



# BYFORD DISTRICT STRUCTURE PLAN

Prepared for:



JULY 2023

Prepared by Hames Sharley:

**Hames  
SHARLEY**

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In collaboration with Cardno and SPP Consulting

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C	16-05-2018	Draft for Informal Public Advertising	SOS
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## LIST OF ABBREVIATIONS

ACP	Activity Centre Plan
BAL	Bushfire Attack Level
BMP	Bushfire Management Plan
BRT	Bus Rapid Transit
CIDCP	Community Infrastructure Development Contributions Plan
CPTED	Crime Prevention Through Environmental Design
DCP	Development Contribution Plan
DIA	Development Investigation Area
DPLH	Department of Planning, Land and Heritage
DWMS	District Water Management Strategy
DWER	Department of Water and Environmental Regulation
HFTC	High Frequency Transit Corridor
LPS	Local Planning Strategy
LPS3	Shire of Serpentine Jarrahdale Local Planning Scheme 3
LSP	Local Structure Plan
MRS	Metropolitan Region Scheme
MRWA	Main Roads Western Australia
POS	Public Open Space
PTA	Public Transport Authority
SPP	State Planning Policy
SPS	State Planning Strategy
TOD	Transit Oriented Development
TPS2	Shire of Serpentine Jarrahdale Town Planning Scheme No. 2
WAPC	Western Australian Planning Commission
WSUD	Water Sensitive Urban Design

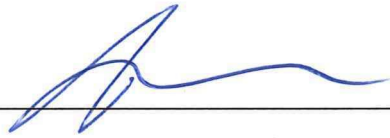
## ENDORSEMENT PAGE

This District Structure Plan is prepared under the provisions of the Shire of Serpentine Jarrahdale Town Planning Scheme No. 2.

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

30 May 2023

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



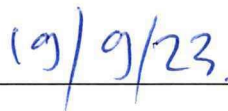
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An officer of the Commission duly authorised by the Commission pursuant to section 16 of the Planning and Development Act 2005 for that purpose, in the presence of:



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Witness



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Date

## TABLE OF AMENDMENTS

AMENDMENT NO.	SUMMARY OF THE AMENDMENT	AMENDMENT TYPE	DATE APPROVED BY WAPC

## TABLE OF DENSITY PLANS

DENSITY PLAN NO.	AREA OF DENSITY PLAN APPLICATION	DATE ENDORSED BY WAPC

## EXECUTIVE SUMMARY

The original Byford District Structure Plan was prepared in 2005 and updated in 2009 to provide high-level strategic guidance on future planning and development in the Byford locality. Since the preparation of this document, the Shire has undergone a significant change due to exponential population growth, most of which has occurred in Byford. A number of new Local Structure Plans have been submitted and the State strategic and policy frameworks have changed.

The reason for the revision to the Byford District Structure Plan is therefore to consider the significant population growth and the increased lot densities that have resulted from further planning. This revision also better reflects a number of State and local policy changes and to incorporate various strategic documents that have been produced by the Shire of Serpentine Jarrahdale since the Byford Structure Plan was first adopted in 2005. The following list of documents provide reference to strategic decisions that will have an impact on the future development of Byford. Although this list is not exhaustive, it provides a good indication of the high-level decision making that has guided the Byford District Structure Plan.

### State Planning Framework

- + Planning and Development (Local Planning Schemes) Regulations 2015
- + Perth and Peel @ 3.5 million - The South Metropolitan Peel Sub-regional Planning Framework
- + Perth Transport Plan @ 3.5 million
- + State strategic infrastructure decisions
- + METRONET and related studies
- + Westport and related studies
- + Various State Planning Policies and Guidelines

### Local Planning Framework

- + Draft Local Planning Strategy
- + Town Planning Scheme No.2
- + Draft Local Planning Scheme No.3
- + Rural Strategy Review 2013
- + Community Infrastructure and Public Open Space Strategy
- + Community Infrastructure Implementation Plan
- + New Local Structure Plans for Byford
- + Infrastructure provisioning and changes in staging
- + Council decisions regarding planning matters in the Town Planning Scheme No. 2 (TPS2) area
- + Various Local Planning Policies

The Byford District Structure Plan has been informed by the following strategic plans and documents. A full list of the documents is included in the reference section of this document.

- + Byford District Water Management Strategy (2018)
- + Traffic Assessment (2018)
- + Previous District Structure Plan for Byford (2009) and supporting technical plans
- + Previous Local Structure Plans for the Byford District Structure Plan area (including the Byford Town Centre Local Structure Plan and Local Planning Policies), with supporting studies



- + Previous strategies including the Activity Centres Strategy, Byford Town Centre Access and Parking Strategy, with the supporting technical studies
- + Development Contribution Plans for Byford, and Local Planning Policy 3.7 – George Street Design Guidelines
- + Unofficial documents such as the Byford Progress Association Byford Public Art Master Plan and the Byford Townscape Project

The Byford District Structure Plan consolidates the above mentioned technical studies to provide an updated framework to guide planning and development within the district of Byford.

## STRUCTURE PLAN CONTENT

This structure plan comprises:

- + Part One – Implementation
  - Includes the Byford District Structure Plan map and planning provisions.
- + Part Two – Explanatory Section
  - Provides an overview of how the Byford District Structure Plan responds to the existing planning framework and local context. It identifies the layers that informed the preparation of the Byford District Structure Plan.

## SUMMARY TABLE

Item	Data	Structure Plan Reference
Total area covered by the structure plan	1,999 hectares	Section 2.2.2 'Area and Land Use'
Area of each land use proposed:		Section 3.2.2 'Land Use'
+ Residential	1102 hectares	
+ Commercial	35 hectares	
+ Industrial	10 hectares	
+ Rural Residential	208 hectares	
Estimated number of dwellings	17,817 dwellings	Section 3.2.1 'Population and Density'
Estimated residential site density	16.2 dwellings per hectare	Section 3.2.1 'Population and Density'
Estimated population	50,957	Section 3.2.1 'Population and Density'
Number of high schools	3	Section 3.5.1 'Education Facilities'
Number of primary schools	9	Section 3.5.1 'Education Facilities'
Estimated commercial floor space	3,299m <sup>2</sup> net lettable area	Section 3.3.1 'Economy'
Estimated area and percentage of public open space given over to:		Section 3.5.2 'Public Open Space' Section 3.6 'Environment and Landscape'
+ District Open Space	30 hectares (1.5% coverage)	
+ Local Parks and Multiple Use Corridors	199 hectares (10.0% coverage)	
+ Estimated percentage of natural area	140 hectares (7.0% coverage)	Section 3.6 'Environment and Landscape'

# PART ONE

## IMPLEMENTATION





**coles** Byford Village







# 1.0 IMPLEMENTATION



## 1.1 Structure Plan Area

The Byford District Structure Plan shall apply to the land contained within the inner edge of the line denoting the structure plan boundary as shown on Figure 1.

## 1.2 Operation

Provision 1 of Development Area 3 listed under Shire of Serpentine Jarrahdale Town Planning Scheme No. 2, provides that the Byford Development Area is subject to the provisions of the Byford District Structure Plan. This is a District Structure Plan, that was granted final approval by Council on 22 August 2005, and has been amended from time to time.

This updated Draft District Structure Plan, came into operation on 16 November 2020 through Council resolution OCM363/11/20 (Item 10.1.11). It replaced the 2009 Byford District Structure Plan and represents the latest set of amendments aimed at ensuring the planning framework remains modern and relevant, and particularly aims to ensure infrastructure is coordinated and scaled reflective of the patterns of density and development now taking place. The District Structure Plan corresponds predominantly to the “urban” and “urban deferred” zones in the Metropolitan Regional Scheme maps and responds to the requirements of the scheme.

## 1.3 Staging

Staging of the Byford District Structure Plan will be dependent on population-based triggers, which will determine the need for essential infrastructure such as:

- + Provision of services infrastructure;
- + Provision of community infrastructure (e.g. schools); and
- + Construction/upgrading of roads.

As staging is dependent on population based triggers, timing for the Byford District Structure Plan has not been identified. Local structure plans provide a greater level of detail than the district structure plans. However, due regard shall be given to the Byford District Structure Plan when relevant.

## 1.4 Subdivision and Development Requirements

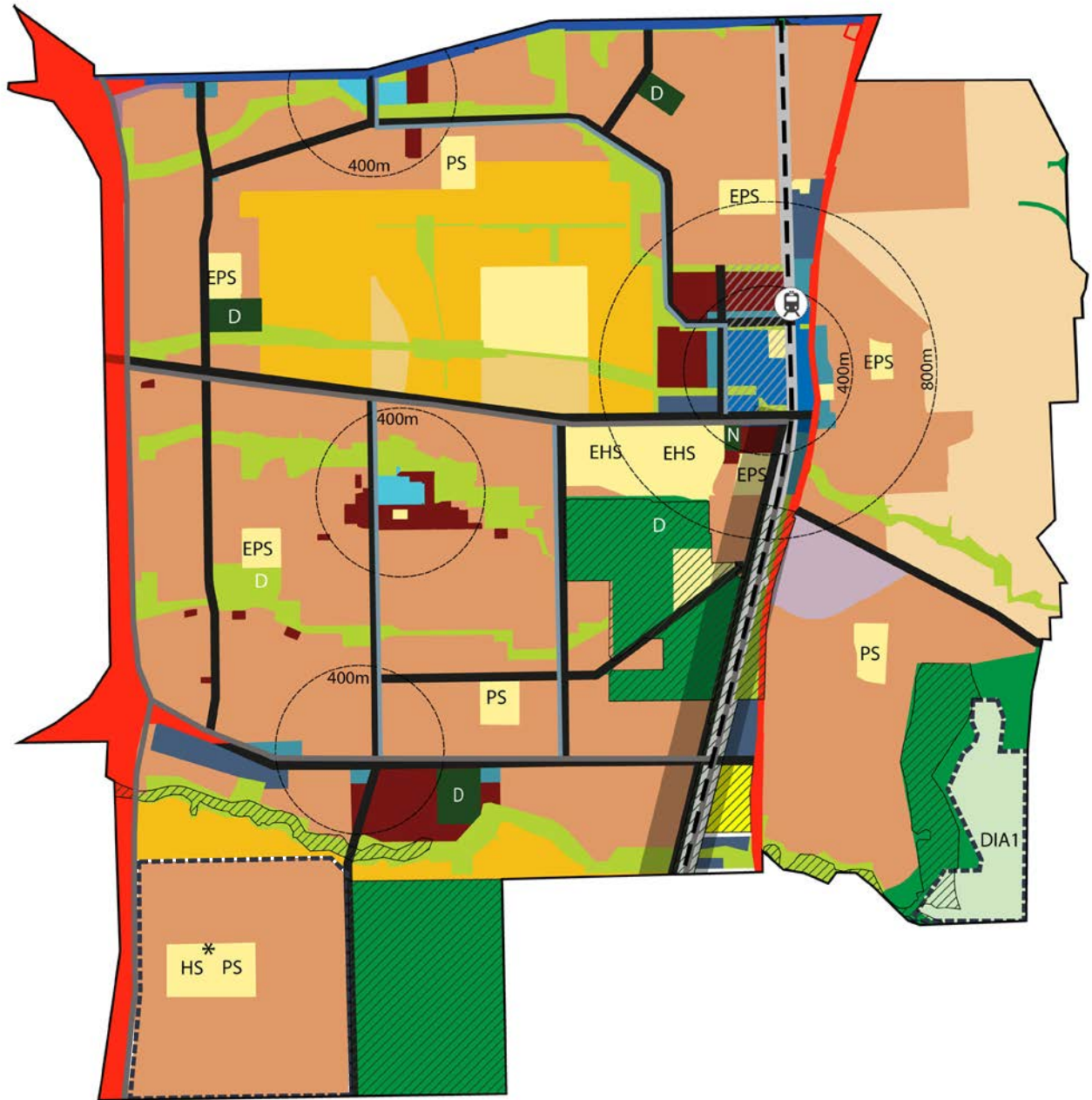
The land use arrangements, district level infrastructure and movement network illustrated in the Byford District Structure Plan will inform the Shire’s response to requests for rezoning and more detailed LSPs where these do not exist within the Byford District Structure Plan area.

The layout illustrated within Figure 1 represents a high-level structural response to key issues which may be subject to refinement at more detailed stages of planning, at the discretion of the local government. Subdivision and development will be determined in accordance with the applicable zoning, planning scheme provisions, the Byford District Structure Plan and, where applicable, an approved LSP.

The Byford District Structure Plan identifies areas where LSPs shall be required. In these instances, LSPs shall be prepared for that area and approved in accordance with the Deemed Provisions. Subdivision and development shall generally not be supported prior to the preparation and approval of a LSP. The local government may grant planning approval for a development or land use, or make recommendation to the WAPC regarding a subdivision in the absence of a LSP where the local government considers the proposed development, land use or subdivision to be of a minor nature, which would not prejudice the preparation of a LSP. Where land has not been identified within a structure plan area under the Byford District Structure Plan, subdivision and development must be in accordance with Part One and Part Two of the Byford District Structure Plan, including any specific requirements outlined under section 1.7 of Part One of the Byford District Structure Plan.



Figure 1: Byford District Structure Plan



Byford District Structure Plan

Status: Preliminary *must be used for feasibility purposes*  
 Path: P:\JARRAHDALE Development Strategies for Serpentine Jarrahdale

Scale: 1:5,000 @ A1  
 0 100 200 300 400  
 © Hames Sharley

Project Number: 43824  
 Drawing Number: A101  
 Revision: A  
 Date: 28/11/18



LEGEND

- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li>— BYFORD DSP BOUNDARY</li> <li>■ DISTRICT CENTRE</li> <li>■ NEIGHBOURHOOD CENTRE</li> <li>■ MIXED USE</li> <li>■ COMMUNITY AND PUBLIC PURPOSE</li> <li>■ LIGHT INDUSTRIAL</li> <li>■ SERVICE COMMERCIAL</li> <li>■ BUSH FOREVER</li> <li>■ DISTRICT/ NEIGHBOURHOOD OPEN SPACE</li> <li>■ RESERVE</li> <li>■ MULTIPLE USE CORRIDOR</li> <li>■ SUBJECT TO FUTURE PRECINCT PLAN</li> <li>■ PLANNING CONTROL AREA 164</li> </ul> | <ul style="list-style-type: none"> <li>■ MEDIUM - HIGH: R40-100</li> <li>■ LOW (SUBURBAN): R20-35</li> <li>■ LOW (TRANSITIONAL): R2-10</li> <li>■ SPECIAL RESIDENTIAL</li> <li>■ RR-1</li> <li>■ RR-2</li> <li>■ RURAL SMALL HOLDINGS</li> <li>■ RURAL</li> <li>■ SPECIAL USE</li> <li>■ PRIMARY DISTRIBUTOR</li> <li>■ SECONDARY DISTRIBUTOR</li> <li>■ DISTRICT DISTRIBUTOR</li> <li>■ PRIMARY CYCLE ROUTE</li> <li>■ SECONDARY CYCLE ROUTE</li> </ul> | <ul style="list-style-type: none"> <li>■ RAILWAY RESERVE</li> <li>■ HIGH FREQUENCY TRANSIT CORRIDOR</li> <li>--- PASSENGER RAIL LINE</li> <li>⊙ RAIL STATION</li> <li>--- DIA BOUNDARY</li> <li>■ DIA DEVELOPMENT INVESTIGATION AREA</li> <li>■ EHS EXISTING HIGH SCHOOL</li> <li>■ EPS EXISTING PRIMARY SCHOOL</li> <li>■ HS HIGH SCHOOL</li> <li>■ PS PRIMARY SCHOOL</li> <li>■ D DISTRICT OPEN SPACE</li> <li>■ N NEIGHBOURHOOD OPEN SPACE</li> <li>* HIGH SCHOOL SITE LOCATION TO BE DETERMINED (REFER TO PART 1 SECTION 1.6.8)</li> </ul> |
|---|--|--|

For the purposes of development within the 'Urban Settlement' category under the Byford District Structure Plan, where no approved local structure plan applies, residential development shall be in accordance with the following density codes under the Residential Design Codes:

- + R20 for lots less than 1,000 m<sup>2</sup> in area;
- + R10 for lots between 1,000 m<sup>2</sup> – 2,000 m<sup>2</sup> in area;
- + R5 for lots greater than 2,000 m<sup>2</sup> in area.
- + The above density codes only apply for the purposes of residential development, which is not considered by the local government to prejudice the preparation of a local structure plan. The density codes do not apply for the purposes of subdivision.

## 1.5 General Provisions

The following provisions shall apply to all LSPs across the whole Byford District Structure Plan area:

- + LSPs prepared within the Byford District Structure Plan area should generally conform with the layout illustrated within the Byford District Structure Plan and be accompanied by:
  - A Local Water Management Strategy consistent with any approved District Water Management Strategy;
  - An Environmental Assessment Report that addresses: Threatened species and communities; Conservation Category and Resource Enhancement wetlands; Interface with Bush Forever Sites; Buffers; and Detailed flora and fauna surveys where necessary;
  - A Bushfire Hazard Assessment and/or Bushfire Management Plan;
  - A Transport Impact Assessment;
  - Servicing Report;
  - Landscape design guidelines that address measures to be adopted to implement both public and private landscaping that reflects the historic landscape character of Byford; and
  - Other submission requirements consistent with the Planning and Development (Local Planning Schemes) 2015 Schedule 2 – Deemed provisions.
- + LSPs should establish objectives for built form and any design guidelines that are required to be established, typically as Local Planning Policies or Centre Plans that are required prior to applications for developments and/or subdivision.

The following provisions shall apply to all LSP, local development plans, subdivisions and developments across the whole Byford District Structure Plan area where relevant:

- + Maximise connectivity for vehicular, pedestrian and cycling transport networks both internally and to the surrounding street network.
- + Provide public spaces, community facilities and meeting points to create an active, vibrant and engaging place to live and work.
- + Acknowledge and allow for appropriate interface with Bush Forever sites and other sites of environmental significance.
- + Protect and enhance significant areas and their buffers, including those with ecological linkage values along railroads, roads and scenic highways.
- + Maximise the efficient use and reuse of water by conserving water through efficiency and facilitating water reuse and fit-for-purpose use.
- + Reduce consumption of non-renewable resources via climate responsive design, efficient use of energy and



water and increased use of renewable energy.

- + Identify and protect multiple use corridors and ensure water sensitive urban design elements are incorporated in stormwater management.
- + Multiple Use Corridors to ensure provision to appropriate pedestrian and cycling infrastructure.
- + Such other information as may reasonably be required by the local government or the WAPC.
- + Amendments to Local Structure Plans will require the whole Local Structure Plan to be updated, both Part1 and Part 2.

## 1.6 Local Structure Plans

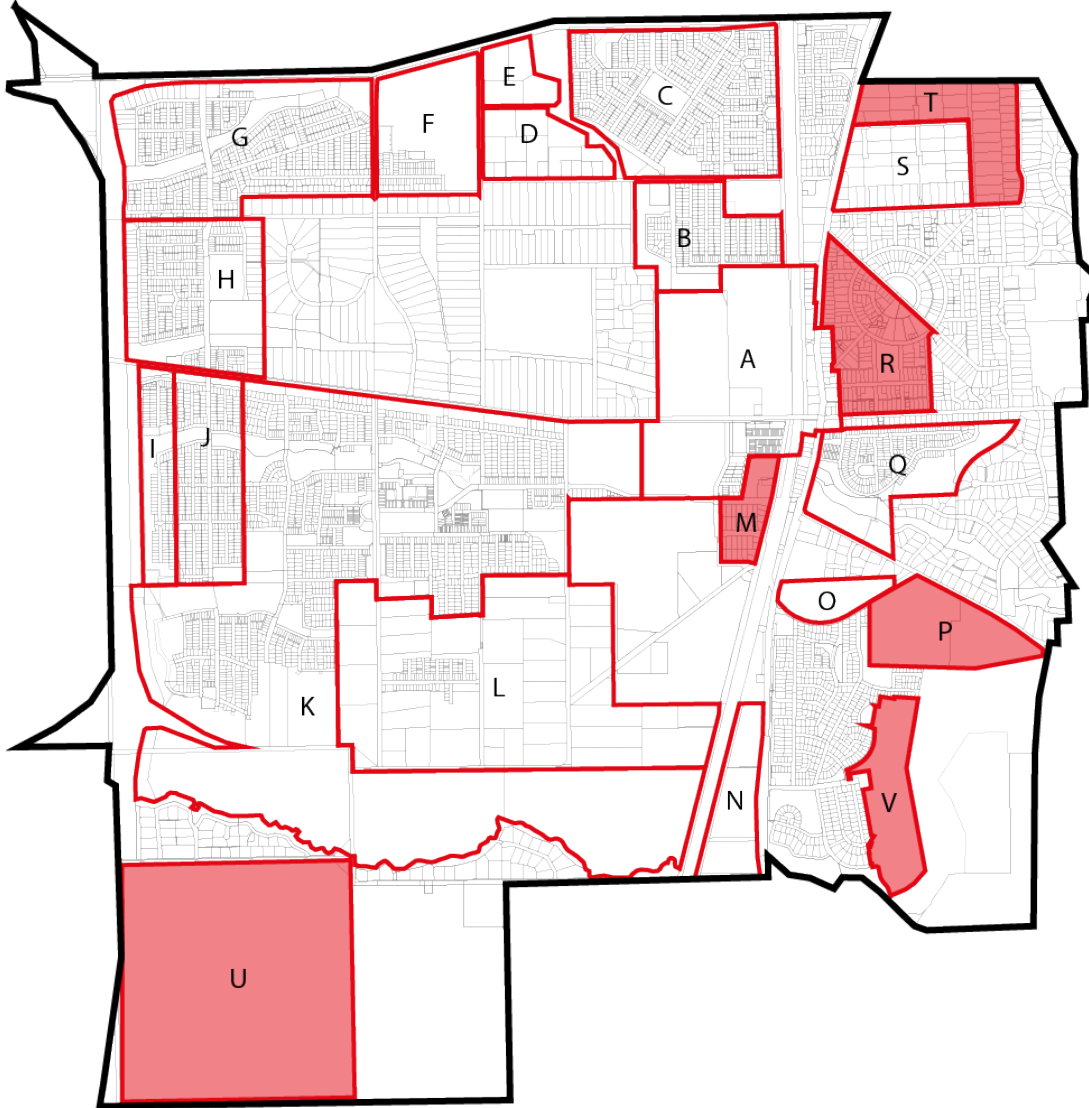
A number of existing LSPs have been prepared within the Byford District Structure Plan area to provide more detailed planning and development guidance (refer to Figure 2 Byford Local Structure Plan Areas). These LSPs should be considered in conjunction with the Byford District Structure Plan.

The LSPs that currently operate within the Byford District Structure Plan area from the time which the Byford District Structure Plan was drafted are listed in Table 1:

Table 1: Byford Local Structure Plan Areas

LSP AREA	OPERATIONAL	STATUS
Area A	Byford Town Centre	Approved
Area B	Marri Park Estate - Lot 3 Larsen Road and Lot 3 Alexander Road, Byford	Approved
Area C	Byford Central	Approved
Area D	Briggs Road / Larsen Road Precinct	Approved
Area E	Lots 59-62 Briggs Road Byford	Approved
Area F	Byford Meadows Estate, Lot 9500 Thomas Road, Briggs Road	Approved
Area G	Redgum Brook Estate	Approved
Area H	Kalimna Estate	Approved
Area I	Grange Meadows, Lot 6 and Lot 27 Abernethy Road, Byford	Approved
Area J	Byford West	Approved
Area K	The Glades	Approved
Area L	Doley Road Precinct	Approved
Area M	Mead Street Precinct	No LSP exists
Area N	Lots 1, 3 and 128 South Western Highway, Byford	Approved
Area O	Lot 806 South Western Highway, Byford	Approved
Area P	Nettleton Road South	Draft
Area Q	Lot 2 Nettleton Road, Byford (The Brook)	Approved
Area R	Byford Old Quarter West	No LSP exists
Area S	Stanley Road Precinct	Approved
Area T	Stanley Road North East	No LSP exists
Area U	Lot 33 Hopkinson Road	No LSP exists
Area V	Byford by the Scarp East	No LSP exists

Figure 2: Byford Local Structure Plan Areas



Byford Structure Plans

Status : Preliminary (not to be used for feasibility purposes)  
Path : P:\4.3014\Development Strategies for Sepsovine-Jarrahdale

Scale: 1:5,000 @ A1  
0 100 200 300 400  
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Project Number: 43874  
Drawing Number: A101  
Revision: A  
Date: 24/10/18



LEGEND

- BYFORD DSP BOUNDARY
- BOUNDARY OF APPROVED LSP
- LSP PRECINCT (WITHOUT APPROVED LSP)

Development of detailed LSP's must be in accordance with the relevant LSP Areas identified in Figure 2. For areas where a LSP does not exist or is yet to be approved or where a LSP is considered to potentially require significant modification, the Byford District Structure Plan outlines specific matters required to be addressed in the preparation and/or modification of a LSP for that particular LSP Area. The following sub-sections outline the matters to be addressed for LSP Areas where a LSP does not exist, is yet to be approved or may require significant modification.

### 1.6.1 LSP AREA A – BYFORD TOWN CENTRE

- + LSP Area A is bounded by South Western Highway in the east, Evans Way to the north, Warburton Court to the west and Mead Street to the south.
- + The Byford Town Centre LSP and amendment has been approved by the Shire of Serpentine Jarrahdale.

#### Key Matters to be addressed:

- + Detailed design of the METRONET Precinct Structure Plan for the Byford Station will provide additional detail that may differ from this Byford District Structure plan. The Precinct Plan will preside over the District Structure Plan due to the more detailed planning and investigations.
- + Provide for a diversity of land uses, lot sizes and housing types at a greater density to support activation of the Byford centre.
- + Design buildings and dwellings with a high level of adaptability to suit different lifecycle stages/changing demographic needs.
- + Maximise connectivity for vehicular, pedestrian and cycling transport networks both internally and to the surrounding street network.
- + Demonstrate the retail and commercial demand for the Byford Town Centre as a district level activity centre.
- + Sensitively address the interface between the Byford Town Centre and the Byford Trotting Complex Precinct.
- + Protect a connected network of multiple use corridors.

### 1.6.2 LSP AREA D – BRIGGS ROAD / LARSEN ROAD PRECINCT

- + LSP Area D fronts onto Larsen Road to the south and is surrounded by residential development predominantly to the north-east.
- + The Byford Area D LSP has been approved by the Shire of Serpentine Jarrahdale and WAPC.

#### Key Matters to be addressed:

- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + Allow for a new east-west district roads through the precinct.
- + Preserve the existing rural, "leafy green" character of the structure plan area including its scenic values, views and landscapes.
- + Enhance the green network through the creation of multiple green linkages integrating pedestrian and cycle connections.
- + Protect and enhance wetlands, waterways and catchments through appropriate management of water quality and maintenance of hydrology as part of land use change and development.
- + Preserve fringing vegetation along roads, waterways and rail corridors.
- + Sensitively address the interface between LSP Area D and the Byford Trotting Complex Precinct.
- + Orientation of lots to ensure passive surveillance over the multiple use corridor to the east.

### 1.6.3 LSP AREA M – MEAD STREET PRECINCT

- + LSP Area M is bounded by Soldiers Road in the east, Granfell Way to the north, Gordin Way to the west and south.
- + A LSP shall be prepared for the entire precinct.

#### Key Matters to be addressed:

- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + Provide for a diversity of land uses, lot sizes and housing types.
- + Design buildings and dwellings with a high level of adaptability to suit different lifecycle stages/changing demographic needs.
- + Preserve the existing rural, “leafy green” character of the structure plan area including its scenic values, views and landscapes.
- + Enhance the green network through the creation of multiple green linkages integrating pedestrian and cycle connections.
- + Preserve fringing vegetation along roads, waterways and rail corridors.
- + Preserve existing tree canopy coverage within the precinct.
- + Produce a bushfire risk management plan for the precinct.
- + Protect Brickwood Reserve and ensure the interface between Brickwood Reserve and LSP Area M is sensitively managed.
- + Sensitive interface with the adjoining Conservation Category Wetland and Bush Forever Sites.
- + Integration between LSP Area M and the Briggs Park Precinct.
- + Preservation of the environmental values and biodiversity.

### 1.6.4 LSP AREA P - NETTLETON ROAD SOUTH

- + LSP Area N fronts onto Nettleton Road in the north and is surrounded by residential development predominantly to the west and south.
- + A draft LSP has been approved by the Shire of Serpentine Jarrahdale.

#### Key Matters to be addressed:

- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + Provide for a diversity of land uses, lot sizes and housing types.
- + Design buildings and dwellings with a high level of adaptability to suit different lifecycle stages/changing demographic needs.
- + Preserve the existing rural, “leafy green” character of the structure plan area including its scenic values, views and landscapes.
- + Enhance the green network through the creation of multiple green linkages integrating pedestrian and cycle connections.
- + Preserve fringing vegetation along roads, waterways and rail corridors.
- + Produce a bushfire risk management plan for the precinct.
- + Preserve existing tree canopy coverage within the precinct.

- + Integration of the primary school that is partially located within LSP Area P to the south-west.
- + Integration with the existing wildlife park at the site, if this is proposed to be retained.
- + Appropriate road reserves to ensure on-street parking, street trees, water sensitive design and adequate separation to vegetated areas where necessary.

### 1.6.5 LSP AREA R - BYFORD OLD QUARTER WEST

- + LSP Area R is bounded by South Western Highway in the west, Park Road to the north east and Beenyup Road to the south.
- + A LSP shall be prepared for the entire precinct.

#### Key Matters to be addressed:

- + Subject to outcomes of METRONET investigations for extension of the Armadale rail line to Byford, address the integration of a transit-oriented development to service a new railway station within the town centre.
- + Integration of medium/higher density residential development with the Town Centre development along South Western Highway.
- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + Design buildings and dwellings with a high level of adaptability to suit different lifecycle stages/changing demographic needs.
- + Preserve the existing rural, "leafy green" character of the structure plan area including its scenic values, views and landscapes.
- + Reduce reliance on vehicles by creating a pedestrian-oriented community and providing for alternative modes of transport.
- + Enhance the green network through the creation of multiple green linkages integrating pedestrian and cycle connections.
- + Preserve existing tree canopy coverage within the precinct.
- + Incorporation of water sensitive urban design principles and measures.
- + Legible movement network and lot configurations.
- + Identification of local public open space.
- + Incorporation of the primary school.
- + Retention of wide road reserves to ensure on-street parking, street trees, water sensitive design and adequate separation to vegetated areas where necessary.

### 1.6.6 LSP AREA T - STANLEY ROAD NORTH EAST

- + LSP Area T is bounded by Dalley Street in the east, Walters Road to the south, Linton Street to the west and Stanley Road linking through to South Western Highway in the north west.
- + A LSP shall be prepared for the entire precinct.

#### Key Matters to be addressed:

- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + Design buildings and dwellings with a high level of adaptability to suit different lifecycle stages/changing demographic needs.

- + Preserve the existing rural, “leafy green” character of the structure plan area including its scenic values, viewscales and landscapes.
- + Reduce reliance on vehicles by creating a pedestrian-oriented community and providing for alternative modes of transport.
- + Enhance the green network through the creation of multiple green linkages integrating pedestrian and cycle connections.
- + Incorporation of water sensitive urban design principles and measures.
- + Preserve existing tree canopy coverage within the precinct.
- + Produce a bushfire risk management plan for the precinct.

### 1.6.7 LSP AREA V - BYFORD BY THE SCARP EAST

- + LSP Area V is connected by Clondyke Drive from the west and is surrounded by bush reserve to the south and east.
- + A LSP may be required to be prepared for the entire precinct. Where a LSP is not required, subdivision stages shall address the following matters to be addressed.

#### Key Matters to be addressed:

- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + Provide for a diversity of land uses, lot sizes and housing types.
- + Design buildings and dwellings with a high level of adaptability to suit different lifecycle stages/changing demographic needs.
- + Preserve the existing rural, “leafy green” character of the structure plan area including its scenic values, viewscales and landscapes.
- + Enhance the green network through the creation of multiple green linkages integrating pedestrian and cycle connections.
- + Protect and enhance wetlands, waterways and catchments through appropriate management of water quality and maintenance of hydrology as part of land use change and development.
- + Preserve fringing vegetation along roads, waterways and rail corridors.
- + Produce a bushfire risk management plan for the precinct.
- + Preserve existing tree canopy coverage within the precinct.
- + Ensure the interface and separation distance with Bush Forever Site #271 to the east is sensitively managed.
- + Appropriate road reserves to ensure on-street parking, street trees, water sensitive design and adequate separation to vegetated areas where necessary.
- + Appropriate separation distances to extractive industries.
- + Water management.

### 1.6.8 LSP AREA U - LOT 33 HOPKINSON ROAD, CARDUP

- + LSP Area U is bounded by the Tonkin Highway reservation to the west, Cardup Brook to the north, Bush Forever site 352 to the west and the existing Rural Residential Area to the south.
- + The Minister for Planning approved a Metropolitan Region Scheme (MRS) amendment to rezone 118.4 hectares at Lot 33 Hopkinson Road, Cardup from Rural to Urban in 2020. A LSP will be required for area U.



Key Matters to be addressed:

- + Create a distinctive and responsive built form that enhances the sense of place, community identity and character of Byford.
- + The proposed residential density of the site and associated lot mix/configuration is to have particular regard to the existing amenity of the locality, including the provision of appropriate community, education and public open space facilities.
- + Appropriate transition arrangements to be considered to the abutting Urban zone to the north, "Special-Rural" area to the south and Bush Forever site 352 to the east (e.g. public open space, appropriate lot sizes, interface roads etc.). Lower densities of R2-R10 may be considered adjacent to the southern boundary of Lot 33 to ensure appropriate transition to rural residential areas without compromising the provision of 15 dwellings per hectare across Lot 33.
- + Provide assurance that the character of this rural living area is preserved and maintained and that larger lots be provided that will enhance both the natural, rural and equestrian sense of place specifically at interface with other land uses.
- + Address environmental concerns such as the threatened ecological communities on site, tree lines and remnant lone standing trees provide important foraging and nesting habitat for endangered fauna (Black Cockatoo), as well as refuges to support ground based fauna movement between the Bush Forever site and coastal plain to the west.
- + Specifically address the interface to Cardup Nature Reserve, a registered Bush Forever site, Parks & Recreation Reserve under the MRS, Conservation Category Wetland and an Environmentally Sensitive Area.
- + Provide services infrastructure through adequate upgrades and additions to the surrounding networks of drainage, electricity supply, water supply and wastewater management.
- + Consideration of Water management through best practice water sensitive urban design and nutrient management required to address inflows and breakout flows.
- + Ensure good traffic and movement networks through linkages to the current transport network over Cardup Brook, local roads and public transport facilities that will be critical due to the location of the site.
- + Careful design of the Tonkin highway to ensure an adequate interface, and address vibration and noise considerations.
- + The location of the High School site is to be determined at the Local Structure Planning stage in consultation with the Department of Education and in accordance with WAPC Operational Policy 2.4 - School Sites.

## 1.7 Other Requirements

All urban development within the Byford District Structure Plan area is / will be subject to:

- + The Byford Development Contribution Plan (current revision)
- + The Community Infrastructure Development Contribution Plan (current revision)

Some precincts and sites require specific additional provisions to guide subdivision, development and local development plans. Such precincts or sites may include but are not limited to undeveloped sites that are too small to be a local structure plan area, strategic nodes at prominent intersections, sites where particular constraints apply and precincts where it is desirable for a specific character to be retained.

### 1.7.1 LSP AREA K – THE GLADES

LSP Area K – The Glades covers a large portion of land within the Byford area, with much of the land within this area already having been developed. As a large area within Byford, The Glades contains district distributor roads which connect to other precincts. This requires additional provisions to coordinate the strategic planning and development staging of such infrastructure. The Glades has also been developed with a specific character throughout the precinct which has resulted in a distinct built form and streetscape outcome. Other requirements relating to potential development standards to maintain consistency with the established built form and streetscape have been included within this section of the Byford District Structure Plan to provide some certainty in regards to the development character of The Glades. The local government may consider the following built form provisions within local development plans for all development within LSP Area K – The Glades: as per Local Planning Policy 2.2 Residential Development Standards (R25 – R60).

### 1.7.2 LOT 2 (NO. 640) SOUTH WESTERN HIGHWAY, BYFORD (SPECIAL USE)

Other development requirements apply to Lot 2 (No.640) South Western Highway, Byford as the site is too small to be designated as a local structure plan area and it is surrounded by existing residential development. Additionally, the strategic location of this site at the intersection of South Western Highway and Thomas Road and the potential of this site to provide an entry statement to Byford requires other provisions to be included within the Byford District Structure Plan as per DR292/2020 and SPN/0163M-1.

The following land uses shall be discretionary for Lot 2 (No. 640) South Western Highway, Byford under TPS2:

- |                                  |                               |   |
|----------------------------------|-------------------------------|---|
| + Child Minding Centre (SA)      | + Office (P)                  | + Aged of Dependent Persons Dwelling (AA) |
| + Consulting Rooms (P)           | + Public Utility (AA)         | + Ancillary Accommodation (AA)            |
| + Educational Establishment (SA) | + Radio, TV and Communication | + Grouped Dwelling (AA)                   |
| + Fast Food/Takeway (SA)         | + Installation (SA)           |   |
| + Health Studio (P)              | + Restaurant (SA)             |   |
| + Liquor Stall - small (AA)      | + Shop (SA)                   |   |
| + Medical Centre (P)             | + Veterinary Establishment    |   |

(i) The Special Use classification of the subject land is intended to provide for a limited range of uses that can be appropriately provided in this location, having regard for:

- + Its proximity, to and interface with surrounding residential land uses.
- + Its exposure to regional roads and associated vehicle noise, and its status as a registered contaminated site under the Contaminated Sites Act 2003.
- + Its capacity to accommodate limited local convenience retail/commercial land uses.

(ii) The terms 'P', 'AA' and 'SA' attributed to each of the special uses listed shall have the same meaning as defined at Clause 3.2.2 of the Shire of Serpentine Jarrahdale's Local Planning Scheme No. 2.

(iii) 'Liquor Store - Small' land use is defined in the Model Provisions (Schedule 1) of the Planning and Development (Local Planning Schemes) Regulations 2015 (unless otherwise defined in the applicable Local Planning Scheme).

(iv) The following standards and requirements apply to the use and development of the land:

- + In determining any application for development approval, the decision maker shall have regard to the scale and compatibility of proposed development with respect to the established residential amenity and character of the surrounding locality.
- + Development shall be limited to a maximum of 1,000m<sup>2</sup> net lettable area (NLA) in aggregate across the site. No individual Shop-Retail tenancy shall exceed 500m<sup>2</sup> NLA floorspace.
- + A 'Shop' use also includes premises that offer the service and/or sale of convenience goods and accessories associated with dry-cleaning and animal supplies including equestrian and pet goods.
- + No development of sensitive land uses (e.g. residential uses, Child Minding Centre or Educational Establishment) shall occur prior to the land being successfully remediated and appropriately classified under the Contaminated Sites Act 2003 to support such a noise/acoustic assessment demonstrating compliance with relevant state planning policy
- + No development of sensitive land uses (e.g. residential uses, Child Minding Centre or Educational Establishment) shall occur prior to the land being successfully remediated and appropriately classified under the Contaminated Sites Act 2003 to support such a noise/acoustic assessment demonstrating compliance with relevant state planning policy
- + Residential development shall comply with the R20 residential density of the R-Codes (as amended)
- + Vehicle access is to be provided via Hay Road. Sites Act 2003 to support such a noise/acoustic assessment demonstrating compliance with relevant state planning policy
- + Vehicle access is to be provided via Hay Road.
- + Development interfaces with existing residential development shall be designed to provide a compatible interface. Special design consideration should be demonstrated to address screening, separation, height and bulk moderation and/or noise attenuation measures necessary to mitigate potential impacts on adjacent premises.
- + Built form shall be located/oriented to address Hay Street with active frontages to provide high quality street and pedestrian environment. Building design (including height, glazing, colours, textures and architectural features) shall provide a high-quality aesthetic design that reflects a level of integration and consistency with the surrounding built form, and where relevant, address crime prevention and environment design principles. The position of the buildings (and any signage) shall have regard to the natural landscape and views from public vantage points.
- + Building form on the corner of Hay Street and Thomas Road shall be designed to reflect a prominent position with detailing to signify this corner. In terms of Thomas Road and South Western Highway frontages, development shall present aesthetic (non-active) edges only.
- + Waste disposal and loading/unloading areas, internal to the site, are to be designed and located to reduce potential noise, visual and odour impacts on adjoining residential properties. Where possible, these areas should be integrated to improve internal traffic circulation.
- + Landscaping is to form an integrated part of the development; include appropriate deep soil zones; and serve to screen car parking areas and positively interface with surrounding roads and residential properties. Landscaping should maximise the use of local native species.

All development applications for Lot 2 (No. 640) South Western Highway, Byford shall be accompanied by the following:

- + Transport Impact Assessment
- + Urban Water Management Plan
- + Servicing Report
- + Other submission requirements consistent with the Planning and Development (Local Planning Schemes) 2015 as required by the local government and/or the WAPC.

# PART TWO

## EXPLANATORY SECTION







**coles** Byford Village







# 1.0 PLANNING BACKGROUND



# 1.1 Introduction and Purpose

## 1.1.1 INTRODUCTION

The original Byford District Structure Plan was prepared in 2005 and updated in 2009 to provide high-level strategic guidance on future planning and development in the Byford locality. Since the preparation of this document, the Shire has undergone a significant amount of change due to exponential population growth, most of which has occurred in Byford. According to the Australian Bureau of Statistics Byford had a population of 3,335 people in 2001. In 2016, the ABS estimated population for the Byford District Structure Plan area was 15,375 people representing an increase of over 440%. In 2021 the population of Byford is estimated at 21,519 and this growth has put pressure on existing services, facilities and infrastructure, providing the impetus for a review of the Byford District Structure Plan.

In addition, in 2018 the Department of Planning, Lands and Heritage released the Perth and Peel@3.5 million strategic planning framework and more specifically the South Metropolitan and Peel Sub-regional Framework. This strategy identified that the Shire can expected to accommodate an additional 90,000 people (113,000 in total). SJ2050, the Shire’s high-level strategic vision explored how best to distribute this significant increase in population and came to the conclusion that approximately 50,000 people would call the Byford District Structure Plan area home when most of the development concludes. A more detailed calculation has since been completed and this number has been revised to 55,000. This is the challenge that structure planning for the future presents in the area.

## 1.1.2 STRUCTURE PLAN PURPOSE

The Byford District Structure Plan has been prepared in collaboration with key stakeholders including relevant government agencies, major landholders and the community. As a broad district level planning instrument, its primary aim is to guide future planning and development in the Byford area. This will include the broad disposition of land use, major roads, rail and other community infrastructure for a population of 55,000 people. It is intended that the Byford District Structure Plan will form the general basis for subsequent preparation of Local Structure Plans on a precinct-basis.

The coordination of planning for the Byford District Structure Plan area presents a valuable opportunity for the State to achieve many of its planning and land use objectives identified for Perth, and consolidation of urban development in the southern metropolitan corridor. As illustrated in Figure 3 this has provided the framework for implementing change within the Byford District Structure Plan area. The Byford District Structure Plan does not intend to make significant modifications to the approved Byford “District” structure plan but does incorporate the local structure plans that have been approved. It also addresses some of the planning policy changes and some of the challenges that the previous plan did not and could not have anticipated.

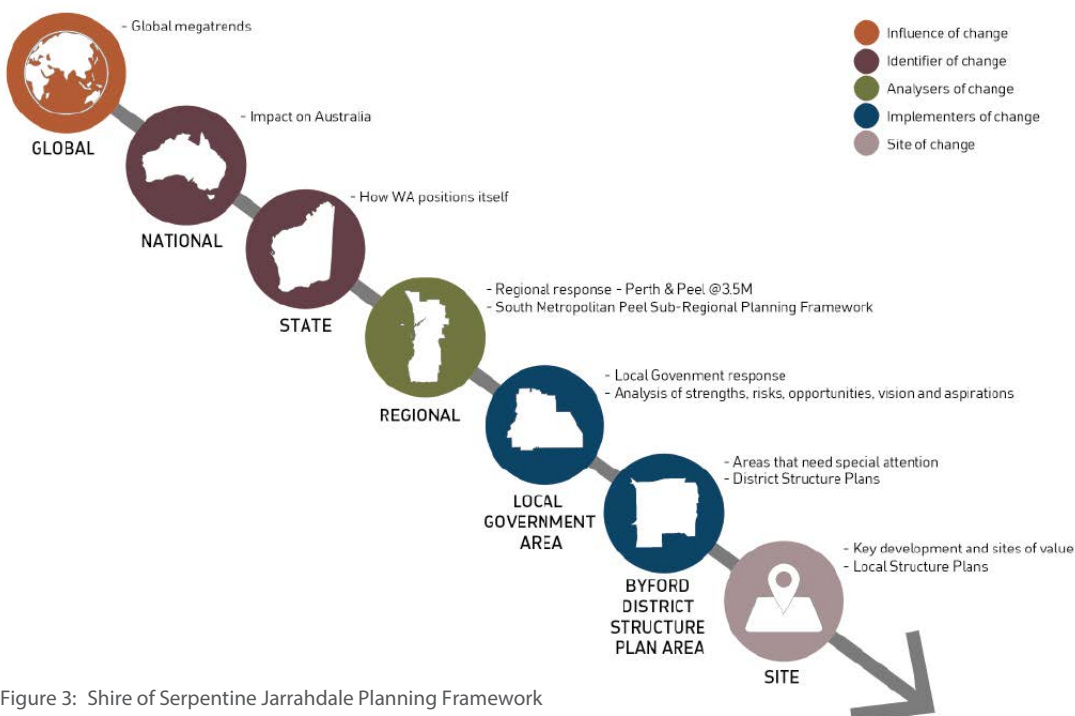


Figure 3: Shire of Serpentine Jarrahdale Planning Framework



### 1.1.3 VISION AND OBJECTIVES

The vision and objectives for the Byford District Structure Plan area have been framed by previous planning studies to accommodate future urban growth while maintaining the areas unique lifestyle and sense of identity. These have been considered in concert with the outcomes of a comprehensive stakeholder engagement process undertaken as part of the preamble review of the existing Byford District Structure Plan.

Development within the Byford District Structure Plan area will be guided by the following vision and objectives which identify elements of importance to the community:

#### A Lifestyle Area of Choice

- + A contemporary and connected place that is growing significantly but sustainably as an area of choice
- + A progressive model Centre of activity emerging respectfully from a long history as a unique rural setting at the foot of the Darling Scarp
- + A thriving district hub for business, education and community life which respects its historical and natural context and the lifestyle aspirations of the surrounding community
- + A built character that responds to the landscape and lifestyle of Byford

#### A Vibrant and Integrated District Centre

- + A vibrant town centre containing a mix of retail, commercial, civic, recreation, residential uses consistent with its role as a District Centre
- + The existing and expansion areas of the town centre are seamlessly integrated and connected, and demonstrate historical and contemporary reflections of the local rural character
- + The location of major store anchors, high quality shop front environments and car parking areas contribute to an active main street environment
- + An Identifiable Character and Distinct Sense of Place
- + Natural, cultural and heritage features, landmarks and public art within the public realm, contribute to sense of place
- + A network of public space and open space corridors contribute to the rural and bushland feel of the area

#### A Safe Pedestrian and Transit Oriented Centre

- + More options for getting around providing an expanded and connected network of bike and pedestrian facilities
- + New forms of transit, coordinated with Metro's transit system improvements already underway
- + A new intensity of development integrated around a town square, the community library, retail centre within the walkable catchment of the new Byford train station bringing community life, vibrancy and housing choice to the centre
- + The street network and urban environment provides high levels of connectivity and legibility

#### A Place that Capitalises on its Environmental Assets

- + Existing natural assets such as mature and remnant vegetation and streams are central to public realm theming
- + The main street environment is sheltered from strong easterly winds
- + Existing views and vistas to and from the centre are maintained
- + A network of open spaces and green linkages connect the centre

#### A Water Integrated Place

- + Bio-retention tree pits, living streams and swales are a feature of the town centre and contribute to its sense of place

#### A Smart City Hub

- + Reduce consumption of non-renewable resources via climate responsive design, efficient use of energy and water and increased use of renewable energy
- + Ensure that existing road, highway and transit systems are properly maintained, improved, and implemented in a fair and equitable manner

## 1.2 Land Description

### 1.2.1 LOCATION

The Byford District Structure Plan will apply to the area delineated on Figure 4. It can broadly be defined as the area south of Thomas road, east of the proposed Tonkin Highway reservation, north of the Cardup Brook, but inclusive of Lot 33 Hopkinson road and Cardup by the Brook, and west of the scarp. The area includes all the suburbs of Byford and interfaces with the rural residential suburbs to the north, west and south of the urban area and the rural areas in the scarp to the east of the urban area.

### 1.2.2 AREA AND LAND USE

The Byford District Structure Plan covers an area of approximately 1,999 hectares. Existing land within the Byford District Structure Plan area is comprised primarily of urban and rural residential land. Urban development is currently concentrated within Byford. This includes the emerging Byford Town Centre which is a District Activity Centre and the primary retail and commercial hub in the region.

Key land uses within the Byford District Structure Plan can be summarised as follows:

- + Retail and commercial is concentrated within the Byford Town Centre which is located at the corner of Abernethy Road and South Western Highway;
- + Residential land (typically in the form of low-density R20) is the predominant housing typology in Byford, as the area predominately provides housing for young families and first home buyers. However the Byford Town Centre LSP Amendment provides for significantly higher residential densities to the west of San Simeon Boulevard as this area is within close proximity to the Byford Town Centre. This higher density is also reflected to the east of South-western highway where re-subdivision is happening in what was previously low-density residential areas.
- + Other residential character areas include the Byford Trotting Complex (and surrounds), and the Byford Old Quarter which is located east of South Western Highway.
- + The Byford DSP acknowledges the importance of the hinterland, with specific reference to the rural living areas that surround the DSP area. For this reason, some maps in Part 2 show an extended area outside of the DSP area to ensure that the interface is respected and planned for. These areas however do not form part of the Byford District Structure Plan.

### 1.2.3 LEGAL DESCRIPTION AND OWNERSHIP

The Byford District Structure Plan applies to land under the jurisdiction of the Shire of Serpentine Jarrahdale. It includes a combination of State and local reserves, conservation areas and significant private landholdings (of varying sizes).

## 1.3 Planning Framework

### 1.3.1 ZONING AND RESERVATION

#### METROPOLITAN REGION SCHEME

Figure 5 indicates that the Byford District Structure Plan area incorporates various zones and reservations under the Metropolitan Region Scheme (MRS) including: 'Parks and Recreation', 'Railways', 'State Forests', 'Public Purpose', 'Primary Regional Roads', 'Urban', 'Urban Deferred', 'Rural', 'Bush Forever Area'.

No changes to the MRS are proposed within the Byford District Structure Plan.



### SHIRE OF SERPENTINE JARRAHDAL DRAFT LOCAL PLANNING SCHEME 3

Following Council's 2016 resolution to prepare a new Local Planning Strategy, officers have prepared draft Local Planning Scheme No. 3 (draft LPS 3) in accordance with the model provisions contained within Schedule 1 of the Local Planning Scheme Regulations. Draft LPS 3 seeks to rationalise the zoning and provisions contained within the existing TPS 2 and reflect the strategic objectives of the Draft Local Planning Strategy. At its December Meeting, Council resolved to advertise Draft LPS 3 and submit copies to the EPA for consent to advertise and the WAPC. The local scheme zoning applicable to the Byford District Structure Plan area is illustrated on Figure 6. As draft LPS 3 will supersede TPS 2, the zones proposed in the Byford District Structure Plan align with the zonings proposed in draft LPS 3.

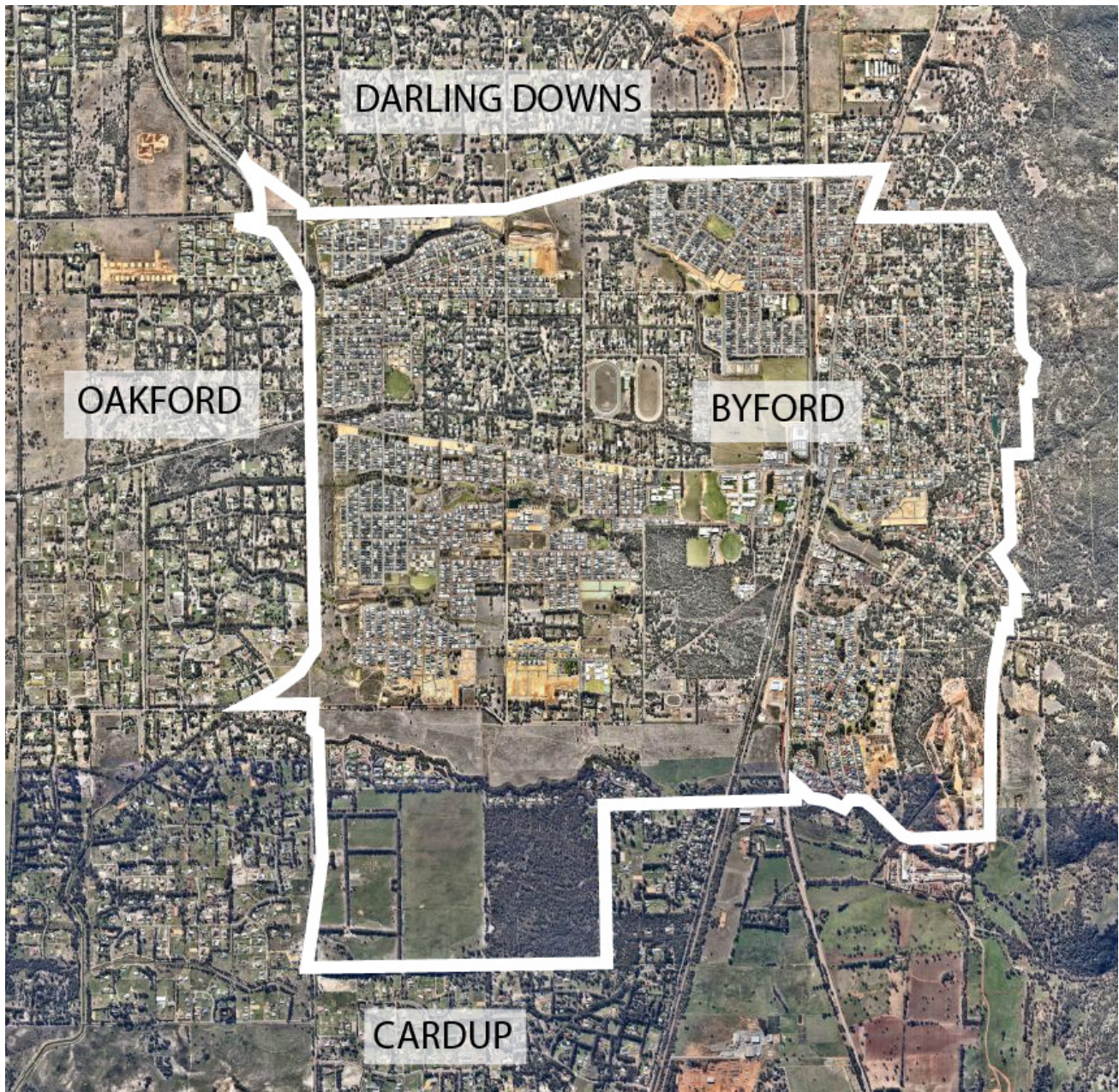
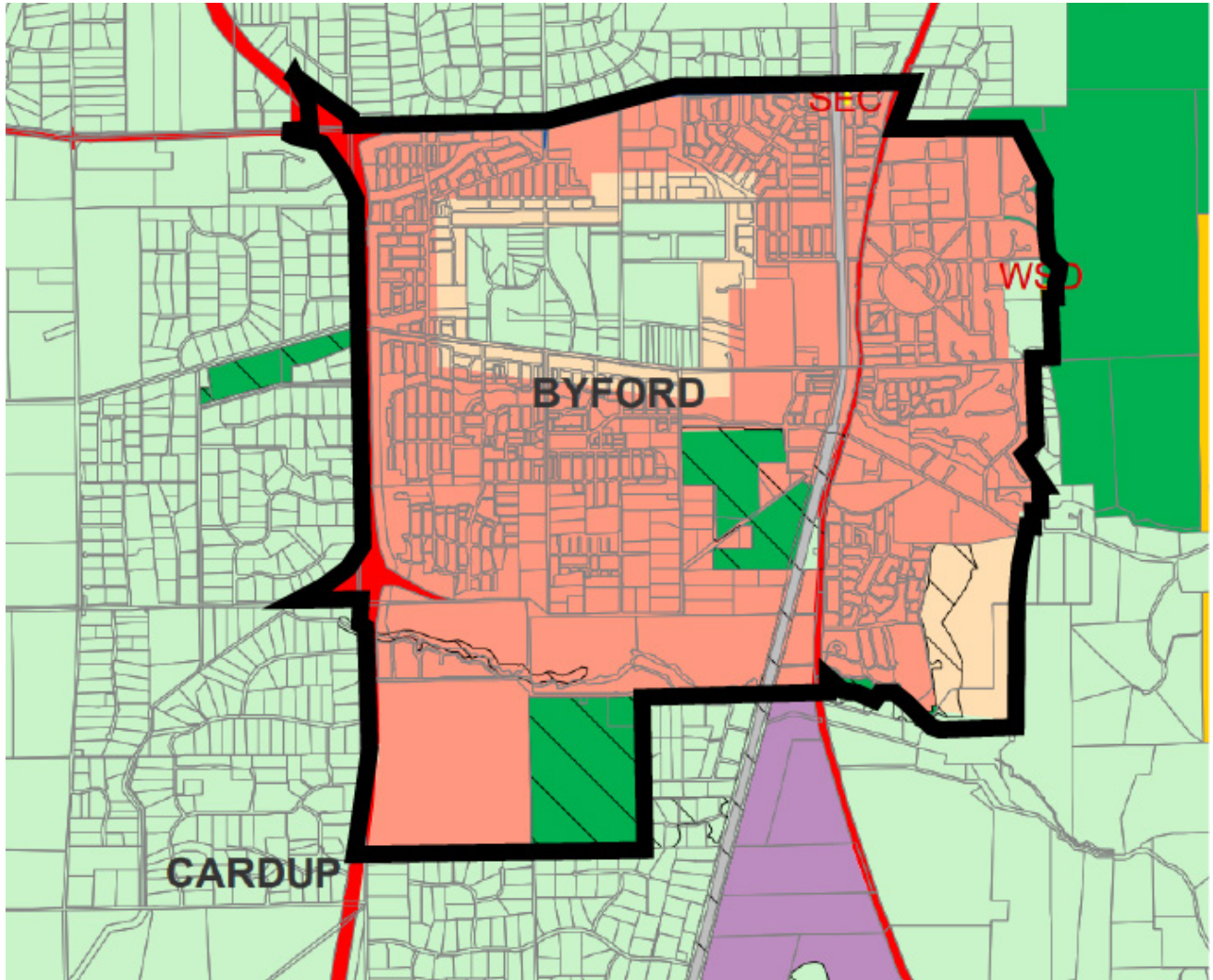


Figure 4: Byford District Structure Plan Area



Figure 5: MRS Map Extract



**Legend**

**Reserved lands**

- Parks and recreation
- Restricted public access
- Port installations
- Railways
- Civic and cultural
- State forests
- Waterways
- Water catchments

**Reserved roads**

- Primary regional roads
- Other regional roads

**Zones**

- Central city area
- Industrial
- Special industrial
- Private recreation
- Rural
- Rural - water protection
- Urban
- Urban deferred

**Notice of delegation**

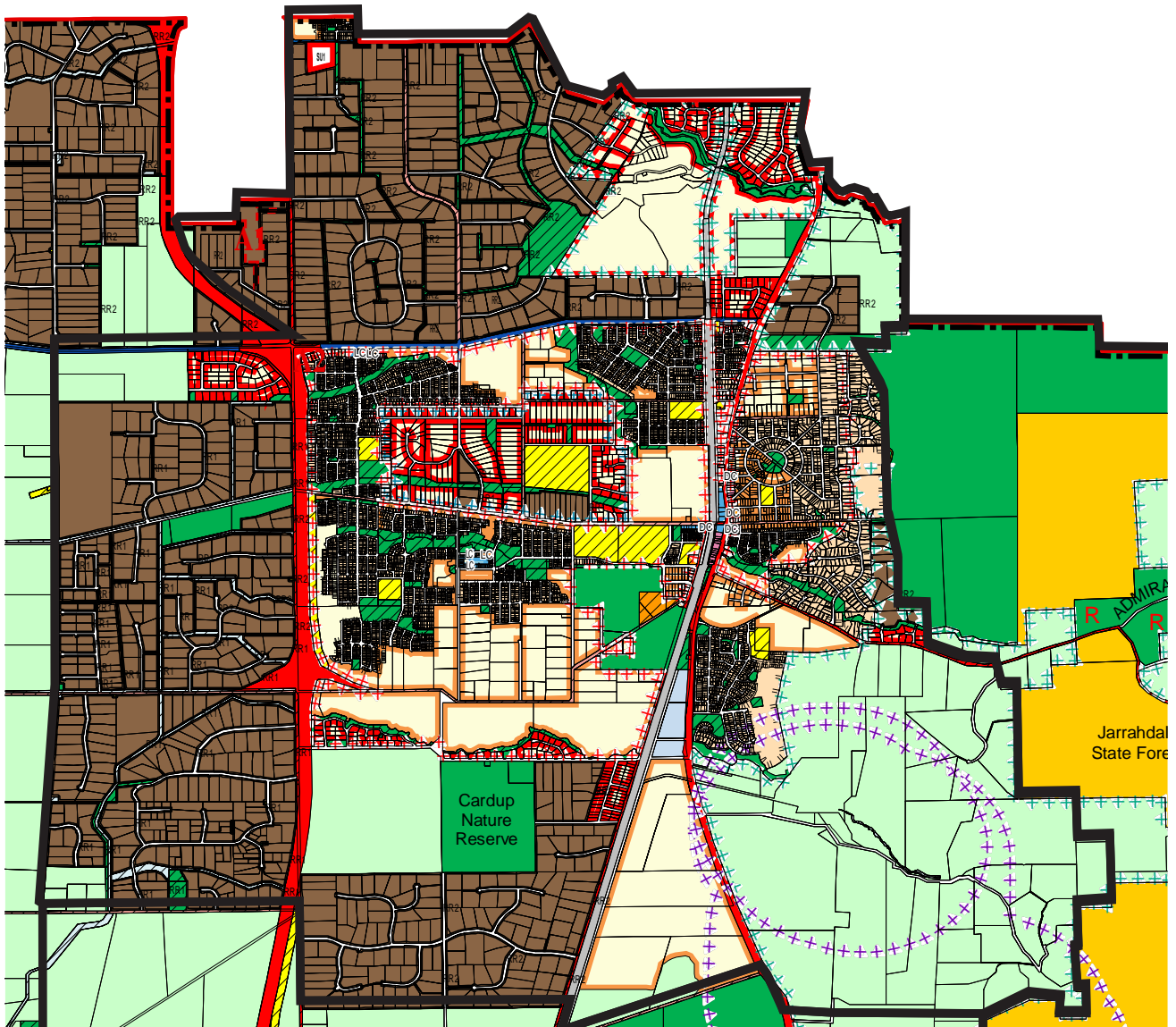
- Bush forever area

**Public purpose reserves**

- Public purposes - denoted as follows:
  - SEC State Energy Commission
  - WSD Water Authority of WA



Figure 6: Draft Local Planning Scheme 3 Map Extract



Note: Not to scale

**LEGEND**

**REGION SCHEME RESERVES (MRS)**

- |                                   |   |
|-----------------------------------|---|
| Civic and Cultural                | Public Purposes                           |
| Other Regional Roads              | Public Purposes - Car Park                |
| Parks and Recreation              | Public Purposes - Commonwealth Government |
| Parks and Recreation - restricted | Public Purposes - High School             |
| Port Installations                | Public Purposes - Hospital                |
| Primary Regional Roads            | Public Purposes - Prison                  |
| Railways                          | Public Purposes - Special Uses            |
| State Forests                     | Public Purposes - State Energy Commission |
| Waterways                         | Public Purposes - Technical school        |
| Water Catchments                  | Public Purposes - University              |
|                                   | Public Purposes - Water Authority of WA   |

**LOCAL SCHEME RESERVES**

- (see scheme text for additional information)
- |                            |                         |
|----------------------------|-------------------------|
| Primary Distributor Road   | Public Open Space       |
| Civic and Community        | Public Purposes         |
| Cultural Facilities        | Cemetery                |
| Social Care Facilities     | Education               |
| District Distributor Road  | Government Services     |
| Drainage/Waterway          | Infrastructure Services |
| Environmental Conservation | Recreational            |
| Local Distributor Road     | Railways                |
| Local Road                 |                         |

**LOCAL SCHEME ZONES**

- (see scheme text for additional information)
- |                            |                     |
|----------------------------|---------------------|
| DC District Centre         | Rural Enterprise    |
| Environmental Conservation | Rural Residential   |
| Industrial Development     | Rural Smallholdings |
| LC Local Centre            | Rural Townsite      |
| Mixed Use                  | Service Commercial  |
| Residential                | Special Residential |
| Rural                      | Special Use         |
|                            | Urban Development   |

**OTHER CATEGORIES**

- (see scheme text for additional information)
- |   |                                     |
|---|-------------------------------------|
| Scheme Area Boundary                    | SCA4 Special Control Area - Develo  |
| Local Government Boundary               | SCA5 Special Control Area - Develo  |
| R20 R Codes                             | SCA6 Special Control Area - Develo  |
| A1 Additional Uses                      | SCA7 Special Control Area - Enviror |
| RR1 Rural Residential Area              | SCA8 Special Control Area - Heritag |
| SU1 Special Use Area                    | SCA9 Special Control Area - Genera  |
| SCA1 Special Control Area - Heritage    | SCA10 Special Control Area - Genera |
| SCA2 Special Control Area - Environment |                                     |
| SCA3 Special Control Area - Environment |                                     |

### 1.3.2 STATE AND REGIONAL PLANNING FRAMEWORK

#### STATE PLANNING STRATEGY 2050 (2014)

The State Planning Strategy (SPS) is the lead strategic planning document within the Western Australian Government. It acts as a guide and highlights principles, strategic goals and strategic directions that are important to future land-use planning and development in WA.

The Byford District Structure Plan aligns with the SPS by addressing the priorities of Strategic Goal 2 - strong and resilient regions, Strategic Goal 3 - Sustainable Communities, Strategic Goal 4 - Infrastructure Planning and Coordination, and Strategic Goal 5 - Conservation. These include:

#### + Diversity

- Embracing diverse economic and social opportunities.
- Community-specific development, responsive to diverse needs, places and contexts
- Supporting economic diversity, innovation and resilience
- Understanding, maintaining and conserving biodiversity, landscapes and natural environments

#### + Liveability

- Creating places where people want to live and work
- Communities with attractive, liveable environments
- Providing contemporary, effective, resource-efficient services
- Securing our natural environments and resources

#### + Connectedness

- Building strong relationships and accessibility
- Providing natural and built connections within and between communities
- Linking regional economic opportunities to the movement of people, goods and services across the State
- Connecting ecosystems, people and natural resources

#### + Collaboration

- Enabling collaborative advantages across and within regions
- Collaborative and inclusive planning
- Sharing new ideas and creating new business and lifestyle opportunities
- Realising opportunities through collaboration for environmental conservation and sustainable resource use

#### PERTH AND PEEL @3.5 MILLION

The Perth and Peel@3.5 million suite of strategic land use planning documents provide a framework for future growth in the Perth and Peel regions. The strategy recognises the benefits of a consolidated and connected city utilising the region's previous historic patterns of urban growth. This strategy promotes more efficient use of land and infrastructure and maintains a target of 47% of new development in the form of urban infill. The strategy is divided into four sub-regional frameworks, which provide more detailed guidance on future land use and development for a city of 3.5 million people. The frameworks provide for different lifestyle choices, vibrant nodes for economic and social activity and a more sustainable urban transport network.

The Shire of Serpentine Jarrahdale is guided by the South Metropolitan Peel Sub-Regional Framework. The framework outlines that the Shire has a population target of 113,060 by 2050, including a need for 1,370 infill dwellings. This significant population growth requires careful coordination to ensure quality and sustainable development in the Shire is achieved. Byford is identified in the sub regional framework as a district level activity centre (Figure 7), highlighting the importance of its role as a place for people to live, work and play.



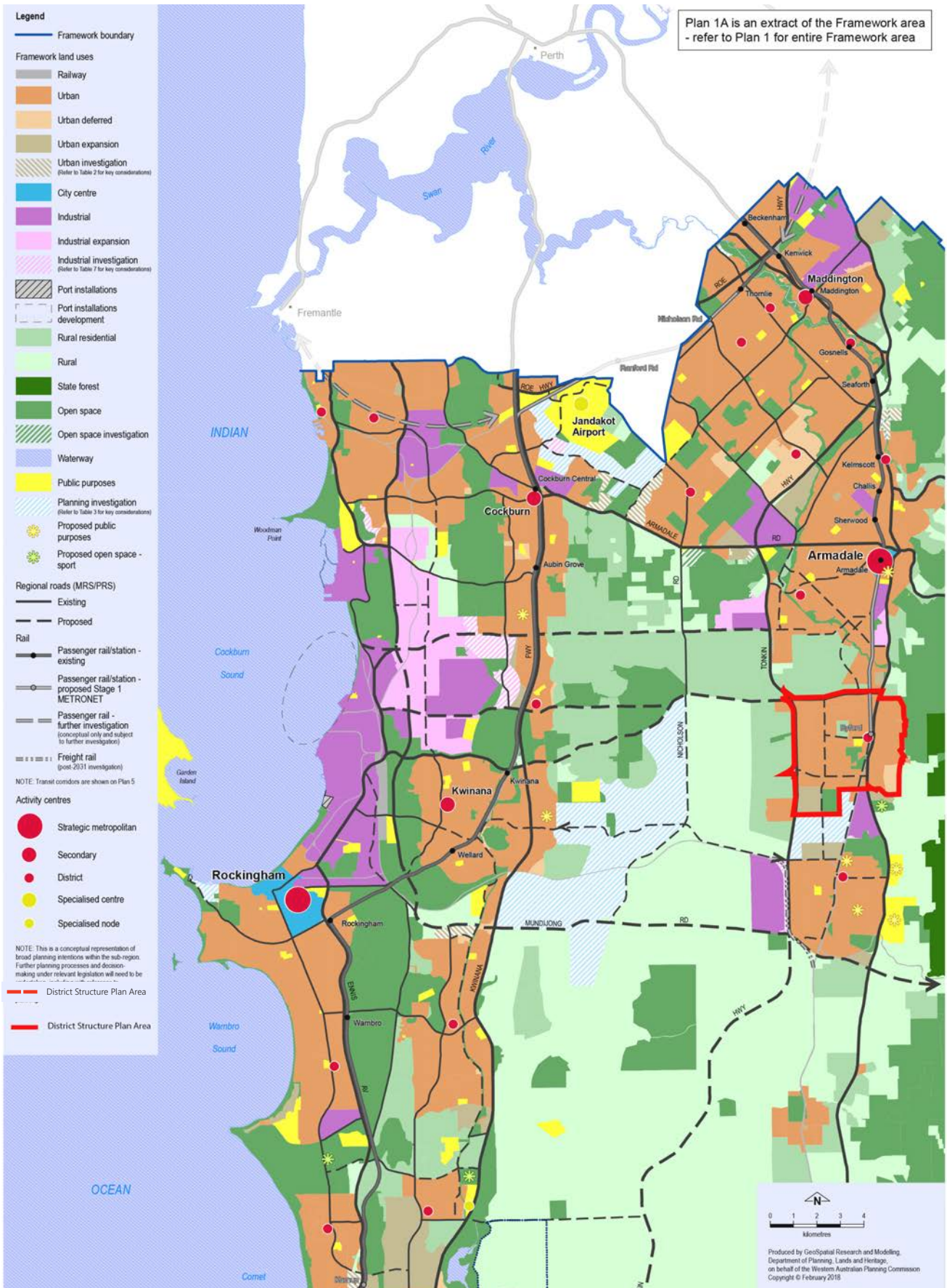


Figure 7: South Metropolitan Peel Sub-Regional Planning Framework

## EPA GUIDELINES

The Environmental Protection Authority (EPA) Guidelines fall under the provisions of the Environmental Protection Act 1986 and help guide the Shire in how to undertake assessments of applications. The Byford District Structure Plan has been prepared taking into consideration the following applicable EPA guidelines:

- + EPB 20 – Protection of Naturally Vegetated Areas Through Planning and Development;
- + GS 3 – Separation Distances Between Industrial and Sensitive Land Uses; and
- + GS 33 – Environmental Guidance for Planning and Development.

## STATE PLANNING POLICIES (SPP)

### SPP 2.1 - Peel Harvey Coastal Plain Management

SPP 2.1 applies to all residential, commercial, industrial, rural and recreation land uses, and public sector undertakings within that portion of the Catchment of the Peel-Harvey Estuarine System that lies on the Swan Coastal Plain of Western Australia and within which part of the Shire is situated. The objectives of the policy are to improve the social, economic, ecological, aesthetic, and recreational potential of the Peel-Harvey Coastal Plain Catchment and to ensure that changes to land use within it are controlled so as to avoid and minimise environmental damage to the Peel-Harvey Estuarine system.

The policy area includes the Byford District Structure Plan area west of the Darling Scarp. When considering proposed development, including subdivision, the Shire must take into account land capability and suitability and specific management practices (such as effluent treatment, red mud amendment, revegetation, and stocking rates). Land used for intensive agriculture that is likely to drain towards the Peel-Harvey Estuarine System must be managed to reduce or eliminate nutrient export from the land. The retention and rehabilitation of existing remnant vegetation is also encouraged.

### SPP 2.8 - Bushland Policy for the Perth Metropolitan Region

SPP 2.8 Bushland Policy for the Perth Metropolitan Region aims to ensure the bushland protection and management issues in the Perth Metropolitan Region are appropriately addressed and integrated with broader land use planning and decision making. Within the Byford District Structure Plan there are large amounts of area classed as Bush Forever, State Forest or native vegetation. Due to this, consideration has been given to the impact development within the Byford District Structure Plan may have on these bushland areas, especially Bush Forever areas. More detailed negotiation on any areas to be retained or removed will occur during the rezoning and local structure planning stages.

### SPP 3 - Urban Growth and Settlement

SPP 3 Urban Growth and Settlement sets out the principles and considerations which apply to planning for urban growth and settlement in Western Australia. The Byford District Structure Plan has given consideration to the key objectives outlined in this policy including;

- + Creating sustainable communities;
- + Managing urban growth and settlements across Western Australia;
- + Managing urban growth in Metropolitan Perth;
- + Planning for liveable neighbourhoods;
- + Coordination of services and infrastructure; and
- + Managing rural residential growth.

### SPP - 3.1 Residential Design Codes

SPP 3.1 Residential Design Codes (R-Codes) seeks to control the design of most residential development throughout Western Australia. The R-Codes aim to address emerging design trends, promote sustainability, improve clarity and highlight assessment pathways to facilitate better outcomes for residents. They are also used for the assessment of residential subdivision proposals. Whilst the R-Codes will be suitable for certain types of development within the Byford



District Structure Plan area, there will be other locations that will require specific guidance under the provisions of Local Development Plans in order to promote site responsive design outcomes.

#### SPP 3.4 - Natural Hazards and Disasters

SPP 3.4 Natural Hazards and Disasters aims to mitigate the adverse effects of natural hazards and disasters. There are two main hazards which the Byford District Structure Plan needs to address to respond to this policy. Flood risk needs to be assessed due to the presence of inland waterbodies in the form of rivers and streams running through the Byford District Structure Plan. Local structure plans should where necessary be accompanied with a flood risk assessment report. Bush fires are the other significant hazard present in the Byford District Structure Plan as some areas contain large amounts of remnant vegetation. LSPs will need to be accompanied with approved Bushfire Management Plans to mitigate the risk of bushfire within the Byford District Structure Plan.

#### SPP 3.5 - Historic Heritage Conservation

SPP 3.5 Historic Heritage Conservation sets out the principles for the conservation and protection of Western Australia's historic heritage. The Byford District Structure Plan contains a number of heritage listed places which are planned to be maintained, upgraded or re-purposed to enable their continued use. The areas around these heritage places are to be developed in a sensitive manner that does not adversely affect the significance of the heritage place.

#### SPP 3.6 - Development Contributions for Infrastructure

SPP 3.6 Developer Contributions for Infrastructure aims to help guide local governments in establishing Development Contribution Plans (DCPs). DCPs will be needed to help fund and deliver many of the community facilities and infrastructure specified within the Byford District Structure Plan. Including but not limited to; upgrading of roads and intersections due to the increased traffic volume expected from an increased population, the construction of district open space to support the rapid growth in local sporting memberships and need for new facilities. These infrastructure items will be delivered through two separate DCPs, with a focus on infrastructure, and community facilities respectively.

#### SPP 3.7 - Planning in Bushfire Prone Areas

SPP 3.7 Planning in Bushfire Prone Areas intends to implement effective, risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. Under the bushfire guidelines the Byford District Structure Plan is considered a strategic planning proposal, therefore a high level bushfire hazard level assessment should be undertaken. Detailed bushfire attack level (BAL) assessments and bushfire management plans will need to be conducted for future local structure plans, subdivisions and development applications.

#### SPP 4.1 - State Industrial Buffer Policy

The purpose of SPP 4.1 is to provide a consistent state-wide approach for the protection and long-term security of industrial zones. The objectives of SPP 4.1 are:

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

The Byford District Structure Plan contains some industrial zoned land on Nettleton Road, as such consideration should be given to the delineation of buffer areas within these areas.

#### SPP 4.2 - Activity Centres for Perth and Peel

SPP 4.2 Activity Centres for Perth and Peel identifies the broad requirements for the planning and development of new and renewal of existing activity centres in the Perth and Peel regions. A primary objective of the policy is to increase the diversity and density of housing within and around activity centres to help improve land use efficiency, residential amenity, access to services, housing variety and centre vitality.

The Byford District Structure Plan contains a district level activity centre (Byford Town Centre) and a number of neighbourhood centres (existing and future). The Byford Town Centre is of particular importance as it is projected to service a catchment of approximately 55,000 people. Through appropriate land use planning and transport integration the Byford District Structure Plan must enable the Byford Town Centre to provide a range of employment opportunities, access to retail and entertainment, housing diversity, and sufficient access to public transport.

#### SPP 5.4 - Road and Rail Transport Noise and Freight Consideration in Land Use Planning

SPP 5.4 seeks to promote a system where sustainable land use and transport are mutually compatible. Specifically it sets out how amenity impacts such as transport noise, associated with high volume roads, rail lines and freight routes should be addressed through the planning system.

The objectives of this policy are to:

- + Protect people from unreasonable levels of transport noise by establishing a standardised set of criteria to be used in the assessment of proposals;
- + Protect major transport corridors and freight operations from incompatible urban encroachment;
- + Encourage best-practice design and construction standards for new development proposals and new or redeveloped transport infrastructure proposals;
- + Facilitate the development and operation of an efficient freight network; and
- + Facilitate the strategic co-location of freight handling facilities.

The policy is applicable to the Byford District Structure Plan area due to the presence of major arterial roads such as Tonkin Highway, Thomas Road and South Western Highway. The Byford District Structure Plan will have consideration for how best to minimise conflicts between freight and other modes of transport, particularly in the Byford Town Centre.

#### SPP 7 - Design of the Built Environment (2019)

SPP 7 addresses the design quality of the built environment across all planning and development types, to deliver broad economic, environmental, social and cultural benefit. It also seeks to improve the consistency and rigour of design review and assessment processes across the State. The policy sets out the principles, processes and considerations which apply to the design of the built environment in Western Australia. It provides the overarching framework for those State Planning Policies that deal with design related issues, to be used in conjunction on specific development types relating to the design matters of a proposal.

As the Byford Town Centre evolves, becoming an increasingly multifunctional mixed use environment, new development will need to respond to this policy to address the design quality of both the built environment and its public realm.

### DEVELOPMENT CONTROL POLICIES

#### Development Control Policy 2.3 - Public Open Space in Residential Areas

This policy is to ensure that the provision of public open space allows for a reasonable distribution of land for active and passive recreation in each locality. The WAPC accepts that this may be secured by providing larger areas for active recreation and smaller areas for passive recreation within residential cells but treats each case on its merits. This policy sets out the WAPC objectives for public open space and the provision of land for community facilities in residential areas as follows:

- + Ensure that all residential development in the State is complemented by adequate, well-located areas of public open

space that will enhance the amenity of the development and provide for the recreational needs of local residents. In appropriate cases, facilitate the provision of land for community facilities - such as community centres, branch libraries and day-care centres - in conjunction with land ceded for public open space.

- + Protect and conserve the margins of wetlands, water-courses and the foreshores adjacent to residential development.

#### Development Control Policy 2.4 - School Sites

This policy contains the WAPC's general requirements for school and TAFE college sites in residential areas and recognises the need to consider any requirements for higher education facilities. It should be used during the preparation of designs for the subdivision of residential land at both the structure planning (district and local structure planning) and subdivision design stages. The objectives of the policy are to:

- + To make provision for school sites and other education facilities related to community needs.
- + To indicate school site requirements, specify criteria for selecting new sites, and
- + To establish guidelines for their design and location in new subdivisions.

The Byford District Structure Plan is an emerging area therefore a range of education facilities will be required to help provide equitable access to education for Shire residents. The provisions of this policy will inform preparation of the Byford District Structure Plan map which will identify the location for new schools. in accordance with the following standards:

- + Primary Schools - one site for between 1,500 and 1,800 housing units for government schools;
- + Secondary Schools - one site for every four or five primary schools for government schools. While the basis for providing non-government schools will be different from government schools, their provision at the average ratio of one non-government to three government primary schools and one to two for secondary schools may be an appropriate basis for planning; and
- + For technical colleges there is a general correlation between population and the need for college sites. The general requirement is one site for every 60,000 to 70,000 population. This may vary in densely populated urban areas, where the viable population for a TAFE college can be as high as 250,000 because of the particular demographic characteristics of the area.

#### Position Statement: Special Residential Zone (May 2021)

The Department of Planning Lands & Heritage has indicated through a Position statement that it is the intention that the special residential zone be discontinued as local planning schemes are reviewed and amended and replaced with an appropriate zone, which may include residential, with a low density residential coding under the Residential Design Codes Volume 1. The WAPC will not support scheme amendments to rezone land to special residential. As local planning schemes are reviewed, land currently zoned special residential will need to be identified as an alternative zone, such as residential, with an appropriate code of R2, R2.5 or R5. The Byford District Structure Plan has responded to this requirement.

#### Development Control Policy 3.4 - Subdivision of rural land

This policy sets out the principles that will be used by the WAPC in determining applications for the subdivision of rural land. The policy is consistent with the objectives of State Planning Policy 2.5: Rural Planning, which establishes the state wide policy framework for rural land use planning in Western Australia.

This operational policy guides the subdivision of rural land to achieve the key objectives of State Planning Policy 2.5: Rural Planning. A number of rural zoned lots are located on the fringe of the Byford District Structure Plan area. Special consideration is required to determine how best to preserve these areas to ensure that the objectives of the policy are not compromised.

#### Development Control Policy 4.1 - Industrial Subdivision

This policy provides guidance on the matters considered by the WAPC when determining applications for industrial subdivision throughout the state. These include such matters as the design and shape of industrial lots, road layout, servicing and open space requirements. More detailed development control requirements - such as car parking, landscape and the design and siting of industrial buildings will be found in the Town Planning Scheme and local policies.

Policy objectives include to:

- + Encourage the development of well-designed industrial areas serving the full range of general and special industrial needs throughout the State.
- + Provide for the safe and efficient movement of traffic to and from each site within the industrial area.
- + Provide for infrastructure services and public open space consistent with the operational needs of industrial users and the workforce.
- + Protect the amenity of adjacent land uses, where necessary, from the effects of industrial development.

Within the Byford District Structure Plan area, future development within the Cardup Business Park will need to preserve a landscape buffer along Soldiers Road to reduce impacts on adjacent residential dwellings. Future development will also need to address safe and efficient connections on to South Western Highway and linkages through to the Tonkin Highway extension.

#### Government Sewerage Policy

The Government Sewerage Policy promotes reticulated sewerage as the best disposal method for sewerage. It requires all new subdivision and development to be connected to reticulated sewerage where available or considered necessary on health, environment or planning grounds. The Byford District Structure Plan has been prepared taking into account the requirements of the Policy, particularly the stated exemptions to the requirement to connect to reticulated sewerage which may have relevance in some instances.

#### Liveable Neighbourhoods

Liveable Neighbourhoods is a Western Australian Planning Commission (WAPC, 2015) operational policy that guides the structure planning and subdivision for greenfield and large brownfield (urban infill) sites. Liveable Neighbourhoods is an integral component of the state planning framework, delivering the objectives of the Perth and Peel@3.5million sub-regional frameworks and future sub-regional structure plans. It plays a key role within the state planning framework and in relation to the local planning framework including local planning strategies, local planning schemes and policies. The Byford District Structure Plan must meet the criteria of the Liveable Neighbourhoods unless there is an approved local planning policy that varies some of the provisions.

### 1.3.3 LOCAL PLANNING FRAMEWORK

#### SJ 2050 VISION

The Serpentine Jarrahdale 2050 Vision (SJ2050) process commenced in April 2016, in response to the draft 'Perth and Peel@3.5 million' strategic plan released by the State Government in 2015. As mentioned above, the strategy estimated a population increase of approximately 100,000 residents in the Shire by 2050.

SJ2050 was developed through extensive consultation and engagement with the local community and key stakeholders. The document identifies the core values and guiding aspirations of the Shire's community. SJ 2050 sets out a strategic growth framework that aims to accommodate rapid growth, without compromising the community's values and aspirations.

The SJ2050 spatial framework (Figure 8) identifies that Byford will accommodate approximately 50,000 people, this significant growth resulted in the need to review and update the existing Byford District Structure Plan.



## SHIRE OF SERPENTINE JARRAHDAL LOCAL PLANNING STRATEGY

The Shire of Serpentine Jarrahdale Local Planning Strategy has been approved by the WAPC. It sets out long term planning direction and provides the rationale for the zones and other provisions of the draft Shire of Serpentine Jarrahdale Local Planning Scheme No.3. The Local Planning Strategy outlines the general aims and intentions for future long-term growth and change within the Shire of Serpentine Jarrahdale. A key component of the Strategy is the Strategic Plan, which includes land use categories that have been guided by the overall vision, principles and objectives of the Strategy.

The Local Planning Strategy aligns with planning for a future urban population in Byford of 55,000 (including DIAs) people, to facilitate this growth the following objectives were developed (and have been considered in preparing the Byford District Structure Plan):

- + Achieve a diversity of housing types to provide choice, adaptability and to accommodate a range of incomes, households, life stages and the changing demographics of Byford.
- + Achieve greater housing densities in proximity to the Byford Town Centre, neighbourhood activity centres, schools, community facilities, public open space and transport nodes and corridors to improve accessibility and enhance community connections.
- + Integrate new housing and urban development with nearby rural land types and natural areas as well as older urban development patterns and housing in a sensitive manner.
- + Encourage urban development and housing to be environmentally sustainable and resource efficient.

These objectives are supported by a number of strategies and actions, some of which include:

- + Review the Byford District Structure Plan; and
- + Review the development contribution scheme and plan for Byford.

## BYFORD DEVELOPMENT CONTRIBUTION SCHEMES

Byford currently has a new Community Infrastructure Contribution Scheme and a revised Traditional Infrastructure Contribution Scheme which have been drafted in parallel with the Byford District Structure Plan and have the same boundaries within which they operate. .

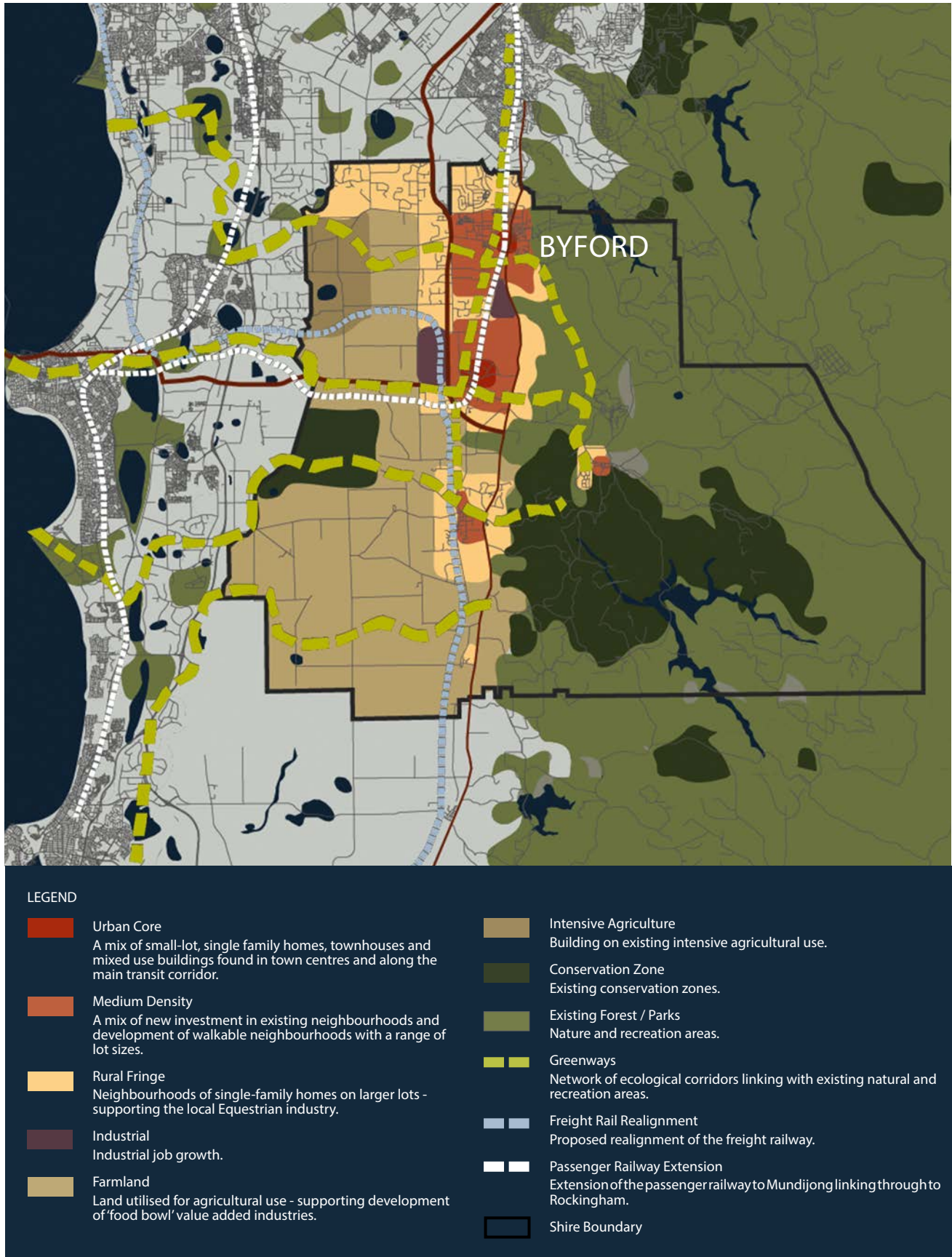
The Byford Community Infrastructure Development Contribution Scheme (Amendment 207) was granted final approval by the Minister for Planning on 5 May 2021 and a notice was published in the Government Gazette on 4 June 2021. This scheme sets out the community infrastructure items for which development contributions are to be collected, and the methodology that will be used to calculate contributions.

The Byford Traditional Infrastructure Development Contribution Scheme (Amendment 208) was approved by Council in November 2020 and sets out the infrastructure, land and other items for which development contributions are to be collected, as well as cost estimates, how land values are to be calculated and the methodology that will be used to calculate contributions. The Development Contribution Plans will be reviewed annually.

## BYFORD DISTRICT STRUCTURE PLAN

The original Byford District Structure Plan was approved in 2005 and sought to guide development and subdivision of the Byford District Structure Plan area, setting the foundation for the initial growth and expansion of the town centre and surrounds. The revised Byford District Structure Plan reflects and builds upon the key objectives and principles of the original District Structure Plan in order to consolidate the work undertaken to date and to sustainably guide the future growth of Byford within the provisions of Development Area 3 of Town Planning Scheme No. 2.

Figure 8: SJ 2050 Spatial Framework



## LOCAL PLANNING POLICIES

In addition to the above, the Shire of Serpentine Jarrahdale administers a number of Local Planning Policies that have been taken into consideration in the preparation of the Byford District Structure Plan. These are included in Table 2.

Table 2: Shire of Serpentine Jarrahdale Local Planning Policies

OPERATIONAL	STATUS
+ LPP 1.1 - Development Assessment Unit	Approved
+ LPP 1.2 - Development Applications Information	Approved
+ LPP 1.3 - Amendments and Extensions to Existing Approvals	Approved
+ LPP 1.4 - Public Consultation for Planning Matters	Approved
+ LPP 1.5 - Other Exempt Developments	Approved
+ LPP 1.6 - Public Art for Major Developments	Approved
+ LPP 1.7 - Road Naming	Approved
+ LPP 1.8 - Cash-in-lieu for Parking	Approved
+ LPP 1.9 - Bonds and Bank Guarantees	Approved
+ LPP 24 – Designing Out Crime	Approved
+ LPP 40 – Local Development Plans	Approved
PLANNING FRAMEWORKS	STATUS
+ LPP 2.1 - Structure Plan and Subdivision Standards	Draft
+ LPP 2.2 - Residential Development Standards - (R25 - R60)	Approved
+ LPP 2.3 - Development Standards for Development Applications	Approved
+ LPP 2.4 - Water Sensitive Design	Approved
+ LPP 2.5 - Activity Centres	Approved
+ LPP 2.6 - Stanley Road Precinct Planning Framework	Approved
+ LPP 2.7 - Biodiversity Planning	Approved
+ LPP 2.8 - Public Open Space	Approved
+ LPP 3.5 - Byford Town Centre Public Realm Guidelines	Approved
+ LPP 3.6 - The Glades Village Centre Guidelines	Approved
+ LPP 3.7 - George Street Design Guidelines	Approved
+ LPP 3.8 - Byford Town Centre Built Form Guidelines	Approved
+ LPP 51 - Oakford Rural Economic Living Area Planning Framework	Approved
DESIGN GUIDELINES	STATUS
+ LPP 3.1 - McNeil Grove Design Guidelines	Approved
+ LPP 3.2 - Woodlot Subdivision Jarrahdale Design Guidelines	Approved
+ LPP 3.3 - Wellard and Richardson Street Serpentine Design Guidelines	Approved



LAND USE	STATUS
+ LPP 4.1 - Ancillary Dwelling	Approved
+ LPP 4.2 - Sea Containers	Approved
+ LPP 4.3 - Landscape Protection	Approved
+ LPP 4.4 - Dams and LakesLPP	Approved
+ LPP 4.5 - Temporary Accommodation	Approved
+ LPP 4.6 - Telecommunications Infrastructure	Approved
+ LPP 4.7 - Placement of Fill in Non-Urban Areas	Approved
+ LPP 4.8 - Land Sales Offices	Approved
+ LPP 4.9 - Fast Food Premises	Approved
+ LPP 4.10 - Extractive Industries	Approved
+ LPP 4.11 - Advertising	Approved
+ LPP 4.12 - Horticulture	Approved
+ LPP 4.13 - Revegetation	Approved
+ LPP 4.14 - Rural Worker's Dwellings	Approved
+ LPP 4.15 - Bicycle Facilities	Approved
+ LPP 4.16 - Landscape and Vegetation	Approved
+ LPP 4.17 - Multiple Use Trails	Approved
+ LPP 4.18 - Street Trees	Approved
+ LPP 4.19 - Outbuildings, Sheds, Garden Sheds and Sea Containers	Approved
+ LPP 4.20 - Licensed Premises (Liquor)	Approved
+ LPP4.21 - Rural Short Stay Accomodation	Approved

The above policies do not pose a conflict with the Byford District Structure Plan but will require consideration in the more detailed design and implementation planning processes to follow.

### 1.3.4 OTHER APPROVALS AND DECISIONS

Local Structure Plans (LSPs) provide a much greater level of detailed planning than District Structure Plans, however the District Structure Plan should be given due regard. LSPs should be generally required prior to future subdivision and development. Existing LSPs for current consideration are outlined in Table 3.

Table 3: Approved Byford Local Structure Plans

LSP AREA	OPERATIONAL	STATUS
Area A	Byford Town Centre	Approved
Area B	Marri Park Estate - Lot 3 Larsen Rd and Lot 3 Alexander Road, Byford	Approved
Area C	Byford Central	Approved
Area D	Briggs & Larsen Precinct	Approved
Area E	Lots 59-62 Briggs Road Byford	Approved
Area F	Byford Meadows Estate, Lot 9500 Thomas Road, Briggs Road	Approved
Area G	Redgum Brook Estate	Approved
Area H	Kalimna Estate	Approved
Area I	Grange Meadows, Lot 6 and Lot 27 Abernethy Road, Byford	Approved
Area J	Byford West	Approved
Area K	The Glades	Approved
Area L	Doley Road Precinct - Amendment	Approved
Area N	Lots 1, 3 and 128 South Western Highway, Byford	Approved
Area O	Lot 806 South Western Highway, Byford	Approved
Area Q	Lot 2 Nettleton Road, Byford (The Brook)	Approved
Area S	Stanley Road Precinct	Approved
Area U	Lot 33 Hopkinson Road	No LSP Exists
Area V	Byford by the Scarp East	No LSP Exists

### 1.3.5 PRE-LODGEMENT CONSULTATION

Significant community and stakeholder engagement was undertaken to inform development of concept options and subsequently the development of the Byford District Structure Plan. Key stakeholders are defined as those with significant holdings or influence in the way that the Byford District Structure Plan area will develop.

In addition, there was a significant on-line presence asking for input through nine surveys. The engagement surveys included Activities and events, Equine, Community facilities, Dogs, Transport, Sport and recreation, Environment, Employment, and Education and training. This engagement was open for more than two months starting on 15 December 2017 and concluding on 8 March 2018.

A summary of community and stakeholder engagement is provided in Table 4.

Table 4: Pre-Lodgement Engagement Summary

AGENCY / GROUP	DATE	CONSULTED BY	METHOD OF ENGAGEMENT	SUMMARY OF OUTCOME
Shire of Serpentine Jarrahdale Internal Stakeholder – Local Development Strategy Champions	16/11/17 + 22/03/18	Hames Sharley	Internal Workshops Emails	Input into concept plan, precinct plans and District Structure Plan
Shire Councillor's	4/12/2017 + 4/4/2018	Hames Sharley	Councillor Workshops	Input into concept plan and precinct plans
Salvado Catholic College	30/01/18	Shire Project Team Hames Sharley	Meetings	Input into concept plan and precinct plans
Woolworths	30/01/18	Shire Project Team Hames Sharley	Meetings	Input into concept plan and precinct plans
Public Transport Authority / METRONET	1/02/18 - Ongoing	Shire Project Team Hames Sharley	Meetings	Input into Transport Assessment and concept plan
Department of Planning Lands and Heritage / Public Transport Authority	1/02/18 - Ongoing	Shire Project Team Hames Sharley	Meetings Phone / Emails	Input into Transport Assessment, District Structure Plan and Development Contribution Plan
Byford Industrial Reference Group	7/02/18	Shire Project Team Hames Sharley SPP Consulting	Meetings	Input into Development Contribution Plan
Byford Progress Association	19/02/18	Shire Project Team Hames Sharley	Meeting Survey Emails	Input into concept plan and precinct plans
YMCA Byford Recreation Centre	19/02/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and precinct plans
Byford IGA	19/02/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and precinct plans
Racing and Wagering WA	19/02/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and precinct plans
Coles	20/02/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and precinct plans
Mainroads WA	20/02/18	Shire Project Team Hames Sharley	Meetings Emails	Input into Transport Assessment
Consolidate UT Pty Ltd	21/02/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and District Structure plan
Byford Secondary College	21/02/18	Shire Project Team Hames Sharley	Workshop	Input into concept plan and precinct plans
LWP Property	21/02/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and precinct plans
Byford Community Workshop	24/02/18	Hames Sharley	Workshop Survey	Input into concept plan and precinct plans
Department of Water and Environmental Regulation	8/03/18	Shire Project Team Hames Sharley	Meeting Emails	Input into District Structure Plan
Byford Secondary College, Student Councillors	8/03/18	Shire Project Team Hames Sharley	Workshop Survey	Input into concept plan and precinct plans
Department of Education	9/03/18	Shire Project Team Hames Sharley	Meeting Emails	Input into concept plan and District Structure Plan
Harley Drykstra Planning	9/03/18	Shire Project Team Hames Sharley	Meeting	Input into concept plan and precinct plans

Outcomes of the Byford community and stakeholder engagement process identified above are further summarised in Technical Appendix 1.



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# 2.0 CONTEXT ANALYSIS





## 2.1 Regional Context

The Byford District Structure Plan is located in the south-eastern corridor of the Perth Metropolitan region in the Shire of Serpentine Jarrahdale. It is located in the northern portion of the Shire and is generally bound by Thomas Road to the north, the existing Byford Townsite to the east, South Western Highway to the southeast, Cardup Siding Road to the south and Hopkinson Road to the west.

As illustrated on Figure 9 the Byford Town Centre is located approximately 7km south of Armadale, 18km east of Kwinana and 35km southeast of the Perth CBD. It has good access to the arterial road network with north-south connections via Tonkin Highway and South Western Highway connecting to major employment areas such as Perth Airport, Welshpool, and Armadale in the north. South Western Highway also provides links to major tourism centres in the Southwest Region such as Bunbury. The Perth CBD can be accessed via Thomas Road and Kwinana Freeway.

The freight network within the Byford District Structure Plan area currently links the South Western Highway as the major north-south corridor and Thomas Road as the major east-west connection to the Kwinana Industrial Area. Combined with local vehicle traffic, significant movements are increasing along these routes on a daily basis. The future extension of Tonkin Highway from Thomas Road through to South Western Highway is set to become the primary north-south freight link driving development of the West Mundijong Industrial Area. This also provides the opportunity to mitigate the effects of freight movement within the Byford centre and local residential areas.

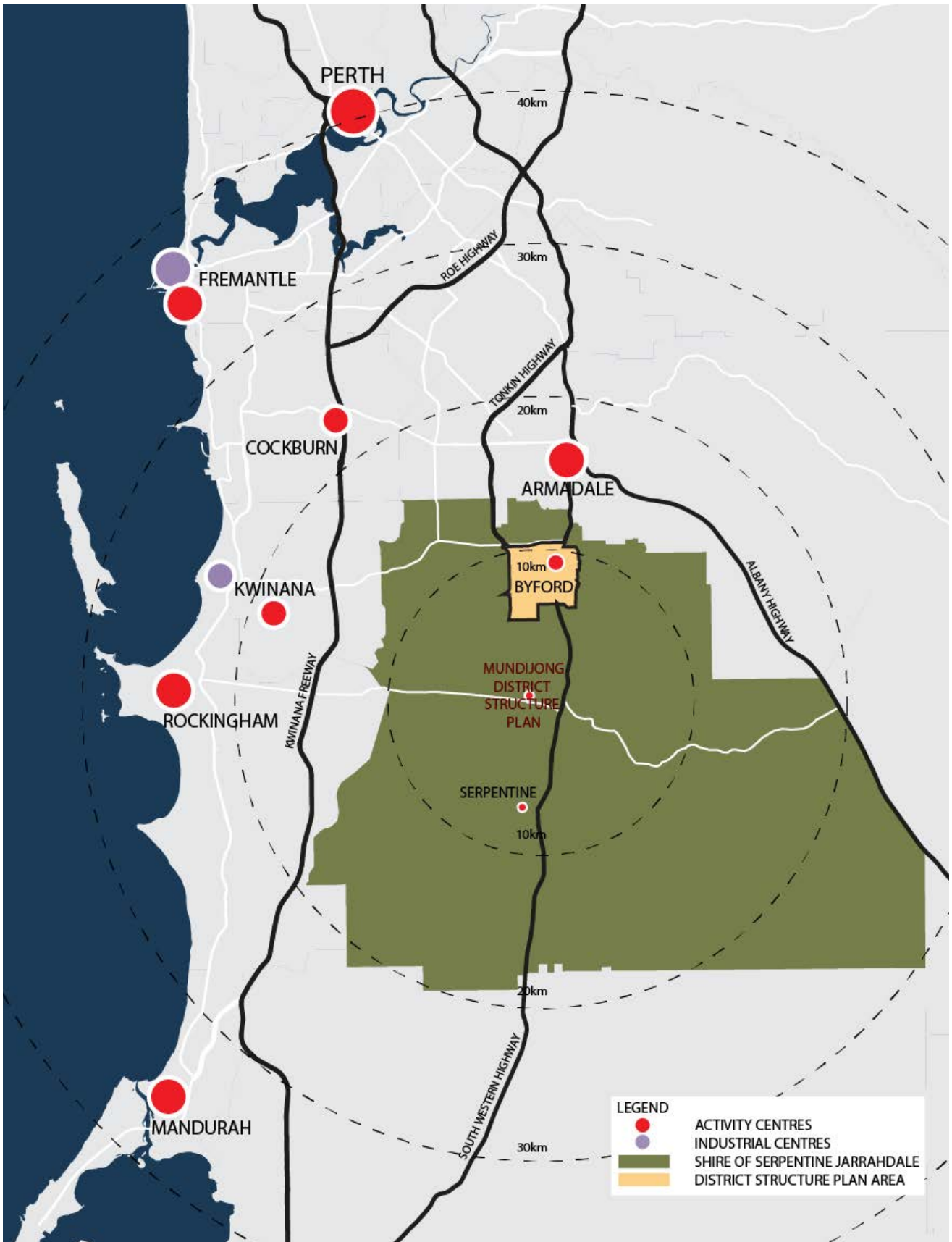
Current land uses are dominated by residential development or rural-residential/equine pursuits. The Darling Scarp and State Forest to the east provide an alternative landscape background to the subject area and offer potential for tourism and alternative lifestyle experiences.

Within the Perth and Peel activity centre's network Byford is classified as a District Centre. It is therefore earmarked to be the primary location for retail and entertainment in the Byford District Structure Plan area. The highest order activity centre in the surrounding region is the Armadale Strategic Metropolitan Centre. Due to its proximity, Byford currently leverages off Armadale for access to higher order services such as health and employment, however, future planning should look to increase the provision of these services locally.

The significant population growth in the Byford area has resulted in various government infrastructure initiatives to accommodate this growth and the pressure on the infrastructure in the area. These projects which are all in the final detailed planning stages will have a significant influence on the regional context, the layout and operation of the Byford District Structure Plan. The initiatives include:

- + Extension of the passenger rail to Byford;
- + Development of the METRONET Byford Passenger Station;
- + Extension of Tonkin highway on the western side of Byford south to Mundijong;
- + Widening of Thomas road; and
- + Grade separation of the passenger rail and Thomas road in Byford.

Figure 9: Regional Context



## 2.2 Local Context

### 2.2.1 EXISTING AREA CHARACTERISTICS

The Byford District Structure Plan area has undergone rapid change over the last decade with the population increasing significantly over the last decade. Figure 10 illustrates that majority of this growth has occurred west of South Western Highway and south of Thomas Road.

It has changed the urban structure of Byford significantly, including the Byford Town Centre. Historically, the Byford Town Centre has been located on the eastern side of the railway corridor and was comprised of small-scale established premises which were dispersed in a north-south strip along South Western Highway. There was no defined focal point or town square for the community to engage and interact. However, as the population within the Byford District Structure Plan area has grown so to has its needs. Due to spatial constraints the Byford Town Centre has shifted from South Western Highway to Pioneer Street on the western side of the railway corridor. This relocation will enable the town centre to grow organically, and better service the majority of the population.

As a result of the change that has occurred, the Byford District Structure Plan area possesses a number of distinct character areas, which can be described as follows:

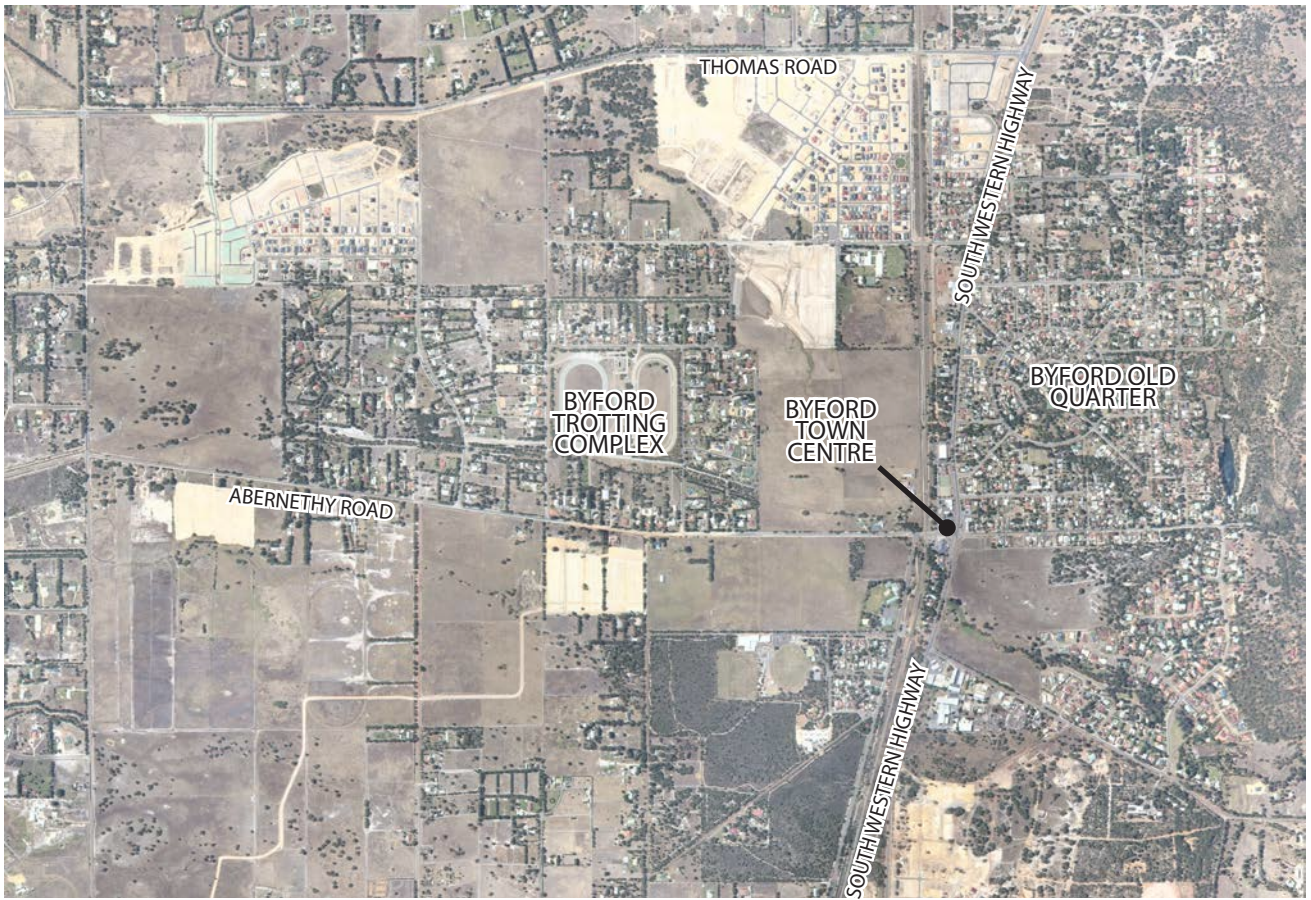
- + The area north of Thomas Road in Darling Downs, west of Hopkinson Road and around the Byford Trotting Complex are rural-residential areas which contain a number of large lifestyle lots which support the local equine industry;
- + The area east of South Western Highway and north of Beenyup Road is referred to as the Byford 'Old Quarter' or Blytheswook Park, being the original estate concept for Byford influenced by the garden city movement. The area includes traditional larger lots and is contained by a green belt. The spatial development pattern is still relevant as this presents a desirable alternative to urban sprawl. This area is also the historical development approach for Byford that should be celebrated as a part of the Shire's heritage;
- + The area west of South Western Highway (with the exception of the Trotting Complex and surrounds) is where majority of new development has occurred. As evidenced by Figure 10 this is where majority of urban growth has occurred; and
- + New low density residential areas as a result of urban sprawl are placing increasing pressure on equine activities within the Byford District Structure Plan area.



Photo: Old Estate Plan Blytheswook Park, Byford



2008



2018

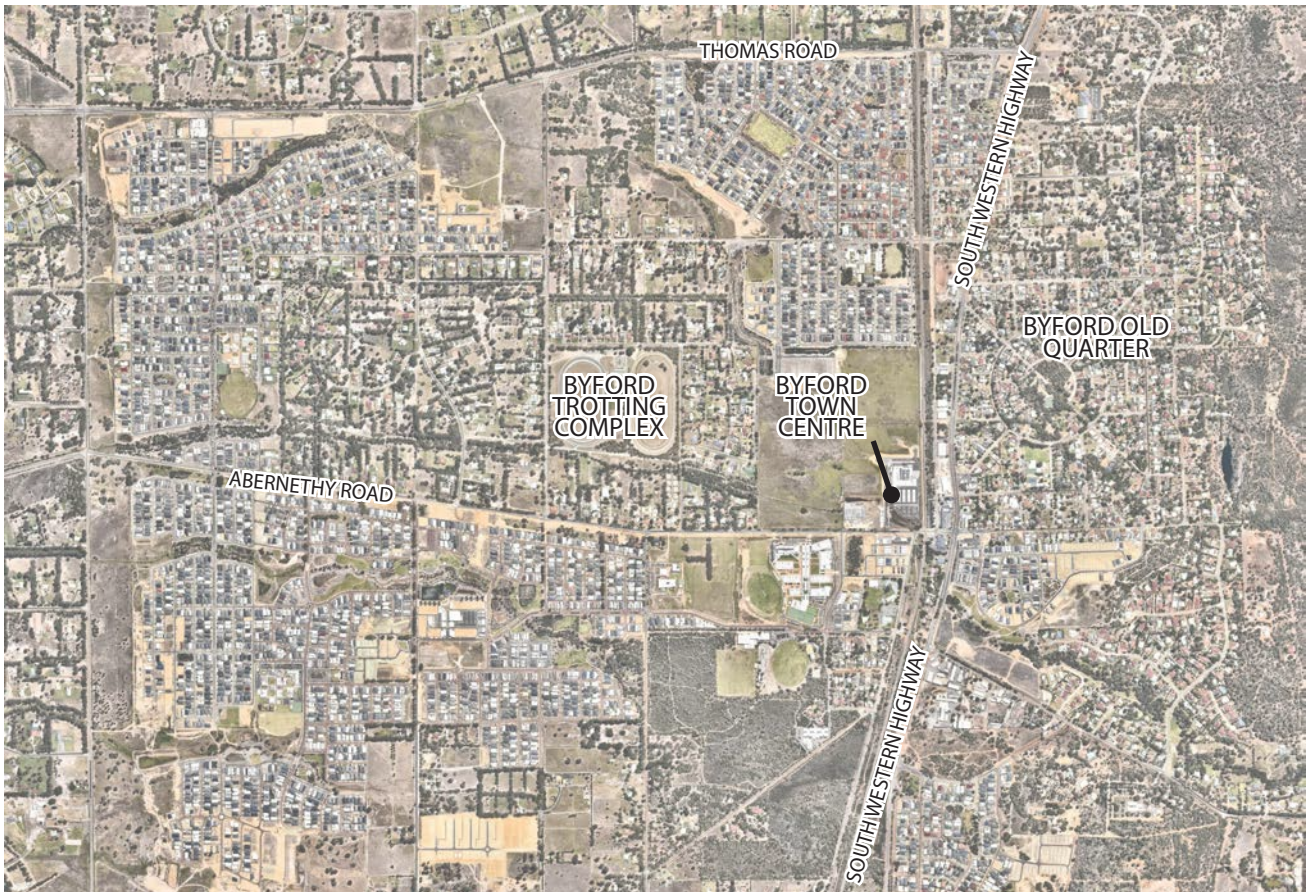


Figure 10: Byford Change Overtime 2008-2018  
Source: Nearmap



## 2.2.2 LAND USE

### RESIDENTIAL

The existing Byford District Structure Plan identifies medium residential densities (R30 – R60) in the immediate vicinity of the town centre and local centres, with remaining residential land designated as R20. The built form being realised in the Byford District Structure Plan area is almost exclusively single detached housing, demonstrating that there is currently a lack of housing diversity. To meet the future needs of the Shire's population greater housing diversity will be important. With the vast majority of new dwellings providing detached single houses aimed at first-home buyers, there are risks in creating a town for a socially and economically vulnerable population.

The potential for higher densities exists primarily in the Byford Town Centre, in close proximity to amenity and public transport. It is due to these factors that the spatial layout of the Byford Town Centre Structure Plan area has been configured to provide for a range of residential densities and dwelling types which are appropriate to the site's location, within immediate proximity to the Town Centre and indicative METRONET station, as well as allowing for a transition to the surrounding residential land uses.

Residential density within the Byford Town Centre Structure Plan area is allocated in accordance with the R-Codes. There are a range of lot sizes to meet the varying requirements for housing, cognisant to a town centre and transit oriented development.

Achieving both housing diversity and increased net density in the Byford District Structure Plan area will require careful consideration of the:

- + Range of lot sizes provided in any given development area with a view to both immediate housing provision and future infill opportunities;
- + Shape of lots to accommodate different housing typologies in the short term and over time (irregular shaped lots being more difficult to develop and redevelop);
- + Dwelling size and mix provided within any given development area; and
- + Ability of dwellings to be adapted/converted to suit different household types without the need for demolition or extensive and expensive renovation.

The Shire has considered the urban form outcomes in the amendments to the Byford Town Centre LSP and Local Planning Policies 3.5 Public Realm Guidelines and 3.8 Built Form Guidelines. These documents provide the context for the development of the public realm and built form that will achieve the required housing densities and urban design outcomes that will accommodate these higher densities.

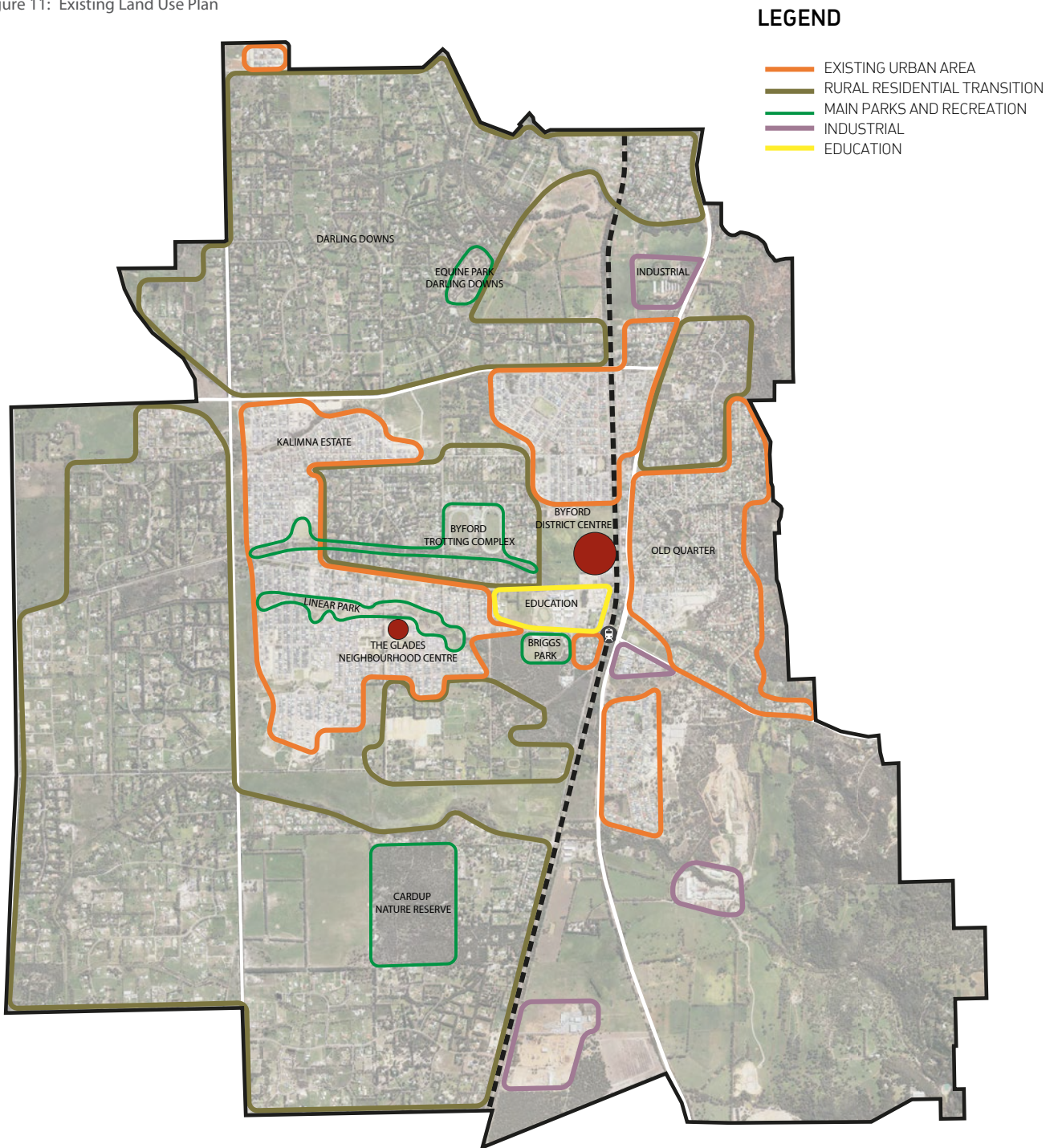
### RURAL RESIDENTIAL

The amenity and character within Rural Residential areas is recognised as an important aspect of housing choice within the Shire. Existing Rural Residential living areas (Figure 11) provide for residential lot sizes generally ranging between 4000m<sup>2</sup> and 1ha. The Local Planning Strategy indicated that these areas should be retained and enhanced to ensure a high amenity living environment with strong connections to nature is maintained. The Byford Trotting Complex situated in the heart of the DSP area is an important component of the Byford development area. Whilst it may seem out of place within an existing urban area the diversity of land and housing sizes and land uses such as Rural Residential lots provides a rather special character that Byford is known for.

### EQUINE FACILITIES

The Shire has a well-established equine industry, as such a number of equestrian activities operate within the Byford District Structure Plan area. These activities provide lifestyle opportunities, and contribute to local character and the local economy. Within the Byford District Structure Plan area the Byford Trotting Complex and the Darling Downs Equestrian Reserve provide specific lots for equestrian purposes under the Rural Smallholdings land use category. This area links to a network of existing bridle trails which are managed by the Shire. Equine activities in and around the Byford District Structure Plan area are under pressure from ongoing urban development, however, future growth should support the retention of existing equine activities.

Figure 11: Existing Land Use Plan



### INDUSTRIAL

Industrial development is fundamental to sustaining and strengthening the local economy and creating local employment opportunities. Byford has a light industrial area on Nettleton road that provides a mix of industrial uses. It will continue to play a role in the fabric of what is Byford for the foreseeable future.



## RURAL LAND

The Byford DSP area is surrounded by rural land that provides for a full range of rural land uses, tourism opportunities and for the preservation of the natural landscape. As this rural land use is of particular importance to reflect the character of Byford the interface between the urban area and the rural/rural living area is of particular importance and should always be kept in mind when development is considered. Rural land in the DSP area is however limited, mostly remnants from other developments. The expectation is that these land uses will integrate and complement the development in the surrounding area.

## 2.2.3 ECONOMY AND EMPLOYMENT

### EXISTING EMPLOYMENT AREAS

#### Activity centres

The Byford District Structure Plan contains a network of activity centres which provide consolidated access to goods and services. The hierarchy includes the Byford District Centre and a number of supporting neighbourhood / local centres. Higher order services can be accessed from the Armadale Strategic Metropolitan Centre which is approximately 7km north of the Byford District Structure Plan area.

The Byford Town Centre is nominated as a District Activity Centre under SPP4.2. Historically retail and commercial activity has been focused within the 'old' Byford town centre, along South Western Highway between Larsen Road and Abernethy Road. This area continues to accommodate a range of small businesses with a focus on retail and food and beverage. As discussed in Section 2.2.1 population growth in Byford has changed the function and location of the Byford Town Centre. New retail development has been provided on the western side of the railway corridor to create a 'new' town centre. The new town centre is anchored by Coles and Woolworths supermarkets and will support an additional mix of retail, cafes and restaurants, as well as medical facilities and services to reinforcing the new town centre. As the Byford Town Centre continues to expand, a greater diversity of uses will be provided.

Neighbourhood and local centres in the Byford District Structure Plan area are emerging in the west Byford growth areas. The most established centre is The Glades which is located at the corner of Doley Road and Mead Street. The Glades provides a range of local services including an IGA Supermarket, food and beverage tenancies and personal care (e.g. hair and beauty).

There are current neighbourhood centres located at The Glades and at the intersection of Thomas Road and Kardan Road provide for daily and weekly retail and service needs including smaller scale supermarkets, convenience stores and local services to support the surrounding new residential development. As residential development expands further south within the Byford District Structure Plan area, new neighbourhood centres will be required. These should be strategically located along major distributor network to enable direct access to local services and conveniences.

#### Commercial

Existing commercial provision is limited in the Byford District Structure Plan area. It is primarily consolidated along South Western Highway between Larsen and Abernethy Roads. Larger scale tenancies such as hardware and vehicle services are provided in the north and small-medium scale tenancies are provided in or near the Old Byford Town Centre. A new commercial area has also started developing on south western highway to the south of this. There is also a small local commercial area being established at the corner of Thomas Road and Kardan Boulevard, this provides a service station, fast food tenancy, and gym.

#### Industrial

There is an existing light industrial area provided in Byford along Nettleton Road (near South Western Highway). This area includes a number of localised businesses.

## EMPLOYMENT SELF-SUFFICIENCY AND SELF CONTAINMENT

Employment self-sufficiency measures the proportion of local jobs that are filled by local residents. It indicates the level at which local residents meet the needs of local industries and businesses. The economy in the Byford District Structure Plan area is an emerging market, therefore due to the lack of available data and low number of jobs currently available employment self-sufficiency has not been measured.

Employment self-containment measures the proportion of local residents who also work in the Byford District Structure Plan area. It indicates the level at which local jobs meet the needs of local residents and determined how many of the Byford District Structure Plan residents have to leave the area for their work. Table 5 demonstrates that employment self-containment within the Byford District Structure Plan area is very low at 14.2%. This suggests that 85% of the working population leave the area everyday to access their places of employment, it means that currently the Byford District Structure Plan area does not provide enough jobs, or the right jobs.

	MOST POPULAR INDUSTRIES IN THE BYFORD DISTRICT STRUCTURE PLAN (2016)		INDUSTRIES WITH THE HIGHEST EMPLOYMENT SELF CONTAINMENT IN THE BYFORD DISTRICT STRUCTURE PLAN (2016)
1	Construction	1	Arts and Recreation Services (43.9%)
2	Health Care and Social Assistance	2	Agriculture (38.3%)
3	Retail Trade	3	Education and Training (28.8%)
4	Manufacturing	4	Accommodation and Food Services (27.8%)
5	Transport, Postal Warehousing	5	Construction (19%)

Table 5: Byford District Structure Plan Employment Self-Containment

INDUSTRY OF EMPLOYMENT	TOTAL LOCAL WORKERS Byford District Structure Plan*	LOCAL WORKERS RESIDING IN Byford District Structure Plan*	EMPLOYMENT SELF CONTAINMENT %
Agriculture, Forestry and Fishing	47	18	38.3%
Mining	528	19	3.6%
Manufacturing	639	40	6.3%
Electricity, Gas, Water and Waste Services	100	0	0.00%
Construction	1074	207	19.3%
Wholesale Trade	304	10	3.3%
Retail Trade	880	80	9.1%
Accommodation and Food Services	392	109	27.8%
Transport, Postal and Warehousing	612	86	14.1%
Information Media and Telecommunications	58	10	17.2%
Financial and Insurance Services	147	13	8.8%
Rental, Hiring and Real Estate Services	151	26	17.2%
Professional, and Technical Services	324	62	19.1%
Administrative and Support Services	232	44	19.0%
Public Administration and Safety	495	46	9.3%
Education and Training	539	155	28.8%
Health Care and Social Assistance	946	100	10.6%
Arts and Recreation Services	98	43	43.9%
Other Services	436	63	14.5%
Inadequately described	328	47	14.3%
Not stated	92	19	20.7%
<b>Total</b>	<b>8422</b>	<b>1,197</b>	<b>14.21%</b>

\* Calculated using ABS 2016 Census Table Builder tool, data was sourced from Byford, Cardup, and Darling Downs suburb datasets.

In summary, the findings of Table 5 suggests there is a need to strategically target local jobs growth to improve employment self-containment. The Shire's Economic Development Strategy identifies a need for more local employment opportunities with a target for 45,000 new jobs by 2050. As one of the major growth centres in the Shire, it is important the Byford District Structure Plan contributes to this target because without additional local jobs, Byford risks becoming a dormitory suburb which would create future issues around traffic congestion and numerous negative economic and community impacts. It is important that the Byford District Structure Plan facilitates employment growth by capitalising on the Shire's competitive advantages which include:

- + Significantly growing population and large surrounding workforce catchment;
- + Affordability of land and access to key transport links; and
- + Ability to capitalise on existing agricultural and equine industries which currently account for approximately 20% of the Shire's Gross Regional Product.



## 2.2.4 COMMUNITY AND SOCIAL INFRASTRUCTURE

### COMMUNITY INFRASTRUCTURE

Community infrastructure is the term used to describe facilities which accommodate services that support, contribute and respond to the needs of people living, working and studying in an area. A recent audit of existing community infrastructure identified that whilst some facilities in the Byford District Structure Plan area provide a high quality service others are underutilised. The Shire's Community Infrastructure Implementation Plan (CIIP), 2017 outlines key facilities of priority within the Byford District Structure Plan area as well as responsibility for future provision to form part of the Developer Contribution Plan and the Shire's long term financial plan.

The Byford District Structure Plan area is characterised by a relatively young population with a high presence of families, therefore children and youth activities will be important. In the Byford District Structure Plan area there are a range of existing community infrastructure facilities which cater for local residents, these are provided in Table 6 and on Figure 12.

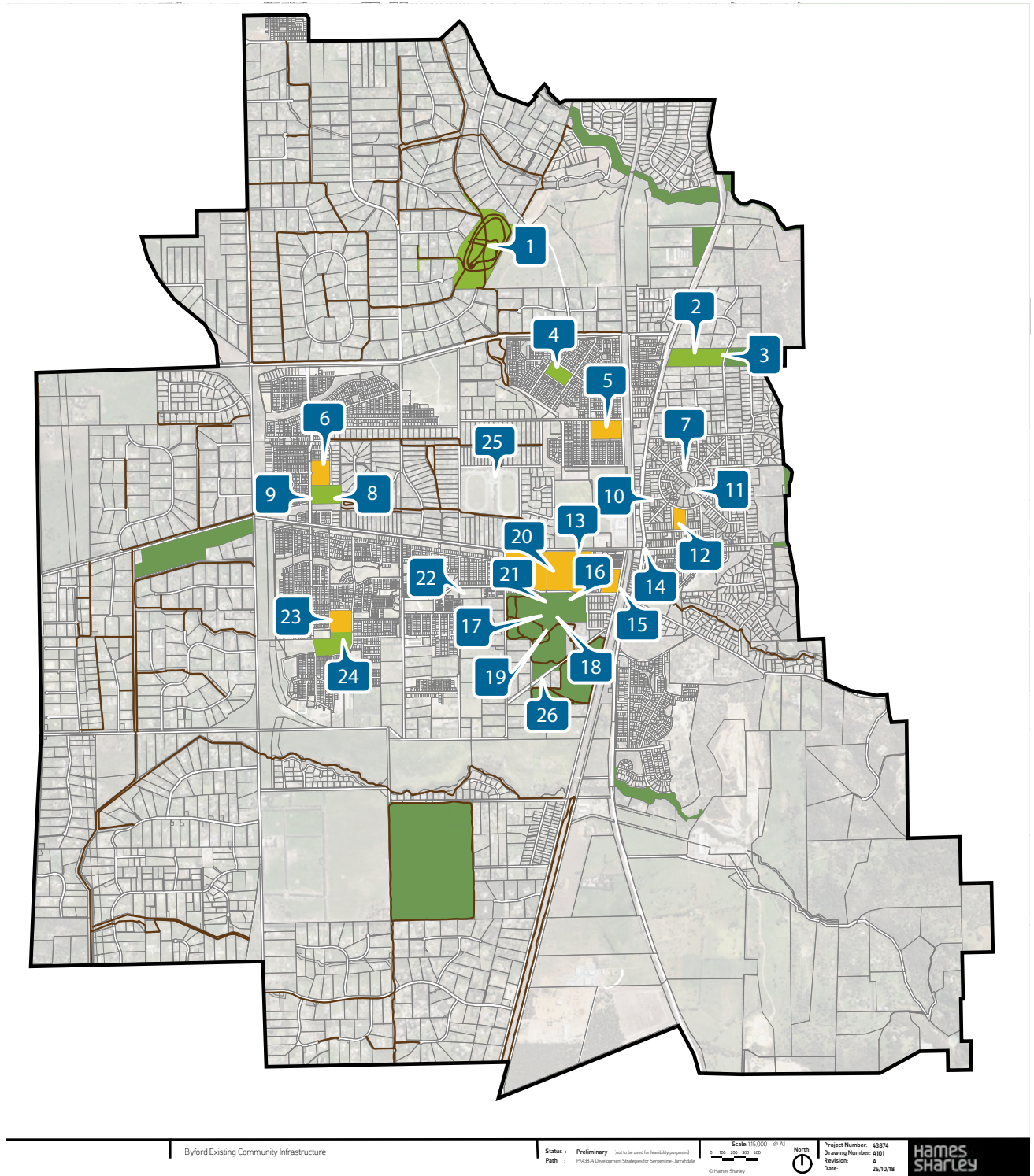
Table 6: Summary Existing Community Infrastructure

EXISTING COMMUNITY INFRASTRUCTURE			
1	Darling Downs Equestrian Facility	14	Byford Hall
2	Byford Scout Hall/ Old Rifle Range	15	Byford John Calvin Primary School
3	Byford and Districts Country Club	16	Briggs Park Cricket Nets and Change Rooms
4	Bill Hicks Reserve & Hall	17	Briggs Park Pavilion
5	Marri Gove Primary School	18	Briggs Park BMX Track
6	West Byford Primary School	19	Lower Briggs Park Storage Facilities
7	Byford Community Kindergarden and Child Health Clinic	20	Byford Secondary College Oval
8	Kalimna Sporting Reserve	21	Serpentine Jarrahdale Community Recreation Centre
9	Kalimna Sporting Reserve Pavilion	22	Byford Community Garden
10	Byford Fire Station	23	Woodland Grove Primary School
11	Byford Tennis Courts	24	Woodland Grove Reserve
12	Byford Primary School	25	Byford Trotting Complex
13	Byford Secondary College	26	Brickwood Reserve Facility

### SPORT AND RECREATION

The Byford District Structure Plan area provides a range of existing sport and recreation facilities which cater for passive and active recreation. Numerous parks, nature reserves and sports fields provide opportunity for residents to engage in physical activity. Currently, Briggs Parks Recreation Precinct is the primary focal point due to the clustering of facilities, however, increased demand is creating pressure on the site. As the Byford District Structure Plan area comes under greater pressure to accommodate a growing population (approximately 55,000 people by 2050) planning for additional facilities is required. The Byford District Structure Plan will identify the requirement for and location of proposed facilities

Figure 12: Existing Community Infrastructure



LEGEND

- PARKS AND RECREATION
- SPORT
- EDUCATION
- TRAIL

## EDUCATION AND TRAINING

As identified in Table 6 and on Figure 12 the Byford District Structure Plan area currently accommodates five primary and two secondary schools (1 public and 1 private). Rapid urban development in the area in recent years has required continued provision of new schools to meet demand. This is likely to continue in the future as additional growth occurs.

The level of education achieved by any population is linked to its economic prosperity, at present the population in the Byford District Structure Plan area has lower levels of tertiary qualification than both the Shire and Greater Perth. This is due in large part to the fact that there are currently no tertiary facilities provided within the Byford District Structure Plan area. The closest facility is the Murdoch University development proposed at Whitby, which is intended to be an innovations centre for teaching and research in veterinary and agricultural sciences, environmental science and conservation and a drone research facility. It will be important for the population to have access to tertiary education to ensure that current levels of economic and social disadvantage are not exacerbated (AECgroup, 2016). Therefore in the short-medium term it is important that Byford maintains good public transport connectivity to tertiary education opportunities in areas outside of the Shire.

### 2.2.5 MOVEMENT AND ACCESS

Providing accessible transportation is essential in facilitating an efficient and connected movement network within the Byford District Structure Plan ensuring that community, businesses and industry are well-connected to the greater Perth and Peel Regions.

#### ROAD NETWORK

##### Primary Distributors

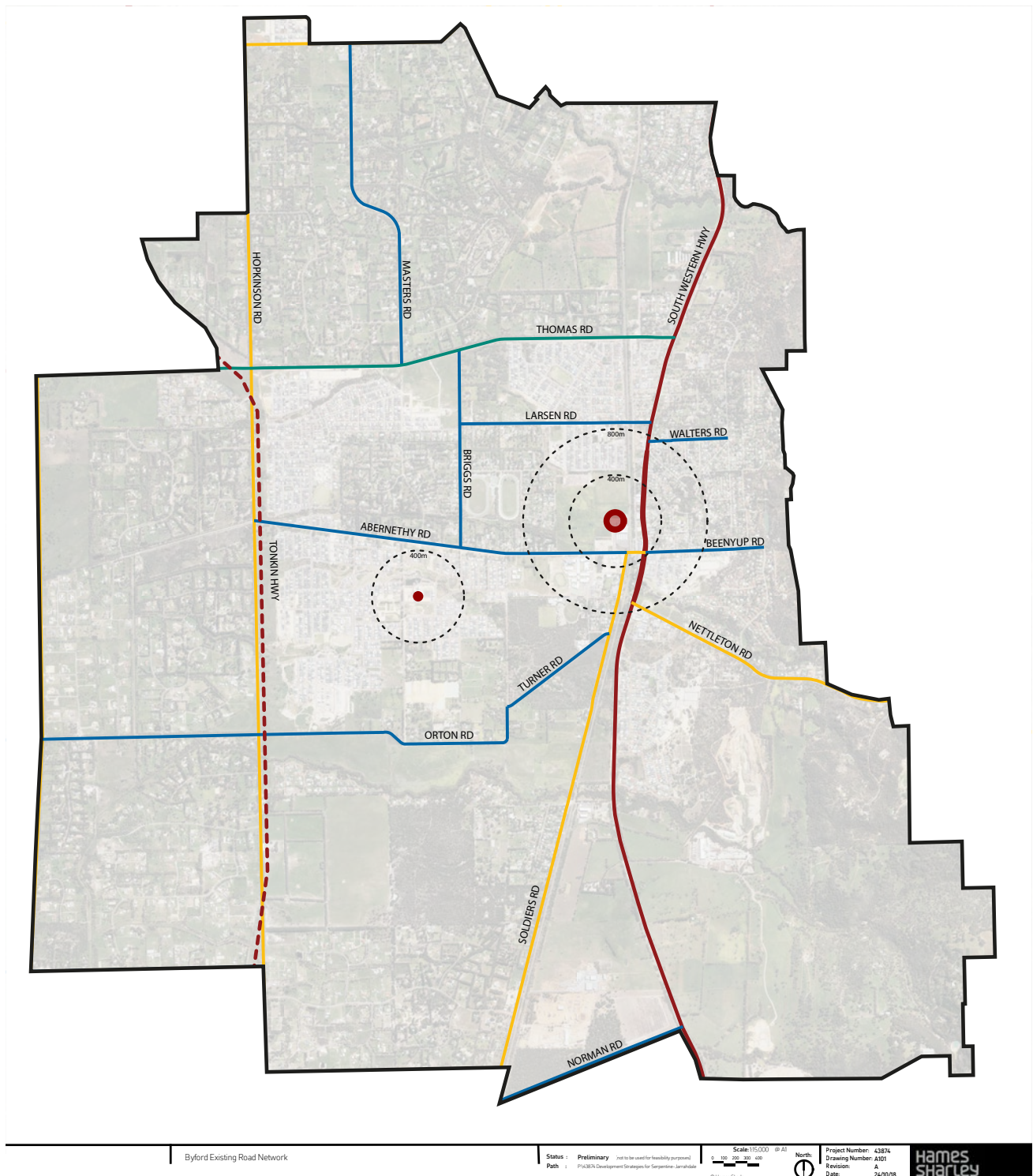
Primary Distributors form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State roads. They are managed by Main Roads. Within the Byford District Structure Plan area, there are two existing major distributor roads (Figure 13), these are:

- + South Western Highway South is a primary north-south distributor road. It provides a connection between Bunbury and Armadale, however, its prominence has been reduced in recent years due to the construction of Forrest Highway.
- + Tonkin Highway is the other key north-south road. Tonkin Highway is planned to be extended southward to connect through to Mundijong Road and further onto the Forrest Highway southwest of Pinjarra. The plan is to enable freight movement to bypass South Western Highway. The Tonkin Highway extension would require intersection connection treatments at Thomas Road and Orton Road, while Abernethy Road is proposed to terminate at this point. Recognising current upgrades underway for Abernethy Road providing a central east-west distributor role within the Byford District Structure Plan area, the desired outcome indicated by the Shire is to enable the continuation of Abernethy Road under Tonkin Highway, enabling greater permeability within the local road network.

Within the South Metropolitan Peel Sub-Regional Framework (WAPC, 2018), the future regional road network indicates a number of new and upgraded primary distributor and integrator arterial roads. This includes the upgrade of Thomas Road and Orton Road providing vital east-west freight linkages between the future Outer Harbour and freight logistics centres in the region, other major road linkages, and strategic industrial locations.



Figure 13: Existing Vehicle Movement Network



**LEGEND**

- PRIMARY DISTRIBUTOR
- REGIONAL DISTRIBUTOR
- DISTRIBUTOR A
- LOCAL DISTRIBUTOR
- - - FUTURE PRIMARY DISTRIBUTOR
- DISTRICT CENTRE
- NEIGHBOURHOOD CENTRE

Byford Existing Road Network

Status : Preliminary (not to be used for feasibility purposes)  
 Path : Final Development Strategy for Corporation Land Use

Scale: 1:5,000 @ A1



Project Number: 43874  
 Drawing Number: A101  
 Revision: A  
 Date: 24/10/18



### Regional Distributors

Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government. Regional distributors in the Byford District Structure Plan area include:

- + Nettleton Road which provides connections to Jarrahdale; and
- + Soldiers Road and Hopkinson Road (north-south) which provide connections to Cardup and Mundijong. As the population grows within the southern portion of the Byford District Structure Plan area, Soldiers Road will increasingly be under pressure to provide additional capacity to link activities within the Mundijong district. However, this is impacted by the Threatened Ecological Communities (TECs) present along this corridor.
- + Extension of Orton Road through to South Western Highway be identified at grade. A 30m road reserve be equally positioned along the common boundaries requiring an equal 15m strip of land from both side.

### Distributor A

These carry traffic between industrial, commercial, and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. Thomas Road is the only Distributor A road and main east-west connector in the Byford District Structure Plan area. It provides connections between the Kwinana Freeway, Tonkin Highway and South Western Highway linking all key north-south distributor roads.

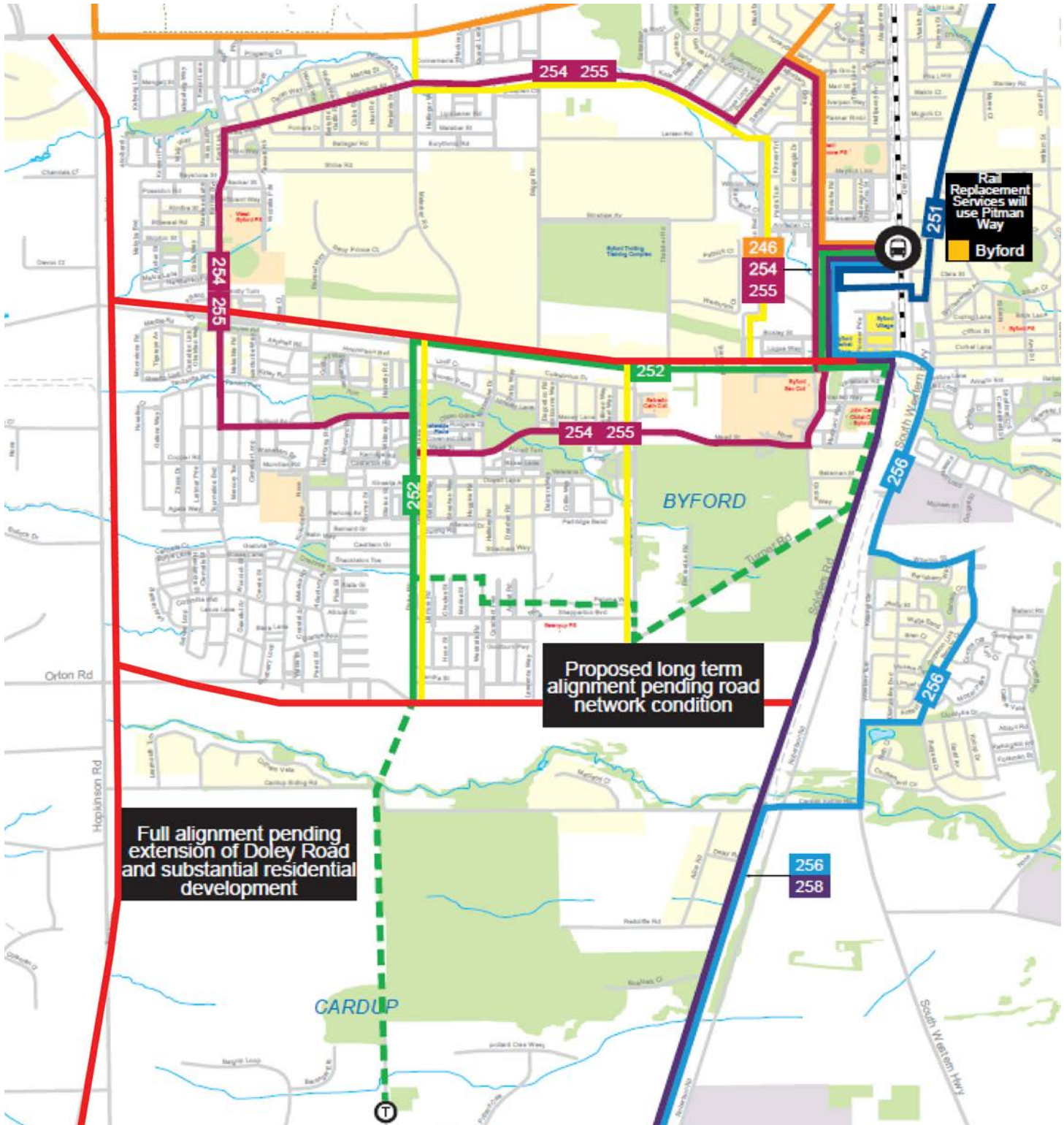
### Local Distributors

The Byford District Structure Plan area includes a number of key roads which comprise the local movement network. Orton Road and Abernethy Road (east-west) are the main local distributor roads providing connectivity between residential areas to the Byford Town Centre.

To reinforce the Byford–Cardup–Mundijong road network, the South Metropolitan Peel Sub-Regional Framework identifies a number of upgrades, these are considered in the preparation of the Byford District Structure Plan. The extension of Doley Road southward will link through to the Mundijong District Structure Plan area. Connecting Doley Road within the internal north-south network would require realignment of the southern portion of Malarkey Road with Doley Road. However, current conflicts of increased traffic movement along Malarkey Road, central to the Byford Trotting Precinct has triggered the review and potential modification of road alignments by the Shire in order to reduce through traffic and preserve the function of equine activity within the precinct.

Figure 14: Future Byford Bus Network and Cycle Routes

Please note: the depicted network is for planning purposes only and liable to change subject to funding, stakeholder consultation and detail road network investigation prior to implementation.



**LEGEND**

- PRIMARY CYCLE ROUTES
- SECONDARY CYCLE ROUTES



## FREIGHT

The efficient movement of freight in the Shire is required to satisfy the needs of local business and industry and encourage economic growth. Global trends as well as the general growth occurring throughout the Greater Perth Region is placing additional pressure on the freight system. In addition, the impact that freight movement imposes on local communities including noise pollution and severance along freight routes is a source of concern. While the metropolitan-wide nature of freight movement restricts the Shire's ability to determine freight network locations, it does allow the Shire capacity to work with State Government to negotiate the location of industrial areas and mitigate the effects of freight on local areas.

The freight network in the Shire consists of major roads plus the existing Kwinana Freight Rail Line. While separation of freight from activity areas in accordance with SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning is required, current road freight traffic is still required to access businesses within centres and travel through local residential areas where pedestrians and cyclists commute. The volume of freight movement on the regional road to the north of the Byford District Structure Plan area will increase substantially by 2050. This increase will be centred on interstate road and rail routes, particularly those servicing port facilities and connecting with existing and proposed intermodal terminals located Mundijong. The freight network is critically important to the Western Australian economy. Where practicable, these transport corridors will be protected from the encroachment of sensitive and incompatible land uses. This is an important consideration when identifying locations for infill housing development within the Byford District Structure Plan area. Similarly, the design, construction, upgrade and operation of this infrastructure within these corridors should seek to minimise impacts on surrounding land uses.

## PUBLIC TRANSPORT

A key component of providing effective transport connections within the Byford District Structure Plan area will involve improvements to the provision and frequency of public transport. Primarily, an improved public transport will be required to align with the needs of a growing population in the Byford District Structure Plan area, and to meet the need of connecting people to key employment nodes. Secondly, good public transport will be necessary to reduce congestion in the shorter term and increase road capacity for transport functions reliant on the regional road system, especially freight movement.

### Rail

TransWA currently provides rail access to the Byford District Structure Plan area via the Australind rail service (Perth-Bunbury). The train station is located south of the existing Byford Town Centre on Soldiers Road (Figure 14). A limited service is provided which includes a morning and evening service everyday in both directions (four services total). Transperth commuter rail services currently terminate at Armadale. The proposed public transport network outlined within the South Metropolitan Peel Sub-Regional Framework includes an integrated network of passenger rail lines and transit corridors. Stage 1 METRONET passenger rail infrastructure within the Byford District Structure Plan area extends the Armadale rail line to Byford. The location of the METRONET Byford Passenger Rail Station is as per the District Structure Plan just north of the Byford Town Centre. A Precinct Structure Plan is being drafted to provide detail for the precinct and construction is imminent. The passenger services need to be integrated with the public bus services and private transport modes to ensure that residents can easily move both north and east from Byford.

### Bus

Bus services within the Byford District Structure Plan area are currently limited to four north-south services which connect to Armadale Train Station via South Western Highway. There are currently no east-west services that service major employment centres of Mandurah, Rockingham, or Kwinana. The existing bus routes include:

- + Bus route 254 which provides connections to majority of residential areas in Byford;
- + Bus route 251 terminates in south Byford; and
- + Bus routes 252 and 253 provide connections to Mundijong and Jarrahdale respectively.

The greatest transport challenge in the Byford District Structure Plan area is the lack of adequate public transport services to enable residents to access employment and education opportunities. This forces a dependence on private vehicles that is unsustainable and inequitable. As the population grows to the south and north of Byford Town Centre improved connectivity, particularly to the west would be required.

## ACTIVE TRANSPORT

Active modes of transport such as walking and cycling are currently available for short distance journeys within the urban areas. There are several opportunities for network improvements to address existing issues of disconnected streets, lack of footpaths, unsafe routes and long distances. Between the 2006 and 2016 Censuses, the proportion of people walking to work in the Byford area dropped from 2.7% to 0.6%. Low walking levels are largely due to the disconnected street systems, lack of footpaths, unsafe routes and long distances to most destinations. While there is a strong network base of bridle trails the local network of paths are largely disconnected to major destinations. This highlights the need for pedestrian infrastructure to include built and planted features that provide amenities or affect pedestrian mobility, safety and comfort – these include the basic street pattern and road classification, as well as the provision of footpaths, pedestrian crossings, street trees, aesthetics and furniture.

## 2.2.6 SERVICE INFRASTRUCTURE

### WATER SUPPLY

The Water Corporation's existing water supply infrastructure that serves the South Metropolitan Peel Sub-Regional Framework includes several key water sources including surface water, groundwater and desalinated seawater. Water is transferred from sources to treatment and storage facilities by trunk mains that traverse the Shire. A reticulated water supply is available to all urban areas within the Byford District Structure Plan area and some rural residential areas. The Byford District Structure Plan area is currently supplied by a storage reservoir located in the northeast. As development has increased it has been necessary to increase the size of the existing storage reservoir. The South Metropolitan Peel Sub-Regional Framework identifies future conceptual water supply planning for the eastern Serpentine Jarrahdale sector where major water storage reservoirs will be necessary in the escarpment near Byford Tank (Byford) and Mundijong Reservoir (Jarrahdale) to serve long-term urban development in these areas (WAPC, 2018).

The Water Corporation undertakes water services planning and allocates funds for infrastructure upgrades on the basis of land use planning information. Where a development proposal requires drinking water headworks infrastructure, for which the Water Corporation has not allocated funds to suit the developer's schedule, prefunding of the works may be necessary (Urbaqua, 2018).

Where connection to a reticulated scheme water supply is not always possible for rural residential areas, the State Planning Policy 2.5; Rural Planning Policy (2016) recognises that there may be alternative service delivery models proposed and provides the following guidance for water supply as follows: :

- + where lots with an individual area of four hectares or less are proposed and a reticulated water supply of sufficient capacity is available in the locality, the precinct will be required to be serviced with reticulated potable water by a licensed service provider, including water for firefighting. Should an alternative to a licensed supply be proposed it must be demonstrated that a licensed supply is not available; or
- + where a reticulated supply is demonstrated to not be available, or the individual lots are greater than four hectares, the WAPC may consider a fit-for purpose domestic potable water supply, which includes water for firefighting. The supply must be demonstrated, sustainable and consistent with the standards for water and health; or
- + the development cannot proceed if an acceptable supply of potable water cannot be demonstrated.

All rural areas are serviced by rain water tanks or groundwater bores or a combination of the two. SPP 2.7 Public Drinking Water Source Policy is critical because of the significant water demands that rural land uses require. A reticulated water supply is required for all new residential lots and special rural zoned lots of one hectare in size.

Due to the current availability of groundwater in the Byford District Structure Plan area, water recycling and reuse to provide fit-for-purpose sources of water may not be considered cost effective. However, Shire's Integrated Water Management Strategy (February 2020) considers alternative methods for optimising (re)use of the total water cycle and should be considered in any future development. This will also address the opportunity for alternative water service providers to facilitate where appropriate for current and future water assets within the wider area

## WASTEWATER

The Byford District Structure Plan area is currently served by the wastewater treatment plant in Kwinana. Urban areas in Byford are either sewerred or have access to a reticulated sewer system. No sewer system is available to the rural or semi-rural areas.

Byford has a Special Developer Contribution area managed by the Shire referred to as the Byford Contribution Arrangement (BCA). Home owners in the remainder of the Shire operate on-site effluent disposal systems. A proposed Byford Pressure Main to East Rockingham Wastewater Treatment Plant is also proposed in the medium term.

The Government Sewerage Policy (September 2019) introduces more specific requirements for disposal of wastewater through off-site (reticulated) and on-site systems. All proposed lots must be capable of the treatment and disposal of all sewage within a designated land application area within the property boundary of each individual green title lot or survey strata, outside of any applicable public health and environmental setbacks. Where lots are less than 2,000m<sup>2</sup> secondary treatment systems with nutrient removal may be required. The opportunity for alternative wastewater service providers facilitated where appropriate within the Shire is discussed in the Shire's Integrated Water Management Strategy (February 2020).

The Water Corporation has planned water and wastewater services for all land currently zoned Urban and Urban Deferred in the sub-region. Urban Expansion and Investigation areas are capable of being serviced within the timeframe of the framework, subject to the staged provision of new and/or upgraded infrastructure. However, these will require detailed investigation prior to zoning to ensure the orderly and financially sustainable provision of water and wastewater services. Further investigations are required to confirm servicing capabilities for Planning Investigation areas (WAPC, 2018).

## 2.2.7 ENVIRONMENT AND LANDSCAPE

### FLORA AND FAUNA

#### Conservation Significant Flora

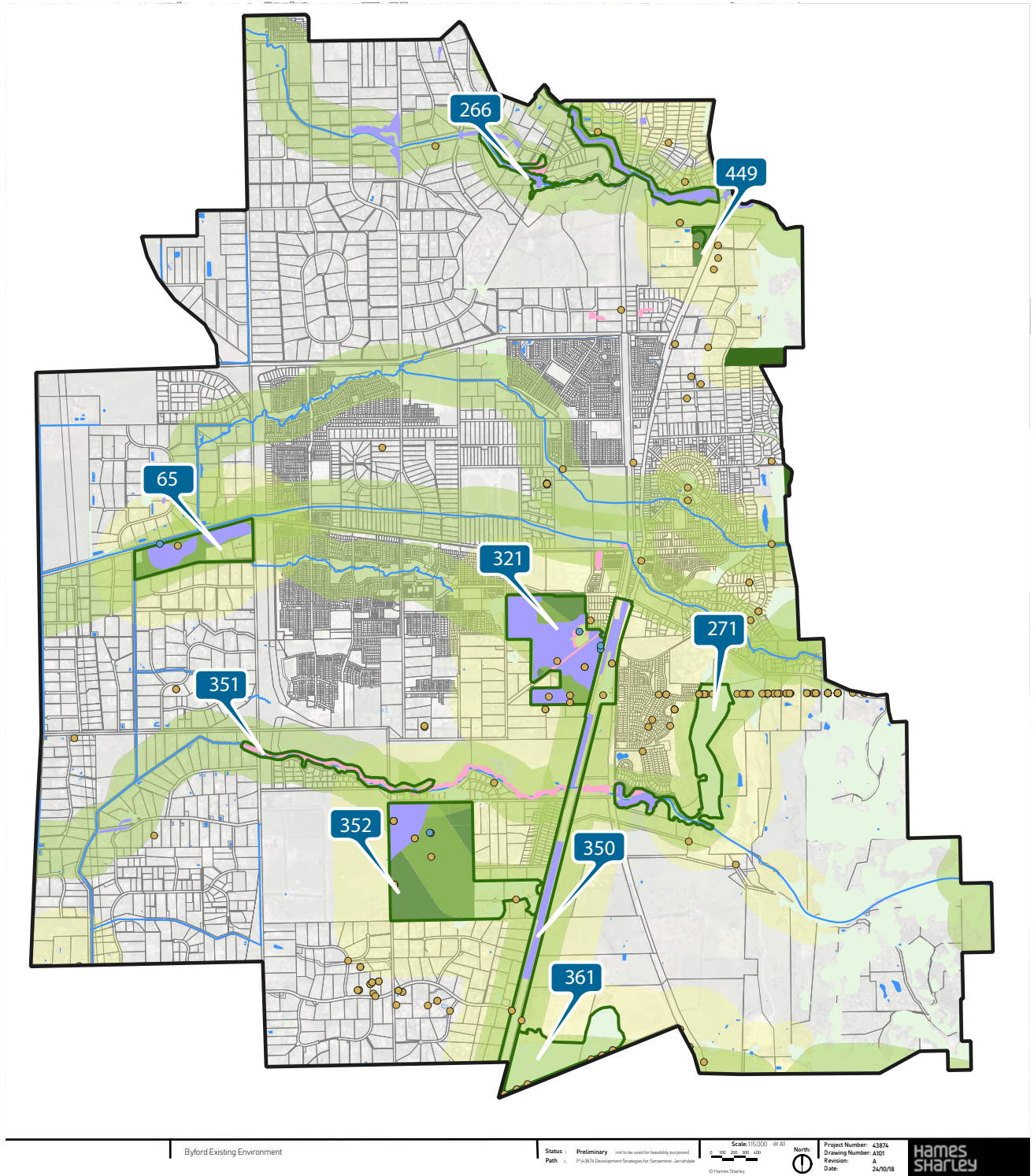
The Shire is located within the Kwongan ecoregion of the South West Australian Floristic Region, which is one of only twenty-five biodiversity hotspots in the world. The Shire is part of two of Western Australia's bioregions - the Northern Jarrah Forest subregion, which includes the plateau and Darling Scarp in the east of the Shire, and the flat low lying Swan Coastal Plain subregion in the west of the Shire. The Swan Coastal Plain Bioregion, which makes up most of the Byford District Structure Plan area, is dominated by woodlands of Banksia and tuart on sandy soils, she-oak on outwash plains and paperbark in swampy areas.

Thirty-five species of threatened flora (including seven Declared Rare Flora (DRF) are recorded in Environmentally Sensitive Areas identified within the Byford District Structure Plan area. These are mostly found on verges, drains, private land and railway reserves. The Salmon White Gum (*Eucalyptus lane-poolei*), a conservation significant flora species, has been identified within the Byford District Structure Plan under 'Native Vegetation'. The Salmon White Gum is uncommon in the metropolitan region and is found only in a few places in the Foothills around Keysbrook, Mundijong and Byford.

Threatened Ecological Communities (TECs) and their associated threat category are assessed by the Department of



Figure 15: Existing Environment



Byford Existing Environment

Status : Preliminary (not to be used for feasibility purposes)  
 Path : P:\2018\Development Strategies for Georgetown - Jarraldale

Scale: 1:50,000 @ A1  
 North

Project Number: 43874  
 Drawing Number: A101  
 Revision: A  
 Date: 24/10/18



**LEGEND**

- TEC BUFFER
- NATIVE VEGETATION
- PARKS AND RECREATION RESERVE
- GREEN LINKAGES
- WATER BODIES
- BUSH FOREVER
- CONSERVATION CATEGORY WETLANDS
- RESOURCE ENHANCEMENT WETLANDS
- TEC FLORA
- TEC FAUNA

Environment and Conservation. TECs are identified by the floristic community type (FCT) classification which has been identified and classified based on species composition across the Swan Coastal Plain. TECs are included with a number of other Biodiversity Features and their buffers in areas designated as “environmentally sensitive areas” (Figure 15) and protected under the Environmental Protection Act, 1986 (WA). Scheduled TECs are also further protected at the Commonwealth level under the EPBC Act. Where the TEC is a wetland, the buffer distance incorporates the minimum area to protect the wetland from developments with potential to impact hydrology.

#### Bush Forever

While much of the Byford District Structure Plan area has been cleared as a result of previous land use and mining activities, the majority of vegetation and TECs remaining falls within Bush Forever sites 350. (Figure 15). The vegetation condition for these sites is mostly good to excellent condition. Descriptions are provided below:

- + Bush Forever Site 271 containing plant communities representative of the eastern side of the Swan Coastal Plain (WAPC, 2000). The condition of the vegetation has been found to be have less than 70% good to very good to good with degraded patches and areas of severe localised disturbance.
- + Bush Forever Site 321 contains plant communities representative of the eastern side of the Swan Coastal Plain (WAPC, 2000), two TEC’s and a significant cluster of native fauna. The condition of the vegetation has been found to be 80% very good to good and 20% good to degraded, with areas of severe localised disturbance.
- + Bush Forever Site 350 is representative of significant areas of remnant vegetation, recognised by the Shire as the Soldiers Road Flora Road (Shire of Serpentine-Jarrahdale 1992, Keighery 1996c cited from WAPC, 2000). With Bella Cumming Reserve this Flora Road forms Bush Forever Site 350. The Flora Road is a significant vegetation asset as it contains a north-south transect of plant communities, which is representative of the eastern side of the Swan Coastal Plain (WAPC, 2000). Bush Forever Site 350 also contains three TECs. The vegetation condition along Soldiers Road is considered to be 50% excellent to very good and 50% good to completely degraded, with areas of localised disturbance. The vegetation for the Bella Cumming Reserve is considered to be excellent to very good.
- + Bush Forever Site 351 contains plant communities representative of the eastern side of the Swan Coastal Plain (WAPC, 2000), and two TEC’s. The condition of the vegetation has been found to be 75% very good to good and 25% good to degraded, with areas of severe localised disturbance.
- + Bush Forever Site 352 contains two TECs. The condition of the vegetation was found to be 90% excellent to very good and 10% good. The boundary of Bush Forever Site 354 has been successfully renegotiated with the WAPC by Urban Pacific.

For any future detailed local structure planning within the Byford District Structure Plan area, consideration should be given to contemporary mechanisms to retain and protect existing DRF, TECs, Conservation Category Wetlands and other environmental assets to the area, as well as achieving appropriate tree coverage. This will include the integration of mechanisms proposed within the Urban Forest Strategy currently being prepared by the Shire. This may consider the incorporation of trees into the Shires asset register through appropriate valuation.

#### Darling Scarp – Landscape Protection

One of the most outstanding landscape elements of the Shire and one which lends much to the character of both the rural and urban areas within the Byford District Structure Plan area, is the backdrop provided by the Darling Scarp. As encapsulated in the text of LPP 8 Landscape Protection Policy, every landscape has a different capacity to successfully absorb change such as new development including subdivision, infrastructure works and extractive industry, and some landscapes are more valued by the community and more sensitive to change than others.

LPP 8 targets areas of high landscape value and aims to maintain the integrity of significant landscape areas and features. In particular, such areas occur all along the escarpment between the railway line and the top of the escarpment in a line of sight (viewshed) from the South Western Highway and along some major watercourses. Preservation of these viewsheds will need to be considered for any future development within the Byford District Structure Plan area.

#### Areas of Natural Beauty

The Scheme contains provisions relating to Places of Natural Beauty, Historic Buildings, and Objects of Historical or Scientific Interest, where clearing of land or removal of trees is not permitted without the approval of Council. Within the Byford District Structure Plan two areas are identified. The Red Gum Patch, on the corner of Alice and Redcliffe Road, Cardup and another located along Kiln Road within the south eastern boundary (Figure 15). Any future planning in or around these sites will need to take into consideration these provisions.

#### Ecological (Green) Links

The Byford District Structure Plan area includes a system of green linkages which connect isolated natural areas, including a number of major waterways. As illustrated on Figure 15, Ecological (Green) Linkages running east-west align themselves with natural drainage areas. The Regional Ecological Linkages have been previously designated by the State Government as part of Bush Forever, Perth's Greenways and the System Six Study, and are now reflected in the South Metropolitan Peel Sub-Regional Framework, although it is noted that only those designated as Bush Forever have some protection for conservation purposes.

The Ecological Linkages should not be confused with Multiple Use Corridors (MUC's) and Trails, which were not developed on ecological criteria and are not expected to achieve significant biodiversity conservation. However MUC's do form an important part of the ecology and environmental connections across the Shire.

Identification of Ecological Linkages is designed to protect existing natural areas that occur along the linkages, improve their resilience through management and re-vegetation of their buffers, and allow safe movement and growth of fauna and flora. It is noted, however, that many ecological linkages are associated with infrastructure corridors for roads, rail and drainage as illustrated in Figure 15, and are generally reserved for purposes other than conservation. Accordingly, many ecological corridors are often subject to disturbance (Essential Environmental, 2016).

Ecological links are important to facilitate fauna movement and species adaptation to changing climate and conditions. Where these linkages are associated with infrastructure corridors, consideration should be given to the achievement of multiple objectives including biodiversity conservation through, for example, modification to the reserve purpose. Multiple Use Corridors can also provide important linkages where native vegetation and habitat is created.

#### Conservation Significant Fauna

The Swan Coastal Plain was once home to a great abundance and diversity of fauna, but habitat loss and alteration have severely reduced most populations. Around 140 species of birds occur here and the populations of almost half have declined significantly. Thirty-three mammals were once recorded on the Swan Coastal Plain. Recent surveys often record only three mammals (western grey kangaroo, common brushtail possum and southern brown bandicoot).

One of the key species of focus of the Perth and Peel Green Growth Plan for 3.5 million is Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), a species of Specially Protected Fauna known to feed, breed and roost throughout the Byford District Structure Plan area. They are a partially migratory species that breed in the wheatbelt in winter to mid-spring and wander in flocks to coastal areas for foraging in the non-breeding season.

This bird species is listed as Critically Endangered under the Commonwealth EPBC Act and is now reliant on parkland areas in the Shire for feeding habitat. The main threats to the long-term survival of the species are loss of nesting hollows and food resources due to land clearing. Within the Byford District Structure Plan area, a number of hollows have been identified within Bush Forever zones south of Abernethy Road. Retention of the majority of existing remnant vegetation within the Byford District Structure Plan area will limit the impact on these species.



## BUSHFIRE HAZARD

In accordance with the Map of Bush Fire Prone Areas gazetted by the Department of Fire and Emergency Services, the large majority of the Shire is classified as a bushfire prone area, with the exception of areas cleared for urban development, large water bodies, and areas affected by mining.

Areas within the Byford District Structure Plan have been identified as bushfire prone so will require detailed Bushfire Hazard Assessment and application of Bushfire Management Plans to address bushfire risk in order as is the requirements of SPP 3.7: Planning in Bushfire Prone Areas and the Guidelines for Planning in Bushfire Prone Areas.

Likely measures for future planning and development include the provision of hazard separation through the placement of roads and/or managed local open space abutting areas of retained vegetation, and application of BAL construction standard requirements to lots in close proximity to areas of retained vegetation. Detailed assessments will be required as a routine component of the preparation of local structure plans.

## LANDFORM AND SOILS

### Land Form

The topography of the Byford District Structure Plan area, as shown in Figure 16 at 5m contours, captures the unique topography and landform typical of the Shire with two distinct halves. To the west of the South Western Highway, the terrain is relatively low flat palusplain (seasonally waterlogged land), typical of the Swan Coastal Plain, whilst the eastern portion is characterised by undulating ridge peaks and troughs of the landform of the Darling Plateau. At the junction of the two landforms, known as the Darling Scarp, the topography is steep, with an average gradient of five percent.

The topographic features of the Darling Plateau and Darling Scarp allow for substantial water bodies to form, such as the Serpentine and Wungong Dam, and are an important catchment for surface water runoff.

The Swan Coastal Plain has changed significantly, most importantly by draining of the extensive wetlands that once covered it for much of the year. Many of the drains intersect the groundwater, causing drawdown and reducing soil moisture content. The plain soils within the Byford area have been extensively cleared for agricultural and residential uses.

### Soils

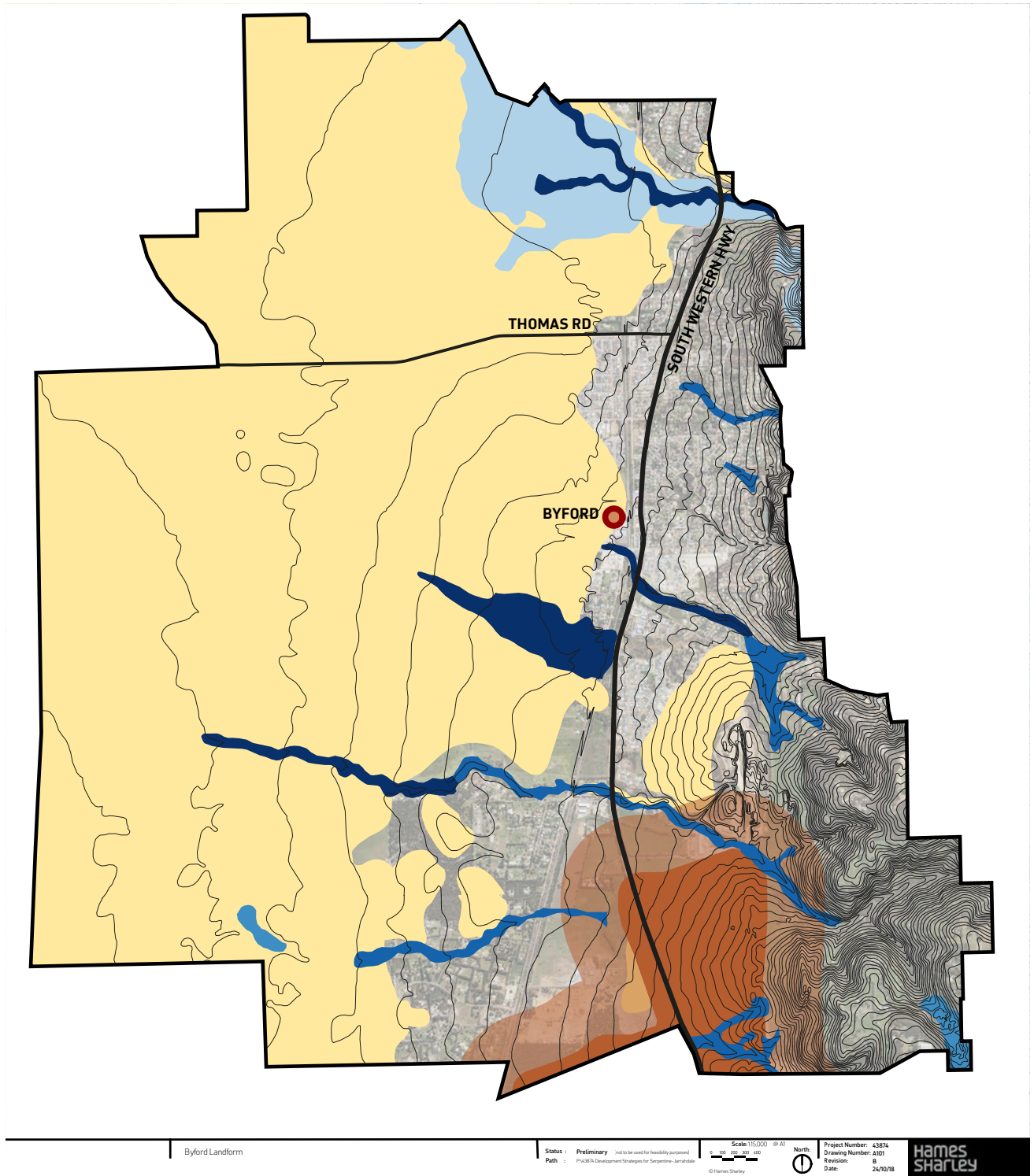
The soils of the Byford District Structure Plan are reflective of the topography. The eastern Darling Scarp typically has a geology of gneiss, granite and shale with colluvium soils of gravel, clay-silt-sand, whilst the Swan Coastal Plain having the Guildford Formation of shallow sands over a basal conglomerate (typically clay). The three primary soil types across the Byford District Structure Plan area are:

- + Ridge Hill colluvium from the Yogannup formation (S12) – highly variable layers of gravelly to sandy clay with lenses of silt and gravel
- + Guildford clay (Csg) – lenses of sandy clay, clayey sand, iron-rich cemented sand and sand. Low horizontal conductivity and very low vertical conductivity
- + Bassendean sand (Cs) – bleached grey to pale yellow sand with little ability to retain moisture or nutrients

Ridge Hill colluvium is found to the east of the study area, in the region of the Darling Scarp. To the west of the study area Guildford clay can be found interlaced with Ridge Hill colluvium. Overlaying the Guildford clay is Bassendean sand, which occurs in thin layers across the majority of the site.

Development in areas of seasonally waterlogged soils must be constructed to withstand these conditions. This has traditionally required the use of fill; however, declining access to said fill is likely to lead to the use of alternative construction techniques and footings (Essential Environmental, 2016). Local structure planning for development areas remaining in the Byford District Structure Plan area should give consideration for alternative methods of constructions.

Figure 16: Existing Landform, Soils and Flood Risk



**LEGEND**

- 5m CONTOUR
- MODERATE TO LOW ACID SULPHATE RISK
- TITANIUM-ZIRCON DEPOSIT
- 500m BUFFER

- FLOOD RISK**
- 10-30% MODERATE TO HIGH FLOOD RISK
  - 30-50% MODERATE TO HIGH FLOOD RISK
  - 50-70% MODERATE TO HIGH FLOOD RISK
  - >70% MODERATE TO HIGH FLOOD RISK

### Acid Sulphate Soils

Acid sulphate soils (ASS) are soils and sediments that contain iron sulphides. They are harmless when left in a waterlogged, undisturbed environment. However, when exposed to air, through drainage or excavation, the iron sulphides in the soil react with oxygen and water to produce iron compounds and sulphuric acid.

ASS in the Byford District Structure Plan, are located to the west of the South Western Highway (Figure 16) consist of moderate to low risk of actual ASS or potential ASS occurring generally at greater than 3 m depth. Low to no risk of actual ASS or potential ASS occurring generally at greater than 3 m depth can be found to the east of the South Western Highway in the Byford District Structure Plan area. While the risk of ASS being exposed to oxidation due to development in the Byford District Structure Plan area is considered low, as part of development requirements, new developments within the area will need to introduce fill to a depth that is acceptable for residential construction as well as provide suitable flood clearance and adequate subsoil drainage (Urbaqua, 2018).

## 2.2.8 NATURAL RESOURCES

### WATER RESOURCES

Environmental impacts within the Shire affect significant water resources in the region with parts of the Peel Harvey Catchment and Jandakot Groundwater Mound located within the Shire. It is therefore crucial that the Shire's environmental values are preserved and that natural areas, areas of significant vegetation, wetlands and waterways are protected, preserved and enhanced as a central element of liveability and a defining characteristic of the Shire.

#### Ground Water

The most significant groundwater resources underlie the Swan Coastal Plain portion of the Shire. This includes the superficial aquifer, which is unconfined and recharged by rainfall, and the deeper, confined aquifers of the Leederville and Yarragadee. Groundwater is generally within 3 metres of the surface in areas of sand. For areas where groundwater is at the surface this is reflective of the palusplain soil type that occurs on the Swan Coastal Plain. Groundwater quality is generally good but information on groundwater quality is limited (Essential Environmental, 2016).

There are approximately 150 private groundwater bores in the Byford District Structure Plan area, the majority of which target groundwater in sand lenses at the base of the Guildford clay at 17.5 – 25 m below natural surface level (Urbaqua, 2018). Because of the local geology, groundwater in the Byford District Structure Plan area is often perched during the winter months. The installation of improved surface and subsurface drainage systems is likely to quickly export this perched water into the drainage system, rather than allowing it to sit and gradually subside. This is likely to result in reduced deep aquifer recharge and increased drain baseflows (Urbaqua, 2018).

Groundwater allocation limits are subject to review and availability of groundwater for irrigation purposes may be limited in the future. It is important to note that allocation limits may be reduced in response to climate change impacts and other groundwater management issues. At the same time, sustainable yield from the superficial aquifer in the Byford District Structure Plan area is significantly restricted due to clay soils. Developments affected by this issue may require numerous shallow, low-yielding bores and/or require a supplementary irrigation source. It is likely that 'fit-for-purpose' water could be provided to industrial areas to reduce the use of potable (Scheme) water (Urbaqua, 2018).

The Shire has undertaken an Integrated Water Management Strategy (February 2020) to investigate water recycling and reuse, such as the reuse of fit-for-purpose water for irrigation of public open spaces, as a means to reduce demand and improve efficiency. These principles should be adopted for any future development within the Byford District Structure Plan area.

Clearing of land for agriculture and/or development may result in threats to water quality, including exposure of ASS, sediment and nutrient export and chemical pollutants. While the risk of ASS being exposed to oxidation due to development is considered low in the Byford District Structure Plan area, new developments will need to introduce fill or alternative building practices including appropriate footing methods to a depth that is acceptable for residential



construction as well as provide suitable flood clearance and adequate subsoil drainage.

### Surface Water

The most notable waterway within the Shire is the Serpentine River, which forms part of the Serpentine Dams (Serpentine Reservoir and Serpentine Pipehead Dam), traverses the Shire southeast flowing through the western boundary of the Shire. As a result, several waterways traverse the Byford District Structure Plan area in a generally westerly direction from the scarp as shown in Figure 16. The most ecologically significant of these watercourses include Wungong River, Cardup Brook and Beenyup Brook, and less so the Birrega Main Drain and Oaklands Drain. Each of these watercourses are highly incised and their beds are usually a few metres below the surrounding land surface (Urbaqua, 2018).

The Byford District Structure Plan area is known to experience regular water logging in the low-lying areas to the west of the area. As outlined within the Byford District Water Management Strategy, this inundation is due to a combination of persistent winter rainfall elevating the shallow water table, which rises to the surface and inundates vast areas of the flat terrain, as well as poor drainage due to palusplain soils, with insufficient capacity that does not allow runoff to leave the area. There is also potential for wetlands within the Byford District Structure Plan area to receive additional flood water from outside their natural catchment by overtopping of drains and watercourses. There are several local depressions east and west of the South Western Highway, which result in local perching of surface water after a large rainfall event. These areas will require recontouring and / or management as part of any redevelopment.

As intensive and residential land use grows, Peel Harvey catchment ecosystem is increasingly under pressure from eutrophication due to increasing nutrient export. Filling of the land has resulted in a loss of wetlands and the installation of drains has significantly altered the hydrology of the landscape. This results in a loss of environmental values. Consideration must be given to the natural water cycle as part of any future development in the Byford District Structure Plan area in order to re-establish lost values and design systems to cope with soil waterlogging and minimise nutrient and sediment export.

The Shire currently stipulates a high standard of water sensitive urban design in areas of new development, with particular focus on treatment of sub-soil drainage. This practice should be maintained through all new development. The Shire also has a policy requiring re-vegetation, including streamlining, as a condition of subdivision approvals. The potential to ameliorate export will depend on planting quality and compliance. Landfill sites are a potential source of pollutants to ground and surface waters, and must be carefully designed, managed and monitored to avoid impacts.

### Flood Risk

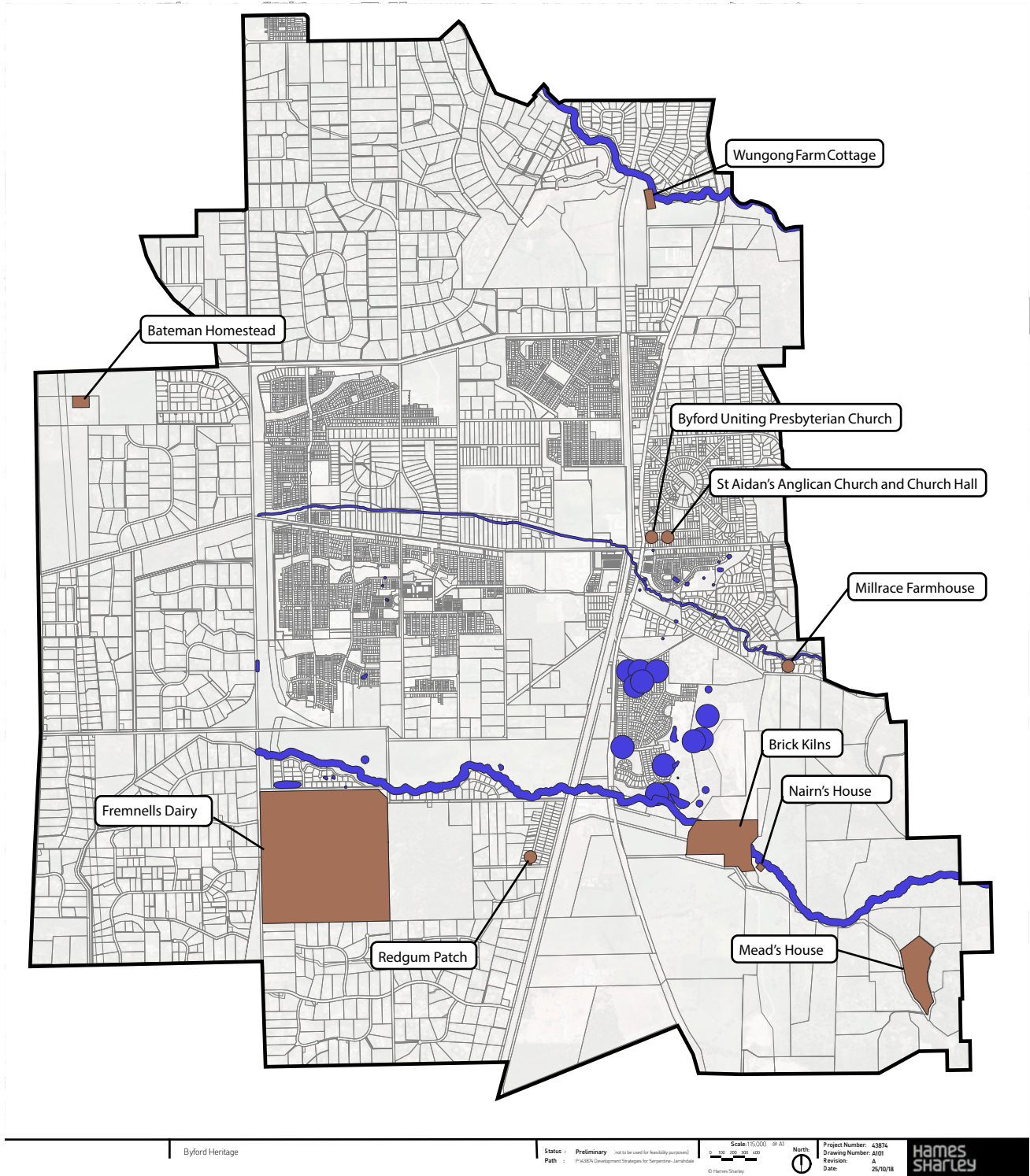
The Serpentine catchment provides around 15% of the annual surface inflow to the Peel-Harvey system. As illustrated in Figure 16, many brooks pass through the Byford District Structure Plan area, flowing down from the Darling Scarp across the Swan Coastal Plain. These waterways are a key natural attribute attracting residents to the area. However there is an associated flood risk to development near any waterway. Flood levels illustrated on Figure 16 indicate large areas of the Byford District Structure Plan are susceptible to flooding under an ARI 100yr rainfall event. The central spine of the Byford District Structure Plan area is most at risk to widespread flooding, particularly along major roads. The eastern side of the Byford District Structure Plan area is categorized by long thin flooded areas protruding from the main body of flood water.

The Shire currently reviewed its floodplain management strategy within the Byford District Water Management Strategy (Urbaqua 2018) for the Byford area with indicative flood levels and provisions for minimum habitable building floor heights. In accordance with both SPP 2.9: Water Resources and LPP 6 Water Sensitive Design, a similar approach will be required to support any further development within the Shire in proximity to waterways to minimise risk of flooding.

## BASIC RAW MATERIALS

Basic raw material resources occur within the Shire providing an important natural resource in close proximity to developing urban areas. It is important to identify the location of basic raw materials to ensure that these resources are protected and remain in non-urban zones. It is important for land use planning to consider environmental assets and natural resources at a strategic level to ensure that more detailed planning and development does not compromise the integrity of environmental systems and the accessibility of natural resources.

Figure 17: Existing Heritage Places



LEGEND

- MUNICIPAL INVENTORY
- ABORIGINAL HERITAGE

The Byford District Structure Plan area has significant resources to the south eastern side of the site (Figure 16). Clearing of the land for resource extraction can result in a loss of biodiversity and can lead to erosion. Mining activities also impact on the visual landscape of the Shire and can result in off-site impacts on nearby land uses including dust, noise and light. For industries operating within these areas, strong guidance should be provided for future rehabilitation and mine closure planning.

## 2.2.9 HERITAGE AND CULTURE

Heritage places, including places of natural heritage value, are important contributors to the visual character and cultural identity of the Byford District Structure Plan area. The area has a rich history, and contains many places of cultural heritage value to both Aboriginal and non-Aboriginal people. Recognising, respecting and celebrating heritage is a way of adding meaning to place, helping people to connect to and value the places they occupy, and to learn from the past.

### ABORIGINAL HERITAGE

The original inhabitants of the Serpentine-Jarrahdale area are the Gnaala Karla Boodja Aboriginal people of the Noongar group of south-west Western Australia. The Department of Planning Lands and Heritage maintains a register of known Aboriginal Heritage Sites, which records the places and objects of significance under the Aboriginal Heritage Act 1972 (WA). Under this Act, obligations exist precluding the interference with registered sites without prior clearance, and disturbance to any heritage values of significance. This will need to be observed by any development within the Byford District Structure Plan.

A number of Aboriginal Heritage Sites and one other Aboriginal Heritage Place have been registered in the Byford District Structure Plan area which are mapped on Figure 17. These sites are concentrated in the southern portion of the Byford District Structure Plan area close to Cardup Brook and Cardup Reserve. Prior to future subdivision and development in the Byford District Structure Plan area, it is recommended an assessment be undertaken by a qualified consultant to determine where more thorough Aboriginal heritage investigations are required.

A number of Aboriginal Heritage Sites and one other Aboriginal Heritage Place have been registered in the Byford District Structure Plan area which are mapped on Figure 17. These sites are concentrated in the southern portion of the Byford District Structure Plan area close to Cardup Brook and Cardup Reserve. Prior to future subdivision and development in the Byford District Structure Plan area, it is recommended an assessment be undertaken by a qualified consultant to determine where more thorough Aboriginal heritage investigations are required.

### NON-ABORIGINAL HERITAGE

European settlement in the Shire of Serpentine-Jarrahdale dates from the 1830s, with land cleared and used primarily for farming and obtaining timber. The population was minimal until the late 1800s when many townships were established (including Byford, Cardup, Jarrahdale, Mundijong, and Serpentine), aided by the opening of timber mills in the 1870s and the construction of the South Western Railway from Perth to Bunbury in 1893, originally for timber transportation. Brickmaking was also a significant industry which contributed to the development of Byford and surrounding townships during this time, after the discovery of shale in Cardup in the 1850s. The Cardup brickworks did not close until 2012.

A number of historic heritage sites within the Byford District Structure Plan area (Figure 17) are located and registered with both the Heritage Council of WA State Register and the Shire of Serpentine-Jarrahdale Municipal Inventory. A number of sites within the Byford District Structure Plan area are listed on the Shire of Serpentine Jarrahdale's Municipal Heritage Inventory. Places entered in a Municipal Inventory do not have legal protection unless they are listed in a separate Heritage List linked to the local Town Planning Scheme, or are already entered in the State Register of Heritage Places.

Adaptive reuse of heritage buildings is an important aspect of heritage conservation as defined by the Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter, 2013) If owners of heritage cannot continue to use places for contemporary purposes, there is a risk that those places will become neglected and could be lost. The challenge within the Byford District Structure Plan is to encourage adaptive reuse whilst retaining the significant elements of the place, not possible without an assessment of those values. While heritage is primarily managed through State and Commonwealth legislation, opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements with traditional owners and optimise opportunities for Indigenous training, employment and businesses.



## 2.3 Opportunities and Challenges

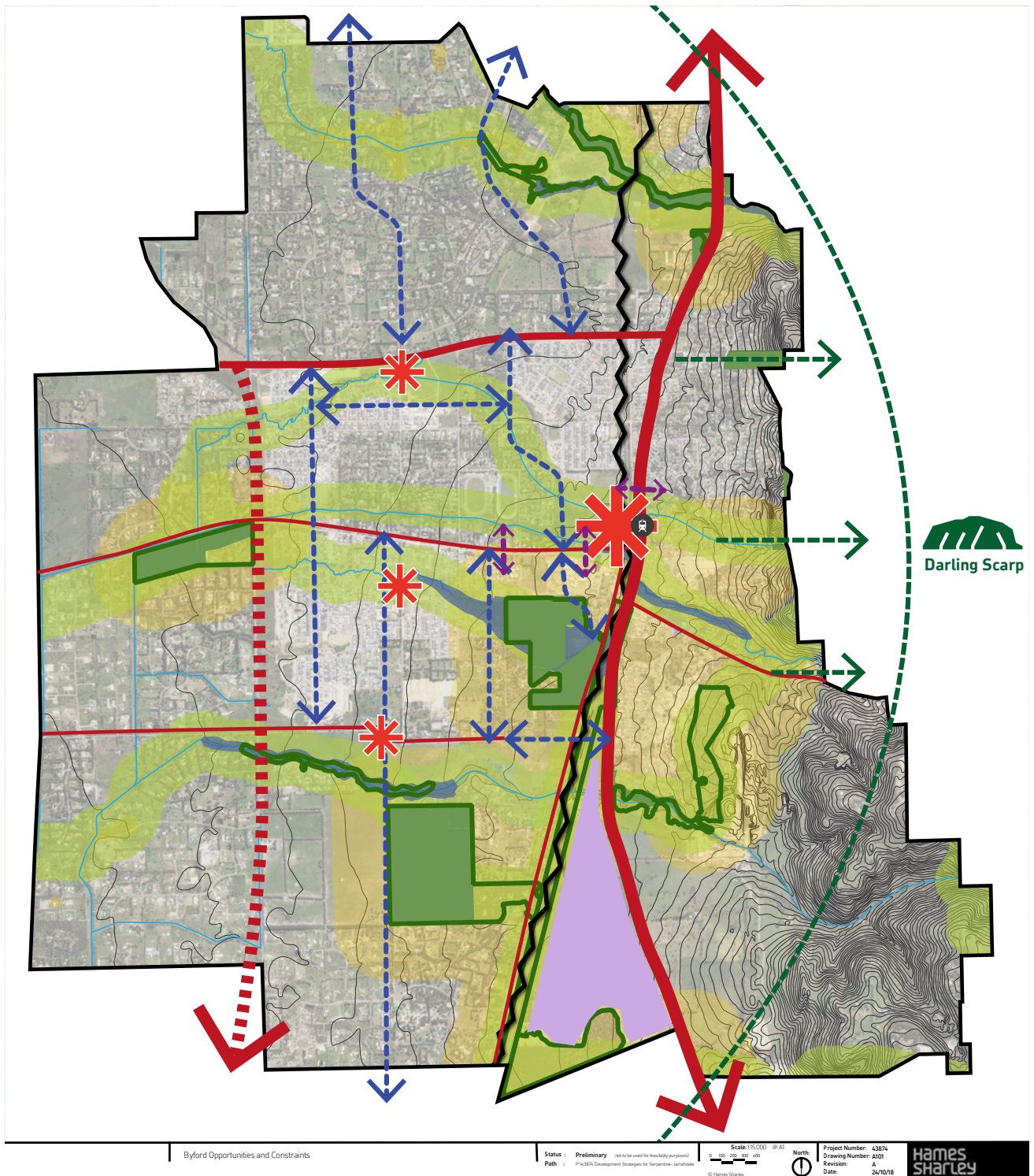
The analysis above has determined a number of opportunities and challenges for the Byford District Structure Plan area. These are summarised in Table 7 and on Figure 18, they will assist in shaping the framework for a revised Byford District Structure Plan.

Table 7: Opportunities and Challenges in Byford District Structure Plan Area

BYFORD	OPPORTUNITIES	CHALLENGES
Land Use	<ul style="list-style-type: none"> <li>+ Byford Town Centre to consolidate as an urban centre with a distinctive character that builds on its unique sense of place and community.</li> <li>+ Byford Town Centre established as an exemplar TOD with grade separated rail resulting in improved access and integrated transport and development outcomes.</li> <li>+ Improve residential density and diversity in the Byford Town Centre to provide greater choice.</li> </ul>	<ul style="list-style-type: none"> <li>+ Overcoming perceptions that Byford is losing its character by merging with metropolitan suburban development.</li> <li>+ Lack of distinctive public spaces for community gathering.</li> <li>+ Fragmented ownership will impact timing of development.</li> </ul>
Economy and Employment	<ul style="list-style-type: none"> <li>+ Byford consolidated as a contemporary district town centre with a range of activities and employment opportunities including retail, civic and commercial.</li> <li>+ Recognition of the value of Byford Trotting Complex and associated equine activity to the local economy.</li> <li>+ Educational and training opportunities associated with practical and on-ground equine and environmental learning.</li> </ul>	<ul style="list-style-type: none"> <li>+ Limited employment and training opportunities for young people.</li> <li>+ Commercial and light industrial demands of a rapidly growing population.</li> </ul>
Community and Social Infrastructure	<ul style="list-style-type: none"> <li>+ Strategic planning framework in place for delivery of community infrastructure.</li> <li>+ Celebrate Byford's role as a family friendly place.</li> <li>+ Enhance sport and recreation provision at Briggs Park through exploration of collocation opportunities with schools.</li> </ul>	<ul style="list-style-type: none"> <li>+ Increasing population requires more funding, planning and development of new communities and associated infrastructure.</li> <li>+ Limited provision of facilities for specific groups such as ageing population, and youth and young families.</li> </ul>
Movement and Access	<ul style="list-style-type: none"> <li>+ Access to employment opportunities, retail and services, improved via improved public transport access through:               <ul style="list-style-type: none"> <li>- Delivery of a rail extension to Byford via METRONET.</li> <li>- Improved and potential rapid bus service along Soldiers Road and freight rail alignment linking centres within the Shire to other destinations.</li> </ul> </li> <li>+ Coordination of grade separated east-west links from South Western Highway across rail line to improve permeability across Byford District Structure Plan area.</li> <li>+ Walking and cycling catchments to the Byford Town Centre, proposed railway station and neighbourhood centres – present opportunities to link to a wider cycle and pedestrian network and promote active and healthy communities.</li> <li>+ Improved connectivity along streets and greenways for walking and cycling.</li> </ul>	<ul style="list-style-type: none"> <li>+ Reducing physical barriers provided by the rail line and South Western Highway to improve east-west connectivity and therefore better integration and vibrancy in the town centre.</li> <li>+ Lack of public transport.</li> <li>+ The Byford METRONET Passenger Rail Station design will be done through a Precinct Structure Plan currently being finalised.</li> <li>+ Traffic issues and road environments that do not provide safe and convenient active transport.</li> <li>+ Safe pedestrian access to schools.</li> <li>+ A Local Structure Plan will have to be submitted for the Lot 33 Hopkinson Road Cardup area (Area U).</li> <li>+ The widening of transport corridors are constrained by environmentally sensitive flora.</li> </ul>

BYFORD	OPPORTUNITIES	CHALLENGES
Service infrastructure	<ul style="list-style-type: none"> <li>+ Consideration for precinct-wide sustainability including provision of services enabling disconnection of communities from centralised systems. This includes power, water, wastewater and non-drinking water.</li> <li>+ Decentralised waste-management strategies which optimise reuse and recycling of waste materials.</li> </ul>	<ul style="list-style-type: none"> <li>+ Groundwater in the Leederville aquifer is mostly allocated, with some remaining capacity within the superficial aquifer to supply groundwater for NDW (eg. public open space irrigation, aquifer recharge, agriculture and industrial use where quality is fit-for-purpose.</li> <li>+ Lack of waste water provision.</li> <li>+ Funding constraints for infrastructure provision.</li> </ul>
Environment and Landscape	<ul style="list-style-type: none"> <li>+ The community's desire for a sustainable, connected and thriving community into the future supports many opportunities for environmental innovations.</li> <li>+ Reserves, areas of natural beauty and Bush Forever sites reinforce the area's distinctive visual character.</li> <li>+ Significant view corridors to the Darling Scarp reinforce the areas unique backdrop of natural beauty and its location in proximity to the region's national park and state forests.</li> <li>+ Consideration should be given to the prioritisation of protection of Local Natural Areas for incorporation into LPS 3.</li> <li>+ Natural drainage corridors provide for multi-use corridors to conserve existing vegetation, promote indigenous re-vegetation, providing recreational and active transport opportunities and surface drainage function.</li> </ul>	<ul style="list-style-type: none"> <li>+ Declining rainfall and rising temperatures have the potential to impact on the health of the environment and the community, as well as the maintenance of public lands and capacity of infrastructure systems including those managed by the Shire;</li> <li>+ Bush Forever sites, particularly along and east of rail line impacting on METRONET outcomes and consolidation of townsites.</li> <li>+ Flood risk associated with drains running across the Swan Coastal Plain portion, which are managed to rural or urban drainage standards..</li> <li>+ Less than 10% of vegetation complexes across the Swan Coastal Plain portion of the Shire are currently contained in secure conservation reserves, with only 12% remaining uncleared. Continued development in Byford District Structure Plan area may adversely affect local biodiversity if not managed.</li> <li>+ The majority of the area is located within a Bush Fire Prone Area of WA as designated by the Fire and Emergency Services (FES) Commissioner.</li> </ul>
Natural Resources	<ul style="list-style-type: none"> <li>+ Re-purpose former extractive industry sites and implement measures to ensure their rehabilitation upon closure.</li> <li>+ Protecting more of the vegetation types in the Shire (i.e. Banksia Woodlands)</li> </ul>	<ul style="list-style-type: none"> <li>+ Any further extraction of minerals and raw materials has the potential to impact on the health of the community and the environment through loss of vegetation, erosion, noise, dust and light.</li> <li>+ Visual impacts of extraction industries could impact on tourism potential.</li> </ul>
Heritage and Character	<ul style="list-style-type: none"> <li>+ Preserve character in areas that celebrate Byford's uniqueness such as the Old Quarter and Trotting Complex / Darling Downs.</li> <li>+ Ensure built form solutions are site responsive, having consideration for land form, ground water and local climate.</li> <li>+ Sound strategic planning framework that acknowledges local heritage and culture and recognises the value of history as well as innovation and looking to the future.</li> <li>+ Aboriginal Heritage Places, State Registered and Municipal Inventory Places and areas under an Assessment Program provide the opportunity to celebrate the areas natural heritage value, its cultural identity and build the local economy through unique tourism opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>+ Heritage and culture is shifting from a rural and country town atmosphere to an urban settlement pattern which requires a different look and feel.</li> <li>+ Subdivision of larger lots and removal of existing mature trees within the Old Quarter threatening the existing character.</li> </ul>

Figure 18: Opportunities and Challenges



Byford Opportunities and Constraints

Status: Preliminary (not to be used for feasibility purposes)  
 Path: P:\2023\Development Strategies for Serpentine-Jarrahdale

Scale: 1:5,000 @ A1  
 0 100 200 300 400

North  
 Project Number: 43874  
 Drawing Number: A101  
 Revision: A  
 Date: 26/10/18



**LEGEND**

- VIEW CORRIDORS
- FUTURE PEDESTRIAN LINKS
- FUTURE VEHICLE ACCESS
- ACTIVITY NODE
- TRANSIT NODE
- RAILWAY BARRIER
- TONKIN HWY EXTENSION
- PRIMARY DISTRIBUTOR ROAD
- REGIONAL DISTRIBUTOR ROAD
- 5m CONTOUR
- DRAINAGE
- HIGH FLOOD RISK
- BUSH FOREVER
- REGIONAL PARK/ RESERVE
- GREEN LINKAGES
- TEC BUFFER
- FUTURE SERVICE INDUSTRIAL







# 3.0 THE STRUCTURE PLAN



## 3.1 Strategic Intent

The Byford District Structure Plan (Figure 19) has been prepared in response to the South Metropolitan Peel Sub-Regional Framework, the draft Local Planning Strategy vision and objectives, and the key opportunities and challenges identified in Section 2.3. It seeks to consolidate all previous plans developed for the area to provide a revised Byford District Structure Plan.

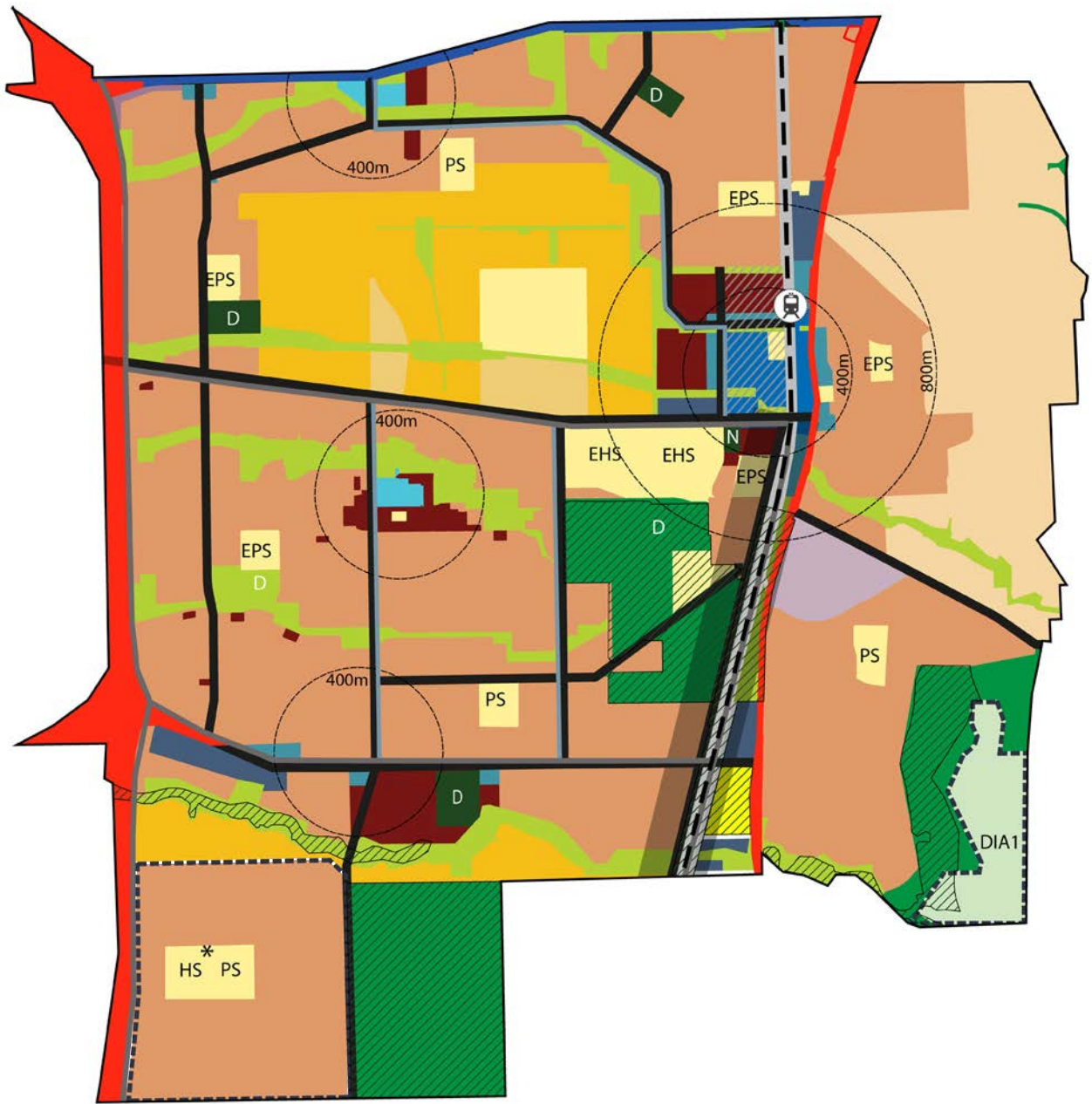
This will be achieved through the following key changes (from the 2009 Byford District Structure Plan):

1. Increased residential density in the Byford Town Centre and establishment of it as an exemplar example of a TOD based around the proposed Byford Railway Station.
2. Identification of Development Investigation Area DIA.
3. Increased density of the Byford Town Centre.
4. Identification of neighbourhood centres to provide local services in close proximity to urban growth areas, in accordance with the relevant approved local structure plans.
5. Provision of a new high school and district open space in the southern portion of the Byford District Structure Plan area.
6. Extension of internal north-south road linkages to the west of Soldiers Road to provide for through connection between San Simeon Road and Turner Road;
7. Extension of Orton Road through to South Western Highway to reduce traffic congestion on Soldiers Road;
8. Extension of internal east-west linkage at Clara Street to facilitate internal movements around the Town Centre providing ease of access to parking and Kiss and Ride drop off zones;
9. Extension of the Tonkin Highway providing a major freight route to Mundijong;
10. Identification of character protection areas;
11. Identification of LSP areas and the matters to be considered within each LSP area; and

The following section provides additional detail and justification for the changes proposed above.



Figure 19: Byford District Structure Plan Map



Byford District Structure Plan

Status : Preliminary (not to be used for feasibility purposes)  
 Path : P:\2024 Development Strategies for Serpentine Jarrahdale

Scale: 1:10,000 IP A1  
 0 100 200 400

North  
 Project Number: 43874  
 Drawing Number: A101  
 Revision: A  
 Date: 28/11/18



**LEGEND**

- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li>— BYFORD DSP BOUNDARY</li> <li>■ DISTRICT CENTRE</li> <li>■ NEIGHBOURHOOD CENTRE</li> <li>■ MIXED USE</li> <li>■ COMMUNITY AND PUBLIC PURPOSE</li> <li>■ LIGHT INDUSTRIAL</li> <li>■ SERVICE COMMERCIAL</li> <li>■ BUSH FOREVER</li> <li>■ DISTRICT/ NEIGHBOURHOOD OPEN SPACE</li> <li>■ RESERVE</li> <li>■ MULTIPLE USE CORRIDOR</li> <li>■ SUBJECT TO FUTURE PRECINCT PLAN</li> <li>■ PLANNING CONTROL AREA 164</li> </ul> | <ul style="list-style-type: none"> <li>■ MEDIUM - HIGH: R40-100</li> <li>■ LOW (SUBURBAN): R20-35</li> <li>■ LOW (TRANSITIONAL): R2-10</li> <li>■ SPECIAL RESIDENTIAL</li> <li>■ RR-1</li> <li>■ RR-2</li> <li>■ RURAL SMALL HOLDINGS</li> <li>■ RURAL</li> <li>■ SPECIAL USE</li> <li>■ PRIMARY DISTRIBUTOR</li> <li>■ SECONDARY DISTRIBUTOR</li> <li>■ DISTRICT DISTRIBUTOR</li> <li>■ PRIMARY CYCLE ROUTE</li> <li>■ SECONDARY CYCLE ROUTE</li> </ul> | <ul style="list-style-type: none"> <li>■ RAILWAY RESERVE</li> <li>■ HIGH FREQUENCY TRANSIT CORRIDOR</li> <li>— PASSENGER RAIL LINE</li> <li>○ RAIL STATION</li> <li>■ DIA BOUNDARY</li> <li>■ DIA DEVELOPMENT INVESTIGATION AREA</li> <li>EHS EXISTING HIGH SCHOOL</li> <li>EPS EXISTING PRIMARY SCHOOL</li> <li>HS HIGH SCHOOL</li> <li>PS PRIMARY SCHOOL</li> <li>D DISTRICT OPEN SPACE</li> <li>N NEIGHBOURHOOD OPEN SPACE</li> <li>* HIGH SCHOOL SITE LOCATION TO BE DETERMINED (REFER TO PART 1 SECTION 1.6.8)</li> </ul> |
|---|--|--|

## 3.2 Land Use and Activity

It is critical that planning for the predicted population growth of the Byford District Structure Plan area aligns with Perth and Peel@3.5million by promoting urban consolidation. This will be achieved through focussing development around existing activity centres providing efficient use of existing transport networks, service infrastructure, employment and key community/social infrastructure facilities. The Byford District Structure Plan seeks to optimise the use of land in close proximity to key public transport infrastructure to establish new nodes of activities, underpinned by high-quality built form and public spaces linked together by a network of 'multiple use corridors'.

### 3.2.1 POPULATION AND DENSITY

SJ2050 and the Shire's Local Planning Strategy identify that the Byford District Structure Plan area will need to accommodate a population of approximately 50,000 people by 2050 to meet the Shire's long term growth targets. This growth is planned to be provided primarily in the residential zoned areas and designated future investigation areas identified on the Byford Urban Growth Capacity Map (Figure 20). These areas delineate a defined urban growth boundary which seek to limit expansion, enabling the preservation of the existing rural-residential character in the Byford District Structure Plan fringe.

Based on the Shire's average of 2.8 people per household approximately 17,900 dwellings would be required to achieve a population of 50,000. In calculating the estimated population the following methodology was applied to calculate the estimated dwelling/lot targets for each precinct:

- + A review of LSPs and spatial data has been undertaken to identify the estimated total lot/dwelling yield for each area covered by an LSP or approved subdivision application;
- + The lot/dwelling estimates for greenfield areas not yet subject to LSPs have been determined through identifying their total land area, deducting 40 percent of this land area (accounting for land required for public purposes such as roads, public open space and drainage), and then determining the subdivision/development potential of the remaining land area based on its residential density coding;
- + The lot/dwelling estimates for infill sites (i.e. existing urban) not yet subject to LSPs were determined through manual calculations of the development potential of each landholding based on the relevant residential density; and
- + The lot/dwelling estimates for existing developed areas were calculated manually.

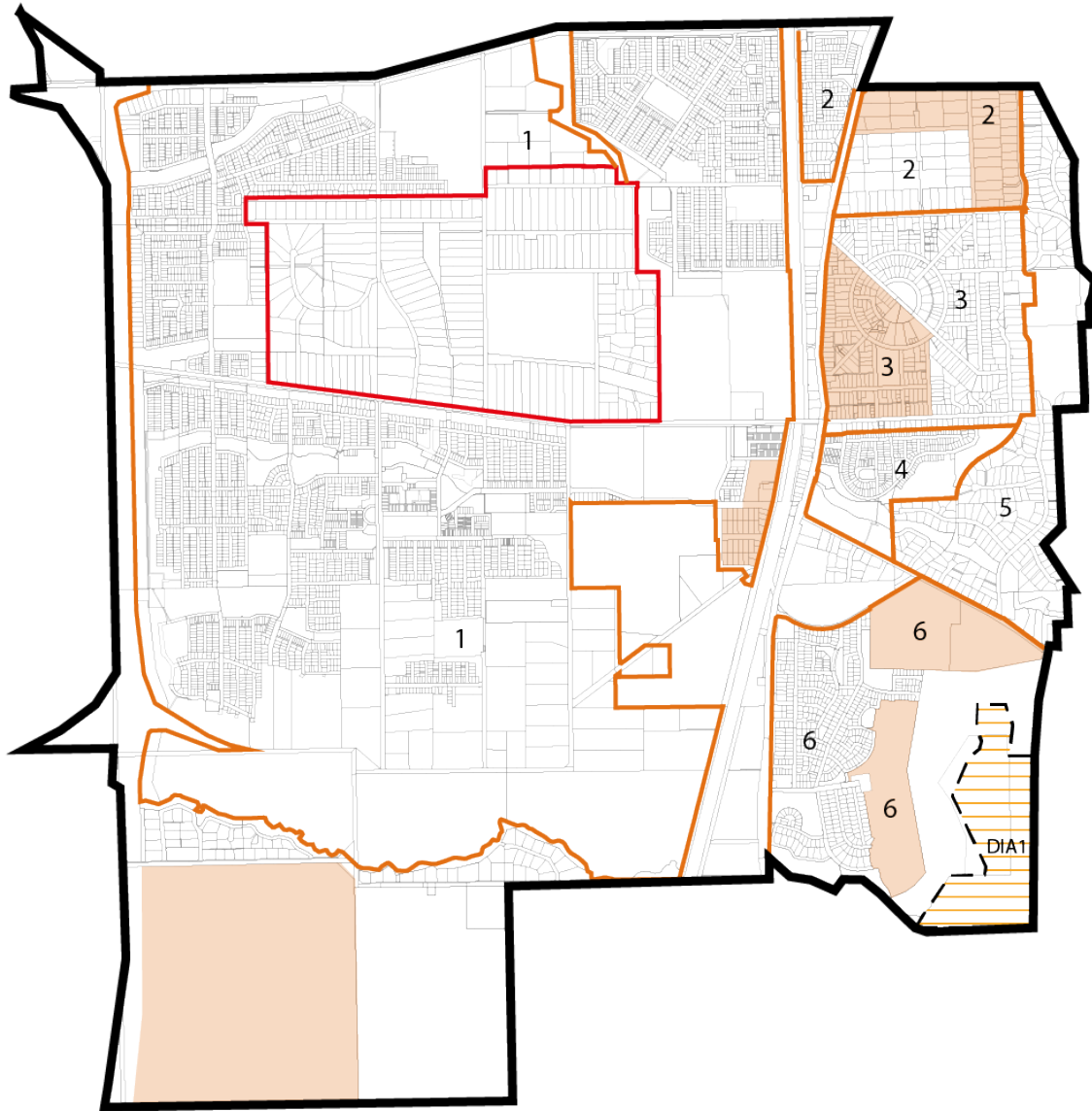
Table 8: Approximate Population and Dwellings Target

AREA	EXISTING	NEW	LOT 33 HOPKINSON ROAD	DIA1	TOTAL
TOTAL RESIDENTIAL LOTS	7,527	8,261	1,610	419	17,817
POPULATION ESTIMATE - FULL BUILD OUT	21,527	23,626	4,605	1,198	50,957

\* Calculated based on existing dwellings and dwellings proposed by approved structure plans. DIA areas applied a conservative estimate of R25. It is expected that more detailed estimates will be provided in the LSP stage which include a distribution of densities.

Table 8 provides a summary of the estimated dwellings and population the Byford District Structure Plan area can accommodate. It demonstrates that the current framework (which includes all approved local structure plans) can accommodate 19,000 dwellings or 54,848 people (based on the Shire's average of 2.89 people per household).

Figure 20: Byford Urban Growth Capacity



Byford Urban Growth Capacity

Status : Preliminary (not to be used for feasibility purposes)  
Path : P:\43874\Development Strategies for Serpentine Jarrahdale

Scale: 1:15,000 @A1  
North

Project Number: 43874  
Drawing Number: A101  
Revision: A  
Date: 24/10/18



LEGEND

- BYFORD DSP BOUNDARY
- POPULATION CATCHMENT AREAS
- AREAS WITHOUT A STRUCTURE PLAN
- DEVELOPMENT INVESTIGATION AREA



## 3.2.2 LAND USE

The Byford District Structure Plan identifies the broad land use zones to guide future development in the surrounding area. The proposed intent of the various zones/land uses is described below.

### ACTIVITY CENTRES

The Byford District Structure Plan identifies a total of four activity centres which are evenly distributed throughout the structure plan area. The activity centres are based around a clear hierarchy which is explained below. Activity centres are expected to be the primary activity nodes and locations for medium-high density housing.

#### District Centre

The Byford District Structure Plan aligns with the State planning framework by identifying the existing Byford Town Centre as a District Centre. The Byford District Centre will accommodate a finer grain urban form, it will be the primary location for retail activity, commercial uses, employment, and medium-high density housing.

Development will be consolidated in the relocated Byford Town Centre (west of the railway) and based around the Byford Train Station which will provide enhanced public transport access and enable the centre to embody TOD principles. The final station location will be dependent on the outcomes of METRONET aimed at providing a high level of connectivity and legibility leading to the transit hub.

#### Neighbourhood Centre

Three neighbourhood centres are identified in the Byford District Structure Plan, these are distributed throughout the major urban growth areas in the western portion of the Byford District Structure Plan area. The primary role of the neighbourhood centres is to support the district centre by providing localised services. Walkability and cycling access are key drivers for neighbourhood centres therefore they will require minimum dwelling densities to be achieved to be viable from the walkable catchment. It is recommended that LSPs achieve a minimum density of 15-20 dwellings per hectare within the 800m radius.

### URBAN SETTLEMENT

As discussed in Section 3.2.1 the Byford District Structure Plan is expected to accommodate an urban population of up to 54,000 people (excluding DIAs). The Byford District Structure Plan map identifies an urban growth boundary which determines where residential development will be permitted. The purpose of the growth boundary is to ensure further encroachment into existing rural residential and rural land is prohibited to ensure that the existing rural character is preserved. However, the potential for realisation of higher densities should be explored in urban areas to ensure that a range of housing types are provided. The adaptability of housing to accommodate ageing-in-place and universal access will also need to be addressed.

Residential development in the Byford District Structure Plan area can be broadly classified into the following categories:

#### Medium/High Density (Urban)

Medium/high densities will be based on density codes which range from R40-R100. Housing typologies in these areas should include dwelling types such as terraces (grouped dwelling) and apartments (multiple dwelling) provided in close proximity to amenity and public transport. This will give residents with additional choice and diversity, promoting opportunities for ageing in place.

Medium/high density development will be limited to specific areas within the Byford Town Centre and around the various neighbourhood centres. The final density range and distribution shall be determined through preparation of an Activity Centre Plan for Byford and LSPs for neighbourhood centres (where they do not already exist).

#### Low Density (Suburban)

Low density suburban development will be the most common type of development within the Byford District Structure Plan. Density will range from R20-R35 and single detached housing is likely to be the most common type of dwelling in the suburban setting.

LSPs should ensure equitable access to public open space, linear parks, community facilities, local centres and public transport routes. Residential development based upon the upper end of the density range should be provided around the proposed neighbourhood centres. The final density range and distribution shall be determined as part of Local Structure Planning.

#### Low Density (Transitional)

Larger lots (800m<sup>2</sup>-5,000m<sup>2</sup>) are encouraged on the peripheries of the urban settlement zone where possible to contribute to the rural character of Byford, providing a gradual transition from high-density to rural residential. Density will range from R2-10 and single detached housing is likely to be the most common type of dwelling in the suburban setting.

#### Rural Residential

The trotting complex and a portion of the scarp are the only rural residential lots in the DSP area. It is expected that a total of approximately 620 people will live in these areas.

#### INDUSTRIAL

Byford has a light industrial area on Nettleton road that provides a mix of industrial uses. This industrial area will probably be phased out in the medium to long term as these uses are expected to relocate to the West Mundijong industrial area and the Cardup industrial area to the south of the DSP area. It will however continue to play a role in the fabric of what is Byford for the foreseeable future.

#### DEVELOPMENT INVESTIGATION AREAS

The Byford District Structure Plan identifies one DIA. The intent of this DIA is to provide future opportunities for urban expansion to increase the number dwellings the Byford District Structure Plan can accommodate. Development within the DIAs will need to be in accordance with endorsed LSPs.

The DIAs provide the potential to accommodate approximately an additional 1,200 people.

## 3.3 Economy and Employment

### 3.3.1 ECONOMY

#### ACTIVITY CENTRES

As discussed in Section 3.2.2 the Byford District Structure Plan proposes a network of activity centres which are earmarked as strategic locations for employment growth (Figure 21). The Shire's activity centre strategy determines that approximately 20-25% of the Byford District Structure Plans jobs should be located within the defined activity centres. It is expected that this growth would accommodate industries such as retail, professional services, and financial services, however, it should also provide opportunities for start-ups and small businesses to cluster and grow. Retail demand is expected to be a major driver of economic growth. The Activity Centre's Strategy identifies that the Byford District Structure Plan could accommodate 32,900m<sup>2</sup> of retail floor space. This would be distributed as follows:

- + Approximately 14,700 m<sup>2</sup> NLA in the Byford District Centre (Byford Town Centre LSP estimates between 8,952 m<sup>2</sup> - 15,538 m<sup>2</sup> NLA);
- + Approximately 5,000 m<sup>2</sup> NLA in each Neighbourhood Centre (15,000 m<sup>2</sup> total); and
- + Approximately 3,200 m<sup>2</sup> NLA in various local nodes.

Based on approximately 25 m<sup>2</sup> NLA per employee activity centres in Byford are expected to provide approximately 1,300 local jobs.

#### INDUSTRIAL

Industrial development is fundamental to sustaining and strengthening the local economy and creating local employment opportunities. Byford has a light industrial area on Nettleton road that provides a mix of industrial uses. This industrial area will probably be phased out in the medium to long term as these uses are expected to relocate to the West Mundijong industrial area and the Cardup industrial area to the south of the DSP area. It will however continue to play a role in the fabric of what is Byford for the foreseeable future.

#### EQUINE

The Byford District Structure Plan has a rich equine history centred around the Byford Trotting Complex and Darling Downs area. Future investigations are required to determine how best to expand upon the existing equine industry to promote localised employment opportunities.

#### EDUCATION AND HEALTH

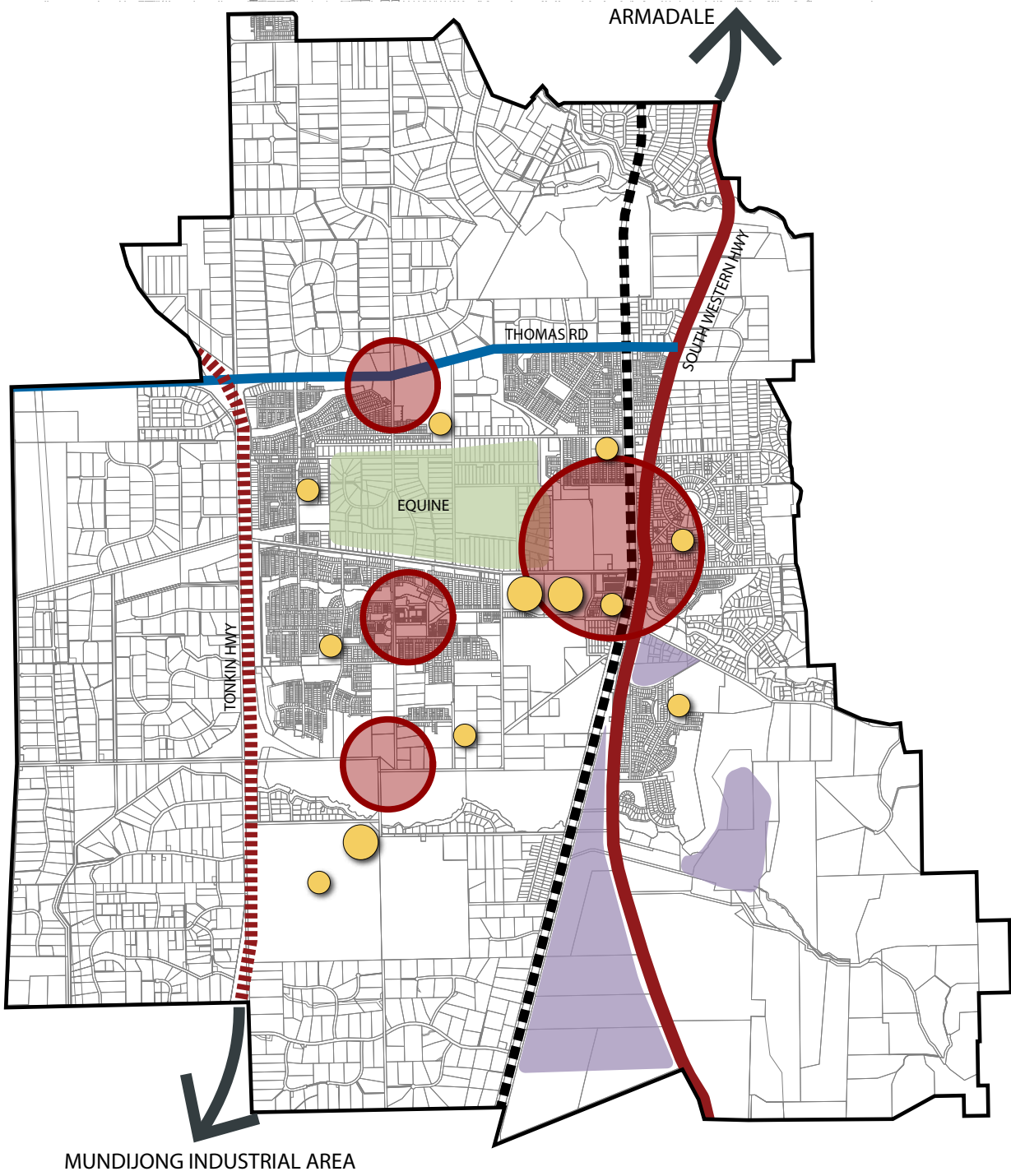
As the local population continues to grow and evolve, providing access to a range of education and health related facilities locally in the Byford District Structure Plan area will become more important. The Byford District Structure Plan includes a number of education facilities including six primary and three secondary schools. In addition, an ageing population will require investment into a range of aged care and retirement living villages to cater for people in all stages of life. It is recommended that these facilities be located in high amenity areas such as the Byford Town Centre.

### 3.3.2 EMPLOYMENT

Currently, the estimated resident labourforce in the Byford District Structure Plan area is 8,422. With a proposed population of up to 50,000 people the resident labourforce is expected to grow exponentially, increasing pressure on the need to provide a large amount of new jobs. It is estimated that 60% of Byford District Structure Plan residents will be involved in the workforce. Based on an estimated population of 50,000 this would equate to a resident labourforce of approximately 30,000. The South Metropolitan Peel Sub-Regional Framework identifies an employment self-sufficiency target of 61% for the eastern sector of the South-Metropolitan Peel Sub-Region. Based on an estimated 30,000 resident jobs, the Byford District Structure Plan area would need to provide approximately 18,300 jobs to achieve a self-sufficiency rating of 61%. Whilst the industries mentioned above have the potential to provide some of these jobs a self-sufficiency rating of 61% in Byford is unlikely. The Byford District Structure Plan has taken a sub-regional focus to employment. Acknowledging that not all jobs can be provided in the local area the focus is to strengthen transport links. This would enable residents in the Byford District Structure Plan area to access major regional employment areas such as Armadale, Rockingham, and Kwinana, as well as localised opportunities in Mundijong and Jarrahdale.



Figure 21: Employment Opportunities



Byford Education and Employment

Status : Preliminary (not to be used for feasibility purposes)  
Path : P1636N Development Strategies for Serpentine-Jarrahdale

Scale: 1:5,000 @ A1  
0 100 200 300 400

North  
Project Number: 43874  
Drawing Number: A101  
Revision: A  
Date: 24/10/18



LEGEND

- INDUSTRIAL
- EQUINE
- TONKIN HWY
- SOUTH WESTERN HWY
- SECONDARY REGIONAL ROAD
- RAIL LINE

- ACTIVITY CENTRES
- EDUCATION

## 3.8 Movement and Access

To accommodate the anticipated population growth for Byford and to ensure efficiency of the movement system is not compromised, the Byford District Structure Plan recognises the need to integrate urban development and employment nodes with transport infrastructure and services. A challenge for the Byford District Structure Plan area is to ensure key roads are appropriately managed and upgraded over time to facilitate future transport efficiency. An effective and adaptable public transport network will be a key mechanism for achieving greater sustainability. This will be achieved through an integrated network of passenger rail lines and transit corridors.

### 3.8.1 PUBLIC TRANSPORT

The key to improving regional accessibility in the Byford District Structure Plan is the extension of the passenger rail service to Byford. Passenger rail infrastructure proposed under the South Metropolitan Peel Sub-Regional Framework includes the Stage 1 METRONET proposal to extend the Armadale Train Line to Byford. The station will be centrally located in the Byford Town Centre providing opportunities for TOD. The passenger rail will be supported by a network of feeder bus services to reduce the amount of car parking required. Key local distributor roads have been identified as the preferred locations for bus routes to ensure a high degree of accessibility is provided for residents. It is recommended that any 'park n ride' facilities are located off-site so as not to compromise the development potential immediately surrounding the station.

In the short/medium-term the existing rail corridor has been identified with the potential to accommodate Bus Rapid Transit (BRT). This is subject to further investigations and planning for METRONET with the Department of Transport and the Public Transport Authority.

### 3.8.2 ACTIVE TRANSPORT

Active modes of transport such as walking and cycling are supported for short distance journeys within urban areas. Providing safe, accessible and interconnected pedestrian and cycle links between residential areas and destinations such as schools, shops, public transport stops and parks is essential in encouraging greater pedestrian and cycling activity. Such modes of transport have many benefits including improved physical and mental health, activated streetscapes with a higher level of passive surveillance, reduced dependency on the automobile leading to less traffic congestion and greenhouse gas emissions and increased engagement within communities. Facilitating active modes of transport is also important for recreational purposes offering opportunities for jogging, dog walking, horse riding, bushwalking and off-road cycling.

Figure 22 identifies the primary cyclist connections in the Byford District Structure Plan area. These routes will include dedicated cycle infrastructure that is integrated with the existing Perth Bicycle Network. Active transport should also be given priority in activity centres. Medium-high density housing combined with safe and attractive streets will make walking and cycling viable transport options for short, local trips.

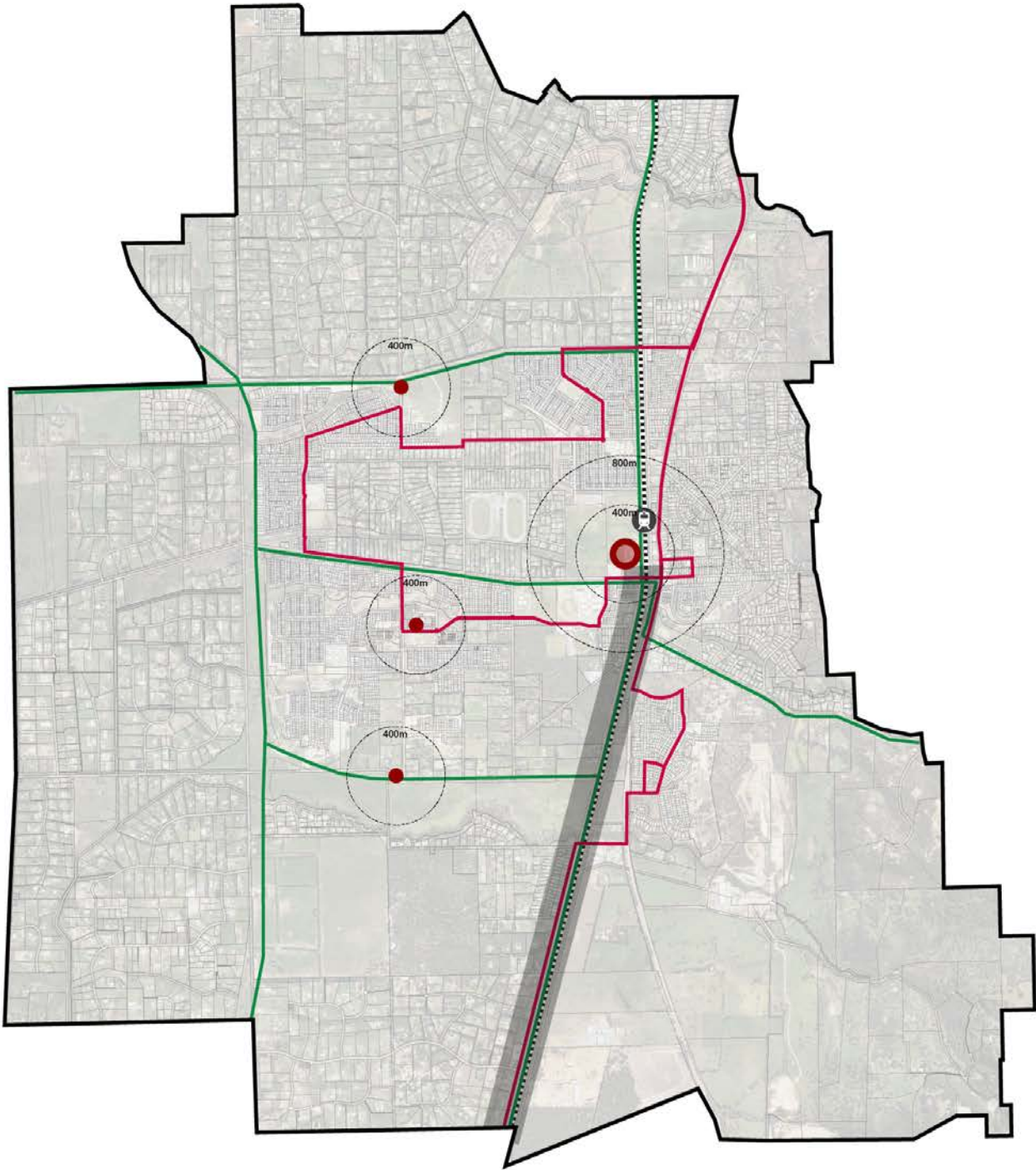
### 3.8.3 ROAD NETWORK

The Byford District Structure Plan seeks to align with the South Metropolitan Peel Sub-Regional Framework which identifies a number of upgrades to the future regional road network including new and upgraded primary distributor and integrator arterial roads, this includes the extension of Tonkin Highway (Figure 23). Good access to and from key distributor roads is a key focus of the Byford District Structure Plan and a major consideration for people moving to and within the Byford District Structure Plan. New or improved local connections throughout existing and future development areas are essential in providing an efficient movement network.

#### PRIMARY DISTRIBUTORS

Tonkin Highway and South Western Highway are identified as primary distributors in the Byford District Structure Plan. Both roads are currently key north-south connectors providing access to the wider Perth Metropolitan Region. It is expected that the Tonkin Highway extension will take pressure off South Western Highway by redirecting heavy vehicles to Tonkin Highway. This will mitigate existing conflicts in the Byford Town Centre and contribute to a more pedestrian oriented environment. An on-ramp will be provided at Orton Road.

Figure 22: Proposed Public and Active Transport Network



Byford Proposed Public and Active Transport

Status: Preliminary - not to be used for finality purposes  
 File: RA/BCD Development Strategies for Serpentine-Jarrahdale

Scale: 1:15,000 @A1  
 0 100 200 300 400

North

Project Number: 43674  
 Drawing Number: A101  
 Revision: A  
 Date: 26/10/18



LEGEND

- ..... RAIL LINE
- PRINCIPLE SHARED PATH
- BUS ROUTES
- BUS RAPID TRANSIT

- DISTRICT CENTRE
- NEIGHBOURHOOD CENTRE
- 🚂 RAIL STATION



Ultimately, Tonkin Highway will connect to South Western Highway south of Mundijong Road. This will enable freight movement to access the proposed Intermodal Hub in West Mundijong and bypass both the Byford and Mundijong Town Centre's.

## REGIONAL DISTRIBUTORS

Regional distributor roads in the Byford District Structure Plan are typically located on the periphery of the urban area and provide enhanced connectivity to primary distributor roads or surrounding urban areas. Regional distributors can be summarised as follows:

- + Thomas Road and Orton Road - primary east-west connectors between Tonkin Highway and South Western Highway. Both roads provide access to Tonkin Highway. Thomas Road is the most important east-west connector as it also connects to Kwinana Freeway providing access to the Perth CBD and Rockingham. Grade separation is required on both roads where they intersect the railway reserve.
- + Soldiers Road - primary north-south distributor road which provides a direct connection between the Byford District Structure Plan area and the Mundijong and Whitby District Centres.
- + Nettleton Road - east-west distributor road that provides a connection to the Jarrahdale Townsite and tourism opportunities.

## LOCAL DISTRIBUTORS

The Byford District Structure Plan includes a network of local distributor roads which provide localised connections and interconnectivity to both regional and primary distributors. Key connections summarised below:

- + Doley Road - proposed to be extended to the Mundijong District Structure Plan area providing a secondary north-south connection with Soldiers Road.
- + Abernethy Road - primary east-west connector between Tonkin Highway and South Western Highway. Provides connections to the Byford Town Centre. An underpass is proposed at Tonkin Highway to ensure east-west vehicle permeability via Abernethy Road is maintained.
- + Wungong Road South - north-south distributor that provides a connection to growth areas south of the Armdale SMC.
- + East-West Connector - provides a new link between Ballawarra Avenue and San Simeon Boulevard to improve connectivity to the northern side of the Byford Town Centre.

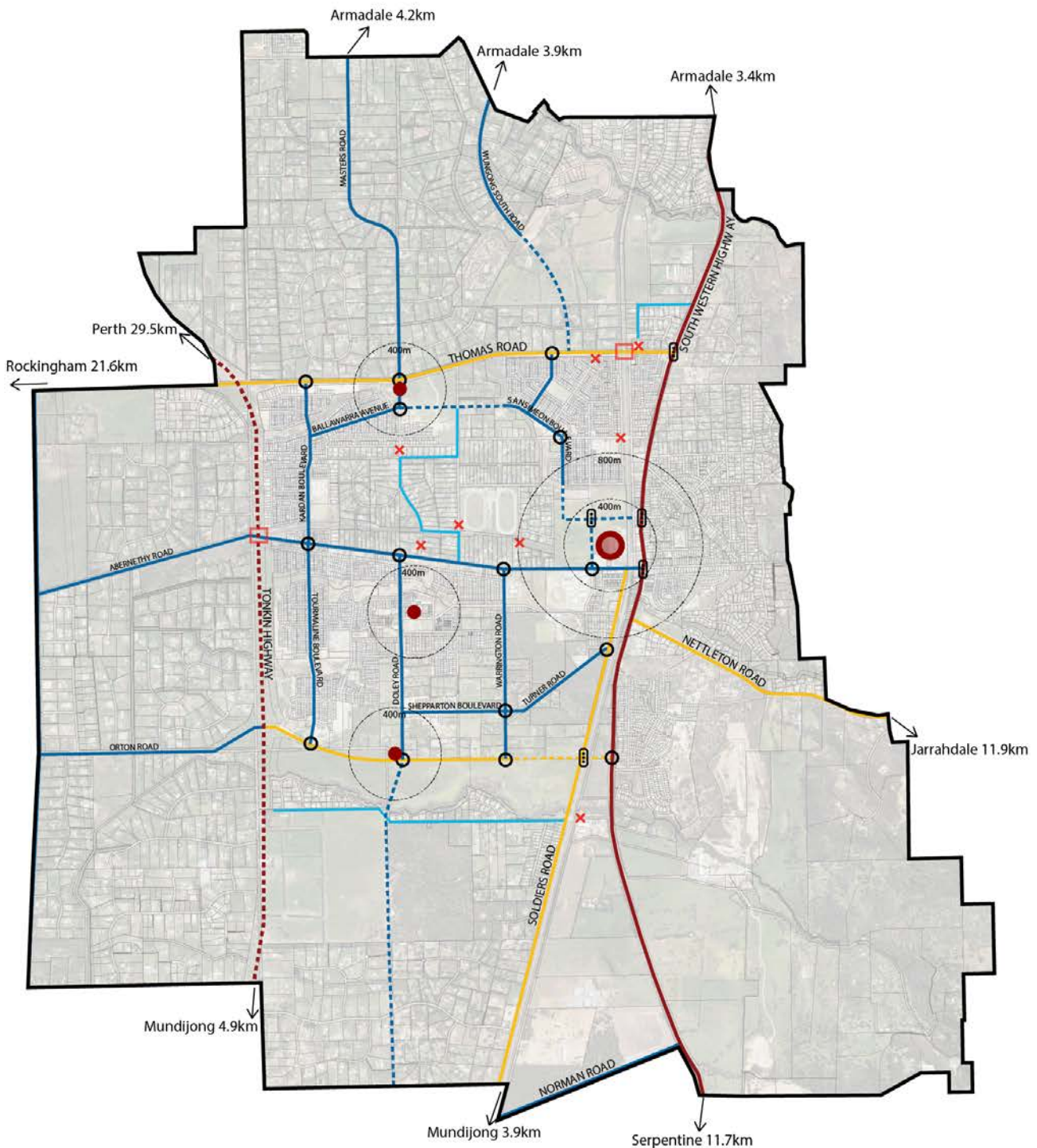
## BYFORD TOWN CENTRE

The Byford Town Centre Local Structure Plan includes key modifications to the movement network.

- + Realignment of San Simeon Boulevard
- + Incorporation of an efficient and legible modified grid layout
- + Inclusion of multiple use corridors for drainage and recreation
- + Provision for roundabouts at the intersections of San Simeon Boulevard and Abernethy Road, and at Clara Road West.
- + The vehicular and pedestrian connections provide for a highly legible and permeable movement network, which runs parallel and perpendicular to the existing roads, allowing safe and efficient movements across the site. Consideration has been given to the interface with the surrounding roads to allow for integration with proposed intersections and adjoining development.

All new connections and upgrades to the road network in the Byford District Structure Plan will be funded through the Byford Development Contribution Plan.

Figure 23: Proposed Vehicle Movement Network



Byford Proposed Road Network

Status: Preliminary Use to be used for feasibility purposes  
 Path: PM2024 Development Strategies for Separation Armadale

Scale: 1:50,000 @ A1  
 0 100 200 400

North

Project Number: 43874  
 Drawing Number: 4101  
 Revision: A  
 Date: 20/11/18

Hames Sharley

LEGEND

- PRIMARY DISTRIBUTOR
- REGIONAL DISTRIBUTOR
- LOCAL DISTRIBUTOR
- MODIFIED ACCESS ROAD
- - - FUTURE PRIMARY DISTRIBUTOR
- - - FUTURE LOCAL DISTRIBUTOR
- DISTRICT CENTRE
- NEIGHBOURHOOD CENTRE
- ROUNDABOUT
- ⊞ TRAFFIC LIGHT
- GRADE SEPARATION
- × CLOSES SECTION OF ROAD

## TRAFFIC IMPACT ASSESSMENT

Cardno prepared a Traffic Impact Assessment (Appendix 2) to test the efficiency and performance of the proposed Byford District Structure Plan road network.

A mesoscopic traffic model was developed to model the current traffic situation and provide a base to determine the likely future traffic impacts. A number of data sources were used in the formulation of the mesoscopic model which included traffic, surveys, census data and information provided by local authorities. The future-year models are based on the traffic growth scenario derived from information provided by the Shire of Serpentine-Jarrahdale and Main Roads (ROM24 outputs) for the 2031 scenario years.

Based on the results provided by the mesoscopic model, the network in the area of Byford is operating at an acceptable level of service with sufficient capacity to accommodate traffic for the 2018 scenario. With respect to the 2031 scenario, the mesoscopic model identified a number of intersections which exhibited capacity or delay issues. These intersections have been assessed in SIDRA to determine the minimum extent of upgrades required to ensure that they are operating at an acceptable level of service in 2031.

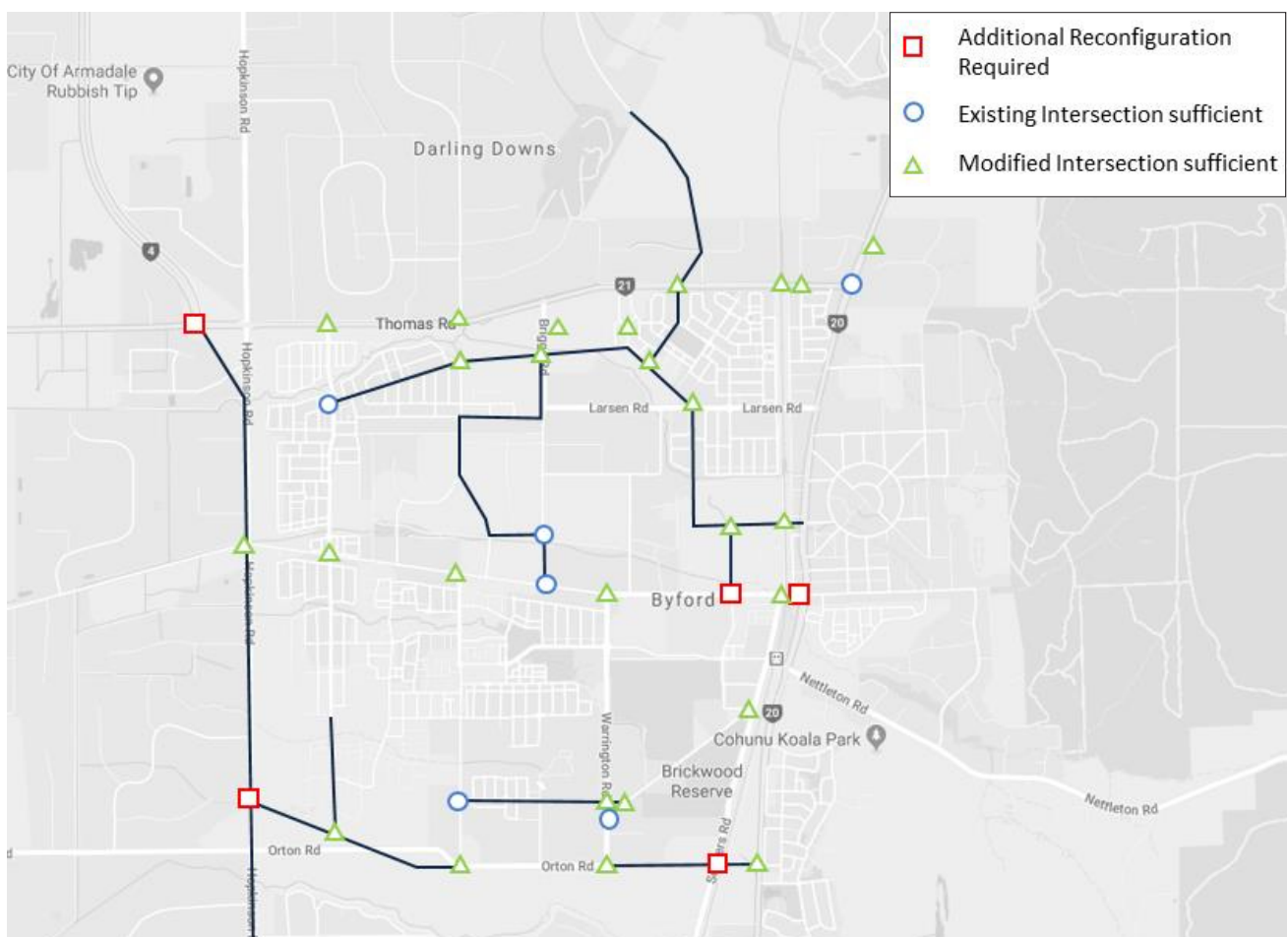


Figure 24: Intersection Sufficiency

Source: Cardno, 2018



### Operational Performance

Figure 24 identifies the results of intersection evaluation across the Byford area. Intersections have been classified into 3 groups as described below:

1. Existing Intersection Sufficient: the existing (2018) geometry has been evaluated through the Aimsun mesoscopic model and shown to be sufficient to accommodate future traffic growth.
2. Modified Intersection Sufficient: the Shire's proposed modifications have been evaluated through the Aimsun mesoscopic model and shown to be sufficient to accommodate future traffic growth.
3. Additional Reconfiguration Required: The existing and/or proposed intersection form has been evaluated through the Aimsun mesoscopic model and found to experience excessive congestion or delay. These intersections have been re-evaluated in SIDRA and changes identified to improve operation.

The traffic impacts from the Byford District Structure Plan were evaluated in a mesoscopic modelling framework. Key intersections within the road network were classified in three categories based on operational performance:

- The existing intersection forms are considered sufficient to accommodate future growth. These include:
  - Kardan Boulevard/Ballawarra Avenue
  - South West Highway/Thomas Road
  - Abernethy Road/Briggs Road
  - Warrington Road/Turner Road
  - Doley Road/Shepparton Boulevard
- The proposed intersection forms are considered sufficient to accommodate future growth. These include:
  - Thomas Road/Kardan Boulevard
  - Thomas Road/Masters Road
  - Thomas Road/Plaistowe Boulevard
  - Thomas Road/Alexander Road
  - Thomas Road/George Street
  - Ballawarra Avenue/Malarkey Street
  - Ballawarra Avenue/Briggs Road
  - Ballawarra Avenue/Plaistowe Boulevard
  - Ballawarra Avenue/Larsen Road/Sansimeon Boulevard
  - Abernethy Road/Tonkin Highway
  - Abernethy Road/Kardan Boulevard/Tourmaline Boulevard
  - Abernethy Road/Doley Road
  - Abernethy Road/Warrington Road
  - Soldiers Road/Turner Road
  - Turner Road/Warrington Road
  - Orton Road/Warrington Road
  - Orton Road/Doley Road
  - Doley Road/Cardup Siding Road
  - Orton Road/Tourmaline Boulevard

- For a number of key intersections, alternative intersection forms were considered necessary to accommodate future growth. These include:
  - Tonkin Highway/Thomas Road
  - Abernethy Road/Sansimeon Boulevard
  - Sansimeon Boulevard/Clara Street
  - South Western Highway/Abernethy Road
  - Soldiers Road/Orton Road
  - South Western Highway/Orton Road

Overall, with the reconfigured intersection the Traffic Impact Assessment has determined that the Byford District Structure Plan road network is considered to operate satisfactorily in the 2031 future scenario.

Further details on the intersection performance assessment are provided in Appendix 2.

Table 9: Road Width Specifications

	Road	Recommended Road Hierachy (WAPC)	Recommended Road Reserve width	Shire Recommendation	Details
1	Aberntehy Road	Integrator A (<=60 kph)	37.8m	30m all area	Construction and upgrade between the Tonkin Highway reserve to the west, and the rail reserve to the east.
2	Kardan Blvd	Neighborhood Connector A	37.8m	25m Abernethy Road to Fawcett Road	Construction and upgrade between the Thomas Road to north and Abnerethy Road to the South.
3	Soldiers Road	Neighborhood Connector A	28.2m	20m all area	Construction and upgrade between Abernethy Road to the north and Cardup Siding Road to the south.
4	Orton Road	Integrator B	28.2m	30m all area	Construction and upgrade the Tonkin Highway reserve to the west, and the Soith Western Highway to the East.
5	Doley Road	Neighborhood Connector A	21.6m	27.6m south of Orton, 30m north of Orton	Construction and upgrade between Abernethy Road to the north and Orton Road to the south.
6	Warrington Road	Neighborhood Connector B	28.2m	20m all area	Construction and upgrade between Abernethy Road to the north and Orton Road to the south.
9	Sansimeon Boulevard	Integrator B Town Centre Road	27.6m	27.6m south of Orton, 30m north of Orton	Construction and upgrade between Larsen Road to the north and Abernethy Road to the south.
17	Calara Street	Integrator B Town Centre Road	15.5m	30m all area	Construction and upgrade between Sansimeon Boulevard to the West and George Street to the south.
10	Indigo Parkway	Integrator B	28.2m	22.5m adjacent to public open space (500m length), 30m Malarkey section (190m), 27.5m remaining area	Construction and upgrade between Thomas Road to the north and Larsen Road to the south.
11	Indigo Parkway	Integrator B	27.6m	22.5m adjacent to public open space (500m length), 30m Malarkey section (190m), 27.5m remaining area	Construction and upgrade between Thomas Road to the north and Larsen Road to the south.
15	Thomas Road	Primary Regional Road	53.6m	50m	Construction and upgrade between the Tonkin Highway reserve to the west, and Wungong South Road to the east. Upgrade of one carriageway.



## 3.4 Community and Social Infrastructure

Community facilities within the Byford District Structure Plan area will have an important role in creating activated community hubs bringing together different groups and individuals. Community and social infrastructure required for the provision of health, education, sport and recreation services in the Byford District Structure Plan will also need to accommodate a growing and ageing population. The focus for the Byford District Structure Plan area will be the co-location of key community and social infrastructure to promote better use of existing infrastructure and facilities, reduce traffic movements and establish a sense of social cohesion by creating key focal points for activity and the delivery of services to nearby residents.

### 3.4.1 EDUCATION FACILITIES

New education facilities are proposed to address the needs of the growing population. Education requirements in the Byford District Structure Plan area have been guided by relevant policy and the requirements of the Department for Education (DoE). The DoE has identified the provision for nine public primary school sites and two public high school, in addition to the existing private high school, as necessary for the Byford District Structure Plan area.

The Byford District Structure Plan area has five existing primary schools, which are to be included within the nine required, and one existing high schools (public). The additional primary schools and the new high school are conceptually shown on the Byford District Structure Plan to provide an indication of the expected distribution of school sites to meet catchment requirements across the whole Byford District Structure Plan area (Figure 25). However, final locations, the size, shape and dimensions of school sites will be confirmed as part of Local Structure Plans and should be determined in accordance with Liveable Neighbourhoods Element 8, and in liaison with the Department of Education.

During preparation of LSP's proponents are encouraged to consider innovative approaches to integrate school sites and school activities with surrounding residential areas. Shared use of school facilities and/or provision of uses compatible with adjoining residential activities to encourage greater community use of school facilities either as part of educational facilities or an adjoining local node is encouraged.

### 3.4.2 PUBLIC OPEN SPACE

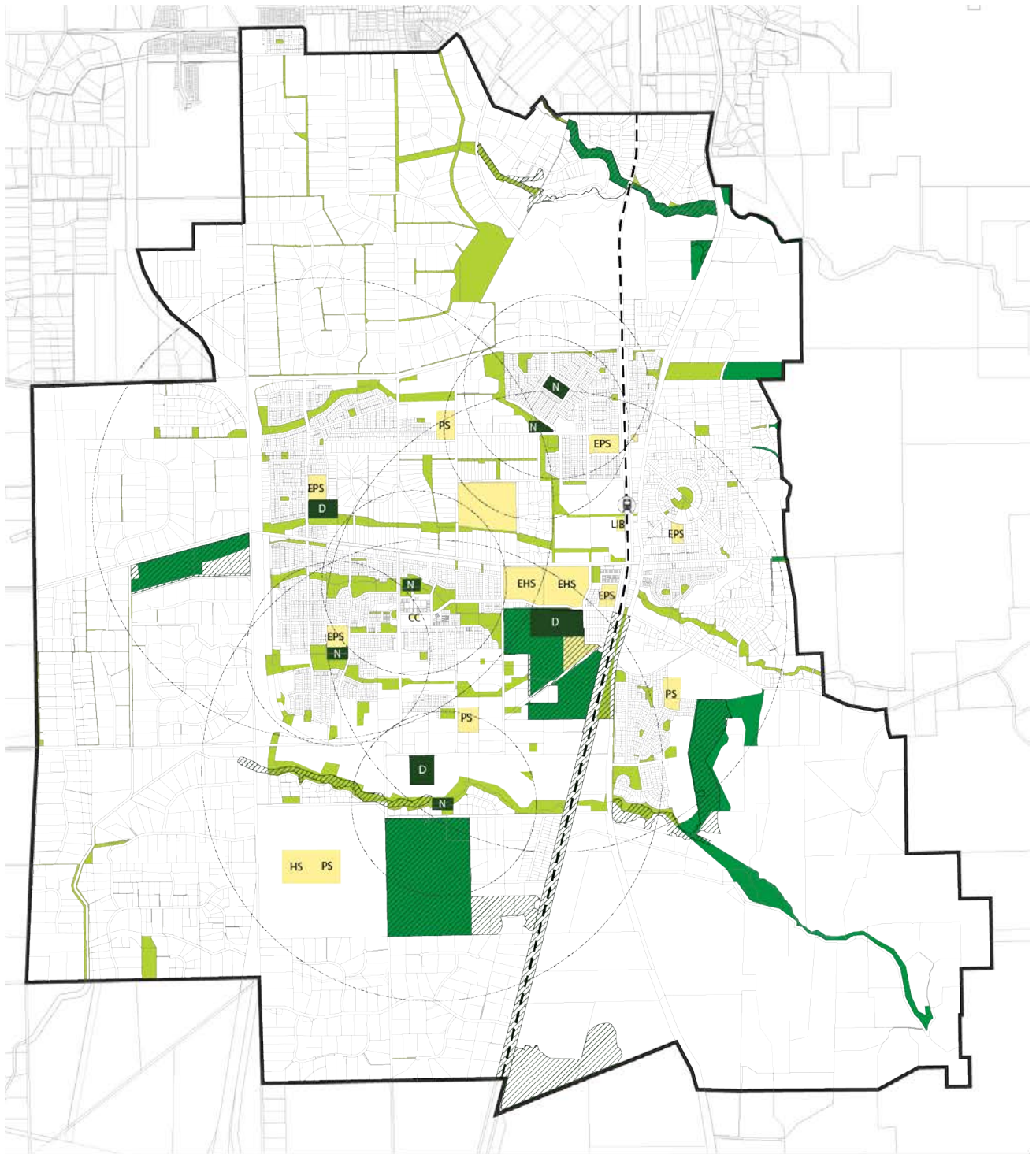
The Byford District Structure Plan area incorporates a network of well-distributed and connected Public Open Space areas which include a combination of natural reserves, multiple use corridors, dedicated sport and recreation facilities and local parks providing opportunities for both informal and formal recreation activities.

Equitable provision of sport and recreation facilities and services across the Byford District Structure Plan area is important to community vitality. A network of both active/formal open space and passive/informal open space areas are necessary in maximising participation in physical activity within any community.

#### SIZE AND DISTRIBUTION OF PUBLIC OPEN SPACE

Figure 25 illustrates the location and distribution of open space throughout the Byford District Structure Plan area. To make the most efficient use of land, the Byford District Structure Plan proposes to collocate district open space areas with education facilities (where possible). New facilities are proposed in Woodland Grove and on Orton Road where district level open space is integrated with school sites. The same is proposed at Briggs Park where integration of existing recreation facilities with Salvado Catholic College and Byford Secondary School are being explored. In addition, Kalimna Oval which has been identified for potential rectangular sports following further investigation. The shared use agreement of the site with West Byford Primary School will continue to benefit the the local community. This would allow the space to function more effectively for the community and provide significantly more space.

In total five district open space areas are proposed, these are all located in newer development areas between Tonkin Highway and South Western Highway. The respective sizes are in accordance with Liveable Neighbourhoods which is >5ha for a district level facility. No neighbourhood level parks are proposed, however, urban areas are services by a number of smaller local parks and multiple use corridors.



Byford Environment and Community

Status : Preliminary (not to be used for feasibility purposes)  
 Path : PJARRA2-Development Strategies for Serpentine Jarrahdale

Scale: 1:5000 @ A1  
 0 50 100 200 m

North  
 Project Number: 43874  
 Drawing Number: A161  
 Revision: A  
 Date: 04/12/18



**LEGEND**

- BUSH FOREVER
- MULTIPLE USE CORRIDOR/LOCAL OPEN SPACE
- RESERVE
- DISTRICT/NEIGHBOURHOOD OPEN SPACE
- COMMUNITY PURPOSE

- RAIL LINE
- TRANSIT NODE
- EXISTING HIGH SCHOOL
- EXISTING PRIMARY SCHOOL
- HIGH SCHOOL
- PRIMARY SCHOOL
- DISTRICT OPEN SPACE
- NEIGHBOURHOOD OPEN SPACE
- COMMUNITY CENTRE
- LIBRARY

- 2KM CATCHMENT
- 800M CATCHMENT

Figure 25: Proposed Community Infrastructure and Open Space Network

For future development a 10% Public Open Space contribution will be required. This is to be calculated on the basis of 10% of purely residential designated land use only. Deductions from the total site area to determine the gross subdivisible area include all non-residential land uses that do not generate the need for a contribution to Public Open Space, and for which a Public Open Space allowance has not been sought.

The 10 per cent Public Open Space requirement allows for the provision of a maximum of 2 per cent of restricted use Public Open Space as outlined within Liveable Neighbourhoods. Resource enhancement wetlands and buffers to environmentally sensitive areas are not deemed Public Open Space for 'recreation' purposes, however, in some cases it is acceptable for the land to be utilised and accessed by the community and therefore deemed to be 'restricted use'. These areas must have an approved management plan to manage impact and enhance the environmental values of the area. Areas of remnant vegetation are to be protected from subdivision and development and therefore may also be included within the 10% Public Open Space contribution.

#### Variations to 10 per cent public open space contribution

A contribution of more or less than 10 per cent of the gross subdivisible area may be considered, or is needed where the area is subject to particular circumstances or when it is more appropriate to apply an alternate cash-in-lieu contribution instead of provision as outlined within the Liveable Neighbourhoods Element 5 Public Open Space.

In some instances, additional land over and above the standard 10% public open space requirement, may be required to be provided at the time of subdivision and/or development to accommodate drainage, recreational, environmental or other similar functions. Such land may be required to be provided free of cost at the time of subdivision and/or development.

An indicative schedule of deductions for the purposes of calculating Public Open Space is provided in the following section.

#### INDICATIVE PUBLIC OPEN SPACE SCHEDULE

In residential areas 10 per cent of the gross subdivisible area must be provided free of cost by the subdivider and vested in the Crown under the provisions of Section 152 of the Planning and Development Act 2005 for Public Open Space and foreshore management purposes.

For the purposes of calculating the 10% Public Open Space requirement at LSP stage, the following indicative Public Open Space schedule is recommended;

#### Calculation of Required Public Open Space Provision:

- a. The total site area, less deduction resulting in the Gross Subdivisible Area (GSA):
  - Less: Non residential land uses (including Commercial, Mixed Use, School Sites, Utility and infrastructure facilities); and Multiple Use Corridor (including Urban Water Management and vegetation protection components as determined under District and Local Water Management Strategies)
  - Leaves: Net residential development area
- b. The GSA (total site minus deductions) - divided by 10% equals the required Public Open Space provision requirement

#### Breakdown of Public Open Space Provided within LSP areas:

- a. The total restricted Public Open Space – to a maximum of 20%
- b. Added to the total unrestricted Public Open Space: by function – identified as a percentage of the Gross Subdivisible Area

In accordance with WAPC requirements, residential components of mixed use developments will be included within the net residential development area for the purposes of calculating the Public Open Space requirement.



### 3.4.3 EQUINE DISTRICT FACILITIES

Subdivision in rural residential areas is to contribute 10% of land value (monetary value) for the Shire to use on equine facilities. This will include upgrade of the existing reserve in Darling Downs and upgrade / provision of new bridle trails.

## 3.5 Environment and Landscape

The natural areas and environmental quality of Byford enhances amenity and creates character within both urban and rural areas. It is important for this purpose to ensure that the natural environment is preserved and enhanced as a central element of liveability and a defining characteristic of the Shire. The challenge for the Byford District Structure Plan area will be to retain or create a 'sense of place' by maintaining key individual landscape characteristics and vistas in areas that may be subject to large-scale landscape change. This can be achieved through strong guidance, local structure plans and local planning policy to protect and preserve important natural features.

### 3.5.1 MULTIPLE USE CORRIDORS

Retaining and enhancing vegetation in the Byford District Structure Plan is supported as it is critical to maintaining the desirability, amenity and sustainability of the district. Multiple Use Corridors (identified on Figure 25) are a defining element of the Byford area. They incorporate water sensitive urban design, ecological linkages, vegetation retention, recreation and amenity. Multiple-use corridors should be protected at all stages of planning. Living streams will be strengthened to emphasise Byford's rural character and close connection to the landscape. These corridors will help to protect flora and allow fauna movement. Ecological linkages also provide attractive routes for pedestrian, cyclists and horse riders. Commercial and community centres are strategically located to optimise walkable catchment and also promote use of living streams, which encourages community interaction, ownership and relationship to nature.

### 3.5.2 CONSERVATION OF SIGNIFICANT FLORA AND FAUNA

The Byford District Structure Plan identifies locally significant natural areas that may be retained as part of local open space and dealt with through the LSP process. Throughout the Byford District Structure Plan area, there are several avenues of trees established along rural roads and driveways. Where possible, the LSPs should retain this vegetation and take the opportunity to do this in open space or within new road reserve verges. Where LSPs are affected by Bush Forever, conservation corridors or multiple use corridors, management plans will need to be prepared and implemented in order to provide for ongoing health and viability. The design of LSPs should demonstrate the preservation of as much vegetation within the urban fabric as possible.

In addition to several declared rare and priority flora species within the there are also several species of Specially Protected Fauna reliant on parkland areas for feeding habitat located in the Byford District Structure Plan area, Detailed flora and fauna assessments will be required to be undertaken as part of more detailed levels of planning to ensure that development and subdivision is cognisant of and sensitive to the protection of native flora and fauna.

## 3.6 Service Infrastructure

### 3.6.1 WATER SUPPLY

The Sub-regional Planning Framework identifies future conceptual water supply planning for the the eastern sub-regional sector where major water storage reservoirs will be necessary in the escarpment near Byford Tank (Byford) and Mundijong Reservoir (Jarrahdale) to serve long-term urban development in these areas (WAPC, 2018).

The Shire is also committed to considering alternative sources of water management and exploring options beyond business as usual. The approach to integrated water cycle management will entail the conceptualisation and assessment of alternate schemes supplying water of appropriate quality for various Non-Drinking Water (NDW) purposes to ensure equitable outcomes for new development within the Byford District Structure Plan area.

### 3.6.2 WATER MANAGEMENT

The Byford District Structure Plan has been updated to reflect the recommendations of the Byford District Water Management Strategy (BDWMS) prepared by Urbaqua, 2018. It will be necessary for all land owners to comply with the strategy when preparing Detailed Local Structure Plans and Plans for Subdivision. Proposals should address groundwater and surface water management, water conservation and efficiency; and water reuse and recycling in an integrated manner, focussing on key issues identified in the strategy. It is, therefore, recommended that all land owners review the entire documentation of the BDWMS for compliance.

The following provides a brief overview of the steps for implementation. In accordance with Better Urban Water Management (WAPC 2008) the implementation of this strategy will be through the land use planning process with proponents of development required to develop water management strategies and plans at each planning stage to support and inform their planning proposals, environmental investigations, engineering, landscaping and urban designs as follows.

1. A District Water Management Strategy is required to support a region scheme amendment for future urban or industrial development not proposed by the Byford District Structure Plan (2018), consistent with Better Urban Water Management (WAPC, 2008).
2. A local water management strategy is required to support a local scheme amendment or the preparation of any local structure plan, whichever is the earlier consistent with Better Urban Water Management (WAPC, 2008), Interim: Developing a Local Water Management Strategy (DWER, 2008) and the Byford District Water Management Strategy.
3. Where no approved local water management strategy exists, any application for subdivision in greenfield areas, or where more than 30 lots are proposed in infill or brownfield areas, must be accompanied by a draft urban water management plan, consistent with the Department of Water and Environmental Regulation's Urban Water Management Plans: Guidelines for preparing plans and for complying with subdivision conditions (DWER, 2008) and the Byford District Water Management Strategy, and developed in consultation with the local government, with advice as necessary from DWER.
4. Where an approved local water management strategy exists, the preparation and implementation of an urban water management plan will be required as conditions of urban or industrial subdivision. In this case, the subdivision application should be supported by a brief document which outlines a broad strategy for water management that has been previously agreed with the Shire. The urban water management plan is to be consistent with the Department of Water and Environmental Regulation's Urban Water Management Plans: Guidelines for preparing plans and for complying with subdivision conditions (DWER, 2008) and the Byford District Water Management Strategy, and developed in consultation with the Shire of Serpentine-Jarrahdale with advice as necessary from DWER.
5. Engineering drawings submitted to council for approval must be supported by clear and auditable documentation, providing details of proposed staging and implementation of the surface and groundwater quantity and quality management strategy.

Proponents of development should demonstrate that their proposals and designs are consistent with the strategies and design criteria presented in the BDWMS, as well as satisfying other requirements of other relevant agencies.

## 3.7 Heritage and Culture

The character of a place is closely linked to its heritage and it is therefore crucial that elements of heritage, such as the built form, mature trees and local landscape are preserved and incorporated into any new development.

### 3.7.1 NON-ABORIGINAL HERITAGE

The Byford District Structure Plan area contains a number of non-aboriginal heritage places and landscapes that need to be preserved for future generations. Opportunities exist for the adaptive reuse of these heritage places, as well as the inclusion of underutilised spaces which can add to and benefit from existing heritage value and character within areas of new development.

In addition to designated heritage sites identified in "Figure 17: Existing Heritage Places" on page 77, the character of unique areas such as the Byford Trotting Complex and Byford Old Quarter will need to be preserved as these areas reflect the rural character of the Byford District Structure Plan area. Preparation of local planning policies or design guidelines which provide statutory guidance are recommended.

### 3.7.2 ABORIGINAL HERITAGE

As discussed in section 2.2.9 of this report, the Department of Planning, Lands and Heritage (DPLH) has identified Aboriginal Heritage Places in the Byford District Structure Plan area. Prior to construction of individual developments, assessment should be undertaken by a qualified consultant to determine whether a more thorough Aboriginal Heritage investigation of the area needs to be undertaken for any specific location to identify unregistered sites.







# 4.0 APPENDICES



## 4.1 References

- AEC Group, 2016. Socio-Economic Profile Shire of Serpentine Jarrahdale, Prepared for the Shire of Serpentine Jarrahdale, Mundijong.
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- Western Australian Planning Commission (WAPC), 2018. South Metropolitan Peel Sub-Regional Planning Framework, WAPC, Perth.
- Western Australian Planning Commission (WAPC), 2015 (Draft). Liveable neighbourhoods, WAPC, Perth.



### State Planning Policies

A full current list of State Planning Policies can be accessed via the Shire of Serpentine Jarrahdale website << <https://www.planning.wa.gov.au/state-planning-framework.aspx#State-Planning-Policies>>> (accessed 18 March 2018)

### Local Structure Plans

A full current list of local structure plans can be accessed via the Shire of Serpentine Jarrahdale website << <http://www.sjshire.wa.gov.au/what-we-do/planning-and-building/structure-plans/>>> (accessed 15 November 2017)

## 4.2 Technical Appendices

The Byford District Structure Plan was prepared with reference to the following technical appendices (provided in separate attachments).

- + Appendix 1 - Byford Engagement Report, 2018
- + Appendix 2 - Transport Impact Assessment, 2020
- + Appendix 3 - Byford District Water Management Strategy, 2018

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