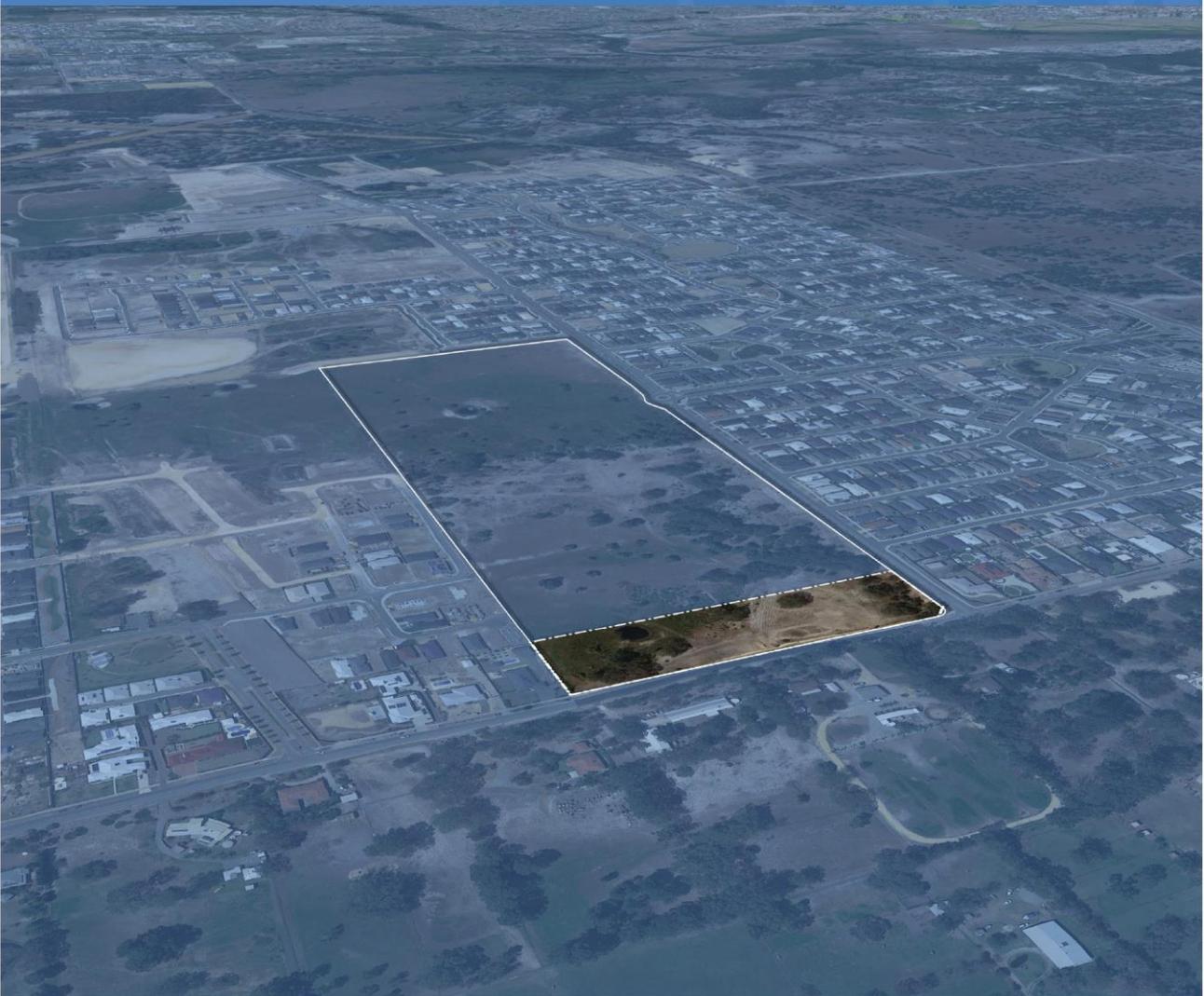


Lot 500 Park Street, Brabham  
Ariella North

# PARK STREET LOCAL STRUCTURE PLAN AMENDMENT



Prepared for **Cedar Woods Properties Ltd**  
Prepared by **Taylor Burrell Barnett**



# DOCUMENT HISTORY AND STATUS

Park Street Local Structure Plan  
Amendment

Revision	Reviewer	Date Issued
19/006-1	RC	Apr 2019
19/006-2	RC	May 2019
19/006-3	RC	September 2020

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**In association with:**  
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Strategen Environmental  
JDA Consultant Hydrologists  
Transcore  
EPCAD

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

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

11 MARCH 2013

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In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Date of Expiry: **19 OCTOBER 2025**

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# TABLE OF AMENDMENTS

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by WAPC
1.	Identify LSP area as 'Residential' zone with R20 and R25 coding.	Major	12 November 2020

# EXECUTIVE SUMMARY

This Local Structure Plan (LSP) has been prepared as an amendment to the Western Australian Planning Commission (WAPC) endorsed Park Street Structure Plan (SP027), hereafter referred to as the ‘LSP area’ or ‘subject land’. The LSP area is located at the corner of Park Street and Partridge Street, Brabham and forms a portion of Lot 500 Park Street, Brabham. The subject land is located within the City of Swan and the Albion District Structure Plan (ADSP) area.

The modifications to the approved LSP include:

- Identifying the LSP area as ‘Residential’ zone; and
- Applying a R20 and R25 coding.

The approved Park Street Structure Plan does not include a Part One – Implementation or Part Two – Explanatory Report and Technical Appendices. Accordingly, Part One and Part Two components have been prepared as part of this Amendment to supersede the Park Street Structure Plan and form the overall structure plan document.

This LSP Amendment will be closely followed by an overall LSP for Lot 500 Park Street, Brabham. The overall LSP for Lot 500 Park Street will include the LSP Amendment area so there is one comprehensive LSP for the landholding.

Outlined below is a summary of all the key statics and planning outcomes of the LSP, as modified by this Amendment.

## LOCAL STRUCTURE PLAN SUMMARY

Item	Data	Structure Plan Reference (section no.)
Total area covered by the LSP	2.0333 hectares	1.2
Area of residential land use proposed	1.4334 hectares	3.3
Estimated Lot and Dwelling Yield	37 lots / dwellings	3.4
Estimated Residential Density <ul style="list-style-type: none"> <li>• Residential Density Target (as per Directions 2031 - target of 15 dwellings units per gross hectare of urban zoned land)</li> <li>• Residential Site Density (as per Perth and Peel@3.5million – target of 26 dwellings per residential site hectare)</li> </ul>	18 dwellings per gross hectare  26 dwellings per site hectare	3.4
Estimated Population	103 people @ 2.8 people/household	3.4
Estimated Area and Percentage of Public Open Space	Nil – POS requirement to be met in overall LSP for Lot 500 Park Street	3.5



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- APPENDIX B DRAINAGE ASSESSMENT TECHNICAL NOTE
- APPENDIX C STRATEGIC BUSHFIRE MANAGEMENT PLAN
- APPENDIX D TRANSPORT TECHNICAL NOTE

# PART ONE IMPLEMENTATION

# 1 LOCAL STRUCTURE PLAN AREA

This Local Structure Plan (LSP) applies to the land contained within the inner edge of the line denoting the LSP boundary on the LSP Map.

# 2 OPERATION

This LSP comes into effect on the date it is approved by the WAPC.

# 3 STAGING

The LSP area will be developed as one consolidated stage, utilising existing services and extensions of road infrastructure from Park Street and Partridge Street.

# 4 SUBDIVISION AND DEVELOPMENT REQUIREMENTS

## 4.1 LAND USE

The LSP Map (**Plan 1**) identifies the LSP area as 'Residential' zone with a R20 and R25 density code. Land use permissibility within the LSP area shall accord with the land use permissibility of the 'Residential' zone in the City of Swan Local Planning Scheme No. 17 (LPS17).

## 4.2 DWELLING TARGET

Subdivision within the LSP area shall generally achieve 15 dwellings per gross urban hectare.

## 4.3 INTERFACE

Development shall appropriately interface with the southern and eastern boundary of the LSP area to enable integration with the future LSP for the balance of Lot 500 Park Street, Brabham and existing development within the Avonlee Estate.

## 4.4 PUBLIC OPEN SPACE

Public open space (POS) for the LSP area is to be provided within the balance of Lot 500 Park Street, Brabham.

## 4.5 PARK STREET ACCESS

Subdivision shall appropriately address lot access to Park Street, taking into consideration forecast traffic volumes.

## 4.6 NOTIFICATION ON TITLE

The Council shall recommend to the WAPC that a condition be imposed as part of subdivision approval for a notification to be placed on the certificate(s) of title(s) of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of the hazard.

## 5 LOCAL DEVELOPMENT PLANS

Local Development Plans (LDPs) shall be prepared that may specify access restrictions, (including corner lots) and shall guide the development interface with Park Street.

## 6 OTHER REQUIREMENTS

### 6.1 MANAGEMENT PLANS

#### 6.1.1 BUSHFIRE MANAGEMENT PLAN

This LSP Amendment is supported by a Strategic Bushfire Management Plan (BMP) (Structure Plan Amendment) April 2019 – prepared by Strategen.

In accordance with the Strategic BMP (April 2019), a BMP shall be prepared to support a subdivision application to meet the relevant commitments outlined in the Strategic BMP, address the relevant requirements of State Planning Policy 3.7 Planning in Bushfire Prone Areas and demonstrate in detail how the proposed development will incorporate the relevant acceptable solutions or meet the performance requirements of the Guidelines for Planning in Bushfire Prone Areas.

#### 6.1.2 URBAN WATER MANAGEMENT PLAN

An Urban Water Management Plan shall be prepared and submitted as a condition of subdivision approval.

**LEGEND**

LOCAL SCHEME ZONES

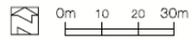
 Residential R20

 Residential R30

OTHER CATEGORIES

 LSP Boundary

 Mature Landscaping

 0m 10 20 30m



Plan 1 - Local Structure Plan Map

# PART TWO EXPLANATORY REPORT

# 1 PLANNING BACKGROUND

## 1.1 INTRODUCTION AND PURPOSE

This LSP Amendment has been prepared on behalf of Cedar Woods Properties in relation to the Park Street Structure Plan which was endorsed by WAPC on 11 March 2013. The LSP area is located at the corner of Park Street and Partridge Street, Brabham and comprises a portion of Lot 500 Park Street, Brabham. This report provides the planning framework and rationale to support the LSP Amendment.

The proposed modifications to the Park Street Structure Plan include:

- Identifying the LSP area as 'Residential' zone; and
- Applying a R20 and R25 coding.

Shortly after submission of this LSP Amendment, an overall LSP will be lodged for Lot 500 Park Street, including the LSP Amendment area, to ensure there is ultimately one comprehensive LSP for Lot 500 Park Street. The purpose of this LSP Amendment is to facilitate the delivery of lots to market in a shorter timeframe than would be possible within the broader Lot 500 Park Street area.

The following technical inputs have been prepared in support of this report:

- Environmental Technical Note (refer **Appendix A**);
- Drainage Assessment Technical Note (refer **Appendix B**);
- Bushfire Management Plan (refer **Appendix C**);
- Transport Technical Note (refer **Appendix D**);
- Servicing Inputs (refer **section 3.8**);

The Project Team responsible for preparing the information contained within this report are outlined in **Table 1**.

TABLE 1: PROJECT TEAM RESPONSIBILITIES

Project Role	Consultant
Town Planning and Urban Design	Taylor Burrell Barnett
Civil Engineering	JDSi Consulting Engineers
Environmental	Strategen Environmental
Transport Assessment	Transcore
Hydrology	JDA Consultant Hydrologists
Bush Fire Management	Strategen
Landscape	EPCAD

## 1.2 LAND DESCRIPTION

### 1.2.1 LOCATION

The subject land is located in the suburb of Brabham, within the City of Swan.

The subject land is located on Park Street and bound by Partridge Street to the west, the balance of Lot 500 to the south and the Avonlee Estate to the east. The subject land is located approximately 20km north west of Perth's CBD refer **Figure 1**.

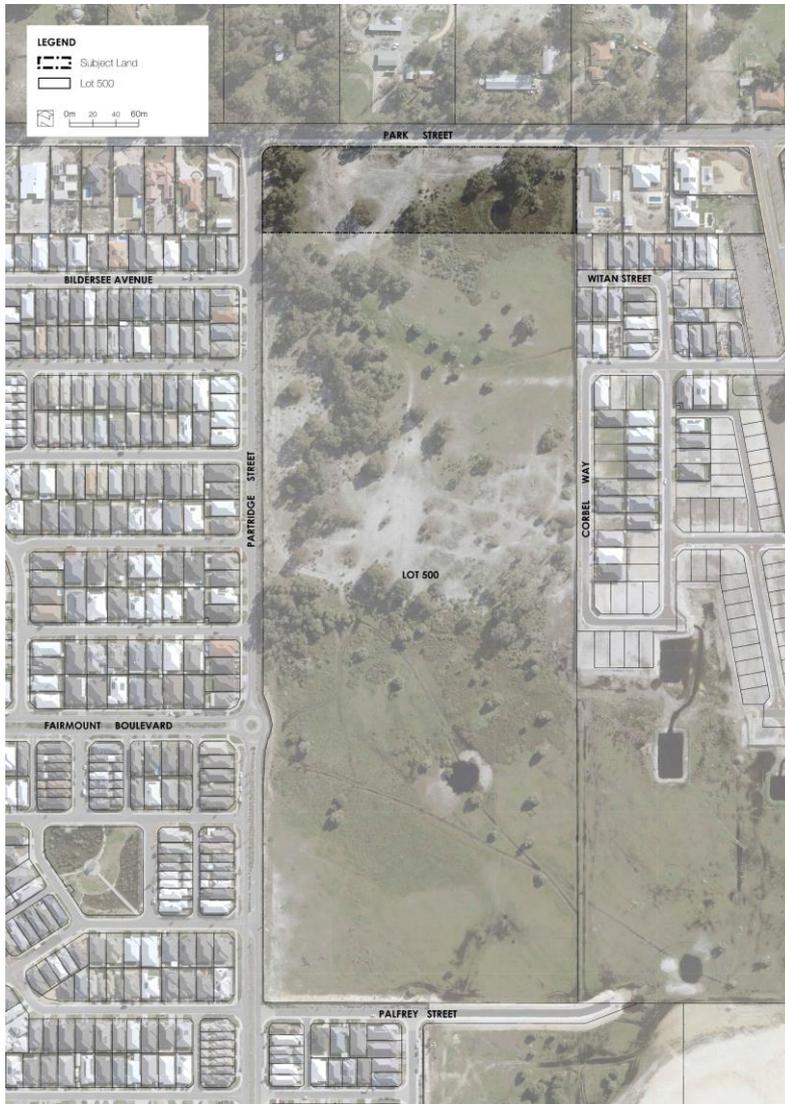


Figure 1: Location Plan

### 1.2.2 AREA AND LAND USE

The LSP area comprises of a portion of Lot 500 Park Street, Brabham, refer **Figure 1**. Lot 500 is 20.2364 hectares in area; the LSP area is 2.0333 hectares.

The subject land is currently vacant and was historically cleared for rural purposes. The surrounding land uses are predominately residential and include the Whiteman Edge Estate to the west, Ariella Estate to the south and Avonlee Estate to the east. Existing low-density residential development fronts Park Street, to the east and west of the LSP area. To the north of Park Street, the land has largely been cleared for rural pursuits, primarily large lot rural residential living.

### 1.2.3 LEGAL DESCRIPTION AND OWNERSHIP

The land ownership details of Lot 500 are outlined in **Table 2**.

The landowner has provided consent for the submission of this LSP Amendment.

TABLE 2: LAND OWNERSHIP

LOT	Registered Proprietor	Certificate of Title	AREA (HA)
500	West Swan Park Pty Ltd & Minx Pty Ltd	V 2818 F 800	20.2364

## 1.3 PLANNING FRAMEWORK

### 1.3.1 ZONING AND RESERVATIONS

#### 1.3.1.1 METROPOLITAN REGION SCHEME

The LSP area is zoned Urban under the Metropolitan Region Scheme (MRS) (refer **Figure 2**).

Land to the north of Park Street (between Park Street and Gnangara Road), referred to as the Henley Brook Urban Precinct, was recently rezoned to Urban. Therefore, all land immediately surrounding the LSP area is zoned Urban under the MRS.

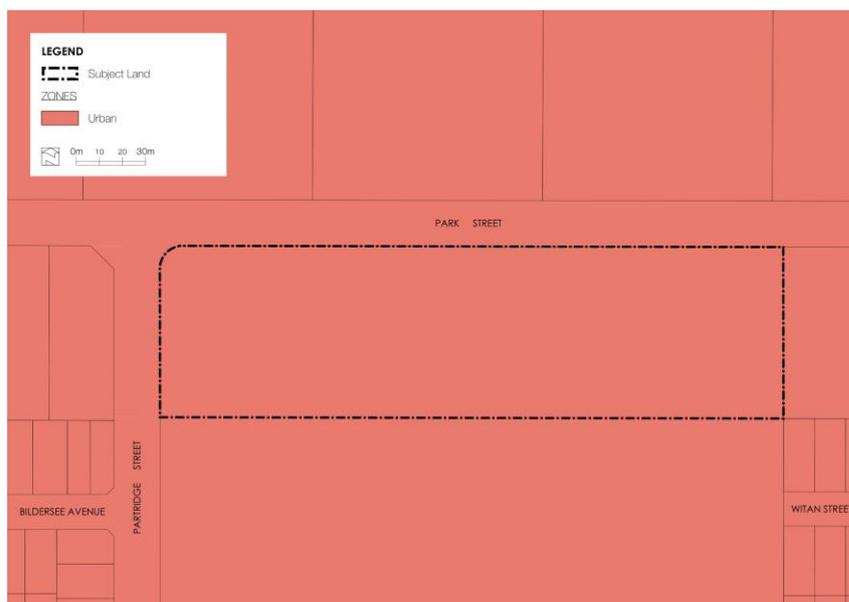


Figure 2: Metropolitan Region Scheme

### 1.3.1.2 CITY OF SWAN LOCAL PLANNING SCHEME NO. 17

The LSP area is zoned Residential Development under the City of Swan Local Planning Scheme No. 17 (LPS17), refer **Figure 3**. The balance of Lot 500 is zoned Special Use 10 and is located within Development Contribution Area (DCA) 1 - Brabham (Albion).

The Residential Development zone requires subdivision and development to be guided by a WAPC endorsed Local Structure Plan.

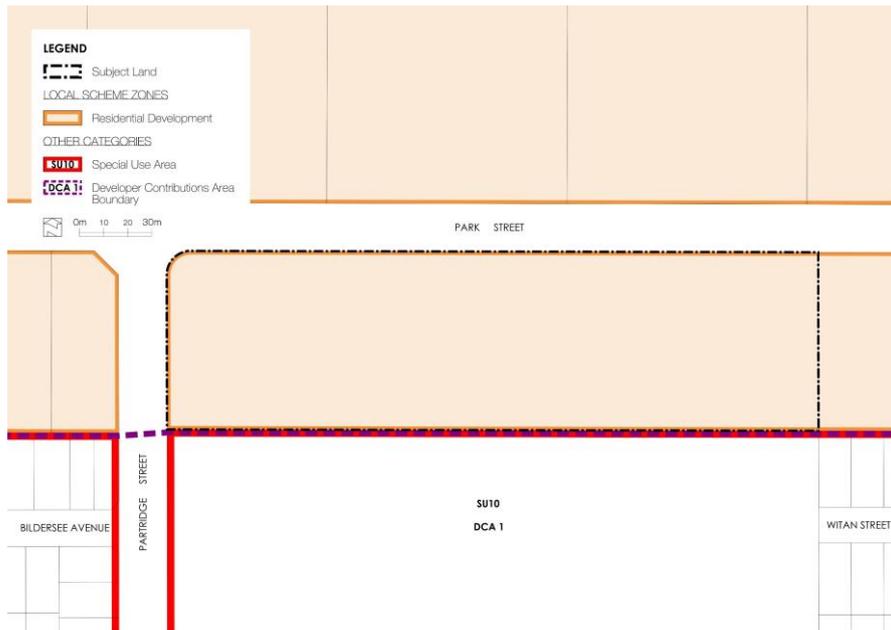


Figure 3: City of Swan Local Planning Scheme 17

## 1.3.2 REGIONAL AND SUB-REGIONAL STRUCTURE PLANS

### 1.3.2.1 SWAN URBAN GROWTH CORRIDOR SUB-REGIONAL STRUCTURE PLAN

The Swan Urban Growth Corridor Sub-Regional Structure Plan 2009 (Sub-Regional Structure Plan) was prepared by the WAPC to provide a strategic planning framework to guide future development and provide a coordinated response to planning considerations.

The Sub-Regional Structure Plan identifies the LSP area for residential development, refer **Figure 4**; the LSP Amendment is therefore consistent with the Sub-Regional Structure Plan.

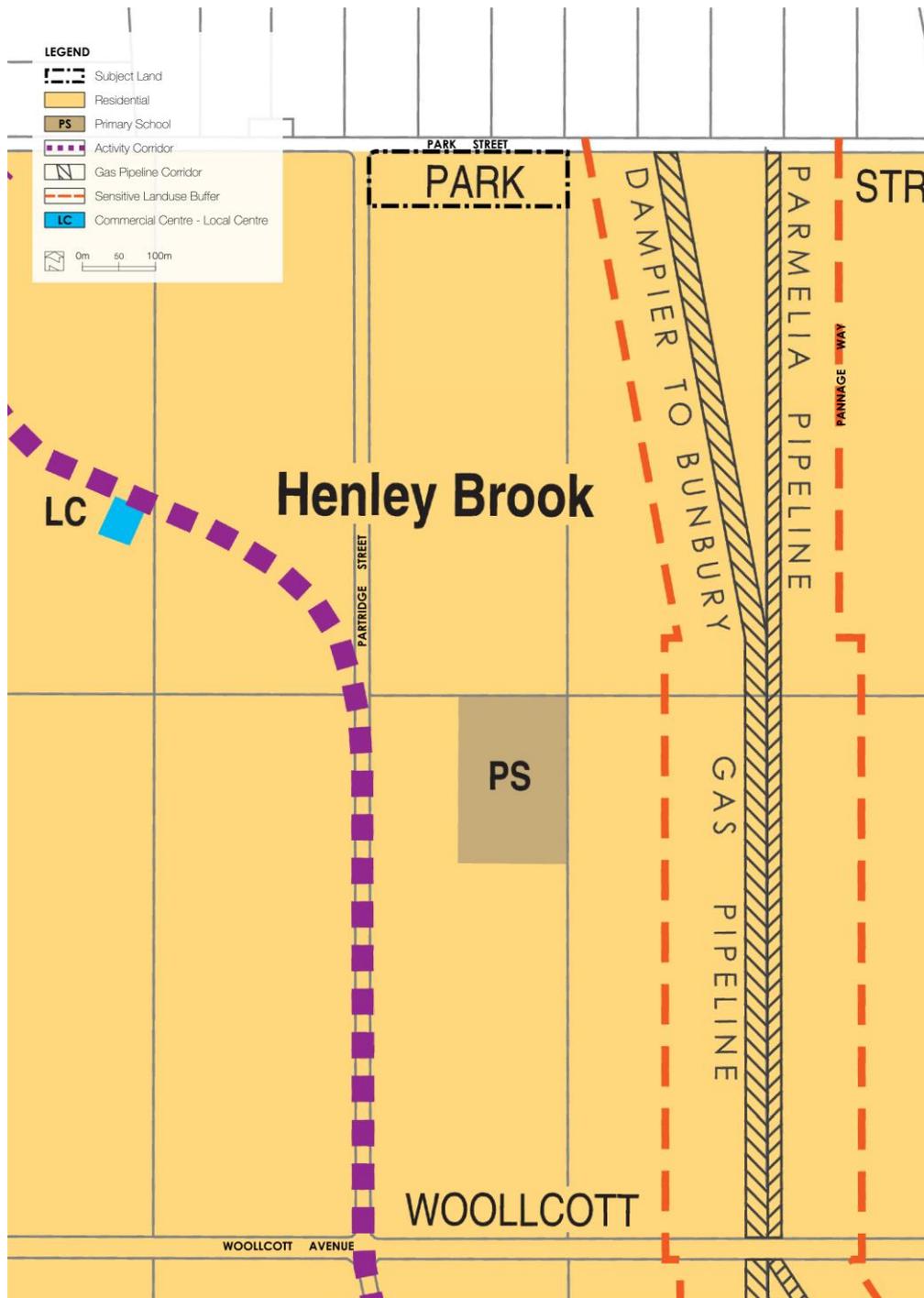


Figure 4: Swan Urban Growth Corridor Sub-Regional Structure Plan

## 1.4 PLANNING STRATEGIES

### 1.4.1 PERTH AND PEEL@3.5MILLION AND NORTH-EAST SUB-REGIONAL PLANNING FRAMEWORK

Perth and Peel@3.5Million is a suite of documents released by the WAPC in 2018 for the Perth and Peel metropolitan regions to identify:

- where future homes and jobs should be located;
- how to protect important environmental assets;
- how to best utilise existing and proposed infrastructure; and
- appropriate areas for greater infill development and residential density.

As part of this documentation, sub-regional planning frameworks have been prepared to guide future development. The LSP area is identified as Urban Expansion under the North-East Sub-regional Planning Framework (Sub-regional Planning Framework), refer **Figure 5**.

The minimum urban infill dwelling targets identified for the City of Swan are 5,640 dwellings in 2016-21 and 3,090 dwellings from 2021-26. The intensification of residential development proposed by the LSP Amendment is consistent with the designation under the Sub-regional Planning Framework and will assist in achieving the infill dwelling targets for the City of Swan.

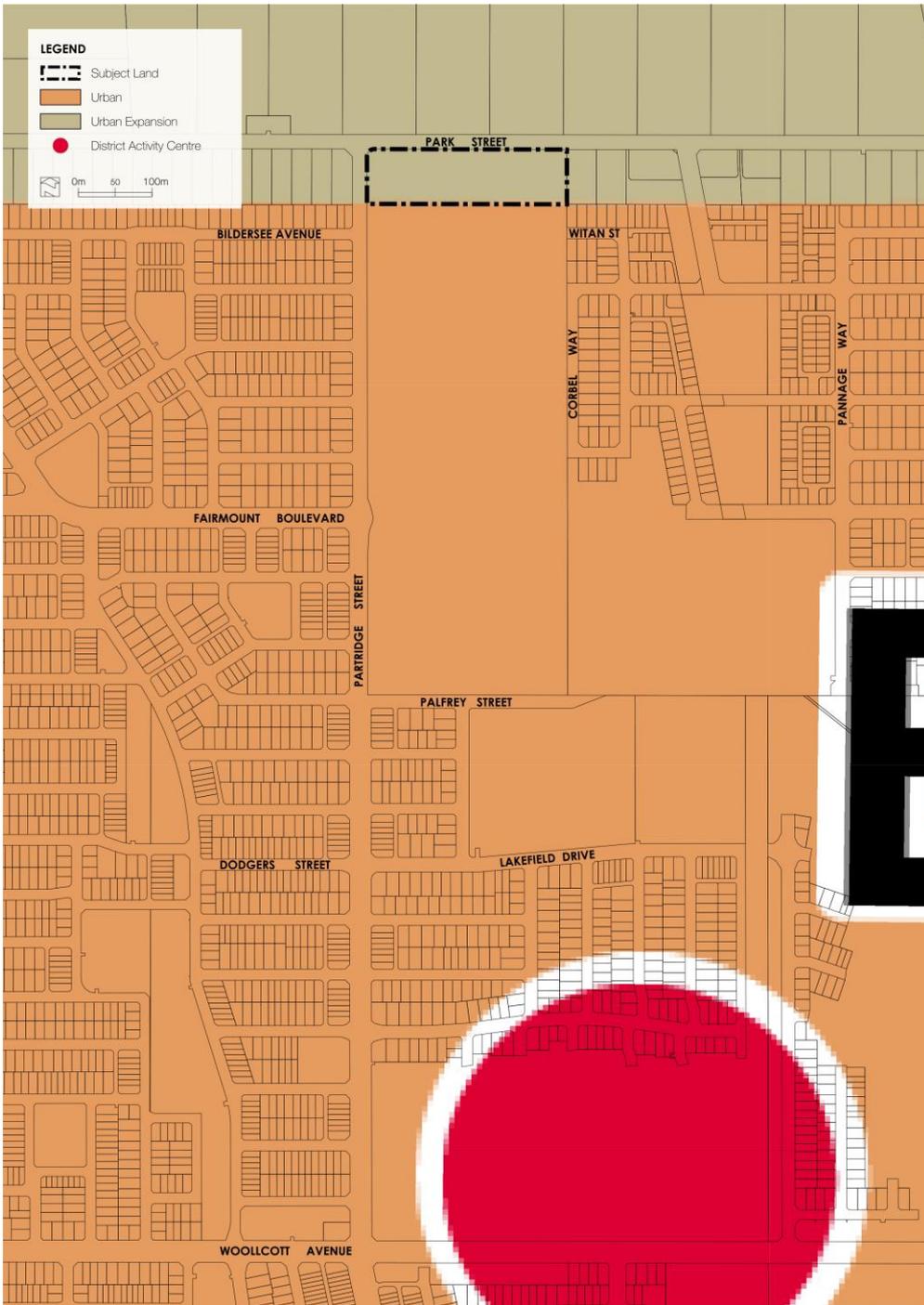


Figure 5: North-East Sub-Regional Planning Framework

## 1.5 PLANNING POLICIES

### 1.5.1 STATE PLANNING POLICIES

#### 1.5.1.1 STATE PLANNING POLICY 3.7: PLANNING FOR BUSHFIRE RISK MANAGEMENT

SPP 3.7 assists in reducing the risk of bushfire to people, property, and infrastructure by encouraging a conservative approach to strategic planning, subdivision, development, and other planning decisions proposed in bushfire-prone areas. SPP 3.7 applies to all land which has been designated as bushfire prone by the Fire and Emergency Services (FES) Commissioner as identified on the Map of Bush Fire Prone Areas. The LSP area is identified as bushfire prone on the Map of Bush Fire Prone Areas.

Accordingly, a Strategic BMP has been prepared for the LSP area. A copy of the Strategic BMP is included in **Appendix C**.

### 1.5.2 LOCAL PLANNING POLICIES

#### 1.5.2.1 POL-C-104 ENVIRONMENTAL PLANNING

This policy outlines the City's expectations for investigation and management of the natural environment, particularly in relation to urban growth areas. In summary, the policy contains the following objectives

- Conservation of environmental assets and management of negative impacts on the environment;
- Consideration of off-site and cumulative impacts;
- Assessment of potential environmental and human impacts to be undertaken early in the process; and
- Understanding that long term environmental impacts may preclude development.

Environmental and Drainage Assessment Technical Notes and a Strategic BMP are appended to this report and address management of the natural environment in relation to the LSP area.

#### 1.5.2.2 POL-LP-11 VARIATION TO DEEMED-TO-COMPLY REQUIREMENTS OF THE R-CODES – MEDIUM-DENSITY SINGLE HOUSE DEVELOPMENT STANDARDS (R-MD CODES)

POL-LP-11 replaces the following deemed-to-comply requirements of the R-Codes with the R-MD Codes:

- Building and garage setbacks;
- Open space;
- Parking;
- Visual privacy; and
- Solar access

POL-LP-11 applies to the development of R25 coded land within the LSP area.

## 1.6 OTHER APPROVALS AND DECISIONS

### 1.6.1.1 ALBION (BRABHAM) DISTRICT STRUCTURE PLAN

In accordance with Schedule 4 of LPS17, the Albion District Structure Plan (ADSP) was prepared to guide future land use and development within Henley Brook (Albion). The ADSP was endorsed by the WAPC in December 2009 and provides a land use and reporting framework for future local structure planning and subdivision applications. An Amendment to the ADSP was approved in February 2018 to increase the size of the activity centre from a 'Large Neighbourhood' to 'District'.

Whilst the subject land is located outside of the ADSP area, the ADSP does identify the LSP area as Special Residential and states that it allows for a transition of lot sizes and land uses between the 'Special Rural' land north of Park Street and the ADSP area. As mentioned above, the land north of Park Street (Henley Brook Urban Precinct) has recently been rezoned to 'Urban' under the MRS and 'Residential Development' under LPS17, therefore larger, transitional lots for this purpose are no longer required.

The subject land, in the context of the ADSP, is identified in **Figure 6**.

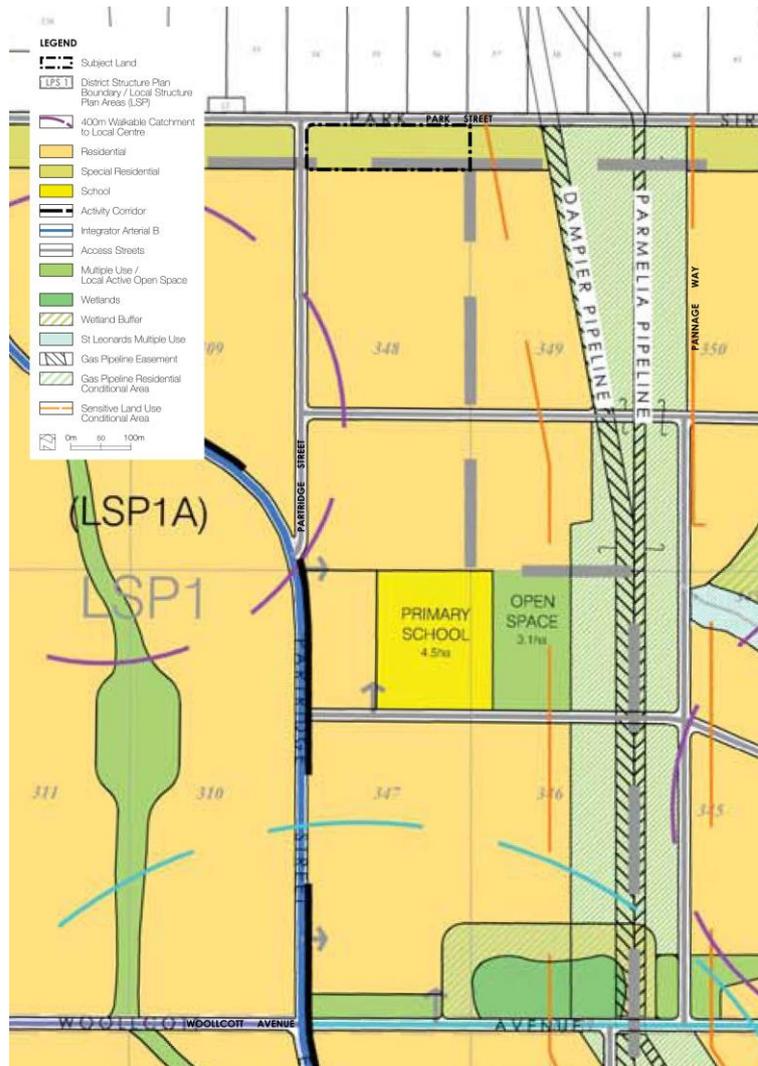


Figure 6: Albion District Structure Plan

### 1.6.1.2 PARK STREET STRUCTURE PLAN

The Park Street Structure Plan was endorsed by the WAPC on 11 March 2013. The Structure Plan provided for the residential development and subdivision of the land at a R5 density code, yielding 9 lots which ranged in area from 2,250m<sup>2</sup> to 2,312m<sup>2</sup>, refer **Figure 7**. The Structure Plan also required a minimum primary street setback of 15m. No technical information supported the Structure Plan.

No subdivision or development has occurred within the LSP area to date.



Figure 7: Approved Park Street Structure Plan

### 1.6.1.3 SURROUNDING STRUCTURE PLANNING

The LSP area is surrounded by the following approved LSPs (refer **Figure 8**):

- LSP 1A – Whiteman Edge Estate to the west (Estate is developed);
- LSP 1B – Ariella Estate to the south of Lot 500 (Estate is partially developed); and
- LSP 3A – Avonlee Estate to the east (Estate is partially developed).

The LSP Amendment will provide an appropriate interface with the adjoining Avonlee Estate development and the future LSP for the balance of Lot 500.



Figure 8: Context

## 1.7 PRE-LODGE MENT CONSULTATION

Pre-lodgement consultation has occurred between the Project Team, the City of Swan and Department of Planning, Lands and Heritage during the preparation of this LSP Amendment.

A summary of the key pre-lodgement consultation undertaken during the preparation of the LSP Amendment is outlined in **Table 3**.

**TABLE 3: PRE-LODGE MENT CONSULTATION**

Agency	Date of Consultation	Consultation Method	Summary of Outcomes
Department of Biodiversity, Conservation and Attractions	7 December 2018	<b>Email</b> Ken Atkins (DBCA), email from Kathy Choo (Strategen)	Agreed with the outcomes of the Threatened Ecological Community (TEC) assessment and the quadrats established on site do not represent FCT3c TEC nor any other TECs.
City of Swan	5 March 2019	<b>Meeting</b> Attendees: Rachel Chapman, Julie-Anne Fitzgerald (TBB) Preston O’Keefe (CWP - LSP proponent) Mariska van der Linde, Patricia Wojcik (CoS)	<ul style="list-style-type: none"> <li>• Preliminary meeting to discuss the structure planning for Lot 500 being undertaken in two phases, beginning with a LSP Amendment to the Park Street Structure Plan and followed by an overall LSP for the balance landholding.</li> <li>• A Concept Plan was presented to inform discussion regarding the proposed modifications to the Park Street Structure Plan.</li> <li>• TBB and CWP provided rationale for the proposed LSP Amendment based on the recent rezonings within the Henley Brook Urban Precinct.</li> <li>• As no technical documentation supported the Park Street Structure Plan, the LSP Amendment would need to be supplemented with technical inputs and prepared in a Part 1 and 2 format.</li> <li>• Whilst the City’s preference is for one structure plan for Lot 500, it was acknowledged that the subsequent structure plan lodged for the balance of Lot 500 would include the LSP Amendment area.</li> </ul>
City of Swan	6 March 2019	<b>Email</b> Julie-Anne Fitzgerald (TBB) to Mariska van der Linde, Patricia Wojcik (CoS)	Draft Concept Plan for the LSP Amendment was provided to the City of Swan for circulation to internal departments.
City of Swan	12 March 2019	<b>Email</b> Julie-Anne Fitzgerald (TBB) to Mariska van der Linde (CoS)	Draft Concept Plan for Lot 500, including updated Concept for the LSP Amendment area, was provided to the City of Swan for circulation to internal departments.
City of Swan	13 March 2019	<b>Meeting</b> Attendees: Rachel Chapman, Julie-Anne Fitzgerald (TBB)	<p><b>LSP Amendment Concept Plan</b> (consistent with Concept Plan contained within the LSP Amendment report)</p> <ul style="list-style-type: none"> <li>• No major concerns raised by the City.</li> </ul>

Agency	Date of Consultation	Consultation Method	Summary of Outcomes
		Robin White (Transcore) Matthew Yan (JDA Hydrologists) Mariska van der Linde, Rachel Sweeney, Wendy Griffiths, Wayne Stuart, Liam Smart, Aaron MacNish (CoS)	<ul style="list-style-type: none"> <li>• Cross-section to be prepared for the cap road to demonstrate that there is sufficient width for services/tree planting.</li> <li>• The issue of driveway access for corner lots was raised by WG, consideration to this will need to be given. Possible solutions include wider lots (18m), designating garage locations on a LDP, preparation of technical note.</li> <li>• For the lots fronting Park Street, drainage will be directed to the existing Park Street drainage system. Additional drainage created by the cap road will also drain into Park Street. Remaining drainage will be directed south and accommodated within the balance of Lot 500.</li> <li>• No POS will be provided within the LSP Amendment area, the POS liability for the LSP area will be provided within the balance Structure Plan area.</li> <li>• The City does not want Partridge Street to take the additional traffic generated by the Henley Brook Structure Plan area, particularly a direct connection to Partridge Street.</li> <li>• The City's preference is for the traffic within Henley Brook to be directed north and then east/west to Lord Street and Henley Brook Avenue. Any access to Park Street should be closer to Lord Street and Henley Brook Avenue.</li> <li>• The proponent's support to a local structure plan amendment, initiated by the City, to include the LSP area within Development Contribution Area 1 was raised.</li> </ul>
Department of Planning Lands and Heritage	14 March 2019	<b>Meeting</b> Attendees: Rachel Chapman, Julie-Anne Fitzgerald (TBB) Mat Selby, Mario Carbone (DPLH)	<ul style="list-style-type: none"> <li>• DPLH did not raise any issues with the proposed process of submitting a Local Structure Plan Amendment, followed by an overall LSP.</li> <li>• DPLH did not raise any issues in relation to the concept design of the LSP Amendment.</li> <li>• The proponent's support to a local structure plan amendment, initiated by the City, to include the LSP area within Development Contribution Area 1 was raised.</li> </ul>

# 2 SITE CONDITIONS AND CONSTRAINTS

## 2.1 ENVIRONMENTAL ASSETS AND CONSTRAINTS

An Environmental Technical Note has been prepared by Strategen in support of this LSP Amendment (refer **Appendix A**). Key aspects of the Technical Note are included below.

### 2.1.1 VEGETATION

#### 2.1.1.1 DESKTOP ASSESSMENT

System 6 mapping refers to vegetation assessment undertaken at a Vegetation Complex scale by Heddle et al. (1980). This is the primary source of information used to calculate potential impacts of proposals to clear native vegetation on the Swan Coastal Plain. The subject land comprises Southern River Complex vegetation which is described as open woodland of *Corymbia calophylla*, *Eucalyptus marginata* and *Banksia* species with fringing woodland of *Eucalyptus rudis* and *Melaleuca raphiophylla* along creek beds (Heddle et al 1980). There is approximately 18.42% of this vegetation complex remaining, of which 1.18% is vested within lands protected for conservation.

At a finer scale, the subject land is mapped within the Bassendean 1018 vegetation system association by Beard (1990). This association is characterised by a mosaic of medium forest and woodlands of Jarrah, Marri, *Banksia* and *Casuarina obesa*. Approximately 17% of the pre-European extent of this system association remains, with 0.71% of the current extent protected in conservation.

In terms of biodiversity conservation targets, the National Objectives and Targets for Biodiversity Conservation 2001 – 2005 aims to:

- prevent clearing of ecological communities with less than 30 percent of the original extent remaining;
- recover ecological communities with less than 10 percent of the original extent remaining;

These national targets are reflected in state government policy for Western Australian and generally, are used to guide planning and decision-making (WAPC 2011). However, in relation to bushland conservation within the Perth Metropolitan Region portion of the Swan Coastal Plain, which is recognised as a constrained area, State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region and Bush Forever seeks to protect a target of at least 10 percent of the original extent of each vegetation complex (WAPC 2010).

The current extent for Southern River Complex and Bassendean 1018 vegetation association is above the 10% threshold.

#### 2.1.1.2 VEGETATION TYPES AND CONDITION

An assessment of the vegetation within Lot 500 was undertaken as a component of the site visit by Strategen in June 2018. The subject land shows signs of having been degraded for a long period of time as a result of historical clearing and weed invasion associated with agricultural use; the majority of the subject land was mapped as either Cleared or Parkland Cleared. As such, vegetation condition within the subject land ranged from Completely Degraded to Degraded (refer **Figure 9**).

Two vegetation types (VT's) were identified within the subject land, and three over the entirety of Lot 500 (refer **Figure 9**), which are summarised in **Table 4** below.

TABLE 4: VEGETATION TYPES

Vegetation Type	Description	Area (ha)	Percentage of Subject Land
V1	Corymbia calophylla open woodland over Xanthorrhoea preissii	0.689	33.593
V3	Melaleuca woodland in wetter areas	0.259	12.628
Cleared		1.0063	49.927
Parkland Cleared		0.052	2.535
Dam		0.027	1.316
<b>TOTAL</b>		<b>2.0333</b>	<b>100</b>

The majority of the native vegetation within the subject land comprised *Corymbia calophylla* open woodland over *Xanthorrhoea preissii* (VT1). This vegetation type shows similarities to the *Corymbia calophylla* - *Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain Threatened Ecological Community (TEC). Vegetation type 3 (VT3) comprised *Melaleuca* woodland in wetter areas.

Most of the subject land is highly degraded and dominated by weed species. One weed species, cotton bush (*Gomphocarpus fruticosus*) that was noted during the assessment of the subject land is listed as a declared pest under the Biosecurity and Agriculture Management Act 2007. This species requires regular and ongoing weed control.



Figure 9: Vegetation Types Source: Stratagen

## 2.1.2 CONSERVATION SIGNIFICANT FLORA AND VEGETATION

### 2.1.2.1 THREATENED AND PRIORITY FLORA

A desktop assessment of conservation significant flora potentially occurring within 3 km of the subject land was undertaken using the Department of Biodiversity, Conservation and Attractions (DBCA) Naturemap database and the Department of Environment and Energy's (DEE) Protected Matters search tool. The assessment report identified 16 Threatened and two Priority flora species which may potentially occur within the vicinity of the subject land. The search report also identified the potential for two TEC's to occur within the vicinity of the subject land (refer **Appendix A**). Of these, based on specific habitat requirements, two Priority flora species were considered to have the potential to occur within the area. These are:

- *Stachystemon* sp. Keysbrook (R. Archer 17/11/99) – Priority 1
- *Verticordia lindleyi* subsp. *lindleyi* – Priority 4

However, due to the degraded nature of the subject land it is considered unlikely that any Threatened or Priority flora are present within the subject land.

### 2.1.2.2 CORYMBIA CALOPHYLLA - XANTHORRHOEA PREISSII WOODLANDS AND SHRUBLANDS OF THE SWAN COASTAL PLAIN TEC

The *Corymbia calophylla* - *Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain TEC (*Corymbia calophylla* - *Xanthorrhoea preissii* TEC) is an ecological community listed as endangered under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This ecological community is a woodland associated with the Swan Coastal Plain of southwest Western Australia, featuring a prominent tree layer of *Corymbia calophylla* and shrubland layer of *Xanthorrhoea preissii*, and is aligned with FCT 3c.

As a result of VT1 showing some similarities to the *Corymbia calophylla* - *Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain TEC, an assessment of Lot 500 was conducted by Strategen in June 2018.

Whilst, the canopy of VT1 matches the listed dominant trees (*Corymbia calophylla*) in the conservation advice, only one of the listed dominant shrubs (*Xanthorrhoea preissii*) is present in the VT1, and none of the listed dominant herbs were recorded. Furthermore, the vegetation within VT1 lacks the understorey diversity of the community description for FCT3c. Given this, the vegetation within VT1 in its current state does not represent the TEC.

Early consultation with DBCA's Species and Communities Program has been undertaken to determine their likely position on the matter. The DBCA has advised via email correspondence dated 7 December 2018, that they agree with the outcomes of the TEC assessment and that the quadrats established on the subject land do not represent FCT3c TEC, nor any other TECs.

## 2.1.3 FAUNA AND HABITAT

### 2.1.3.1 DESKTOP ASSESSMENT

A desktop assessment of conservation significant fauna potentially occurring within 3 km of the subject land was undertaken using the DBCA's Naturemap database and the DEE's Protected Matters Search Tool. The assessment reports (refer **Appendix A**) identified nine Threatened and three Priority listed fauna species which may potentially occur in the vicinity of the subject land. The search reports also identified the potential for one Specially Protected and one Internationally Protected fauna to occur in the vicinity of the subject land. Of these, based on their habitat requirements it was considered possible that the following species may be present within the subject land:

- Carnaby's Black Cockatoo (CBC; *Calyptorhynchus latirostris*);

- Baudin’s Black Cockatoo (BBC; *Calyptorhynchus baudinii*);
- Forest Red Tailed Black Cockatoo (FRTBC; *Calyptorhynchus banksii* subsp. *naso*);
- Southern Brown Bandicoot (Quenda; *Isodon fusciventer*).

### 2.1.3.2 SITE ASSESSMENT

A black cockatoo habitat assessment of the whole of Lot 500 is currently being undertaken by Strategen. The following summarises the preliminary results of the assessment:

- 89 potential breeding trees were recorded - none had hollows present that were large enough for Black Cockatoos to nest in;
- foraging habitat was present and consisted mostly of Marri, with several species of Banksia present (but not many trees), *E. todtiana* (very few trees) and one Jarrah;
- foraging evidence in the form of chewed Marri nuts was observed in several locations but it was not recent;
- no Black Cockatoos were seen or heard in the survey area or adjacent, whilst on the subject land.

The Marri trees located within the western portion of Lot 500, and south of the subject land, have been identified as being the most notable areas of Black Cockatoo foraging habitat.

## 2.1.4 CONSERVATION AREAS

### 2.1.4.1 BUSH FOREVER AND ECOLOGICAL LINKAGES

No Bush Forever sites or ecological linkages are located within the subject land. The nearest Bush Forever Site, 304, is located within 1 km of the subject land, approximately 700 m to the west. No Bush Forever sites will be directly impacted by the proposed development as there is existing residential development between the subject land and the nearest Bush Forever sites in all directions.

### 2.1.4.2 LOCAL CONSERVATION AREAS

No DBCA or local government conservation reserves have been identified within, or nearby the subject land. However, based on the broad scale mapping provided within the City of Swan’s Local Biodiversity Strategy, it appears that a Local Natural Area (LNA) is associated with the remnant vegetation located within Lot 500 (City of Swan 2015). It is worthwhile to note that whilst the LSP amendment for the subject land does not seek to retain vegetation, the LSP for the wider Lot 500 will look to retain an area of POS south of the subject land which is considered to have more significant vegetation and fauna habitat values.

### 2.1.4.3 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally sensitive areas (ESA’s) are declared by the Minister for Environment under section 15b of the Environmental Protection Act 1986. ESA’s are only relevant in the limited context of exemptions in the clearing regulations, which do not apply to ESA’s. The subject land is not mapped as an environmentally sensitive area according to the DWER Environmentally Sensitive Areas Map Viewer (2019). The nearest ESA is approximately 683 m away, associated with Bush Forever Site 304.

### 2.1.4.4 CULTURAL HERITAGE

A search of the Department of Planning, Lands and Heritage – Aboriginal Heritage Places mapping tool (DPLH 2019) identified no Registered Sites on the subject land. The nearest Registered Aboriginal Heritage site is “Lord Street North 1” (Place No. 551) which is located approximately 0.5 km west of the subject land.

A search of the Heritage Council of Western Australia website identified no Registered European heritage places within the subject land (DPLH 2019). The nearest European heritage listed place is Whiteman Park (Place No. 25868) which is located approximately 0.65 km west of the subject land.

#### 2.1.4.5 LAND USES

A desktop review of previous land uses within the subject land was undertaken by Strategen from a selection of aerial imagery from 1953 to 2019. The subject land has been extensively cleared for agriculture since at least 1953, before-which aerial imagery is unavailable for the subject land. The pattern of clearing suggests that the primary agricultural use has been the grazing of livestock.

Adjacent land use has been largely similar, until the mid1970's when one residential building was constructed to the east of the subject land. Further residential housing was developed to the north of the subject land in the mid 1980's, before a significant residential development was constructed adjacent to the west of the subject land between 2010 and 2015. Development to the south of Lot 500 was completed in 2017.

#### 2.1.4.6 BUSH FIRE

The site is located within a designated bushfire prone area. Development of the site will trigger Policy Measure 6.5 of State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7). A Strategic BMP has been prepared (refer **Appendix C**) to support this LSP Amendment in accordance with Guidelines for Planning in Bushfire Prone Areas (the Guidelines) and includes:

- a Bushfire Attack Level (BAL) contour map to determine the indicative acceptable BAL ratings across the site in accordance with the Guidelines and prepared by an accredited bushfire practitioner;
- identification of bushfire hazard issues arising from the BAL assessment;
- assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the site.

#### 2.1.5 WETLANDS

There are no recorded Ramsar sites or DEE important wetlands within the subject land. Regional geomorphic wetland mapping indicates that there are no Conservation Category Wetlands within the LSP area (WALGA 2019). The nearest Conservation Category Wetland, UFI 8548, is approximately 821.4 m to the west of the subject land (WALGA 2019).

The majority of the subject land comprises palusplain Multiple Use Wetland (MUW; UFI: 13396) (WALGA 2019), refer **Figure 10**. MUW are typically wetlands with few important ecological attributes and function remaining, and therefore, these wetland values do not represent a constraint to development.

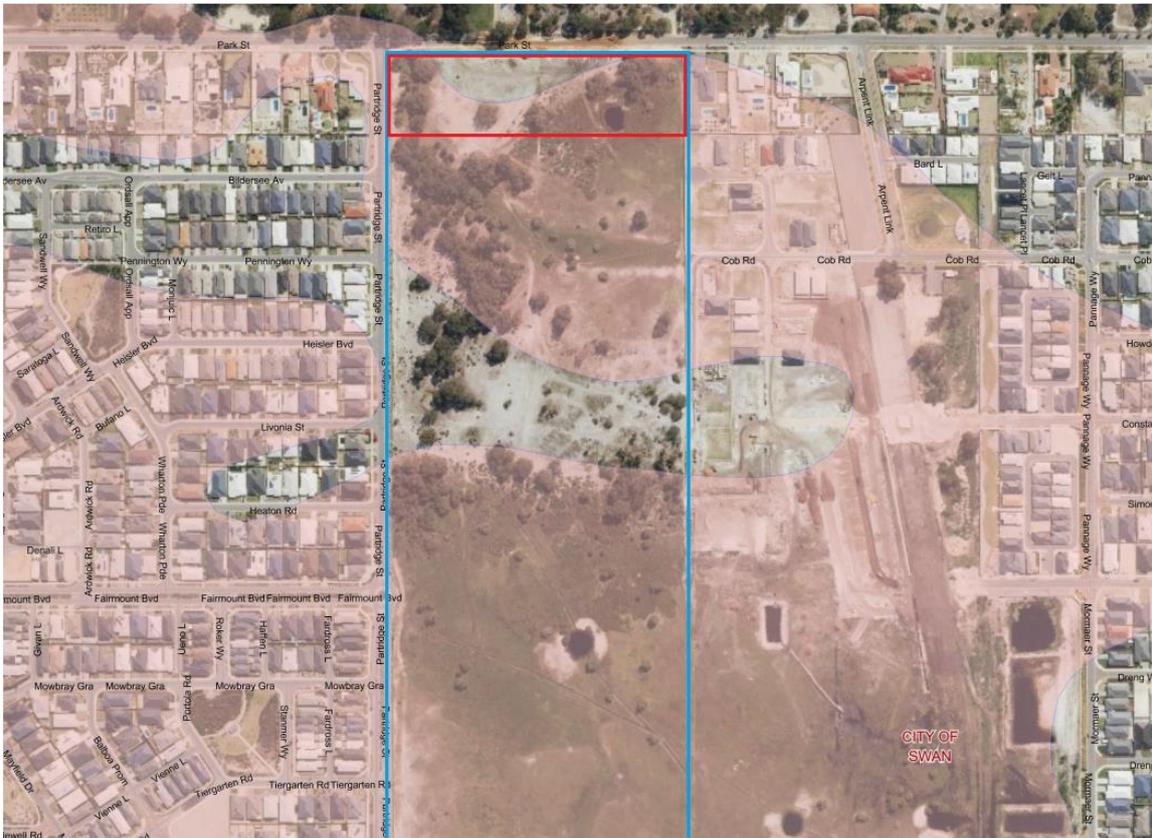


Figure 10: Multiple Use Wetlands (Pink) within the subject land (red) Source: Stratagen

## 2.2 LANDFORM AND SOILS

### 2.2.1 TOPOGRAPHY, GEOLOGY AND SOILS

Regional elevation contour data (DPIRD 2018) indicate that the subject land is relatively uniform. Elevations range from 33 m Australian Height Datum (AHD) in the south-west of the subject land to 36 m AHD in the north.

Regional environmental geological mapping (Gozzard 1986) identifies the soil type of the subject land as being Sands (S10) which is described as very light grey at the surface, yellow at depth, fine to medium grained sub-rounded quartz of aeolian origin.

### 2.2.2 ACID SULFATE SOILS

A search of the Swan Coastal Plain Acid Sulphate Soils (ASS) risk map (WALIA 2019) indicates that the subject land has a “moderate to low” risk of ASS occurring within 3 m of natural soil surface.

A strategic ASS investigation was undertaken over the subject land as part of the DSP (JDA 2009). The investigation identified that ASS conditions would not prevent development within the DSP area, nor place unreasonable requirement on development (JDA 2009). The Strategic ASS assessment recommended the following soil and groundwater management measures as development of the area progresses:

- lime dosing of soil and groundwater as appropriate;
- control of soil movement and groundwater discharge;
- monitoring of soil and groundwater quality.

## 2.3 SURFACE WATER

### 2.3.1 SURFACE WATER HYDROLOGY

The subject land is located within the Saint Leonards Creek sub catchment of the Swan Avon Catchment on the Swan Coastal Basin.

Rainfall from the small event (first 15 mm) is managed onsite within the rural lots. Stormwater runoff generated in rural lots during the minor and major rainfall events (20% and 1% Annual Exceedance Probability) flows overland into the existing Park St drainage system. It is estimated 20% of the rural lot area contributes to the Park Street drainage system, equivalent to a connected impervious area of 0.41 ha (refer **Table 5**).

TABLE 5: EXISTING PARK ST STRUCTURE PLAN CATCHMENT AREA

Land Use	Area (ha)	Runoff Coefficient (%)	Impervious Catchment Area (ha)
Rural Lots	2.03	20	0.41
<b>TOTAL</b>	<b>2.03</b>	-	<b>0.41</b>

## 2.4 EXISTING MOVEMENT NETWORK

### 2.4.1 PARK STREET

Park Street is currently classified as a Local Distributor in the Main Roads WA functional road hierarchy. An area speed limit of 70km/h applies on Park Street. The existing road reserve width is approximately 20m. The section adjacent to the subject land is constructed with two 3.7m traffic lanes, kerbed on the south side and a sealed shoulder of approximately 1m on the north side. It has a 2.5m shared path constructed on the southern verge adjacent to the kerb. Other sections of Park Street are similar but have varying sealed shoulder width and path location.

There is localised widening of the eastbound traffic lane on Park St through the Partridge Street intersection to allow through traffic to pass a vehicle waiting on Park Street to turn right into Partridge Street.

### 2.4.2 PARTRIDGE STREET

Partridge Street is also currently classified as a Local Distributor in the Main Roads WA functional road hierarchy. The default built up area speed limit of 50km/h applies on this section of Partridge Street. The existing road reserve width is approximately 20m from Park Street to Fairmount Boulevard and this section is constructed as a 6m-wide two-lane carriageway, kerbed on both sides. It has a 2m shared path on the western verge.

# 3 LOCAL STRUCTURE PLAN AMENDMENT

## 3.1 OPPORTUNITIES AND CONSTRAINTS

An analysis has been undertaken of the existing site conditions and the potential opportunities and constraints that require consideration in the planning and development of the subject land. The key elements of this analysis are outlined below.

### Residential Density

- The rezoning of the Henley Brook Urban Precinct allows for higher density residential development to occur within the LSP area as the larger R5 lots are no longer required to provide a transition to the formerly Rural zoned land north of Park Street.
- The transition of residential density from Park Street to the balance of Lot 500 will need to be considered given Park Street's role as a gateway to the Swan Valley and the R30 base density code applied to the balance of Lot 500 under the ADSP.
- The METRONET Morley-Ellenbrook Line planned for the western edge of the ADSP and the 'New Lord Street' project which will provide a bus corridor between Ellenbrook and Bassendean, including a new bus park and ride facility in Henley Brook (between Gngangara Road and Park Street), also provides an opportunity to increase densities within the LSP area to maximize utilization of these important government public transport assets.

### Park Street

- Park Street provides a key entranceway to the Swan Valley; the streetscape needs to reflect this function through the street block structure, lower residential density and landscaping.
- Traffic volumes prevent lots being provided with direct access to Park Street.
- Existing powerlines along Park Street adversely impact on Park Street's function as a gateway to the Swan Valley.

### Interface

- An appropriate interface will need to be provided to the existing residential development which abuts the LSP area to the east, within the Avonlee Estate.
- A local structure plan will be prepared for the balance of Lot 500; therefore, how development connects into the southern boundary of the LSP area will need to be demonstrated.
- Partridge Street is a 20m existing road reserve and is classified as an Access Street. Modelling, which incorporates traffic generated by the Henley Brook Urban Precinct, indicates that direct access to Partridge Street is acceptable. This is consistent with the west side of Partridge Street, where development directly fronts this portion of Partridge Street.

### Context

- Public open space for the LSP area will be provided within the balance of Lot 500 which will enable the provision of consolidated and more functional areas of open space.
- Whilst the LSP area is identified as bush fire prone, its location abutting two road reserves, existing residential development and land under the same ownership (i.e. the balance of Lot 500) allows bush fire considerations to be managed appropriately.

- Planning for the future urban development of the Henley Brook Urban Precinct needs to be considered in the context of the approved ADSP and the existing development which has been occurring in accordance with the ADSP.

## 3.2 CONCEPT PLAN

The Concept Plan included at **Figure 11** provides an indicative subdivision design which has been prepared to support the LSP Amendment by demonstrating how subdivision may occur in accordance with the LSP. The Concept Plan has been prepared based on the following key design considerations.

- **Residential Development** - R20 coded lots are proposed along the Park Street interface and extend along the north south access road. Given the progression of planning within the Henley Brook Urban Precinct to the north of Park Street, the LSP is no longer required to provide transitional lot product. However, the R20 coding is considered to provide appropriate built form (with reduced crossovers) for Park Street, as one of the entranceways to the Swan Valley.

The R20 coding along the eastern edge of the LSP area also minimises the number of lots interfacing with the existing Avonlee Estate development. An R30 density code is identified for the balance of Lot 500 under the ADSP. Accordingly, R25 coding has been identified addressing the balance of Lot 500 to provide a transition code.

The public transport infrastructure proposed within the locality, including the METRONET Morley-Ellenbrook Line and the 'New Lord Street' project ensures the higher density code is appropriately supported and will assist in achieving strategic housing density targets.

- **CAP Road** - a Controlled Access Place (CAP) road has been provided along Park Street. This allows an extended development frontage to address Park Street and provide an appropriate interface to the Swan Valley entranceway whilst responding to the traffic volumes which prevent direct access. The verge within the cap road will be landscaped, in addition to the southern Park Street verge, and the existing powerlines within the southern Park Street verge will also be undergrounded to provide a high amenity streetscape.
- **Road Structure** - an access street has been designed along the southern boundary of the LSP area to allow development to unfold within the balance of Lot 500. Access for the lot on the corner of Park and Partridge Street will be taken from Partridge Street, consistent with its classification as an Access Street.



Figure 11: Concept Plan

### 3.3 LAND USE

The entire LSP area (2.0305ha) is identified for residential development.

### 3.4 RESIDENTIAL

The LSP provides for both R20 and R25 coded development.

#### 3.4.1.1 DENSITY TARGETS

The estimated dwelling yield for the LSP area, based on the Concept Plan is 37 lots / dwellings (refer 6 below). This could accommodate a total population of up to 103 people based on 2.8 people per household.

Directions 2031 and Beyond sets a target of '15 dwellings per gross urban zoned hectare' of land in new development areas within the Perth and Peel metropolitan regions. In addition to this, Perth and Peel @3.5million recommends a residential site density of 26 dwellings per residential site hectare (encompassing land purely zoned for residential purposes).

The applicable density targets under the LSP as measured in accordance with Directions 2031 and Beyond and Perth and Peel @3.5million are 18 dwellings per gross urban zoned hectare and 26 dwellings per net site hectare; based on 37 lots.

The density codes applied and the resultant lot typology will provide flexibility to address the needs of the local housing market. Final yields will be determined during the detailed subdivision design process.

TABLE 6: ESTIMATED DWELLING YIELD

Density Coding	Yield
R20	22
R25	15
<b>TOTAL</b>	<b>37</b>

### 3.5 OPEN SPACE

POS was not provided within the existing LSP area due to the low density R5 coding, however the need for POS is now generated by the proposed higher density development. As the LSP area is intended to be included within DCA1, a pro-rata contribution to three neighbourhood parks and a local community centre is expected. Accordingly, the balance POS provision of 7.11% equates to approximately 1,450m<sup>2</sup> of POS to be provided for the LSP area.

Public open space (POS) for the LSP area is to be provided within the balance of Lot 500 Park Street, Brabham. This will ensure consolidated and functional areas of POS are delivered as part of a co-ordinated POS strategy. A comprehensive LSP for Lot 500 Park Street, Brabham will be submitted for assessment and approval shortly.

### 3.6 LANDSCAPE DESIGN

As demonstrated by **Figure 12**, both the CAP road verge and Park Street southern verge will be landscaped with street trees, in accordance with the City’s requirements. The street trees will provide a high amenity environment and reinforce Park Street’s function as a key entranceway to the Swan Valley.

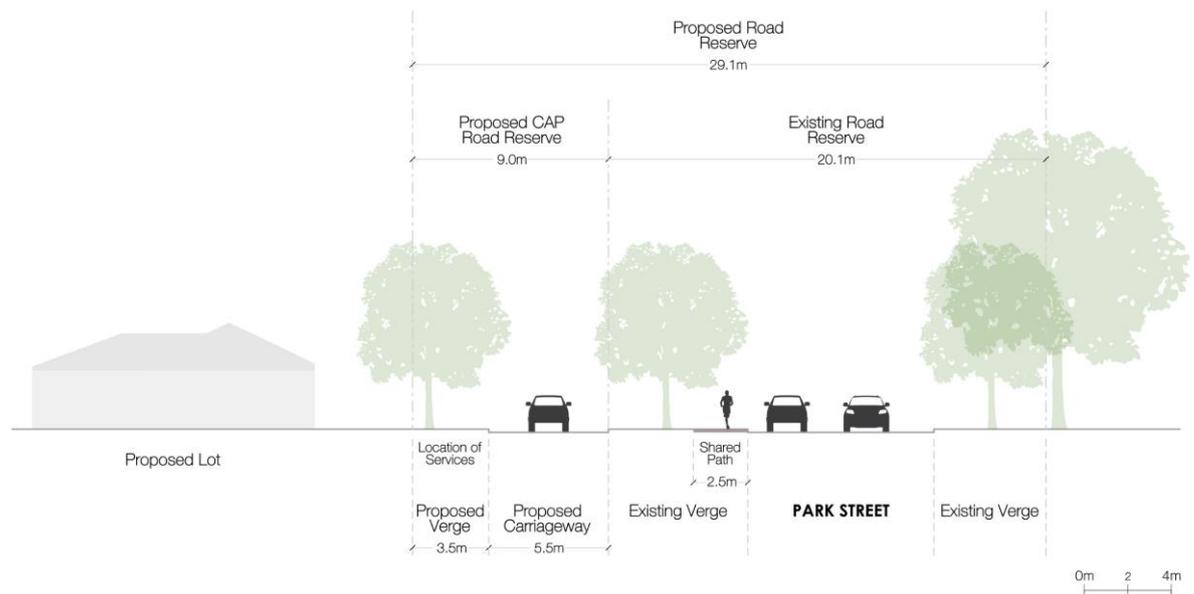


Figure 12: CAP Road Cross-section

### 3.7 MOVEMENT NETWORK

A Transport Technical Note has been prepared by Transcore in support of this LSP Amendment (refer **Appendix D**). Key aspects of the Technical Note are outlined below.

### 3.7.1 PROPOSED ROAD NETWORK

The proposed Concept Plan illustrated in **Figure 11** includes a new 15m-wide access street along the southern boundary to provide frontage access to residential lots in the southern half of the LSP area. This is proposed to be constructed as a 6m-wide two-lane carriageway (Access Street D in the WAPC Liveable Neighbourhoods policy), which is suitable for access streets carrying traffic flows of up to 1,000vpd.

The proposed Concept Plan also proposes a 15m-wide north south access street through the eastern portion of the LSP area, connecting to Partridge Street at a full-movement T-intersection. This would also be constructed as a 6m-wide two-lane carriageway (Access Street D).

Driveway access for the proposed lots fronting Park Street will be accommodated by provision of a CAP road. This would involve a 9m road widening, which would accommodate a 5.5m one-way road (westbound) and 3.5m verge on the south side. No northern verge is required as it would be adjacent to the existing Park Street southern verge, refer **Figure 12**.

### 3.7.2 FUTURE TRAFFIC FLOWS

Transcore has progressively developed a local area traffic model for Brabham that has previously been utilised for a number of local structure plans in the locality. It models full development of the ADSP area. The traffic model also includes existing development on the surrounding local road network bounded by Lord Street, Gngara Road, West Swan Road and Harrow Street.

For this project the traffic model has been revised to reflect future urban development of the Park Street Structure Plan Amendment area and the balance of Lot 500 Park Street (which extends southwards to Palfrey Street), with a total lot yield of approximately 380 residential lots.

For this project the traffic model has also been revised to model future urban development of the Henley Brook Urban Precinct area north of Park Street. It is assumed traffic from that area will feed out to the east and west and access is restricted along Park Street, although it is acknowledged that some traffic from the Henley Brook Urban Precinct would still travel along Park Street. For this exercise, the 262ha Urban Precinct is modelled with 4,000 dwellings, a neighbourhood activity centre, a high school and two primary schools.

The modelled future daily traffic flows for Henley Brook Avenue in this future development scenario are shown in **Figure 13**.

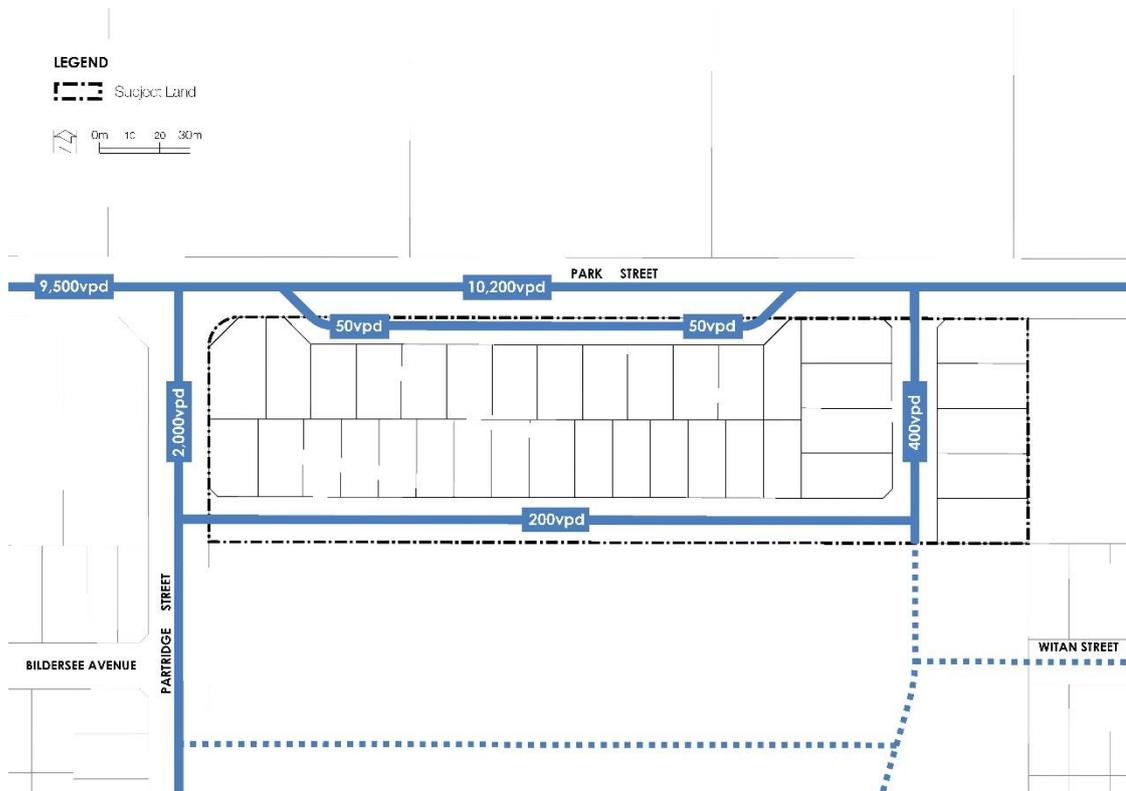


Figure 13: Future Daily Traffic Flows (with Henley Brook Urban Precinct) Source: Transcore

### 3.7.3 FUTURE ROAD REQUIREMENTS

#### 3.7.3.1 PARK STREET

The modelled traffic flows on Park Street indicate it will ultimately be in the 7,000 to 15,000vpd range of an Integrator B as per WAPC Liveable Neighbourhoods policy. A standard Integrator B cross section includes a 6m median, two 3.5m traffic lanes, two 1.5m cycle lanes and on-street parking (parking lane or indented in the verge). The standard road reserve width for this class of road in Liveable Neighbourhoods is 29.2m (or 27m with parking indented in the verges).

Residential development has already progressed along the southern side of Park Street in Brabham, except for the subject land. It is therefore not feasible to require any road widening on the southern side of Park Street, although the proposed Concept Plan provides a 9m road widening for a CAP road to address driveway access for the proposed lots abutting this section of Park Street. Other sections of Park Street have large lots with sufficient space for cars to turn around on site so they do not need to reverse out onto Park Street.

Therefore, it is recommended that ultimate future upgrading of Park Street to Integrator B standard should include road widening on the northern side of Park Street as part of the future structure planning for the Henley Brook Urban Precinct north of Park Street.

In the interim it is acknowledged that localised widening of the eastbound traffic lane would be required to allow through traffic to pass right turning vehicles at the proposed eastern access street intersection and the intersection at the eastern end of the CAP road. This would be similar to the existing Park Street widening through the Partridge Street intersection, within the existing road reserve.

### 3.7.3.2 PARTRIDGE STREET

Partridge Street (Park Street to Fairmount Boulevard) is currently constructed as an Access Street in accordance with its classification in the Albion (Brabham) DSP and the adjacent Whiteman Edge LSP 1A. The modelled traffic volumes on this section of Partridge Street are consistent with this Access Street classification.

If required, a left-in left-out treatment could be accommodated at the Partridge Street/Park Street intersection to restrict access to Partridge Street from the Henley Brook Urban Precinct in the future. To convert the intersection to a left-in left-out treatment it is expected that the kerb lines could remain as existing. The left-in left-out treatment would replace the existing splitter island on Partridge Street with a triangular 'seagull island' treatment and a continuous median island would be constructed on Park Street across the intersection to prevent right turns.

This treatment is not required to accommodate the traffic generated by the LSP Amendment and therefore is not proposed.

### 3.7.4 PEDESTRIAN & CYCLIST FACILITIES

A footpath will be provided on one side of each Access Street in accordance with Liveable Neighbourhoods requirements. No footpath would be required on the CAP road as there is already a shared path on the Park Street southern verge. A path is already provided on the western verge of Partridge Street in accordance with Liveable Neighbourhoods requirements, so no path is proposed on the eastern verge of the northern section of Partridge St (Park Street to Fairmount Boulevard).

No cycle lanes are required on the northern section of Partridge Street (Park Street to Fairmount Boulevard).

### 3.7.5 PUBLIC TRANSPORT

Public transport is not affected by the LSP Amendment. Bus routes will be determined by the Public Transport Authority (PTA) as part of the planning of feeder bus routes to the Morley-Ellenbrook Line proposed by METRONET.

### 3.7.6 WATER MANAGEMENT

A Drainage Assessment Technical Note has been prepared by JDA in support of the LSP Amendment (refer **Appendix B**). Key aspects of the Technical Note are included below.

#### 3.7.6.1 DRAINAGE

The LSP area will be divided into Northern and Southern drainage catchments (refer **Figure 14**).

#### Northern Catchment

The Northern Catchment consists of 13 lots (R20) with a CAP road that fronts onto Park Street. Rainfall from the small event (first 15 mm) in lots will be managed by soakwells. Stormwater runoff generated from the CAP road will flow overland to the Park Street drainage system.



Figure 14: Drainage Figure Assessment Source: JDA

Stormwater runoff generated on the lots during minor and major rainfall events (20% and 1% Annual Exceedance Probability) that exceed the design capacity of soakwells (i.e. >15 mm) flow overland to the existing Park Street drainage network. Stormwater runoff generated from the CAP road during these events will also flow overland into the existing Park Street system.

The impervious catchment area contributing to the Park Street drainage system from the Northern Catchment is 0.39 ha (refer **Table 7**). This is similar to the contributing catchment of the existing Structure Plan of 0.41 ha.

TABLE 7: AMENDED PARK ST STRUCTURE PLAN CATCHMENT AREA

Land Use	Area (ha)	Runoff Coefficient (%)	Impervious Catchment Area (ha)
Residential – R20	0.52	50	0.26
Road	0.14	90	0.13
<b>TOTAL</b>	<b>0.66</b>	-	<b>0.39</b>

### Southern Catchment

The Southern Catchment consists of 9 lots (R20) and 15 lots (R25) with two 15 m wide internal roads. All stormwater runoff from the Southern Catchment will flow south and be managed by the stormwater management system in the balance of Lot 500. There is no stormwater runoff contribution to the Park Street drainage system from this catchment.

Rainfall from the small event (first 15 mm) will be managed in lots by soakwells. Stormwater runoff generated from the roads will be conveyed by pipe drainage south that connects into the stormwater management system in the balance of Lot 500.

Stormwater runoff generated on the lots during minor and major rainfall events (20% and 1% AEP) that exceed the design capacity of soakwells (i.e. >15 mm) will flow overland to the road drainage system. Stormwater runoff generated from the roads during minor and major rainfall events (20% and 1% AEP) will flow south via the arrangement of the road and kerbs and connect into the stormwater management system in the balance of Lot 500.

The LSP Amendment will therefore have negligible impact on the hydraulic capacity of the Park Street drainage system as the contributing catchment area is similar to the existing Structure Plan. Further detail on the stormwater management for this area will be presented in the Local Water Management Strategy for Lot 500, inclusive of hydraulic modelling for the amendment area.

### 3.7.7 ACID SULPHATE SOILS

ASS are not expected to prevent or place unreasonable requirements on development of the site. Once development of the site is at the phase of subdivision when soil disturbance activities are known the WAPC ASS self-assessment form can be completed to determine whether further investigation is required.

Detailed planning for management of ASS issues should be undertaken at the development stage when the location and extent of ground and groundwater disturbing activities are known. In any event, the import of clean fill, as outlined in section 3.8, will further reduce any impact resulting from ASS.

### 3.7.8 VEGETATION

The proposed development will necessitate the clearing of approximately 0.948 ha. Clearing of vegetation will be subject to typical construction management including the clear demarcation of clearing and retention areas prior to the commencement of works, as well as weed and dieback hygiene practices. However, it is worthwhile to note that the LSP for the wider Lot 500 will seek to retain an area of POS south of the subject land which is considered to have more significant vegetation and fauna values.

The proponent understands the provisions of the Environment Protection Biodiversity Conservation Act 1999 (EPBC) and will consider referral of future development within the wider Lot 500 and any significant impacts to matters of national environmental significance (such as black cockatoos) under the EPBC Act once final development design is confirmed.

### 3.7.9 BUSHFIRE MANAGEMENT

As outlined in the Strategic BMP contained in **Appendix C**, the bushfire hazards both within and adjacent to the subject land and the associated bushfire risks are readily manageable through standard management responses outlined in the Guidelines and AS 3959.

In accordance with the Strategic BMP, a BMP shall be prepared to support a subdivision application to meet the relevant commitments outlined in the Strategic BMP, address the relevant requirements of State Planning Policy 3.7 Planning in Bushfire Prone Areas and demonstrate in detail how the proposed development will incorporate the relevant acceptable solutions or meet the performance requirements of the Guidelines for Planning in Bushfire Prone Areas.

## 3.8 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING

### 3.8.1 EARTHWORKS

Existing levels are approximately 0.5-2.0m lower than the adjoining boundaries of the subject land. Earthworks will consist of top soil stripping, disposal of waste and organic matter and cut to fill balance across the subject land. The balance would require additional clean fill to be imported, followed by incremental compaction to achieve the finished design levels.

Permeability's of the compacted material will be tested to ensure site classification of Class A is achievable. Furthermore, the earthworks will be completed within the guidelines of the approved drainage strategy for this development.

### **3.8.2 ROADS AND DRAINAGE**

Roads and drainage will be provided in accordance with the City of Swan's requirements, along with approved Urban Water Management Plan guidelines. As Park Street and Partridge Street road reserves are already existing, the internal roads will be constructed to ensure runoff is drained off the lots and into the pit and pipe network, which will connect into existing Council drainage infrastructure along Park Street.

### **3.8.3 WATER SUPPLY**

The LSP area is located inside the current scheme planning for water. An existing DN250 diameter main is reticulated across the Park Street interface and connects into the existing infrastructure. The existing Water Corporation network will be able to accommodate the proposed lots.

### **3.8.4 WASTEWATER**

The LSP area is located inside the current scheme planning for wastewater. An existing 255 diameter and a 150 diameter PVC sewer main is already reticulated through Park Street and connects into the existing surrounding sewer network. The sewer network is functional as a gravity sewer. Following approval from Water Corporation, the sewage system for the LSP area will be able to flow into this existing network.

### **3.8.5 POWER SUPPLY**

Western Power LV/HV assets are reticulated surrounding the subject land. Existing points of connection for low voltage supply is off Partridge Street and Park Street. The overhead aerials along Park Street may require undergrounding, which is pending feedback from Western Power post feasibility assessment. There is sufficient capacity within the existing network to supply the development of the LSP area.

### **3.8.6 TELECOMMUNICATIONS**

NBN and Telstra both have existing infrastructure along Park Street. NBN will be extended off Park Street to service the development of the LSP area.

### **3.8.7 GAS SUPPLY**

Atco gas will be available to supply the LSP area via the surrounding network from Park Street. There is an existing 160 PE high pressure service available off Park Street. There is sufficient capacity to service the LSP area.