

# Mandogalup

## Improvement Scheme No. 1

Improvement Scheme Report

Prepared for Department of Planning, Lands and Heritage

Prepared by Taylor Burrell Barnett

June 2024



# Acknowledgement of Country



We respectfully acknowledge the Whadjuk people of the Noongar nation, as the traditional custodians of the land on which we live and work, and recognise their continuing connection.

We pay our respects to the Elders past, present and emerging for they hold the memories, the traditions, the culture and hopes that, through meaningful connection, we aim to apply to the design and planning of communities now and in the future.



# Document Information

Scheme Report

Mandogalup Improvement Scheme No. 1

Department of Planning, Lands and Heritage

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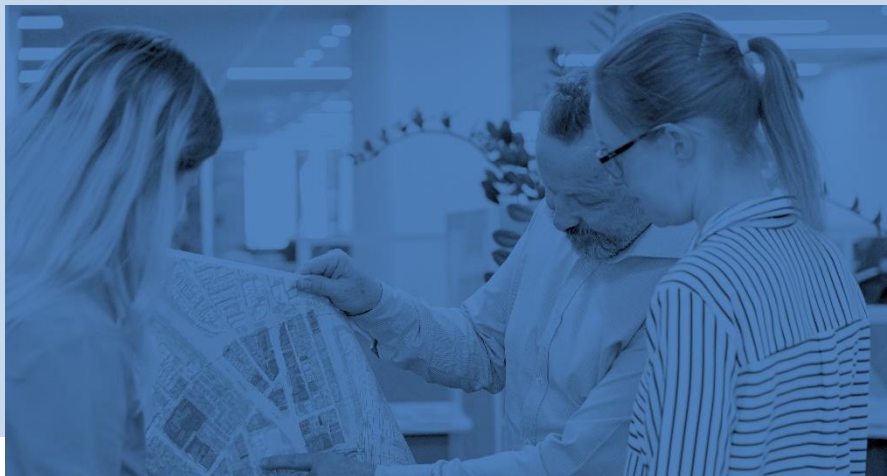
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# ENDORSEMENT

Endorsed by the Western Australian Planning Commission 26 June 2024.

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# List of Abbreviations

City	City of Kwinana
DBCA	Department of Biodiversity, Conservation and Attractions
DBNGP	Dampier-Bunbury Natural Gas Pipeline
DCP	Development Control Policy
Deemed Provisions	Schedule 2 of <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>
DPLH	Department of Planning, Lands and Heritage
DOT	Department of Transport
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i>
EPA	Environmental Protection Authority
EPP	Environmental Protection Policy
ERIC	Eastern Residential Intensification Concept
FRIARS	Fremantle Rockingham Industrial Area Regional Strategy
IP47	Improvement Plan No. 47: Mandogalup
JSP	Jandakot Structure Plan
KAQB	Kwinana Air Quality Buffer
Model Provisions	Schedule 1 of <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>
MRS	Metropolitan Region Scheme
ORR	Other Regional Road
PB	Planning Bulletin
PCA	Planning Control Area
PD Act	<i>Planning and Development Act 2005</i>
PMD	Peel Main Drain
Refinery	Kwinana Alumina Refinery
Regulations	<i>Planning and Development (Local Planning Schemes) Regulations 2015</i>
SPP	State Planning Policy
TPS2	City of Kwinana Town Planning Scheme No. 2
WAPC	Western Australian Planning Commission
WTC	Western Trade Coast

# Executive Summary

This Improvement Scheme Report (“**Report**”) has been prepared on behalf of the Western Australian Planning Commission (“**WAPC**”) in support of the *Mandogalup Improvement Scheme No. 1* (“**Improvement Scheme**”).

The Report provides the explanatory text in relation to the Improvement Scheme and details the provisions of the relevant planning framework for the Scheme area. It sets out the rationale and justification pertaining to the provisions which have been prepared so the intent and objectives of the Improvement Plan No. 47: Mandogalup (“**IP47**”) can be realised.

This Report outlines the planning arrangements for Mandogalup, an overview of the planning considerations and justifications behind the content of the Improvement Scheme and acknowledges matters relevant to the Improvement Scheme area. This Report does not form part of the Improvement Scheme, however, satisfies the requirements stipulated in Part 3 of the *Planning and Development (Local Planning Schemes) Regulations 2015* (“**Regulations**”) and should be read in conjunction with the scheme text and the scheme map.

## Report Structure

This Report is separated into four parts, relating to the following –

### Part 1

- **Project Background** provides the relevant background to the Improvement Scheme area, including the relevant site selection.
- **Context Analysis** provides the relevant planning and site context to the Improvement Scheme area, including relevant matters such as economic, environmental, social and sustainability considerations, and opportunities and constraints.
- **Engagement** overview of the community and stakeholder engagement which has been undertaken.

### Part 2

- **Improvement Scheme** incorporates the Scheme aims, describes the reserves, precincts and zones, explains the rationale behind the land use, and subdivision and development requirements. Part 1 also explains the preparation of the Improvement Scheme, management requirements, administration and review.
- **Concept Plan** outlines the economic, environmental, social and sustainability considerations that were a part of the evaluation of the concept design review.

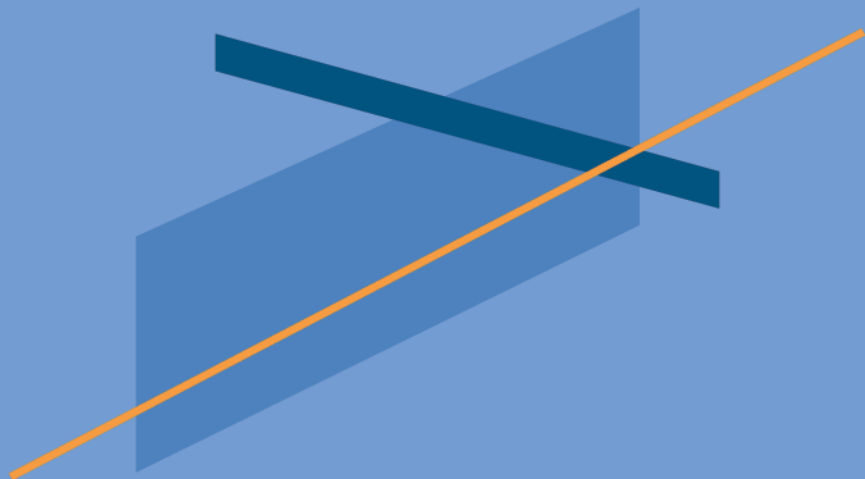
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Part I

ONE





# 1.0 Project Background

## 1.1 Site and Locational Context

The subject area comprises 330 hectares of land, located in Mandogalup within the City of Kwinana (“**City**”). The area is bound by the Kwinana Freeway (east), Rowley Road (north), Anketell and The Spectacles wetlands (south) and the Kwinana Industrial Area (“**KIA**”) (west).

The subject area is predominately zoned ‘Rural’ under the Metropolitan Region Scheme (“**MRS**”). The land is primarily used for agricultural, horticultural and residential purposes. An existing sand quarry is located in the north central portion of the subject area, with a proposed expansion subject to assessment under the *Environmental Protection Act 1986* (“**EP Act**”).

Portions of the land are impacted by the future Hammond Road regional road corridor and existing Planning Control Areas (“**PCAs**”) associated with Rowley Road (north) and Anketell Road (south).

Land east and north-east of the subject area is zoned ‘Urban’ and ‘Urban Deferred’ under the MRS, with residential estates being progressed. Structure planning for this land has identified that the area will facilitate approximately 1,500 dwellings, a primary school, local open space and small-scale retail opportunities.

The subject area is also bordered by Bush Forever areas, including Bush Forever Site No. 267 (west) and 268 (centre). A portion of Bush Forever Site No. 393 is located within the north-west portion of the subject area, generally in accordance with the location of the Resource Enhancement Wetland (“**REW**”) (i.e., Lake Wattleup).

## 1.2 Alcoa State Agreement

The Alcoa Australia Ltd (“**Alcoa**”) Kwinana Alumina Refinery (“**Refinery**”) is located approximately five kilometres west of the subject area, within the KIA. The Refinery produces alumina from bauxite and Residue Disposal Area’s (“**RDA’s**”) are used to store the material remaining after alumina has been extracted.

A State Agreement (“**Alumina Refinery Agreements (Alcoa) Amendment Act 1987**”), administered by the Department of Jobs, Tourism and Innovation (“**JTSI**”), exists between Alcoa and the State government. The State Agreement details the rights, obligations, terms and conditions of the operation of the Refinery. It also highlights the requirements for residue disposal, as provided for under cl. 6, First Schedule of the *Alumina*

*Refinery Agreement Act 1961* (“**ARA Act**”), which includes the following sub-clauses –

- (8) *The Company will ensure that the residue discharged through the pipe or pipes containing the sands will not contain any material which may be or become or cause a nuisance or be or become dangerous or injurious to public health.*
- (4)(d) *The Company shall use reasonable endeavours to ensure that each portion so filled will support buildings for light industry.*

Whilst Alcoa announced curtailment of the Kwinana Refinery in January 2024, the State Agreement allows Alcoa to continue its operations until 2045, with a subsequent period of renewal for 21 years, subject to the approval of the State government, which could possibly see operations continue until 2066. The State Agreement provides that the State cannot, in any way, impair, disturb or prejudicially affect the operating rights of Alcoa.

Alcoa is responsible for preparing and publishing ‘Long Term Residue Management Strategies’ (“**LTRMS**”) for its RDAs, which set out where RDAs are located, proposed height requirements, environmental management and planned lifespans. The most recent LTRMS outlines Alcoa’s intent to continue to use all parts of its site, including RDAs that were previously identified for closure, and its adherence to the Global Industry Standard on Tailings Management.

## 1.3 Land Use and Planning Buffer History

The subject area has a long and complex planning history, arising from uncertainty regarding air quality and potential health and amenity impacts from dust generated from the neighbouring RDA of the Alcoa Refinery and other intense industrial land use activities carried out within the KIA.

Following extensive investigations, studies and consultation with State agencies for environment and health, in April 2019, Improvement Plan No. 47: Mandogalup (“**IP47**”) was gazetted.

IP47 describes the purpose and defines the boundary of the Improvement Scheme area. The purpose of IP47 is to enable the Western Australian Planning Commission (“**WAPC**”) to advance the planning of and development

within the plan area and includes authorising the preparation of an improvement scheme by the WAPC.

Considering the complex and extensive history, as outlined in **Table 1**, the Mandogalup Improvement Scheme No. 1 ("**Scheme**") seeks to deliver a planning mechanism which provides planning certainty for the locality through an appropriate and balanced land use response.

The land use scenario options were informed by technical investigations, targeted stakeholder workshops and public open days. The preferred land use scenario, as identified by the WAPC at the meeting of 23 November 2022, has formed the basis of the Scheme, to align the vision for Mandogalup with the statutory planning framework.

The Scheme has been prepared as the means of designating land into several precincts and zones, and to apply appropriate subdivision and development controls to this unique project area.

## 1.4 Improvement Plan and Scheme Preparation

Taylor Burrell Barnett ("**TBB**") have been engaged by the Department of Planning, Lands and Heritage ("**DPLH**"), as the lead consultant, to prepare the Scheme with the support of a multi-disciplinary consultant team.

The preparation of the Scheme has been completed in the following stages –

- **Stage 1 – Project Inception** included the formulation of a project plan and stakeholder engagement strategy;
- **Stage 2 – Background Studies and Technical Investigations** involved the completion of background studies and technical investigations (i.e., environment, transport, and economic) and preparation of a vision and various land use scenarios for consideration (inc., rural, residential, commercial/industrial and mixed); and
- **Stage 3 – Land Use Plan and Improvement Scheme**, which is the current Stage, involving the consolidation of existing studies and selection of the preferred land use scenario to develop a Land Use Plan and Improvement Scheme.

## 1.5 Land Description

Landownership within the Scheme area is significantly fragmented. The legal description and details of the lots wholly or partly within the subject area are outlined in **Table 2**.

Table 1 Planning History of Mandogalup	
1970s	The Environmental Protection Authority (“EPA”) initiated the preparation of an Environmental Protection Policy (“EPP”) and associated regulations to ensure that the air quality of the region was protected.
1992	The EPA prepared the <i>Environmental Protection (Kwinana (Atmospheric Wastes) Policy 1992</i> to maintain acceptable air quality in Kwinana due to existing and potential impacts originating from the KIA.
2000	The WAPC released the <i>Fremantle Rockingham Industrial Area Regional Strategy (“FRIARS”)</i> to protect industrial land within the KIA. In early 2000, the WAPC established the Kwinana Air Quality Buffer (“KAQB”) Review Committee to commence a review of the existing buffer.
2004	Alcoa commissioned dust monitoring and modelling studies to inform the development of the buffer in relation to their facilities. Upon advice from the Department of Environment and Conservation (fmr), further modelling and monitoring was required to determine a more accurate buffer distance.
2005	The City of Kwinana (“City”) advertised the draft Eastern Residential Intensification Concept (“ERIC”), a District Structure Plan which identified land uses for the eastern urban growth portions of the local government area. The draft ERIC was not finalised or adopted.
2007	In March, the WAPC adopted MRS Amendment 1114/33 – Cell 1 Mandogalup (as modified) to rezone land from ‘Rural’ to ‘Urban Deferred’. However, the amendment did not progress and was not finalised by the State Government. In August, the WAPC released the draft Jandakot Structure Plan (“JSP”), a strategic structure plan which provided a broad planning framework.
2008	The WAPC released the <i>Kwinana Air Quality Buffer Position Paper</i> , following recommendations from the KAQB Review Committee.
2009	A landowner in the MRS Amendment 1114/33 area sought support from the Minister for Planning and Department of Planning, Lands and Heritage (“DPLH”) for a modified version of the amendment. The modification was not finalised. In December, Alcoa completed dust monitoring and modelling studies (which commenced 2004) and presented its findings to the KAQB Review Committee.
2010	The WAPC endorsed a recommendation from the KAQB Review Committee, updating the portion of the buffer affecting the Mandogalup locality.
2011	In September, Petition 136 – Kwinana Air Quality Buffer Zone Extension: Mandogalup (“Petition”) was tabled in Parliament. The Petition was referred to the Standing Committee on Environment and Public Affairs for consideration.
2012	In November, the Standing Committee released a report in response to matters raised within the Petition. Recommendations emphasised the need for transparent engagement and consultative process with community, ahead of decisions on buffers impacting landholdings and livelihoods.
2015	The Liberal State government (fmr) sought to formalise the buffer through the introduction of the <i>Planning and Development Legislation Amendment (Western Trade Coast Protection Area) Bill 2015 (“Bill”)</i> . The Bill was released for public comment between October to December, and lapsed with a change of government in March 2017.
2016	The Minister for Environment requested the EPA provide advice on the size of a land use planning buffer related to health and amenity impacts of dust, now and into the future, in relation to potential urban development in the Mandogalup area.
2017	The EPA published advice to the Minister for Environment under s. 16(e) of the <i>Environmental Protection Act 1986 (“EP Act”)</i> , titled; <i>Consideration of potential health and amenity impacts of dust in determining the size of a buffer for urban development in the Mandogalup area (“Advice”)</i> . The Advice identified four sub-areas based on air quality and amenity impacts. The IP47 area is within Areas B, C and D.

**Table 1 Planning History of Mandogalup**

2018	<p>The <i>Perth and Peel @ 3.5 Million</i> (“<b>Frameworks</b>”) suite of strategic documents were finalised. The Frameworks supersede previous strategic planning for Mandogalup, including the JSP and ERIC. The Improvement Scheme area is identified as ‘Industrial Investigation’ under the Frameworks, requiring further detailed planning and investigations to be undertaken prior to consideration for rezoning.</p> <p>In November, the WAPC approved the transfer of part of the eastern portion of Mandogalup, within Area A, from the ‘Urban Deferred’ to the ‘Urban’ zone under the MRS. This determination followed advice from the EPA which identified that the area had a low likelihood of amenity impact or health risk. The lifting of urban deferment was gazetted in April 2019.</p>
2019	<p>In January, the Department of Water and Environmental Regulation (“<b>DWER</b>”) published a report on a study, <i>Mapping dust plumes at Mandogalup using LiDAR</i>, which found that:</p> <ul style="list-style-type: none"> <li>• Major contributors to overall dust levels in the area include the Alcoa RDA, sand and other quarries, roads, truck movements, agricultural activities and industrial activity in the KIA;</li> <li>• The levels of PM<sub>10</sub> dust at the Central and Norkett sites over the study period seem to be somewhat comparable to other locations in Perth and semi-rural areas in the wider Perth metropolitan area; and</li> <li>• Amenity impacts were unable to be assessed, except to note that TSP (larger particles) levels seem to decrease with distance from the RDA.</li> </ul> <p>After this study, DWER advised that requests for additional modelling would not be helpful.</p>
2020	<p>The Western Australian government announced that a future container port will be built in Kwinana to meet the long-term freight needs of the State. The State announced that the port will be built within the KIA and will include upgrading Anketell Road to a freight route that will connect the port directly to Tonkin Highway and logistics precincts across the outer Perth metropolitan area. It will also be supported by an enhanced rail network and new intermodal terminals.</p> <p>It is anticipated that freight will be transitioned from Fremantle Port to Kwinana Port, in either one-phase by 2032, or over a staged period that will see both ports share the freight task for a further 15-years.</p>
2022	<p>In November, four land use scenarios (as prepared by the consultant team) were presented to the WAPC for endorsement, including a fifth alternative land use scenario (“<b>Scenario 5</b>”) prepared by DPLH.</p> <p>Scenario 5 sought to balance the complex constraints of the locality, the advice of State agencies and local government, the requirements of State planning policy and the desire of the community and industry for certainty regarding land uses in the IP47 area.</p> <p>Upon consideration, the WAPC determined to endorse Scenario 5 as the preferred scenario that will form the basis of the Improvement Scheme.</p>
2024	<p>The draft Scheme underwent public consultation from January 2024 to April 2024.</p> <p>Upon consideration of submissions, the WAPC will provide a recommendation to the Minister for Planning for determination of the Scheme.</p>

Table 2 Particulars of Landownership			
Lot	Diagram	Certificate	Registered Proprietor(s)
3	40865	1644/981	Private Landowner
500	65347	1677/688	Private Landowner
501	65347	1677/687	Private Landowner
10	69890	2769/892	Private Landowner
2	11392	1438/486	Private Landowner
4	11392	1945/552	Private Landowner
1	31942	1308/832	Private Landowner
2	31942	1305/11	Private Landowner
615	3475	251/145A	Private Landowner
3	37946	251/143A	Private Landowner
53	9780	495/186A	Private Landowner
3	50536	2769/891	Private Landowner
53	202764	LR3013/111	State of Western Australia
3	54292	1501/799	Private Landowner
22	96433	2149/68	Private Landowner
23	96433	2149/69	Private Landowner
4	72542	1798/6799	Private Landowner
1306	202790	1316/593	Private Landowner
1307	202790	1316/593	Private Landowner
663	202790	2929/543	Private Landowner
664	202790	2929/544	Private Landowner
791	202790	2929/553	Private Landowner
47	202618	LR3013/102	State of Western Australia
48	202790	LR3013/103	State of Western Australia
49	202790	LR3013/107	State of Western Australia
50	202790	LR3013/108	State of Western Australia
1457	215576	LR3108/958	State of Western Australia
665	202618	1179/490	Private Landowner
666	202618	2117/867	Private Landowner
667	202618	2054/787	Private Landowner
668	202618	2929/551	Private Landowner
669	202618	2929/552	Private Landowner
1	36910	1743/604	Private Landowner
2	39567	1743/601	Private Landowner
49	202769	1372/148	Private Landowner
50	202769	1372/161	Private Landowner
51	202769	1372/162	Private Landowner

Table 2 Particulars of Landownership			
Lot	Diagram	Certificate	Registered Proprietor(s)
52	202769	1372/163	Private Landowner
53	202769	1372/164	Private Landowner
54	202769	1372/165	Private Landowner
55	202769	1189/88	Private Landowner
56	202769	LR3138/862	State of Western Australia
57	202769	1945/785	Private Landowner
58	202769	1945/786	Private Landowner
59	202769	1945/787	Private Landowner
60	202769	1945/788	Private Landowner
61	202769	1945/508	Private Landowner
62	202769	1744/509	Private Landowner
63	202769	34/105A	Private Landowner
64	202769	1161/404	Private Landowner
65	202769	1161/404	Private Landowner
66	202769	1161/404	Private Landowner
67	202769	1021/350	Private Landowner
68	202769	1021/349	Private Landowner
69	202769	1091/814	Private Landowner
70	202769	1654/393	Private Landowner
71	202769	3/3A	Private Landowner
72	202769	1456/964	Private Landowner
73	202769	1251/998	Private Landowner
74	202769	1805/733	Private Landowner
75	152356	1909/808	Private Landowner
76	211720	LR3099/825	State of Western Australia
44	202769	LR3013/143	State of Western Australia
87	202769	LR3002/138	State of Western Australia

## 1.6 Improvement Plan No. 47: Mandogalup

Pursuant to Part 8 of the *Planning and Development Act 2005* (“**PD Act**”), the WAPC determined that the identified land be dealt with and be the subject of IP47.

IP47 was gazetted and effective on and from 12 April 2019, thereby allowing the WAPC to assess future land use proposals for the land.

Pursuant to Section 3 of the IP47 Text, the purpose of IP47 is to –

- enable the WAPC to undertake all necessary steps to advance the planning and development within the plan area as provided for under Part 8 of the PD Act;
- establish the strategic planning and development intent within the subject area;
- provide for a strategic planning framework endorsed by the WAPC, Minister for Planning and the Governor;
- authorise the preparation of an improvement scheme;
- provide the objectives of the improvement scheme; and
- provide guidance on the preparation of statutory plans, statutory referral documentation and policy instruments.

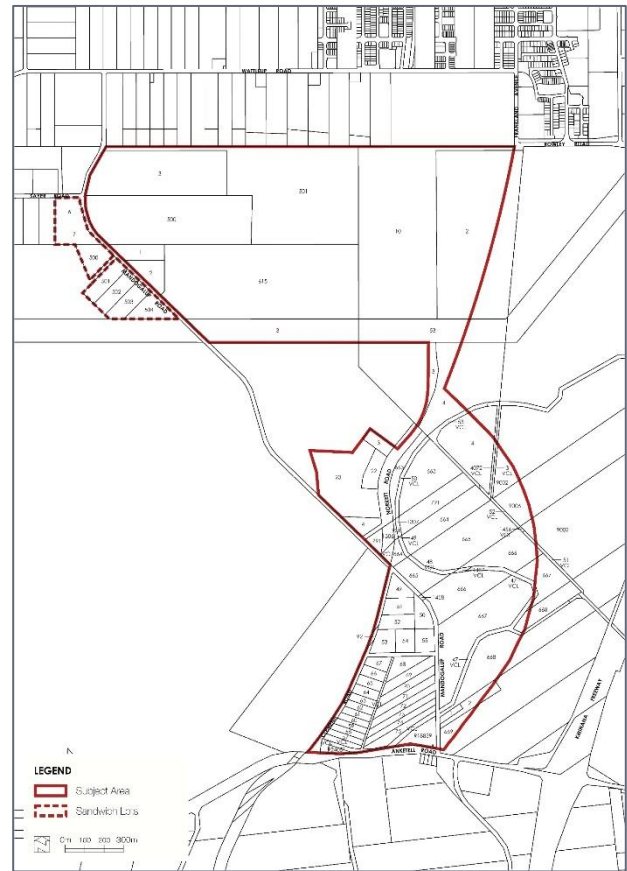
IP47 confers authority to the WAPC to undertake the necessary tasks to plan for and facilitate the implementation of the project.

The preparation of the Scheme has been informed by the objectives of IP47, which include –

- to provide for a strategic land use analysis that takes into consideration physical, economic and environmental factors;
- to provide a strategic planning framework to determine future land use considering all land use options (rural, urban and/or industrial);
- to provide a statutory planning instrument through which to implement the strategic planning framework;
- to provide a statutory land use planning instrument to effectively guide the preparation of statutory plans, statutory referral documentation and policy (as may be required) to facilitate orderly and proper planning of the area; and
- to facilitate the provision of an effective, efficient, integrated and safe transport network.

### 1.6.1 Improvement Plan Area

The IP47 area is shown at **Figure 1**, covering approximately 330 hectares of land.



## 1.7 Mandogalup Improvement Scheme No. 1

The Scheme provides land use and development controls over the subject area, and provides heads of power to prepare policies (including design guidelines), structure plans and local development plans.

Whilst the Scheme is in effect, the MRS and the City's Town Planning Scheme No. 2 (“**TPS2**”) will be suspended and cease to apply to land within the subject area.

The WAPC will become the decision maker for land use planning matters within the Scheme area and may choose to delegate certain decisions to the City, or another responsible authority.

### 1.7.1 Improvement Scheme Area

The boundary of the Scheme is the same as IP47, located entirely within the local government area of the City of Kwinana (**Figure 2**).

The Scheme area is located generally –

- East of the Kwinana and Rockingham Industrial Areas, which comprises a range of industrial land

uses, including; advanced manufacturing, chemical manufacture, minerals and battery associated metals refining, energy production, cement and lime manufacturing.

- East of the Australian Marine Complex, which comprises land use activities which focus on defence, ship building and maintenance, subsea and advanced oil and gas engineering, including fabrication and electronics.
- West of the Perth-Mandurah railway corridor, with Aubin Grove Train Station located approximately four kilometres north-east of the Improvement Scheme area and Kwinana Train Station located approximately five kilometres south.
- Proximate to a network of public open space, including the Beeliar Regional Park, which borders the Improvement Scheme area to the north, south and west.
- Immediately adjacent to the Hope-Valley Wattleup Redevelopment Area ("**Latitude 32**"), which abuts the north-western edge of the Scheme area, extending west to Rockingham Road and expanding from Anketell Road (south) to Fanstone Avenue (north). Land within Latitude 32 is planned to provide mixed industrial land uses.
- Adjacent the Alcoa Refinery, which is located approximately five kilometres west of the Scheme area and produces alumina from bauxite. An existing Alcoa RDA, used to store the material remaining after alumina has been extracted from bauxite ore, is located immediately west of the Scheme area. The residue is composed primarily of iron and silica materials.

## 1.8 Mandogalup Improvement Scheme Report

The Improvement Scheme Report sets out the underlying assessments and data which informed the preparation of the Improvement Scheme, and details the provisions of the relevant planning framework for the Scheme area. It sets out the rationale and justification pertaining to the provisions which have been prepared so the intent and objectives of the IP47 and the Scheme can be realised.

The Improvement Scheme Report (including appendices) and Concept Plan (**Figure 3**) are to be read in conjunction with the scheme text and the scheme map.



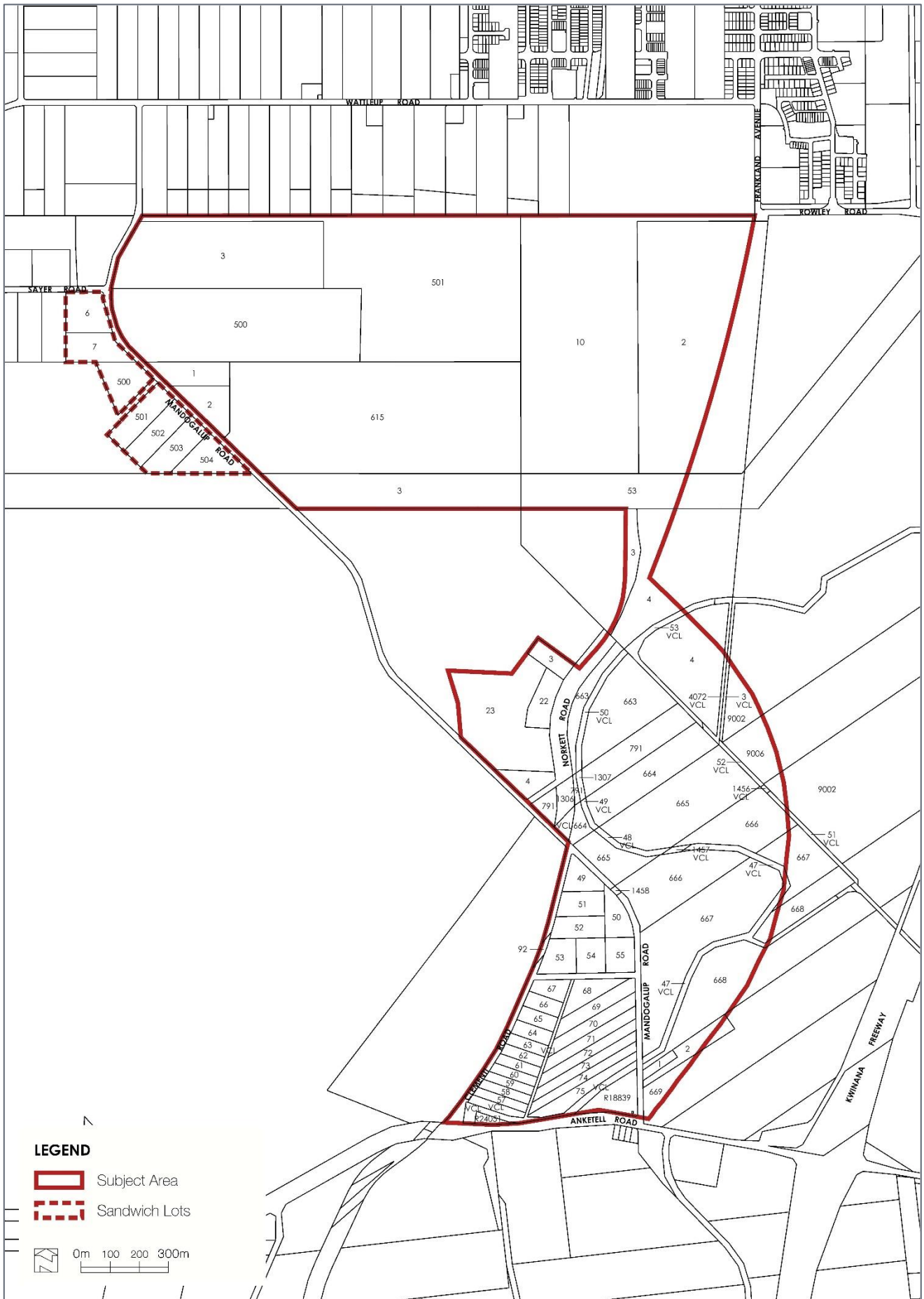


Figure 1 Improvement Plan No. 47: Mandogalup

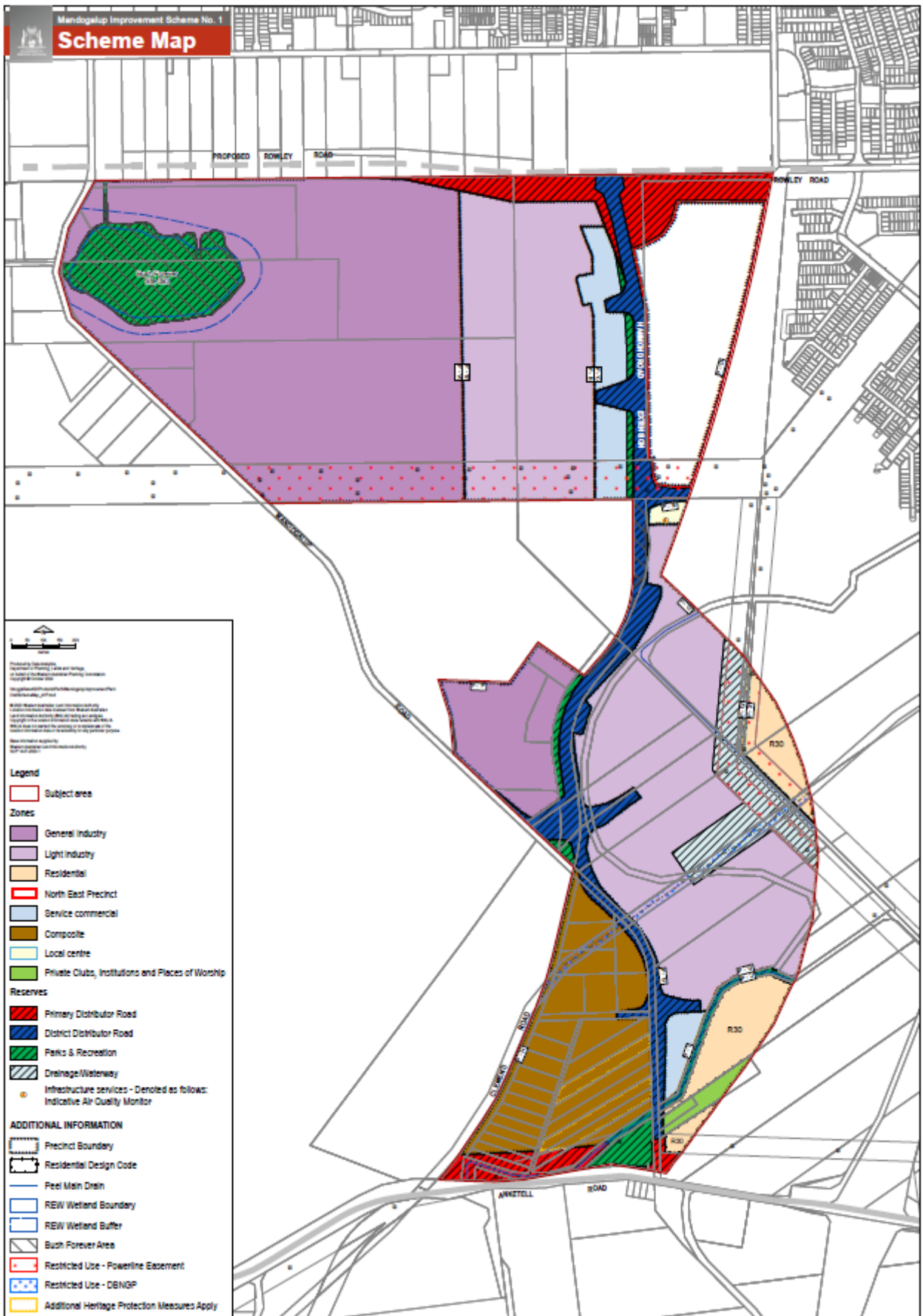


Figure 2 Improvement Scheme Map

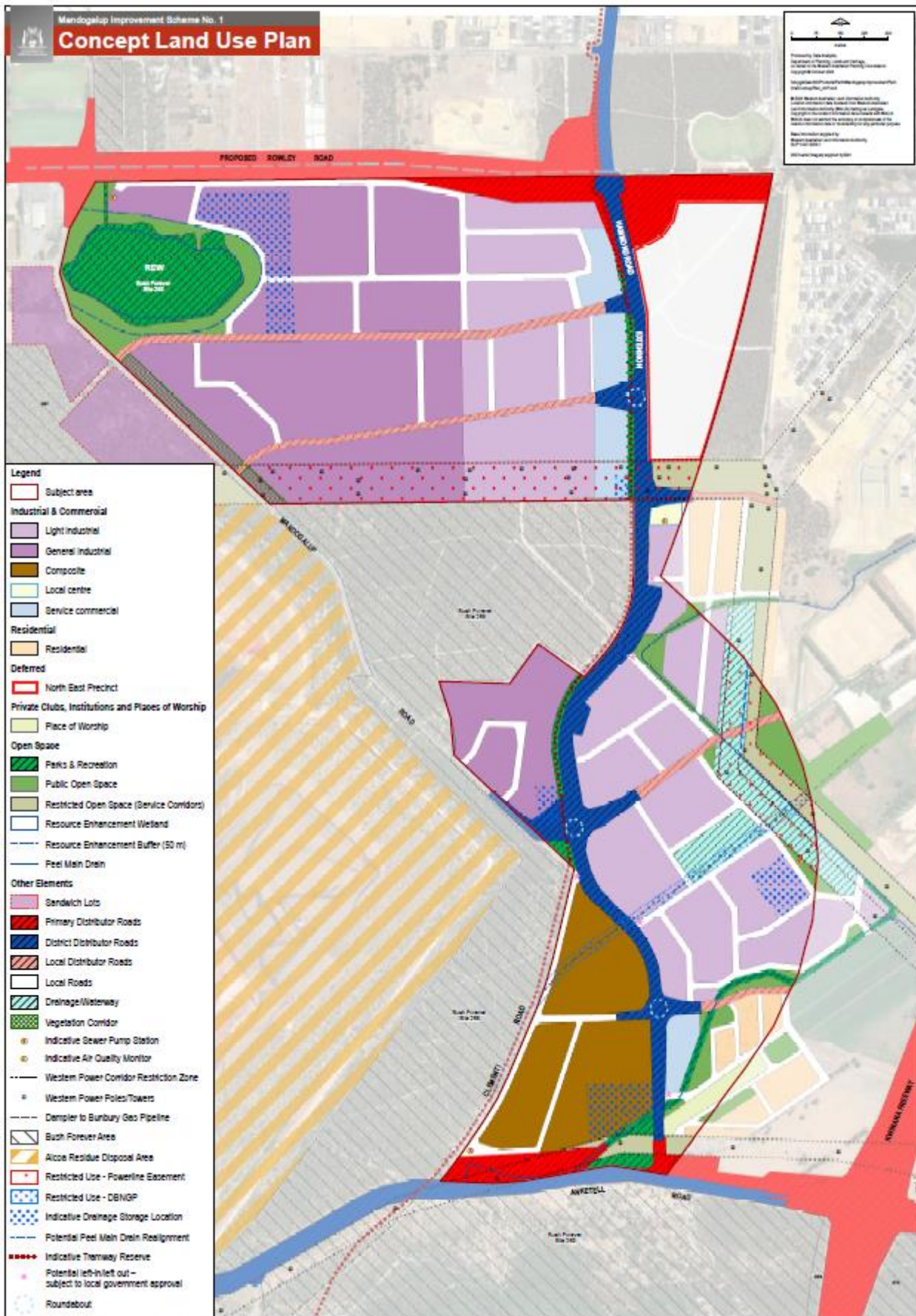


Figure 3 Concept Plan

# 2.0 Planning Context

This Part provides an overview of the strategic and statutory planning context that formed the basis for preparing the Mandogalup Improvement Scheme No. 1 (“Scheme”).

## 2.1 Strategic Context

### 2.1.1 Perth and Peel @ 3.5 million Planning Framework

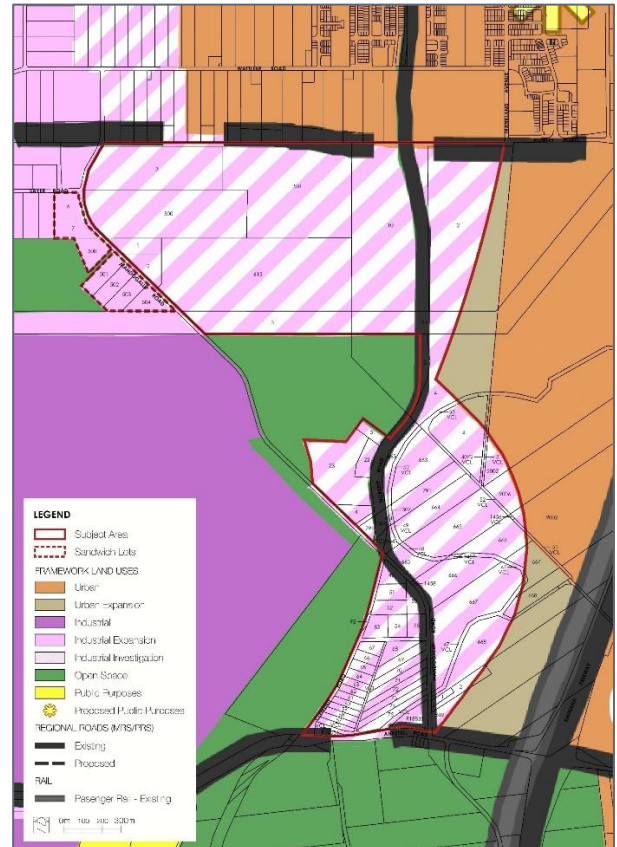
The Perth and Peel @ 3.5million Planning Framework (“**Planning Framework**”) is a high-level suite of strategic documents published by the Western Australian Planning Commission (“**WAPC**”), for the Perth and Peel regions to determine where new homes and jobs will be located, make best use of existing and proposed infrastructure, and protect important environmental assets.

#### 2.1.1.1 South Metropolitan Sub-Regional Planning Framework

As part of the Planning Framework, sub-regional planning frameworks were released in March 2018 to guide future development. The sub-regional planning frameworks are intended to guide the WAPC in zoning new ‘Urban’ and ‘Industrial’ land.

The Jandakot District Structure Plan (“**JDSP**”) and the Eastern Residential Intensification Concept (“**ERIC**”) were considered when the sub-regional frameworks were prepared, and are superseded by the sub-regional frameworks, particularly where there are inconsistencies with new ‘Urban’ or ‘Industrial’ zones.

The Scheme area is within the South Metropolitan Sub-Regional Planning Framework (“**South SRPF**”), which is anticipated to contribute to 36% of Perth and Peel’s population by 2050, bringing the population of the South Metropolitan sub-region to approximately 1,264,450 people. Under Plan 3 of the South SRPF, the Improvement Scheme area is identified as ‘Industrial Investigation’ (refer to **Figure 4**).



These areas have been identified as requiring further detailed planning prior to consideration for rezoning under the Metropolitan Region Scheme (“**MRS**”). The technical studies and reports prepared to support the preparation of the Scheme support the proposed land use outcomes shown on the Scheme Map and Concept Plan.

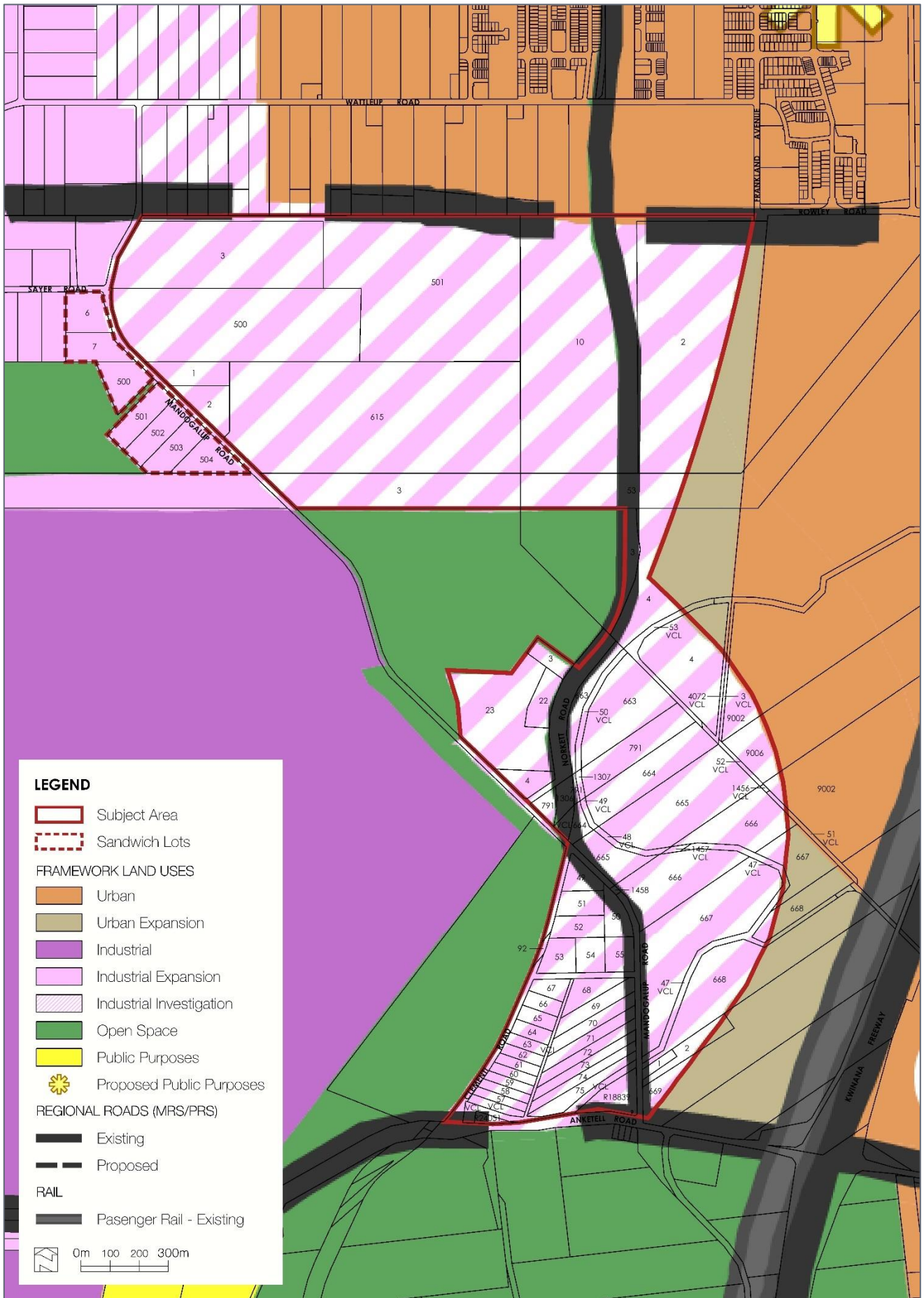


Figure 4 South SRPF

### 2.1.2 Perth and Peel @ 3.5 million Transport Network

Concurrent to the release of the Planning Framework, the Department of Transport, Main Roads Western Australia and Public Transport Authority released the Perth and Peel @ 3.5 million Transport Network (“**Transport Network**”) to guide the delivery of upgraded and new transport infrastructure which will support the urban and commercial growth anticipated under the Planning Framework.

The Transport Network comprises a range of strategies to alleviate road congestion such as the appropriate management, upgrade and offering of feasible public transport options which can –

- encourage people to work near where they live;
- promote and encourage employment opportunities which meet the skill base of the local commuting population;
- improve integration of transport within activity centres;
- investigation transport options, including new routes and technology;
- provide movement network improvements including upgrades and extensions of road, rail and transit priority routes; and
- identify new regional road networks in new urban and industrial development areas and connections to existing and proposed freight infrastructure.

Rowley and Anketell Road are identified as proposed Primary Distributor Roads under Figure 12 of the Transport Network and Primary Freight Roads under Figure 13 of the Transport Network.

### 2.1.3 Strategic Community Plan

The Strategic Community Plan 2021 – 2031 (“**SCP**”) was prepared by the City of Kwinana (“**City**”) in accordance with the requirements of the *Local Government Act 1995* and the *Local Government (Administration) Regulations 1996*. The SCP is intended to establish the long-term vision of the Kwinana community for the next 10-years.

Under the Key Projects Map of the SCP, the Scheme area is located adjacent land identified as ‘Future Urban’ and is proximate land identified for ‘Proposed Activity Centres’ and ‘Proposed Community Facilities’. The Key Project Maps also identifies a ‘Proposed Train Station’ at the corner of Anketell Road and Kwinana Freeway.

The SCP seeks to deliver the following outcomes for the local government area –

- A naturally beautiful environment that is enhanced and protected.
- A resilient and thriving economy with exciting opportunities.

- Infrastructure and services that are affordable and contribute to health and wellbeing.
- A unique, vibrant and healthy City that is safe, connected and socially diverse.
- Visionary leadership dedicated to acting for its community.

### 2.1.4 Fremantle to Rockingham Industrial Area Regional Strategy

The Fremantle to Rockingham Industrial Area Regional Strategy (“**FRIARS**”) was prepared by the WAPC to enable the government to provide strategic land use planning directions for the Fremantle-Rockingham region.

The FRIARS includes a preferred Land Use Strategy, which identifies that the Alcoa Residual Disposal Area (“**RDA**”) will continue to operate the mudlakes (adjacent to the subject area) for some time into the future. The FRIARS also recommends reviewing the buffer requirements for the Alcoa RDA areas, to inform and identify future uses at Mandogalup.

### 2.1.5 Local Planning Strategy

The City has prepared a draft Local Planning Strategy (“**Draft Strategy**”) to guide the growth and development of the City over the next 10 – 15 years. During this time, the City anticipates there will be high growth in Kwinana’s residential population and considerable change and expansion to Kwinana’s industrial areas.

The Draft Strategy was publicly advertised for comment between 22 May 2023 – 30 June 2023, and is yet to be finalised.

The Draft Strategy was prepared following several technical studies, including; Housing Study, Integrated Land Use and Transport Study, Employment and Economic Development Analysis, Local Biodiversity Study and Rural Lands Study.

### 2.1.6 Draft Local Commercial and Activity Centre Strategy (2022)

The draft Local Commercial and Activity Centre Strategy (“**Draft LCACS**”) was prepared to provide the City with –

- A review and update of the City’s current LCACS (2014);
- A summary of the quantum and distribution of supportable retail and non-retail floorspace over the next twenty years, referred to as the activity centre hierarchy (“**ACH**”); and
- An evidence-based guide to planning vibrant activity centres.

The draft LCACS has been updated based on modelling and analysis aimed at optimising and increasing the

supply of floorspace to meet the current and future needs of the local community.

Figure 3 of the draft LCACS identifies a local centre in Mandogalup, with an estimated shop retail floor space of 1,242m<sup>2</sup> and non-retail floor space of 901m<sup>2</sup> by 2027. This increases to a shop retail floor space of 2,732m<sup>2</sup> and non-retail floor space of 1,846m<sup>2</sup> by 2042.

Figure 7 of the draft LCACS, states –

*The proposed Mandogalup local centre is in close proximity to urban development. Analysis indicates increasing demand; a local centre of 1,500m<sup>2</sup> Shop/Retail floorspace could be supported in the long term. There is currently a high level of residential development underway around this location with many potential future local centres identified in the City of Cockburn. There is also uncertainty with regard to the final uses to be developed as part of the Investigation Area 47. The City should engage with the City of Cockburn to develop a coordinated approach to the delivery of local centres in the Mandogalup and Hammond Park areas.*

Figure 8 of the draft LCACS, states –

*There is the potential that some land in Mandogalup will be zoned for Service Commercial uses. While the location and potential size of uses are unknown; this should be monitored by the City and incorporated in this document at the time of its next update.*

The above findings have been considered as part of the preparation of the Scheme and should continue to be observed as development of the Scheme area progresses.

## 2.2 Statutory Context

### 2.2.1 Metropolitan Region Scheme

The Scheme area is predominately zoned 'Rural' under the *Metropolitan Region Scheme* ("MRS"). A small portion of the area (i.e., 5.1744 hectares), situated in the eastern corner is zoned 'Urban Deferred', as generally shown in **Figure 5**.

The land along the northern boundary of the Scheme area, including a portion of the scheme area, is within Planning Control Area No. 156 – Rowley Road between Kwinana Freeway and Rockingham Road ("PCA-156"), which was established to protect land proposed for a primary distributor road and primary freight route to accommodate Perth's future population growth in the southern corridors of the metropolitan area and its freight and transport needs.

Similarly, land along the southern boundary of the Scheme area, including a portion of the scheme area, is within Planning Control Area No. 157 – Anketell Road between Kwinana Freeway and Rockingham Road

("PCA-157"), which was established to protect land required for the proposed Anketell/Thomas Road primary regional road corridor.

Land immediately north of Rowley Road comprises land zoned 'Rural' and 'Urban'. Land west of the Scheme area is predominantly reserved 'Parks and Recreation' and is included within Bush Forever Site No. 268. Land within the north-west of the Scheme area abuts land within the *Hope-Valley Wattleup Redevelopment Scheme*.

Land east of the Scheme area is predominantly 'Urban', with a small pocket of 'Rural' zoned land which is currently proposed to be rezoned to 'Urban' (MRS Amendment 1405/57). Land immediately south of Anketell Road is reserved 'Parks and Recreation' and forms part of Bush Forever Site No. 269.

#### 2.2.1.1 Amendment History

The 'Urban' zoned land, east of the Scheme area, has been subject to several MRS Amendments, as outlined below and as summarised in **Table 3**.

MRS Amendment 1114/33 was initiated in June 2006 to rezone approximately 352 hectares of land in Mandogalup from 'Rural' to 'Urban Deferred'. The amendment was recommended for final approval by the WAPC, but was held in abeyance following objections from Alcoa regarding potential dust impacts. The *Review of the Kwinana Air Quality Buffer – Position Paper* (WAPC, 2008), identified an area 1-kilometre from the nearest residue disposal area ("RDA") as 'subject to further investigation', due to potential impacts from dust, noise and visual amenity arising from the operation of the residue storage area. Amendment 1114/33 was subsequently approved in November 2009, in a reduced form, transferring approximately 181 hectares, situated outside of the 1-kilometre buffer, to 'Urban Deferred'.

In the Minister's decision to reduce the amendment area, the Minister made the following direction under s. 17 of the *Planning and Development Act 2005* ("PD Act") –

*No decision to transfer land in the Mandogalup locality from the Rural or Urban Deferred zones to the Urban zone in the Metropolitan Region Scheme shall be made without the prior approval of State Cabinet and the Minister at the time responsible for the Metropolitan Region Scheme and amendments to it. Further, no such decision will be made until the Kwinana Air Quality Buffer (or whatever title said buffer may come to be known as) has been finalised clearly indicating what land is outside a buffer area and therefore could appropriately be transferred to the Urban zone, subject to whatever other planning circumstances may apply to the locality at the time.*

A revised Kwinana Industrial Buffer (including air quality) was subsequently prepared in 2010 and published in 2011. In May 2011, QUBE Property Group and Satterley

lodged an application to lift the Urban Deferred zone over the portion of land outside the Kwinana Industrial Buffer, which was approved and included in the Urban zoned on 18 March 2014.

Additional land east of the Improvement Scheme area was subject to an Urban Deferred lifting, which was gazetted 12 April 2019, which was informed by the EPA advice to the Minister for Environment titled: *Consideration of potential health and amenity impacts of dust in determining the size of a buffer for urban development in the Mandogalup area* (June 2017).

Table 3 Historical MRS Amendments		
Reference	Amendment Request	Gazettal Date
1114/33	Rural to Urban Deferred	November 2009
1260/27	Lifting of Urban Deferred	March 2014
1350/27	Lifting of Urban Deferred	April 2019

### 2.2.2 City of Kwinana – Local Planning Scheme No. 2

The Scheme area is predominately zoned 'Rural A' under the City's *Local Planning Scheme No. 2* ("LPS2"). A small portion of the Scheme area, between Anketell Road and Mandogalup Road, is reserved for 'Public Purpose', as generally shown in **Figure 6**

The north-western portion of the Scheme area is included within 'Landscape Protection Policy Area No. 4', and portions are included within the 'Drainage Catchment Management Area'.

A place of preservation is located within the southern portion of the subject area on the eastern side of Mandogalup Road (i.e., Mandogalup Cottage / School House). Whilst the buildings have been demolished, the site remains a subject/place of heritage significance.



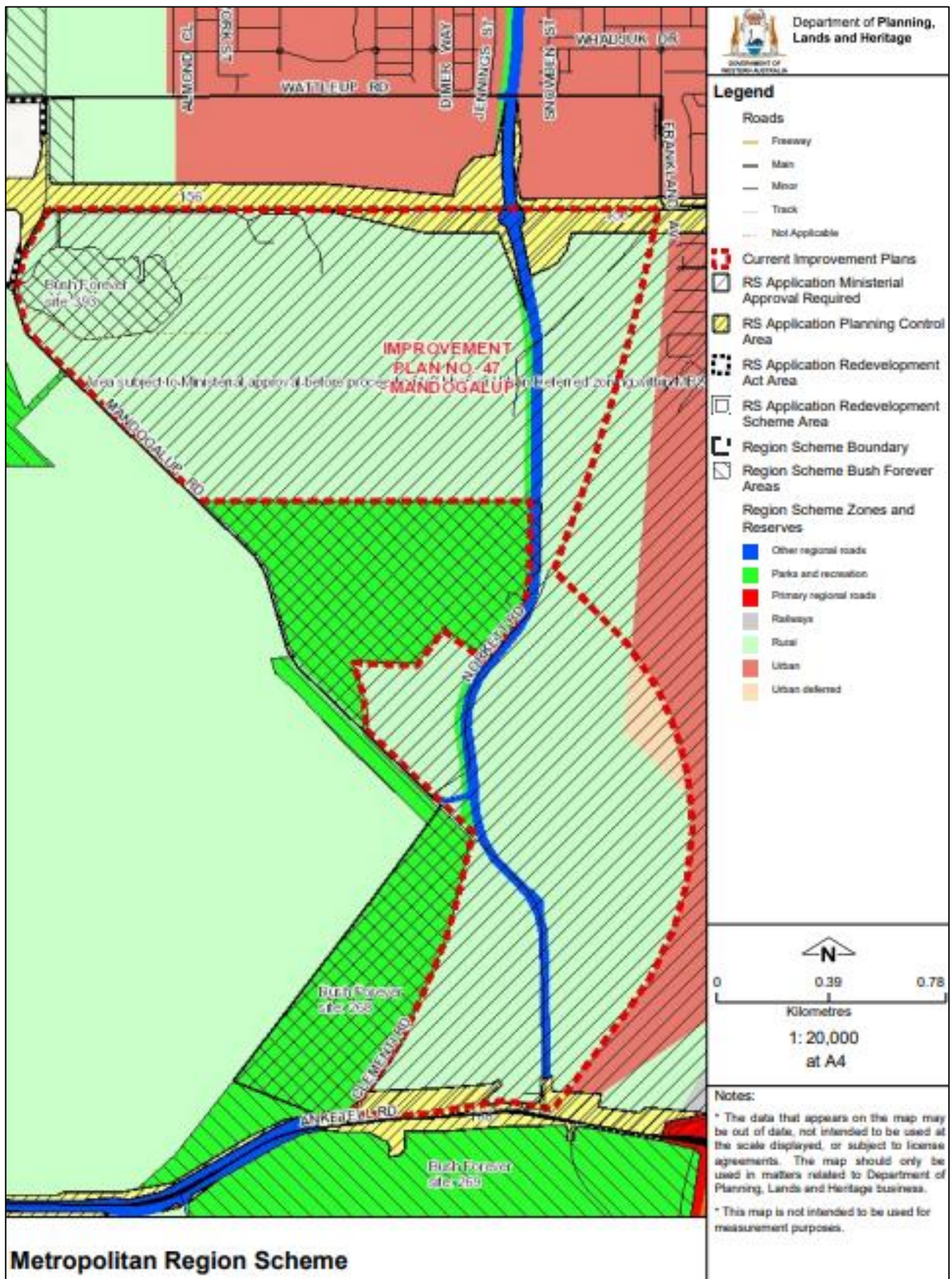


Figure 5 Metropolitan Region Scheme

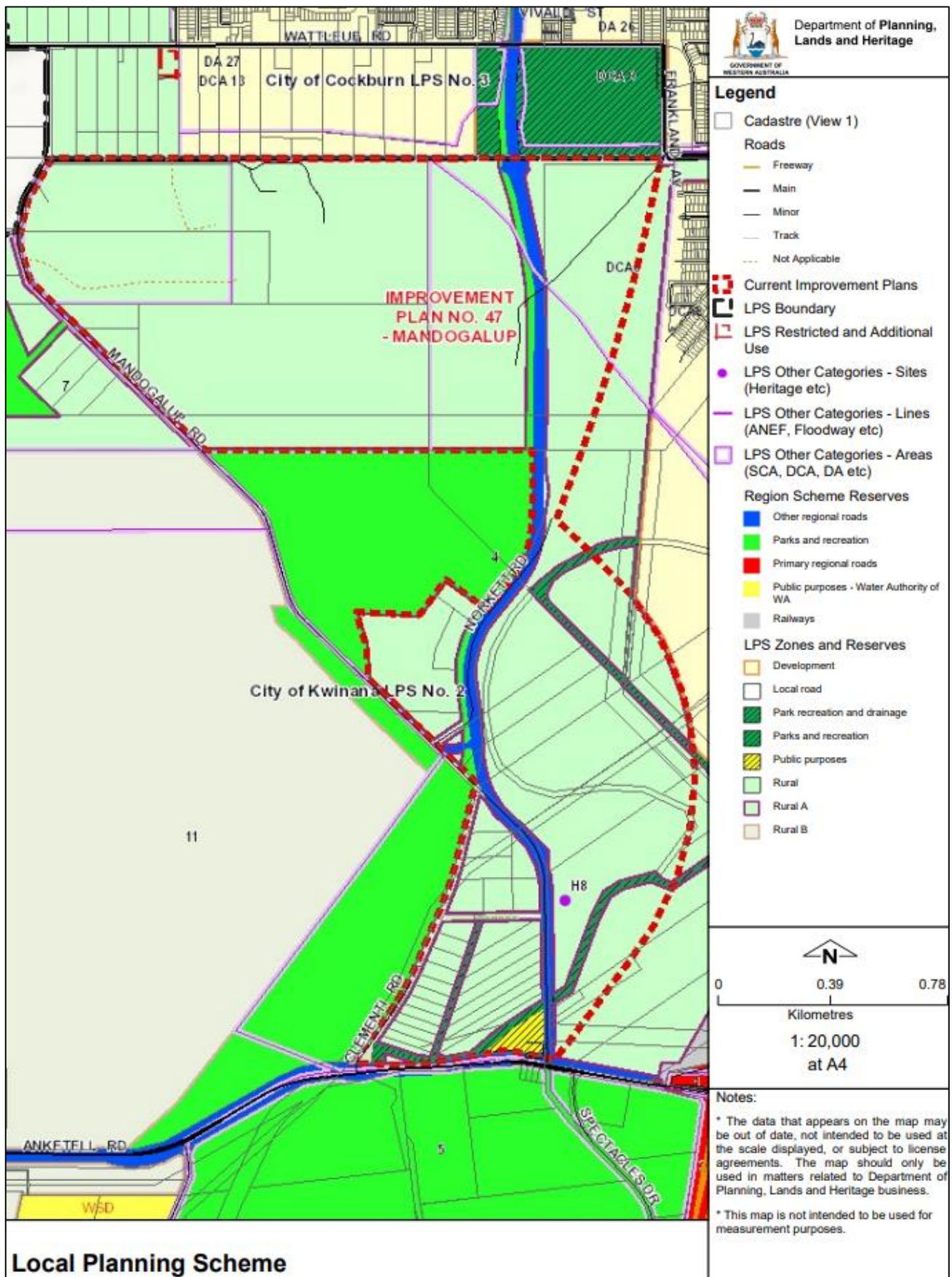


Figure 6 Local Planning Scheme No. 2

### 2.2.3 Jandakot District Structure Plan

The Jandakot District Structure Plan (“**JDSP**”) was endorsed by the WAPC in 2007 (refer **Figure 7**). It identifies the physical framework for the future development of land immediately surrounding the Jandakot Underground Water Pollution Control Area, generally comprising; Oakford, Mandogalup, Casuarina, Wellard, Anketell and The Spectacles.

Majority of the Scheme area is identified as ‘Long-Term Urban’, with a local centre identified in the north. Whilst the JDSP has been superseded by the South SRPF, consideration for the JDSP is still warranted.

### 2.2.4 Eastern Residential Intensification Concept

The Eastern Residential Intensification Concept (“**ERIC**”) was released by the Town of Kwinana (fmr) for comment in 2005 (refer **Figure 8**). It remains a draft, as it was not endorsed by the WAPC.

Notwithstanding, the City continues to rely upon ERIC to guide the preparation of and consideration of district and local structure planning, providing an additional layer of detail to the JDSP.

In relation to the Scheme area, the ERIC denotes a ‘Modelled Dust Buffer Edge’ which requires ‘2-Years of Dust Monitoring by Developers to Validate Model’. Within the eastern portion of the Scheme area, east of Norkett Road and Mandogalup Roads, land is identified as ‘Residential’, with an R20 density code. A strip of land west of the land identified ‘Residential’ is identified as ‘Mid-Long-term Future Residential’.

Multiple use corridors for infrastructure (i.e., power and gas) and ecological linkages are also identified on the strategic concept plan.

Potential freight routes along Anketell Road and Rowley Road have been identified.

### 2.2.5 Mandogalup East Local Structure Plan (Rowe Group, 2017)

The Mandogalup East Local Structure Plan (“**Mandogalup East LSP**”) was endorsed by the WAPC in March 2018. It covers land located east of the Scheme area, adjacent Kwinana Freeway (refer **Figure 9**).

The Mandogalup East LSP provides a plan for the coordination of future zoning and subdivision of the land to facilitate development for predominately residential purposes. Land within the Mandogalup East LSP comprises; ‘Residential (R20 – R60)’, ‘Primary School’ and a network of ‘Public Open Space’.

Overall, it is expected to deliver approximately 674 dwellings, with an estimated population of 1,887 people.

### 2.2.6 Mandogalup West Local Structure Plan (RobertsDay, 2018)

The Mandogalup West Local Structure Plan (“**Mandogalup West LSP**”) was endorsed by the WAPC in March 2018. It covers land located east of the Scheme area, and west of the Mandogalup East LSP (refer **Figure 10**).

Land within the Mandogalup West LSP comprises; ‘Residential (R30 – R60)’, ‘Primary School’, ‘Local Centre’ and a network of ‘Public Open Space’.

Overall, it is expected to deliver approximately 900 dwellings, with an estimated population of 2,520 people.

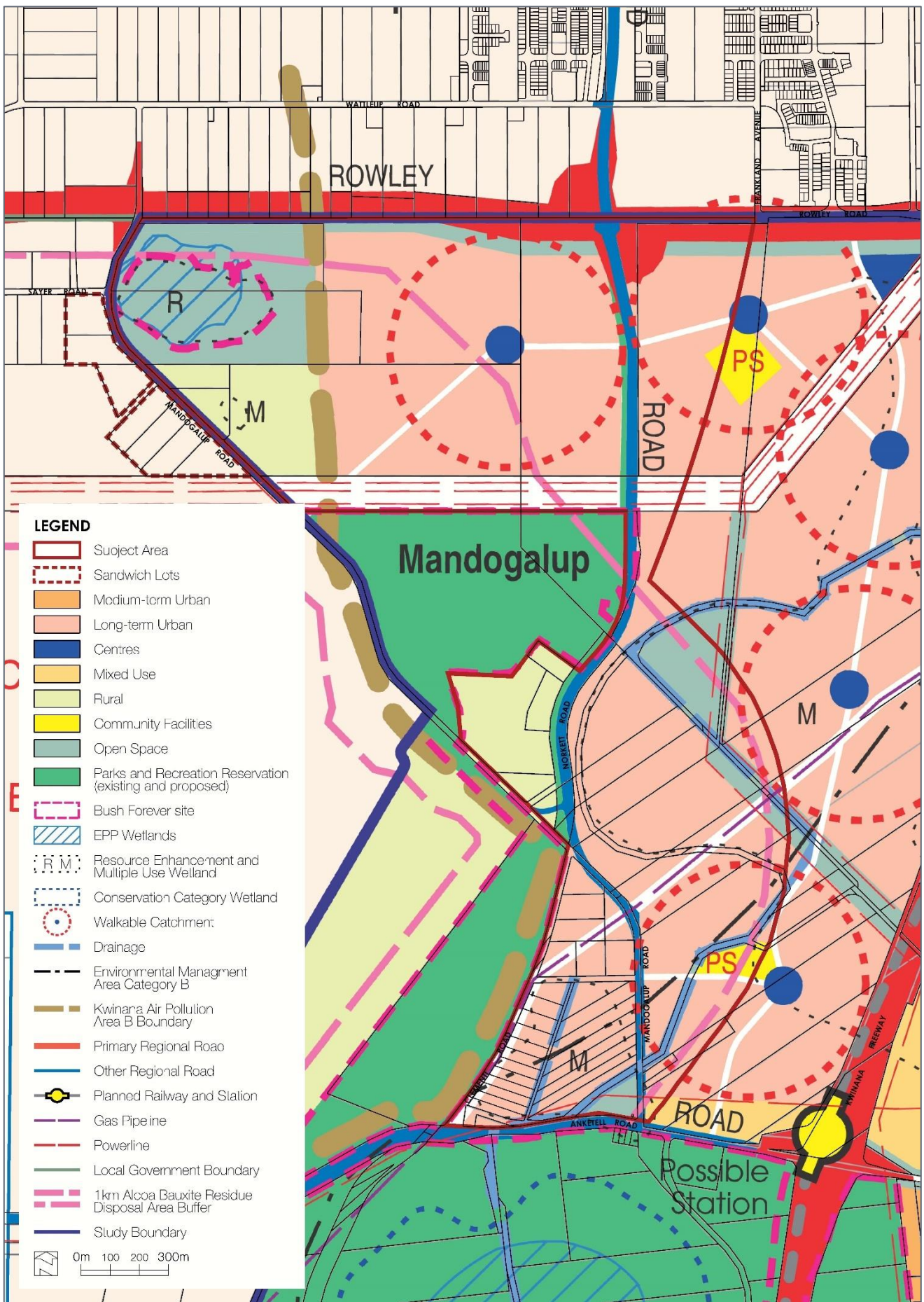


Figure 7 Jandakot District Structure Plan Map

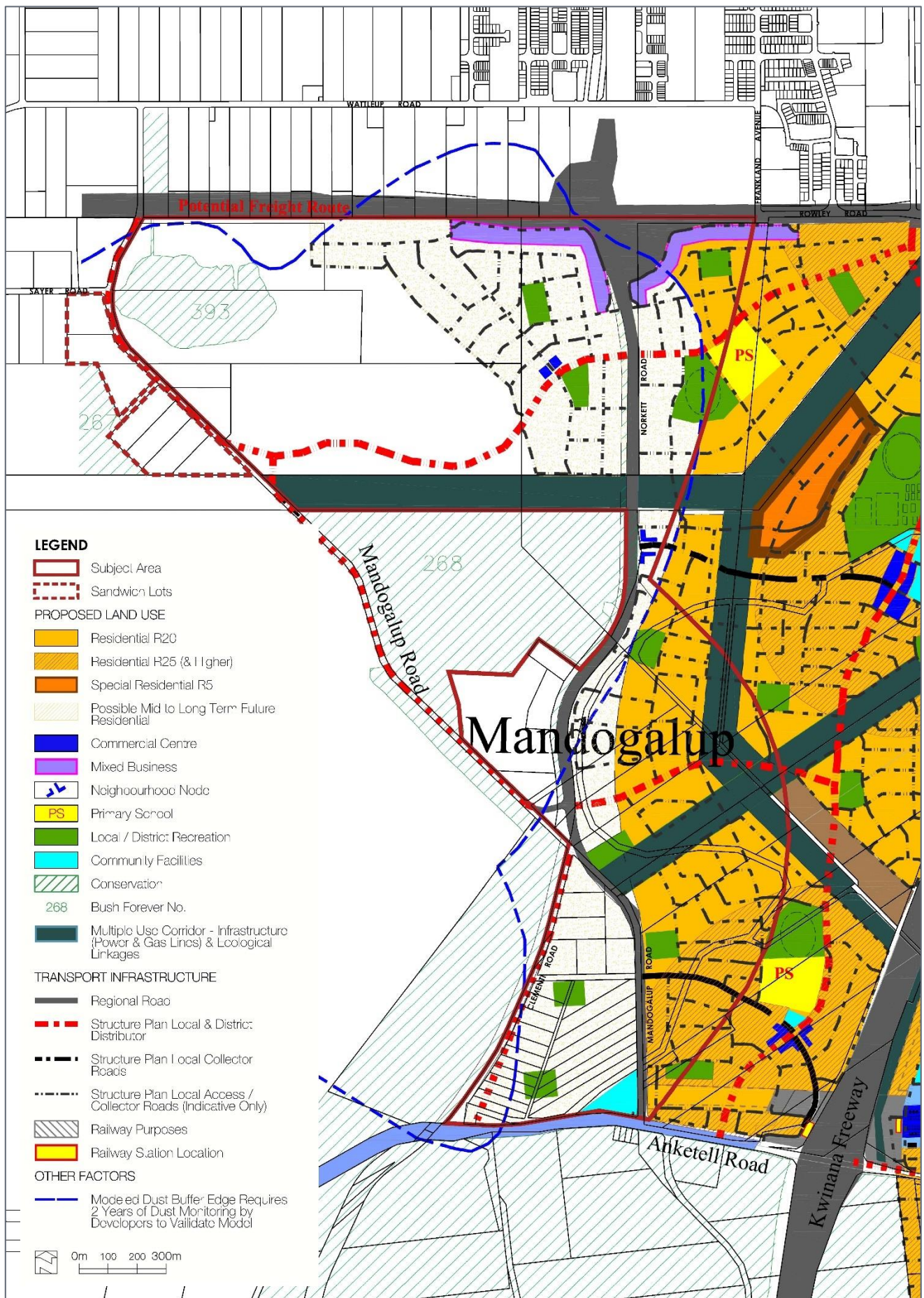


Figure 8 Eastern Residential Intensification Concept Plan

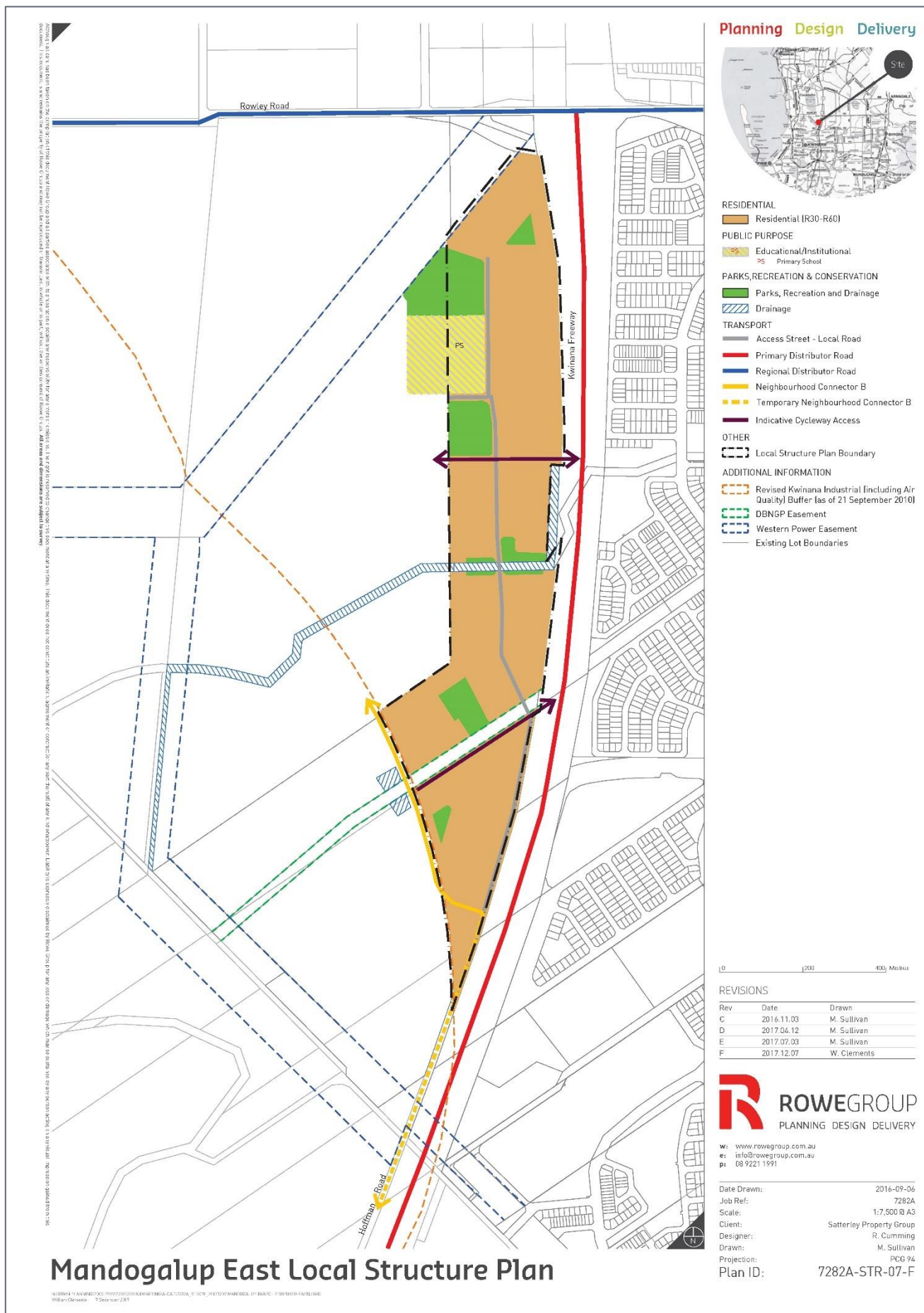


Figure 9 Mandagalup East Local Structure Plan

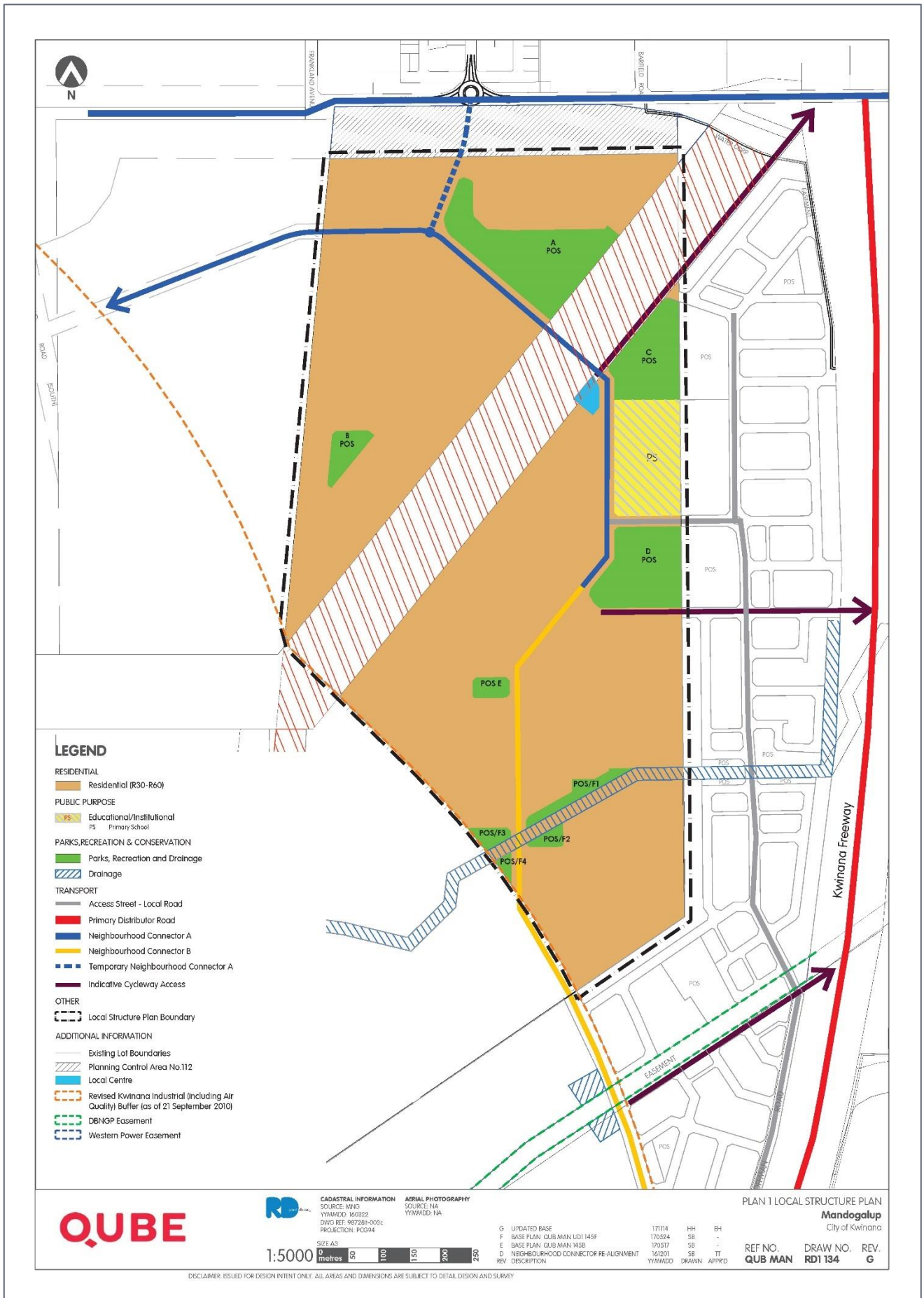


Figure 10 Mandagalup West Local Structure Plan

## 2.2.7 State Planning Policy

State planning policies (“SPPs”) provide the highest level of planning policy control and guidance in Western Australia. A range of SPPs apply within the Scheme area and have been considered as part of the preparation of the Scheme.

A summary of those policies which have been considered are detailed in the following Table –

Table 4 State Planning Policy Summary		
Title	Description	Relevant Considerations
SPP2.0 Environment and Natural Resources	The environment and natural resources policy defines the principles and considerations that represent good and responsible planning in terms of environment and natural resource issues within the framework of the State Planning Strategy.	Consideration has been given to SPP2.0 through the preparation of the Environmental Assessment Report included as <b>Appendix A</b> and discussed at <b>Section 3.1</b> .
SPP2.1 Peel-Harvey Coastal Plain Catchment	The Peel-Harvey coastal plain catchment policy ensures that land use changes within the Peel-Harvey estuarine system likely to cause environmental damage to the estuary are brought under planning control and prevented.	A District Water Management Strategy (“ <b>DWMS</b> ”) has been prepared for the Scheme area in accordance with the requirements of this policy (refer <b>Appendix B</b> ). A Local Water Management Strategy (“ <b>LWMS</b> ”) will be prepared prior to subdivision, in accordance with the requirements of SPP2.1.
SPP3.0 Urban Growth and Settlement	This policy sets out the principles and considerations which apply to planning for urban growth and settlements in Western Australia.	The objectives of the Policy have been considered as part of the preparation of the Scheme.

**Table 4 State Planning Policy Summary**

Title	Description	Relevant Considerations
SPP3.7 Planning in Bushfire Prone Areas	The policy directs how land use should address bushfire risk management in Western Australia. It applies to all land designated bushfire prone under the Bushfire Prone Map.	A Bushfire Management Plan (“ <b>BMP</b> ”) has been prepared for the Improvement Scheme area in accordance with the requirements of this policy (refer <b>Appendix C</b> ).
SPP4.1 Industrial Interface	The purpose of this policy is to guide land use planning for industrial and sensitive land uses.	The Scheme area is adjacent existing industrial zoned land which has been subject of various air quality buffer investigations and reviews (refer <b>Section 0</b> ). The objectives of the Policy have been considered as part of the preparation of the Scheme, particularly in respect to land zoned for industrial purposes.
SPP4.2 Activity Centres	The activity centres policy is a state planning policy for the planning and development of activity centres throughout Perth and Peel.	A review of the land supply of surrounding activities was undertaken by Pracsys to inform the Land Supply and Demand Analysis (refer to <b>Appendix D</b> and <b>Section 3.8</b> ).
SPP5.4 Road and Rail Noise	This policy applies to all stages of planning in Western Australia, where a noise-sensitive land use is proposed within the policy’s trigger distance of specified transport routes or	A Transport Noise Assessment was prepared for the Improvement Scheme area in accordance with the requirements of this policy (refer <b>Appendix</b>



Table 4 State Planning Policy Summary		
Title	Description	Relevant Considerations
	when new or major upgrades of road and rail are proposed.	<b>G and Section 3.7).</b>

### 2.2.8 Development Control and Operational Policy

Operational and Development Control policies (“DCs”) guide decision making in relation to subdivision and development applications. A range of DCs are relevant to land within the Scheme area and have been considered as part of this preparation of the Scheme.

A summary of those policies which have been considered are detailed in the following Table –

Table 5 Development Control Policy Summary		
Title	Description	Relevant Considerations
DC2.3 Public Open Space in Residential Areas	This policy establishes a requirement for a minimum of 10 per cent of the gross subdivisible area of a conditional subdivision to be given up free of cost by the subdivider for public open space.	Public open space will be required to be provided as part of conditional subdivision approval.
DC5.4 Regional Roads (Vehicular Access)	This policy establishes a general presumption against multiple points of access to and from regional roads.	Access to and from regional roads will not be permitted unless there are no alternative arrangements available.
Draft DC 4.3 – Planning for High Pressure Gas Pipelines	It is intended that DC 4.3 will replace Planning Bulletin 87. This policy provides seeks to ensure people/development and pipelines are protected from unacceptable risk.	Subdivision and development applications on land within pipeline easements/corridors and trigger distances (measurement lengths) require consultation with pipeline owner/operators.

### 2.2.9 Planning Bulletin 87 High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region

Planning Bulletin 87 High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region (“PB87”) provides guidance on matters to be taken into account in considering planning proposals within the vicinity of a high pressure gas pipeline.

The purpose of PB87 is to –

- Ensure risk to persons and property is at an acceptable level where proposals are proposed within the vicinity of pipeline corridor/easements;
- Reduce potential risk arising from rupture of the pipeline during adjacent construction works;
- Ensure future proposals will not encroach on the potential for the existing pipeline corridor/easements to provide the capacity required to meet the long-term demand for natural gas in the south-west of Western Australia; and
- Provide a consistent approach for the assessment of proposals in the vicinity of high-pressure gas pipelines.

# 3.0 Site Context

## 3.1 Environmental Characteristics

The preparation of the Scheme has been influenced by the interrelationship between a range of fundamental physical characteristics and features. A comprehensive Environmental Assessment Report has been prepared by Strategen JBS&G (refer **Appendix A**) and is summarised herein.

### 3.1.1 Geology

The Scheme area generally consists of three different geological units, including sandy silt (M<sub>S5</sub>) and sand (S<sub>7</sub> and S<sub>8</sub>). The M<sub>S5</sub> unit is limited to wetland areas, whilst the S<sub>7</sub> unit occurs predominantly in the western portions of the Scheme area, while S<sub>8</sub> predominantly occurs in the eastern portions.

In accordance with Section 4.2 of the Environmental Assessment Report, areas of M<sub>S5</sub>, associated with the Resource Enhancement Wetland (“**REW**”) have been reserved for conservation and public open space. Other areas of M<sub>S5</sub> throughout the Scheme area, will require the importation of fill (or cut and fill) to achieve appropriate separation to groundwater. Areas of S<sub>7</sub> and S<sub>8</sub> are expected to be compatible with urbanisation and the construction of roads.

Whilst development should be connected to sewer to avoid potential environmental impacts, where this cannot be achieved, a land capability assessment will be required as part of any subdivision and/or development application.

Acid Sulphate Soil (“**ASS**”) mapping for the Scheme area indicates high to moderate risk of ASS occurring within three metres of the existing surface for M<sub>S5</sub> areas, in particular around Mandogalup Swamp. Pursuant to the Environmental Assessment Report (refer **Appendix A**), where ASS investigations are required and ASS is detected, an ASS Management Plan will be required prior to development.

### 3.1.2 Topography

The topography of the subject site is generally varied and influenced by current land use. The northern section of the Scheme area generally slopes east to west from 35 and 40 metres AHD (“**Australian Height Datum**”). Within the southern section of the Scheme area there are three topographic mounds between 20 and 23 metres AHD, which generally slope towards the Peel Main Drain (at 12 to 13 metres AHD).

### 3.1.3 Ecology

Targeted surveys conducted across the Scheme area identified no threatened flora listed under the *Environment Protection and Biodiversity Conservation Act 1999* (“**EPBC Act**”), *Biodiversity Conservation Act 2016* (“**BC Act**”) or Department of Biodiversity, Conservation and Attractions (“**DBCA**”) listed priority flora were recorded within the Improvement Scheme area. One priority flora species; *Dodonaea hackettiana*, was recorded in intact remnant native vegetation within the road verge along the western side of Norkett Road.

While the majority of vegetation is heavily degraded and infested with weeds, Vegetation Type 7 (“**VT7**”) has the potential to contain threatened flora species *Drakaea elastica* and *Caladenia huegelii*, however, only a small area (i.e., 0.08 hectares) occurs within the Improvement Scheme area. The threatened flora species *Drakaea micrantha* also has the potential to occur within firebreaks adjacent to areas of intact remnant native vegetation (i.e., adjacent to Bush Forever Sites).

Two Threatened Ecological Communities (“**TEC**”) have been identified within the Improvement Scheme area, including; Banksia woodlands of the Swan Coastal Plain and Tuart woodlands and forests of the Swan Coastal Plain. The Banksia woodland TEC and the Tuart woodland TEC are predominantly located within the north-eastern portion and south-eastern portion of the Improvement Scheme area, respectively.

Several conservation significant fauna species are considered likely to occur, or are known to occur, within the Scheme area. These include –

- *Calyptorhynchus banksia naso* (Forest Red-Tailed Black Cockatoo);
- *Calyptorhynchus latirostris* (Carnaby’s Cockatoo);
- *Falco peregrinus* (Peregrine Falcon);
- *Isodon fusciventer* (Quenda);
- *Lerista lineata* (Perth Slider);
- *Neelaps calonotos* (Black-Striped Snake); and
- *Synemon gratiosa* (Graceful Sunmoth).

Large intact areas of potential Carnaby’s Cockatoo habitat within the north-eastern portion of the Scheme area have been identified. Several smaller pockets of potential Carnaby’s Cockatoo foraging habitat occur

adjacent to the REW in the north-western portion of the Scheme area, adjacent to Bush Forever Site No. 268 and in the southern portion of the area. A total of 362 potential nesting habitat trees and 35 potentially suitable hollows (i.e., of at least 10 centimetres diameter) were identified within the Improvement Scheme area.

#### 3.1.4 Geomorphic Wetlands

A Resource Enhancement Wetland (“**REW**”) occurs within the north-western portion of the Scheme area. The management objective for REW’s is to restore the wetland through maintenance and enhancement of wetland functions and attributes.

Under the Scheme, the REW will be retained within a regional reserve and the associated buffer (i.e., 50 metres) to be protected from potential adverse impacts through recognition in the Scheme and identification in the Concept Plan as open space.

#### 3.1.5 Bush Forever Sites

Bush Forever Site No. 393 is located within the north-western portion of the Scheme area (associated with the REW).

A small portion of Bush Forever Site No. 268 is also mapped within the Scheme area, generally within the Norkett Road reserve and Lot 3 (No. 67) Norkett Road, Mandogalup.

There is an opportunity to enhance existing mapped regional ecological linkages throughout the Scheme area within and surrounding Bush Forever Site No. 393, including the REW and associated buffer. This opportunity has been recognised and incorporated into the Scheme Map through the reservation of areas of public open space and requirements for increased landscaping areas within Precinct A.

## 3.2 Hydrological Characteristics

The preparation of the Scheme has been influenced by the interrelationship between a range of fundamental physical characteristics and features. A comprehensive District Water Management Strategy (“**DWMS**”) has been prepared by JDA Consultant Hydrologists (refer **Appendix B**) and is summarised herein.

#### 3.2.1 Surface Water

The Scheme area is characterised by the following existing surface drainage features –

- The Peel Main Drain generally flows north-east to south-west through the southern extent of the Scheme area, beneath Anketell Road and flowing into The Spectacles wetland.
- A Water Corporation open channel, located in the south-west corner of the Scheme area and connects to the Peel Main Drain near Anketell Road.

- In the north-western section of the Scheme area, surface water flows towards Wattleup Lake. In the north-eastern section, surface water flows towards a topographic low-point within Banksia Woodlands.

#### 3.2.2 Groundwater

The Scheme area is characterised by the following groundwater hydrogeology –

- Three distinct aquifers, each assigned the name of the major geological unit contributing to it. In descending order of depth from natural surface they include; Superficial aquifer, Leederville aquifer and Yarragadee aquifer.
- Maximum groundwater levels range from 18m AHD in the north-east corner to 10m AHD in the respective north-west corners of the Scheme area.

#### 3.2.3 Contaminated Sites

Several potential contamination sources have been identified, both within and adjacent to the Scheme area. These sources include –

- Potential contamination of groundwater associated with Alcoa’s operations;
- Potential contamination associated with historic market garden land uses; and
- Potential presence of asbestos and other hazardous materials associated with dated buildings and rural land uses.

Pursuant to the recommendations contained within the Environmental Assessment Report (refer **Appendix A**) and the DWMS (refer **Appendix B**), the Scheme includes provisions requiring the preliminary site investigations be undertaken prior to development to determine the potential nature of contamination (if any) across the Scheme area. Where these investigations identify that remediation or restriction of land uses are warranted, future development will be required to take this into consideration.

#### 3.2.4 Acid Sulphate Soils

Acid Sulphate Soil (“**ASS**”) risk mapping for the Scheme area indicates high to moderate risk of ASS occurring within three metres of the existing surface for silty soil areas, in particular around Mandogalup Swamp.

Pursuant to the recommendations contained within the Environmental Assessment Report (refer **Appendix A**) and the DWMS (refer **Appendix B**), the Scheme includes provisions requiring the preparation of ASS Investigation and Management Plan prior to development.

### 3.3 Existing Movement Networks

A comprehensive Transport Report has been prepared by Flyt (refer to **Appendix E**) to inform the land use and transport elements of the Scheme. Whilst the concept plan has been modified since the Transport Report's preparation, relevant key findings have been summarised herein.

#### 3.3.1 Vehicular Movement Network

Mandogalup's location enables quick and convenient access to the existing and future strategic road network. Rowley Road abuts the Scheme area to the north, Anketell Road is located to the south and Kwinana Freeway is one kilometre east of the area. Within the Scheme area there are few gazetted roads.

##### *Rowley Road and Wattleup Road*

Rowley Road and Wattleup Road are categorised as a Regional Distributor Roads, with posted speed limits between 70 and 80km/hr.

Both roads are single carriageway, with one lane in each direction constructed to a width of 8.5 metres, within a 20 metre road reserve.

In 2020, Planning Control Area 156 ("**PCA156**") was declared over Rowley Road by the Minister for Planning to protect the proposed road and rail freight corridor between Kwinana Freeway and the coast. Within the Improvement Scheme area, PCA156 extends up to 80-metres into Lot 10 and 501, and up to 84-metres into Lot 2.

##### *Anketell Road*

Anketell Road is categorised as a Regional Distributor Road and is an 'Other Regional Road' under the Metropolitan Region Scheme ("**MRS**"). The posted speed limit is between 80 and 90km/hr.

Anketell Road is constructed as a single carriageway, approximately 8-metres wide. To the east of Mandogalup Road, the reservation width is 20-metres, and to the west the reservation width varies with a minimum width of 30-metres.

In 2020, Planning Control Area 168 ("**PCA168**") was declared over Anketell Road by the Minister for Planning to protect the proposed road freight corridor between Kwinana Freeway and Rockingham Road. PCA 168 was updated in March 2023, and extends into the Improvement Scheme area, affecting Lot 44 (UCL), Lot 87 Anketell Road, Lots 56, 57 and 58 Clementi Road, Lots 73, 74, 75 and 76 Mandogalup Road to various extents..

##### *Mandogalup Road*

Mandogalup Road is categorised as a Local Distributor Road and generally runs north-south between Wattleup Road and Anketell Road, with a posted speed limit between 70 and 80km/hr.

Mandogalup Road is a rural standard single carriageway within a 20-metre road reserve. There is no pedestrian or cycling infrastructure.

##### *Hammond Road Extension*

The proposed extension of Hammond Road has been identified within under the MRS as an Other Regional Road reserve. The road is planned to intersect with Anketell Road (south) and to the existing alignment of Hammond Road where it continues to Cockburn Central (north).

As a regional road, there will be a general presumption against direct vehicular access from Hammond Road. The road is expected to function as an Integrator Arterial, pursuant to *Liveable Neighbourhoods*, with a speed limit of up to 60km/hr and volumes between 7,000 – 25,000 vehicles per day.

#### 3.3.2 Restricted Access Vehicle Network

The Restricted Access Vehicle ("**RAV**") Network is a mandated classification of State and local roads that is designed to foster the outcomes of the Network Access Strategy, developed in 2016 for the Strategic Road Freight Network ("**SRFN**").

The RAV Network is recognised as a critical infrastructure link for access between the future Kwinana Port and wider transport network. This network will have direct implications for Mandogalup given its proximity to the future Kwinana Port.

Rowley Road, Wattleup Road and Anketell Road are part of Network 4, accommodating up to 27.5-metre long vehicles (i.e., Pocket Road Train, B-Double). Thomas Road and Kwinana Freeway are part of Network 7, accommodating vehicles with a maximum length of 36.5-metres and a mass of up to 107.5 tonnes.

An over-size over-mass ("**OSOM**") vehicle corridor is located near Mandogalup, between Rockingham Road and Thomas Road. This corridor is capable of accommodating large loads, up to 10-metres wide.

#### 3.3.3 Westport Influences

The Westport project has been evolving over the past several years and is recognised as having long-term strategic implications for land use and transport planning associated with the Improvement Scheme area.

In August 2020, the State government endorsed the Westport Independent Taskforce's recommendation for a new container port to be constructed in Kwinana. In

2022, the Minister for Transport announced that Anketell Road would form part of the future freight corridor and that the Anketell-Thomas Road Freight Corridor would be the preferred alignment for freight travel to connect the new Kwinana Port with the wider area and key strategic industrial sites.

Anketell Road is planned to become a dedicated freight corridor with initial designs by MRWA including a bridge above the existing Kwinana Freeway interchange to allow free flowing freight movements without disrupting commuter traffic. Full movement access for local traffic has been planned for by MRWA at the Anketell/Mandogalup Road intersection.

### 3.3.4 Public Transport Network

The existing public transport network includes Aubin Grove and Kwinana Train Station, along the Mandurah Rail Line, approximately 1.5 kilometres east of the Scheme area. Train station feeder bus routes serve the residential land uses to the north, east and south. West of the Improvement Scheme area, Rockingham Road and Cockburn Road carry bus services between Fremantle and Rockingham.

### 3.3.5 Pedestrian and Cyclist Network

There are no existing pedestrian or cyclist movement networks within the Scheme area. Surrounding the Scheme area, a Principle Shared Path (“PSP”) flows north-south along the western side of Kwinana Freeway, with other Perth Bicycle Network routes located along Wattleup Road, Rowley Road, Mandogalup Road and a portion of Anketell Road.

## 3.4 Existing Infrastructure Services

### 3.4.1 Wastewater

The Scheme area is not currently serviced by the Water Corporation’s wastewater scheme, but is within its Thompson’s Lake – SD174 Wastewater Conceptual Planning Long-Term Scheme area. The Water Corporation’s scheme for wastewater disposal throughout the Scheme area comprises three wastewater pumping stations and associated discharge pressure mains, as follows –

- Thompson Lake Pump Station N – Type 40, located in Precinct A, near the intersection of Rowley Road and Mandogalup Road, discharging to a gravity sewer pipeline near Frankland Road and Pratco Vista. This will serve the north-west sector of the area. This pump requires a 10 metre buffer.
- Thompson Lake Pump Station J – Type 180, located in Precinct G, east of the intersection of Clement Road and Mandogalup Road, discharging to a gravity sewer pipeline near Canopus Loop on Barfield Road. This will serve the southern sector of the area. This pump requires a 20 metre buffer.

- Thompson Lake Pump Station L – Type 40, located in Precinct H, near the intersection of Anketell Road and Clementi Road, discharging to Pump Station J. This pump requires a 10 metre buffer.

### 3.4.2 Water Reticulation

The Scheme area is not currently serviced as part of the Water Corporation’s water supply scheme. Future water distribution mains are planned by the Water Corporation as part of their Capital Investment Programme (“CIP”), subject to the nature of the development.

### 3.4.3 Electricity Infrastructure

Several Western Power overhead power transmission lines are situated within the Scheme area, including –

- 330kV Kwinana to Southern Terminal Line (two lines);
- 132kV Kwinana to Southern Terminal Line;
- 330kV Muja to Southern Terminal/Kemerton Line; and
- 330kV Kwinana to Northern Terminal Line.

Western Power’s Network Capacity Mapping Tool indicates between 25 and 30MVA of network capacity are available. This is ample capacity for the Scheme area, however, will require review once the extent of the proposal has been developed. This may require the installation of new underground 22kV feeder cables from the nearest zone substations to the development areas.

### 3.4.4 Telecommunications

The Scheme area is currently serviced by Telstra infrastructure, located within existing road reserves which provide services to existing properties. The infrastructure includes copper and fibre optic services.

### 3.4.5 Gas

The Scheme area is not currently served by reticulated gas. The nearest existing ATCO Gas mains are located north of the Scheme area, within Rowley Road.

The Dampier to Bunbury Natural Gas Pipeline (“DBNGP”) traverses the southern sector of the Improvement Scheme area.

## 3.5 Bushfire Hazards

A Bushfire Management Plan (“BMP”) (refer to **Appendix C**) has been prepared pursuant to the requirements of *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (“SPP3.7”) and the Guidelines for Planning in Bushfire Prone Areas (“Guidelines”).

Areas of intact vegetation assessed within and surrounding the Scheme area comprise a combination of Class A Forest, Class B Woodland and Class D Scrub. As a result of rural land uses and historical disturbance, many areas within and surrounding the Scheme area

have been cleared, comprising Class G Grassland and market gardens.

The predominant bushfire hazards within and proximate to the Scheme area are associated with vegetation within The Spectacles wetland to the south, Bush Forever Site No. 267, 268 and 393, vegetated batters to the Alcoa tailings ponds to the west, and unmanaged and managed grassland within rural properties surrounding the Scheme area and adjoining sandwich lots.

Where development interfaces with intact vegetation, appropriate separation to development (i.e., habitable buildings) to achieve a Bushfire Attack Level (“BAL”) rating of BAL-29, or lower, will be required. The following bushfire hazard issues will need to be considered as part of future planning stage –

- A direct vegetation interface exists between the Scheme area and Bush Forever Site No. 268 and 393, requiring appropriate separation to habitable buildings (i.e., an Asset Protection Zone (“APZ”)) to achieve a BAL-rating of BAL-29 and increased construction standards. The likely APZ setbacks required to achieve BAL-29 are: (i) 21 metres to Class A Forest within Bush Forever Site No. 268 and (ii) 17 metres to Class B Woodland within Bush Forever Site No. 393.
- Future habitable buildings (Class 1, 2, 3 and associated 10a) within 100 metres of vegetated conservation areas (i.e., Frankland Park and The Spectacles), or within 50 metres of Class G Grassland, require appropriate separation to habitable buildings to achieve a BAL-rating of BAL-29 and require increased construction standards. It is anticipated that sufficient separation to achieve BAL-29 will be provided by the future Rowley Road extension and Anketell Road respectively. In the absence of the Rowley Road extension being implemented, a 21 metre APZ is anticipated to be required between Frankland Park and future habitable buildings.

The development will also be required to ensure adequate water supply for firefighting purposes and appropriate vehicular access and egress provisions for residents and emergency services in accordance with the Guidelines.

Considering the above, the bushfire hazards within and adjacent to the Scheme area and the associated bushfire risks are readily manageable through standard management responses outlined in the Guidelines and AS3959.

## 3.6 Heritage

### 3.6.1 Aboriginal Cultural Heritage

A search of the Department of Planning, Lands and Heritage (“DPLH”) Aboriginal Cultural Heritage Inquiry System returned no registered Aboriginal heritage sites within the Scheme area.

Two ‘Other Heritage Places’, being; Mandogalup Swamp Spectacles (Place ID: 3427) and Norkett Road (Place ID: 4360), intersect with the Scheme area but have a status of ‘Stored Data/Not a Site’ and therefore do not meet the criteria to be considered a registered site.

### 3.6.2 State and Local Heritage

A search of the inherit database identified 10 heritage places, of which; nine are listed on the City of Kwinana’s Municipal Inventory. None of these sites are listed as State registered places or places of national significance, however a full assessment for the Soldier Settler Homes is currently being prepared.

ID	Name
12087	Mandogalup Post Office
12100	Hall Reserve – Mandogalup
12123	Mandogalup School Cottage (demolished 1988)
12130	7 Mile Site (“Sevvy”)
12106	Lake Wattleup/Sayer Road Swamp
12111	Mandogalup School
12125	Mandogalup Townsite
12114	Jolly’s Bridge
12129	6 Mile Site
12092	Soldier Settler Homes, Mandogalup

## 3.7 Transport Noise

A Transport Noise Assessment (refer to **Appendix G**) has been prepared pursuant to the requirements of *State Planning Policy 5.4 Road and Rail Noise (“SPP5.4”)*.

The assessment of transport noise within the Scheme area was limited to Anketell Road and Kwinana Freeway. Therefore, additional Transport Noise Assessments may

be required to be undertaken for Rowley Road, Mandogalup Road and Hammond Road, as part of future detailed subdivision and development.

Noise monitoring for Kwinana Freeway and Anketell Road identified an average outdoor noise level of 67dB (L<sub>Aeq</sub> (Night)) and 64.4dB (L<sub>Aeq</sub> (Night)), respectively. These noise levels exceed the target outdoor noise levels (i.e., 50dB), so will require the consideration of noise control measures.

For lots proximate to Anketell Road and/or Kwinana Freeway, the following is recommended –

- Where residential land uses are proposed within a noise contour higher than the target outdoor noise level, quiet house design packages may be required;
- Notifications on title informing future residents that the land is currently, or may in the future be, impacted by road noise; and
- Investigate the effectiveness of noise walls at reducing road traffic noise levels;

### 3.8 Land Supply and Demand Analysis

A Land Supply and Demand Analysis, prepared by Pracsys (refer **Appendix D**), estimates the supply and demand for potential land uses, identifying whether there is a gap or surplus based on current planning frameworks. The findings of this Report, which are summarised herein, have been used to identify a suitable mix of land uses and to inform the Scheme.

A land analysis was undertaken to assess the supply and demand of different land uses for the Scheme area and broader study area, which found –

- There is a likely gap in the provision of industrial land in the study area under high and medium growth scenarios.
- There appears to be sufficient supply of undeveloped residential zoned land to meet the projected population growth to 2050, assuming an average density of 15 dwellings per gross hectare (based on target gross dwelling density identified in the Sub-Regional Planning Framework).
- There is sufficient commercial floorspace compared to population. The study area currently has a lower provision of retail floorspace than the Greater Perth average (measured in retail floorspace per resident); if the Greater Perth average provision of retail floorspace per person was targeted for the Scheme area, additional retail floorspace could be required before 2041.
- The City of Kwinana's Rural Land Study determined there was limited demand to buy land where

agricultural activities could be undertaken, which could be an indication that the area is not a significant agricultural precinct.

#### 3.8.1 Westport Analysis

Following the preparation of the Land Supply and Demand Analysis (refer **Appendix D**), the State government announced that the State's future container port is planned to be constructed in Kwinana (i.e., Westport).

To consider the implications of Westport on the Western Trade Coast and Scheme area, Pracsys prepared an additional report to quantify the current amount of industry displacement that might occur due to the Westport plans.

This additional report identified a potential gap in available industrial land in the Western Trade Coast of 190-hectares in the medium growth scenario, and 612-hectares in the high growth scenario by 2041. It was determined that in the medium growth scenario most population driven uses (i.e., uses that are not location-reliant and can readily be delivered anywhere) would transition out of the WTC and in the high scenario, all population driven uses and some strategic uses (i.e., uses which are related to activities located at the Port)

### 3.9 Opportunities and Constraints

The opportunities and constraints identified in relation to the Scheme area are detailed in **Table 7**.

**Table 7 Opportunities & Constraints**

Category	Explanation
Traffic movement	<ul style="list-style-type: none"> <li>• <b>Rowley Road and Anketell Road</b> – as possible future freight route(s) to connect Westport activities and broader heavy vehicle networks.</li> <li>• <b>Kwinana Freeway</b> – opportunities to utilise proximity to Kwinana Freeway.</li> <li>• <b>Hammond Road</b> – extension of Hammond Road through the Scheme area and its designation as a regional road.</li> <li>• <b>Public transport</b> – comprises bus networks connecting to Aubin Grove and Kwinana Train Stations. It is understood that Mandogalup Train Station is no longer envisaged by the Public Transport Authority.</li> <li>• <b>Anketell Road and Kwinana Freeway</b> – carry heavy traffic volumes, which may impact the amenity of noise sensitive land uses.</li> <li>• <b>Rowley Road and Hammond Road extensions</b> – potential road noise impacts, including associated Westport traffic.</li> </ul>
Land use and built form	<ul style="list-style-type: none"> <li>• <b>Fragmented landownership</b> – will require coordination and cooperation to allow for resolution of land matters to facilitate development.</li> <li>• <b>Soil</b> – based on the soil type, development should be connected to reticulated sewer to avoid potential environmental impacts (i.e., contamination). Development should avoid areas of sandy silt associated with the REW in the north-western portion of the Scheme area. Where development is proposed in sandy silt soil across other parts of the Scheme area, the importation of fill (or cut-fill) will likely be required to achieve appropriate separation to groundwater.</li> <li>• <b>Acid Sulphate Soils</b> – an Acid Sulphate Soils Investigation and Management Plan will be required prior to development.</li> <li>• <b>Contamination</b> – a Preliminary Site Investigation and groundwater monitoring of lots west of Mandogalup Road will be required at structure plan/LWMS stage to further ascertain any potential migration of the alkaline plume into the subject area.</li> <li>• <b>High-voltage transmission corridor</b> – traverses the Scheme area from east-west in the centre of the Scheme area and north-south along the south-eastern boundary.</li> <li>• <b>Sand quarry</b> – located in the northern portion of the Scheme area, provides an opportunity to fill the affected area following expiration of the quarry licence.</li> <li>• <b>Market gardens</b> – consideration of appropriate setbacks and interface treatments between sensitive land uses and market gardens will be required for both market gardens external to and within the Scheme area.</li> <li>• <b>Groundwater</b> – prior to development, groundwater modelling should be undertaken to confirm maximum groundwater levels.</li> <li>• <b>Peel Main Drain realignment</b> – consider the potential realignment of the Peel Main Drain.</li> <li>• <b>Living stream potential</b> – if the Peel Main Drain is realigned, consider implications of living stream approach, including spatial implications and bushfire management implications.</li> <li>• <b>European heritage</b> – compatibility of land uses with heritage listed sites to identify development restrictions and opportunities.</li> <li>• <b>Water</b> – the Scheme area is not currently serviced as part of the Water Corporation's water supply scheme.</li> <li>• <b>Wastewater</b> – the Scheme area is not currently serviced. Indicative future pump station locations have been identified and will require coordination and cooperation to allow resolution of land matters to facilitate and enable development including the need for buffers.</li> <li>• <b>Power</b> – it is anticipated that there is sufficient capacity for development of the Scheme area.</li> <li>• <b>Communication</b> – the Scheme area is currently serviced by Telstra infrastructure.</li> </ul>



**Table 7 Opportunities & Constraints**

Category	Explanation
	<ul style="list-style-type: none"> <li>• <b>Gas</b> – the Scheme area is not currently serviced, but gas mains are capable of being extended through the area.</li> <li>• <b>Dampier to Bunbury Natural Gas Pipeline</b> – traverses the southern portion of the Scheme area. Depending on the nature of the development on the landrisk mitigation measures may be required.</li> <li>• <b>Industrial land</b> – the Scheme area is ideally located to serve as a non-strategic industrial land area, providing a transitional area between the neighbouring strategic industrial land uses and adjacent urban developments.</li> <li>• <b>Commercial land</b> – certain commercial uses could be considered within the Scheme area to support the growing population of the area.</li> </ul>
Environment and landscape	<ul style="list-style-type: none"> <li>• <b>Resource Enhancement Wetland</b> – in the north-western portion of the Scheme area is to be retained with an appropriate buffer applied.</li> <li>• <b>Vegetation</b> – development is to be concentrated in areas which are mapped as ‘completely degraded’ and ‘degraded’. Areas of vegetation which are of ‘good’ quality (or higher) should be prioritised for retention, where possible.</li> <li>• <b>Threatened Ecological Communities</b> – retention of Banksia and Tuart woodlands.</li> <li>• <b>Fauna</b> – future development is to avoid impacts to Black Cockatoo habitat, including significant trees, particularly those with potentially suitable nesting hollows.</li> <li>• <b>Bush Forever</b> – interface treatments to protect conservation areas from future development and consideration of bushfire setback requirements from conservation areas.</li> <li>• <b>Ecological linkages</b> – opportunity to retain ecological linkages within and surrounding Bush Forever Site No. 393, including the REW and associated buffer. Alternative green links could be proposed where formal ecological linkages are not possible due to other constraints (i.e., bushfire).</li> <li>• <b>Unsurveyed portions of the Scheme area and ‘Sandwich Lots’</b> – should be subject to a spring flora and vegetation survey prior to clearing/development to identify any conservation significant flora and vegetation. A targeted winter survey would also be appropriate for any areas of habitat suitable for threatened <i>Drakaea</i> sp. prior to any clearing or disturbance of vegetation/trees, these areas should also be surveyed to determine any significance to Black Cockatoo.</li> <li>• <b>Bushfire</b> – separation to appropriate development required to achieve a BAL-rating of BAL-29 or lower. Adequate water supply for firefighting purposes, appropriate vehicular access and egress required.</li> </ul>

# 4.0 Community and Stakeholder Engagement

This section describes the community and stakeholder engagement that has occurred, from the commencement of the project, through to the preparation of the Scheme.

## 4.1 Concept Plan

Concept (land use) planning for Mandogalup has been informed by community and environmental values, as well as contemporary planning and urban design trends reflecting traditional industrial, commercial, and residential development, with respect for the existing environmental features of the land.

The Concept Plan evolved from consultation on a series of land use scenarios, and has been refined through more detailed site analysis and preliminary advice from key stakeholders including servicing agencies.

## 4.2 Stakeholder Engagement

The engagement process for this project is summarised in **Table 8** below.

Table 8 Engagement Process Summary	
Stage	Engagement and Consultation
Project inception	<p>Establish Project Control Group (“<b>PCG</b>”) and Project Reference Group (“<b>PRG</b>”).</p> <p>Inform government and non-government stakeholders and landowners via introductory telephone calls.</p>
Background studies and technical investigations	<p>Engage with –</p> <ul style="list-style-type: none"> <li>• PCG and PRG;</li> <li>• Government and non-government stakeholders; and</li> <li>• Landowners and the broader community.</li> </ul> <p>Engagement methodology involved a mixture of vision workshops, an elected member briefing and through website updates and FAQs.</p>
Land use scenarios	<p>Engage with –</p> <ul style="list-style-type: none"> <li>• PCG, PRG and Western Australian Planning Commission (“<b>WAPC</b>”);</li> </ul>

Table 8 Engagement Process Summary	
Stage	Engagement and Consultation
	<ul style="list-style-type: none"> <li>• Government and non-government stakeholders; and</li> <li>• Landowners and the broader community.</li> </ul> <p>Engagement methodology involved a mixture of collaborative scenario workshops, community open days and an elected member briefing.</p>
Land use plan and Improvement Scheme	Inform and collaborate with key stakeholders.

### 4.2.1 Vision Workshops

A series of vision workshops were held throughout June 2020 to provide residents, landowners, and key industry stakeholders an opportunity to –

- understand and confirm the key opportunities and issues of the area; and
- collaborate on the development of the vision and emerging values.

The following stakeholder groups and landowners were invited to partake in the vision workshops –

- Landowners and residents with the boundaries of Improvement Plan No. 47: Mandogalup (“**IP47**”) and the ‘Sandwich Lots’;
- Kwinana Industries Council (“**KIC**”) as a representative of industry groups;
- Alcoa Australia Ltd (“**Alcoa**”), as an adjacent landowner;
- Qube and Satterley, as key stakeholders who own or have an existing interest in land within the IP47 area and are also developing adjacent landholdings; and
- PRG, PCG and City staff and elected members, as observers.

The workshops were facilitated by Taylor Burrell Barnett (“**TBB**”). TBB staff delivered the same presentation to each different workshop, which provided an overview of the background research and technical reporting, including key opportunities and constraints, based on –

- the Planning Framework;
- economic analysis;
- transport and movement;
- land use and heritage; and
- environment and landscape.

Participants provided some high-level feedback regarding opportunities and constraints, emerging values and vision for the area.

#### 4.2.2 Scenario Workshops

A series of vision workshops were held throughout August 2020 to provide residents, landowners, and key industry stakeholders an opportunity to provide feedback on the structure and framework of the land use scenarios presented, being; residential, rural, industrial/commercial and various combination scenarios.

The following stakeholder groups and landowners were invited to partake in the scenario workshops –

- Landowners and residents with the boundaries of Improvement Plan No. 47: Mandogalup (“**IP47**”) and the ‘Sandwich Lots’;
- KIC as a representative of industry groups;
- Alcoa Australia Ltd (“**Alcoa**”), as an adjacent landowner;
- Additional industry representatives, including; Harvis, iParks, Hesperia, Coxon Group, Eastcourt, DevelopmentWA, Primewest, BHP, BP, Tianqi and WesCEF, to help understand the perspectives of potential development of the subject area from a wider range of industry stakeholders;
- Qube and Satterley, as key stakeholders who own or have an existing interest in land within the IP47 area and are also developing adjacent landholdings;
- Additional residential property representatives, including; LWP, Stockland, Cedar Woods Properties, Yolk Property Group, Parcel Property, Eastcourt, DevelopmentWA, Primewest and Hesperia, to help understand the perspectives of potential development of the subject area from a wider range of residential property representatives; and
- PRG, PCG and City staff and elected members, as observers.

The workshops were facilitated by TBB, whereby the same presentation was delivered at each different workshop. The presentation provided an overview of the

vision workshops held in June, draft precinct design principles and justification for the land use scenarios presented.

Participants provided feedback against each land use scenario and explored various ways in which the development could consider rural, industry/commercial, residential and a mixture of land uses.

#### 4.2.3 Community Open Days

Several open days were held throughout November 2020 at the Darius Wells Library and Resource Centre in the City of Kwinana.

The open days provided an opportunity to present refined land use scenarios, along with supporting information and visualisations, and to seek further feedback from the broader community members and stakeholder groups.

#### 4.2.4 Preferred Land Use Scenario

To inform the preparation of an Improvement Scheme, four land use scenarios; residential, industrial, combined and combined including regional open space, as well as supporting technical documents, were prepared and advertised in December 2021 to February 2022.

Having regard to the matters raised in submissions, the WAPC endorsed an alternative land use scenario, being ‘Scenario 5’ (**Figure 11**) to form the basis of a draft Improvement Scheme. This scenario balances the complex constraints of the locality, the advice of State agencies and local government, the requirements of State Planning Policy (particularly SPP4.1), and the desire of the community and industry for certainty regarding land uses in the IP47 area.

#### 4.2.5 Project Reference Groups

Several PRG meetings were held throughout the duration of the project, in February, July and August 2020.

The PRG comprised staff from the –

- City of Kwinana;
- Department of Planning, Lands and Heritage;
- Department of Transport;
- Department of Water and Environmental Regulation;
- Environmental Protection Authority;
- Department of Jobs, Tourism, Science and Innovation;
- Department of Health; and
- Main Roads Western Australia.

PRG meetings were held regularly to provide cross-government representation for agencies to discuss issues and provide advice on at key project milestones.

#### 4.2.6 Elected Member Briefings

An elected member briefing was provided by TBB in August 2020 to provide Elected Members of the City of Kwinana Council the opportunity to understand and confirm key opportunities and constraints, vision and values, and provide an overview of the Scheme preparation process.

A briefing note was sent to Elected Members prior to the briefing. At the briefing, TBB delivered a presentation to provide an overview of the background research and technical reporting, including key opportunities and constraints based on the following –

- the Planning Framework;
- economic analysis;
- transport and movement; and
- land use and heritage.

Elected Members provided high-level feedback regarding the vision, values and opportunities and constraints for the locality.

### 4.3 Engagement Outcomes

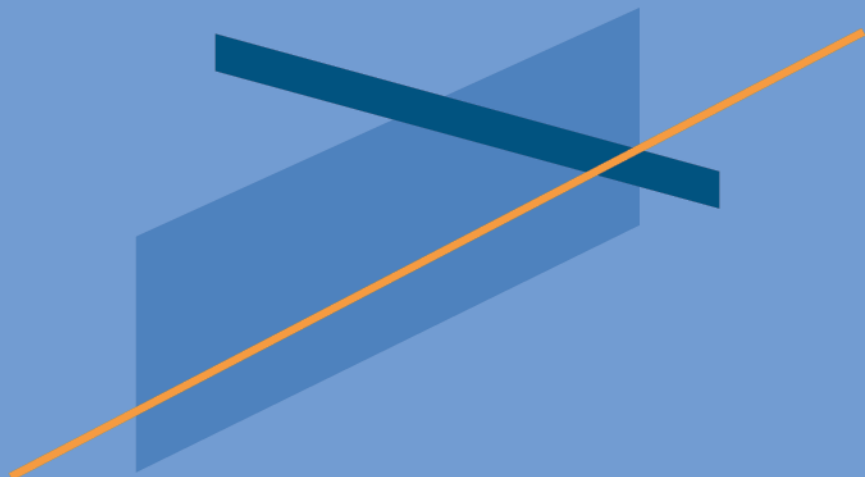
The following Table provides a summary of the key outcomes and feedback received through the abovementioned engagement process. Each of these matters has been considered, and a recommendation made accordingly.

Table 9 Engagement Outcomes Summary	
Topic	Response and Resolution
Gaps in opportunities and issues analysis	Gaps identified in the workshops were included in revised opportunities and issues mapping and were considered in preparation of the scenario development.
Non-conforming use rights	Any land uses in place prior to any future rezoning will be able to continue to operate even when the use is not compatible with the new zone.
Request for 'Sandwich Lots' to be included within Scheme area	The Improvement Scheme area is informed by the IP47 boundary, which was approved by the Minister for Planning. Whilst the 'Sandwich Lots' do not form part of the Scheme area, information regarding the future land use planning of these lots has been included within the Scheme Report which may be used to guide the future development of these lots.
Land use scenarios	Feedback received on the land use scenarios through the workshops and

Table 9 Engagement Outcomes Summary	
Topic	Response and Resolution
	Open Days has been considered to inform refinements of the preferred Land Use Concept.
Informal advertising	The WAPC considered the feedback received through the informal submission period to inform the selection of the preferred Land Use Plan which has in turn informed the Concept Plan and Scheme Map

Part |

TWO



# 5.0 Improvement Scheme

This Part details the preparation of the Mandogalup Improvement Scheme No. 1 (“**Scheme**”).

Development and land use planning within the subject area will be guided by the Scheme and its related planning framework. The Scheme gives statutory effect to Improvement Plan No. 47: Mandogalup (“**IP47**”) and has been constructed to include the following components –

- Aims of the Scheme, to facilitate future development of the land in a manner which allows for a balanced land use response;
- Provisions for the preparation and consideration of structure plans, policies and local development plans (“**LDP**”);
- Establishing reserves, zones and precincts with associated land use permissibility and development controls;
- Land use classifications and definitions with interpretation from the *Planning and Development (Local Planning Schemes) Regulations 2015* (“**Regulations**”); and
- Requirements for subdivision and development approval.

The Improvement Scheme framework is briefly described in **Table 10**.

Table 10 Improvement Scheme Framework	
Planning Instrument	Explanation
Scheme text	The statutory provisions necessary to effectively achieve the planning and development intent outlined within IP47.
Scheme map	Spatial definition of the zones and reserves.

Table 10 Improvement Scheme Framework	
Planning Instrument	Explanation
Improvement Scheme Report (and Concept Plan)	To be read in conjunction with the Scheme text and map. Sets out background and underlying intent of the Scheme.
Structure plans	May be adopted to coordinate and assist in achieving coordinated land use outcomes before subdivision and development is undertaken under the Scheme.
Local development plans	May be adopted to coordinate and assist in achieving better built form outcomes by linking lot design with future development. An LDP can supplement development standards contained in the Scheme and policies.

## 5.1 Structure of the Scheme

The structure of the Scheme is largely based on Schedule 1 (“**Model Provisions**”) and Schedule 2 (“**Deemed Provisions**”) of the Regulations. Variations to these Schedules have been incorporated where relevant and appropriate to suit the unique circumstances of the subject area.

Unlike local planning schemes, an Improvement Scheme is not bound to adopt or reflect the Model and Deemed Provisions of the Regulations as the relevant sections (i.e., s. 256, 257A and 257B) of the *Planning and Development Act 2005* (“**PD Act**”) do not apply to Improvement Schemes.

Notwithstanding, the Model and Deemed Provisions do provide a legible and appropriate structure. Use of those provisions, therefore, where appropriate, will assist in maintaining a degree of consistency, legibility and transparency.

However, to ensure the planning framework for the subject area is fit for its specific purpose, and is appropriate for the unique circumstances of the project, certain provisions have been excluded or modified, including –

- Special Control Areas – there are no special control areas on the Improvement Scheme Map or addressed in the Improvement Scheme Text;
- Development Contribution Plans – it is not envisaged that a development contribution plan would be established for the Improvement Scheme, therefore provisions are not considered necessary;

- Irrelevant or non-applicable terms contained within the Regulations have been omitted; and
- Relevant terms contained within the Regulations (i.e., where they relate to the preparation of a Structure Plan or Local Development Plan) have been modified so that reference to the local government is considered reference to the Commission, and processes streamlined.

The Scheme addresses development approval requirements under the PD Act. These requirements do not negate requirements of other legislation, including, but not limited to, the *Environmental Protection Act 1986* (“EP Act”), *Building Act 2011* and associated regulations.

## 5.2 Scheme Aims

Consistent with that identified under IP47, the aim of the Scheme is to coordinate the redevelopment of land within the subject area, by –

1. providing for a strategic land use framework that considers physical, social, economic and environmental factors;
2. providing a strategic planning framework to ensure adequate separation between industrial activity, sensitive land uses, and allow a gradual land use;
3. providing a statutory planning instrument through which to implement the strategic planning framework; and
4. providing a statutory land use planning instrument to effectively guide the preparation of structure plans, statutory referral documentation and policy (as may be required) to facilitate orderly and proper planning of the area; and
5. facilitating the provision of an effective, efficient, integrated and safe transport network.

## 5.3 Reserves

The Scheme establishes reserves for several purposes. The reserves are described in the Scheme text and shown on the Scheme map. The Scheme reserves are intended to align with the reserves under the Metropolitan Region Scheme (“MRS”) and/or the Model Provisions.

It is anticipated that these reserves will return to the corresponding MRS and/or local planning scheme reserve when the Scheme is concluded and the Scheme

area is ‘normalised’, whereby the normal provisions of the MRS, local planning scheme and the PD Act will resume.

The following provides a summary of the reserves included in the Scheme.

**Table 11 Scheme Reserves**

Parks and Recreation	Identifies areas with biodiversity and conservation value for protection, and sets aside land for local parks, pedestrian access, landscaping, view corridors, and incidental essential services infrastructure. This includes the resource enhancement wetland and Tramway corridor.
Infrastructure Services	Although land has not been set aside for the purpose of delivering infrastructure required for air quality monitoring, pursuant to the requirements of the Department of Water and Environmental Regulation (“DWER”) and other essential infrastructure purposes (i.e., Waste Water Pump Stations), such infrastructure will be required and locations will be refined through the subdivision and development stages,
Drainage/Waterway	Sets aside land required for a portion of the existing Peel Main Drain which forms part of a larger seasonal drainage area, and providing an important ecological and drainage function to the local wetland network.
Primary distributor road (Primary regional road)	Sets land aside for regional distributor roads (i.e., Rowley Road, Anketell Road).
District distributor road (Other regional road)	Sets land aside for the future Mandogalup/Hammond Road extension)

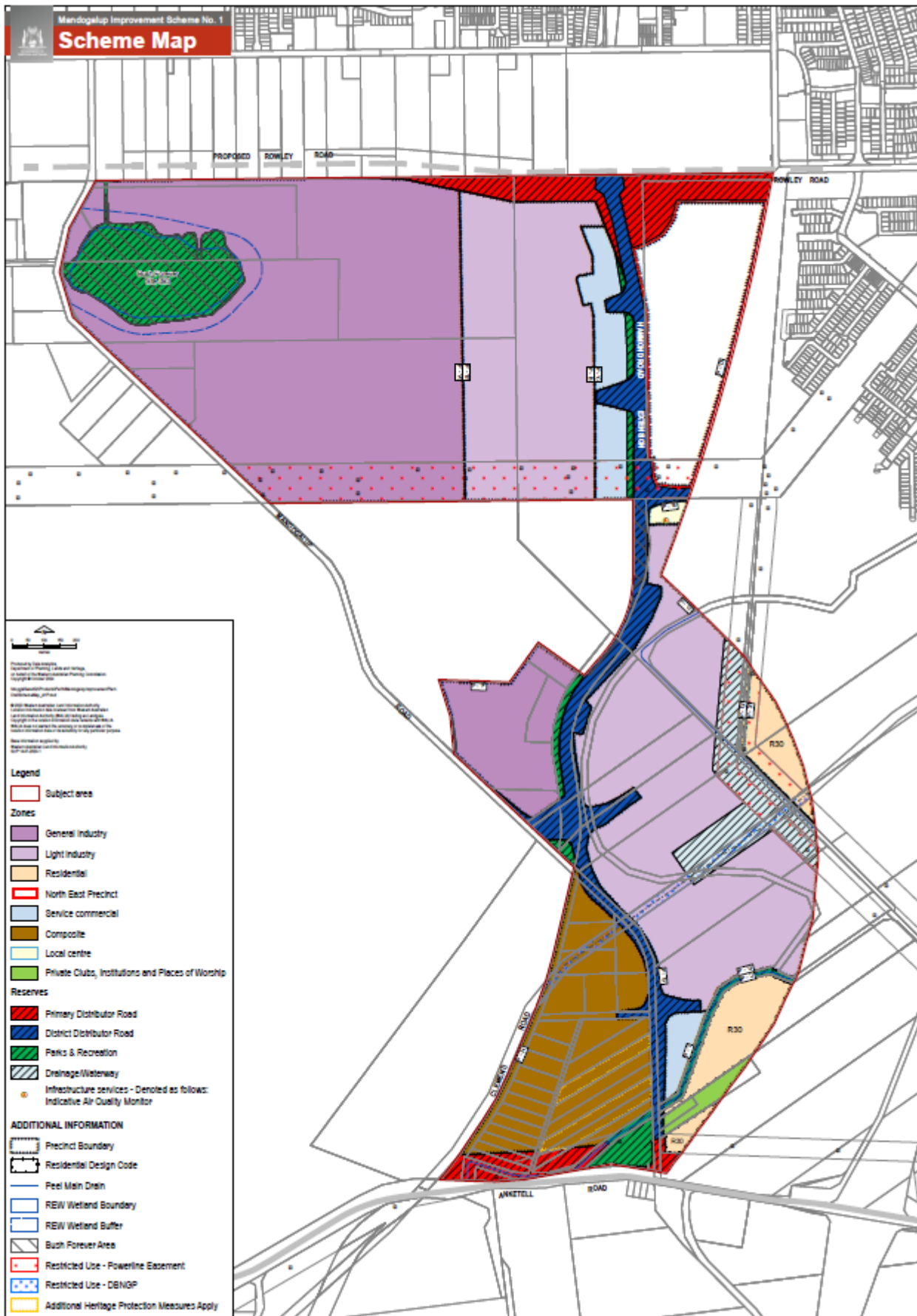


Figure 2 Improvement Scheme Map



## 5.4 Zones

The Scheme establishes zones for several purposes. The zones are described in the Scheme text and shown on the Scheme map (refer **Figure 2**).

The Scheme zones are intended to generally align with the zones under the Model Provisions.

It is anticipated that these zones will return to the corresponding local planning scheme zone when the Scheme is concluded and the Scheme area is 'normalised', whereby the normal provisions of the MRS, local planning scheme and the PD Act will resume. The following provides a summary of the zones, and the respective objectives, included within the Scheme.

Table 12 Scheme Zones	
Residential	<ul style="list-style-type: none"> <li>To provide for housing to meet the needs of the community.</li> <li>To facilitate and encourage high quality design, built form and streetscapes throughout residential areas.</li> <li>To provide for a limited range of non-residential uses, which are compatible with and complementary to residential development.</li> <li>To provide compatibility of uses and integration of vehicular, pedestrian and cycle access with adjacent residential areas.</li> </ul>
North-East Precinct	<ul style="list-style-type: none"> <li>To designate land for potential future development, informed by identified environmental values, compatible with and complementary to adjacent residential uses.</li> </ul>
Composite	<ul style="list-style-type: none"> <li>To provide for retention of existing lot sizes in the range of 5,000m<sup>2</sup> – 2 ha.</li> <li>To ensure development is sited and designed to achieve an integrated and harmonious character.</li> <li>To provide for residential and ancillary land uses which are compatible with the existing land uses of the precinct..</li> <li>To provide for ancillary uses whilst protecting the amenity, character, vegetation and/or conservation and landscape attributes of the precinct.</li> </ul>
Local Centre	<ul style="list-style-type: none"> <li>To designate land for future development as a town centre or activity centre.</li> <li>To provide for the convenience and incidental needs of local communities.</li> </ul>

Table 12 Scheme Zones	
	<ul style="list-style-type: none"> <li>To facilitate a broad range of employment to contribute towards the sub-region's employment self-sufficiency, consistent with the centre's level in the activity centre hierarchy.</li> </ul>
Service Commercial	<ul style="list-style-type: none"> <li>To accommodate commercial activities which, because of the nature of the business, require good vehicular access and/or large sites.</li> <li>To provide for a range of wholesale sales, showrooms, trade and services, which, by reason of their scale, character and operational or land requirements, are not generally appropriate in, or cannot conveniently or economically be accommodated in the central area shops and offices or industrial zones.</li> </ul>
Light Industry	<ul style="list-style-type: none"> <li>To provide for a range of industrial uses and service industries generally compatible with urban areas, that cannot be located in commercial zones.</li> <li>To provide for a range of lot sizes that support different types of light industrial activities.</li> <li>To provide a high level of amenity to complement the land use transition.</li> <li>To ensure that where any development adjoins zoned or developed residential properties, the development is suitably setback, screened or otherwise treated so as not to detract from the amenity.</li> <li>To contain the impact area of industrial activities within the boundaries of the lot where appropriate and practical.</li> </ul>
General Industry	<ul style="list-style-type: none"> <li>To provide for a broad range of industrial, service and storage activities, which by the nature of their operations should be appropriately separated from residential and other sensitive land uses.</li> <li>To provide for a range of lot sizes that support different types of industrial activities</li> <li>To accommodate industry that would not otherwise comply with the performance standards of light industry.</li> <li>To seek to manage impacts such as noise, dust and odour within the boundaries of the lot where appropriate and practical or within the zone.</li> </ul>

**Table 12 Scheme Zones**

Private Clubs, Institutions and Places of Worship	<ul style="list-style-type: none"> <li>To provide sites for privately owned and operated recreation, institutions and places of worship.</li> <li>To provide for a range of privately owned community facilities, and uses that are incidental and ancillary to the provision of those facilities, which are compatible with surrounding development.</li> <li>To ensure that the standard of development is in keeping with surrounding development and protects the amenity of the area.</li> </ul>
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## 5.5 Precincts

The Scheme area has also been divided into several precincts.

The Scheme precincts are intended to enable a more comprehensive approach to land and development control that is commensurate with the unique circumstances of the subject area.

## 5.6 Land Use

Land use classifications and definitions have been primarily based on the Model Provisions of the Regulations. This approach has been adopted in line with the State government's Action Plan for Planning Reform to ensure consistency across all planning schemes State-wide. This will also ensure a streamlined process for future conformance when the Scheme is concluded and the area is 'normalised'.

### 5.6.1 Land Use Permissibility

The Scheme includes a Zoning Table for uses within each zone.

The Zoning Table provides the Western Australian Planning Commission ("WAPC") the ability to properly consider proposals against the objectives and development provisions for each Zone and adopts the 'P', 'D', 'A', 'I', and 'X' categories; consistent with the Deemed Provisions.

In determining the permissibility of various land uses within the Scheme area, consideration was given to a range of matters, including –

- guidance within State Planning Policy 4.1 Industrial Interface, particularly in relation to the provision of a land use transition across the Scheme area between the industrial land uses within the Kwinana Industrial Area ("KIA"), including Alcoa's Residue Disposal Area ("RDA") and sensitive land uses in the north and east of the Scheme area;

- the findings of the Environmental Protection Authority ("EPA") and Department of Water and Environmental Regulation ("DWER") studies into dust related health and amenity issues affecting the area;
- land supply and demand factors, amenity benefits and impacts of proposed land uses; and
- the WAPC's preferred land use scenario and related drafting instructions.

Developments which have the potential to facilitate sensitive uses and user groups in proximity to the general industrial areas within and adjacent to the Improvement Scheme area are generally prohibited (i.e., Education Establishments, Child Care Premises, Aged Care Facilities and Hotels).

Development applications received within the North-East Precinct Zone will be determined in accordance with the provisions of an approved structure plan and objectives of the zone. If there is no structure plan in place, the application will be determined as a 'use not listed' and in accordance with the objectives of the zone.

### 5.6.2 Exemptions to Development Approval

The Scheme adopts exemptions to development approval, consistent with those included in the Deemed Provisions (limited to those land use permitted under the Zoning Table).

## 5.7 Structure Plan, Local Development Plan, Subdivision and Development Approvals

### 5.7.1 Structure Plans & Local Development Plans

The procedures for preparation and determination of structure plans and local development plans are set out in Part 7 and 8 of the Scheme, respectively.

The Scheme Report and Concept Plan provide a guide for subdivision, with structure plans and local development plans not generally required if sufficient information is provided in support of an application.

By exception, a structure plan should be prepared and approved by the WAPC for the North-East Precinct Zone (Precinct D), in consultation with DWER, ahead of subdivision and development to ensure that key environmental values are protected.

### 5.7.2 Subdivision

Subdivision of land will generally follow the conventional application process and require approval of the WAPC pursuant to Part 10 of the PD Act.

As the Scheme does not generally require the preparation and approval of a structure plan prior to the subdivision of the land (apart from the North-East Precinct Zone), provision has been included within the

Scheme which requires certain information and further technical studies to accompany applications for subdivision approval.

These include (but are not limited to) the following, where relevant –

- Preliminary site investigation;
- Acid sulphate soil investigation;
- Servicing strategy;
- Land capability statement;
- Urban water management plan;
- Bushfire management plan;
- Noise impact assessment; and
- Mosquito and Midge management strategy.

### 5.7.3 Development

Applications for development approval will be lodged with and determined by the WAPC, rather than the relevant local government, as the responsible authority for administering the Scheme.

#### 5.7.3.1 Residential Design Codes

State Planning Policy 7.3 Residential Design Codes (“**R-Codes**”) form part of the Scheme. As such, residential development will be controlled through the Scheme and the R-Codes. Where relevant, certain residential development controls may also be supplemented, augmented or replaced by a Local Development Plan.

A R30 density code has been adopted by the Scheme to allow integration with planned and existing residential development to the north-east, which sets a density code range of R30-R60 and provide certainty around dwelling yields in the Scheme area.

### 5.7.4 Roads

The Scheme identifies Primary Distributor Road reserves (Rowley Road and Anketell Road) to reflect their regional importance, and District Distributor Road reserves (Mandogalup/Hammond Road extension) to ensure the area is able to support the expected volumes and types of traffic. It is anticipated that relevant responsible authority will acquire land required for Primary Distributor Roads and widening of District Distributor Road intersections if/when required.

To enable flexibility and responsiveness to site specific considerations, local distributor roads and other local roads have been identified in the Concept Plan, and not reserved in the Scheme. It is expected that when land is subdivided, the proponent of the subdivision will be required to construct and drain roads, as per s.158 of the PD Act and ceded free of cost through standard subdivision processes. The subdivider may recover

portion of road costs from later subdivider/s, as per s.159 of the PD Act.

### 5.7.5 Clearing of Land and Vegetation

Where exemptions under the Environmental Protection Act 1986 (“EP Act”) are not met, a clearing permit from DWER is required.

### 5.7.6 Site and Development Requirements

Controls in the Scheme set out site and development requirements to be considered in subdivision and development. This includes:

- Subdivision requirements that ensure applications are supported by sufficient information;
- Primary Controls for each zone which set out requirements such as minimum or maximum lot sizes, setbacks, building heights and site coverage, and car parking requirements for selected land uses; and
- Precinct provisions to ensure that the aims of the Scheme are achieved, and special considerations addressed.

## 5.8 Environmental Management Requirements

The Environmental Assessment Report (enclosed as **Appendix A**) has been prepared to support the Scheme and outlines mitigation and management measures.

These have been summarised in **Table 13**.

**Table 13 Environmental Mitigation and Management Measures (Strategen-JBS&G, 2021)**

Potential Impact	Description of Impact/Issue	Management/Mitigation
Major roads	Kwinana Freeway, Anketell Road and Rowley Road may have noise implications for the placement of noise sensitive land uses.	Future noise sensitive premises are to be located away from these traffic routes, with non-sensitive uses situated to provide a potential noise barrier.  Where noise sensitive premises are located in areas above the outdoor noise targets, noise treatments (including noise walls and quiet house design) will be adopted.
Market gardens	Market gardens exist, both within and surrounding the Improvement Scheme area. Market gardens are potentially contaminating land uses and are known to generate gaseous, dust, noise and odour emissions.	A separation buffer of 300-500 metres between market gardens and sensitive land uses is to be adopted, pursuant to EPA Guidelines. It is noted that reduced separation distances may be supported where technical studies demonstrate that risks associated with the potential emissions are mitigated.
Conservation areas	Conservation areas, such as Bush Forever Sites 267, 268 and 393, and The Spectacles require consideration in relation to interface treatments to protect conservation areas from future development and to protect future development from bushfire hazards.	Appropriate interface treatments and separation distances will be applied through built form provisions and reservation of land for public open space.
Geology and soils	The Improvement Scheme area comprises three geological units, including; SANDY SILT (M <sub>ss</sub> ), SAND (S <sub>7</sub> ) and SAND (S <sub>8</sub> ).	Development should avoid areas of SANDY SILT (M <sub>ss</sub> ) associated with the Resource Enhancement Wetland ("REW"). In other parts of the Scheme area, the importation of fill (or cut-fill) may be required to achieve appropriate separation to groundwater.
Hydrology – groundwater	Groundwater is expected to be above natural surface level in the north-western corner of the Improvement Scheme area.  Groundwater in the southern portions of the Scheme area is anticipated to range from 'at-surface' to more than 15m below ground level.  Groundwater bores and associated abstraction licences currently exist across the Scheme area.	Appropriate separation (i.e., 1.2 metres) between building floor level and the maximum expected groundwater table is required, in accordance with Better Urban Water Management (2008).  Prior to development, groundwater monitoring should be undertaken to confirm maximum groundwater levels.  Groundwater abstraction licences can be transferred to new landowners and therefore these bores could be utilised for groundwater abstraction where required (i.e., for construction purposes or irrigation of public open space). This may need to be confirmed through water quality sampling.
Hydrology – surface water	Peel Main Drain ("PMD") traverses the southern portion of the Improvement Scheme area and plays an important ecological function to the local wetland network.	Pre-development surface water conditions are to be maintained within future development areas in accordance with the preparation of District, Local and Urban Water Management Plans (as required).
Hydrology – geomorphic wetlands	Wattleup Lake, a Resource Enhancement Wetland ("REW"), occurs within the north-western corner of the Improvement Scheme area.	The REW will be retained, with an appropriate buffer, and appropriately reserved under the Scheme.
Vegetation and flora	Intact vegetation within the Improvement Scheme area is limited, so should be protected and prioritised for retention, where possible.	Vegetation, trees and flora proposed to be retained as part of future development can be protected through construction management practices, including –

**Table 13 Environmental Mitigation and Management Measures (Strategen-JBS&G, 2021)**

Potential Impact	Description of Impact/Issue	Management/Mitigation
		<ul style="list-style-type: none"> <li>• Demarcation with flagging tape</li> <li>• Identification of root protection zones</li> <li>• Dieback hygiene management</li> <li>• Weed hygiene management; and</li> <li>• Dust control.</li> </ul>
Fauna and habitat	Several conservation significant species are considered possibly or likely to occur or are known to occur across the Improvement Scheme area.	<p>Fauna habitat to be retained should be protected through construction management measures, such as demarcation of retention areas prior to clearing taking place.</p> <p>Fauna relocation and pre-clearing hollow inspections can be undertaken in accordance with any conditions of future subdivision approvals, development approvals or clearing approvals.</p>
Conservation areas and ecological linkages	Several conservation areas are located within and adjacent to the Improvement Scheme area. These conservation areas are connected via mapped regional ecological linkages.	<p>The Scheme provides opportunities to retain and enhance conservation areas and ecological linkages through the retention of vegetation and trees, as well as the creation of 'green links' where development constraints allow.</p> <p>The most obvious opportunity for enhancement is across the ecological linkage between Wattleup Lake/Bush Forever Site No. 393 and 267/268.</p>
Contamination	Several potential contamination sources have been identified within and adjacent to the Improvement Scheme area.	A preliminary site investigation should be undertaken prior to development to determine the potential nature of contamination (if any) across the Improvement Scheme area.
Bushfire risk	Large portions of the Improvement Scheme area are designated bushfire prone under the Department of Fire and Emergency Services Map of Bushfire Prone Areas.	<p>A Bushfire Management Plan has been prepared and accompanies this Report.</p> <p>Where the development interfaces with intact vegetation, appropriate separation to development (habitable buildings) will be required to achieve a Bushfire Attack Level ("<b>BAL</b>") rating of BAL-29 or lower.</p> <p>Development will also be required to ensure adequate water supply for firefighting purposes is available.</p>
Acid sulphate soils	<p>Eastern portions of the Improvement Scheme area are mapped as having a moderate to low risk of Acid Sulphate Soils ("<b>ASS</b>") occurring within three metres of natural ground level.</p> <p>Low-lying areas in the north-west, central and south-western portions of the Scheme area are mapped as having a high to moderate risk of ASS occurring.</p>	<p>ASS Investigations should be undertaken where any of the following activities are proposed –</p> <ul style="list-style-type: none"> <li>• soil or sediment disturbance of 100m<sup>3</sup> or more in areas mapped as high to moderate;</li> <li>• soil or sediment disturbance of 100m<sup>3</sup> or more, with excavation from below the natural water table, in areas mapped as moderate to low;</li> <li>• lowering of the water table, where temporary or in areas mapped as high to moderate;</li> <li>• extractive industry works in areas where ASS are generally found; and</li> </ul>

**Table 13 Environmental Mitigation and Management Measures (Strategen-JBS&G, 2021)**

Potential Impact	Description of Impact/Issue	Management/Mitigation
		<ul style="list-style-type: none"> <li>flood mitigation works, including construction of levees and flood gates in areas where ASS are generally found.</li> </ul>
Heritage	A desktop assessment did not identify any registered Aboriginal heritage sites within or surrounding the Improvement Scheme area.	Prior to subdivision and development of land within the Scheme area, liaison with DPLH will be required to determine if an Aboriginal heritage survey or consultation with relevant Aboriginal people is warranted.

## 5.9 Non-Conforming Uses

The provision for non-conforming uses aligns with the Model Provisions of the Regulations. This allows the continued use of land, or any structure or building on land, for the purpose for which it was lawfully being used, immediately before the commencement of the Scheme.

However, if the any use of the land, structure or building is discontinued for more than 12 months, the provisions and permissibility of the Scheme then apply and the use may no longer be permitted.

## 5.10 Administration and Review

### 5.10.1 Administration

The WAPC will be the responsible authority for implementing the Scheme, including any Scheme policies. The WAPC will ensure that the statutory planning framework aligns with both State and local government broader strategic objectives for the region.

Applications for the approval of any subdivision and/or development of land under within the Scheme area will be submitted to, and assessed and determined by the WAPC, as per its delegation register applicable to the Scheme area.

### 5.10.2 Review

Periodic review of the operation of the Scheme will provide the opportunity to assess the effectiveness of the scheme in facilitating the aims and objectives of IP47. It also allows assessment of the efficiency of the provisions from an operational perspective.

Part 5, Division 5 of the PD Act requires improvement schemes to be reviewed after each five-year period of

operation. This ensures they remain current and are appropriately serving strategic objectives.

A review of the Scheme may also coincide with a review of relevant supporting technical documentation, a holistic review of amendments to the Scheme that may have been gazetted, and consolidation of the Scheme provisions.

Over time, parts of the Scheme may be 'normalised' into the MRS and TPS2. At such time, it will be necessary to review the Scheme against the MRS and TPS2 and proactively prepare scheme amendments, if necessary, for alignment of zones, reserves and other requirements between schemes.

## 5.11 Technical Documentation

The Scheme provisions have been prepared with regard for a series of technical reports that are appended to this Report. These reports and the matters addressed by each are summarised as follows –

- **Appendix A** – Environmental Assessment Report
- **Appendix B** – District Water Management Strategy
- **Appendix C** – Bushfire Management Plan
- **Appendix D** – Land Supply and Demand Analysis (including Westport Analysis)
- **Appendix E** – Transport Report
- **Appendix F** – Infrastructure and Engineering Services Assessment
- **Appendix G** – Transport Noise Assessment
- **Appendix H** – Hammond & Mandogalup Road – Road Design Report

# 6.0 Concept Plan

This Part explains the design process behind the collaborative review of the preferred land use scenario, refinement of the final Concept Plan and its relationship to the Improvement Scheme.

## 6.1 Concept Plan Rationale

The refinement and delivery of the Concept Plan has ensured that the project continues to provide a planning framework which will –

- create sustainable employment opportunities and land supply;
- provide adequate separation between industrial activity and sensitive land uses;
- respect the culture and history of the location;
- retain the natural topography, quality landscape and environmental values of the locality; and
- help to deliver an effective, efficient, integrated and safe transport network.

### 6.1.1 Preferred Land Use Scenario Refinements

As generally indicated in **Figure 11** and below, the key features from the WAPC's preferred land use scenario have been carried through to the final Concept Plan. As a result of more detailed site analysis, several refinements were made, as detailed below –

- Inclusion of constraints on land uses under the overhead powerlines, adjacent to the Peel Main Drain and DBNGP.
- Inclusion of the Waterways reservation to ensure the appropriate protection for areas of land for drainage management.
- Introduction of Public Open Space areas to provide amenity, passive recreation, drainage management and landscape buffers.
- The replacement of a southern Local Centre with a Service Commercial hub to provide for vehicular based services and convenience needs in proximity to the Anketell Road freight route.
- Indicative local distributor roads to provide connections to planned development at the interface between the Mandogalup Improvement Scheme and the City of Kwinana Scheme.
- Inclusion of indicative sites for sewer pump stations and an air quality monitor.

- The integration of the vegetation corridor along Mandogalup Road into the setbacks of the northern General Industrial precinct.
- Zoning and provisions for Lot 2 Rowley Road that create a framework to ensure any potential future development appropriately considers and protects identified environmental values.
- Recognition of the existing place of worship through an appropriate Private Clubs, Institutions and Places of Worship zone.

## 6.2 Key Features

The Concept Plan (refer **Figure 3**) for the Scheme comprises of the following:

### 6.2.1 Industrial Uses

- Approximately 84 hectares of gross development area is designated for general industrial land uses.
- Approximately 72 hectares of gross development area is designated for light industrial land uses.
- In accordance with the objectives and principles of State Planning Policy 4.1 – Industrial Interface “**SPP4.1**”, the location of General Industry and Light Industry zones provide a suitable land use transition and interface between industrial land uses and sensitive land uses towards the east.
- Conceptual local road networks provide guidance on how the industrial areas can be serviced.

### 6.2.2 Residential Uses

- Approximately 2.5 hectares of gross development area is designated for residential uses, equating to approximately 83 dwellings (based on an R30 average lot size).
- The residential land within the Scheme area is designated as R30 and located east of the Mandogalup/Hammond Road extension to ensure potential for industrial impacts are suitably avoided, mitigated or managed, in accordance with SPP 4.1.
- The conceptual local road network indicates how the movement network and street layout could provide connectivity with existing developed areas.

- Public open space within the residential areas can also provide an interface between the Peel Main Drain and residential development, and accommodate drainage storage areas, where required.

### 6.2.3 Commercial/Retail Uses

- Approximately 10 hectares of gross development area is designated for commercial land uses. This includes two Service Commercial areas and one Local Centre.
- It is anticipated that the Scheme area can comfortably support 25,000m<sup>2</sup> of net lettable area within the two Service Commercial areas and Local Centre (1,500m<sup>2</sup> net lettable area).
- The locations of the Service Commercial areas in proximity to future Rowley Road and Anketell Road are expected to face the Mandogalup/Hammond Road extension, providing for high visibility and access.

### 6.2.4 Open Space

- A network of open space, including ecological linkages are identified to retain areas of quality flora and vegetation, and protect conservation areas (i.e., Resource Enhancement Wetland and Bush Forever Site No. 393).
- Open space is strategically identified within residential areas and adjacent to drainage/waterway to support the drainage functions required, and to provide a level of amenity to residents. The specific location and dimensions of open space may be refined, however, minimum levels of provision are provided for in the Scheme.
- The Tramway is identified as open space to ensure the pedestrian access, connection to the broader corridor is maintained.
- A 40-metre vegetation corridor adjacent to Mandogalup Road provides the opportunity for landscaping, minimised visual impact of industrial development, and connectivity between the Resource Enhancement Wetland and Bush Forever.

### 6.2.5 Drainage and Waterways

- Land located to the west of the PMD channel required for occasional flood storage (PMD Overflow West) as per the District Water Management Strategy ("DWMS") is designated as Drainage/Waterway, in recognition of the limited useability of the area either for open space or light industrial purposes.
- Land located to the east of the PMD channel required for occasional flood storage (PMD Overflow East) as per the DWMS is designated as restricted open space, in recognition of the potential for the flood

storage area to be used for passive recreation (in conjunction and consolidation with adjacent public open space).

- The potential for the PMD to be realigned (proponent-driven) to the Western Power easement is identified, which may provide an opportunity for the redundant portion of the PMD to be repurposed for light industrial uses.
- A series of locations that will require land to be set aside for local drainage solutions have been identified in accordance with the DWMS, allowing for refinement through preparation of a Local or Urban Water Management Strategy in support of subdivision and development applications.

### 6.2.6 Transport and Movement Network

- In addition to Primary and District Distributor Roads, Local Distributor Roads are depicted to demonstrate the connections and cohesive interface between precincts, and between the Scheme area and the adjacent residential areas to the east.
- Local distributor roads are expected to closely align with the Concept Plan noting that provision has been made on the Scheme Map for the entry points to the planned major intersections along Mandogalup Road (south)/Hammond Road extension. Alternatives may be considered where further investigation and planning determine that alternative alignments provide for improved access/egress efficiencies, or barriers to provision of the indicative alignments are identified.
- The local road layout should be refined to suit the proposed subdivision and development. However, the indicative layout set out in the Concept Plan provides for:
  - alternative access and frontage to lots impacted by restricted access to/from the Primary and District Distributor Roads;
  - the majority of landowners to implement subdivision and development proposals independently of others;
  - connections and cohesive interface within and between precincts, and between the Scheme area and the adjacent residential areas to the east; and
  - potential connections to district distributor roads (restricted to left in-left out movements) and subject to approval.
- Preliminary road designs indicate that pedestrian and cyclist movement may be accommodated along Mandogalup Road / Hammond Road extension.



### 6.2.7 Other Infrastructure

- A site of approximately 60m<sup>2</sup> has been identified on the southern side of the local centre for provision of an Air Quality Monitoring Station. The specific location is required to be refined in consultation with the Department of Water and Environmental Regulation, and in consideration of factors such as the proposed future development layout, amenity and access.
- Several indicative local sewer pump stations have been identified across the Scheme area to meet local demands, in accordance with the Servicing Report. The precise locations and site area requirements are expected to be refined in response to localised technical reports undertaken in support of subdivision or development applications, and ceded free of cost. These local sewer pump stations require buffers as defined in section 3.4.1.

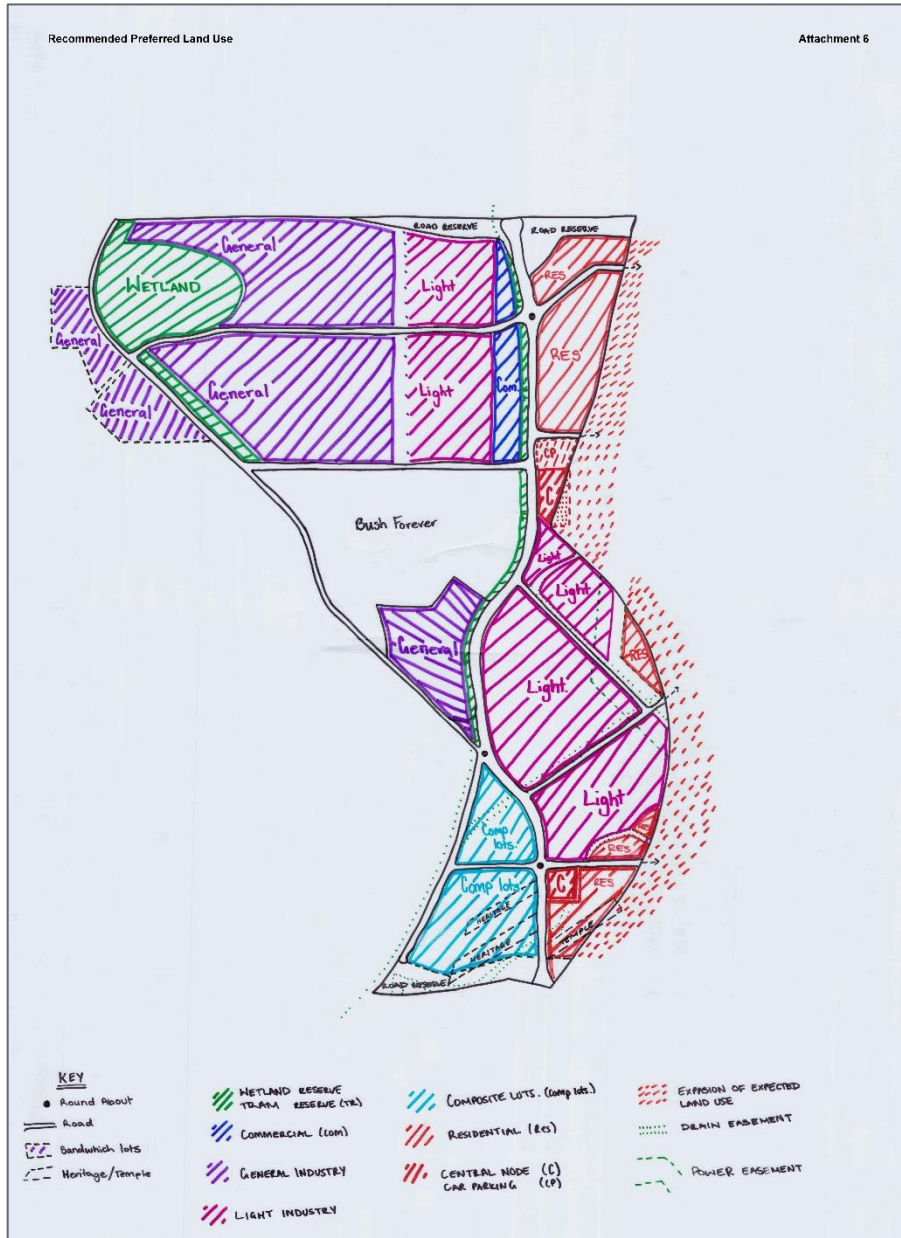
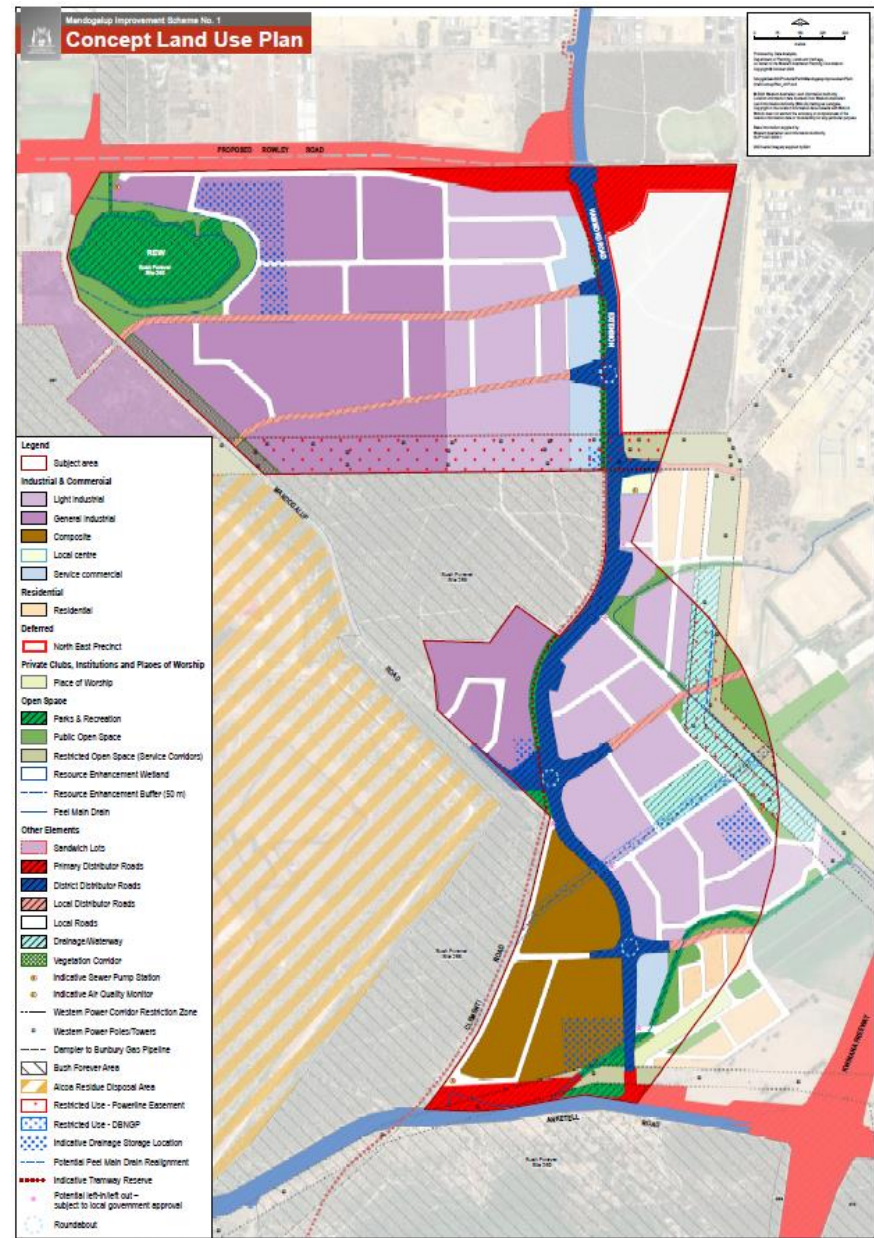


Figure 11 Concept Plan Comparison



## 6.3 Economic Considerations

### 6.3.1 Industrial Floorspace Demand and Development Configuration

The site is influenced by general industrial and future port-based uses to the west including Westport, Western Trade Coast, Australian Marine Complex, Strategic Manufacturing Hub and Latitude 32.

Industrial uses transition from general industry in the west of the scheme area to light industrial activities in closer proximity to residential uses in the east of the scheme area. The influence of the scale of Western Trade Coast and associated activities will have a significant effect on the Mandogalup area.

Demand for land for general and light industrial development is generated by land uses transitioning from the Western Trade Coast as Westport develops, mostly population driven uses and strategic uses which do not necessarily need to be located next to the port operations. The location of Mandogalup near freight routes, major highways and a resident population/employment catchment will make it attractive for uses such as manufacturing, service commercial, construction trade services, warehousing and storage, logistics and distribution, motor vehicles retail, freight transportation and certain manufacturing uses subject to supply chain efficiencies.

General industrial precincts are located to the north-west of the Improvement Scheme area, near Rowley Road and in the central area, adjacent the Alcoa RDA and Bush Forever Site No. 268. Strategic industrial uses will require medium to large, relatively flat lots with excellent access for heavy vehicles as these locations offer the best site conditions. The northern precinct may benefit from being able to utilise land under the overhead power cables for temporary uses such as some forms of storage and car parking, subject to WAPC approval, on advice from Western Power.

Light industrial uses are located to the east of the general industrial area near Rowley Road and more centrally between Mandogalup Road/Hammond extension and the Peel Main Drain/Waterways reserves. Light industrial uses require medium lots with frontage to major roads and local roads. Some restrictions will need to be applied to land uses in the vicinity of the Dampier to Bunbury Natural Gas Pipeline (“DBNGP”) corridor where risks will need to be assessed at development application stage.

All industrial uses will likely require incidental office accommodation and potentially incidental retail/wholesale or showroom space, but these uses should not become the primary use, as land has been allocated in the Improvement Scheme area specifically for this purpose.

The primary controls contained in the Scheme Text are modelled from the City of Kwinana scheme and relevant policy provisions for industrial development.

### 6.3.2 Commercial and Retail Floorspace Demand and Development Configuration

Commercial and retail floorspace will be driven by the level of nearby residential populations and employment catchments as well as exposure to passing trade.

Commercial land uses within the Improvement Scheme area may total between 25,000 - 50,000m<sup>2</sup>, with retail land uses assumed to account for up to 2,000m<sup>2</sup> (being; 500m<sup>2</sup> for retail trade within the Service Commercial zone and up to 1,500m<sup>2</sup> within the Local Centre zone).

The locality has a clear hierarchy of centres, and the land uses and scale of retail and commercial development considered for the Mandogalup scheme areas is consistent with this hierarchy.

Some restrictions have been applied through the Improvement Scheme text (i.e., through land use permissibility and floorspace limitations), to ensure the retail and commercial development responds to the needs of the location and proximity to general industrial uses.

Whilst the Scheme provides for a maximum 1,500m<sup>2</sup> NLA for the local centre, retail and commercial development will also be required to align with State Planning Policy 4.2 Activity Centres (“SPP4.2”), which will ensure the centre hierarchy in the region is maintained whilst allowing for flexibility as the community matures and where additional scale and mix of development can be justified by proponents.

Commercial and retail land uses require small to medium lots with local road frontage and within a walkable catchment of employment and residential areas. The local centre is located to facilitate a walkable catchment as well as to provide vehicular access and potential for passing trade from the east-west road connections which integrate the proposed development with future structure plan areas to the east of the Improvement Scheme area. The permissible land uses include convenience and population-based services and facilities.

Service commercial uses are grouped in the southern portion of the Improvement Scheme area to provide for land uses associated with the freight route along Anketell Road and other vehicular based activities such as fuel station, vehicle servicing and drive through food outlets.

Service commercial uses are also clustered near the northern gateway and along the northern section of Hammond Road adjacent to the industrial land uses to facilitate a movement economy. Permissible uses include wholesale, showroom and larger format retail, which may be associated with the general and light industrial precincts and also provide for wider population driven

needs. This service commercial development will also provide a useful buffer between the residential development east of Hammond Road. It is envisaged that this development will be adequately set back from Hammond Road and facilitate a landscaped setting and appropriate interface with the Tramway principal shared path, with access to lots achieved via a service road and /or a rear laneway.

The primary controls contained in the Scheme Text are modelled from the City of Kwinana scheme and relevant policy provisions for industrial development.

### 6.3.3 Employment Estimate Assumptions

Employment estimates have been calculated with consideration for the following key assumptions (amongst others) –

- Previous context through land use and demand analysis for the Improvement Scheme area;
- Benchmark commercial areas aligned to the type of land uses propose;
- Department of Planning, Lands and Heritage (“DPLH”) Land Use and Employment Survey (“LUES”) data; and
- Australian Bureau of Statistics (“ABS”) Census Industry of Employment data.

Upon analysis, it is estimated that the Improvement Scheme may generate approximately 3,887 jobs, comprising approximately –

- 1,443 general industry jobs;
- 1,838 light industry jobs;
- between 244 – 488 service commercial jobs; and up to 118 retail and non-retail uses in the local centre.

## 6.4 Environmental Considerations

### 6.4.1 Environmental Buffers

The Concept Plan (refer **Figure 3**), considers environmental buffers in the placement of land uses and aims to provide adequate separation between sensitive land uses (i.e., residential developments) and industrial uses by designing with the topography, landscape and road reserves to achieve the optimal outcome. The Concept Plan also provides for separation of active land uses from environmental features such as potential bush fire hazards and sensitive ecological features (i.e., geomorphic wetlands).

Development will likely be implemented in stages over time. During this time, existing uses which may create emissions (i.e., noise, odour etc.), such as; market gardens, will continue to function until such time as they relocate or cease operation. Proposals for higher intensity sensitive uses in the vicinity of these existing

uses will therefore need to take into consideration appropriate setbacks and interface treatments during the transition period. Setbacks which are less than the Environmental Protection Authority (“EPA”) recommended separation distance may be supported in this context.

#### 6.4.1.1 Dust

Recent studies of the existing levels of dust in the location have been taken into consideration in the distribution of land uses in the concept plan and potentially sensitive use such as residential development have been placed to the eastern edge of the Improvement Scheme area, an adequate distance from the existing industrial activities on the Alcoa RDA site. An Air Quality Monitor is proposed to be located in (or proximate to) the Local Centre, and operated by the Department of Water and Environmental Regulation to monitor the prevailing conditions. It is envisaged that land will be either purchased or leased for the purpose of locating the monitor in a central position.

There will also be a period when basic raw material (“BRM”) is extracted in the northern section of the Improvement Scheme area which may also have the potential to impact upon sensitive uses such as residential development until such time as the extraction activities are completed and the area is returned to a condition suitable for redevelopment as proposed under the Concept Plan. Careful consideration should be given to staging residential development in this precinct to avoid undue conflicts between land uses. It would be preferable for the conditions associated with the licence for extraction to include the requirement for reinstatement and the identification of finished reinstatement levels and contours to enable future planning to take place and for there to be certainty regarding the integration of new development within the landscape, road alignment and drainage of the remaining scheme area.

#### 6.4.1.2 Dampier to Bunbury Natural Gas Pipeline

The DBNGP corridor has been depicted on the Concept Plan, and traverses the eastern light industrial area and Composite lots. In accordance with pipeline safety and easement requirements, risks to and from the pipeline will need to be assessed for subdivision and development applications, with advice and/or approval from the pipeline operator and Land Access Minister required.

Affected lots will require notification on titles as per the requirements of draft Development Control Policy 4.3 Planning for High Pressure Gas Pipelines (“DC4.3”) pursuant to Section 70A of the Transfer of Land Act. Access for repairs and maintenance may also need to be granted.

#### 6.4.1.3 Road and Rail Noise

Future land uses with a noise sensitive nature are generally located outside the target noise contour (i.e., away from Anketell Road, Rowley Road, Hammond Road and Kwinana Freeway).

Industrial or commercial premises and some very low-density composite lots that are not noise sensitive are located closer to the transport corridors and these uses may provide noise barrier effects to sensitive uses behind them.

For any noise sensitive premises proximate (within the noise contours) Anketell Road, Rowley Road, Hammond Road or Kwinana Freeway, as per the requirements of State Planning Policy 5.4 Road and Rail Noise (“SPP5.4”), the following will be required to ameliorate any noise impacts:

- Noise amelioration packages; and
- Notification on titles.

#### 6.4.2 Bush Forever

The Improvement Scheme area encompasses Bush Forever Site 393, and abuts Bush Forever Sites 268 and 267. The Concept Plan has identified non-residential uses in proximity to these sites. These development areas require consideration in relation to interface treatments. Appropriate interface treatments may include:

- conservation fencing and signage;
- batter grades;
- on-site stormwater management; and
- weed and Dieback hygiene controls.

#### 6.4.3 Landscape

Given the limited vegetation within the Improvement Scheme area, development areas of vegetation which are of 'good' quality or better, have been retained where possible.

Where possible, future development should avoid impacts to black cockatoo habitat including significant trees, particularly those with potentially suitable nesting hollows.

Additionally, consideration should be given to the creation of habitat for other avian and ground dwelling fauna where development constraints permit.

Opportunities exist to enhance the mapped regional ecological linkage along Mandogalup Road where a vegetated corridor could be established within the general industrial area subject to conditions of subdivision and maintenance by the ultimate landowners.

Opportunities exist at the entrances to residential precincts and adjacent to key roads such as Hammond Road (utilising the Tramway corridor), Rowley Road and Anketell Road and adjacent to the Peel Main Drain to provide landscape buffers which also provide a high amenity setting.

#### 6.4.4 Bushfire Management

Bushfire management will be required in areas abutting bushfire prone areas. This is most likely to be associated within the General Industry and the Composite zones. Appropriate asset protection measures and evacuation plans will be required at the time of subdivision and development applications.

Land within the Composite and General Industry zones will be required to maintain fire breaks in accordance with the prevailing regulations and policies.

Land within a bushfire prone location is to have notification on titles as per SPP 3.7 requirements pursuant to Section 70A of the *Transfer of Land Act 1893* as a condition of any subdivision or development approval.

#### 6.4.5 District Water Management

The DWMS as prepared by JDA Consultant Hydrologists (refer **Appendix B**), provides guidance on local water management issues in the Mandogalup catchment area. Preparation of a Local Water Management Strategy (“LWMS”) will be the responsibility of the developer and should address the design principles and objectives contained in Table 6 of the DWMS.

Indicative areas for drainage storage are shown on the Concept Plan and these will require refinement and additional details to be provided as part of the Local Water Management Strategy at the time of subdivision and development and supported by appropriately designed drainage basins. These drainage basins may be designed into the lot setbacks and landscape areas.

##### 6.4.5.1 Peel Main Drain

The Peel Main Drain traverses the Scheme area, playing an important ecological and drainage function to the local wetland network.

To avoid flood inundation at time of the 1 in 100 episodes, areas of open space and waterways have been identified along the alignment of the Peel Main Drain to ensure adequate drainage detention and storage at critical times. These areas are not suitable for development.

The Department of Water (fmr) ‘Jandakot Drainage and Water Management Plan: Peel Main Drain Catchment’ (“Jandakot DWMP”) (2009) identifies that the ‘Peel Sub Q Drain Catchment’ traverses land within the ‘Composite’ zone, and indicates (as shown on Figure ES1) that a

portion of the drain would be transferred to the local authority.

Typically, this would be transferred as part of future subdivision, with the Management Order being transferred from Water Corporation to the City. However, recognising that there is a presumption against the further subdivision of land within the 'Composite' zone, the Management Order for the Sub-Q is expected to remain under the jurisdiction of Water Corporation.

The Jandakot DWMP allows for channel realignments and profile modifications, provided that it is demonstrated that the pre-development hydraulic capacity of the drain has been preserved. A potential realignment has been depicted on the Concept Plan, following the powerline easement alignment. Should a proponent/s wish to facilitate realignment, this would release land to the west for development.

#### 6.4.5.2 Drainage/Waterway Reserve

The Jandakot DWMP identifies Mandogalup Swamp as an important regional flood storage and modelling was used to assess four potential scenarios for post development land use for partial or complete filling of the swamp on the flood storage capacity of the drain.

The preferred scenario (as identified within the Jandakot DWMP) keeps the powerline and pipeline corridors within Mandogalup Swamp undeveloped. This scenario has been followed through into the Improvement Scheme Map and the Concept Plan as a 'Drainage/Waterway' reserve, recognising seasonal inundation and to ensure that this land remains protected for drainage purposes.

## 6.5 Social Considerations

### 6.5.1 Heritage Management

A desktop assessment did not identify any registered Aboriginal cultural heritage sites within the Improvement Scheme area or Sandwich Lots. Liaison with DPLH is required to determine if an Aboriginal cultural heritage survey or consultation with relevant Aboriginal people is required..

A number of European heritage sites are mapped within the subject area. Development applications concerning the heritage homes on the Composite lots will need to be considered under the relevant legislation and policies.

Other element of character such as the old Tramway are considered important features of the existing and therefore of the future development.

### 6.5.2 Residential and Composite Lot Development

Whilst the concept is indicative, it is intended that there will be a strong relationship with the existing and planned street structure within and external to the Improvement Scheme area.

Local Public Open Space pockets can provide entry statements and buffers to arterial roads as well as an amenity focus, opportunity to preserve mature trees and significant vegetation and a location for overland drainage runoff and storage where required in accordance with the prevailing Drainage Management regime.

A residential density code of R30 is considered appropriate given the suburban location and general configuration and densities proposed in adjacent structure plan areas abutting the Improvement Scheme boundary.

The primary controls contained in the Scheme Text are modelled from the City of Kwinana scheme and relevant policy provisions for residential development.

### 6.5.3 Construction Management

Development should avoid areas of sandy silt associated with the Resource Enhancement Wetland ("REW") in the north-western portion of the Improvement Scheme area.

The importation of fill (or cut-fill) will likely be required to achieve appropriate separation to groundwater.

Areas of sand are expected to be compatible with urbanisation and the construction of roads.

Development should be connected to sewer to avoid potential environmental impacts, where this cannot be achieved, a land capability assessment for on-site effluent disposal will be required.

The onsite geological environment, and land use suitability should be determined by geotechnical investigations and recommendations prior to development commencement.

Appropriate separation (1.2m) between building floor level and the maximum expected groundwater table is required. Prior to development, groundwater monitoring should be undertaken to confirm maximum groundwater levels.

Development will be required to demonstrate how groundwater will be managed to ensure pre-development groundwater conditions are maintained.

Fauna habitat should be protected through construction management measures, such as demarcation of retention areas prior to clearing taking place. Additionally, fauna relocation and pre-clearing hollow inspections can be undertaken in accordance with any conditions of future subdivision approvals, development approvals or clearing approvals.

Acid Sulphate Soils are generally considered manageable and not a constraint to development.

Battering and retention of gradients may be possible in the northern general and light industrial precinct under the overhead power cables subject to western power

approval, in order to provide temporary uses such as storage and vehicle parking.

## 6.6 Transport Considerations

The Transport Assessment Report, as prepared by Flyt (refer **Appendix E**), provides guidance on expected vehicular movements throughout the Improvement Scheme area.

A road design report has been prepared by BG&E (refer **Appendix H**) which provides a more detailed study on the road planning for the extension of Hammond Road to Norkett Road and the upgrade of Mandogalup Road.

A summary of the key findings and considerations for further detailed planning are provided below.

### 6.6.1 Traffic Generation

Applying vehicle trip rates for ultimate land uses contemplated by the Improvement Scheme and the Concept Plan produces a total of 2,598 peak hour vehicle trips and a total of 22,524 daily vehicle trips.

Notably, these vehicle trips are generally less than those anticipated under previously contemplated scenarios, which ranged between 2,531 – 3,516 peak hour vehicle trips and between 22,316 – 30,571 daily vehicle trips.

### 6.6.2 Traffic Distribution

In 2019/20, Main Roads Western Australia (“MRWA”) provided Regional Operations Model (“ROM”) data from their 2041 model run for a modelled scenario that only included existing land uses within the Improvement Scheme area and did not reflect the proposed land uses for the area as developed as part of this project.

As such, an agreement was established with MRWA to undertake a first principles approach to assessing the traffic distribution impacts of the various land use scenarios (based on several agreed assumptions; as detailed in **Appendix E**).

Traffic distribution analysis identifies that of all the land use scenarios considered, the final Concept Plan (refer **Figure 3**) is expected to generate the fewest external vehicle trips (i.e., 15,967 trips) along the key external road network surrounding the Improvement Scheme area. This was a key consideration for project stakeholders such as MRWA and the City of Kwinana.

Analysis shows that the Improvement Scheme area could generate traffic volumes that result in the following by 2041 –

- Rowley Road (east) having a 9% increase in traffic, from 30,000 to 32,550 vehicles per day (“vpd”);
- Rowley Road (west) having a 27% increase in traffic, from 25,000 to 31,850 vpd in 2041;

- Anketell Road (east) having an 8% increase in traffic, from 41,000 to 44,150 vpd; and
- Anketell Road (west) having a 7% increase in traffic, from 30,000 to 32,100 vpd.

### 6.6.3 ROM Data (2051)

In April/May 2023, MRWA provided ROM data for the 2051 land use scenario to support the assessment of the final Concept Plan.

This data was provided with a caveat that the 2051 land use scenario did not fully consider all the land uses contemplated within the final Concept Plan, and only accounted for 70% of the land use assumptions.

In addition, MRWA provided a series of link analysis plots to provide additional context. The link plots show high through traffic movement across the Improvement Scheme area between Kwinana Freeway, south of Anketell Road and Rockingham-Stock Road corridor, to access Spearwood, Hamilton Hill, Fremantle and beyond. This movement is via Kwinana Freeway – Anketell Road – Hammond Road Extension – Mandogalup Road – Rowley Road – Rockingham Road – Stock Road.

Based on the planned future upgrades to both Rowley and Anketell Roads, it is not expected that the Hammond Road Extension-Mandogalup Road corridor would be used as a significant through-route to access the Kwinana Freeway. It is possible that the 2051 land use scenario, run within the ROM is making this through movement more attractive than it ordinarily would be, with the additional traffic associated with the extra 30% of land uses.

To account for the 2051 daily traffic volumes in the ROM outputs omitting 30% of the land uses contemplated by the final Concept Plan, Flyt calculated the approximate 30% of traffic that was not reflected in the 2051 ROM outputs.

The total 2051 daily traffic volumes, being a combination of the 2051 ROM output volumes and the additional daily traffic predicted by Flyt, expected within the Improvement Scheme area are summarised in the following Table and depicted in **Figure 12**.

Road Name	Traffic Volumes (vpd)
Hammond Road, north of Rowley Road	8,000 – 10,600, each way
Hammond Road Extension, between Rowley Road and Mandogalup Road	10,300 – 11,500, each way

Table 14 Daily Traffic Volumes	
Road Name	Traffic Volumes (vpd)
Hammond Road Extension, between Mandogalup Road and Anketell Road	18,300 – 19,100, each way
Mandogalup Road, between Rowley Road and Hammond Road	9,000 – 9,800, each way
Rowley Road, east of Hammond Road Extension	18,300 – 23,500, each way
Rowley Road, west of Mandogalup Road	22,100 – 22,800, each way
Anketell Road, east of Hammond Road Extension	22,400 – 26,100, each way
Anketell Road, west of Hammond Road Extension	14,900 – 19,300, each way

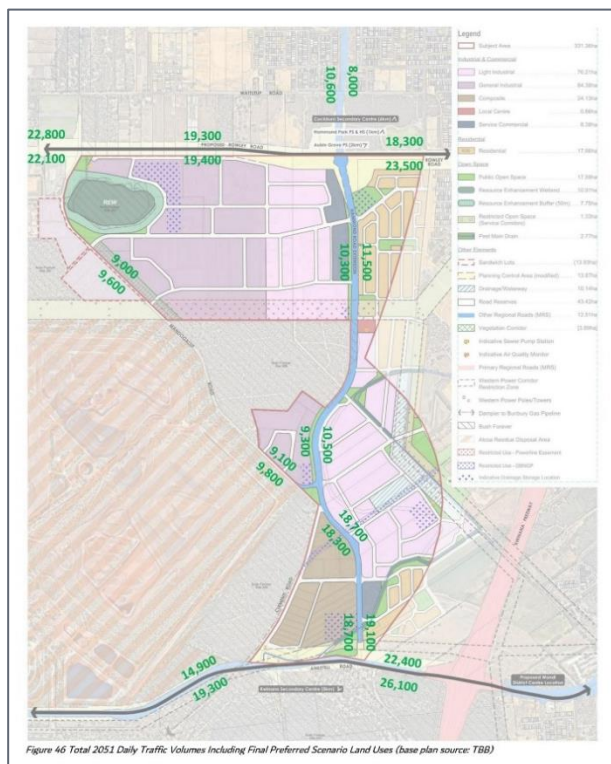


Figure 12 Total 2051 Daily Traffic Volumes (Flyt, 2023)

### 6.6.4 Future Road Network Hierarchy

Mandogalup Road (south) and the Hammond Road extension were previously designated as Other Regional Road reserve in the MRS. A comparable road reserve (District Distributor Road) has continued to be applied in the draft Scheme Map for consistency.

The potential 2051 road hierarchy is summarised below –

- **Rowley Road** – to remain a Regional Distribution Road, with an upgraded corridor to accommodate 18,500 – 23,500 vpd each way, and will function to provide a link between Kwinana Freeway and future Kwinana Port.
- **Anketell Road** – to remain a Regional Distribution Road, with an upgraded corridor to accommodate 15,000 – 26,000 vpd each way, and will function to provide a link between Kwinana Freeway and future Kwinana Port.
- **Hammond Road, north of Rowley Road** – to remain a Distributor B Road, with land uses within the Improvement Scheme area expected to have moderate impact on traffic volumes.
- **Hammond Road Extension, between Rowley Road and Anketell Road** – to be classified a Distributor A Road, to accommodate 10,500 – 19,000 vpd each way. Direct vehicular access from individual lots will be limited to commercial land uses only, generally via service roads.
- **Mandogalup Road, between Rowley Road and Hammond Road Extension** – to be classified as a Distributor B Road, to accommodate 9,000 – 10,000 vpd each way. Direct vehicular access from individual lots will be limited where possible for both residential and commercial land uses.

### 6.6.5 Road Widths and Intersections

Indicative cross-sections were initially prepared for the distributor road network, which considered the road hierarchy, forecast traffic volumes, frontage access conditions, and the type of vehicular traffic expected (restricted access vehicles). It is expected that existing distributor road reservations (Mandogalup Road and Hammond Road extension) will largely be able to accommodate the expected traffic movements, and will not be significantly widened, with the exception of expanded reservations at the five major intersections in order to provide for treatments capable of servicing the volumes and types of traffic expected to utilise the IP47 area (including Restricted Access Vehicles “RAV”), and to accommodate the drainage and earthworks required in response to the varying ground levels.

Final verge widths have not been set in the Scheme or Concept Plan, as they may depend on drainage, servicing and environmental issues.

A range of intersection controls, based on the road hierarchy, intersection spacing, surrounding land uses and the largest expected vehicle size. Indicative controls for intersections along the distributor road network are depicted in **Figure 13**, noting that the first and second intersection south of Rowley Road will likely be switched



in order to meet Main Roads WA requirements (see also **Appendix H**).

Two four-way intersections are proposed along Hammond Road Extension. These are indicatively shown as roundabouts.

Two three-way intersections are proposed along Hammond Road Extension. These are shown as a roundabout and a signalised intersection near the Local Centre. Traffic signal control will provide a safer environment for pedestrians in the vicinity of the proposed activity centre land uses.

Where the local roads are indicatively shown on the Concept Plan as intersecting with the district distributor road, these will be required to be priority controlled (either stop or give-way sign), with movements restricted to left-in-left-out only and subject to approval. The restriction of right-turns onto Hammond Road Extension will allow for safer turning movements and will encourage larger freight vehicle movements to utilise the safer, higher-order intersections and therefore manage which routes they take.

Within areas zoned 'Light Industry' and 'General Industry', the predominant form of intersection control should be priority controlled three-way, constructed with minimal median treatments to facilitate the movement of restricted access vehicles.

### 6.6.6 Access Principles

#### 6.6.6.1 Hammond Road Extension

The Hammond Road Extension will ultimately be constructed as a dual carriageway and reserved as an 'Other Regional Road' under the Metropolitan Region Scheme ("MRS"), with some road widenings required to facilitate movement of a RAV 4 or RAV 7 network around intersections.

It is anticipated that the Hammond Road extension accommodate RAV 7 movements from Rowley Road to the second intersection south; and RAV 4 movements through to Anketell Road.

For new developments, direct frontage access should not be permitted, unless the development is a significant traffic generator (i.e., major shopping, recreation, or community centre). In this scenario, appropriate left and right-turn pockets will be required to reduce any impact to through traffic.

For lower traffic generating developments, access should be obtained from side roads and service roads where required.

Existing frontage access to properties will be maintained until redevelopment occurs. However, this will be restricted to left-in-left-out movements once a median and second carriageway are structured. The speed limit

along the section of the Hammond Road Extension with existing frontage access should be limited to 60km/hr.

A service road may be considered to maintain access to existing developments within the 'Composite' zone.

For properties with existing frontage access, which generate higher volumes of traffic, or heavy vehicle traffic, left-turn pockets may be required to reduce any impact to through traffic.

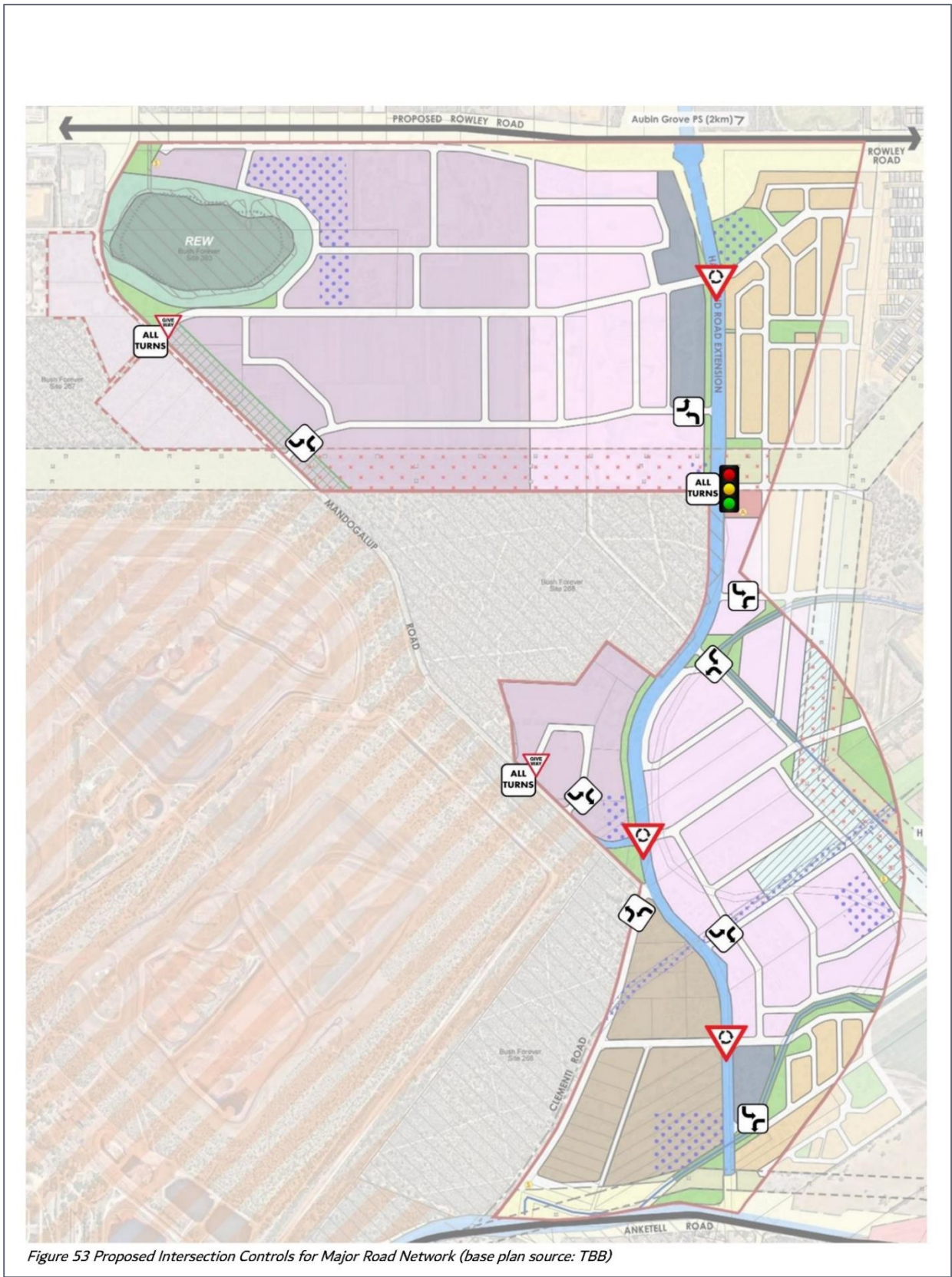
#### 6.6.6.2 Mandogalup Road

For new developments, direct frontage access should not be permitted, with access to be obtained from side roads or service roads.

Where there are no side road or service road alternatives, direct access could be considered with adjacent lots sharing crossovers where practical, and left-turn pockets provided to reduce the impact to through traffic.

Properties with existing frontage access will maintain this until redevelopment occurs. However, this will be restricted to left-in-left-out movements once a median and second carriageway are constructed.

The speed limit along Mandogalup Road should be limited to 70km/hr.



**Figure 13** Proposed Intersection Controls (Flyt, 2023)

*Note: Sections of the Flyt 2023 report relating to Hammond/Mandogalup Road have been superseded by updated studies by BG&E 2024 (Appendix H).*

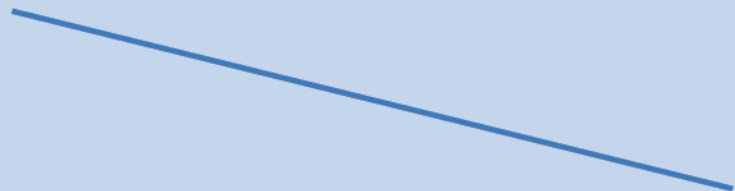
# Appendix A

Environmental Assessment Report



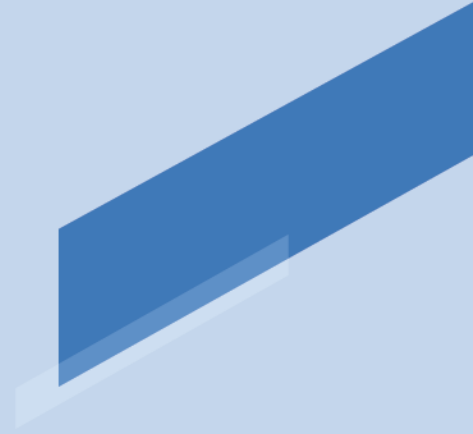
# Appendix B

District Water Management Strategy



# Appendix C

Bushfire Management Plan



# Appendix D

Land Supply and Demand Analysis



# Appendix E

Transport Report



# Appendix F

Infrastructure and Engineering Services Assessment





# Appendix G

Transportation Noise Assessment



# Appendix H

Hammond & Mandogalup Road – Road Design Report

