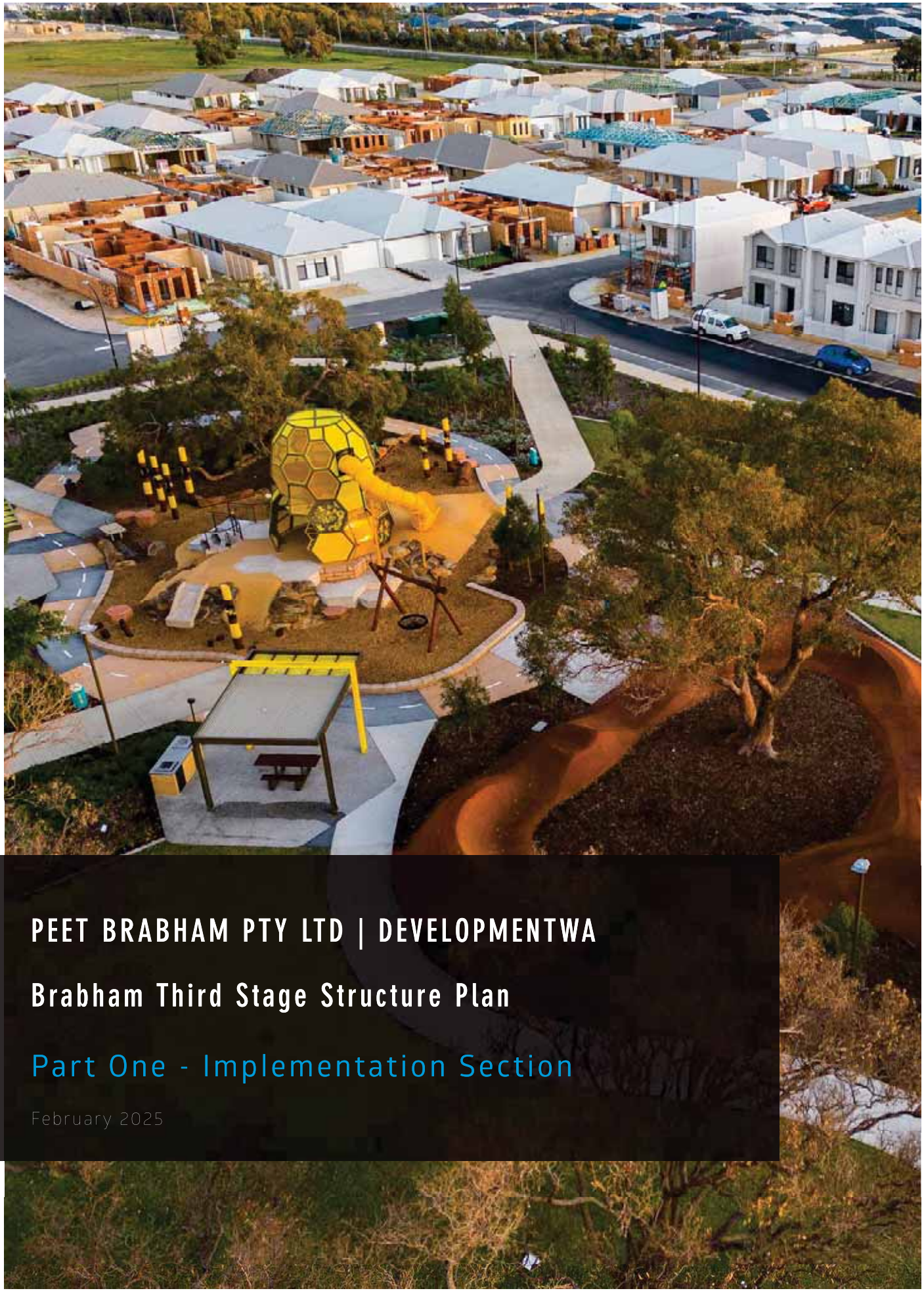


PEET BRABHAM PTY LTD | DEVELOPMENTWA

Brabham Third Stage Structure Plan

Part One - Implementation Section

February 2025

CLE Town Planning + Design

PEET

DevelopmentWA

CLE Town Planning + Design

Title:	Brabham Third Stage Structure Plan Part One - Implementation Section
Cover Image Source:	Peet Pty Ltd
Prepared for:	Peet Brabham Pty Ltd and DevelopmentWA
CLE Reference:	3074Rep348D
Date:	14 February 2025
Status:	Final
Prepared by:	Town Planner - CLE Town Planning + Design Acoustic Consultant – Lloyd George Acoustics Civil Engineer – Cossill & Webley Environmental and Bushfire Consultant – Emerge Associates Hydrologist – Pentium Water Landscape Architect – Plan E Traffic Engineer - PJA

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Swan Local Planning Scheme No. 17

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

16 APRIL 2025

Signed for and on behalf of the Western Australian Planning Commission

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

Witness: 

Date: **22 APRIL 2025**

Date of Expiry: **22 APRIL 2035**

TABLE OF AMENDMENTS

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

EXECUTIVE SUMMARY

The Brabham Third Stage Structure Plan (the Structure Plan) comprises approximately 99ha of land from a portion of Lot 822, Brabham and represents a logical extension of Peet and DevelopmentWA's emerging Brabham masterplanned community.

The vision for Brabham is to set a new standard for connected communities that enhances the wellbeing of its residents and maintains the natural vibrancy of the region to ensure the continued delivery of a lifestyle that residents are seeking. The vision is based on five key objectives:

- Innovation and Sustainability
- Connectivity
- Community and Economic Development
- Affordability and Diversity
- Environmental Sustainability

These objectives, supported by consultation with external agencies and the City of Swan (City), have informed the preparation of this Structure Plan.

The Structure Plan is bound by Youle-Dean Road to the north and Bush Forever Site No. 200 to the south and east. To the west the site is bound by Isoodon Street, the balance of Lot 822 and Western Australian Planning Commission (WAPC) owned Lots 94 and 95.

The Structure Plan area is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and 'Special Use (SU10)' under the City's Local Planning Scheme No. 17 (LPS 17). The Structure Plan is lodged to satisfy Part 5A and Schedule 4 of LPS 17, which requires subdivision and development to be subject to a structure plan. *Perth and Peel @ 3.5million* and the North-East Sub-regional Framework identify the land as 'Urban', confirming its suitability for residential development.

The Structure Plan continues the expansion of Peet and DevelopmentWA's Brabham community, established to date by the First and Second Stage Brabham Structure Plans which cover land to the north and north-east of the site. This Structure Plan continues a design response to the surrounding land use context and aligns with key elements of the Albion District Structure Plan, which provides the overarching framework to guide future land use and development within the locality. The Structure plan recognises the location and importance of the adjacent Whiteman Park Metronet Train Station, which has been a key consideration in the land use and layout of the site.

The Structure Plan will support the creation of a residential neighbourhood with densities ranging from R30 to R60 and is estimated to deliver approximately 1,505 dwellings, which equates to 19.59 dwellings per gross urban zoned hectare and 34.6 dwellings per residential site hectare, satisfying *Liveable Neighbourhoods* and State Government density targets.

A range of public open space is distributed across the Structure Plan and has been carefully located to maximise access and amenity for residents while also retaining key environmental attributes within the site. The open space will serve a variety of passive and active recreational functions while supporting the retention of high-quality vegetation where possible, in addition to delivering key drainage functions. The Structure Plan proposes to deliver approximately 11.76ha (15.0%) of public open space, far exceeding the requirements of *Liveable Neighbourhoods* and the WAPC's Development Control Policy 2.3 – Public Open Space in Residential Areas.

The Structure Plan will deliver a second primary school for the Brabham area, in addition to a high school with a shared use district open space to meet the needs of the future population. A 3.64ha Commercial site is located adjacent to Youle-Dean Road as a planned extension to the Brabham District Centre.

The Structure Plan can also be readily serviced through extensions to the existing reticulated sewer, reticulated water and established power network.

To support and inform the Structure Plan, the following technical reports have been prepared and are summarised in the Part 2 – Explanatory Section, with complete copies included as technical appendices:

- Acoustic Report
- Bushfire Management Plan
- Engineering & Servicing Report
- Environmental Assessment & Management Strategy
- Landscape Masterplan
- Local Water Management Strategy
- Transport Impact Assessment

The technical reports have been prepared following comprehensive analysis and engagement with agencies to address the relevant planning and technical considerations, and demonstrate the land is suitable for urban development in the form proposed.

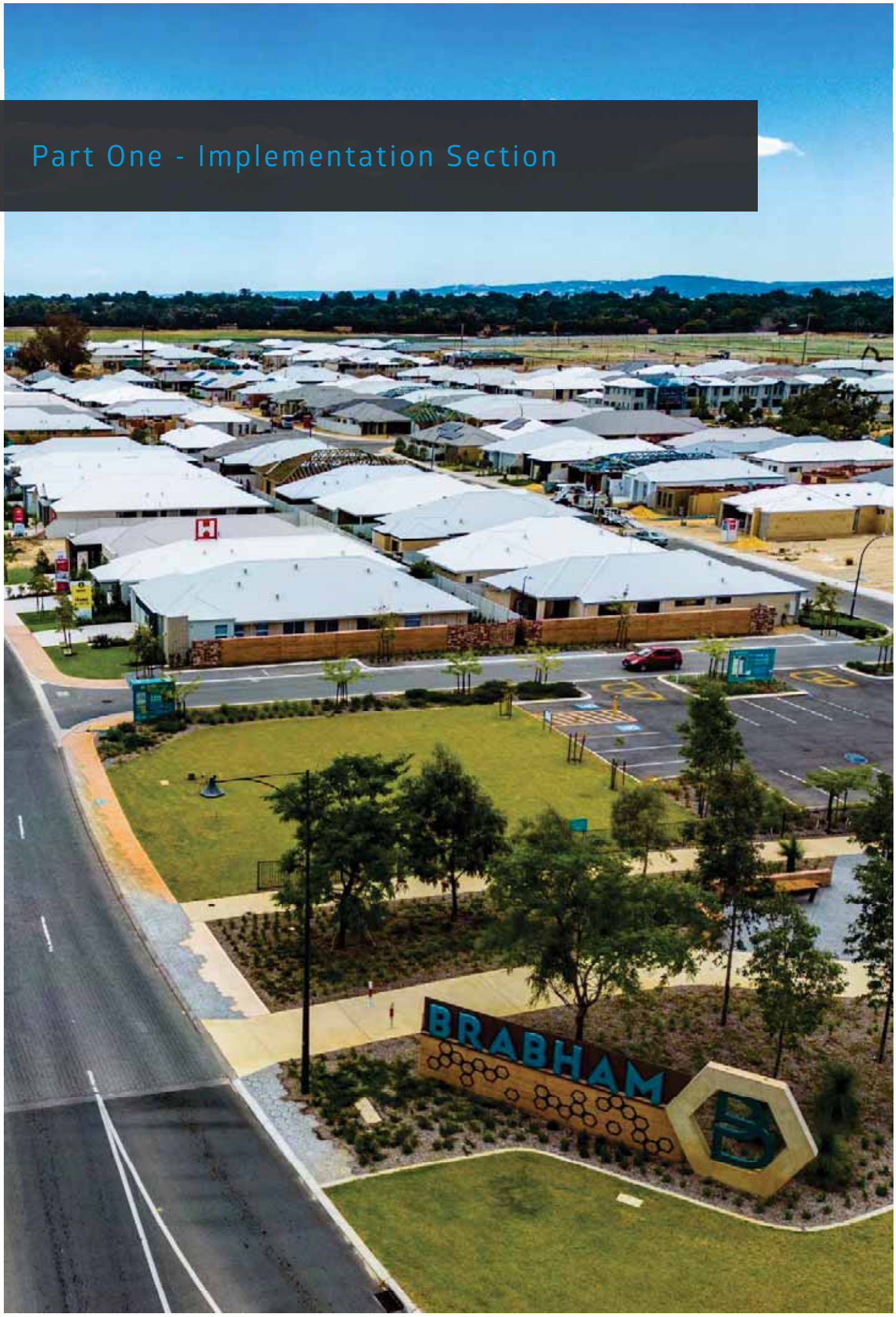
The Structure Plan covers only a portion of Lot 822 due to unresolved Water Corporation trunk main planning in proximity to Drumpellier Drive, which may impact design outcomes within the remaining area and adjoining WAPC owned land. The balance of the land west of the Structure Plan will be subject to a separate planning process following resolution of the new trunk main alignment. This area is indicatively shown within the Structure Plan for contextual and technical purposes only.

Table 1 provides a land use summary of the Structure Plan area.

Table 1: Land Use Summary

Item	Data	Section Number
Total area covered by the structure plan	99.87ha	Plan A
Area of each land use proposed: Zones: · Residential · Special Use (commercial) Reserves: · Road Reserves · Parks and Recreation · Conservation Reserve · Public Purpose (primary school) · Public Purpose (high school) · Public Purpose (wasterwater pump station)	 43.48ha 3.64ha 23.09ha 12.21ha 4.35ha 4.00ha 8.00ha 1.1ha	Part 1 - Section 4.1 and Plan A
Estimated number of dwellings	1505	Part 2 - Section 5.3.1
Estimated residential site density *Liveable Neighbourhood* *Perth & Peel@3.5 million*	 19.59 dwellings per gross urban zoned hectare 34.60 dwellings per residential site hectare	Part 1 - Section 4.2 Part 2 - Section 5.3.1
Estimated population	4214	Part 2 - Section 5.3.1
Number of high schools	1	Part 2 – Section 5.8
Number of primary schools	1	Part 2 – Section 5.8
Amount of Creditable Public Open Space · Regional Open Space · District Open Space · Local/Neighbourhood Parks	11.38ha (14.6%) Unrestricted – 9.82ha Restricted – 1.56ha N/A 5.42ha 5.97ha	Part 1 - Section 4.1.4 Part 2 - Section 5.4

Part One - Implementation Section



CONTENTS

1.0 STRUCTURE PLAN AREA & OPERATION

1.1 Application Area & Approval

This Structure Plan shall apply to part Lot 822, Brabham being the land contained within the inner edge of the line denoting the structure plan boundary on the Structure Plan Map (**Plan A**). The Structure Plan is identified as the Third Stage Brabham Structure Plan.

The Structure Plan is in effect from the date stated on the cover and for a period of 10 years.

1.2 Relationship with Statutory Planning Framework

The Structure Plan has been prepared as required by Part 5A and Schedule 4 of the City's LPS 17 and the *Planning and Development (*Local Planning Schemes*) Regulations 2015 Schedule 2 - Deemed provisions for local planning schemes* (Deemed Provisions). The Structure Plan is in accordance with the objectives of *Liveable Neighbourhoods* and supporting state and local planning policies to outline future zones, reserves, public open space and supporting infrastructure.

Pursuant to the Deemed Provisions, a decision maker of an application for development or subdivision approval is to have due regard to the provisions of this Structure Plan, including the Structure Plan Map, Implementation Report, Explanatory Report and Technical Appendices.

1.3 Structure Plan Content

The Structure Plan comprises:

- Part One – Implementation Report
- Part Two – Explanatory Report
- Appendices – Technical Reports

Part One of the Structure Plan comprises the Map and supporting planning provisions. Part Two of the Structure Plan is the explanatory report component, which can be used to interpret and implement the requirements of Part One.

2.0 PURPOSE

The purpose of the Structure Plan is to coordinate subdivision and development of land within the southern portion of Brabham, south of Youle-Dean Road. The Structure Plan will present as an extension of Peet and DevelopmentWA's First and Second Stage Local Structure Plan's and adopts the established vision for Brabham, being:

> *"Setting a new standard for connected communities that enhances the wellbeing of residents and maintains the natural vibrancy of the region to ensure the continued delivery of a lifestyle that residents are seeking."*

The vision is delivered through the following five key objectives:

Innovation and Sustainability: Product development and investment in market-leading housing options, intergrated water solutions and sustainability initiatives that provide long term benefits to both the residents and local community.

Connectivity: Walking and cycling made easy with an integrated network of future 'green streets' that safely link to parks and the District Centre, and a short drive to Perth Airport and Swan Valley. The future Whiteman Park Station, delivered as part of Metronet provides a direct linkage to the Perth CBD.

Community and Economic Development: Welcoming the input of individuals and families to help shape the future of Brabham, whilst supporting the community with local employment and business opportunities.

Affordability and Diversity: Unique and affordable housing choices ranging from lower maintenance options through to large family sized blocks for growing families.

Environmental Sustainability: Embracing and promoting sustainability at the individual, local and global scale. Each homesite will be provided with Brabham's Better Life Bonus.

The Structure Plan will achieve these objectives through the delivery of a legible estate with a variety of lot sizes that cater for a broad demographic of future occupants, integrate the community with an extension of the District Centre to support accessibility and reduced car dependency, provide a range of passive and active recreational open spaces and deliver a public primary and high school to service the community and broader area.

3.0 STAGING

Staging will generally commence from the Structure Plan's northern boundary with access to existing services via Youle-Dean Road, progressing in a southerly direction.

Whilst staging will be dependent on a variety of external factors, including input from the Department of Education on delivery timeframes for school sites, it will generally follow an orderly sequence and not exceed the extension of essential service infrastructure or constructed road access.

4.0 SUBDIVISION & DEVELOPMENT REQUIREMENTS

4.1 Land Use Zones and Reserves

4.1.1 Structure Plan Zones

Plan A is the Structure Plan Map which designates the proposed zones and reserves applicable to land within the Structure Plan.

Subdivision and development of land is to be generally in accordance with the Structure Plan Map. Refinements to the zones and reserves is permitted at subdivision stage subject to submission of an appropriate level of supporting technical justification.

The Structure Plan proposes the following zones as set out in **Table 2**, which accord with the City's LPS 17.

Land use permissibility for land within the Structure Plan area shall be in accordance with the corresponding zone.

Table 2: Structure Plan Zones

Zone	Objectives
Residential	· Provide for a range of forms and densities of residential development to meet the needs of the wide variety of households which make up the community; · Promote a residential environment in each locality consistent with the form and density of residential development permissible in the locality, so as to enhance a sense of place and community identity; · Preserve and enhance those characteristics which contribute towards residential amenity, and to avoid those forms of development which have the potential to prejudice the development of a safe and attractive residential environment; · Provide for a limited range of ancillary development compatible with the form and density of residential development, and complementary to the needs of local communities, but which will not compromise residential amenity; and · Avoid development of land for any purpose or in any manner that would detract from the viability or integrity of development in either the Strategic Regional Centre or the Commercial zones.
Special Use	· Provide for specific uses or combination of uses in circumstances where the uses have particular locational and developmental requirements for which a generic zoning is unsuitable; and · Facilitate the development of strategically important facilities that cannot be satisfactorily provided for within any of the generic zones, and to ensure compatibility with adjacent development. **In accordance with the objectives of the zone land designated 'Special Use' will be subject to a separate structure plan, and has been included within the Brabham District Centre Precinct Structure Plan.*

4.1.2 Movement Network

The Structure Plan is subject to the following key movement network considerations:

- The street network should be developed generally in accordance with the road hierarchy shown on the **Plan A** Structure Plan Map, which identifies higher order roads and key connections external to the Structure Plan.
- Road reserves and the supporting cross sections should be developed generally in accordance with *Liveable Neighbourhoods.*
- There are two key cross sections within the Structure Plan, being the proposed District Centre Main Street and the 'gateway' portion of Station Street in closest proximity to the Whiteman Park Metronet Train Station underpass. Indicative cross sections for these two road reserves are illustrated in **Figure 1** and **Figure 2** below, noting all road reserve widths and design treatments will be determined at subdivision stage.
- Intersection treatments should be generally in accordance with the Transport Impact Assessment (TIA) (Appendix 7), with final intersection treatments to be determined at subdivision stage.
- Pedestrian linkages will be in accordance with the recommendations of the TIA and the City's standards.

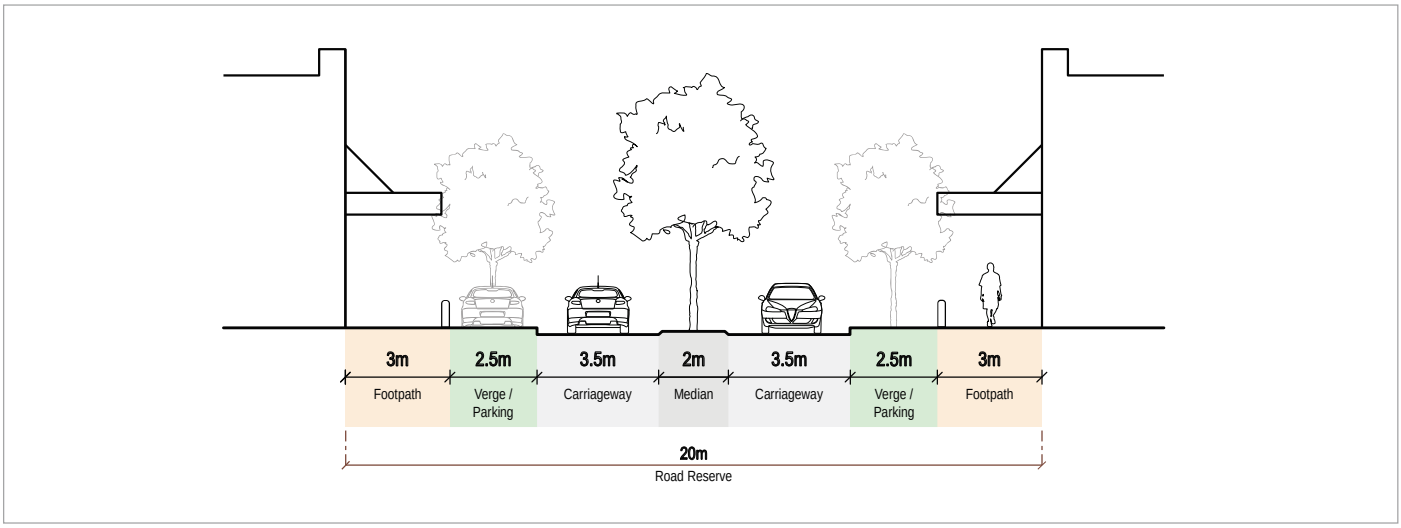


Figure 1 - Main Street Cross Section

Refer to the Landscape Masterplan and LWMS for further indicative design detail

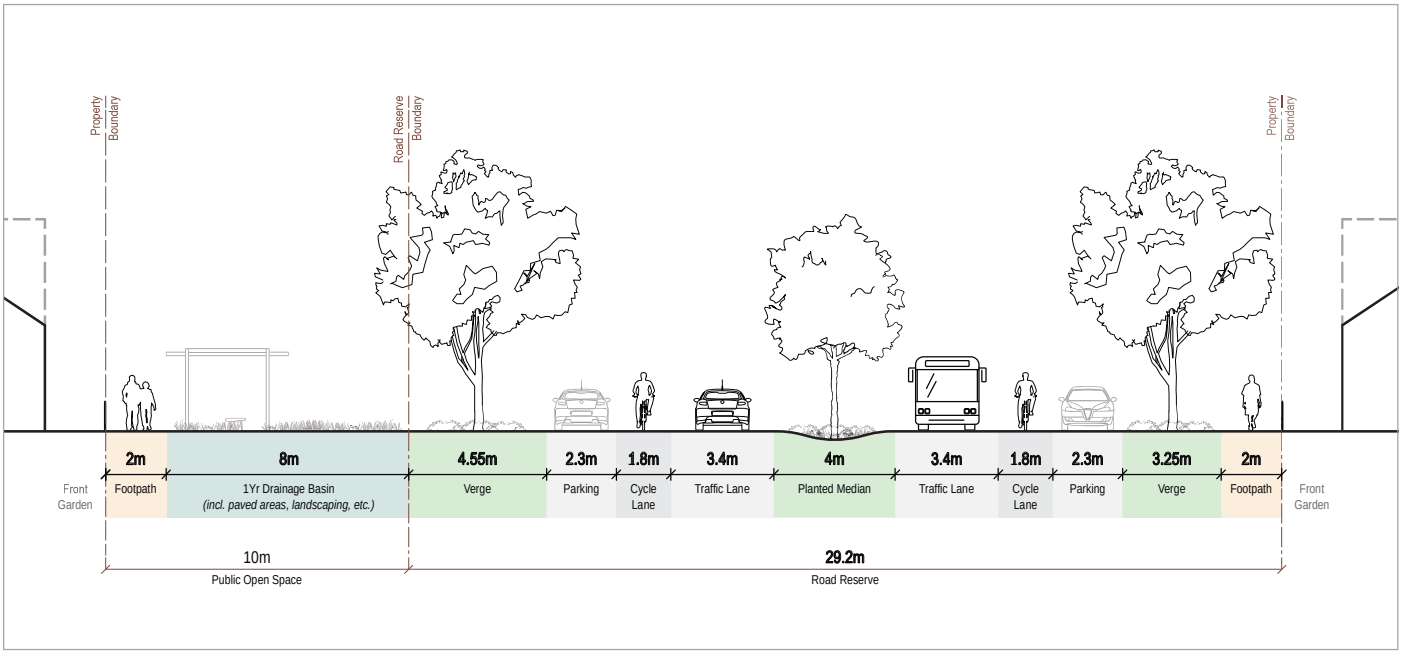


Figure 2 - Station Street Cross Section

Refer to the Landscape Masterplan and LWMS for further indicative design detail

4.1.3 Other Reserves

The **Plan A** Structure Plan Map identifies one 4ha public primary school and one 8ha public high school with a shared use district open space. The locations depicted on the Structure Plan Map have been determined following consultation with the Department of Education, with the final locations to be determined at subdivision stage. The final size of the primary school site is to be confirmed at subdivision stage in consultation with the Department of Education to address the provisions of Operational Policy 2.4: Planning for School Sites.

An existing Water Corporation wastewater treatment site is identified centrally within a Public Purpose reserve. No sensitive land uses / lots (including residential and school uses) are permitted within the 50m wastewater pumping station buffer.

A 4.35ha local conservation reserve is identified in the south-eastern corner of the Structure Plan, in accordance with the sites federal EPBC Approval.

4.1.4 Public Open Space

The provision of public open space will be provided generally in accordance with the Structure Plan Map and **Table 2** of this Structure Plan. An updated public open space schedule may be required at the time of subdivision for determination by the WAPC.

The Structure Plan makes provision for approximately 14.6% of the site area to be set aside as public open space, as set out in the below table and in accordance with **Plan A**.

Figure 3 - POS Landscaping Theming Extracts

Source: Plan E

Table 3: Public Open Space

Public Open Space Schedule (all areas are in hectares)		
Site Area		**99.87**
Existing Deductions		
Conservation	4.35	
High School x 1	8.00	
Primary School x 1	4.00	
Centre	3.64	
Sewer Pump Station	1.10	
Gas Easement	0.07	
Drainage 1:1yr event	0.76	
Total existing deductions	21.93	
Net Site Area		77.94
Structure Plan Deductions		
Total Structure Plan Deductions	0.00	
Gross Subdivisible Area		**77.94**
POS @ 10%		7.79
Public Open Space Requirement		
May Comprise:		
Min 8% unrestricted POS	6.24	
Max 2% restricted POS	1.56	
TOTAL POS REQUIRED		**7.79**
Public Open Space Provided	Unrestricted POS Area	Restricted POS Area
Park 1 - NE Corner	0.32	0.28
Park 2 - Central	1.14	0.01
Park 3 - Central East	0.61	0.64
Park 4 - Southern East	0.60	0.05
Park 5 - Balance of Conservation POS	1.12	0.00
Park 6 - Southern	0.41	0.24
Park 7 - District Open Space	5.12	0.33
Park 8 - Station Street	0.26	0.02
Park 9 - Mainstreet Park	0.24	0.00
TOTAL (ha)	**9.82**	**1.57**
Additional Deductions		
Restricted Open Space Surplus		0.01
Public Open Space Contribution		
Creditable Unrestricted POS provided	9.82	12.6%
Creditable Restricted POS provided	1.56	2.0%
Total Creditable POS Provided	**11.38**	**14.6%**

1. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrence interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval is restricted open space up to 20%, the area greater than 20% is a deduction (not applicable in this case) (LN R26 & Table 11); areas for the detention of stormwater for a greater than five year average recurrence interval is within unrestricted open space (LN R25).

2. This Schedule is for plan CLE Ref. 3074-313i-01 and drainage information received 15.01.2024 from Pentium Water.

4.2 Density & Development

Plan A designates the R-Code ranges applicable to subdivision and development of the Structure Plan. Subdivision and development shall achieve a dwelling target of 26 dwellings per site hectare across the entire Structure Plan area in accordance with State Government density targets.

4.2.1 Density & R-Codes

This Structure Plan adopts the following density code ranges:

- R30-R40
- R30-R60
- R50-R60

An R-Code Plan is to be submitted at the time of subdivision to allocate a specific R-Code for the proposed lots for approval by the WAPC. The R-Code Plan:

a. Shall be consistent with the density ranges and locational criteria set out in this Structure Plan;

b. Is to include a summary of the proposed lot yield of the subdivision application to which it relates; and

c. May be varied subject to the further approval of the WAPC. A varied R-Code Plan will replace (entirely or partially) the previously approved R-Code Plan.

Once approved by the WAPC, the R-Code Plan forms part of this Structure Plan.

An R-Code Plan may not be required if the WAPC considers that the subdivision application is for one or more of the following:

- Amalgamation of lots, including for land assembly;
- Provision of access, services or infrastructure;
- Non-residential use, with reference to the zone or reserve indicated on this structure plan; or
- In accordance with an already-approved R-Code Plan.

4.2.2 Locational Criteria

The allocation of residential densities shall be in accordance with the following criteria:

R30-R40

The base density code applicable to these lots is R30. The R40 density code may apply in the following circumstances:

- The lot has a laneway abutting the rear boundary or is located at the end of a street block (cell end); and/or
- The lot is located within a 400m walkable catchment of the District Centre or planned public school; and/or
- The lot is located within a 200m walkable catchment of a planned public open space.

R30-R60

The base density code applicable to these lots is R40. An alternative density code may apply in the following circumstances:

- R50 or R60 may apply where the lot is within a 200m walkable catchment of the District Centre or located at the end of a street block (cell end); or
- R30 may apply where the lot is greater than 100m east or 200m south of the District Centre.

R50-R60

No base coding is applicable to lots coded R50-R60 with the final R-Code to be determined at subdivision stage informed by justification that supports the proposed density code.

4.2.3 Local Development Plans

The preparation of a Local Development Plan may be required by the WAPC as a condition of subdivision approval where deemed necessary for land comprising, but not limited to:

(i) Lots abutting areas of public open space to address:

- built form orientation and passive surveillance; and
- uniform visually permeable fencing.

(ii) Lots in proximity to the Brabham District Centre that require site specific development controls to deliver higher density development outcomes.

4.3 Other Requirements

4.3.1 Bushfire Management

The Structure Plan is supported by a Bushfire Management Plan (**Appendix 2**). Regardless of whether the land has been formally designated as bushfire prone, any building to be erected on land identified within 100 metres of a bushfire hazard is designated as bushfire-prone and shall comply with the requirements of *Australian Standard 3959* under the National Construction Code.

Future development on the high school site is to provide an appropriate interface to Bush Forever Site No. 200, including separation to habitable buildings and bushfire access (if determined to be required at the development application stage).

Subdivision within the Structure Plan area is required to demonstrate the ability to achieve a maximum post development Bushfire Attack Level (BAL) rating of BAL-29 for all proposed lots and a minimum of two vehicle access and egress points in two different directions, in accordance with the WAPC's *Guidelines for Planning in Bushfire Prone Areas.*

4.3.2 Notifications on Title

In respect of applications for the subdivision of land the City shall recommend to the WAPC that a condition be imposed as part of a subdivision approval for a notification to be placed on the Certificate(s) of Title(s) to advise of the following:

(i) Lots located within the setback distances of the Dampier to Bunbury Natural Gas Pipeline and Parmelia Gas Pipeline in accordance with Planning Bulletin 87: High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region.

(ii) Lots subject to bushfire risk as identified by a Bushfire Management Plan provided with an application for subdivision.

4.3.3 Development Contributions

The Structure plan is within Development Contribution Area 1 (DCA 1) under Schedule 13 of LPS 17 and is subject to infrastructure cost contributions in accordance with the relevant Development Contribution Plan (DCP) and Cost Apportionment Schedule.

5.0 ADDITIONAL DETAILS

5.1 Information to be Submitted with a Subdivision Application

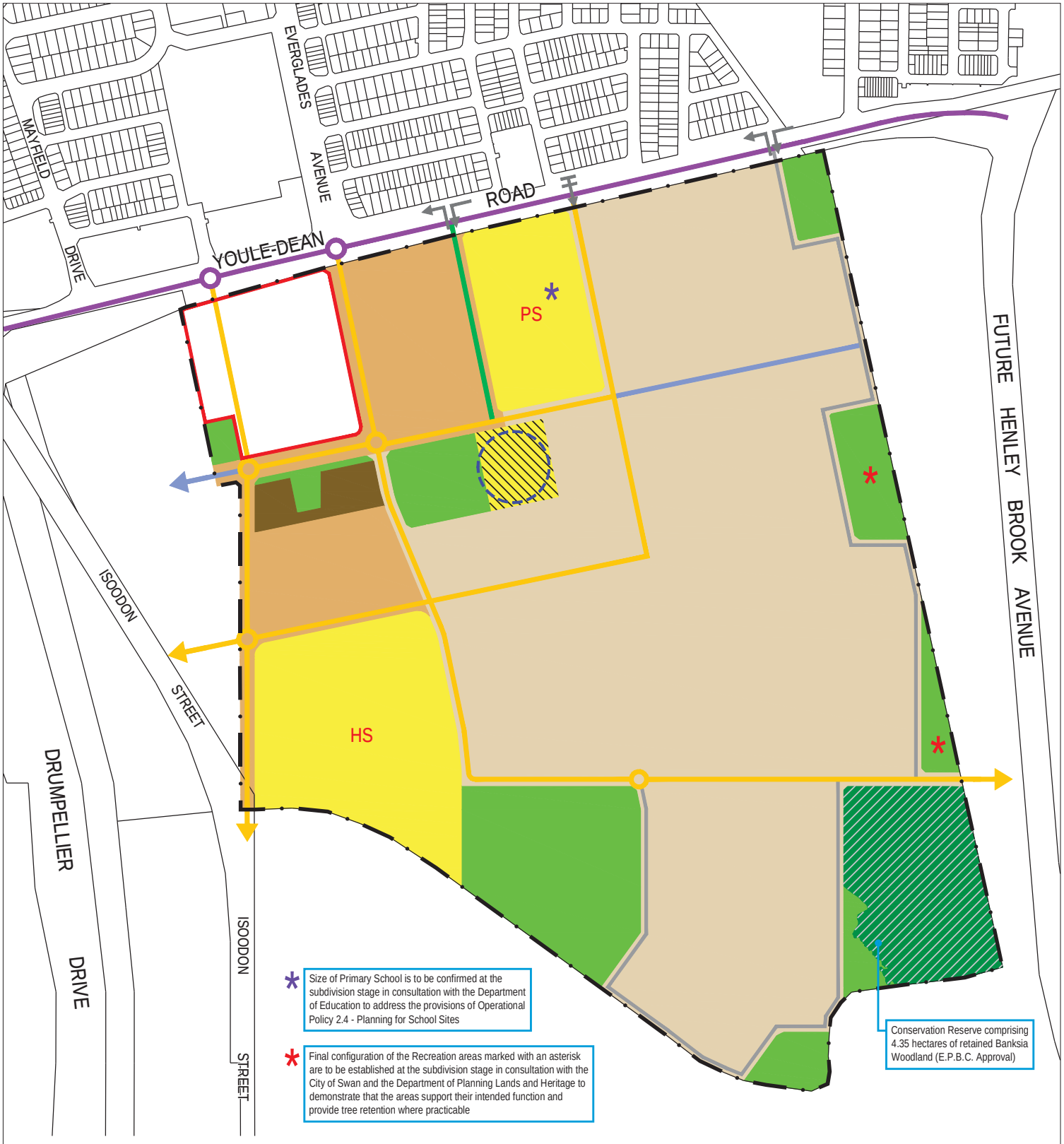
The following technical reports/strategies are to be prepared in support of any future subdivision application:

Additional Information	Reason/Purpose	Responsible Agency
R-Code Plan	To depict final R-Codes for individual lots in accordance with the locational criteria set out in Part 1.	WAPC
Bushfire Management Plan	To demonstrate post development that subdivision will satisfy the WAPC's *Guidelines for Planning in Bushfire Prone Areas* and outline any works to be implemented during subdivision to achieve an acceptable BAL rating for all proposed lots.	City of Swan
Tree Protection Plan	To identify opportunities to retain mature trees where possible, particularly within and near road reserves and public open space areas.	City of Swan

5.2 Studies to be Required Under a Condition of Subdivision Approval

The following technical reports/strategies are to be prepared in accordance with a future subdivision approval (as applicable):

Additional Information	Reason/Purpose	Responsible Agency
Bushfire Management Plan	To demonstrate the requirements set out in any Bushfire Management Plan provided in support of the applicable subdivision have been met.	City of Swan
Urban Water Management Plan	To detail the management of stormwater both on and off site in accordance with the WAPC's Better Urban Water Management Guidelines. Urban Water Management Plans are to ensure the rate of stormwater discharge from the Structure Plan area post development is no greater than the rate of discharge pre-development.	City of Swan
Acid Sulphate Soils Management Plan	To confirm the potential existence of acid sulphate soils and, if required, any subsequent management strategies to prevent any adverse environmental impacts.	City of Swan
Pipeline Risk Assessment / Safety Management Study	To demonstrate that any perceived risk of sensitive development in proximity to the Dampier to Bunbury and Parmelia Gas Pipelines is consistent with AS2885 and in accordance with Planning Bulletin 87.	Australian Gas Infrastructure Group and APA
Vegetation and Fauna Management Plan	To demonstrate the strategy for the protection of any on site vegetation proposed to be retained, and management of displaced fauna.	City of Swan
	The Verticordia lindleyi subsp. lindleyi (P4) shall be relocated and/or reseeded to the proposed conservation area within the site.	Department of Biodiversity, Conservation and Attractions
Kangaroo Management Plan	To be provided in addition to a VFMP, to demonstrate a strategy for the identification, management and/or relocation of kangaroos in accordance with the City's Local Planning Policy 1.15: Kangaroo Management. The proponent is to liaise with the City and Department of Biodiversity, Conservation and Attractions regarding the preparation of the plan as early as possible.	City of Swan and Department of Biodiversity, Conservation and Attractions
Unexplored Ordnance (UXO) Remediation Plan	To confirm the potential existence of UXO's and, if required, any subsequent management strategies for their removal prior to the commencement of earthworks.	Department of Fire and Emergency Services
District Open Space / High School Interface Plan	To detail the final design and location of all district open space amenities and demonstrate appropriate integration with the High School site.	City of Swan in consultation with Department of Education



LEGEND

Note: The embellishment of public open space, inclusive of the provision of irrigation, is to be subject to negotiation with the City of Swan at submission stage.

Zones
- Residential R30-R40
- Residential R30-R60
- Residential R50-R60
- Special Use - District Centre

Local Reserves
- Recreation
- Conservation
- Public Purpose
- PS — Primary School
- HS — High School

Other
- LSP Boundary
- Integrator B
- Neighbourhood Connector
- Access Street B
- Access Street C
- Access Street D *(perimeter road for bushfire separation)*
- Full T Intersection
- Left in / Left out Intersection
- Roundabout
- 50m Buffer to Wastewater Pumping Station

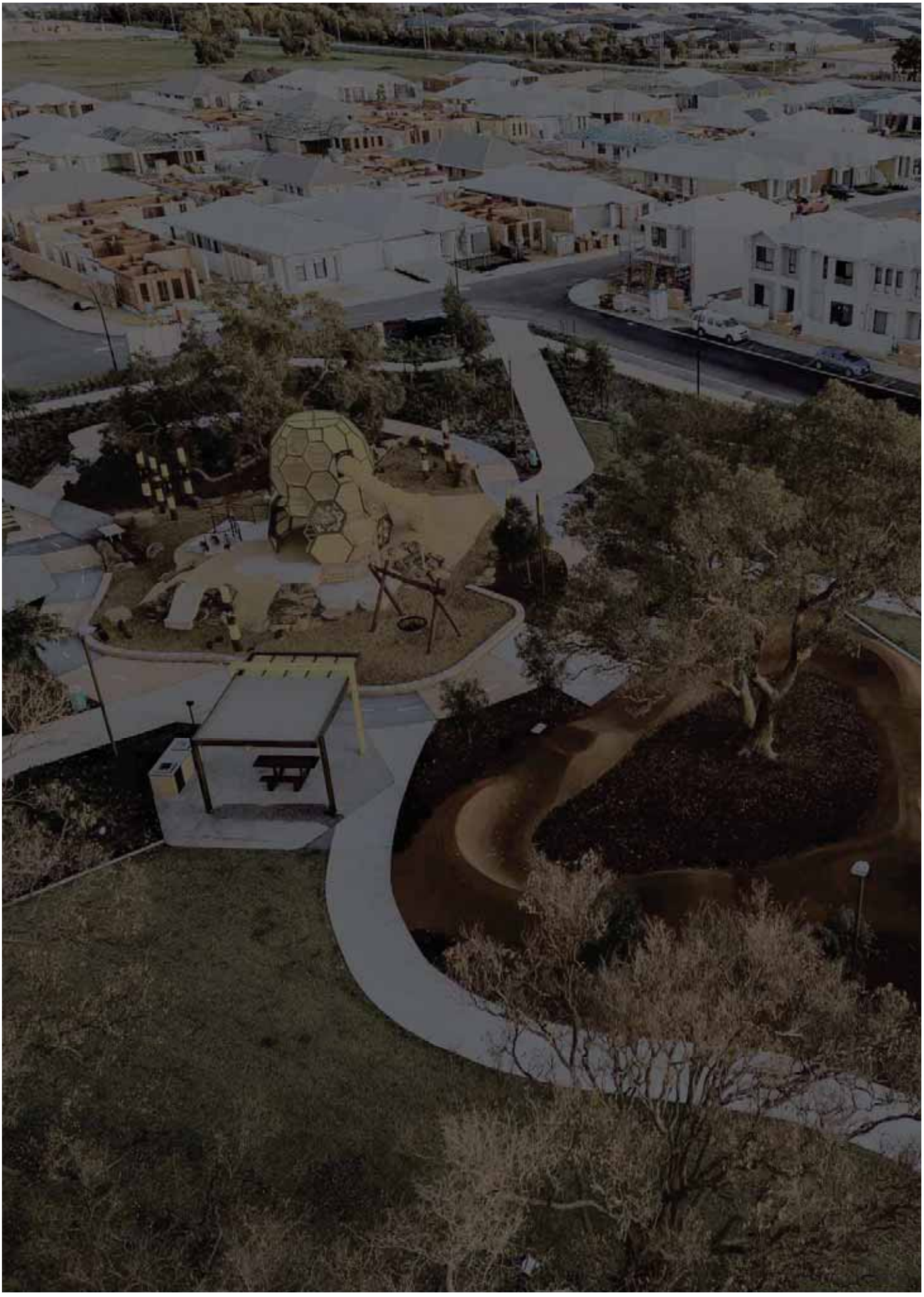
CLE Town Planning + Design

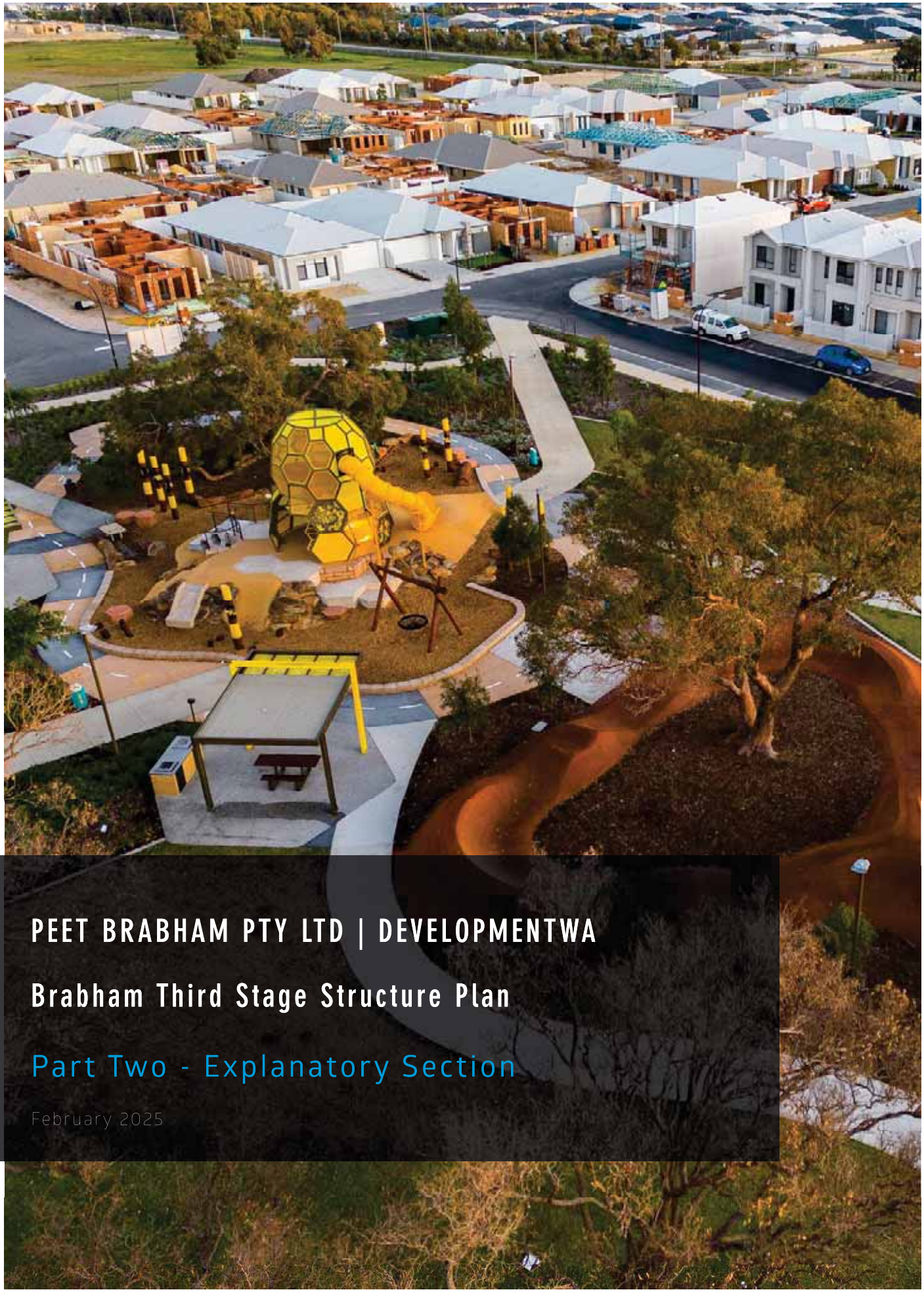
PLAN A: STRUCTURE PLAN MAP

Brabham Local Structure Plan 3

plan no: 3074-359C-01
date: 16 December 2024
scale: NTS

N





PEET BRABHAM PTY LTD | DEVELOPMENTWA

Brabham Third Stage Structure Plan

Part Two - Explanatory Section

February 2025

CLE Town Planning + Design

PEET

DevelopmentWA

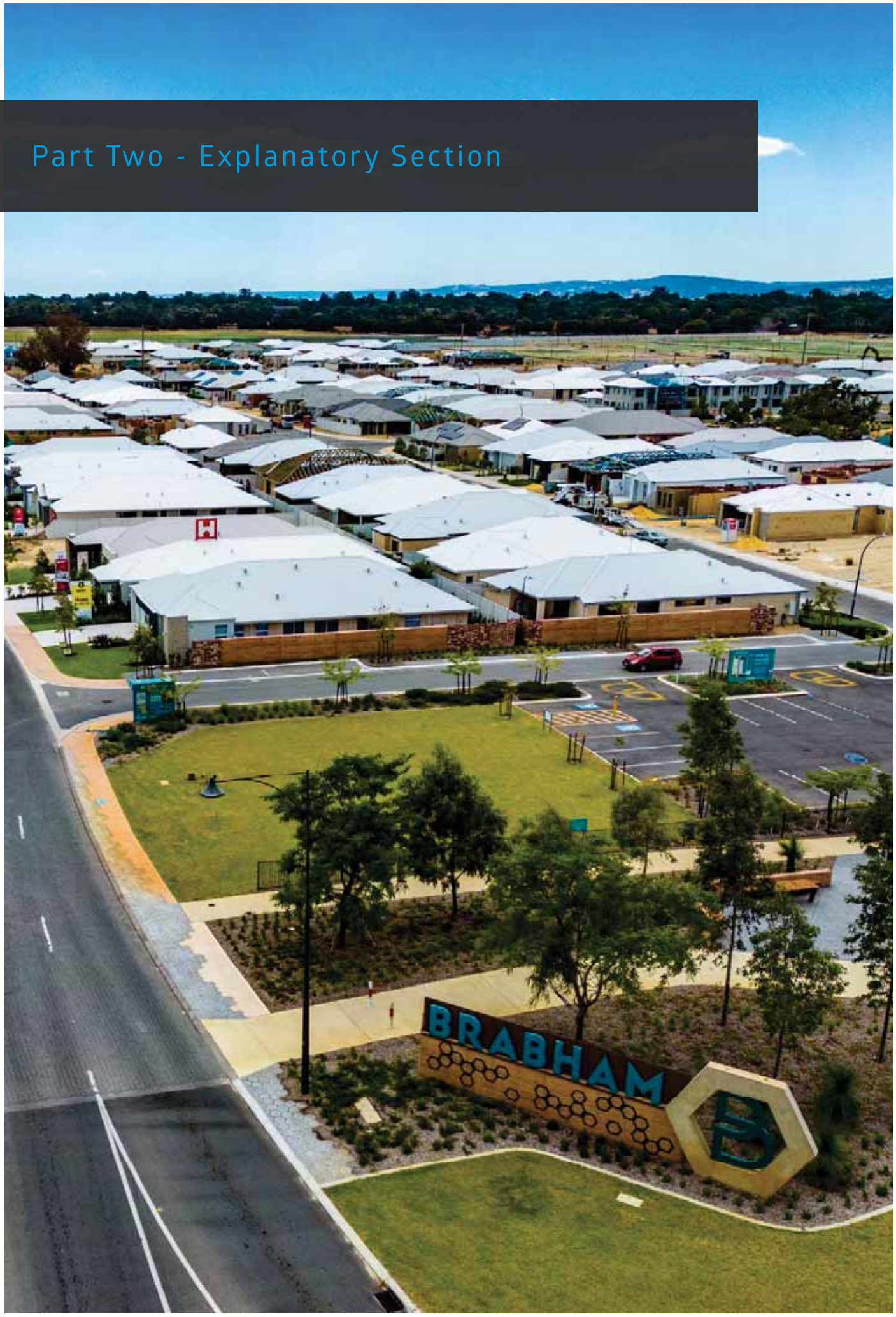
CLE Town Planning + Design

Title:	Brabham Third Stage Structure Plan Part Two - Explanatory Section
Cover Image Source:	Peet Pty Ltd
Prepared for:	Peet Brabham Pty Ltd and DevelopmentWA
CLE Reference:	3074Rep349D
Date:	14 February 2025
Status:	Final
Prepared by:	Town Planner - CLE Town Planning + Design Acoustic Consultant – Lloyd George Acoustics Civil Engineer – Cossill & Webley Environmental and Bushfire Consultant – Emerge Associates Hydrologist – Pentium Water Landscape Architect – Plan E Traffic Engineer - PJA

CONTENTS

APPENDICES

Part Two - Explanatory Section



1.0 INTRODUCTION & PURPOSE

The Brabham Third Stage Structure Plan ('the Structure Plan') has been prepared on behalf of Peet and DevelopmentWA and covers approximately 99ha of land, comprising part of Lot 822, Brabham. The Structure Plan is the third of the 'Brabham Structure Plans' to be prepared over land owned by DevelopmentWA and represents a logical extension of urban development within Brabham to support the approved First and Second Stage Structure Plans.

The Structure Plan is lodged in accordance with Part 5A and Schedule 4 of the City of Swan (City) Local Planning Scheme No. 17 (LPS 17), which requires a structure plan to be prepared for land zoned 'Special Use'. The purpose of the Structure Plan is to provide a planning framework to guide future subdivision and development across the site in a coordinated manner and facilitate the ongoing delivery of affordable housing supply within the north-eastern growth corridor.

The format of the Structure Plan generally follows that set out in the Western Australian Planning Commission's (WAPC) WA Planning Manual – Guidance for Structure Plans, comprising three parts:

Part 1: Implementation Section: Contains the Structure Plan map and outlines the requirements that will be applied when assessing subdivision and development applications.

Part 2: Explanatory Section: Discusses the key outcomes, planning implications of the background and technical reports and more detailed planning framework. Part 2 is based on a detailed site-specific analysis of opportunities and constraints and the following technical reports and strategies:

- Acoustic Assessment (Lloyd George)
- Bushfire Management Plan (Emerge)
- Engineering Servicing Report (Cossill and Webley)
- Environmental Assessment and Management Strategy (Emerge)
- Landscape Masterplan (Plan E)
- Local Water Management Strategy (Pentium Hydro)
- Transport Impact Assessment (PJA)

Part 3: Technical Appendices: Includes the technical reports, accompanying plans and maps prepared by the technical consultants in support of the proposal.

2.0 SITE & CONTEXT ANALYSIS

2.1 Physical Context

Set out below is a high-level contextual analysis of the Structure Plan's various locational and physical characteristics. Where relevant, this analysis has been used to inform the opportunities and constraints within Section 3 and the Design Response within Section 5 of this report.

2.1.1 Location

The Structure Plan is located in the City of Swan, approximately 5.5km north of the Swan Strategic Metropolitan Centre and 16km north-east of the Perth CBD. The Whiteman Park Metronet Station, which is currently under construction, is approximately 350m west of the Structure Plan.

The Structure Plan area is generally bound by:

- Youle-Dean Road, the Brabham District Centre and the 'Brabham' and 'Whiteman Edge' estates to the north;
- Bush Forever Site No. 200 to the south (Regional Parks and Recreation reserve);
- Bush Forever Site No. 200 and the Henley Brook Avenue road reserve to the east; and
- Drumpellier Drive, future residential development and the Whiteman Park Metronet Station to the west.

Figure 1a - Location Plan

Figure 1b - Location Plan

The Structure Plan is located in an emerging suburban area where there is demand for the ongoing delivery of a variety of housing typologies to support housing demand, local businesses and community infrastructure.

The site was originally developed as the Caversham Airfield during World War II by the Royal Navy's Fleet Air Arm and United States Navy, although was never used operationally. This resulted in some extensive areas of clearing across the site. The airfield was later utilised as a motor racing circuit, with the first event held in 1946 and two Australian Grand Prix's hosted at the site in 1957 and 1962. Racing activities were ceased when the airfield was reactivated by the Federal Government for military use as a radio communications hub for a short period, with all racing activities moving to Barbagallo Raceway in 1969. The site has been unused for decades.

There is a remnant telecommunications station and supporting infrastructure located within the Structure Plan area, as well as a wastewater pump station that was constructed in 2017/18 by Water Corporation to service the surrounding area. The wastewater pump station will be retained and has been integrated into the configuration of the Structure Plan.

2.1.2 Surrounding Area & Land Use

The Structure Plan applies to approximately 99ha of land being the majority portion of Lot 822, Brabham. The remaining portion of Lot 822 and adjoining WAPC owned land has been excluded due to unresolved planning in relation to provision of a new Water Corporation trunk main in proximity to Drumpellier Drive. The remaining area includes land typically within approximately 400m of the train station, with planning to occur at a later date.

The site is otherwise bound by Youle-Dean Road to the north, Bush Forever Site No. 200 to the south and east, and future residential development to the west.

Approximately 350m west of the Structure Plan is the future Whiteman Park Metronet Station, which is currently under construction and anticipated to be operational by late-2024. The Structure Plan will make provision for future connectivity to the Train Station via an underpass at Drumpellier Drive, noting this connection relies on development of the land immediately west of the site. This connection will provide convenient access for residents to the Perth CBD and Ellenbrook Town Centre, as well as improved access for external visitors to the Structure Plan to support modes of travel alternative to the private vehicle.

The existence of Bush Forever Site No. 200 along the southern and eastern boundary of the site provides the opportunity to deliver a residential estate bound by areas of high-quality vegetation to maximise amenity for future residents. Access to the site will be via Youle-Dean Road to both Drumpellier Drive and the Future Henley Brook Avenue, providing the Structure Plan excellent access to higher order road networks.

The surrounding area comprises predominantly medium density residential development with supporting public open spaces in a suburban neighbourhood context. This includes Peet and DevelopmentWA's First and Second Stage Brabham Structure Plan's located to the north of the site, as well as the Whiteman Edge estate. The Structure Plan will present as a logical extension of these estates to add to the emerging suburban fabric of the area.

The Brabham District Centre is also located, as planned, both within the Structure Plan area and immediately north of Youle-Dean Road, and currently comprises a range of single storey retail and highway commercial buildings providing for the daily and weekly shopping needs of the community. As an identified activity centre under *State Planning Policy 4.2: Activity Centres for Perth and Peel* (SPP 4.2), the portion of the District Centre located within the Structure Plan area is instead subject to the Brabham District Centre Precinct Structure Plan.

More broadly, The Ellenbrook Town Centre is approximately 5.5km north of the Structure Plan and will be easily accessible via either Drumpellier Drive or the Ellenbrook rail extension. Several hospitality offerings are also available within the Swan Valley approximately 1km to the east. In addition to the various hospitality offerings the land east of Henley Brook Avenue is used predominantly as rural residential lifestyle lots or to support agricultural uses. This land is zoned 'Rural' under the Metropolitan Region Scheme (MRS), 'Rural/ Rural Residential' under the North East Sub-regional Planning Framework and is subject to the *Swan Valley Planning Act 2021.*

Figure 2 - Site Plan

Source: Nearmap

2.1.3 Tenure, Ownership & Buildings

The Structure Plan comprises part of a single title, being legally described as set out in Table 1.

Table 1: Certificate of Title Details

Landowner	Lot Number	Diagram/Plan	Volume Folio
Housing Authority	822	410680 2927	677

The Structure Plan area is largely vacant with native vegetation dispersed across the site. There is a series of remnant telecommunications buildings and supporting infrastructure located on the site that were historically used for a short period to support Airforce operations. There is also a centrally located wastewater pump station that will be retained and modified as part of the sites redevelopment, with the land to be ceded to the Water Corporation as a Public Purpose reserve.

2.1.4 Environment

2.1.4.1 Flora & Fauna

The Structure Plan is bound by Bush Forever Site No. 200 to the south and east, with Bush Forever Site No. 304 (Whiteman Park) approximately 400m to the west. The Structure Plan contains predominantly open bushland, with most vegetation either disturbed or modified through the historical uses of the land. The predominant native vegetation is the Banksia Woodland with approximately 25.9ha of the vegetation complex identified within the site. The Structure Plan will retain approximately 4.35ha of Banksia Woodland in 'very good' condition within the south-eastern corner, in accordance with federal environmental (EPBC) approvals. Further opportunities for the retention of trees within public open space and road reserves will be pursued, where possible.

Two conservation significant fauna species, being the Carnaby's Black Cockatoo and Red-Tailed Black Cockatoo, were recorded within the Structure Plan during on-site environmental investigations. In addition, seven conservation significant fauna species were identified as having the potential to occur on-site due to the presence of a suitable habitat. The vegetation retained in the sites south-eastern corner, in accordance with the EPBC approval, will ensure suitable retention of cockatoo habitat in perpetuity. In addition, the Structure Plan layout has been informed by a tree survey and designed to locate areas of public open space to retain native vegetation of terrestrial value where possible.

2.1.4.2 Topography, Soils & Groundwater

The Structure Plan has the following topographical, groundwater and soil characteristics:

- The topography across the site ranges from approximately 22m Australian Height Datum (AHD) in the south-east to approximately 26m AHD in the south-west.
- The Geological Survey of Western Australian soils indicates the site is typically characterised by Bassendean Sand, which is ordinarily suitable for urban development. This has been confirmed by on-site geotechnical investigations.
- On-site testing has determined that the depth to groundwater across the site is typically 1m-1.4m beneath the existing ground level.

- The Annual Average Maximum Groundwater Levels vary from approximately 24.0m AHD along the northern boundary to approximately 21.5m AHD along the southern boundary, according to the Perth Groundwater Map prepared by the Department of Water and Environmental Regulation (DWER). Ensuring there is adequate separation to the prevailing groundwater levels and consideration of the drainage design will influence the finished earthworks levels across the Structure Plan.
- DWER's acid sulphate soil mapping classifies the site as 'moderate to low risk' of acid sulphate soils occurring within 3m of the natural soil surface. On-site testing determined that acid sulphate soils are present in localised areas, however the potential acidity levels are low and can be determined at subdivision stage along with any potential management measures.

2.1.5 Physical Infrastructure & Services

An analysis of the site identified the following infrastructure and utility characteristics:

- There is an existing Water Corporation Interim Type 90 wastewater pump station located within the Structure Plan.
- An existing DN250mm water main is located within the existing Youle-Dean Road reserve. Preliminary discussions with Water Corporation regarding servicing requirements is that the site is located within a Water Supply Scheme boundary, with planning for the scheme making suitable provision for urbanisation of the site.
- There is an existing reticulated gas main within the Youle-Dean Road reserve that ATCO gas has confirmed can service the Structure Plan. Provision has been made for reinforcement works which would be undertaken by ATCO as part of forward works.
- The Dampier to Bunbury Natural Gas Pipeline and Parmelia Gas Pipeline are located east of the Structure Plan. Future development will need to be appropriately designed to comply with the planning requirements for gas pipeline buffers in accordance with *Planning Bulletin 87: High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region.*

The investigations have determined that the site is capable of being readily serviced by extensions to existing infrastructure and through compliance with the necessary planning and infrastructure guidelines.

2.1.6 People Movement

The site currently has an existing single road frontage to Youle-Dean Road with planned connections to Drumpellier Drive and Henley Brook Avenue. Key features of the roads forming the boundary of the Structure Plan include:

- Youle-Dean Road is partly reserved as a Primary Regional Road (west) and partly reserved as an Other Regional Road (east) under the MRS. The Structure Plan has approximately 930m of frontage to Youle-Dean Road which will provide multiple points of access and egress for the Structure Plan.
- Henley Brook Avenue is classified as an Other Regional Road under the MRS and is located east of the site, separated only by Bush Forever Site No. 200. Although the road is currently unconstructed, provision is made for a full-movement connection in the south-eastern corner of the Structure Plan.

- Drumpellier Drive is classified as a Primary Regional Road under the MRS and is located west of the Structure Plan, separated by a portion of land that is subject to future planning. A 'left-out only' access is proposed onto Drumpellier Drive via the land to the west to assist with traffic distribution from within the Structure Plan. Provision has been made for this connection to occur seamlessly with the land to the west via a neighbourhood connector adjacent to the northern boundary of the public high school site.

Brabham is still an emerging suburb however the established street network is typically uniform and legible in layout with a minimum of one footpath on all roads.

Everglades Avenue and Marvel Entrance provide direct access to the established portion of the Brabham District Centre north of Youle-Dean Road. Currently there is limited connectivity and interface between these sites, particularly given the existence of a living stream within the northern verge of Youle-Dean Road. The layout of the Structure Plan seeks to improve this connection by extending these road and footpath connections directly into the Structure Plan.

Limited public transport options are currently available, which reflects the largely undeveloped nature of the north-eastern growth corridor. Two bus services are currently provided in the surrounding area, being bus stops 955 and 953 that run along Drumpellier Drive and Everglades Avenue respectively. However, the site is approximately 350m east of the future Whiteman Park Metronet Station, which is anticipated to be operational by late-2024 and includes a pedestrian underpass under Drumpellier Drive. The train station will provide direct connectivity to the Perth CBD and Ellenbrook Secondary Centre in addition to numerous bus stands to service the surrounding neighbourhoods. This will provide excellent access to a variety of future public transport options for the Structure Plan with the design response supporting future connectivity to the Drumpellier Drive underpass.

2.2 Community Context

The Structure Plan applies to an area of undeveloped land and therefore does not have an established community or social context. The City's Local Planning Strategy (the Strategy), which was endorsed by the WAPC in August 2020, provides guidance on the City's long-term planning and development directions and outlines the planning aspirations, priorities and challenges. Key observations from the Strategy relevant to the Structure Plan and its future community context include:

People & Housing

The City is set to experience a rapid rate of population increase over the next 30 years, which will place additional pressures on housing and infrastructure supply. The north-eastern urban growth corridor is seen as an underdeveloped area that can support housing supply needs, but also provides challenges for the timely and coordinated delivery of infrastructure to support the corridors anticipated increase in population. The Structure Plan is accessible directly via Youle-Dean Road and will have excellent access to existing commercial services, an established external road network and an emerging public transport system. As such, there are not considered to be any barriers associated with the immediate implementation of the Structure Plan to assist with delivery of much needed housing supply.

The largest proportional increase in population is anticipated to be within the 65+ age group, with an existing shortage of accommodation for ageing persons as well as a general lack of diversity for small dwelling typologies to cater for households of two persons or less. The Structure Plan will support the delivery of a diverse range of housing, with R-Codes ranging from R30 (average 300sqm lot size) to a more compact R60 density (average 150sqm lot size). This will make provision for a variety of dwelling typologies, which through the use of R-Code ranges, can be defined at subdivision stage to ensure the Structure Plan remains responsive to current market demand.

Economy & Employment

The City currently has an excellent employment self-sufficiency rate at approximately 93% underpinned by a strong construction industry, which is the most significant sector in terms of both value and number of employees. The Strategy anticipates a shift towards additional 'white collar' workers with an increase expected in the community and service sectors. The City's activity centres are considered key to meeting this future demand, ensuring a diverse range and mix of employment opportunities are available for current and future residents.

The expansion of the Brabham District Centre, as set out in the Structure Plan, aligns with the Strategy's response to managing activity centres by providing sufficient commercial floorspace to provide for a wide mix of uses supported by an integrated and efficient public transport system. Its importance is further acknowledged within the Strategy, whereby it notes that the centres functional nature requires re-examination to support rapid population growth in the area. The appropriateness of this is further considered in Amendment No. 2 to the Brabham District Centre Precinct Structure Plan.

Transport, Traffic & Access

As an outer metropolitan growth area, the City has a reliance on private cars for residents to access key destinations, currently resulting in an increase in private vehicle trips. The size of the City and fragmented nature of its urban areas, such as the emerging urban front within the growth corridor, makes reducing car dependency challenging.

The Structure Plan is however uniquely located in proximity to the Whiteman Park Metronet Station. The station is currently under construction and will be located approximately 350m west of the Structure Plan, with direct access to be provided via an underpass at Drumpellier Drive. This will ensure future residents are provided suitable access to public transport services and provide a better linkage between the train station and District Centre, helping with 'connecting people and places'.

The expansion of the District Centre south of Youle-Dean Road, as well as the delivery of a public primary and high school, also provides the future community excellent access to a variety of goods, services and community infrastructure. Further, the introduction of the Centre south of Youle-Dean Road in greater proximity to the train station will improve convenience and its linkage with the station, to encourage future visitors and employees to access the Centre via public transport.

Whilst private vehicle use will still be a common form of transport within the area, the layout of the Structure Plan has been carefully considered to encourage a reduction in private vehicle use, support active modes of travel and provide good access to infrastructure and services.

2.3 Planning & Governance Context

2.3.1 Strategic Planning Framework

2.3.1.1 Perth and Peel @ 3.5 Million (March 2018)

The *Perth and Peel @ 3.5 million and Beyond* suite of policies forms the spatial framework and strategic plan for the Perth and Peel regions. Its purpose is to establish a blueprint for supporting a population of 3.5 million by 2050 through the implementation of four sub-regional planning frameworks.

Perth and Peel @3.5million includes the Structure Plan area within the North-East Sub-regional Planning Framework, which forecasts this sub-region to experience relatively strong population growth, more than doubling from 209,150 people in 2011 to 450,580 by 2050 predominantly within the City of Swan.

2.3.1.2 North-East Sub-regional Planning Framework

The North-East Sub-regional Framework (the Framework) provides an additional level of detail regarding the implementation of *Perth and Peel @3.5million* at the sub-regional level, including information about the level of expected population growth, servicing, infrastructure and housing demand.

The Structure Plan area has been identified in the Framework as 'Urban', recognising its current zone under the MRS.

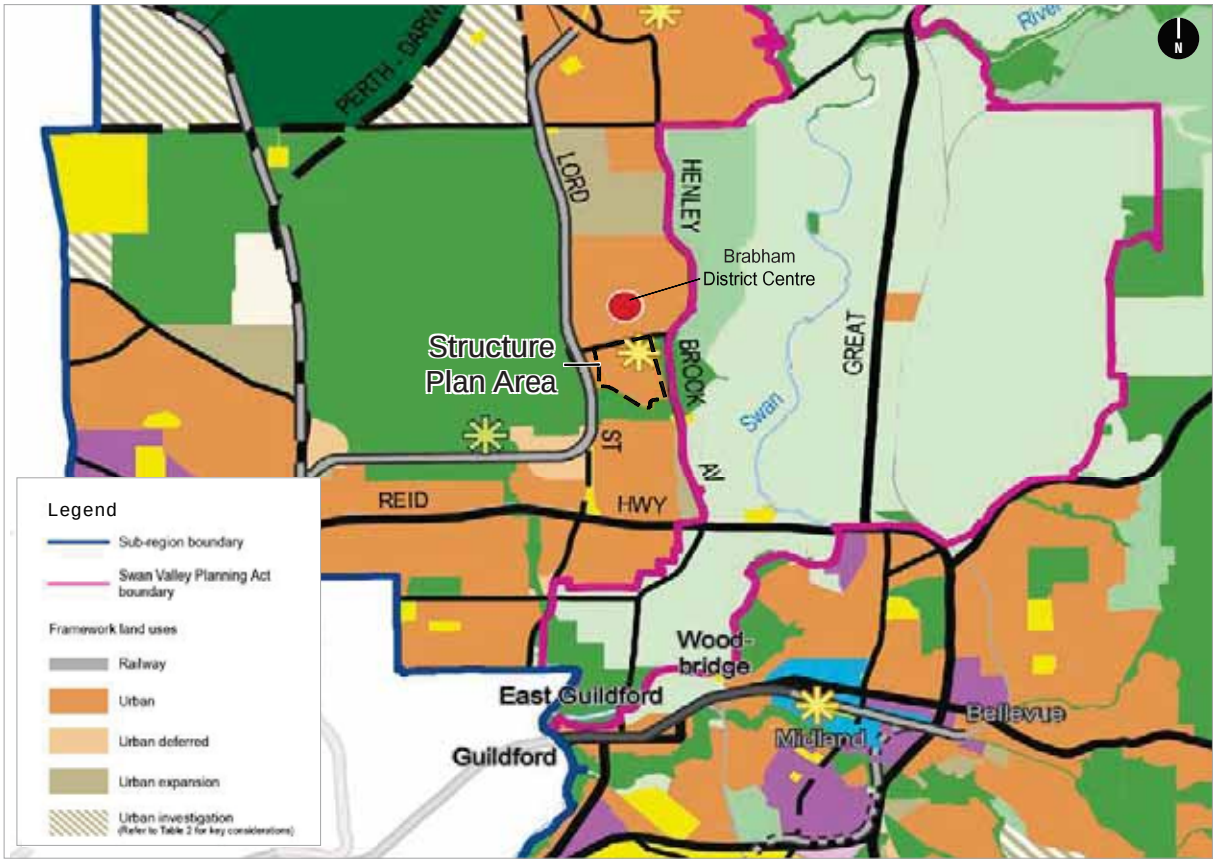


Figure 3 - North-East Sub-regional Planning Framework

Source: DPLH

2.3.1.3 City of Swan Local Planning Strategy

The City's Local Planning Strategy identifies the site within an 'Urban Growth Area', confirming its suitability for urbanisation.

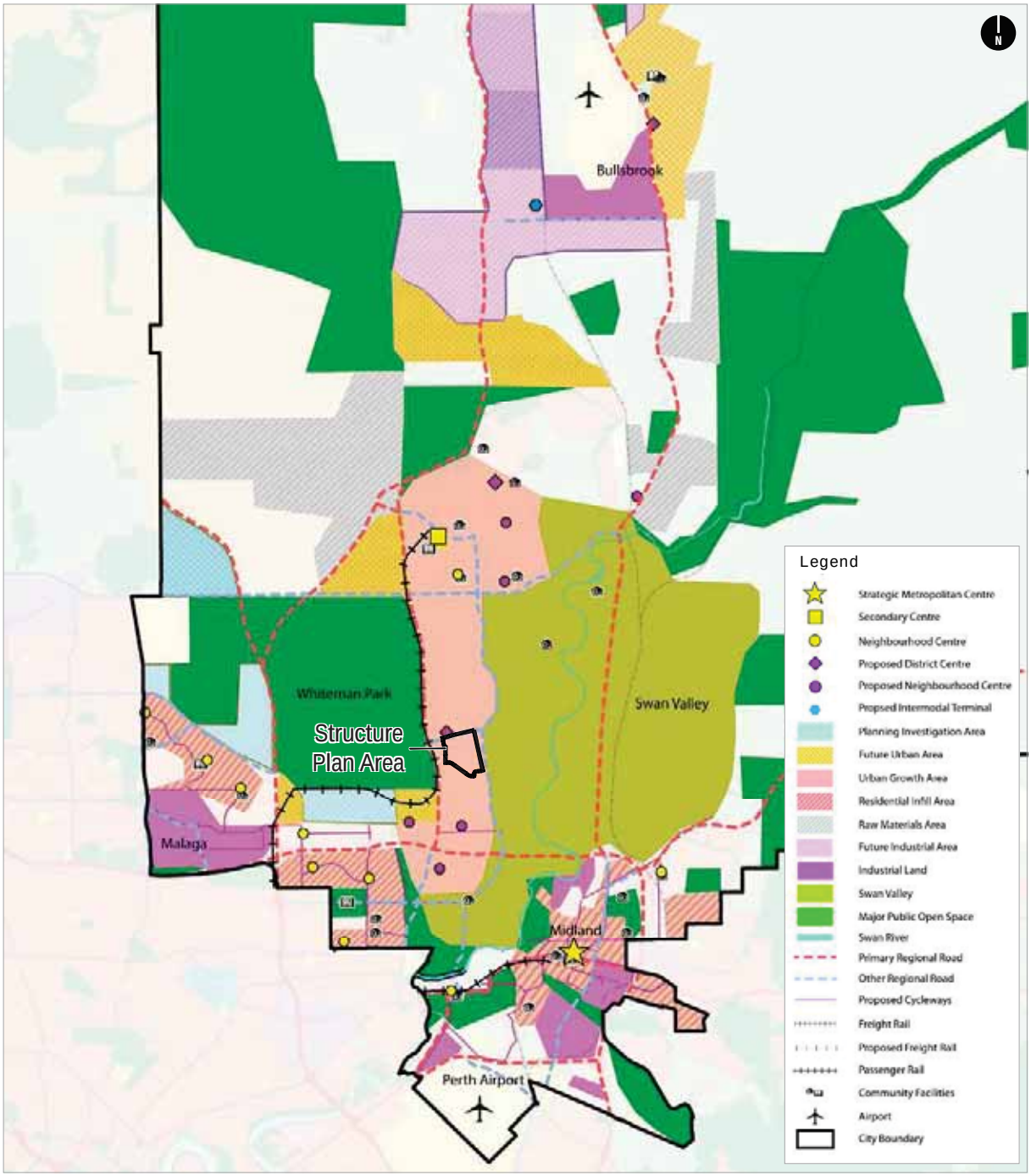


Figure 4 - Local Planning Strategy

Source: City of Swan

2.3.2 Statutory Planning Framework

2.3.2.1 Metropolitan Region Scheme Zoning

The Structure Plan area is zoned 'Urban' in the Metropolitan Region Scheme (MRS). The Urban zone identifies land suitable for a range of activities, including residential and commercial uses.

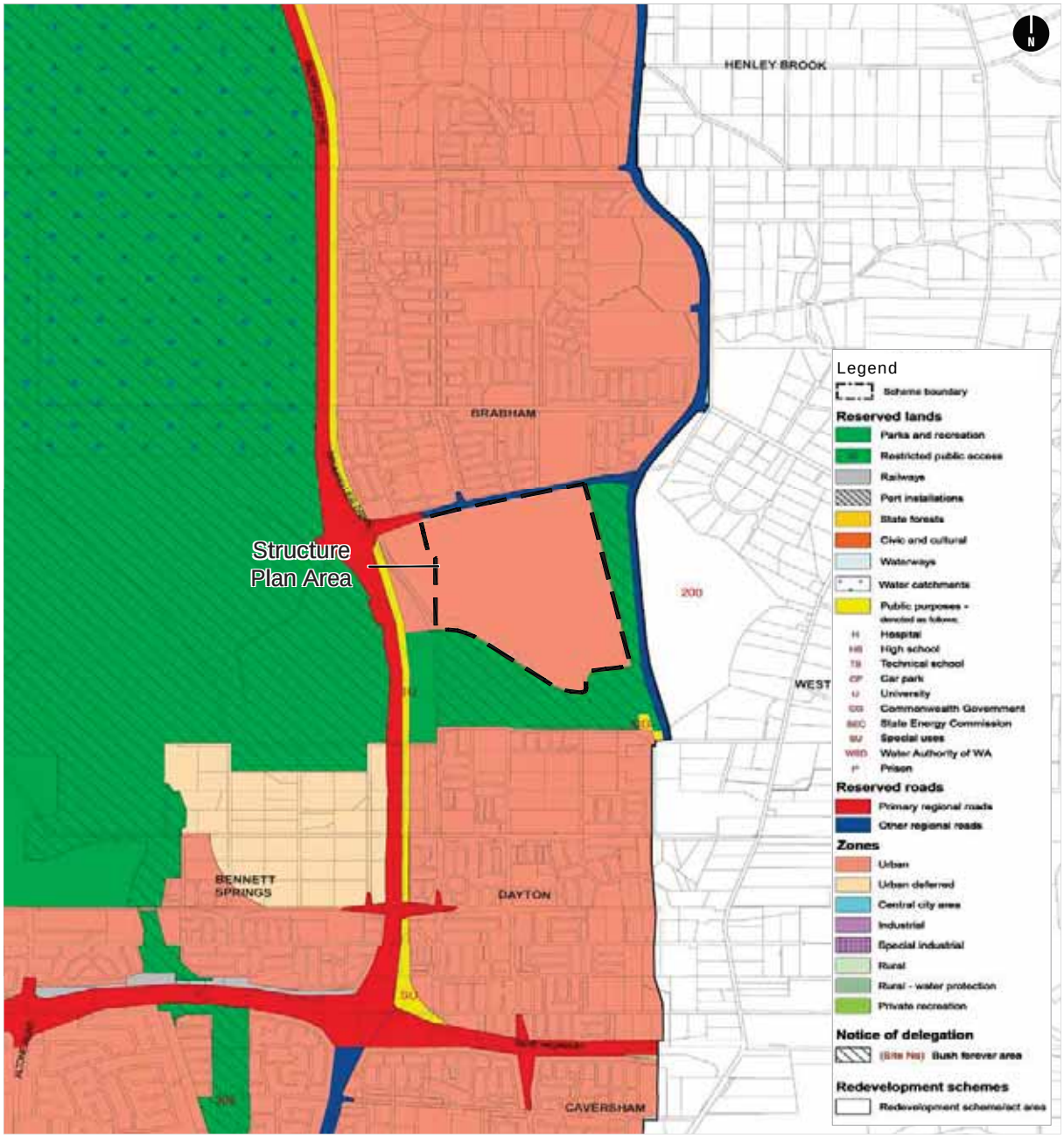


Figure 5 - MRS Zoning

Source: DPLH

2.3.2.2 City of Swan Local Planning Scheme No. 17

The Structure Plan area is zoned 'Special Use' under the City's LPS 17. Part 5A and Schedule 4 of LPS 17 require a local structure plan to be prepared prior to development over all or part of the land falling within the 'Special Use – Albion' zone, with the objective being to achieve coordinated subdivision and development.

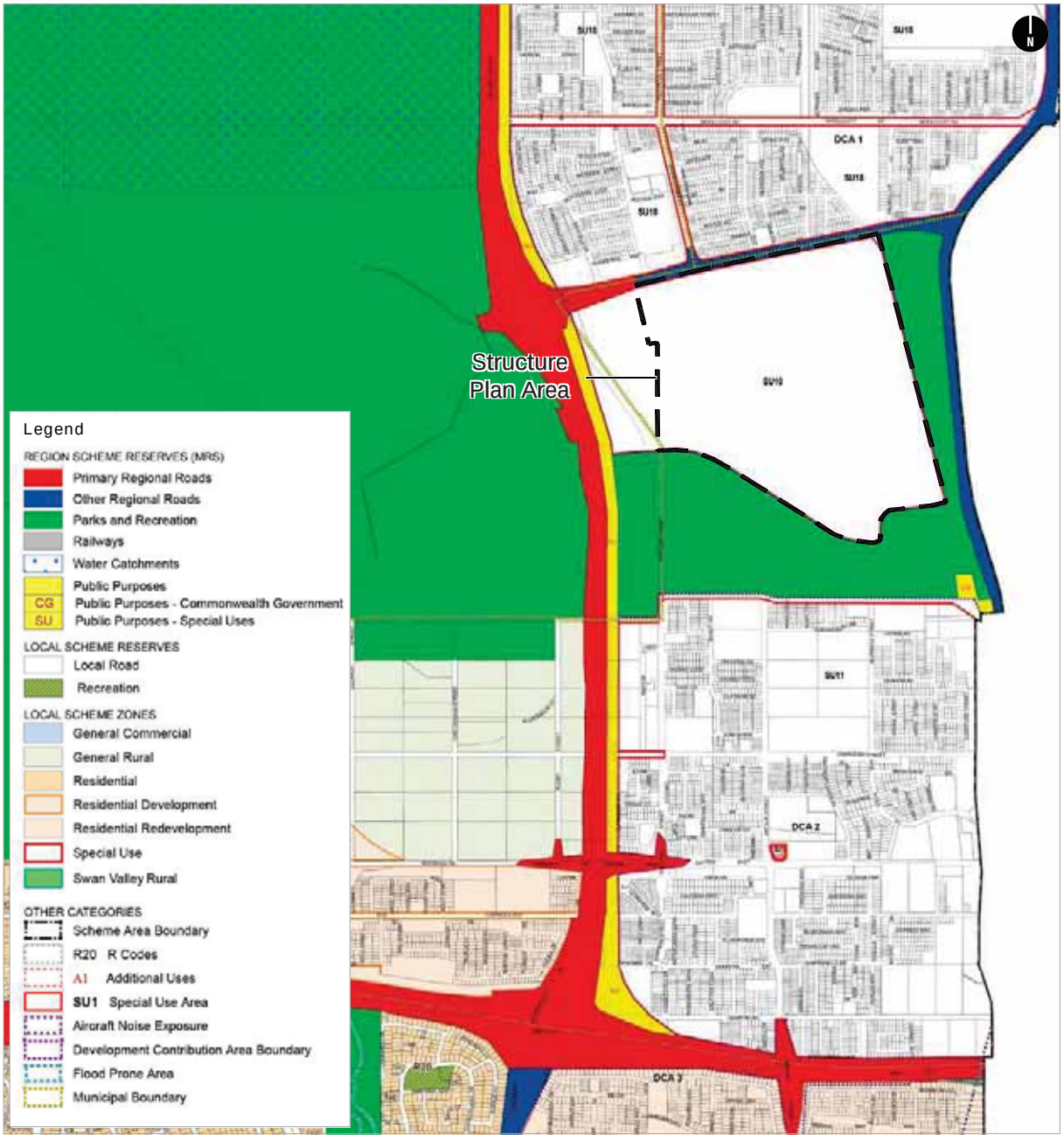


Figure 6 - LPS Zoning

Source: DPLH

The Structure Plan has been prepared to satisfy the requirements of Part 5A and Schedule 4. There are a number of environmental management plans that are required to be provided in support of a local structure plan, which have been summarised in **Table 2** below.

Table 2: LPS 17 Management Plans

Management Plan/Technical Report	Reference
Acid Sulphate Soils Site Assessment Management Plan	Refer to Section 2.2.1 and 4.1.3 of the Environmental Assessment and Management Strategy - Appendix 4
Water Management Plan	Refer to Local Water Management Strategy - Appendix 6
Wetland Management Plan	Refer to Sections 2.5.4 and 4.5 of the Environmental Assessment and Management Strategy - Appendix 4
Cultural Heritage Management Plan	Not applicable, refer to Section 2.6.1 and 2.6.2 and 4.7 of the Environmental Assessment and Management Strategy – Appendix 4
Fire Management Plan	Refer to Bushfire Management Plan - Appendix 2

2.3.2.3 Albion District Structure Plan

The Structure Plan is located within the Albion District Structure Plan (DSP), which was approved by the WAPC in 2009. The DSP is a higher order document that provides a framework to guide local structure planning within the Albion (now Brabham) locality and sets out a higher order context for land use, shopping centres, major roads, schools and strategic open space.

The DSP map depicts three local structure plan boundaries within the study area. Whilst local structure planning has not historically followed the staging initially identified the Structure Plan covers almost the entirety of the area noted as 'LSP 2' within the DSP, which indicatively includes a primary school, high school, district open space, portion of the District Centre and a centrally located Local Centre. Except for the portion of land between Drumpellier Drive and the western boundary of the Structure Plan, the site represents the last remaining parcel of land within the DSP not subject to a local structure plan.

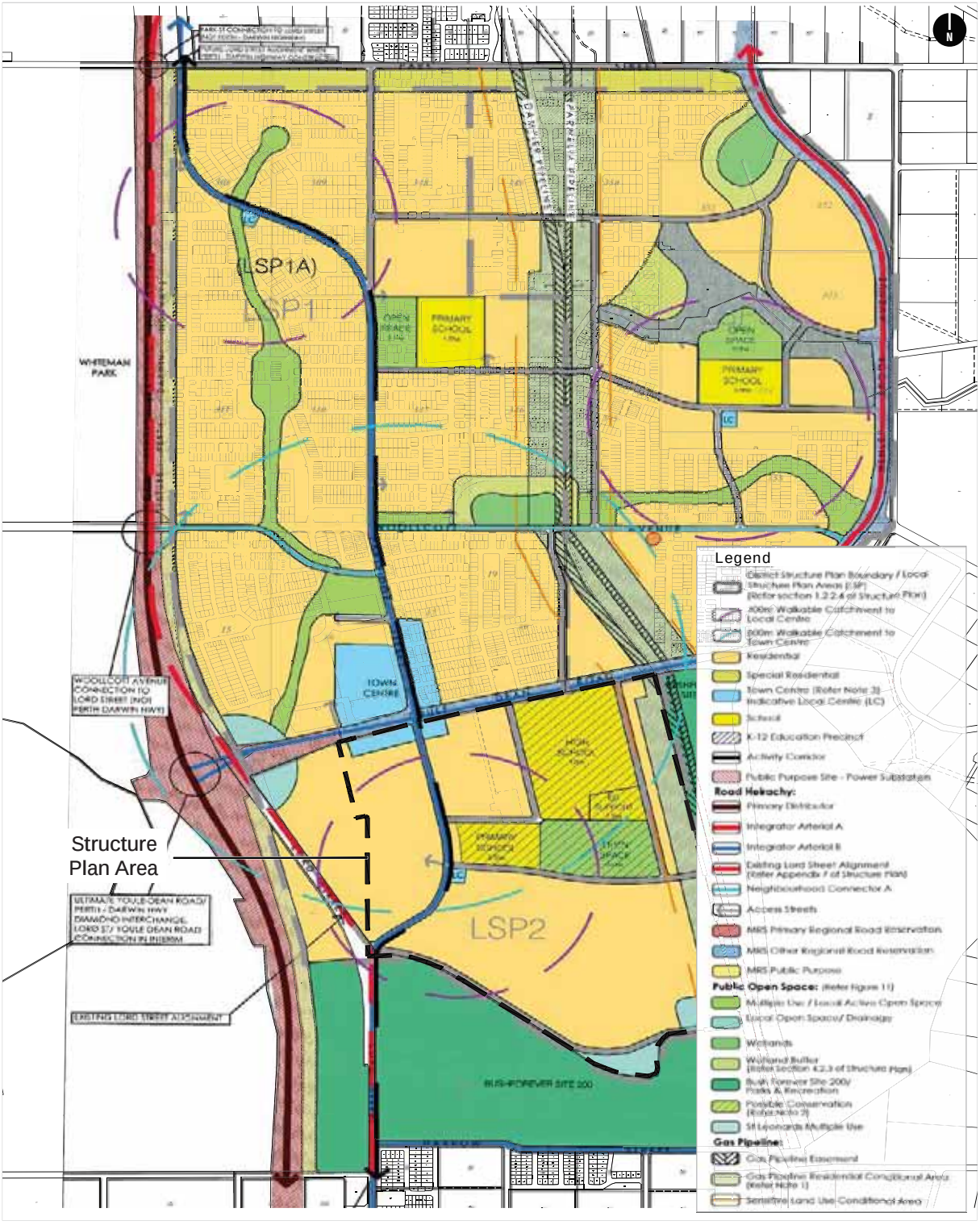


Figure 7 - Albion District Structure Plan Map

The DSP includes the following key development principles:

1. Provide a framework for urban land uses with the DSP area that integrate within the sub-regional context;
2. Respond to the social and economic needs of the community in a timely way;
3. Provide a framework for future Local Structure Planning and subdivision, allowing for refinement of detail and recognition of previous uses;
4. Provide for a variety of housing choice through a range of densities, predominantly at an R30 density with higher coding (up to R60) within and around the District Centre and other nodes;
5. Define a robust road network reflecting and accommodating public and private transport priorities, responding to the Sub-regional transport network;
6. A main street-based Town Centre, supported by local centres;
7. Provide integrated Primary and High School sites that meet the needs of the catchment;
8. An integrated open space, conservation and drainage network, balancing environmental, recreational and drainage objectives;
9. Provide for sustainable land use and lot design that responds to solar orientation principles as well as Crime Prevention Through Environmental Design;
10. Encourage local employment within the District Centre and local centres, as well as through home-based businesses; and
11. Reflect and integrate the development area with surrounding land uses.

The Structure Plan has been prepared in accordance with the DSP's overarching development principles as they apply to the site, and as set out below:

- A range of residential densities are proposed with a base density range of R30-R40 for the more traditional suburban areas of the Structure Plan, R30-R60 for transitional areas and higher R50-R60 for a strategically located portion of land adjacent to the District Centre. This will enable the delivery of a variety of housing typologies and provide dwelling diversity for future residents in various locations across the Structure Plan;
- Provision of a clear and legible street network with direct access to the Whiteman Park Metronet Station and Youle-Dean Road that connect seamlessly to the surrounding local road and public transport network;
- Land has been set aside for a public primary and high school with a shared use playing field in accordance with the requirements of the Department of Education, supporting the needs of future residents and the broader Brabham community;

- A public open space network informed by detailed environmental studies that will deliver approximately 11.39ha (14.6%) of public open space to support both active and passive recreational activities, as well as tree retention and important drainage functions. The open space network ensures all future residents are within 300m of public open space; and
- Provision of approximately 3.6ha of Commercial land forming part of the planned expansion to the Brabham District Centre, with a clearly defined north-south main street to improve integration with the surrounding community.

The Structure Plan's alignment with the development principles of the DSP is outlined in further detail throughout this report.

2.3.3 State Planning Policies

Liveable Neighbourhoods Operational Policy

Liveable Neighbourhoods is WAPC's operational policy for residential development in Western Australia. *Liveable Neighbourhoods* sets out the key considerations for the planning of new communities, including subdivision layout and movement networks, the location of open space, community facilities, schools and activity centres. The Structure Plan has been prepared in accordance with *Liveable Neighbourhoods* and best practice urban design principles, creating an extension of the established neighbourhood supported by an interconnected network of local roads and pathways with good access to services and infrastructure.

The Structure Plan's consistency with the objectives of the eight 'Elements' of *Liveable Neighbourhoods* is set out below in Section 5.0 Design Response.

State Planning Policy 3.0: Urban Growth and Settlement

State Planning Policy 3.0: Urban Growth and Settlement sets out the principles and considerations that guide the location of new urban growth and settlements. The Policy strongly focuses on consolidating residential development in existing urban areas and prioritises infill development in established urban areas where future residents will have good access to employment, services and transport infrastructure.

The Structure Plan is consistent with SPP 3.0 as it supports urban consolidation within the region. Further, the site has excellent access to existing and planned transport networks, employment nodes, schools and activity centres. All essential service infrastructure can be readily and efficiently connected from the immediate surrounding areas.

State Planning Policy 7.3: Residential Design Codes

The Residential Design Codes (R-Codes) form the basis for the assessment of all single, grouped and multiple-dwelling developments in Western Australia. They are applicable to the structure plan area by virtue of the proposed Residential zone.

The R-Codes can be varied through Local Planning Policies and Local Development Plans. Standard departures to the R-Codes will be available to the structure plan area given its underlying 'Residential Development' zoning and being subject to this approved structure plan. This is in accordance with the City of Swan's *Local Planning Policy POL-LP-11 Variation to deemed-to-comply requirements of the R-Codes – Medium-density single house development standards (R-MD Codes)*.

State Planning Policy 3.7: Planning in Bushfire Prone Areas

State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7) acts in conjunction with the Implementation Guidelines to inform planning decision making and limit the threat to life and property associated with bushfire risk. The Policy requires assessment of bushfire risk at an escalating level of detail in the various stages of the planning process for all land identified as 'Bushfire Prone' with the maps published by the Office of Bushfire Risk Management.

The Structure Plan is designated as bushfire-prone in the mapping maintained by the Department of Fire and Emergency Services. Accordingly, a Bushfire Management Plan has been prepared by Emerge in accordance with the Implementation Guideline. The outcomes of the assessment are discussed below in Section 5.0 Design Response.

State Planning Policy 5.4: Road and Rail Noise

State Planning Policy 5.4: Road and Rail Noise (SPP 5.4) acts in conjunction with the Implementation Guidelines to inform planning decision making to ensure the amenity of future residents is not compromised by transport noise. The Policy requires consideration of transport noise for sensitive land uses abutting major transport and strategic freight routes to avoid or mitigate the potential for land use conflict.

The Structure Plan area is within the Drumpellier Drive SPP 5.4 trigger distance in the mapping maintained by the Department of Planning Lands and Heritage. Accordingly, an Acoustic Assessment has been prepared by Lloyd George in accordance with the Implementation Guideline. The assessment determined that no acoustic attenuation is required due to the setback of the Structure Plan from the noise source.

State Planning Policy 4.2: Activity Centres for Perth and Peel

In accordance with Clause 7.3 of SPP 4.2 a Precinct Structure Plan (PSP) is required to be prepared for District Centres to guide future subdivision and development, and is therefore applicable to the portion of the Structure Plan designated 'Special Use – District Centre'. The established Brabham District Centre PSP covers the existing portion of the Brabham District Centre north of Youle-Dean Road and includes appropriate planning controls to guide future development within the precinct, consistent with its context and status as a District Centre. The land designated Special Use – District Centre will therefore be incorporated into the Brabham District Centre PSP via a separate structure plan amendment (Amendment No. 2).

Planning Bulletin 87: High Pressure Gas Transmission Pipelines

The Dampier to Bunbury Natural Gas Pipeline and Parmelia Gas Pipeline and associated easements are located immediately east of the Structure Plan. Planning Bulletin 87 sets out planning requirements for sensitive land uses within proximity to the pipeline easements, and permits a reduction in the setback requirements where it can be demonstrated through a Pipeline Risk Assessment / Safety Management Study that future development is within acceptable risk levels.

A Management Plan will be provided through the subdivision process to demonstrate development is compliant with the policy framework, consistent with the approach for other structure plans within the area affected by the gas pipeline alignments.

2.3.4 Local Planning Policies

Local Planning Policy 1-12: Public Open Space and Community Buildings

The Policy sets out the City's expectation for the provision of open space through structure plans and any subsequent proposals for subdivision and development. Planning for new open spaces must be in accordance with the City's Open Space and Community Buildings principles, which are as follows:

- Sustainability;
- Quality and Enjoyment;
- Diversity, Flexibility and Innovation;
- Access and Equity;
- Financial Responsibility;
- Integration;
- Consultation and Collaboration; and
- Safety.

A Public Open Space Schedule has been prepared to demonstrate that the Structure Plan satisfies the requirements for public open space provision. To further demonstrate the Structure Plans, consistency with the above principles, Plan E has prepared a Landscape Masterplan for the various areas of public open space. The public open space provision and Landscape Masterplan are discussed in further detail below in Section 5.0 Design Response.

POL-LP-11 Variation to deemed-to-comply requirements of the R-Codes – Medium-density single house development standards (R-MD Codes)

The policy sets out variations to the R-Codes to support the delivery of medium density housing standards through a set of alternate development criteria known as the 'R-MD Codes'. The policy is applicable to land zoned 'Residential Development' within the City and will therefore be applicable to the Structure Plan to facilitate the delivery of a variety of medium density housing product consistent with current market demand.

POL-C-104 Environmental Planning

The policy sets out the City expectations for the management of the natural environment in urban growth areas and the requirements to be addressed within Structure Plans. The Structure Plan is supported by an Environmental Assessment and Management Strategy prepared by Emerge, the outcomes of which have guided the Structure Plan layout. Water Sensitive Urban Design principles and management will also be adopted across the Structure Plan, with the approach to drainage outlined in detail in the Local Water Management Strategy prepared by Pentium Hydro.

POL-LP-1.15 Kangaroo Management

The policy provides guidance on the preparation of Kangaroo Management Plans (KMP) where land clearing for urban development is proposed that may result in the displacement of kangaroos. The policy requires the proactive management of kangaroos by the landowner prior to the removal of any vegetation or disturbance of habitat. A KMP will be required as a condition of subdivision approval when further information is available, such as the areas proposed to be cleared for development and number of kangaroos on site, to accurately address the policy provisions and legislative framework. The KMP will be prepared in consultation with the Department of Biodiversity, Conservation and Attractions, consistent with the requirements of the policy.

3.0 OPPORTUNITIES & CONSTRAINTS ANALYSIS

Contextual analysis and assessment undertaken by the project team has identified important site features that have influenced the design, as well as future subdivision and development of the Structure Plan. Key findings from technical assessments are illustrated in **Figure 8,** and a summary of the key considerations is set out below:

- The Structure Plan comprises 99.87ha of land within Part Lot 822, bound by Youle-Dean Road to the north, Bush Forever Site No. 200 to the south and east and future residential development to the west.
- Whiteman Park Metronet Station, which is currently under construction, lies approximately 350m to the west of the site. This has informed the design of the Structure Plan, which makes provision for future pedestrian and cyclist connectivity to the train station via an underpass at Drumpellier Drive, noting this is reliant on development of the land to the west. The design response facilitates ease of access to the station through a strong east-west axis and legible urban structure.
- Part of the site falls within an 800m walkable catchment (10min walk) of the train station, which has influenced the design response, including the location of land uses and distribution of density.
- Opportunity presents to deliver a logical extension of the Brabham District Centre to the south of Youle-Dean Road, as identified under the Albion DSP. This land, along with the existing commercial land immediately north of Youle-Dean Road, will ensure future residents will have convenient access to a wide range of facilities and services and local employment opportunities.
- A connection to Henley Brook Avenue is located towards the south-east of the site, strategically positioned to disturb the least number of trees within the adjoining Bush Forever land. Traffic modelling has shown that an additional link to Henley Brook Avenue (as per the Albion DSP) is not required.
- An existing wastewater pump station is located centrally within the site. The Structure Plan seeks to minimise the visual impact of this infrastructure through its integration with public open space.
- All other services will be provided to the site via the extension of existing services within Youle-Dean Road.
- Two high-pressure gas pipelines and associated easements run north-south along the eastern boundary of the site. No sensitive land uses, such as schools, are to be proposed within 320m of the pipeline easements.
- Earthworks levels will be dictated by existing levels where the site abuts developed areas, clearance to groundwater/subsoil, servicing of the site with sewer reticulation and retention of existing vegetation where possible. The site will therefore be earthworked to provide a central ridgeline running north-south through the site, grading away to the west and east to tie-in with the established surrounding levels.
- The earthworks levels have influenced the stormwater management strategy, with the eastern portion of the site retaining all stormwater on-site, with flood storage for larger events integrated within useable areas of public open space. The western portion of the site will drain westward through culverts to the existing Horse Swamp.

- A tree survey has been conducted across the site, which has informed the emerging development structure and the location of parks and spaces, including the retention of 4.35ha of EPBC vegetation. The tree survey concluded that the site comprises both native and non-native trees of predominantly 'moderate' and 'low' retention value. None were considered to have a high retention value due to a lack of any special significance.
- Appropriate setbacks will be required to the surrounding Bush Forever Site No. 200 to satisfy the applicable bushfire protection criteria.

Image 1 - EPBC vegetation retention area (4.35ha)

Image 2 - Trees to be retained around sewer pump station for screening and amenity

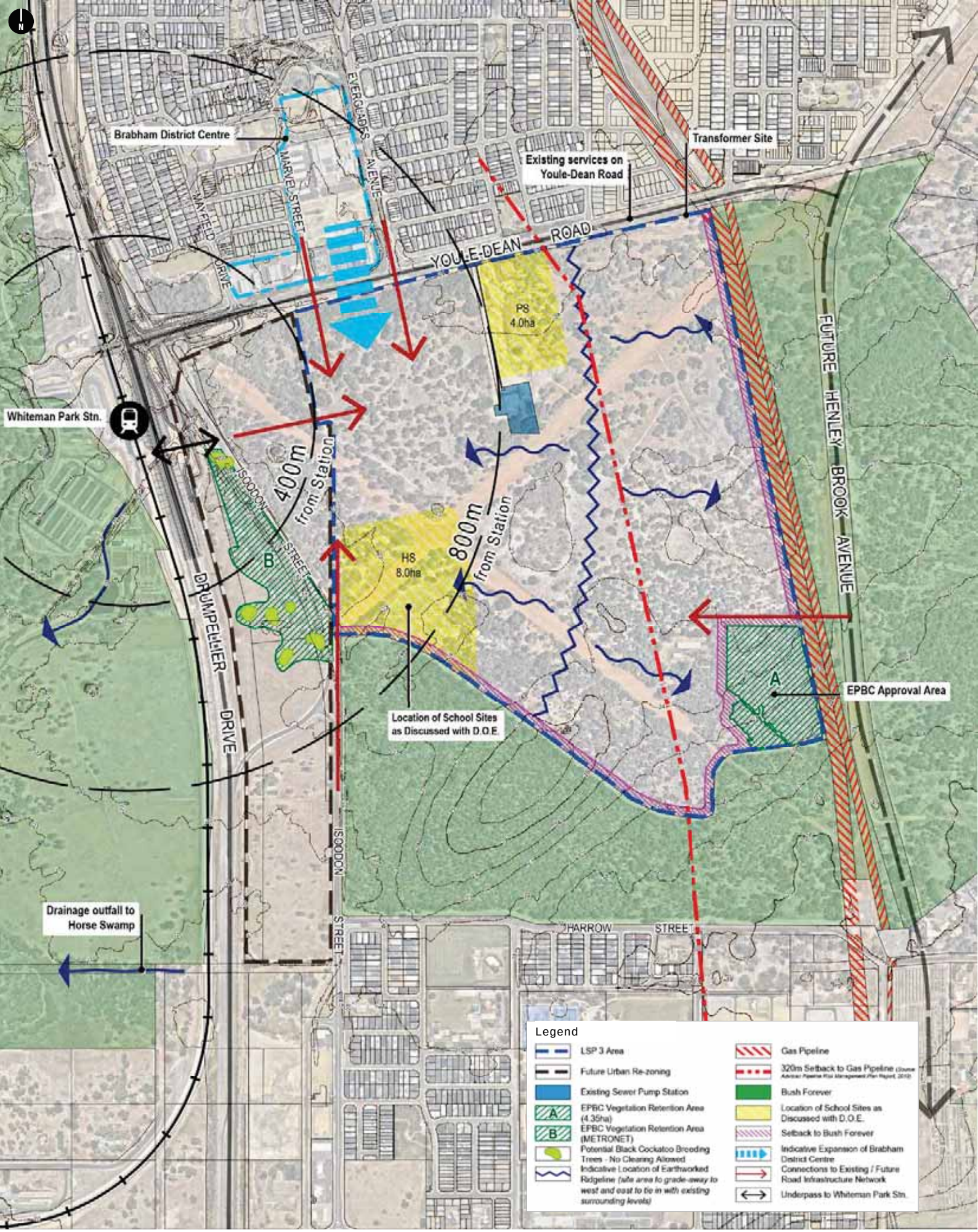


Figure 8 - Opportunities and Constraints Plan

Source: Nearmap

4.0 STAKEHOLDER & COMMUNITY ENGAGEMENT

Liveable Neighbourhoods and the WAPC's Structure Plan Guidelines promote a participatory approach to structure planning and recommend stakeholder engagement prior to, and in addition to, the formal consultation requirements. The following table sets out a summary of the key stakeholder engagement:

Agency	Summary of Consultation
City of Swan	City officers have been consulted through a series of preliminary meetings as part of the Structure Plan's preparation, in addition to regular Liaison Meetings related to all Peet and DevelopmentWA's Brabham communities. The Structure Plan was also presented to the City's Design Review Panel on 24 October 2023. The Structure Plan was updated following the feedback provided through the design review process
Department of Planning, Lands and Heritage	**Land Use Planning** – General liaison with the Department regarding the principles and objectives of the Structure Plan. **Property/Land Use Management** – Engagement with, and support from, the Department regarding the future layout of the adjoining WAPC landholding to ensure seamless integration of the Structure Plan with the land to the west, including a left-out access onto Drumpellier Drive.
Department of Education	Consulted on the size and layout of the public primary and high school with the Structure Plan Map reflecting the advice of the Department and current location preferences.
Metronet	Peet and DevelopmentWA were key stakeholders that engaged extensively with the Metronet team in the preparation of the Whiteman Park Concept Precinct Masterplan. This document was prepared to guide future planning and development of the Whiteman Park Station Precinct (which includes portions of the Structure Plan) to ensure it is integrated with, and maximises the benefit of, the new rail infrastructure.
Service Authorities (Water Corporation, Western Power, ATCO Gas)	All key servicing agencies were consulted as part of the preparation of the engineering and services response to ensure the site could be connected to all necessary infrastructure and utilities.

Engagement will continue with the above stakeholders and surrounding community through the post-lodgement consultation phase as required by the *Planning and Development (Local Planning Schemes) Regulations 2015*. Consultation will then continue with stakeholders, as required, during the implementation stage of the Structure Plan to ensure any concerns or constraints identified are addressed collaboratively, enabling subdivision to occur in a timely manner.

5.0 DESIGN RESPONSE

The design response has been developed through a comprehensive masterplanning process that has considered contextual analysis, design review, and consultation. It is underpinned by a series of structuring design principles, which aim to maximise the opportunities identified.

The Structure Plan creates a planning framework for the delivery of a sustainable mixed-use neighbourhood that presents as a logical extension of the emerging Brabham community. A Masterplan Concept (**Figure 9**) has been prepared to demonstrate how development of the Structure Plan could occur based on the Structure Plan objectives and requirements of the planning framework.

The following figures present a series of structuring design principles that underpin the Masterplan Concept, which are explored in further detail throughout this section of the Structure Plan document.

Figure 9 - Masterplan Concept

Source: Nearmap

Green Links & Spaces

The design response provides a multi-functional network of green links and spaces that will support a range of passive and active uses, connections to the wider open space network, and seeks to retain, where possible, existing mature vegetation as well as new vegetation.

The location of peripheral parkland areas relates primarily to site constraints and water management, but has also been informed by tree retention opportunities and the creation of a sensitive interface to bush forever land.

Streets will incorporate a range of features to support green links throughout the LSP area, including street tree planting, integrated drainage features and dense groundcover planting.

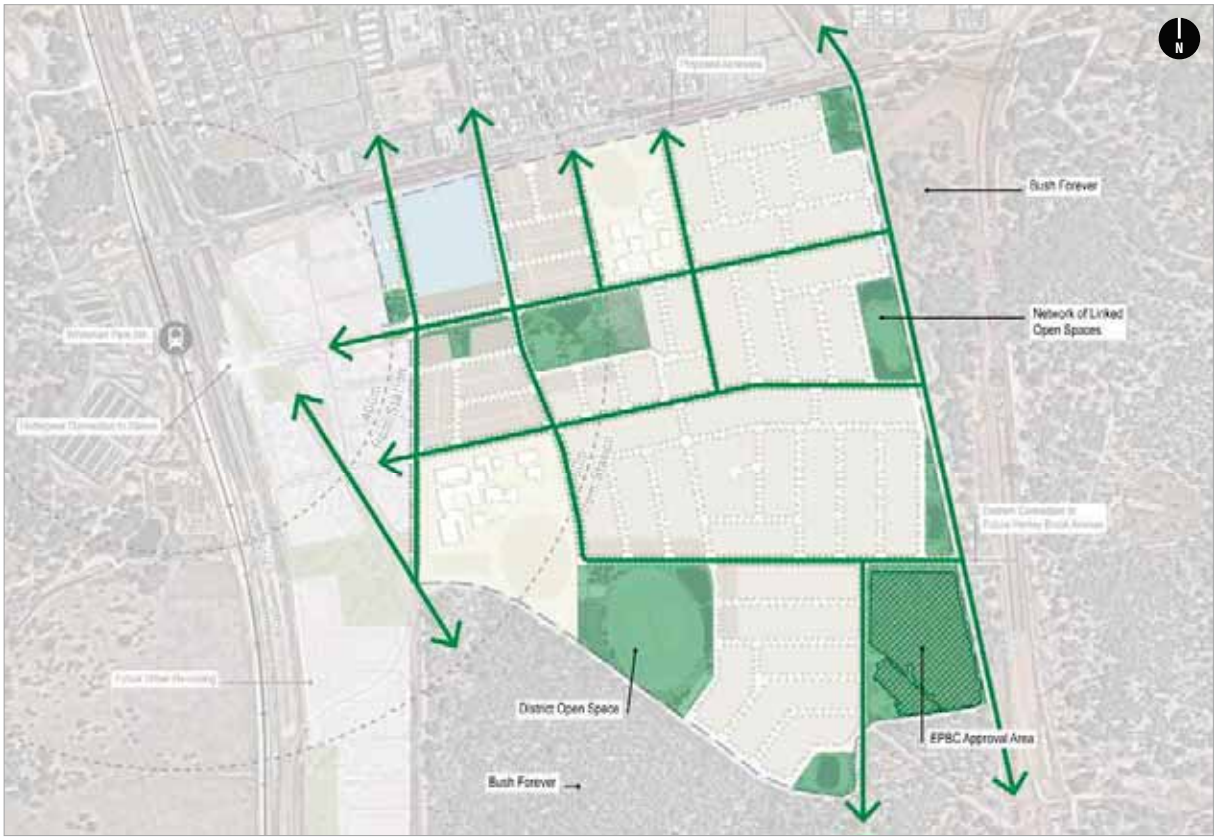


Figure 10 - Green Links & Spaces

Source: Nearmap

Principal Movement

A network of higher order streets are structured to integrate with the existing road network and provide direct connections to key local destinations. The network has been defined by predicted traffic volumes, road function and design characteristics.

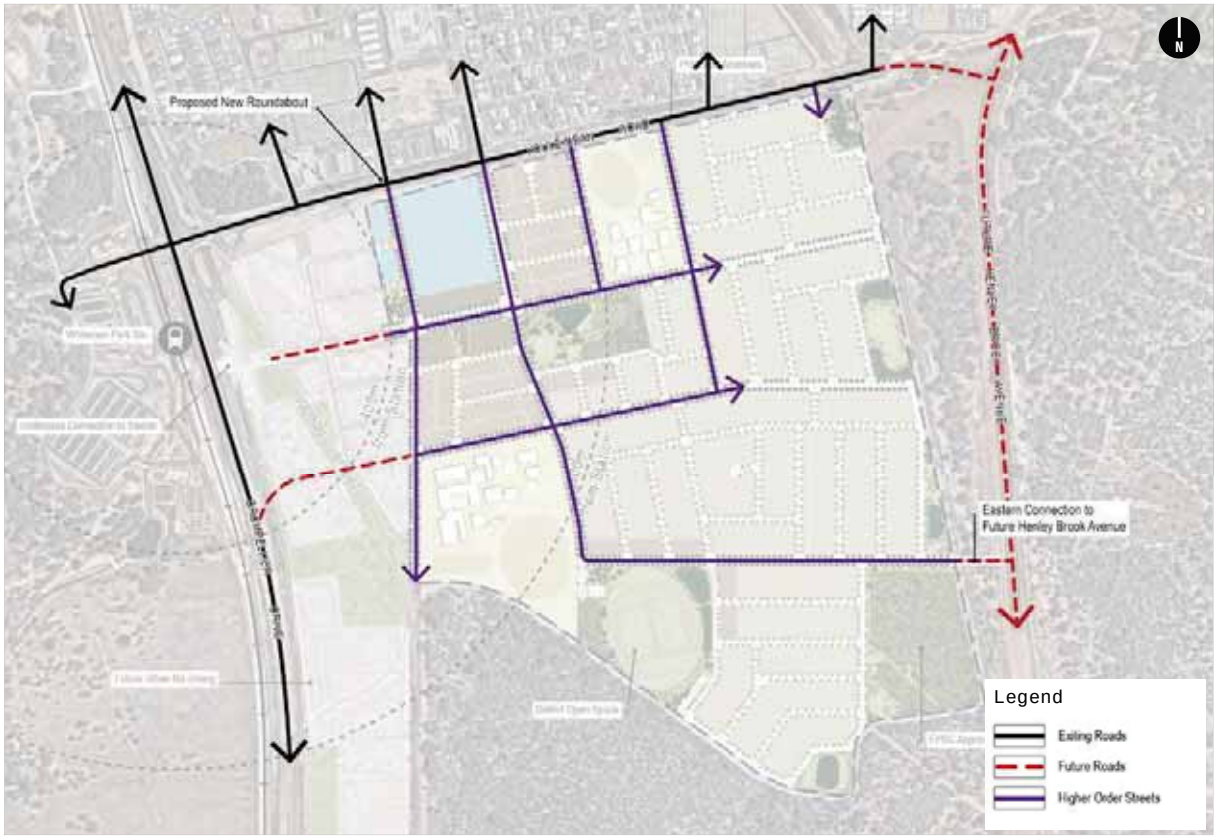


Figure 11 - Principal Movement

Source: Nearmap

View Corridors & Connections

The internal movement network is structured around a permeable layout of streets and spaces. Block sizes have been intentionally varied according to their location, to enhance walkability where it is needed most, for example Station Street towards the train station underpass.

The east-west axis to the station will include a variety of streetscape features that will help to indicate its higher status within the street hierarchy and celebrate its significance. The axis provides a distinctive visual connection to the station underpass in the west and Bush Forever to the east with views of the Darling Range beyond.

Rear lanes are indicatively shown within the centre and station precincts to minimise property accesses on frontages (to maximise footpath connection and reduce conflicts) and improve permeability for active travel. The layout enables cycle use through the inclusion of high quality paths throughout the site.

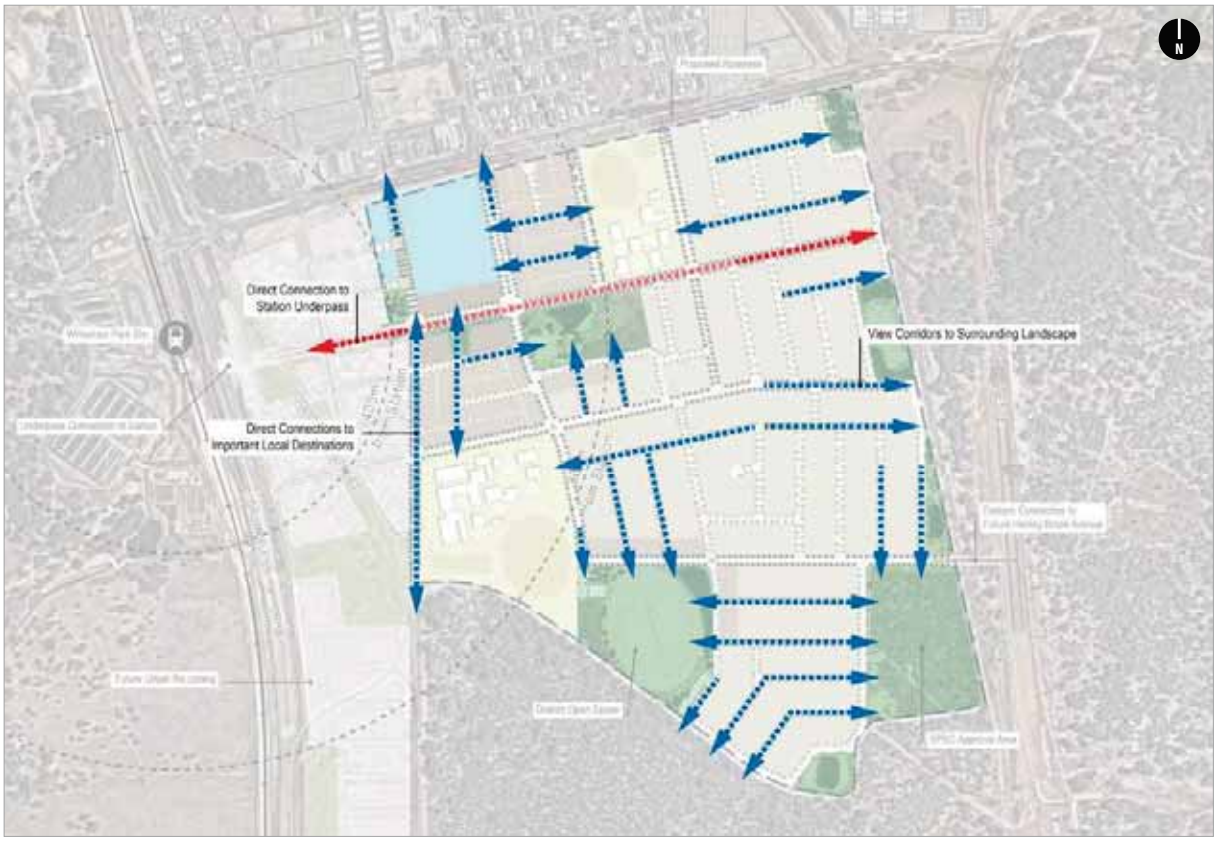


Figure 12 - Corridors & Connections

Source: Nearmap

Residential Density

The design response provides for a mix of residential densities that allow for a diverse range of dwelling types that will be determined and defined as part of future planning stages.

Higher density development is located around the station and centre precincts to allow for efficient use of land within these important catchments, where residents will have convenient access to shops, services, employment opportunities, education facilities and public open spaces.

Higher density development is also located around the central local park and district open space, recognising that these locations provide a significant area of active public open space, are located along a key movement route and are in close proximity to key facilities and services.

Higher density development overlooking the district open space will also be afforded views of the Bush Forever site to the south.

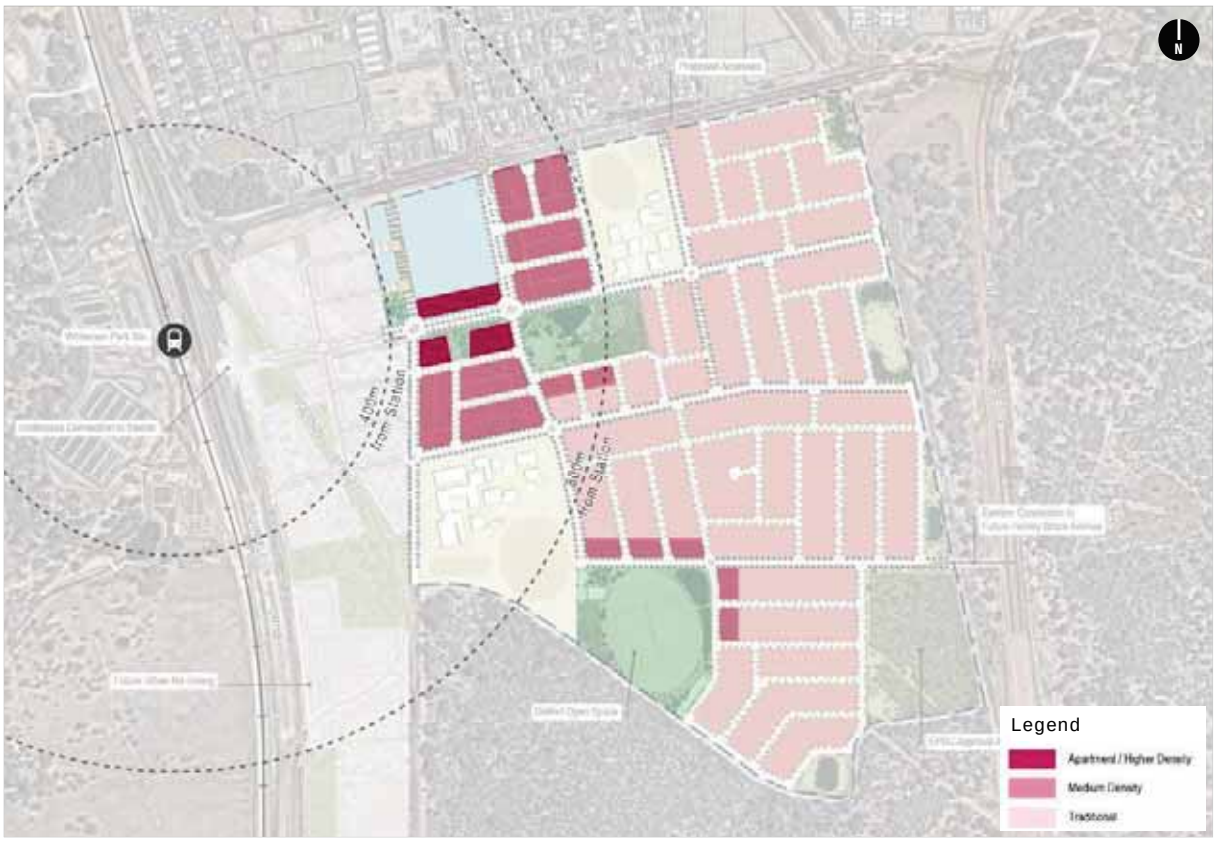


Figure 13 - Residential Density

Source: Nearmap

5.1 Community Design

Key principles of the Structure Plan, as illustrated by the Masterplan Concept, are set out below and have been informed by the project vision and objectives:

- Support the creation of a diverse range of affordable housing product that caters for a wide-ranging demographic to meet several social, environmental and sustainability objectives aligned with Peet and DevelopmentWA's overarching vision for Brabham.
- Deliver a primary school and high school to support the Brabham community through the provision of community infrastructure in accordance with the requirements of the Department of Education and the overarching Albion DSP.
- Provide clear and legible connectivity to the Whiteman Park Metronet Station to support convenience, active travel and reduced car dependency.
- Provide for the planned extension of the Brabham District Centre within the Structure Plan to improve integration of the shopping precinct within its surrounding residential context and provide future residents access to a wide range of goods and services within a walkable catchment.
- Deliver a variety of high quality public open spaces that provide a range of active and passive recreational activities and support tree retention where possible.
- Support the logical extension of necessary services and infrastructure in a coordinated manner.
- Deliver a permeable and highly connected road and footpath network.

Based on these principles, the Structure Plan provides a framework for the delivery of:

- A total of approximately 1505 dwellings with residential densities ranging from R30 to R60.
- A base R-Code range of R30-R40 to support a range of traditional front loaded dwelling typologies.
- An R-Code range of R30-R60 for areas that provide a transition between the District Centre and more traditional suburban areas.
- A higher R50-R60 residential density for lots immediately adjacent to the District Centre to support the delivery of more compact dwelling typologies along Station Street, in closest proximity to the train station access and shopping centre.
- A permeable movement network focused on a clear and identifiable east-west link to the train station underpass to support public transport use and accessibility.
- A public open space network through provision of approximately 11.39ha (14.6%) of public open space to provide for active and passive recreational opportunities, supported by integrated drainage functions.
- Management of bushfire hazards from the surrounding regional open space and other areas of unmanaged land through a variety of clearing and land management techniques to ensure all future lots can support development.

The Land Use summary table below (**Table 3**) sets out how the various designations of land across the Structure Plan will achieve the above principles.

Table 3: Land Use Summary

Item	Data	Section Number
Total area covered by the structure plan	99.87ha	Plan A
Area of each land use proposed: Zones: · Residential · Special Use (commercial) Reserves: · Road Reserves · Parks and Recreation · Conservation Reserve · Public Purpose (primary school) · Public Purpose (high school) · Public Purpose (wasterwater pump station)	 43.48ha 3.64ha 23.09ha 12.21ha 4.35ha 4.00ha 8.00ha 1.1ha	Part 1 - Section 4.1 and Plan A
Estimated number of dwellings	1505	Part 2 - Section 5.3.1
Estimated residential site density *Liveable Neighbourhood* *Perth & Peel@3.5 million*	 19.59 dwellings per gross urban zoned hectare 34.60 dwellings per residential site hectare	Part 1 - Section 4.2 Part 2 - Section 5.3.1
Estimated population	4214	Part 2 - Section 5.3.1
Number of high schools	1	Part 2 – Section 5.8
Number of primary schools	1	Part 2 – Section 5.8
Amount of Creditable Public Open Space · Regional Open Space · District Open Space · Local/Neighbourhood Parks	11.38ha (14.6%) Unrestricted – 9.82ha Restricted – 1.56ha N/A 5.42ha 5.97ha	Part 1 - Section 4.1.4 Part 2 - Section 5.4

5.2 Movement Network

A Transport Impact Assessment (TIA) has been prepared by PJA (**Appendix 7**) in support of the Structure Plan to forecast traffic volumes and a recommended road network hierarchy to accommodate the expected traffic flows. The TIA demonstrates that the proposed road network will adequately accommodate the expected traffic volumes in the year 2041. The modelling has adopted Main Roads' ROM24 model and used SIDRA to analyse the performance of existing and planned intersections.

Below is a summary of the key elements of the TIA, including the existing and planned movement network, road hierarchy and an overview of the cyclist and pedestrian network, all of which have been used to inform the Structure Plan layout.

5.2.1 Existing Movement Network

The Structure Plan is supported by an existing regional road network that provides convenient access to local, district and regional destinations, primarily via Drumpellier Drive and Reid Highway. The key aspects of the road network are as follows:

Drumpellier Drive is reserved as Primary Regional Road under the MRS connecting traffic between Reid Highway and Ellenbrook, with a posted speed limit of 80km/h north of Marshall Road. Drumpellier Drive was reconfigured and upgraded as a dual carriageway in 2018 and is currently subject to further upgrades adjacent to the Structure Plan to accommodate traffic signals at the intersection of Youle-Dean Road/ Whiteman Park East, as the primary entry point into the Whiteman Park Metronet Station.

Youle-Dean Road abuts the northern edge of the Structure Plan, running in an east-west direction between Drumpellier Drive and the Henley Brook Avenue road reserve, with a speed limit of 70km/h. Youle-Dean Road is reserved as a Primary Regional Road under the MRS west of Marvel Entrance and then an Other Regional Road up to its connection to the future Henley Brook Avenue.

Everglades Avenue is a local road located directly north of Youle-Dean Road, running in a north-south direction with a speed limit of 50km/h. Everglades Avenue forms the eastern boundary of the existing Brabham District Centre and will be extended south to form the main entry point into the Structure Plan.

Isoodon Street is a distributor road with a posted speed limit of 80km/hour adjacent to the Structure Plan, before decreasing to 70km/h at Harrow Street. It is anticipated that Isoodon Street will be subject to realignment and modifications as part of future planning for the land west of the Structure Plan. The Structure Plan includes indicative concept planning to demonstrate seamless integration of Isoodon Street and the proposed road network within this Structure Plan.

5.2.2 Proposed Movement Network

The proposed road configuration follows a logical and orderly hierarchy to support a legible and accessible network for all modes of transport to, from and within the Structure Plan. The network has been defined by predicted traffic volumes, road function and design characteristics. The Structure Plan provides for strong and direct north-south and east-west linkages to surrounding higher order roads and the Whiteman Park Metronet Station, as well the planned public-school sites and District Centre expansion. The road network has also been designed to ensure it can seamlessly integrate with the land west of the Structure Plan and the Henley Brook Avenue road reserve, thereby ensuring excellent connections both into and out of the site.

Key aspects of the planned movement network are as follows:

Drumpellier Drive: A 'left-out only' access is proposed onto Drumpellier Drive through future structure planning of land to the west to assist with distributing traffic generated from this Structure Plan. Provision has been made within the Structure Plan for an east-west Neighbourhood Connector B adjacent to the public high school site, which can be extended via future structure planning to provide direct egress onto Drumpellier Drive.

Youle-Dean Road: Five access points are proposed onto Youle-Dean Road, including two full-movement intersections adjacent to the Brabham District Centre, and three additional intersections to the west, two left-in/left-out and one full movement. The access points will reduce reliance on the primary access points adjacent to the District Centre and provide for an even distribution of traffic onto Youle-Dean Road.

Henley Brook Avenue: Is classified as an Other Regional Road in the MRS and is planned to be constructed as a dual carriageway supporting a direct connection between The Promenade and Harrow Street. The Structure Plan makes provision for a full-movement access onto Henley Brook Avenue in the south-eastern corner. Henley Brook Avenue is currently unconstructed and is to be funded by the Albion Development Contribution Plan.

Station Street: Will be a key east-west link within the Structure Plan providing direct access for pedestrians to the Whiteman Park Metronet Station, while also supporting movements around the District Centre. Station Street will vary in width with higher usage in proximity to the District Centre and adjacent to the primary school, with a more residential function at its westernmost and easternmost ends.

Neighbourhood Connectors: Two north-south and two east-west neighbourhood connectors are proposed to distribute traffic onto Youle-Dean Road, Henley Brook Avenue and Drumpellier Drive while also providing the higher order road networks around the public-school sites as required by the WAPC's Operational Policy 2.4: Planning for School Sites.

Access Streets: A range of access streets are proposed throughout the Structure Plan, including two key north-south and east-west Access Street B roads abutting the public open space and primary school. These streets will include widths of between 15m and 18m.

All road reserves and street cross sections will be determined at subdivision stage and shall have regard for *Liveable Neighbourhoods.*

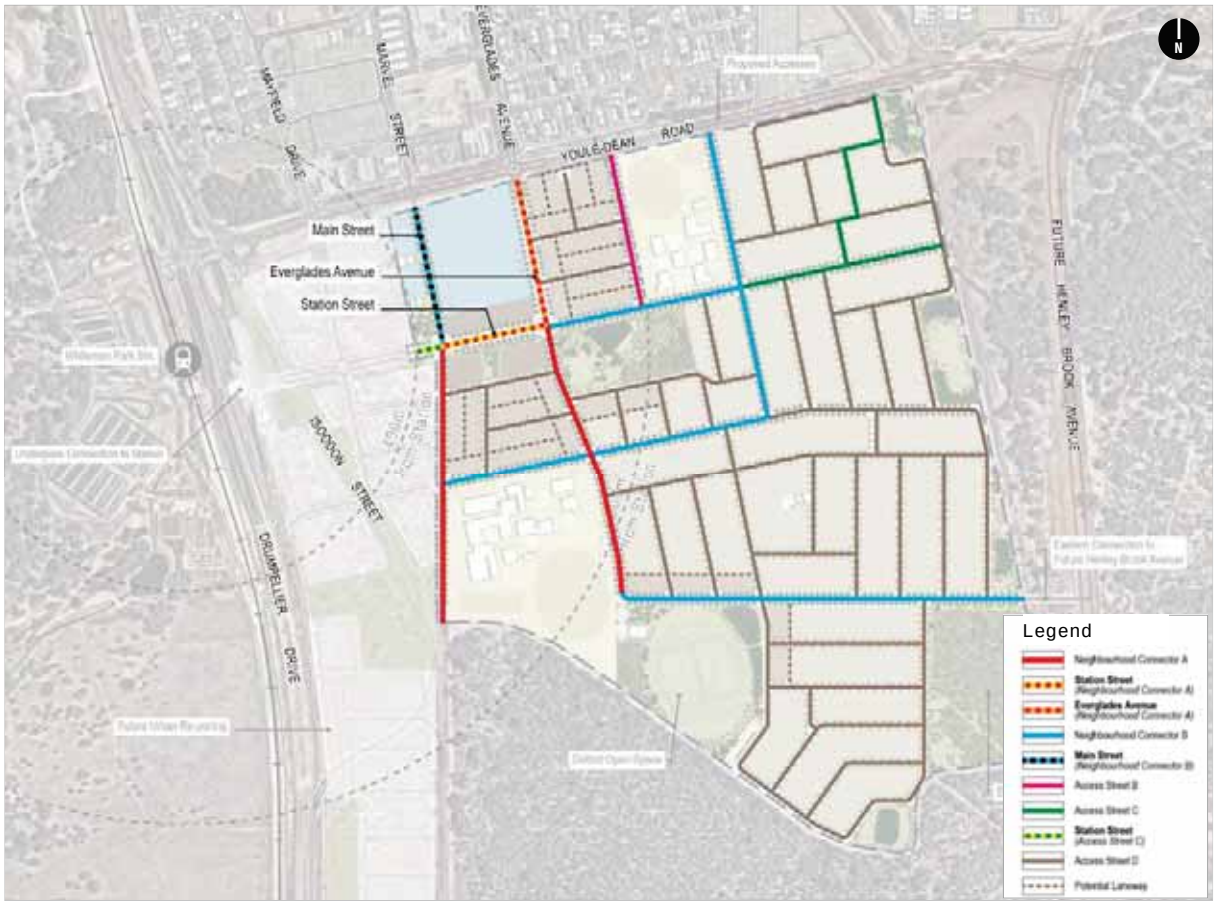


Figure 14 - Road Hierarchy Plan

Source: Nearmap

5.2.3 Planned Changes to Movement Network

The Henley Brook Avenue road reserve is located on the eastern boundary of the Structure Plan and is classified as an Other Regional Road under the MRS. The road currently terminates south of Gnangara Road with a 9km road reserve in place between Gnangara Road and Harrow Street to support the ultimate construction of a four-lane dual carriageway. The City's concept plan for the extension of Henley Brook Avenue indicates two connections south of Youle-Dean Road into the Structure Plan, a northerly left-in/left-out and a southern full movement priority-controlled intersection. The Structure Plan proposes only a single full movement intersection in the southeastern corner to minimise impacts on the adjoining Bush Forever Site No. 200.

The TIA demonstrates that the second access point is not required and if mandated would require unnecessary clearing of regionally significant vegetation. The City has been engaged on the traffic modelling methodology and outcomes and confirmed that this is consistent with the City's own modelling.

5.2.4 Pedestrian & Cyclist Network

The Structure Plan facilitates a safe and convenient pedestrian and cyclist movement network set in a landscaped environment that expands upon the existing connections being delivered within the Brabham First and Second Stage Structure Plans. The Department of Transport's existing and planned Long Term Cycle Network is illustrated below.

The key principles for the planned pedestrian and cycling facilities within the Structure Plan are:

- Dual use paths will be provided on all Neighbourhood Connector roads;
- Footpaths on at least one side of all Access Streets;
- On-street cycle lanes to be provided on all Neighbourhood Connectors in accordance with the City's standards;
- Direct future connectivity provided to the Whiteman Park Metronet Station underpass to support legibility and accessibility; and
- Provision of a north south Main Street to improve pedestrian connections across Youle-Dean Road between the proposed and existing Brabham District Centre.

The key principles and the final location of footpaths and shared paths will be determined in consultation with the City as part of the detailed design and engineering stages of the planning process.

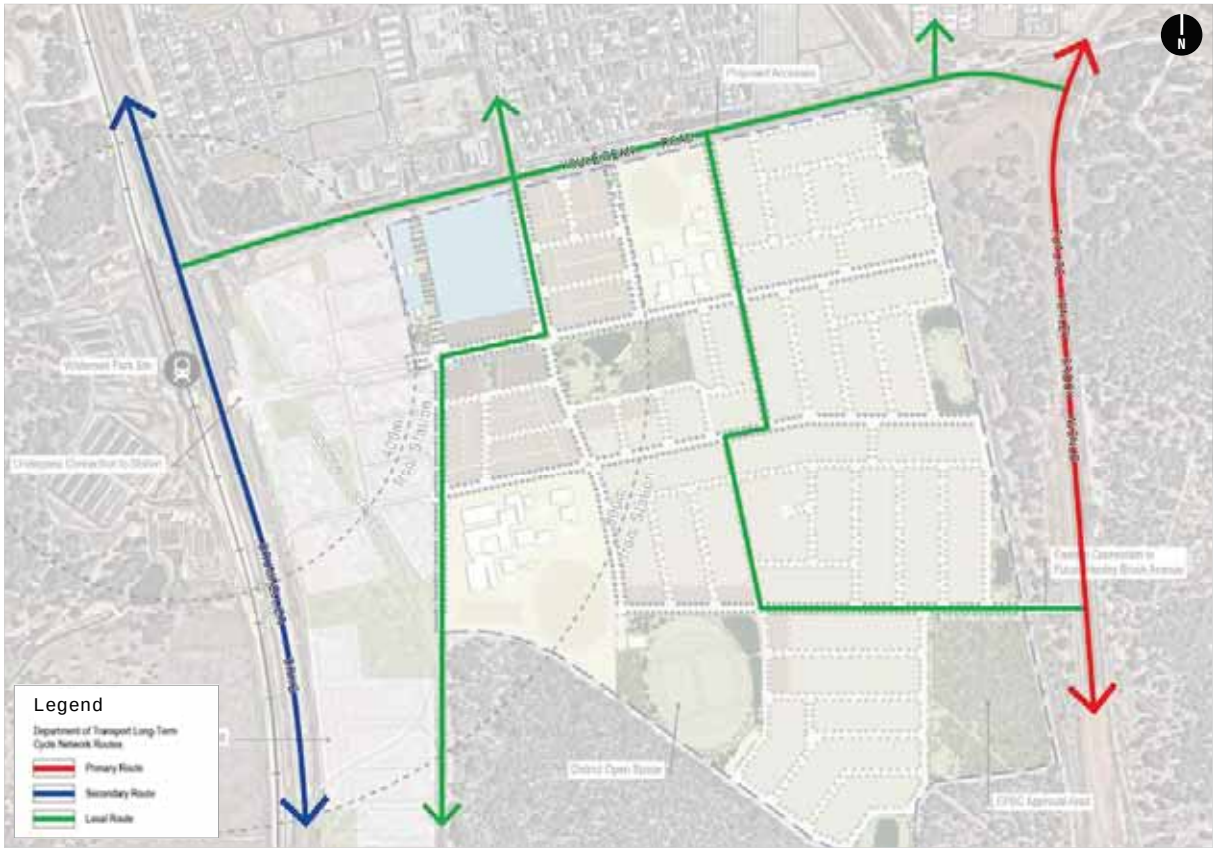


Figure 15 - LSP 3 LTCN Routes

Source: Nearmap

5.2.5 Public Transport

The Structure Plan is in proximity to the Metronet Whiteman Park Metronet Station, which is currently under construction and is anticipated to be operational by late 2024. The Station includes a 150m covered platform with kiosk, bus shelters, kiss'n'ride, secure bicycle parking and in excess of 900 car bays. Once operational, residents within Brabham and the surrounding locality will be provided with a 25-minute train ride to the City Centre, supported by 10 bus stands. The future residents of the Structure Plan will be provided with a direct pedestrian connection via Station Street, which includes an underpass at Drumpellier Drive. The configuration of the Station is outlined in **Figure 16** below.

As one of the State's key public transport initiatives the inclusion of the station will see the Structure Plan and surrounding area provided with outstanding public transport options. The station will also support the Public Transport Authority's strategic objective of improving bus services, which includes introducing a number of bus routes throughout the locality.

Figure 16 - Whiteman Park Train Station

Source: Metronet

5.3 Lot Layout

The Structure Plan provides for the delivery of medium density housing types to satisfy the targets set out in both *Liveable Neighbourhoods* and *Perth and Peel @ 3.5 million*.

The delivery of affordable and diverse housing typologies is a key objective of the Structure Plan, in addition to facilitating housing that interfaces appropriately with public spaces, the proposed school sites and the Brabham District Centre to support high quality-built form outcomes and streetscapes.

5.3.1 Dwelling Yields & Density Targets

The Structure Plan provides the framework to deliver a range of housing types and tenures to facilitate residential yields commensurate with the strategic and statutory planning framework, as well as the site's location within the Brabham locality.

Perth and Peel @ 3.5million recommends a housing density target of 26 dwellings per residential site hectare with the aim of this target to encourage more efficient use of infrastructure and housing. The Structure Plan has the potential to yield approximately 34.6 dwellings per site hectare which far exceeds the 26 dwelling target set out in *Perth and Peel @ 3.5 million*. This equates to a potential dwelling yield of approximately 1505 dwellings and 4214 residents (at 2.8 people per household).

Densities range from R30 to R60 with three different density ranges proposed, which are set out below and are based on the following principles:

R30-40

- Applies to the majority of the Structure Plan excluding areas located in closest proximity to services and amenities.
- A base code of R30 will apply to provide opportunities for traditional lot sizes to satisfy the prevailing market demand and will provide opportunities to deliver a range of traditional lot product typically ranging in size from 300m^2 to 450m^2.
- Medium density R40 areas can be provided and will typically be located in proximity to public open space, school sites, on or in proximity to neighbourhood connectors and on cell ends to provide dwelling diversity, and will typically range in size from 180m^2 to 300m^2. This density coding provides the opportunity to typically deliver cottage style housing (single or double storey, front loaded) or for contemporary 'compact' lots that typically book end street blocks.

R30-R60

- Two transitional areas of R30-R60 have been proposed between the District Centre and public school sites. These sites have been allocated broader density ranges to reflect their intermediate nature between the higher density District Centre location and the more traditional suburban outcomes envisaged both south and east of the school sites.
- The use of the R30-R60 range will allow for opportunities to blend traditional, medium and higher density development outcomes and provides greater flexibility for the delivery of a diverse range of market product.

- A base density code of R40 will apply to deliver traditional medium density outcomes, such as cottage or compact lots.
- The R50-R60 density will apply in proximity to the District Centre and on cell ends to support the opportunity for higher density development outcomes to be delivered, including the opportunity for multiple dwellings.
- The R30 density will be applicable within the transitional areas in closest proximity to the public school sites, with opportunities for this lot product to again be blended with medium or higher density development outcomes where appropriate.

R50-R60

- An area of R50-R60 has been set aside adjacent to Station Street. Its unique location adjacent to the District Centre and 'gateway' to the train station underpass, as well as its setting nestled within an area of public open space makes it suitably located to deliver higher density development outcomes. This includes opportunities for small cottage lots that can accommodate contemporary single and double storey residential development or higher density apartment style development.

The allocation of density ranges of R30-R40, R30-R60 and R50-R60 will provide flexibility for density allocation at subdivision stage and have been allocated in response to the various locational characteristics across the Structure Plan. The allocation of specific densities across the site could result in unnecessary and time-consuming structure plan modifications to make minor updates to an R-Code boundary in response to market demand and consumer preference.

5.3.2 Medium Density Housing Standards

The City's Local Planning Policy POL-LP-11 *'Variation to deemed-to comply requirements of the R-codes - Medium-density single house development standards (R-MD Codes)'* sets out acceptable variations to the deemed-to-comply provisions of the R-Codes for lots coded R25 to R60. The variations set out in the R-MD Codes Policy will apply to the Structure Plan area and thereby constitute Acceptable Development. This will avoid the need for LDP's over much of the Structure Plan area to deliver widely accepted medium density housing product. This will improve efficiencies and minimise costs allowing lots to be developed in a timely manner and reducing administrative work for the City.

Local Development Plans

Liveable Neighbourhoods supports residential lots directly abutting open space under circumstances where the functionality of the POS is not compromised, and where dwellings address the open space to provide adequate visual surveillance.

Typically, the interface to public open space will be via roads, however, in some instances direct lot frontage is an appropriate design response to provide greater product diversity, address amenity and increase surveillance of the public spaces. Where lots interface with open space a Local Development Plan will need to be prepared to address the following, to control built form outcomes:

- Built form orientation;
- Minimum setbacks to public open space;

- Major openings (other than bedrooms) to address open space; and
- Permeable fencing to support passive surveillance.

In addition, a Local Development Plan may be required to address specific higher density development outcomes in proximity to the Brabham District Centre.

5.4 Public Parkland

5.4.1 Public Open Space Provision & Schedule

The Structure Plan establishes a public open space network to serve a variety of functions, balancing tree retention, provision of passive and active parklands and supporting best practice urban water management based on *Liveable Neighbourhoods* guidelines.

The key aspects of the public open space network include:

- The Structure Plan provides 11.39ha of open space, with most open spaces serving an integrated drainage function in conjunction with active of passive recreational uses. The integration of drainage within the various parklands has been a key consideration to maximise amenity and water management for the Structure Plan.
- *Liveable Neighbourhoods* allows up to 2% of the 10% requirement to comprise of restricted use open space. The balance of restricted use open space becomes a deduction from the overall site area. Based on these requirements a maximum 1.57ha can be credited as restricted use open space with the Structure Plan proposing approximately 1.57ha.
- Approximately 0.76ha of open space will receive drainage from the first 15mm storm events (1:1 year) which is not creditable and has been set aside as a deduction from the public open space calculation.
- All other areas of public open space are unrestricted and provide for a range of passive and active recreational functions and local amenity for residents. The total amount of unrestricted open space is 9.82ha.

Table 3 outlines the provision of public open space for the Structure Plan in accordance with *Liveable Neighbourhoods*

Figure 12 provides a Walkable Catchment Plan to demonstrate that all future residents will be within 300m of a public open space. This also satisfies the principles of the Albion DSP which outlined that no resident should be greater than 450m from a public open space.

Table 3: Public Open Space

Public Open Space Schedule (all areas are in hectares)		
Site Area		**99.87**
Existing Deductions		
Conservation	4.35	
High School x 1	8.00	
Primary School x 1	4.00	
Centre	3.64	
Sewer Pump Station	1.10	
Gas Easement	0.07	
Drainage 1:1yr event	0.76	
Total existing deductions	21.93	
Net Site Area		77.94
Structure Plan Deductions		
Total Structure Plan Deductions	0.00	
Gross Subdivisible Area		**77.94**
POS @ 10%		7.79
Public Open Space Requirement		
May Comprise:		
Min 8% unrestricted POS	6.24	
Max 2% restricted POS	1.56	
TOTAL POS REQUIRED		**7.79**
Public Open Space Provided	Unrestricted POS Area	Restricted POS Area
Park 1 - NE Corner	0.32	0.28
Park 2 - Central	1.14	0.01
Park 3 - Central East	0.61	0.64
Park 4 - Southern East	0.60	0.05
Park 5 - Balance of Conservation POS	1.12	0.00
Park 6 - Southern	0.41	0.24
Park 7 - District Open Space	5.12	0.33
Park 8 - Station Street	0.26	0.02
Park 9 - Mainstreet Park	0.24	0.00
TOTAL (ha)	**9.82**	**1.57**
Additional Deductions		
Restricted Open Space Surplus		0.01
Public Open Space Contribution		
Creditable Unrestricted POS provided	9.82	12.6%
Creditable Restricted POS provided	1.56	2.0%
Total Creditable POS Provided	**11.38**	**14.6%**

1. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrence interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval is restricted open space up to 20%, the area greater than 20% is a deduction (not applicable in this case) (LN R26 & Table 11); areas for the detention of stormwater for a greater than five year average recurrence interval is within unrestricted open space (LN R25).

2. This Schedule is for plan CLE Ref. 3074-313i-01 and drainage information received 15.01.2024 from Pentium Water.

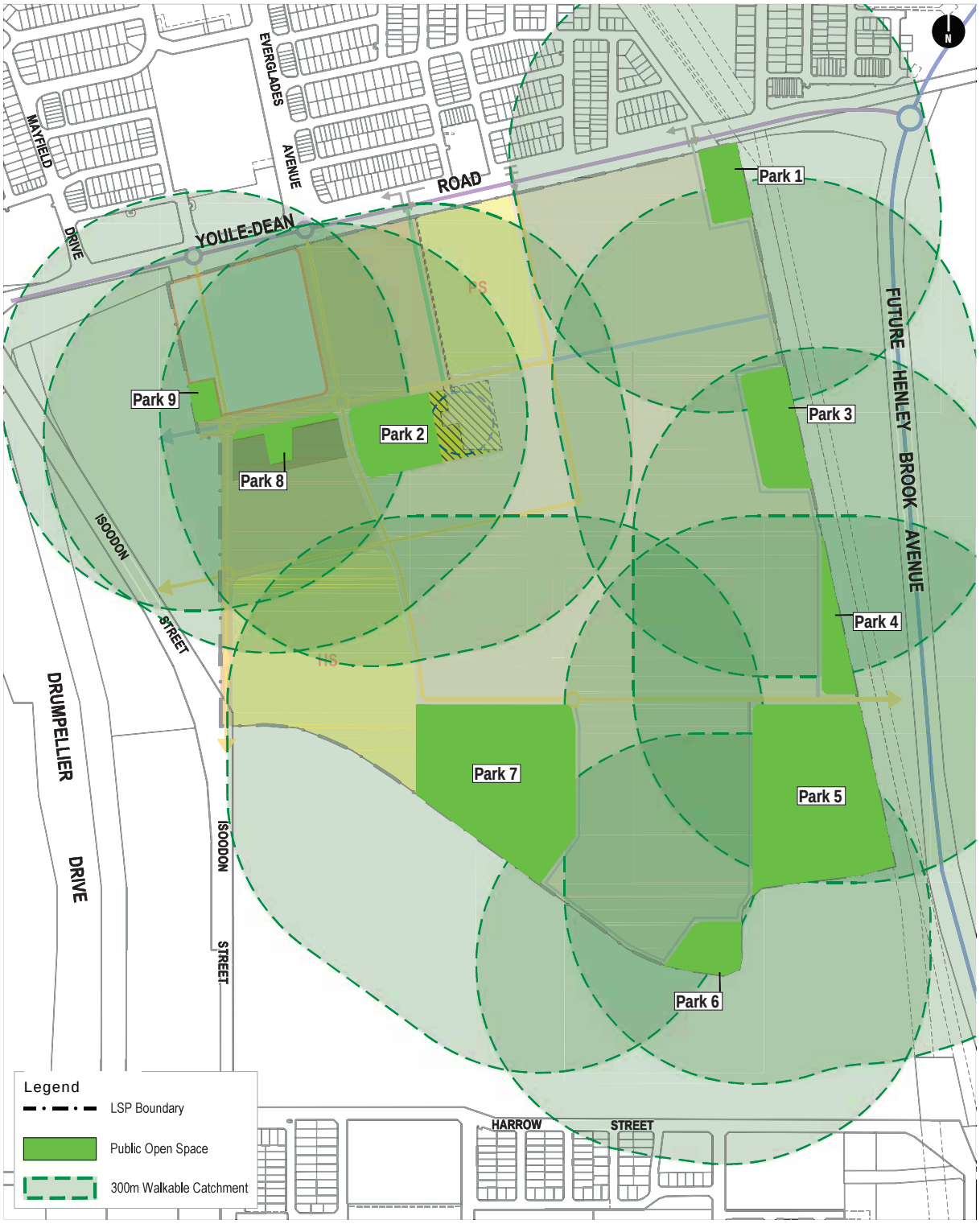


Figure 17 - POS Walkable Catchment Plan

5.4.2 Description of Public Open Space

The Structure Plan proposes numerous distinct areas of public open space providing a variety of functions for future users. A Landscape Masterplan has been prepared by Plan E (refer **Appendix 5**) to illustrate how these different spaces will integrate community needs with active and passive recreational spaces, tree retention and drainage requirements. The Landscape Masterplan is included as **Figure 18** along with a description of the key areas of open space.

Figure 18 - Landscape Masterplan

Source: Plan E

Parks 1, 3 and 4 – North-eastern and Eastern Open Spaces

- Total areas of approximately:
  - Park 1: 6,521m²
  - Park 3: 1.37ha
  - Park 4: 6,802m²
- All parks designed to retain several trees to provide amenity for residents and manage the transition between urban development and the adjoining Bush Forever Site No. 200.
- All parks provide opportunities for a small playground and shade structure for residents in addition to important drainage functions.

Park 2 - Central Open Space

- Total area of approximately of 1.14ha.
- Aerial themed playground, airfield inspired arbor and integrated artworks to reflect the sites history.
- Located and designed to minimise intrusion of existing wastewater pump station on surrounding residential area.
- Existing vegetation to be retained (where possible) in addition to areas of active open space for kick-about and similar activities.

Park 5 – Conservation Open Space

- Total area of approximately 5.47ha, of which 4.35ha is to be retained in accordance with EPBC approval.
- Rehabilitation planting and conservation fencing to be installed as required to ensure suitable maintenance of the conservation open space.
- Small kick-about area in south-western corner set within a natural setting adjacent to the conservation open space and Bush Forever Site No. 200 to create an area of high amenity for residents.

Park 6 – Southern Open Space

- Total area of approximately 7,554m².
- Provides a critical drainage function at a low point within the Structure Plan designed to integrate with (but external to) Bush Forever Site No. 200.
- Will support passive recreational activities in conjunction with the drainage function.

Park 7 – District Open Space

- Total area of approximately 5.5ha of predominantly active open space.
- District level open space that can accommodate senior sized AFL, soccer and cricket facilities co-located with the public high school, with community facilities including a clubroom and public car park.
- Opportunities for playground, shade structure and seating to be located on the periphery of the park within areas of retained vegetation.

Parks 8 and 9 – Station Street/Main Street Open Spaces

- Total areas of approximately:
  - Park 8: 3,625m²
  - Park 9: 2,364m²
- Provide additional amenity to Station Street and the Main Street and support opportunities for higher density housing typologies.
- Areas provided for shade and seating to encourage shopping centre visitors to linger for extended periods.
- Park 9 supports a visual connection between the Main Street and Train Station underpass to highlight the pedestrian connectivity, encourage walkability and support local businesses through activation of the main street.
- Streetscapes to be heavily planted to reflect the significant location of the parks and the surrounding streets.

5.4.3 Streetscape

While streetscapes do not form part of the public open space provision pursuant to *Liveable Neighbourhoods*, they make up an important component of the public realm and assist with delivering a sense of place and improving resident amenity within new urban areas.

The Structure Plan provides the opportunity for a higher standard of landscaping along the main neighbourhood connector roads to provide added shade and comfort. In particular, the western portion of Station Street adjacent to the District Centre and extension of Everglades Avenue. These roads will frame the District Centre and form part of the key connection to the Whiteman Metronet Station pedestrian underpass. The District Centre main street will also be supported by a high level of landscaping amenity to support the pedestrian experience and encourage activation of the precinct.

Several key secondary and access streets will provide opportunities for a high level of streetscape design. Whilst the final design and planting of the entire road network will be determined in consultation with the City at subdivision stage, outlined in the figures below is the overall Street Tree Masterplan and key cross sections to provide guidance on the possible landscaping outcomes.

Figure 19 - Street Tree Masterplan

Source: Plan E

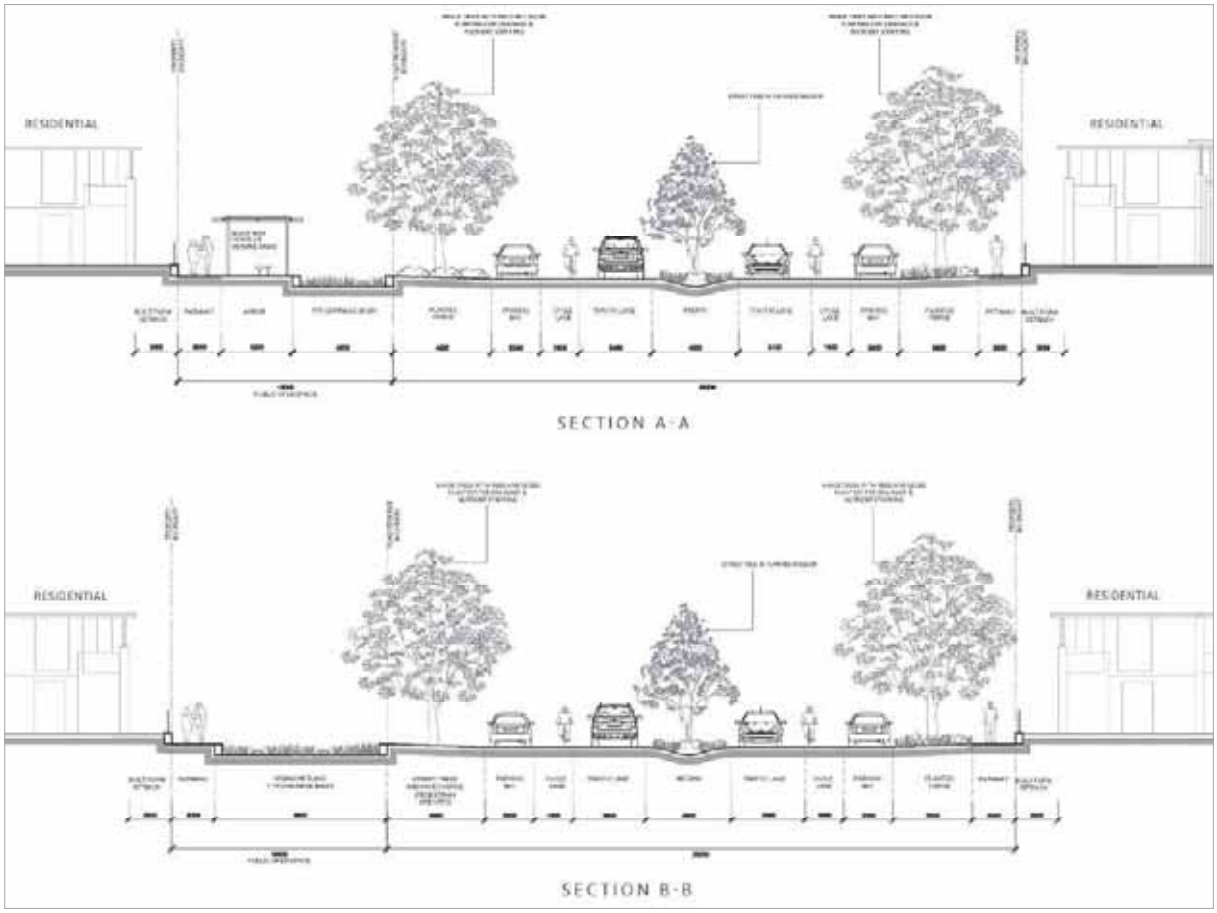


Figure 20 - Station Street cross section

Source: Plan E

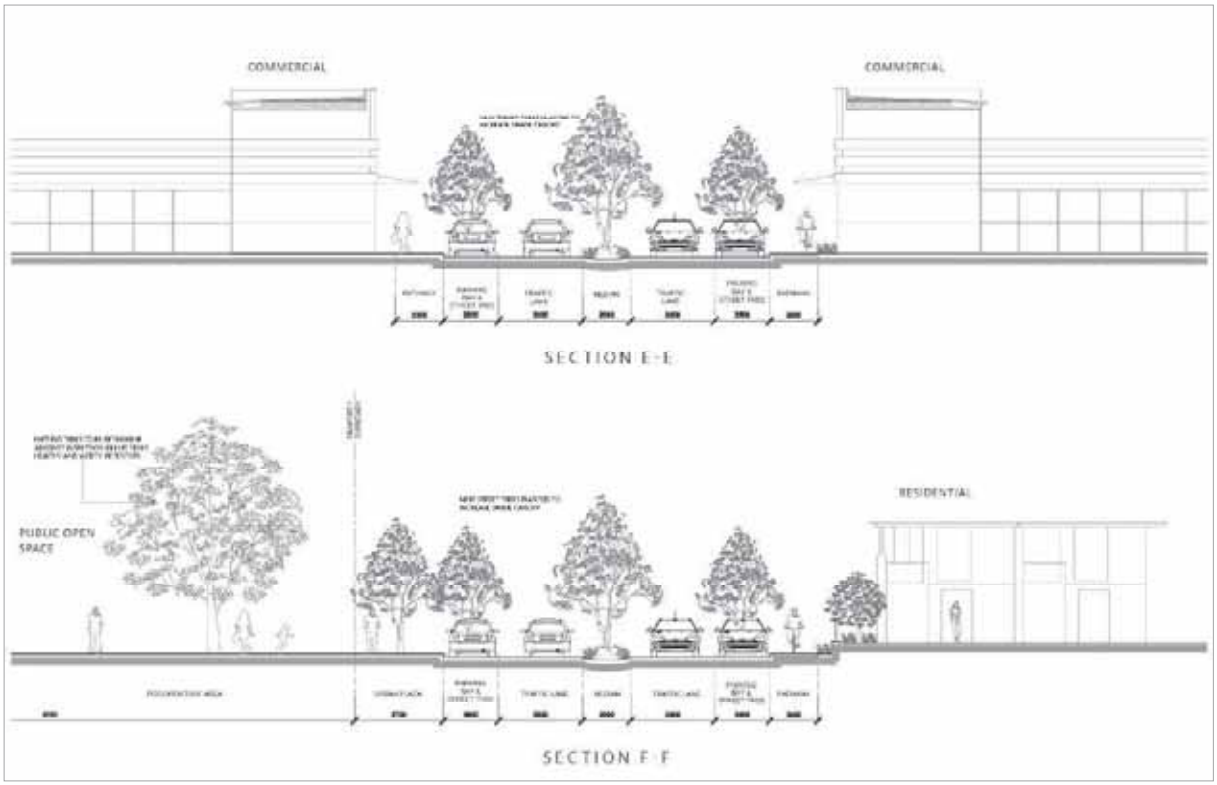


Figure 21 - Main Street cross section

Source: Plan E

5.4 Urban Water Management

The Structure Plan has been designed to accommodate best practice urban water management principles and has been supported by a Local Water Management Strategy (LWMS) prepared by Pentium Hydro (**Appendix 6**). The objectives and preliminary design criteria used to inform the LWMS were established with reference to the Swan Urban Growth Corridor Drainage and Water Management Plan, the Albion DWMS and the Decision Process for Stormwater Management in Western Australia. For completeness, the LWMS has also considered the development area to the west, which is subject to future planning.

5.4.1 Stormwater Management

The stormwater management strategy was derived in coordination with the earthworks concept and seeks to use the surface contouring where possible to provide post-development catchment boundaries and low points that minimise the impact on the existing landforms. To achieve this, the Structure Plan has broadly been divided into the following two drainage catchments:

1. The 'western portion' which will retain the first 15mm of rainfall on-site with larger events to be discharged into Horse Swamp Drain via the recently upgraded culverts beneath Drumpellier Drive; and
2. The 'eastern portion' which will retain and infiltrate the majority of stormwater on-site up to 20% Annual Exceedance Probability (AEP) while also utilising an existing agricultural drain on the eastern boundary.

The objectives of the LWMS will be delivered through the following stormwater management techniques:

- All stormwater catchments will have bioretention areas located within public open space or road reserves to retain and infiltrate the first 15mm of rainfall runoff.
- The western catchments will provide minimal additional storage above the first 15mm event with larger stormwater occurrences to be discharged towards Horse Swamp Drain via existing Drumpellier Drive culverts. The management strategy includes roadside swales designed to accommodate these larger events with a series of bioretention areas supported by box culverts at intersections.
- The eastern catchments will incorporate significant additional flood storage within public open space areas to retain and infiltrate larger rainfall events.
- Two eastern catchments will also utilise an existing agricultural drain to discharge stormwater during large events in line with pre-development conditions, reducing the overall storage requirement and enhancing tree retention within areas of public open space.

5.4.2 Groundwater Management

A subsoil drainage network will be required to control groundwater levels. The subsoil system will be located beneath road reserves, the Station Street roadside swale and public open space drainage areas to provide a controlled groundwater level and aid infiltration. There will be two subsoil drainage catchments, being:

1. A western catchment that also discharges to Horse Swamp Drain via the Drumpellier Drive culverts; and
2. An eastern catchment facilitated by a piped connection within the future Henley Brook Avenue road reserve to an existing drain on Harrow Street, located south of the Structure Plan.

The control of groundwater will be in accordance with the DWER's 'Water Resource Considerations when Controlling Groundwater Levels guideline'. The strategy for subsoil drainage management of the eastern portion of the Structure Plan has been discussed with the City and given in-principle support.

5.4.3 Implementation & Monitoring

The implementation of the LWMS will largely occur through the preparation and implementation of a more detailed Urban Water Management Plan, which will be prepared at the subdivision stage as a condition of subdivision approval. This will consolidate the recommendations of the LWMS and guide detailed design and subsequent construction of drainage infrastructure and implementation of management programs and initiatives. A monitoring program is also proposed within **Section 7** of the LWMS, which outlines post-development outcomes and impacts in line with the LWMS.

5.5 Bushfire Management

As assessment of the Structure Plan's site conditions and the ability to comply with SPP 3.7 is provided within the Bushfire Management Plan (BMP) prepared by Emerge (**Appendix 2**). The report responds to existing and post-development site conditions to demonstrate how compliance with the SPP 3.7 Implementation guidelines can be achieved at various stages of the planning process. The report outlines that:

The majority of the Structure Plan is proposed to be cleared to accommodate residential development and supporting land uses, which will significantly reduce or remove any potential bushfire risks.

- Post development, all dwellings can achieve a BAL rating of BAL-29 or below.
- The 4.35ha of EPBC 'forest' vegetation in the south-eastern corner of the site and land designated Bush Forever along the Structure Plan's southern and eastern boundaries will remain in perpetuity, and therefore represent an ongoing hazard. This hazard can be managed through a suitable design response, including the location of roads and building setbacks.
- A portion of the Special Use (commercial) land is currently identified as BAL-40 and BAL-FZ due to the unmanaged nature of land immediately west of the Structure Plan. This land is subject to future urbanisation and represents a temporary hazard that can be managed through development staging or clearing of land within the balance of Lot 822.
- Two points of vehicle access and egress can be provided at all times. This may require the implementation of temporary Emergency Acccess Way's as part of future subdivision.

- Future BMP's may be required at subdivision stage to confirm the BAL assessment and recommendations set out in this BMP.

In summary, the BMP demonstrates that a proposal for the subject land for residential development can satisfy the applicable bushfire protection criteria through the application of routine requirements, management and detailed design. The temporary hazards identified on the western boundary can be adequately managed through later stages of the planning process, with this land under the same ownership as the Structure Plan and subject to urbanisation in the short term.

5.6 Utilities

An Engineering and Servicing Report has been prepared by Cossill & Webley to demonstrate the Structure Plan can accommodate residential development and a logical extension of existing infrastructure within the area (**Appendix 3**). The following summarises the key considerations:

5.6.1 Earthworks Strategy

The earthworks strategy for the Structure Plan area will set out to provide for fully earth worked level lots terraced with retaining walls, where required. Finished levels for the site will be dictated by several considerations, including:

- Retention of existing vegetation, where possible, and working to existing levels where the site abuts Bush Forever Site No. 200;
- Upgraded roadways and drainage swales;
- Achieving suitable clearance to subsoil drainage infrastructure with clearances of 1.2m to subsoil under roads and 1.5m to subsoil within future lots, and clearance to controlled groundwater levels;
- Achieving minimum cover over sewer reticulation and stormwater/subsoil drainage infrastructure constructed at the minimum grade acceptable to the relevant authority;
- Maintaining an adequate clearance of 1.8m to the underlying clayey soils of the Guildford Formation of the Swan Coastal Plain to achieve a Classification 'A' Site; and
- Contouring of earthworks levels to deliver drainage catchment areas consistent with the LWMS.

The earthworks strategy will work within the above-mentioned site considerations, constraints and requirements of service authorities to meet the following objectives:

- Provide adequate separation to groundwater with consideration of expected post-development groundwater rise, noting that groundwater rise is not anticipated.
- Provide minimum levels required for gravity-reliant drainage and sewer serviceability.
- Allow roads and earthworks levels to follow the existing topography and reflect the natural landscape wherever possible.
- Match into the ground levels at the periphery of the Structure Plan area.

Final siteworks requirements and finished lot levels will be determined at subdivision stage through the provision of detailed engineering drawings in accordance with standard conditions of subdivision approval.

5.6.2 Sewer

The Structure Plan will be serviced by the existing Type 90 Wastewater Pumping Station located within the site. The Structure Plan will include an internal gravity sewer network to the existing pump station demonstrating there are with no impediments to the provision of sewerage infrastructure.

5.6.3 Water Supply

Advice received from Water Corporation to date is that the Structure Plan area is located within the current boundary of Water Corporation's Water Supply Scheme. The overall planning for the scheme has made provision for residential development within the Structure Plan.

Water Supply will be provided via an extension of the existing DN250mm water main located in the Youle-Dean Road reserve with the infrastructure to extend logically at all future stages of subdivision.

5.6.4 Gas

The Dampier to Bunbury Natural Gas Pipeline (DBNGP) and Parmelia Gas Pipeline (PGP) are located immediately east the Structure Plan. The WAPC's *Planning Bulletin: High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region* outlines that residential development may abut the DBNGP, however must be setback 70m from the PGP easement.

Reduction in setbacks is permitted if it can be demonstrated that any perceived risk from the pipeline is in accordance with Australian Standard 2885 (Pipelines – Gas and liquid petroleum) (AS2885) and the Environmental Protection Authority's Guidance Statement No. 2 (Guidance for Assessment of Environmental Factors).

Preliminary feedback was sought from the DBNGP and PGP operators as part of the Structure Plan preparation, who advised that development in proximity to the gas pipelines is required to be in accordance with Planning Bulletin 87. As such, a Pipeline Risk Assessment / Safety Management Study will be prepared in support of future subdivision where proposed within the 320m buffer of the gas pipelines, to demonstrate that any perceived risk from the pipelines is within acceptable levels consistent with AS2885.

The Safety Management Plan will likely require mitigation works associated with the introduction of residential / sensitive land uses. Additionally, infrastructure and services other than perpendicular service crossings will not be supported within the easement.

5.6.5 Power

Western Power has confirmed that the Structure Plan can be connected to power via the existing high voltage network located in the area, which will be fed from the Beechboro sub-station. All power infrastructure within the Structure Plan will be underground and fed from a series of strategically located transformers distributed across the site.

5.6.6 Telecommunications

The site is within the National Broadband Network (NBN)'s fixed line footprint and will be serviced under that agency's roll-out scheme for optic fibre. The Structure Plan will pay a per lot deployment charge to NBN in addition to providing pit and pipe infrastructure that can accommodate the fibre, which NBN will provide. Subsequent broadband services can then be provided by either NBN or an alternative service provider, enabling access for all lots to a high-speed telecommunications network.

The design of road reserves, pavement and verge provisions will ensure adequate allowance is provided for broadband services in accordance with the Utility Service Providers handbook. There will be a need for local land requirements to accommodate equipment sites, which will be defined through detailed design as part of the subdivision process.

5.7 Activity Centres & Employment

The Structure Plan designates land 'Special Use – District Centre' to provide for a logical extension of the Brabham District Centre generally consistent with the Albion DSP. The DSP has always identified part of the District Centre to extend south of Youle-Dean Road, to maximise its integration with the community and leverage off direct frontage to Youle- Dean Road as one of the key access routes into Brabham.

The Structure Plan provides for the creation of the southern portion of the District Centre with regard for the following:

- A more logical size and design that improves the integration of the Centre with the community on the south side of Youle-Dean Road. The original layout proposed under the DSP turned its back on the residential land south of Youle-Dean Road and offered little integration with residents of the Structure Plan area.
- A legible and easily identifiable north-south main street that provides a clear linkage within the Centre to improve connectivity and wayfinding for pedestrians across Youle-Dean Road, and encourage active travel.
- The 'Local Centre' identified on the Albion DSP is no longer proposed as the land is better utilised when integrated within the District Centre.
- Improved proximity of the Centre and employment generating land to the future Whiteman Park Metronet Station, which was not envisaged at the time the Albion DSP was prepared.
- Provision of public open space adjacent to the main street to provide amenity for users, encouraging people to linger for extended periods.

The size and layout of the Centre will support uses such as supermarkets, shops, offices and medical consultancies, as well as other specialty retail offerings consistent with the sites classification under *State Planning Policy 4.2: Activity Centres for Perth and Peel* as a District Centre, in addition to complementing the uses within the existing Brabham District Centre.

The planning controls for the land subject to the Brabham District Centre are subject to separate consideration under an amendment to the Brabham District Centre PSP.

5.8 Schools

To support the emerging Brabham community and in line with the Albion DSP a primary school and high school are proposed to be located within the Structure Plan area. Consistent with the WAPC's Operational Policy 2.4 – Planning for school sites, a 4ha primary school site has been located centrally to the school's catchment adjacent to Youle-Dean Road, and an 8ha high school site located on the edge of the suburb with a shared use district open space.

The location of the two schools has been determined following detailed negotiations with the Department of Education, with the Structure Plan layout reflecting their current locational preferences. Ongoing liaison will continue with the Department of Education to determine the appropriate timing for creation of the school sites, which will occur through future subdivision of the Structure Plan area.

6.0 DEVELOPMENT STAGING

Whilst staging of development will be strongly influenced by market forces and subject to continued refinement through the life of the Structure Plan's implementation, given the constraints on the eastern, western and southern boundaries initial stages are anticipated to commence from the northern boundary along Youle-Dean Road, and then typically proceed in a southerly direction.

The intent will be to deliver Station Street in the early stages of development to provide access to the Whiteman Park Metronet Station. However, this is subject to a timely and satisfactory resolution of the Water Corporation's alignment of the 1600mm diameter water trunk main infrastructure, to allow future planning of the land west of the Structure Plan to progress.

7.0 DEVELOPMENT CONTRIBUTIONS

The Structure plan is within Development Contribution Area 1 (DCA 1) under Schedule 13 of LPS 17 and is subject to infrastructure cost contributions in accordance with the relevant Development Contribution Plan (DCP) and Cost Apportionment Schedule. The DCP covers the entire Albion DSP area, and puts in place a shared funding scheme for a range of road and community infrastructure.

APPENDICES

Appendix 1	Acoustic Assessment
Appendix 2	Bushfire Management Plan
Appendix 3	Engineering & Servicing Report
Appendix 4	Environmental Assessment & Management Strategy
Appendix 5	Landscape Masterplan
Appendix 6	Local Water Management Strategy
Appendix 7	Transport Impact Assessment

APPENDIX 1

Acoustic Assessment

APPENDIX 2

Bushfire Management Plan

APPENDIX 3

Engineering & Servicing Report

APPENDIX 4

Environmental Assessment & Management Strategy

APPENDIX 5

Landscape Masterplan

APPENDIX 6

Local Water Management Strategy

APPENDIX 7

Transport Impact Assessment