avenue.	To provide for appropriate access east-west, allowance has been made within the Structure Plan for a grade separated crossover at Wattleup Road and/or Dalison Avenue.

5.3 Constraints

The constraints relevant to the Structure Plan area can be generally categorised into Access, and Land Use and Development. A summary of the relevant constraints are set out in Table 5 below along with responses, where appropriate, as to how these have been factored into the design of the Structure Plan.

Table 5 Structure Plan Constraints and Design Responses

CONSTRAINTS	DESIGN RESPONSE
Access	
The FRCAL is indicated to be in place by 2031 which will sever access to the west.	The Transport Assessment has outlined both the interim access arrangements and the ultimate connections east-west and to the north. Provision for a grade separated crossing at either Wattleup Road or Dalison Avenue has been incorporated into the design. Land required for the future potential structures at Dalison Avenue and Wattleup Road have been identified as 'Future Investigation Area' in the Structure Plan.
Existing major services in Rockingham Road and Wattleup Road.	The Servicing Strategy has taken into account the relocation of the required services within the existing road reserves.
Construction of Rowley Road to be operational by 2026 as a 4 lane divided highway to the south of the study area, to allow for unimpeded traffic movements between the FRCAL and the Kwinana Freeway.	The Transport Assessment has outlined the interim and ultimate access arrangements for the Structure Plan area. Accessibility is to be retained via access to/from a grade separated crossing east-west and for a connection through to the north.
Existing local road network will be required to be realigned.	The Structure Plan includes the realignment of local roads in order to provide for appropriate industrial development.
Land Use and Development	
Fire Management considerations to western aspect of the Structure Plan area.	A Bushfire Management Plan has been prepared for the Structure Plan area. Vegetation constituting a bushfire threat is restricted to Beeliam Regional Park and Rockingham Road reserve west of the site. There is no significant bushfire risk or fire run through dense vegetation or steep terrain within Development Area 2 and small pockets or strips of vegetation to the north, east and south are not considered to pose a significant landscape bushfire risk. Development will not impact the vegetation structure or hazard.

CONSTRAINTS	DESIGN RESPONSE
	<p>level within Beeliar Regional Park.</p> <p>The bushfire risks to proposed development posed by these post-development hazards can be managed through standard application of acceptable solutions under the Guidelines for Planning in Bushfire Prone Areas.</p>
<p>Significant levels constraints from adjacent infrastructure requiring fixed levels.</p>	<p>The proposed levels for the Structure Plan area have been derived on the assumption that the fixed infrastructure levels are to be maintained. The development within the Structure Plan area will not affect the existing infrastructure.</p>
<p>Rail spurs lie between the potential IMT and the Structure Plan area.</p>	<p>The Structure Plan has taken into account the potential rails spurs and has provided sufficient buffer distances to ensure there will be no adverse effects on the development within the Structure Plan area, or reverse sensitivity effects on the rail transport network.</p>
<p>Southern landholding consists of private landholdings.</p>	<p>Where practicable the Structure Plan has provided for the development of private landholdings on an individual basis. Where this is not practicable development options have been tied in to adjacent parcels allowing collaboration between neighbours.</p>
<p>Historic uses such as the Wattleup town-site, petrol station, market gardens and horticultural uses could result in potential remanent contaminants.</p>	<p>A preliminary site investigation will be undertaken to assess the potential contamination across the site. Where any contamination is noted sufficient remediation will be required to ensure land is suitable for commercial / industrial development.</p>
<p>The Structure Plan area is split between two local authorities – the City of Kwinana and the City of Cockburn.</p>	<p>The Structure Plan provides for a layout which avoids the creation of lots which cross the local authority boundaries.</p>
<p>Cockburn Resource Recovery Site is located to the north of the Structure Plan boundary. Potential issues relating to noise and odour, geotechnical restrictions and potential contamination.</p>	<p>The Structure Plan boundary is located to the south of the City of Cockburn Resource Recovery site. The boundary has been determined to ensure that there will be no adverse effects from the Development Area 2 Structure Plan on the City of Cockburn Resource Recovery Site.</p>
<p>Uncertainties regarding the potential future IMT.</p>	<p>The Structure Plan has been formulated to ensure that it does not prejudice the location and layout of the potential IMT in any form. Land within the north-eastern corner of the Structure Plan area has been identified as a 'Future Investigation Area' consistent with advice received from the Department of Transport (DoT) in relation to land requirements for the potential future IMT.</p>

LEGEND:

- EXISTING ACCESS ROADS
- POTENTIAL ROAD LINKS
- 132KV POWERLINE
- CONTAMINATED SITE
- OPPORTUNITIES
- CONSTRAINTS

1 ROAD NETWORKS

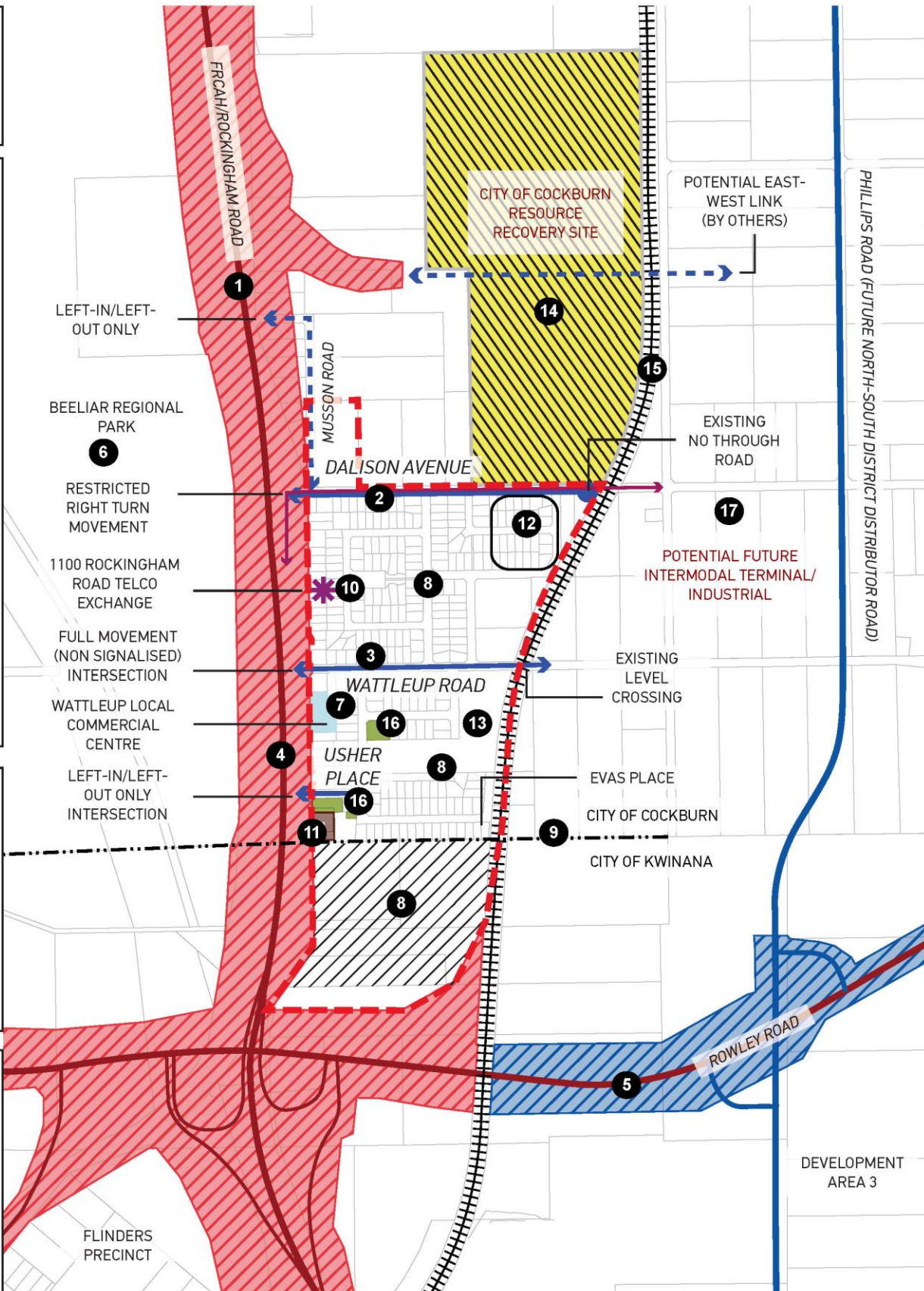
- MRWA HAS ADVISED THAT THE FRCAH WILL BE IN PLACE BY 2031. THIS WILL SEVER ACCESS TO DALISON AVENUE, WATTLEUP ROAD AND USHER PLACE. POTENTIAL INTERCHANGE LOCATED TO NORTH OF DEVELOPMENT AREA 2 SUBJECT TO CONCEPT PLANNING FOR DEVELOPMENT AREAS. EXISTING MAJOR SERVICES IN ROCKINGHAM ROAD INCLUDING WATER DISTRIBUTION MAIN, BP OIL LINES, OPTICAL FIBRE COMMUNICATIONS LINE(S), 132KV OVERHEAD TRANSMISSION LINES AS WELL AS MINOR SERVICES.
- DALISON AVENUE: (CURRENTLY NO RAIL CROSSING)/ POTENTIAL GRADE SEPERATED LINK. OVERHEAD POWERLINES RESTRICT THE TYPE OF STREET TREE PLANTING.
- WATTLEUP ROAD: (CURRENTLY ACCOMMODATES AN AT GRADE CROSSING) OPPORTUNITY FOR ECOLOGICAL LINKAGE
- USHER PLACE: ACCESS TO ROCKINGHAM TO BE REMOVED.
- ROWLEY ROAD: MRWA HAS ADVISED THAT ROWLEY ROAD WILL BE IN PLACE BY 2026. NO ACCESS FROM DEVELOPMENT AREA 2 ONTO ROWLEY ROAD. POTENTIAL RAIL SPURLINES BETWEEN POTENTIAL INTERMODAL TERMINAL AND PORT LOCATED WITHIN ROAD RESERVE ABUTTING DEVELOPMENT AREA 2
- LOCAL ROADS: EXISTING LOCAL ROAD NETWORK WILL BE SUBJECT TO ROAD REALIGNMENTS

6 BEELIAR REGIONAL PARK

- (INCLUDES BROWNMAN SWAMP, MT BROWN AND BROWNMAN LAKE)
- DEVELOPMENT AREA 2 LOCATED OUTSIDE OF THE 50M /200M WETLAND BUFFER.
- ECOLOGICAL LINKAGES TO DEVELOPMENT AREA 2
- FIRE MANAGEMENT CONSIDERATIONS:
 - EXTREME VEGETATION THREAT TO WEST OF ROCKINGHAM RD
 - POTENTIAL EMBER IMPACTS UP TO 400M FROM VEGETATION (AIR CONDITIONER GUARDS)

HYDROLOGY NOTES:

- GROUNDWATER MONITORING COMPLETED.
- GROUNDWATER LEVELS ARE APPROXIMATELY 1M AHD.
- GROUNDWATER QUALITY IS HIGHER THAN GUIDELINE VALUES BUT TYPICAL OF AN AREA WITH NEARBY MARKET GARDENING.
- SOIL TYPES AND DEPTH TO GROUNDWATER SUITABLE FOR INFILTRATION OF STORMWATER (SAND AND LIMESTONE).
- STORMWATER BASINS WILL BE REQUIRED TO INFILTRATE THE 1 IN 100 YEAR ARI EVENT.



7 LANDUSE

- WATTLEUP LOCAL COMMERCIAL NODE AND TAVERN TO REMAIN. TEN MILE WELL AND THE WATTLEUP TOWNSITE ARE FORMER PLACES AND THEIR STORIES OFFER OPPORTUNITIES FOR INTERPRETATION TO PROVIDE WORKERS AND VISITORS WITH AN INSIGHT INTO THE HISTORY OF THE PLACE AND THE EVOLUTION OF THE AREA.

8 LAND OWNESHIP:

- LANDCORP OWNS MAJORITY OF LAND TO NORTH OF THE SUBJECT AREA
- CITY OF COCKBURN HAVE LANDHOLDINGS IN THE AREA
- SOUTHERN PORTION CONSISTS OF PRIVATE LANDHOLDINGS

9 CITY OF KWINANA / CITY OF COCKBURN LOCAL GOVERNMENT AREA BOUNDARIES TRAVERSE THE SUBJECT SITE

10 TELECOMMUNICATIONS EXCHANGE AT 1100 ROCKINGHAM ROAD TO REMAIN

11 REMEDIATED SITE (SERVICE STATION)

12 HISTORIC USES AS WATTLEUP TOWNSITE, MARKET GARDENS, AGRICULTURE, HORTICULTURE AND RESIDENTIAL USES

13 PREVIOUSLY IDENTIFIED 1.44HA ZONED SUBSTATION SITE

14 BUFFER TO WASTEWATER PUMP STATION TO BE DETERMINED

15 FOCUS ON SIMPLIFIED STRATEGIC PLANTING TO MINIMISE MAINTENANCE

16 AIR QUALITY MONITORING STATION

14 CITY OF COCKBURN RESOURCE RECOVERY SITE

- POTENTIAL CONTAMINATION
- POTENTIAL GEOTECHNICAL RESTRICTIONS ON EARTHWORKS
- ANY EAST TO WEST ROAD THROUGH SITE WOULD RESTRICT INTERNAL CONNECTIVITY

15 RAILWAY

- NOISE AND VIBRATION EFFECTS ON DEVELOPMENT AREA 2
- BUFFERS ASSOCIATED WITH RAILWAY
- POTENTIAL TO VEGETATE BUFFERS OR RETAIN EXISTING VEGETATION
- POTENTIAL TO REMOVE INTERNAL 'BUND' TO ASSIST

16 CROWN RESERVES

- STATUS OF PUBLIC OPEN SPACE TO BE REVIEWED
- POTENTIAL FOR REMNANT VEGETATION WHICH COULD BE RETAINED OR TRANSPLANTED

17 POTENTIAL FUTURE INTERMODAL TERMINAL

- CONCEPT PLANNING TO BE UNDERTAKEN BY DoT INCLUDING FINAL SIZE AND LOCATION
- EAST-WEST LINKAGES TO BE DETERMINED

Figure 8 Opportunities and Constraints Plan

6 Structure Plan

6.1 Structure Plan Area

As outlined within Section 2.3 the establishment of the Structure Plan area has been determined in order to facilitate the preparation of an effective structure plan to guide future subdivision and development. The Structure Plan area aligns with the Latitude 32 project area boundaries and Development Area 2 within the Master Plan.

The western boundary has been established through mirroring the Redevelopment Area boundary as determined by the Act. The western boundary follows the current Metropolitan Region Scheme Reserve (being the road reserve for the FRCAH). The eastern boundary has been determined by the existing rail reserve as set out in Appendix 2 – Hope Valley Wattleup Redevelopment Reserves Map, of the Master Plan.

The southern boundary has been established through the detailed planning and design work that has progressed for Rowley Road and the proposed railway. Although Rowley Road and the proposed railway do not currently have an associated reserve in Appendix 2 of the Master Plan, planning and design has been significantly advanced, including detailed designs and the identification of land requirements with support being provided by Main Roads WA for the proposed alignment. The proposed southern boundary of Development Area 2 is based on the latest information available in relation to the proposed FRCAH and proposed Rowley Road.

The northern boundary has generally been aligned with the existing Dalison Avenue road reserve, apart from one irregular portion which allows for the inclusion of one lot for drainage. The northern boundary has been determined on the basis of the following:

- Drainage - Given the significant levels constraints, and the need to capture drainage from the northern catchment of Development Area 2, it is not possible to incorporate the drainage basin to the south of Dalison Avenue and therefore, a drainage lot is included to the north of Dalison Avenue.
- Access – In order to allow for sufficient flexibility to resolve the proposed east-west road connection over the railway to the NSDDR, lots to the north of Dalison Avenue have been excluded from proposed Development Area 2 (to be captured in the subsequent structure planning of proposed Development Area 5). The proposed northern boundary of Development Area 2 allows for further investigation as to the optimal road planning and connectivity.

Development Area 2 provides a compact and relatively unconstrained parcel of land which once structure planned could be brought to the market in a relatively efficient timeframe.

6.2 Structure Plan Design Formulation

Due to the significant constraints, relating primarily to the fixed levels across the Structure Plan area, indicative lot layouts have been established to ensure the Structure Plan area can be appropriately developed for industrial purposes. Lot sizes and gradients have taken into account the fixed levels across the Structure Plan area. The northern portion of Development Area 2 being the former town-site comprises of primarily quarter acre blocks with pockets of reserves for recreation. It is neither necessary, nor optimum for industrial development to design industrial lots around the existing residential lot configuration (the only exception being in the southern portion of Development Area 2, south of Evas Place where lot sizes are rural in nature and therefore much larger). Therefore, in the southern portion, where practicable the Structure Plan has been designed around existing cadastre to allow for landowners to develop at an individual level.

Figure 9 Non-Statutory Structure Plan Map should be read in conjunction with *Table 6* overleaf, which provides a more detailed framework for planning and describes the many issues that have been taken into consideration when preparing the Structure Plan. As per the Commission's Structure Plan guidelines this is an indicative plan that is intended to provide a framework for further subdivision and development. In the event that a landowner wishes to vary from the Structure Plan's indicative lot pattern when preparing a subdivision application, *Table 6* outlines those matters that:

- Should be taken into consideration; and
- Cannot be varied to ensure landowners existing use rights under the Master Plan are protected throughout the Structure Plan area.

Finished lot levels as identified within *Figure 10 Development Area 2 Levels Plan* have been established, and respond to the significant fixed level constraints and ongoing extraction of primary resources in the vicinity of the Structure Plan area.

Table 6 Structure Plan Design Parameters

DESIGN PRINCIPLES	DESIGN RATIONALE	VARIATIONS TO FIGURE 9 NON-STATUTORY STRUCTURE PLAN MAP (INDICATIVE PATTERN OF SUBDIVISION)
<p>Levels Planning and Earthworks The extraction of resource has been factored into the forward planning. Co-ordinating levels is critical in activating industrial development whilst providing opportunities for resource extraction, meeting state requirements for both resource extraction and the supply of industrial land.</p> <p>The design recognises:</p> <ul style="list-style-type: none"> - Priority Resource Location under State Planning Policy 2.4 (SPP2.4) Basic Raw Materials; and - Shortage of sand resource across the Perth metropolitan area. 	<p>In accordance with SPP 2.4 the design allows for the extraction of all high quality limestone within the Structure Plan area to 2-3 metres above the water table (in accordance with Department of Water Policy).</p> <p>To achieve coordinated levels (post resource extraction), the final extraction level has been identified to reduce the amount of backfill. In areas of limestone extraction, the industrial development level is the lowest possible level to achieve access and standard engineering requirements, refer <i>Figure 10 Development Area 2 Levels Plan</i>.</p> <p>Whilst not as extensive as other Development Areas in Latitude 32, the opportunity for sand extraction has also been incorporated within the design.</p>	<p>Due regard is to be given to the design principles and design rationale in considering any subdivision application that proposes to vary from the <i>Figure 9 Non-Statutory Structure Plan</i> and the indicative pattern of subdivision that is proposed and compliance with all of the following design criteria:</p> <ol style="list-style-type: none"> 1. Proposals must demonstrate the need to alter the levels depicted on <i>Figure 10 Development Area 2 Levels Plan</i>; 2. Proposed modification must maintain the ability for reasonable provision of gravity sewer, drainage and servicing across the Redevelopment Area, with any amendments to servicing strategies being approved by the relevant approving authorities; 3. Proposed design change must have regard to existing and proposed road and infrastructure (power lines) levels; 4. Proposed levels shall have regard to existing and proposed levels on adjacent sites and must not adversely affect the ability of any other land parcel to comply <i>Figure 10 Development Area 2 Levels Plan</i> and to be serviced with gravity sewer, drainage and other utilities; 5. Staging and the retention of access to existing dwellings; 6. The process for modification to the lot boundaries will need to demonstrate no adverse impact on adjoining landowners; and 7. Where a variation is proposed across cadastral boundaries a modification to the Structure Plan is required.
<p>Implementation Landowners have existing use rights to remain within the Redevelopment Area. The Structure Plan has been designed to allow landowners to:</p> <ul style="list-style-type: none"> - Remain – existing use rights in accordance with clause 4.9 of the Master Plan. - Relocate – sell property on private market. - Redevelop – participate in the development of the area. <p>In relation to residents, this primarily relates to those lots to the south as dwellings within the Wattleup town-site have been removed.</p>	<p>Should landowners' future intention be to remain on site, access to the property is required to be retained.</p> <p>As a consequence:</p> <ul style="list-style-type: none"> - Lots 500, 74, 65 and 62 that form part of the existing commercial node, shall retain access to Rockingham Road until such time as Main Roads WA commence the construction of the FRCAL or when closure of access to Rockingham Road; or the FRCAL occurs (whichever is the earlier). 	
<p>Utilities and Services Staging Development relies on the appropriate provisions and staging of critical infrastructure. The design of the utilities has been undertaken in consultation with the utility providers and landowners. It is for guidance purposes only.</p>	<p>Any variations to the staging strategy to undertake non-frontal development is likely to lead to temporary infrastructure requirements, the costs of which will be borne by the landowner or developer without reimbursement via the DCP.</p>	
<p>Movement Network The movement network has been designed having regard to:</p> <ul style="list-style-type: none"> - Staging of development; - Retention of existing rural residential dwellings and/or commercial uses; - Retention of dwellings during resource extraction; - Standard engineering requirements for roads within industrial developments; and - Provide a flexible road system that provides for efficient movement. 	<p>The movement network has been designed in accordance with the following:</p> <ul style="list-style-type: none"> - To maximise the industrial land yield; - To recognise the fragmented nature of land ownership and provide for independent subdivision wherever possible; - To facilitate a variety of lots sizes; - Road grades not to exceed 3% and allow for gravity sewer and drainage to regional low point within the catchment; and - To allow development prior to the construction of the abutting regional roads by providing a series of internal parallel roads abutting the regional road system. 	
<p>Land Use and Lot Size Latitude 32 is a long term project with demand for industrial land changing over time. The design allows for flexible and adaptable land use and lot sizes allowing market forces to shape development and supply.</p>	<p>The design allows for flexibility in relation to lot size, configuration, frontage, depth and utility to accommodate changes in market demands. This flexibility is however, premised on compliance with the design principles and design rationale described above.</p> <p>The lot configuration also accommodates appropriate interface to wetlands, vegetation and pipeline corridors.</p>	
<p>Fragmented Ownership It has been recognised that the Structure Plan area is in fragmented ownership, particularly the southern portion (south of Eva Place).</p>	<p>Where practicable the Structure Plan has been designed around existing cadastre to allow for landowners to develop individually.</p>	
<p>Bushfire Considerations Limited areas have been identified as Bushfire Prone on the DFES Bushfire Prone Map. Bushfire related planning requirements apply to these areas in accordance with State Planning Policy 3.7.</p>	<p>Subdivision and development of land will take into consideration the following principles to minimise potential bushfire impact:</p> <ul style="list-style-type: none"> - Asset Protection Zones (minimum 20m to adjacent off-site woodlands, grassland and scrub, 21m to adjacent off-site forest); - On-site staging buffers of 100m wide to ensure each approved stage is surrounded by a 100m buffer prior to development; - Increased building construction standards for all proposed buildings situated within the 100m wide and 50m wide Hazard Protection Zones to ensure building construction standards align with the assessed BAL under AS 3959; - Vehicle access network provides a minimum of two access links to the surrounding public road network; - Reticulated water supply is provided throughout Development Area 2; - High risk land uses should be avoided within Bushfire Prone areas with high risk land uses located in areas of BAL – 12.4 to BAL -29 to comply with Policy Measure 6.6.1 of State Planning Policy 3.7; - Internal landscaping designed to be compliant with AS3959 low threat exclusions; - Ecological Linkages given due regard and are not impacted by bushfire safety measures. 	

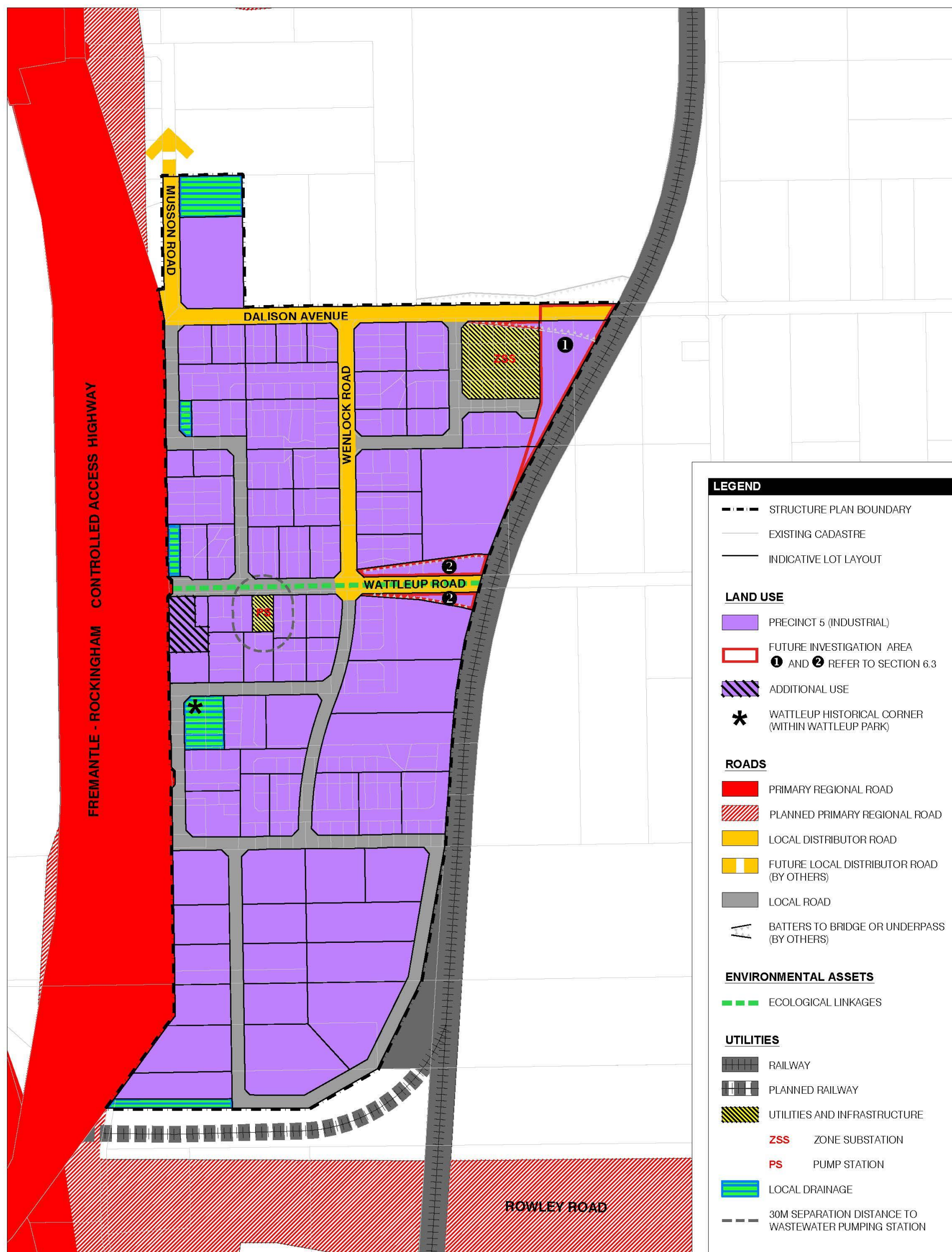


Figure 9 Non-Statutory Structure Plan Map

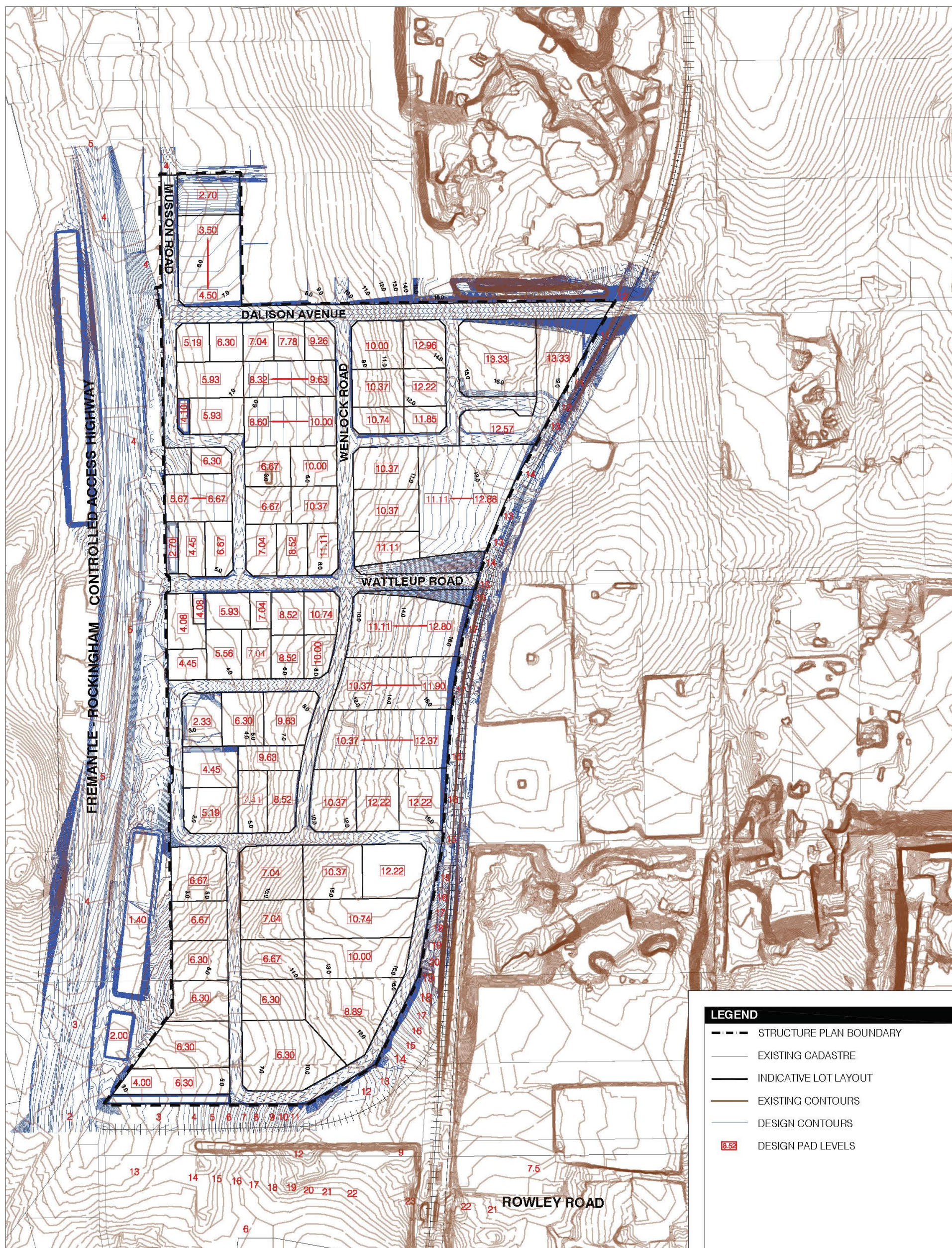


Figure 10 Development Area 2 Levels Plan

6.3 Land Use

The land use permissibility relating to the Structure Plan is set out within Precinct 5 within Table 1 of the Master Plan (as modified by Amendment No.11).

'Industrial uses are the primary land use within the Structure Plan area and capture developable land as noted on *Figure 9 Non-Statutory Structure Plan Map*. The intention of the 'Industry' classification is to provide for a range of industrial uses within the Structure Plan area, providing for a flexible approach to development. This aims to allow landowners, developers and market forces to determine where specific activities will be located.

An outline of the uses within the Structure Plan area, other than 'Industry' are generally described below.

6.3.1 Commercial Node

The Structure Plan recognises the existing commercial activities and allows for the ongoing use of the land as a commercial node prior to the construction of the FRCAH whereby access at Wattleup Road / Rockingham Road will be severed.

Lots located within the commercial node, an area of approximately 4000m², are identified overleaf in *Figure 11 Commercial Node*. Additional uses have been provided for within this area in accordance with Clause 4.6 and Schedule 2 – Additional Uses of the Master Plan, as amended by Master Plan Amendment No.11 as outlined in *Table 7*.

Table 7 Additional Use Provisions

NO.	DESCRIPTION OF LAND	ADDITIONAL USE	CONDITIONS
A1	Lot 500 on D488801 Lot 75 on D53890	<ul style="list-style-type: none"> ▪ Betting Agency ▪ Fast Food Outlet ▪ Shop ▪ Tavern ▪ Consulting Rooms ▪ Medical Centre 	<ol style="list-style-type: none"> 1. Maximum gross floor area is limited to 350m² per tenancy, other than for 'Shop' at 1,500m². 2. The approval of the application is of limited duration and will terminate upon Rockingham Road being required by Main Roads WA for the construction of the Fremantle-Rockingham Controlled Access Highway (FRCAH) or when closure of access to Rockingham Road or the FRCAH occurs (whichever is the earlier). 3. Applications for development approval shall be required to demonstrate that the proposed development does not prevent, inhibit or adversely affect other permissible land uses or development, in accordance with Part 11 of the Master Plan. Applications may be required to

NO.	DESCRIPTION OF LAND	ADDITIONAL USE	CONDITIONS
			<p>provide details of how potential conflicts will be managed in terms of impacts from the proposed land uses on industrial development. Applications may be required to be accompanied by the following technical studies:</p> <ul style="list-style-type: none"> o Noise assessment; o Air quality assessment; and o Traffic impact assessment. <p>These conditions do not apply to lawful land uses that existed at the time that Amendment No.11 to the Master Plan came into effect, and such land uses shall continue in accordance with clause 4.9 of the Master Plan, and any extensions or changes to such land uses shall be subject to clause 4.10 of the Master Plan.</p>

The commercial node has been developed around the existing commercial activities in order to:

1. Provide for a functional commercial node supporting and serving the needs of workers and businesses in the area; and
2. Allow for the provision of road frontage/access to the lot. Due to the levels and the required road locations the only efficient way to provide access is to provide a consolidated commercial node with frontage onto Wattleup Road.

As identified in *Table 7* above, the additional use conditions propose to limit the duration of planning approvals until such time as Rockingham Road is required by Main Roads WA for the construction of the FRCAH; or when closure of access to Rockingham Road or the FRCAH occurs (whichever is the earlier). This includes either crossovers or the connection of Wattleup Road and Rockingham Road. In recognition of the existing approved uses, this is a negotiated outcome which allows for the continued operation of the commercial activities without compromising the longer term delivery of the FRCAH resulting from existing access arrangements.

The existing non-conforming use rights will continue in accordance with clause 4.9 of the Master Plan, unless they are otherwise discontinued or terminated in accordance with the provisions of the Master Plan.

Whilst the additional use provisions clearly outline that access to the future FRCAH will not be provided, concerns have been raised that if/when improvements are undertaken to the commercial node, landowners may have expectations to retain long term access to the FRCAH.

At the time of subdivision and/or development, conditions may impose notifications on the Certificates of Title and/or Deeds of Agreement that stipulate that should an owner wish to make improvements/expansions to the current business, those improvements are made at the owners' risk.

Development within the commercial node will be subject to layout and built form controls within the Latitude 32 Design Guidelines to ensure development is appropriate for the location.



Figure 11 Commercial Node Extract

6.3.2 Roads

The Structure Plan incorporates district and local level roads in order to provide appropriate access through the Structure Plan area and to industrial lots.

All land required for the construction of roads within the Structure Plan area, including batters and embankments are to be set aside as road reserve at the time of subdivision and development.

6.3.3 Future Investigations Areas

The Structure Plan includes two Future Investigation Areas, as identified on *Figure 9 Non-Statutory Structure Plan Map*. The purpose of the Future Investigation Areas is to identify land that is subject to ongoing strategic planning considerations and further investigations regarding its ultimate use. This primarily relates to the planning for roads and intersection treatment across the Midland Kwinana Railway to the future IMT that comprises Development Area 5 of Latitude 32 to the east of the Structure Plan area.

The Future Investigation Area designation is an approach that enables the land to be retained within the Structure Plan, with detailed design of the roads and intersection treatment across the railway to be resolved post structure plan approval and prior to subdivision and/or development occurring.

There are three possible options for access east-west across the railway to the NSDDR:

- Upgrade of existing at-grade crossing at Wattleup Road; and/or
- A structure at Dalison Avenue; and/or
- An east-west road to the north located outside of Development Area 2.

The ultimate location(s) will be determined through the concept planning exercise for the IMT over Development Area 5. The Future Investigation Areas are detailed below.

6.3.3.1 Future Investigation Area No. 1

Portions of the following lots have been identified as Future Investigation Area No.1:

- Lot 17 (no. 45) Dalison Avenue
- Lot 24 (no. 43) Dalison Avenue
- Lot 86 (no. 26) Marban Way
- Lot 88 (no. 28) Marban Way
- Lot 323 Marban Way

Portions of these lots have been identified as Future Investigation Area No.1 as the lots may be impacted by a future land requirement for the IMT. This land requirement is expected to be known more precisely following the review of the IMT requirements by the DoT.

In the event that the land is required for the IMT, it will be necessary for the DoT to enter into negotiations with the landowner and consult with the City of Cockburn regarding the use of the land for that purpose. If the land is not required for the IMT, and this is confirmed by the DoT, then the land will be able to be developed for general industrial purposes.

6.3.3.2 The Future Investigation Area is noted as 1 on *Figure 9 Non-Statutory Structure Plan Map*. Future Investigation Area No. 2

Portions of the following lots have been identified as Future Investigation Area No.2:

- Lot 25 (no.25) Wattleup Road
- Lot 155 Wattleup Road
- Lot 159 (no.26) Wattleup Road
- Lot 160 (no.28) Wattleup Road
- Lot 2808 (no. 35) Hitchcock Place

The above lots have been identified as Future Investigation Area No.2 as the lots may be impacted by a future land requirement for the IMT.

In the event that the land is required for the IMT, it will be necessary for the DoT to enter into negotiations with the landowner and consult with the City of Cockburn regarding the use of the land for that purpose. If the land is not required for the IMT, and this is confirmed by the DoT, then the land will be able to be developed for general industrial purposes.

The Future Investigation Area is noted as 2 on *Figure 9 Non-Statutory Structure Plan Map*.

6.3.4 Ecological Linkages

Ecological Linkages provide vegetated linkages between adjacent conservation areas by way of ecological corridors within road reserves and existing vegetated reserves. Ecological Linkages are described within the Biodiversity Strategy (as amended 2015) as non-contiguous vegetation which connect larger areas of native vegetation within, and external to the Structure Plan area.

The Ecological Linkage within the Structure Plan area is nominated as a secondary linkage under the Biodiversity Strategy (as amended 2015). The Ecological Linkages are to be approximately 5m wide and will be constructed as part of the landscaping works for the Development Area, as a requirement of subdivision. The design principles for the Ecological Linkages include:

- Aim to maximise the connectivity between Key Natural Areas through verge and median planting along primary connector roads;
- Use of a variety of endemic plant species; and
- Provision of ongoing maintenance.

Design principles relating to planting within the Ecological Linkages are identified within the Biodiversity Strategy (as amended 2015) as follows:

- Aim to maximise the width, connectivity and structural complexity of vegetation in links as much as possible to make them suitable for a broad range of avifauna, bats and fauna.
- Use a variety of endemic plant species to provide an over-storey, mid-storey and understorey in primary Ecological Linkages and an over-storey and mid-storey in the secondary Ecological Linkages that will adapt to the local environment and provide habitat suitable for a range of endemic fauna species within the area.
- Keep the corridors as wide as possible (primary links not less than 15m and secondary links not less than 5m). As a minimum, where possible gaps in the linkage should be less than 50m when accommodating driveways and crossroads.
- Where possible, retain existing trees (particularly those with roosting hollows) and understorey along and natural areas adjacent to proposed corridors.
- Provide for the ongoing protection, maintenance and monitoring of these linkages to ensure their long-term success.

These principles have informed the design of the Ecological Linkages which are discussed further within the following supporting documents;

- The Landscape Design Report including road cross sections, planting and potential species (refer **Appendix H**);
- The Earthworks and Servicing Strategy including road design and cross sections, refer (**Appendix I**); and
- The Latitude 32 Design Guidelines including the special requirements and design criteria.

Throughout Latitude 32, it is planned to allow for Ecological Linkages within either road verge; or solid medians with intermittent breaks and/or roundabouts in strategic locations to allow for appropriate turning movement. It is envisaged that at the detailed design phase there may be some refinement to take into consideration road geometry and sight lines.

The planting and interim management (5 years) for the Ecological Linkages will be provided for within the DCP. *Table 8* outlines the intended management arrangements for Ecological Linkages.

6.3.5 Wattleup Historical Corner within Wattleup Park

In 2015, a former resident of the Wattleup town-site submitted a proposal for an area to be identified within Wattleup whereby the former residents could visit and reflect.

In response the Local Drainage within the Structure Plan area (south of Wattleup Road) is proposed to incorporate the 'Wattleup Historical Corner' within 'Wattleup Park'. This space will provide a permanent reminder of the former town-site of Wattleup and will be a space where former residents can return to and reminisce about the past. A concept plan and perspective has been prepared to

convey the intended outcome for the site including indicative interpretive signage, a feature wattle tree, ring of limestone blocks and complementary landscaping, refer *Figure 12 Wattleup Historical Corner Concept Plan and Perspective*. The name of the park will also provide an easily identifiable reference point for the community. Key principles, which will underpin the further development of the park in the future, include:

- Install signage that explores the history and community of Wattleup, its market gardens and subsequent closure.
- Liaise with former residents of Wattleup to refine the content of the signage, which should include historical aerials and a timeline to present information in an engaging manner.
- Provide seating to enable former residents, visitors and workers within Development Area 2 and the broader Latitude 32 to pause, rest and connect with the place's history.
- The signage should be engaging on both sides to maximise content. The former logo of the Wattleup Primary School could be expressed on one side with detailed content on the other side. The signage should include open elements to enable views through to the other site to prevent safety issues.

Table 8 outlines the intended management arrangements for Wattleup Historical Corner within Wattleup Park.

Table 8 Land Use Assets Summary

ASSET	COMPONENTS	STATUS	USE / FUNCTION	CURRENT OWNERSHIP	PROPOSED OWNERSHIP	FUNDING
Wattleup Historical Corner within Wattleup Park	Local Drainage south of Wattleup Road	Reserve for Drainage under the Master Plan	Local Drainage	LandCorp	Ceded to the Crown. With management to the City of Cockburn.	Land ceding to be undertaken through the subdivision or the development process.
	Wattleup Heritage Corner within Wattleup Park		Passive Recreation			
Ecological Linkage – Wattleup Road Secondary Linkage	Vegetation within road reserves.	Not reserved under the Master Plan.	Providing avifauna links between wetlands and Key Natural Areas within and adjacent to the Structure Plan area as required by the Biodiversity Strategy (as amended 2015).	Crown Land (Department of Lands).	Crown Land (Department of Lands). Managed and operated by City of Cockburn.	Establishment of Ecological Linkages incorporated into the DCP and apportioned across the entire Redevelopment Area.



Figure 12 Wattleup Historical Corner Concept Plan and Perspective

6.3.6 Utilities and Infrastructure

To appropriately service Development Area 2 utilities, infrastructure and local drainage are identified within the Structure Plan. Utilities and infrastructure are indicated on *Figure 22 Infrastructure and Servicing Plan* and the local drainage (infiltration basins) are identified within *Figure 21 Stormwater Management Plan*. These areas do not constitute reserves under the Master Plan and are to be utilised for the purposes of:

- A Western Power zone substation in order to supply the required power to the Structure Plan area, and wider Latitude 32;
- A Waste Water Pump Station (WWPS) site; and
- Local drainage.

Further details pertaining to the design and operation of the utilities are provided within Section 9 Infrastructure and Servicing.

Land for utilities and infrastructure is to be ceded free of cost to utility providers as outlined in *Table 9*. The zone substation is to be funded and constructed by Western Power and the WWPS it to be constructed and funded by Water Corporation as it is standard practice that infrastructure is provided by the service provider.

Table 9 Utilities and Infrastructure Summary

INFRASTRUCTURE / UTILITY ASSET	STATUS	USE / FUNCTION	CURRENT OWNERSHIP	PROPOSED OWNERSHIP
Zone Substation	<p>Provision of land for zone substation site and associated earthworks required to facilitate transfer of the land to Western Power.</p> <p>To be ceded to Western Power at time of subdivision.</p>	<p>Western Power (Networks Strategic Division) has confirmed the need for 3 zone substations to service the power requirements of industrial development within Latitude 32 based on a 200kVa/Ha power load assumption.</p>	LandCorp	Western Power
Waste Water Pump Station (WWPS)	<p>Provision of land for WWPS's and associated earthworks required to facilitate transfer of the land to the Water Corporation.</p> <p>To be ceded to Water Corporation at time of subdivision.</p>	<p>The proposed sewer strategy for the Structure Plan area consists of a possible Type 90 WWPS located on the southern side of Wattleup Road with a DN200 sewer pressure main discharging to the gravity sewer network in Development Area 3 in the south-east.</p> <p>The size and location of the WWPS is to be determined at the detailed development stage in consultation with the Water Corporation. The proposed WWPS site allows for a Type 40 or Type 90 WWPS.</p>	LandCorp	Water Corporation
Drainage	<p>Provision of drainage infrastructure to service industrial development (including acquisition of land for drainage basins).</p> <p>To be established as part of subdivision works.</p>	<p>The extent of drainage infrastructure is identified by the Local Water Management Strategy (LWMS).</p>	Various	City of Cockburn / City of Kwinana

7 Movement Network

The movement network is critical to the viability and efficiency of any industrial estate. The movement network for the Structure Plan area has been designed in accordance with the following objectives:

- To maximise the industrial land yield and retention of the existing commercial node;
- To recognise the fragmented nature of land ownership and provide for independent subdivision wherever possible;
- To facilitate a variety of lots sizes;
- Road grades not to exceed 3%;
- To allow development prior to the construction of the abutting regional roads by providing a series of internal parallel roads abutting the regional road system;
- To provide a flexible road system that provides for efficient movement throughout the Structure Plan area; and
- In recognition of the impact of the surrounding regional road network, allowing for staged access arrangements in the short, medium and long term.

A Transport Assessment has been undertaken for the Structure Plan area. Outlined below is a summary of the report and the full report is included at **Appendix E**.

7.1 Movement Network

The movement network has been derived based on linkages to the existing road network and taking into consideration the severance of the Structure Plan area that will occur with the construction of the future Rowley Road and the FRCAH. Access to the Structure Plan area is described below and illustrated in *Figure 13 Movement Network Plan* and comprises the following:

- **Construction of FRCAH to operational by 2031** to the west of the study area. The FRCAH is currently proposed as a controlled access highway with 3 lanes in each direction and is to have a posted speed limit of 100km/h; and
- **Construction of Rowley Road to be operational by 2026** as a 4 lane divided highway to the south of the study area, to allow for unimpeded traffic movements between the FRCAH and the Kwinana Freeway and is to have a posted speed limit of 80km/h (source: Main Roads WA 31/01/2014).

While it is noted that the existing FRCAH design includes an East-West interchange located to the north of the Structure Plan area, extensive traffic modelling undertaken by Cardno suggests that the proposed regional and Latitude 32 internal road network can function acceptably without the interchange, provided that further localised intersection upgrades along the NSDDR and Russell Road are undertaken to increase the intersection capacities.

On this basis and due to the significant cost associated with construction of the East-West interchange (some of which is most likely to be passed on to future developers within Latitude 32), the Structure Plan has assumed the following;

- East-West interchange does not form part of the Latitude 32 transport network; and
- If the East-West interchange is deemed to be desirable for other reasons (such as providing a direct connection between the FRCAH and any potential future IMT), its inclusion has been found to have no negative impact on access to the Structure Plan area.

The full East-West Interchange evaluation analysis is included in Appendix C of the Transport Assessment contained within **Appendix E** of this report.

7.1.1 Duplication of the Freight Rail Line

Consultation was undertaken with Brookfield Rail in June 2014 to identify the short, medium and long-term planning of the Midland Kwinana Railway adjacent to the Structure Plan area. Advice from Brookfield Rail suggests that a duplication of the existing rail line between Kwinana to Cockburn South (which includes the entire section of the rail line that runs through Latitude 32) is planned in the medium-term future, although it is noted that the exact timing of the rail line duplication will depend on a range of economic factors and is subject to future analysis. The additional rail line would be provided within the existing 40m rail reserve.

7.1.1.1 Impact on Freight Rail Duplication on Access to DA2

Advice from Brookfield Rail indicates that a weekly total of 284 freight trains currently cross the Wattleup Road at-grade rail crossing. With the duplication of the freight rail line between Kwinana and Cockburn South, the number of rail freight movements will increase significantly and ultimately reach an expected weekly total of 532 freight trains.

Based on the existing traffic and rail freight volumes (and an assumed heavy vehicle proportion of 15%) through the existing at-grade rail crossing at Wattleup Road, the exposure limit for this at-grade rail crossing is calculated at 10.28 million and thereby exceeds the recommended threshold of 5.00 million for grade separation. An exposure limit is calculated by multiplying the average daily vehicle traffic volumes by the average daily train traffic at the at grade crossing.

If the duplication of the existing rail line occurs prior to 2021, the anticipated increase in weekly train movements across this intersection may increase the exposure limit up to approximately 17.7 million.

If the exposure limit exceeds a value of 5 million, it is recommended that the rail crossing be upgraded to a grade-separated crossing, although it is noted that there are a number of specific scenarios where grade separation may be deemed inappropriate even when the exposure limit exceeds 5 million. The scenarios where grade separation may be deemed inappropriate include:

- Where the warrant for grade separation will only be exceeded for a relatively short period of time in relation to the design life of a bridge;
- The vast majority of road users are not ordinary members of the public (i.e. from one company) and therefore can be controlled by other means.

A detailed assessment of the railway exposure limits is provided within the Transport Assessment within **Appendix E**.

7.1.1.2 Future Intermodal Terminal (IMT)

An area of approximately 175 hectares has been identified for a potential IMT (a facility where the exchange of freight between different modes of transport can occur) is proposed to be located within Development Area 5 and is to be bounded by the NSDDR to the east, the Resource Recovery Site and the Development Area 2 Structure Plan to the west, Torgyle Road to the north and Rowley Road to the south.

The viability, size (land requirements), location and timing of the IMT will be determined via the preparation of a Structure Plan.

The IMT will have no impact on Development Area 2 other than the land shown within the Structure Plan as Future Investigation Areas.

In order to ensure that the Latitude 32 transport network (and particularly Development Area 2) will be able to integrate with and support any potential IMT, flexibility has been incorporated by way of inclusion of the Future Investigation Areas. The road network for Latitude 32 is shown in the Transport Assessment within **Appendix E**.

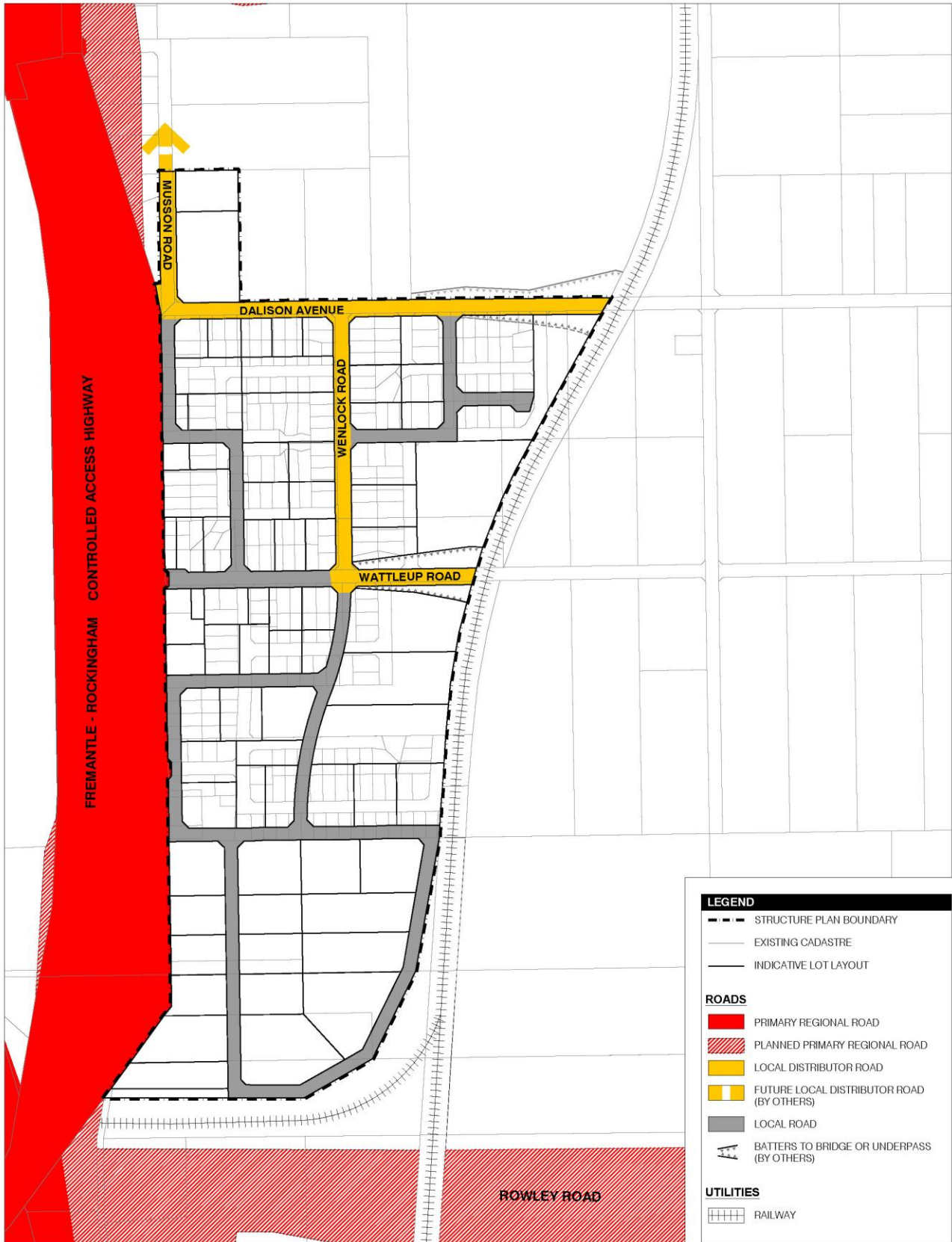


Figure 13 Movement Network Plan

7.2 Movement Network – Strategic Considerations

Due to the future planning considerations either immediately abutting or surrounding the Structure Plan area, it is necessary to consider the staged access arrangements. Whilst described in more detail in the Transport Assessment (refer **Appendix E**), in summary these include:

- The proposed FRCAH to the west, a future regional road planned for construction by 2031.
- The proposed Rowley Road to the south, a future regional road planned for construction by 2026.
- The freight rail corridor to the east, currently consisting of a single rail track and an at-grade rail crossing where it intersects Wattleup Road. The existing freight and traffic movements create the need for grade separation.
- To the north and east is the proposed IMT that may generate the need for additional access and regional road requirements over and above that required to service development within Latitude 32. This is subject to concept planning later in 2016.

Given these considerations, the access arrangements to Development Area 2 are required to be both robust and flexible as:

- Road infrastructure will sever existing access points at some time in the future; and
- Future concept planning and strategic decisions may identify the need for additional access and interchanges whereby expanding access to the Structure Plan area.

To suitably demonstrate that Development Area 2 is both robust and flexible and it does not prejudice any future planning decisions, in relation to Development Area 2 or the broader strategic area, access has been considered based on;

- The existing access, the medium access and long term access options.
- In relation to the long-term access, two scenarios have been modelled;
 - Without the proposed IMT and therefore, industrial development within Development Area 5; and
 - The IMT and appropriate assumptions in relation to its operation.

These access options are summarised below and as mentioned above discussed in more detail within the in the Transport Assessment (refer **Appendix E**).

7.2.1 Existing Access Arrangements

Timeframe: Retain existing access – Nominally prior to 2021

The existing access arrangements that will exist for the first few years of development are illustrated in Figure 14 Existing Access Arrangements.

At the commencement of development, it is proposed to retain the existing access to Rockingham Road via Wattleup Road, Dalison Avenue and Musson Road; together with the existing crossovers.

Wattleup Road will, in the short term, provide an east-west connection between Rockingham Road and the Kwinana Freeway.

Strategically, access to both Wattleup Road and Rockingham Road is required for Restricted Access Vehicle class 4 (RAV4) vehicles (up to 27.5m) and access to the existing Wattleup commercial node.



Figure 14 Existing Access Arrangements

7.2.2 Medium Term Access Arrangements

Timeframe: Nominally between 2021 – 2031

Defined as the year that the existing access arrangements to Development Area 2 will no longer perform satisfactorily during the peak hour periods, but prior to full build-out of the entire surrounding regional road network. The proposed medium term access arrangements for the Structure Plan area are shown in Figure 15 Medium Term Access Arrangements.

Changes to the access in the medium term include:

Rowley Road - Operational by 2026.

Wattleup Road/Rockingham Road

- The existing priority intersection at Wattleup Road / Rockingham Road is proposed to be upgraded once it can no longer cope with the traffic demand from Development Area 2. The details of the intersection treatment are subject to determination by Main Roads WA, based on a review and modelling of the intersection at the time of subdivision.
- A priority intersection at Wattleup Road / Rockingham Road represents the most suitable location as it:
 - Is an existing full-movements priority intersection with direct linkage to Development Area 2; and
 - Will retain access to the existing commercial businesses, prior to the construction of the FRCAH when all access will be severed.
- At the time of construction of the preferred intersection treatment, access to Rockingham Road from existing crossovers, Musson Road and Dalison Avenue will be severed.

Wattleup Road

- Wattleup Road will remain as a connection between Development Area 2 and the Kwinana Freeway.
- Based on the existing traffic and number of weekly freight trains crossing the existing at-grade rail crossing at Wattleup Road the exposure level is 10.28 million and therefore is currently in excess of the 5.00 million threshold for requiring grade-separation.
- If the duplication of the existing rail line occurs prior to 2021, the anticipated increase in weekly train movements across this intersection may increase the exposure limit up to approximately 17.7 million.
- If the exposure limit exceeds a value of 5 million, the rail crossing may be upgraded to a grade-separated crossing if deemed inappropriate by DoT. A detailed assessment of the railway exposure limits is provided within the Transport Assessment within **Appendix E**.

Phillips Road – NSDDR Single Carriageway

- Phillips Road currently extends from Torgoyle Road, in the north of Development Area 4, south to Dalison Avenue. Based on the anticipated build out timeframes for Latitude 32, the first carriageway of Phillips Road is proposed to be extended to Russell Road in the north and Wattleup Road to the south and will therefore, provide direct access between Russell Road and Wattleup Road.
- Intersection locations are pre-determined based on safety and access requirements both east and west of the NSDDR.

Hurst Road

Hurst Road reservation currently extends from Rockingham Road to Russell Road, however, is only partially constructed where it intersects with Rockingham Road and a small portion into Development Area 6A. It is proposed to realign Hurst Road as it extends through to Russell Road via Development Area 6A. Development of Hurst Road and its realignment is dependent upon the rate at which Development Area 6A develops.

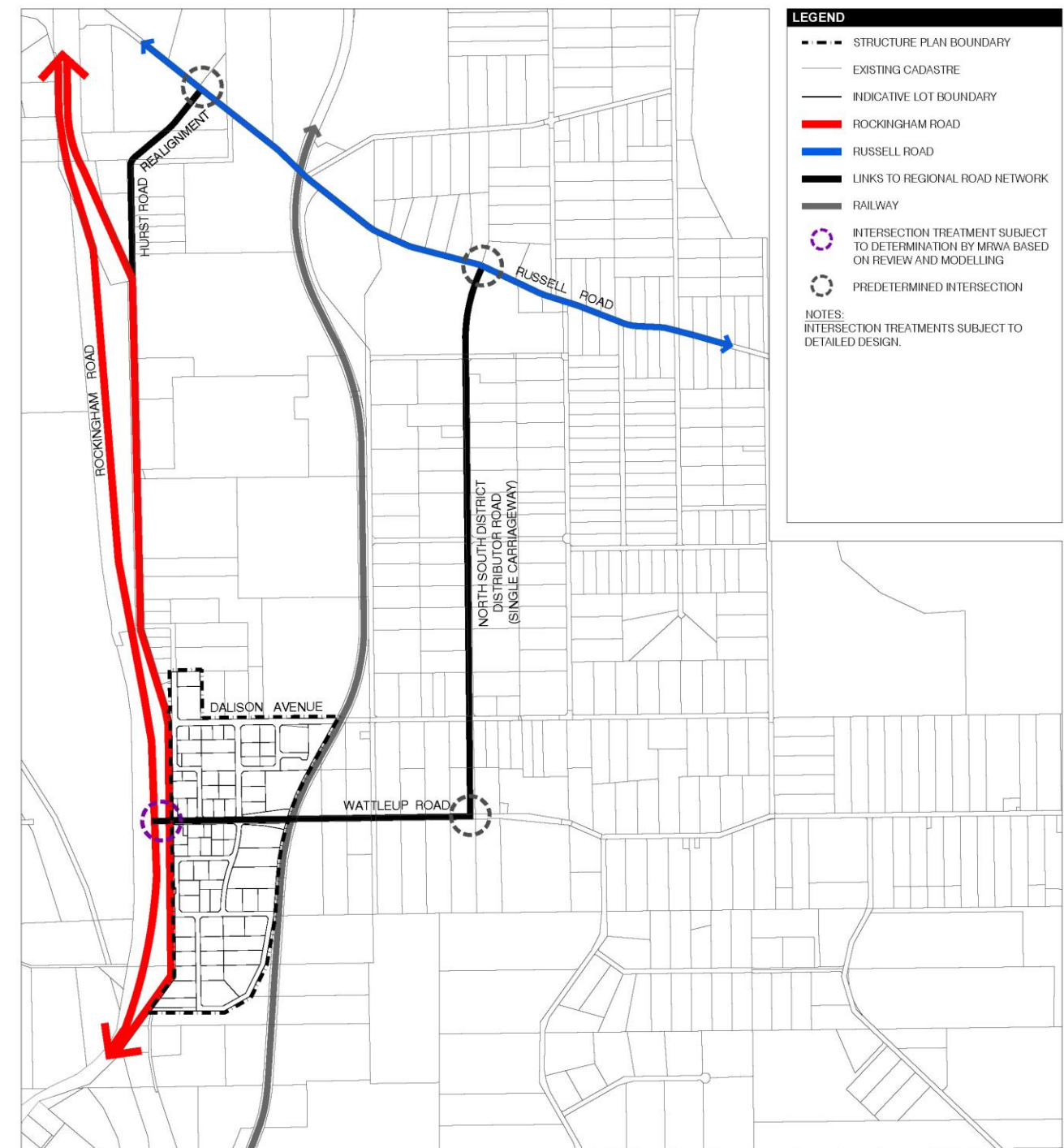


Figure 15 Medium Term Access Arrangements

7.2.3 Long Term Access Arrangements

Timeframe: Nominally from 2031

The proposed long term access arrangements within the Structure Plan area are outlined below and shown in Figure 16 Long Term Access to Arrangements.

FRCAH - Operational by 2031.

North-South west of Railway

- With the FRCAH severing access at Wattleup Road / Rockingham Road, a north-south connection will be provided from Musson Road to Russell Road via Hurst Road and the available south bound carriageway of Rockingham Road.
- Traffic modelling has demonstrated that the East-West FRCAH interchange is not required in order to achieve a satisfactory level of service for both the surrounding regional road network, as well as for the internal Latitude 32 road network. The documentation supporting this assessment is included in the Transport Assessment (refer **Appendix E**).
- An East-West FRCAH Interchange located at the halfway point between the Russell Road and Rowley Road interchanges is an option if required for the IMT. This is subject to further assessment through 2016 and concept/structure planning for Development Area 5.

NSDDR east of Railway

- NSDDR extending from Russell Road to Anketell Road. Dualing of road possible, depending on rate of development.
- A section of Wattleup Road, to the east of the NSDDR is proposed to be closed as part of the Development Area 4 internal road network and therefore the Wattleup Road / NSDDR intersection will be downgraded from a full movement to a t-intersection.

East-West over the Railway

Flexibility in the options for access east-west over the railway is required so that it does not prejudice any future planning decisions, in relation to Development Area 2 or the broader strategic area. In this regard, two scenarios have been modelled and the options are provided in greater detail below:

- The IMT and appropriate assumptions in relation to its operation; and
- Without the proposed IMT and therefore industrial development within Development Area 5.

SCENARIO 1 - ULTIMATE NETWORK ALLOWING FOR THE IMT WITHIN DEVELOPMENT AREA 5	SCENARIO 2 - ULTIMATE NETWORK ALLOWING FOR INDUSTRIAL DEVELOPMENT WITHIN DEVELOPMENT AREA 5
<p>Options are subject to further assessment through 2016 and concept/structure planning for Development Area 5</p> <ul style="list-style-type: none"> - <u>Option 1</u> Extension of Dalison Ave with connection to the NSDDR, including grade separation (potentially an overpass) with the rail line. - <u>Option 2</u> New east-west link with interchange connection at the FRCAH, grade separation via a possible underpass at the rail line and connection to the NSDDR. 	<ul style="list-style-type: none"> - Grade separation of Wattleup Road (via underpass) to connect to the NSDDR. - Based on the preliminary levels concept plan for the industrial development option within Development Area 5, Wattleup Road is the preferred rail crossing point, rather than Dalison Avenue which would not be required.

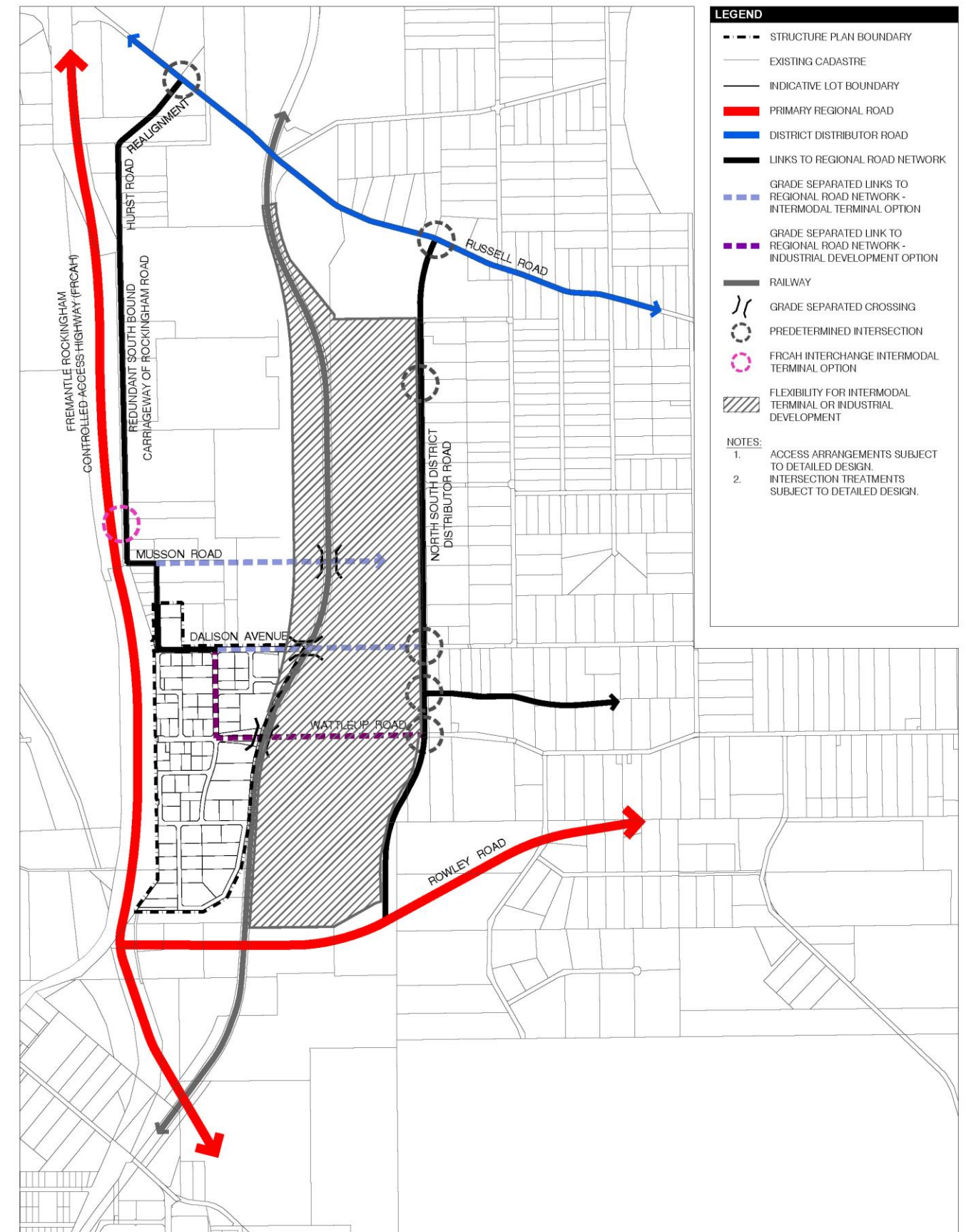


Figure 16 Long Term Access Arrangements

7.3 Proposed Road Reserve Widths

The road reservation widths for the key roads are illustrated below. A full set of cross sections are included within the Transport Assessment, **Appendix E**:

7.3.1 Local Distributor Roads (LDRs)

The LDRs are proposed to have a 25.0m road reservation width to allow for turning pockets for right-turning vehicles, as well as 5.5m traffic lanes in each direction, refer *Figure 17 Proposed Road Reservation Width and Cross-Section for the Local Distributor Road*.

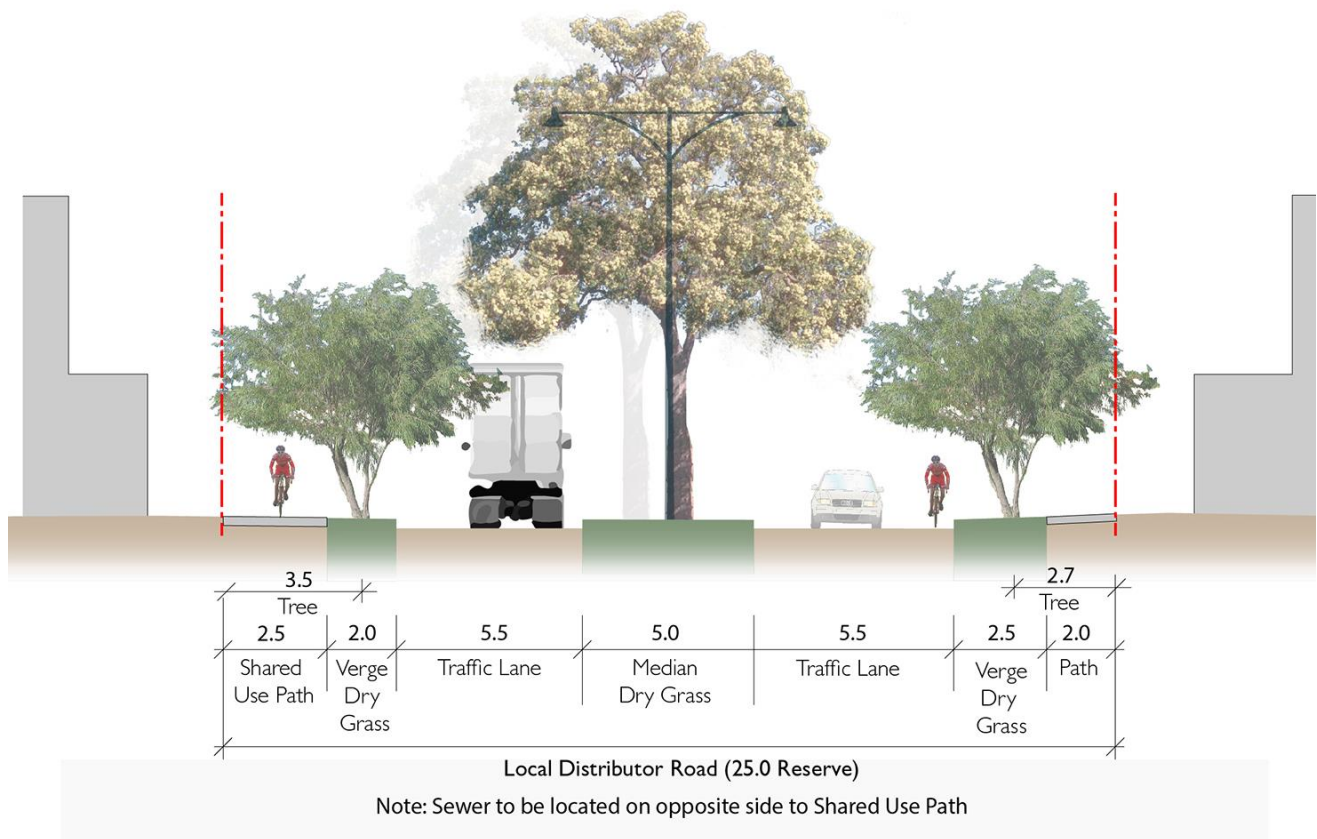


Figure 17 Proposed Road Reservation Width and Cross-Section for the Local Distributor Road

7.3.2 Local Distributor Road and Local Road including Ecological Linkage

LDRs including Ecological Linkages are proposed to consist of a 25.0m road reservation width, including two 5.5m traffic lanes and a 2.5m parking/planting nib on each side. One side of the road reserve is to provide a 7.0m verge corridor to allow for the planting of vegetation associated with the Ecological Linkages as set out in section 6.3.4. The proposed road cross-section for the LDR including a secondary Ecological Linkage is shown in *Figure 18 Proposed Road Reservation and Cross-Section for the Local Distributor Road and Local Road including Ecological Linkage*. Proposed speed limit for the LDR including the secondary Ecological Linkage at the site is 50 km/h.

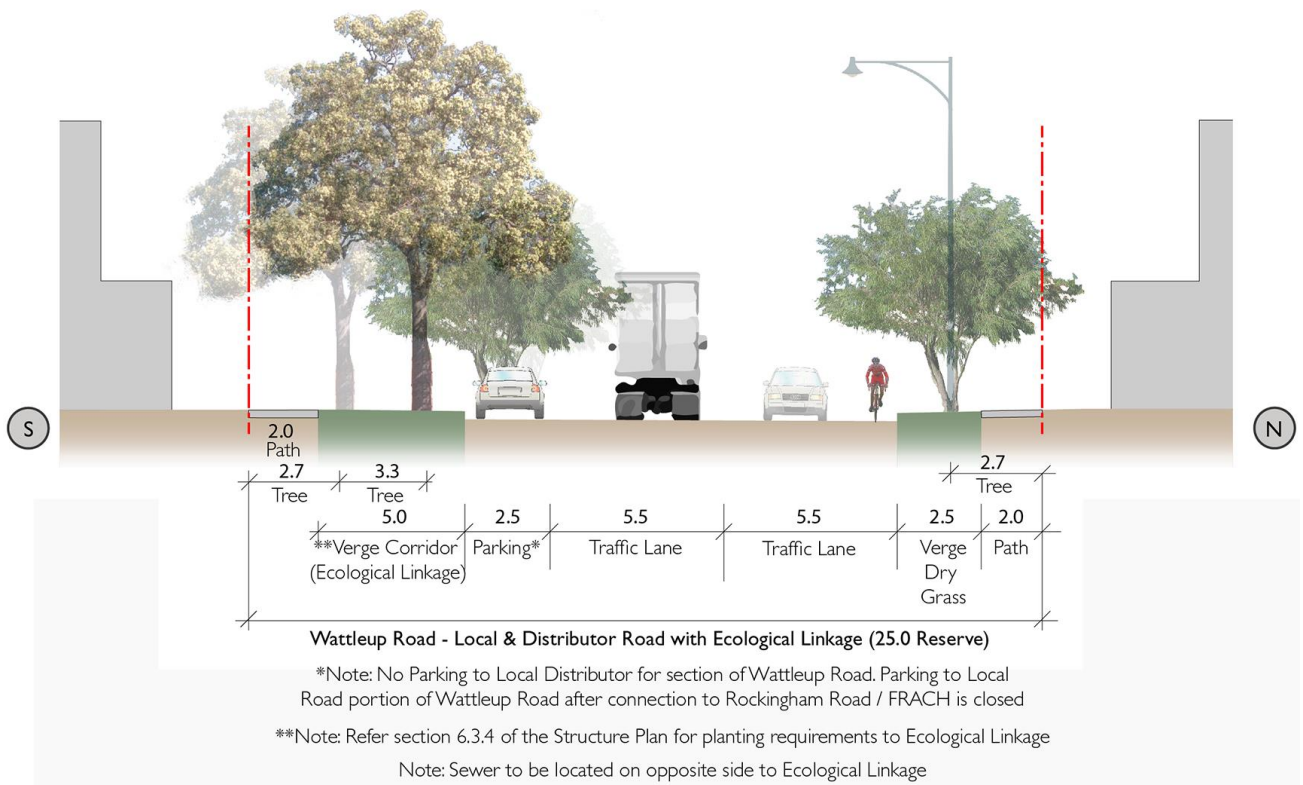


Figure 18 Proposed Road Reservation Width and Cross-Section for the Local Distributor Road and Local Road including Ecological Linkage

7.3.3 Local Roads

Local Roads are proposed to have a 20.0m road reservation width, which includes 5.0m traffic lanes in each direction, 2.5m parking embayment and 2.5m verge in each direction, refer *Figure 19 Proposed Road Reservation Width and Cross-Section for the Local Roads*. The proposed road cross-section for the Local Roads allows sufficient width for heavy vehicle movements along these roads.

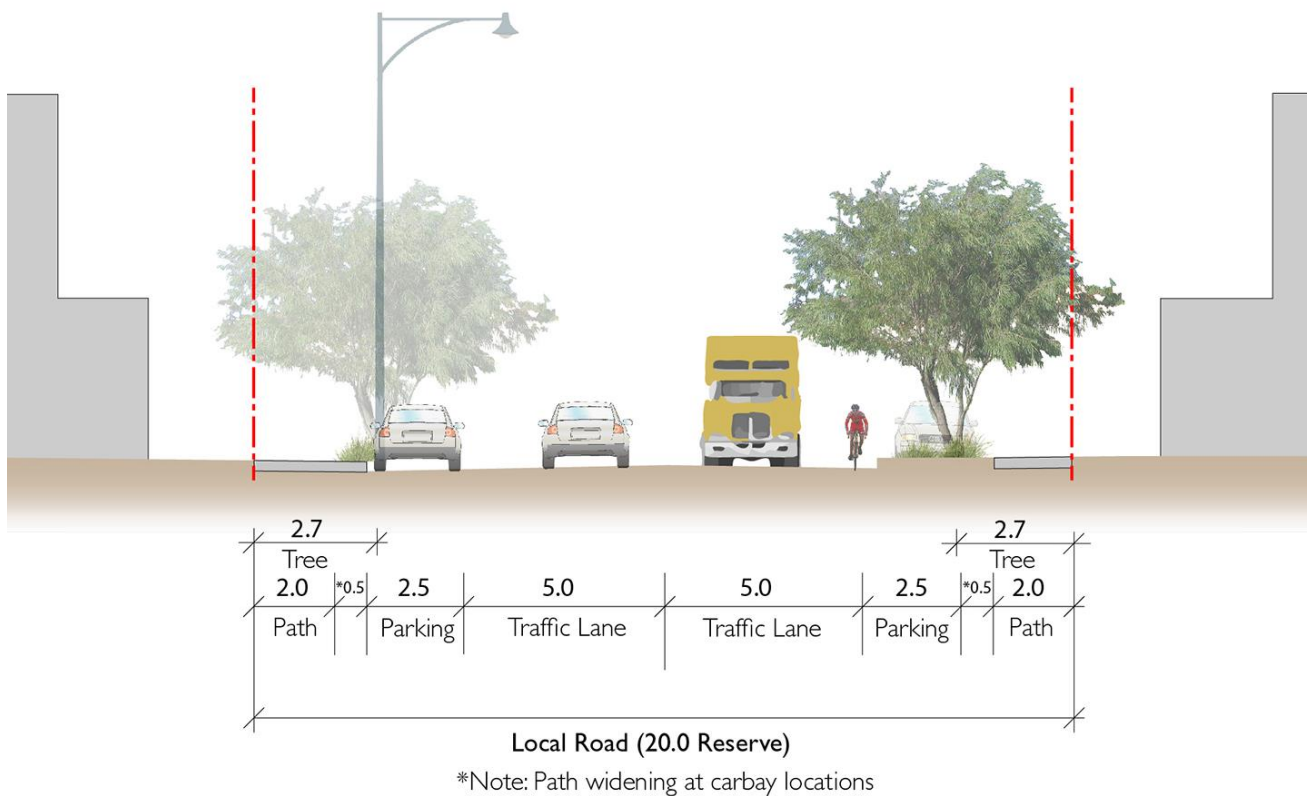


Figure 19 Proposed Road Reservation Width and Cross-Section for the Local Roads

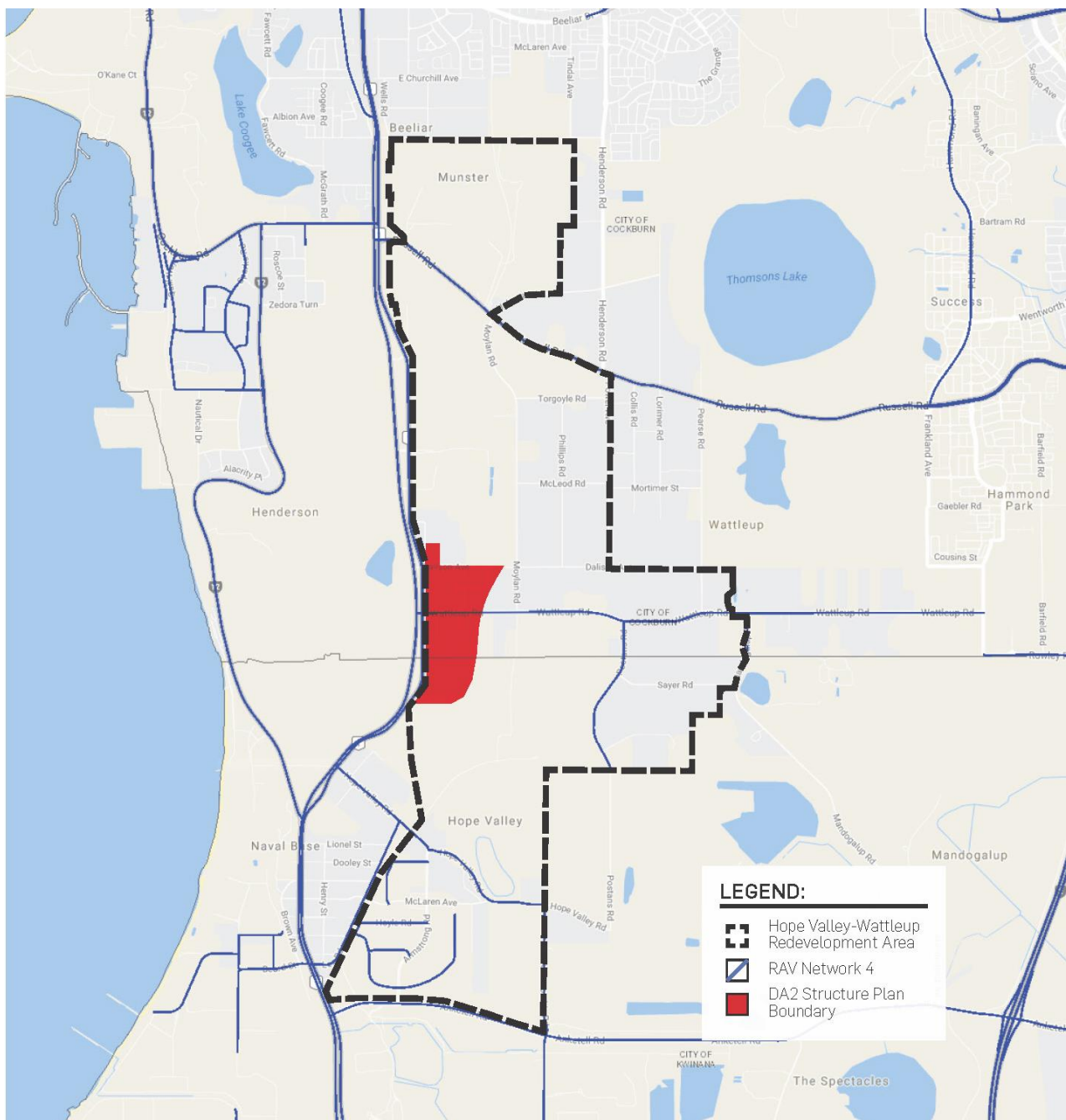
7.4 Heavy Vehicles on Wattleup Road

From previous consultation undertaken with the City of Cockburn, it is understood that the existing heavy vehicle volumes along Wattleup Road are considered undesirable and perceived as a safety hazard for local residents with frontage on Wattleup Road.

As shown in *Figure 20 Existing Restricted Vehicle Access in Proximity to the Structure Plan area*, Wattleup Road currently allows up to RAV4, which can be up to 27.5m long, and provides a direct connection between the Kwinana Freeway and Rockingham Road (also classified as RAV4 networks). Wattleup Road is currently classified as a “Regional Distributor” and has a posted speed limit of 80km/h (to the East of Moylan Road).

As the majority of the residential dwellings with frontage to Wattleup Road are located outside of the Structure Plan area, a Local Area Traffic Management (LATM) strategy will be prepared in consultation with the City of Cockburn within six months of approval of the Structure Plan. The aim of the LATM strategy is to decrease the speed of vehicles on Wattleup Road. It should be noted that no vertical deflection devices are recommended as part of any LATM strategy for Wattleup Road due to the heavy vehicles and high posted speed limits.

It is noted that the ultimate solution to this issue is considered to be the construction of Rowley Road, as this will provide a high order strategic east-west connection to provide a free-flowing connection for freight (heavy) vehicles between the Kwinana Freeway and the proposed Fremantle Outer Harbour (Kwinana Quay). Advice from Main Roads WA suggests that Rowley Road will be operational by 2026.



7.5 Road Contributions

Proportional road contributions are proposed based on the traffic modelling that has been undertaken. A draft of the DCP items is included as **Appendix F**. The final DCP items will be determined via Master Plan Amendment No.10.

7.6 Public Transport and Pedestrian and Cycling Infrastructure

The Structure Plan area is not serviced by public transport and the nearest public transport route runs between Fremantle and Rockingham via Rockingham Road.

The Public Transport Authority (PTA) has indicated that a number of key changes will occur in the future, regarding public transport services in proximity to the Structure Plan area. These changes include:

- Bus interchange and park and ride train station planned for Aubin Grove to commence service in 2016;
- The potential for a future train station feeder bus service between the future Aubin Grove station and the Structure Plan area; and
- The diversion of the 920 bus service to run along the FRCAH once completed.

PTA has indicated that while the industrial land uses as part of Latitude 32 are generally associated with low employment density, relocation of the 920 service to the NSDDR would be preferred as the land uses along Rockingham Road would likely attract even less patrons. It is noted that any deviation of the 920 service to Latitude 32 will require demonstration that the overall journey times for the 920 bus service between Fremantle and Rockingham will not be negatively impacted by such a deviation.

It should be noted that any potential deviation is only likely to be located to the east of Development Area 2 and would be unlikely to deviate internally to Development Area 2. However, if a bus stop is provided along the NSDDR near Wattleup Road, Development Area 2 will be located approximately 800m from such a bus stop.

Physical infrastructure improvements such as bus queue-jump facilities and on-street bus bays may be required to improve the journey times for a limited-stop bus service through this area. It is noted that the queue-jump facilities described require minimal additional physical road infrastructure and would generally consist of lengthening left turn lanes at signalised intersections. These measures would be expected to be implemented by the PTA following completion of the NSDDR from Anketell Road to Russell Road, and would be required only to mitigate the impact of regional traffic use of the NSDDR.

There is no existing cycle or pedestrian infrastructure within the Structure Plan area. The development of the NSDDR and the completion of Rowley Road will include the provision of an off-road 3.0m shared path along the eastern boundary and a 2.0m footpath on the western boundary.

8 Water Management

A LWMS has been prepared in response to the Structure Plan and has been approved by the Department of Water in July 2016 (refer **Appendix G**).

The LWMS provides an integrated total water cycle management approach to development, with an assessment of:

- The pre-development environment;
- Development of water use sustainability initiatives;
- A stormwater management strategy;
- A groundwater management strategy; and
- A plan for implementation of individual subdivision plans.

Key elements of the LWMS are outlined below.

8.1 Water Use Sustainability Initiatives

Development of the Structure Plan area will lead to an increased demand for water for new industry. Water conservation measures implemented to reduce scheme water consumption within the development will be consistent with Water Corporation's "Waterwise" land development criteria, and include:

- Promotion of use of waterwise practices including water efficient fixtures and fitting (taps, showerheads, toilets and appliances, rainwater tanks, waterwise landscaping);
- Use of native plants in drainage corridor areas and within lots; and
- Maximising on site retention and infiltration of stormwater.

To best manage water demands within the Structure Plan area, the landscape design focuses on the remediation of natural areas, creating biodiversity linkages and street plantings. The landscape design included in **Appendix H** also proposes the use of waterwise plants.

8.2 Stormwater Management Strategy

The term 'water sensitive urban design' (WSUD) is commonly used to reflect the planning and design of urban environments that is sensitive to the issues of water, sustainability, and environmental protection (Institution of Engineers, 2006).

Although Latitude 32 is industrial (rather than urban development), the best management practices, structural controls and non-structural controls generally associated with WSUD are considered to be relevant. A summary of WSUD initiatives are outlined in the *Table 10*.

Table 10 Summary of WSUD

	STRUCTURAL CONTROLS	NON-STRUCTURAL CONTROLS
Development Scale	<ul style="list-style-type: none"> - All other basins infiltrating all storm events up to 1 in 100 year ARI. - Planting of sedges to assist in stripping nutrients prior to infiltrating into the groundwater table. 	<ul style="list-style-type: none"> - Reduced turfed area to reduce nutrient inputs. - Street sweeping. - Monitoring.
Lot Scale	<ul style="list-style-type: none"> - Infiltration at source for all storm events up to 1 in 20 year ARI. - Bunded washdown areas. - Bunded hazardous materials areas. 	<ul style="list-style-type: none"> - Stormwater contamination risks identified and addressed in engineering design. - Car park maintenance.

8.2.1 Stormwater Modelling

All stormwater across the site is proposed to be dealt with on site with no outlets proposed to other catchments or wetlands. All stormwater is to be infiltrated and stormwater infiltration storage areas have been sized to infiltrate the 1 in 100 year ARI event.

Within each catchment road runoff will be collected through a series of pits and pipes for frequently occurring events (1 in 5 year ARI) with greater events travelling via overland flowpaths.

No run-off has been assumed to contribute from individual lots for events up to 20 year ARI. Consistent with industrial zone guidelines (City of Kwinana, 2010), it has been assumed that each individual lot will retain all flows up to and including the 1 in 20 year ARI event. City of Cockburn's current standard for stormwater requires industrial/commercial lots to retain 1 in 100 year ARI event on site, however the City of Cockburn have allowed an exception to the ordinary standard in this case, allowing just the 1 in 20 year ARI to be retained, consistent with the approved Development Area 3 Structure Plan.

Post development catchment mapping and land use breakdown is illustrated in *Figure 21 Stormwater Management Plan*.

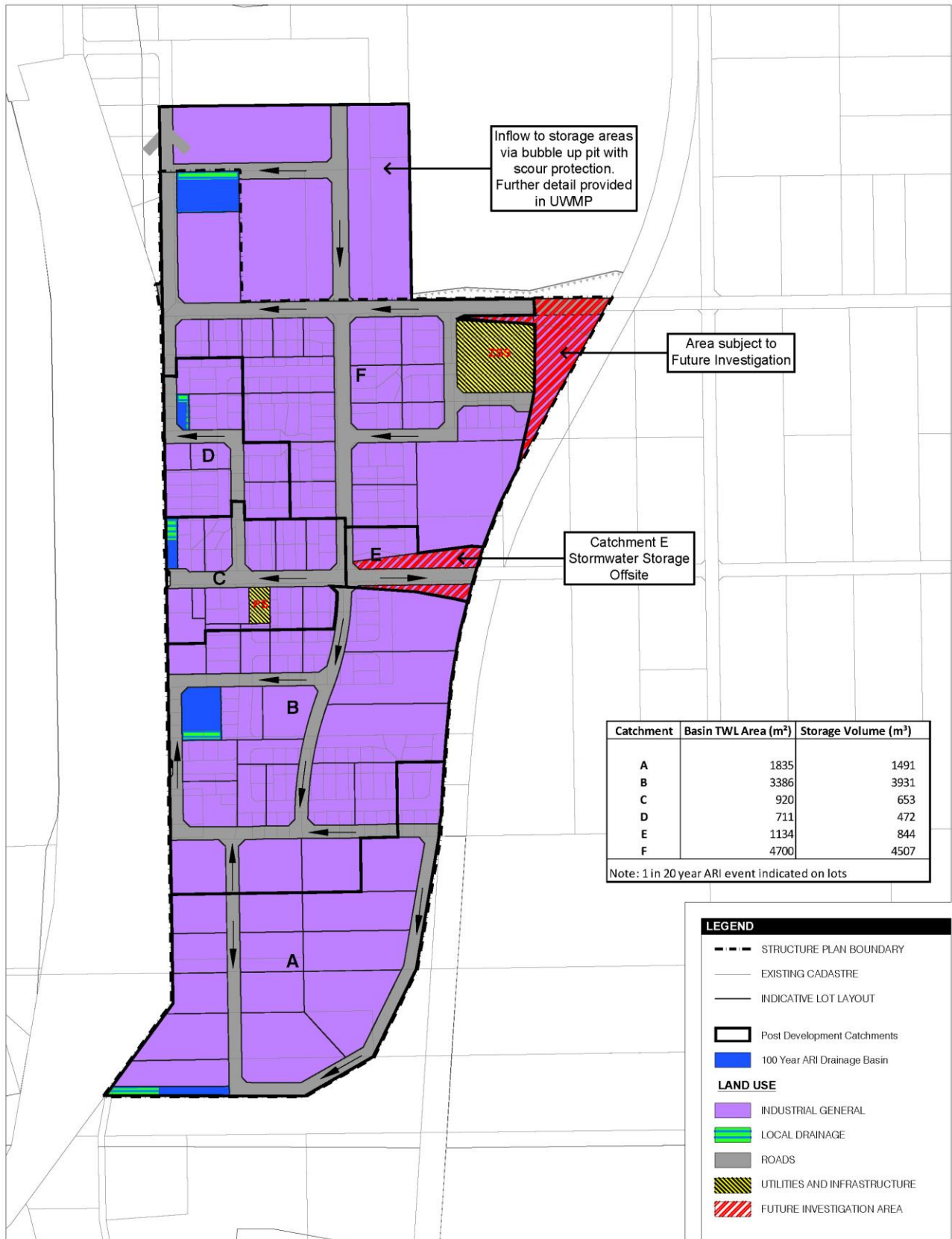


Figure 21 Stormwater Management Plan

8.3 Groundwater Management

Depth to groundwater varies over the Structure Plan area from approximately 3.68m AHD in the south-west corner to a height of 16.29m AHD in the north-east corner of the Structure Plan. Due to the need for a co-ordinated industrial development, the Structure Plan includes a Levels Plan as set out in *Figure 10 Development Area 2 Levels Plan*. Proposed lot levels vary from 4.00 m AHD in the south-west to a height of 13.33m AHD in the north-east corner of the Structure Plan area.

Due to this clearance to groundwater (minimum of approximately 3.0 m) and the sandy soil profile, it is unlikely that imported fill will be required for the Structure Plan area. As a result of the above factors, subsoil drainage will not be necessary within the Structure Plan area.

8.4 Subdivision and Urban Water Management Plans

Consistent with processes defined in Better Urban Water Management (the Commission 2008), an Urban Water Management Plan (UWMP) should be developed and submitted to support the subdivision application/s for the Structure Plan area. Preparation of the UWMP will be the developer's responsibility.

8.5 Groundwater Monitoring

The pre-development monitoring programme was completed in late 2014. Where applicable, additional data collected from this programme will be used to inform the development of the UWMP.

Post-development groundwater monitoring is proposed in all pre-development groundwater monitoring bores to provide suitable coverage of the Structure Plan area. The following frequency of monitoring is proposed:

- Monthly groundwater level measurements; and
- Monthly groundwater quality analysis within wetlands and areas upstream and downstream of the conservation area.

Monitoring will be undertaken by the landowner/developer for a three year period post development consistent with usual DoW requirements. An annual report will be prepared summarising the results of the program.

8.6 Implementation

A summary of roles, responsibilities and funding to implement the LWMS is provided in *Table 11*.

Monitoring outcomes will be used in a continual improvement capacity to review the implemented WSUD within the Structure Plan area and inform the planning and design approaches for subsequent stages of development.

Any modification required to the LWMS as a result of monitoring outcomes would be identified through the review process of monitoring data and would require the agreement of all parties (DoW, Developer, City of Cockburn and City of Kwinana).

Table 11 Implementation, Roles and Responsibilities

IMPLEMENTATION ACTION	LANDOWNER DEVELOPER	FUTURE INDUSTRY (LOT SCALE)	CITY OF COCKBURN / KWINANA	DEPARTMENT OF WATER
Completion of District Scale Predevelopment Monitoring Programme	<input checked="" type="checkbox"/>			
Preparation of UWMP	<input checked="" type="checkbox"/>			
Review and Approval of UWMP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Construction of infiltration stormwater storage areas and landscaping	<input checked="" type="checkbox"/>			
Construction and design of lot scale stormwater drainage system		<input checked="" type="checkbox"/>		
Street sweeping for initial 1 year	<input checked="" type="checkbox"/>			
Street sweeping after 1 year			<input checked="" type="checkbox"/>	
Landscape maintenance for initial 2 years	<input checked="" type="checkbox"/>			
Landscape maintenance after 2 years			<input checked="" type="checkbox"/>	
Assessment of development applications for future industry			<input checked="" type="checkbox"/>	
Post Development Monitoring Program and Reporting	<input checked="" type="checkbox"/>			
Review of Annual Monitoring Report				<input checked="" type="checkbox"/>

9 Infrastructure and Servicing

The facilitation of development relies on the appropriate provisions and staging of critical infrastructure. An Earthworks, Infrastructure and Servicing Strategy (Engineering Strategy) has been prepared by Wood and Grieve Engineers (August 2014) and a supplementary report has been prepared by Calibre Consulting (2016) for the Structure Plan area, refer **Appendix I**. A summary of requirements and assumptions is provided below and depicted within *Figure 22 Infrastructure and Servicing Plan*.

9.1 Earthworks

Investigations for the Structure Plan area include an earthworks and levels strategy based on logical servicing and implementation considerations. Developing the strategy included consultation with landowners in the Structure Plan area. The Engineering Strategy includes final design levels and a summary of assumptions and methodology. The servicing strategies outlined within the Engineering Strategy assume the final levels follow the earthworks plans.

Landowners or developers must comply with the final levels as shown on *Figure 10 Development Area 2 Levels Plan* to allow for industrial development and logical servicing over the Structure Plan area. Any variation of the design levels would require assessment to ensure impacts on any other landowners are addressed adequately.

9.2 Roads

Designs for the levels and implementation of earthworks have considered the use of existing roads and/or road reservations either in the interim scenario or ultimate scenario. In all cases it is assumed that for full development of the site to occur, existing roads must either be removed, reconstructed or upgraded/widened to industrial standards to support the additional traffic.

9.3 Drainage

The servicing strategies assume the requirement for individual lots to contain all stormwater up to the 20 year ARI rainfall event on the Structure Plan area.

Proposed street drainage for the Structure Plan area is via a major minor approach, the minor event being the 5 year ARI and major events being greater than 5 year ARI. Pit and pipe and/or swale conveyance systems will accommodate minor event stormwater runoff from road reserves. Major event flows will overtop the drainage networks for conveyance as overland flow within road reserves.

All stormwater flows are to be directed to the basins, located in areas identified as part of the earthworks and levels strategy. Basins will be severed from the adjacent wetland (Mt Brown Lake) by the future FRCAH, and therefore will not have direct outlets to wetlands or regional flood areas, and are therefore to be designed to retain and infiltrate 100 year ARI flows, including flows from lots after the 20 year ARI storage is exceeded in accordance with the LWMS. Fully trapped basins are to be designed with appropriate freeboard and contingency in place to prevent or minimise flooding to lots in major (>100 year ARI) flood events.

Stormwater modelling and calculations including basin sizes and volumes has been undertaken. The LWMS, located in **Appendix G**, includes the results of the stormwater modelling. The Engineering Strategy details basin locations and indicative sizes. At the time of development it would be possible to amend drainage locations or employ temporary drainage basins at extents of development to suit staging of development. However, these changes may require updating the LWMS.

9.4 Water

The Structure Plan area is within the Thompsons Lake water reticulation scheme area. There is an existing reticulation network across Development Area 2 serving the current land uses, which will typically be removed as part of the proposed development. The network is fed by an existing water main running along Rockingham Road, currently bringing water to the southern extents of the Thompsons Lake Scheme area, including the Flinders Precinct.

Water servicing for the Structure Plan area will require the construction of Water Corporation or developer funded headworks infrastructure, or temporary developer funded extensions. Water will ultimately be brought to the development area via extensions from existing water distribution mains. The route and timing of these works is subject to current planning reviews by the Water Corporation.

Timing of the mains will depend on the location and timing of the development front and will be confirmed at subdivision stage to align the CWP. Current Water Corporation advice indicates that any CWP amendments (if required) are triggered and assessed with the submission of a Structure Plan for approval.

9.5 Sewer

There is no existing sewer infrastructure servicing within the Structure Plan area. Former residential lots within the historic Wattleup town-site are assumed to have been serviced by private septic or ATU systems. Any remaining septic or ATU systems shall be removed/ remediated prior to subdivision or development as required.

Currently the southern portion of Latitude 32 is planned to be sewered with flows in the long term going to the East Rockingham Waste Water Treatment Plant (ERWWTP) and the northern portion of the site may be sewered with flows going to the Woodman Point Waste Water Treatment Plant (WPWWTP).

In the short term however the flows from the southern portion of the catchment may be directed to the Kwinana Waste Water Treatment Plan (KWWTP) which is located approximately 3.5 kms from the south-east corner of the site. This interim arrangement is anticipated to continue until the KWWTP reaches capacity and/ or the ERWWTP catchment is sufficiently developed so that flows can be delivered to this site in a cost efficient manner.

A Wastewater Pumping Station (WWPS) has been indicatively located in the vicinity of the Wattleup Road (southern side) as per the location indicated on the attached sewer concept plan, pumped south to the Development Area 3 WWPS and ultimately to KWWTP. The final location will be subject to future detailed planning.

In accordance with Water Corporation requirements a 30 metre buffer to sensitive land uses has been allowed for to the WWPS. This will be resolved at detailed design.

The current sewer pumpstation sites are agreed conceptually with Water Corporation but as part of the Water Corporation's imminent review of wastewater collection and disposal scheme arrangements in the area, the location will be finalised within the structure plan area subject to the above design requirements.

9.6 Power

To service Latitude 32 Industry Zone, Western Power has indicated that a total of three additional Zone Substations will be required within the project area. These will be staged and timed to respond to the rate of development and will use portions of the existing overhead transmission network as well as new distribution and transmission lines across the area linking the Zone Substations.

The three Zone Substation sites have been catered for in the planning of the other Development Areas within Latitude 32 and adequate land has identified and will be made available. At present those Zone Substations are planned in Development Areas 2, 3 and 5 with transmission line routes connecting each of these 3 sites.

Western Power have advised that the proposed site and surrounding road layout will facilitate sufficient design flexibility (refer Western Power correspondence within Appendix B contained within the **Appendix I**). However, the final location of these sites is subject to detailed Western Power assessment and feasibility at the time of proposed development. Sites have been included in Development Area 2 and Development Area 3 and have been incorporated in the Structure Plan for those areas but the site required in Development Area 5 will need to be located in conjunction with Western Power and will also need to consider the possible future IMT layout.

With regard to the proposed Zone Substation sites Western Power have required that site specific investigations and cost analysis are required at the future detailed design phase and to confirm that sites nominated are acceptable.

The existing 132kV and above power lines have easements to protect them and these would be required to interface with any development on adjacent lots to ensure no encroachment occurs.

Where possible the transmission lines and their associated towers and poles and road design levels have been retained, however in some areas relocation may be unavoidable.

In the assessment it has been identified that the existing 132kV lines along Dalison Avenue, Moyland Road and Phillips Road may require partial relocation in some locations. This will be formalised at detailed development stage and in accordance with Western Power network requirements.

Where crossings of major roads such as Rowley Road occur in the future, then undergrounding of the transmission lines might be required and would be subject to further investigation.

The existing 22kV high voltage and 240V low voltage overhead power lines will generally be removed and fully replaced with an underground power system servicing all lots as has already occurred in Development Area 1. This will be linked to the distribution network with ground mounted

switchgear and transformers. The location of these will be determined at detail design phase. Street lighting will also be provided to all roads and would be connected to the underground power network that is developed.

Initial development in Latitude 32 could be initially be serviced by distribution feeders from the existing Zone Substations and then any additional Zone Substations and associated feeders would only be constructed once the capacity in the existing network was exceeded.

At each phase of development network studies will be undertaken in conjunction with Western Power to determine the optimum manner in which to service each new Development Area.

A summary of the consultation with Western Power is contained within Appendix B contained within the **Appendix I**.

9.7 Communications

There is an existing Telstra exchange building located on the lot adjacent to Rockingham Road as reflected on the Structure Plan, which will be protected and retained as part of development works.

Whilst the Structure Plan area is within the National Broadband Network Fibre Footprint, NBN have advised that being less than the requisite 100 lots the Structure Plan area not be automatically eligible for the provision of fibre communications under and NBN agreement. The decision to install NBN will be made on receipt of a formal application for an NBN agreement.

Telstra has confirmed that with NBN being the Internet Provider of Last Resort (IPLR), Telstra will not have a universal service obligation in this area, and will seek to deliver communications via commercial terms if NBN decline the application to serve the Development.

Fibre optic cables from various carriers including Telstra, Optus and Nextgen traverse the site along Wattleup Road and Dalison Avenue, and will need to be protected or relocated as part of subdivision works. Residential services to former dwellings will also need to be decommissioned and removed as part of development works.

9.8 Gas

The nearest gas reticulation assets to the Structure Plan area are located in the Flinders Precinct. These assets provide gas services to existing lots within the subdivision via an extension of distribution assets from high pressure mains further west in Rockingham Road.

High and medium pressure mains also exist within the Structure Plan area and further north along Russell Road. It is assumed that the residential gas infrastructure, likely to remain in the Structure Plan area will not be suitable as an industrial supply and will be removed.

Depending on the uptake of gas in the development, Atco will review funding arrangements for any headworks extensions to the estate. Such funding arrangements will be subject to negotiation between developers and Atco at the time of subdivision. Atco has previously funded gas extensions to the Flinders Precinct based on customer demand within the Estate.



Figure 22 Infrastructure and Servicing Plan

10 Landscape Master Plan

A Landscape Master Plan has been prepared for the Structure Plan area (refer to the Landscape Design Report, **Appendix H**), setting out landscape requirements for a number of key locations.

Given the majority of the Structure Plan area will be substantially altered as a result of earthworks, and the nature of development intended, there will be little opportunity for retention of vegetation within road reserves and private lots. The focus therefore, is on replanting of road reserves and drainage basins.

Landscape treatments within these areas will focus on:

- Planting of local and non-invasive species which are hardy, low fuel and which tolerate harsh, dry conditions;
- Minimisation of maintenance, and use of sustainable and durable materials;
- Use of recycled and locally sourced materials, including for European and indigenous interpretation purposes; and
- Identification of amenity opportunities such as walking tracks, seating and interpretive and educational opportunities, having regard to CPTED (Crime Prevention through Environmental Design) principles.

The Landscape Master Plan sets out guidelines for streetscape planting along road corridors within the Structure Plan area which are identified as follows:

- LDRs;
- Local Roads; and
- Local Road / LDR including Ecological Linkage.

Planting along road corridors is designed to increase biodiversity and provide avian Ecological Linkages through the Structure Plan area; design for sight lines and other driver and pedestrian safety considerations; and planting of hardy and low water use species, with particular species identified for each corridor to reinforce character and create streetscape unity.

11 Implementation

11.1 Roles and Responsibilities

The implementation of the Structure Plan requires inputs from all key stakeholders to ensure that development is activated in accordance with the provisions of the Structure Plan. *Table 12* outlines the roles and responsibilities of the Commission, LandCorp, City of Cockburn, City of Kwinana and landowners in progressing development within the Structure Plan area.

Table 12 Roles and Responsibilities

	COMMISSION	LANDCORP	LOCAL AUTHORITY	LANDOWNER
Structure Plan including all technical appendices	Approve or refuse Structure Plan.	<ul style="list-style-type: none"> – Prepare Structure Plan. – Advertise Structure Plan. – Forward Structure Plan to the Commission for Approval. 	Consulted authority as part of public comment (advertising).	<ul style="list-style-type: none"> – Provision of comments during advertising. – Preparation of applications in accordance with the Structure Plan.
Latitude 32 Design Guidelines	Referral authority if Design Guidelines initiated by LandCorp.	<ul style="list-style-type: none"> – Prepare Design Guidelines. – Adopt Design Guidelines. 	Provision of comments during advertising.	<ul style="list-style-type: none"> – Provision of comments during advertising. – Undertakes to design the proposed development in accordance with the design guidelines.
Subdivision	Determining authority for subdivision applications.	Referral agency for subdivision applications.	Referral authority for subdivision applications.	Prepares subdivision applications in accordance with the Structure Plan and submits to the Commission.
Development Approval	Determining authority for development applications (currently delegated to City of Cockburn and City of Kwinana in line with Delegation Schedule).	Referral agency for development applications.	Determining authority (as delegated) for development applications unless referred by the City to the Commission in line with Delegation Schedule.	Undertakes to prepare a development application in accordance with the Structure Plan and Design Guidelines.
Road Realignments	Responsible Authority	Prepare application for realignment or land exchange where impact on LandCorp landholding.	Referral authority for review and comment.	Provision of comments during advertising.
Interpretation Strategy	Consulted authority during preparation of the Interpretation Plan.	<ul style="list-style-type: none"> – Prepare Interpretation Plan. – Implement interpretation strategy via the interpretation plan where nodes are located on LandCorp or Crown land. 	Consulted authority during preparation of the Interpretation Plan.	Implement interpretation strategy via the interpretation plan where nodes are located on privately owned land.

Local Area Traffic Management (LATM) Strategy	n/a	Prepare LATM Strategy within six months of approval of the Structure Plan.	Consulted prior to and during the preparation of the LATM Strategy.	n/a
---	-----	--	---	-----

11.2 Staging

The staging of subdivision and/or development within the Structure Plan area will be determined primarily by the individual landowners and their desire and capacity to undertake the next stage of works.

The infrastructure strategy is based on the assumption that the land adjacent to the Wattleup Road and Rockingham Road intersection will be the first area developed due to the minimal level changes, proximity to interim access and key infrastructure developments required for initial development.

It is highlighted that the sufficient access and an ability to provide temporary drainage and servicing may result in the staging occurring in a different manner. The Structure Plan has inherent flexibility to enable various staging proposals.

11.3 Road Alignment

There are a number of existing roads that traverse the Structure Plan area that will require realignment to facilitate the construction of the proposed road network. These include Usher Place, Miro Street, Stamford Way, Hitchcock Place, Evas Place, Tomislav Place, Deepdene Street, Rothwell Court, Collova Way and Corin Way.

Procedures will be undertaken in accordance with the requirements of the Commission and the Department of Lands to facilitate the realignments at an appropriate time in the future to accord with the timing of the proposed development. A summary of the process is set out in *Table 13* below.

Table 13 Road Realignment Process

	RESPONSIBILITY	AGENCY	REQUIREMENTS
Road Realignment Request	LandCorp	Department of Lands	Letter requesting realignment of roads inclusive of: <ul style="list-style-type: none"> – Plans of proposed road realignment; – Description of existing and proposed land tenure; – Evidence of consultation with landowners; and – Evidence of consultation with utility service providers and agreement on proposed realignment.
Amalgamation Applications	LandCorp	Commission	<ul style="list-style-type: none"> – Form 1A and associated application fee; – Plan of Subdivision (amalgamation); – Letter outlining proposed amalgamations; and – Evidence of undertaking road realignment process with Department of Lands.

Prior to commencing the process, discussions should be held with the Department of Lands and the Commission to ensure the currency of the process identified in *Table 13* above.

11.4 Development Contribution Arrangements

All landowners within the Structure Plan area are liable to contribute to various enabling infrastructure items including:

- Local items for the Structure Plan area; and
- Items of a district nature for the whole of Latitude 32.

A draft of the DCP items is included as **Appendix F** and is subject to change based on the finalisation of an amendment to the Master Plan.

The cost items are included in Schedule 12 and Appendix 3 of the Master Plan. In accordance with the Master Plan, the cost apportionment schedule shall be distributed to all owners within the Development Contribution Area within 90 days of gazettal of the DCP. At this point, all land area and infrastructure items will be accounted for in order that an accurate cost apportionment schedule can be formulated.

11.5 Additional Requirements

Prior to the subdivision or development within the Structure Plan area the tasks and documents, as outlined within *Table 14* are required to be completed (where applicable):

Table 14 Additional Requirements Prior to Subdivision and/or Development

TASK/DOCUMENT	APPLICABILITY	STATUS	RESPONSIBILITY
Latitude 32 Design Guidelines	All lots.	Approved.	LandCorp on behalf of landowners
Bushfire Management Plan Review	Lots located within bushfire prone areas.	Bushfire Attack Levels to be reviewed prior to development in the context of vegetation condition and proposed built form and fire attenuation measure.	Landowners / developers
Groundwater monitoring programme	DoW requirement.	Ongoing	LandCorp on behalf of landowners
Heritage Interpretation Plan	A requirement of the Heritage Interpretation Strategy.	Currently being prepared.	LandCorp on behalf of landowners
Biodiversity Strategy (as amended 2015)	Review every 5 years in accordance with the Ministerial Conditions.	The Biodiversity Strategy (as amended 2015) has been supported by the OEPA on a number of occasions, most recently in 2016 (refer Letters dated 14 September 2014, 21 May 2015 and email dated 22 July 2016.	LandCorp on behalf of landowners