



Pinjarra Town Centre Revitalisation Strategy and Activity Centre Plan



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Table of Amendments

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



Record of Endorsement

*This structure plan is prepared under the provisions of the
Shire of Murray Town Planning Scheme No. 4.*

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

_____ Date

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

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

_____ Witness

_____ Date

_____ Date of Expiry

PINJARRA TOWN CENTRE

Revitalisation Strategy & Activity Centre Plan

EXECUTIVE SUMMARY

By 2050, the Peel Region is anticipated to reach a population of 444,000 people (*source: draft Perth and Peel @ 3.5 million, May 2015*).

Identified as the ‘Secondary Centre’ of the Peel Region, and servicing a Shire population of 164,256, long term planning is required to ensure Pinjarra is appropriately positioned to provide the range and intensity of activity required to support the significant growth anticipated for a sustainable centre. Balancing the housing, employment, transport, education and community services and infrastructure required to support the projected growth, along with protecting and celebrating the highly valued heritage character of the town requires a robust planning framework that not only establishes a land use and development framework for the next decade but also contemplates the manner in which the intensity of the centre will evolve beyond the statutory lifespan of an Activity Centre Plan.

The *Pinjarra Town Centre Revitalisation Strategy and Activity Centre Plan* has been prepared with this intention and comprises two parts. Part 1 contains the statutory related planning framework including the objectives of the Activity Centre Plan, urban form principles that have directly informed preparation of the plan and associated subdivision, development and land use provisions. Part 2 is in two parts. Part A contains a Revitalisation Strategy which outlines the vision for the Town Centre and a range of projects and actions identified for implementation. The projects and actions identified are considered fundamental to achieving the vision and objectives of both the Strategy and the Activity Centre Plan and ensuring a vibrant and sustainable Town Centre. Part B provides the background context which has guided preparation of Parts 1 and 2A.

The consolidated Strategy seeks to build on the community’s aspirations and strengthen existing activity nodes within the Town Centre through defined precincts. The precincts primarily focus on the consolidation of retail and commercial activity within the ‘Core’ Precinct, allied health related uses within a ‘Health’ Precinct and the establishment of a ‘Heritage & Arts’ Precinct, which is intended to celebrate and enhance the existing cultural attractions and facilities of Edenvale Homestead and its surrounds. The introduction of a range of ‘Mixed Use’ and ‘Residential’ Precincts also ensures the Town Centre accommodates for those looking for alternative housing opportunities within walking and cycling distance of where they work. Land use and development guidelines have also been prepared which are intended to guide land use and quality development within the centre, ensuring it is complementary to the highly valued heritage character of the town. High quality streetscapes and green space networks that link key destinations and facilitate pedestrian access and movement throughout the town also form key elements of the Activity Centre Plan and associated Strategy.

The range of strategies, provisions and guidelines outlined within the document are expected to achieve a range of outcomes summarized below within **Table 1**.

The Shire would like to take this opportunity to thank those in the community who were able to directly inform the preparation of the Strategy and associated Activity Centre Plan through participation in the

preliminary on-line survey and workshop and through the subsequent information sessions, presentations and submissions received during the formal engagement phase.

The Shire looks forward to working collaboratively with the State Government, relevant agencies, local business leaders and the community to initiate the projects identified to ensure the delivery of a revitalized Pinjarra Town Centre.

TABLE 1 – KEY LONG TERM OUTCOMES (2050)

Total area covered by PTCACP area	598 ha
Area of each land use Precinct proposed	
• <i>Core</i>	17.36 ha
• <i>Mixed Use</i>	32.35 ha
• <i>Health</i>	18.86 ha
• <i>Heritage & Arts</i>	13.16 ha
• <i>Residential</i>	296.18 ha
<i>Estimated Number of Dwellings</i>	11,700
<i>Estimated Population</i>	26,910 (@2.3 persons per dwelling) 24,570 (@2.1 persons per dwelling)
<i>Residential Site Density</i>	+ 27* dwellings per hectare <small>*doesn't include the 'Core', 'Health' and 'Heritage & Arts' Precincts</small>
<i>Open Space (regional and public)</i>	127 ha
Estimated Employment	2,026 (by 2036) / 6,422* (by 2051) <small>*does not include employment generated by schools, hospital and allied health services</small>
Educational Requirements	7 primary schools / 2 high schools

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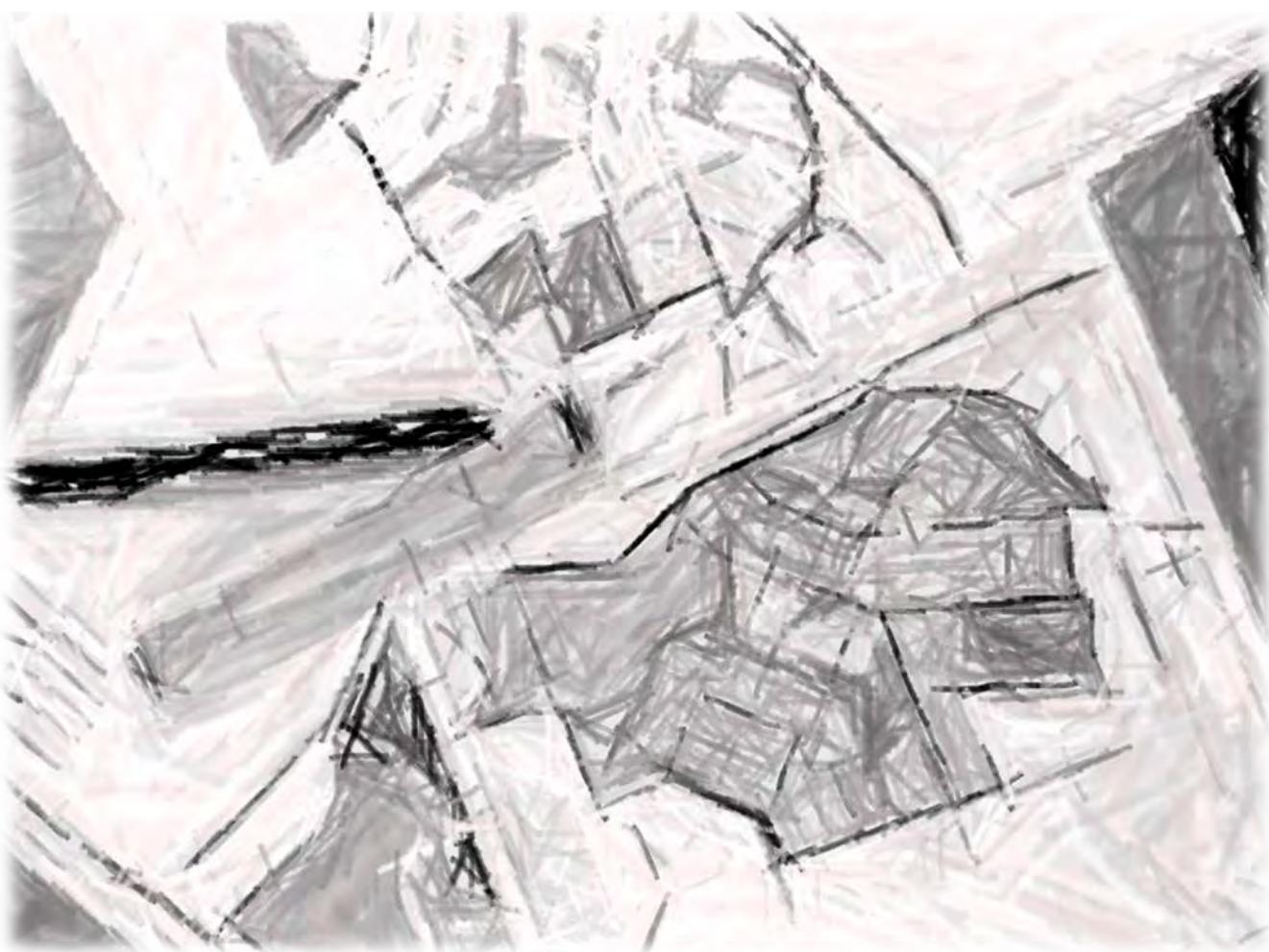
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PART ONE



1 ACTIVITY CENTRE PLAN CONTENT

The *Pinjarra Town Centre Revitalisation Strategy and Activity Centre Plan* comprises:

- Part One – Statutory Section. This section contains the statutory provisions of the *Pinjarra Town Centre Activity Centre Plan* including the Objectives for the centre plan area, together with general and precinct specific subdivision, development and land use provisions.
- Part Two – This section is in two parts. Part 2A contains the *Pinjarra Town Centre Revitalisation Strategy*. Part 2B contains background information and technical reports that have directly informed preparation of the Activity Centre Plan and the Revitalisation Strategy.

2 CENTRE PLAN AREA

The Pinjarra Town Centre Activity Centre Plan applies to the land contained within the boundary area denoted under **Figure 1**.

The area encompasses approximately 600 ha of land mainly within 1 km of the Pinjarra Town Centre or 800 m of a proposed high frequency public transport network. The area is generally bounded by Moores Rd and Sutton Street to the north, Paterson and Pinjarra-Williams Road to the east, Padbury Road and Paceway Court to the south and Pollard Street to the west.

The centre plan area is dissected by a regional road network that intersects within the Town Centre, encompassing Pinjarra Road, South-Western Highway and Pinjarra-Williams Road.

The defined land area includes a range of established nodes of activity, albeit at a relatively low level of intensity, including the Shire of Murray administrative and civic buildings, ALCOA administrative offices, the Pinjarra Junction Shopping Centre and the Murray Districts Hospital. The established recreational facilities of the Ross McLarty Oval and the Murray Leisure Centre also fall within the spatial area of the centre and are expected to continue to provide for the developing health and recreational needs of a developing centre. A range of established residential areas, undeveloped land parcels identified for residential development and rural land on the periphery of the centre plan area with the capacity to provide for future residential development are also encompassed within the activity centre area and are expected to significantly contribute to an increase in the number and range of residential dwellings within the walkable catchment of the Pinjarra Town Centre.

Notably, Pinjarra Paceway and Pinjarra Park (Pinjarra racecourse) are excluded from the spatial area. Whilst these facilities experience periods of activity, as this occurs only periodically it was determined that they are likely to have limited impact on the day to day function of the Town Centre.

Figure 1 – Activity Centre Plan Spatial Area

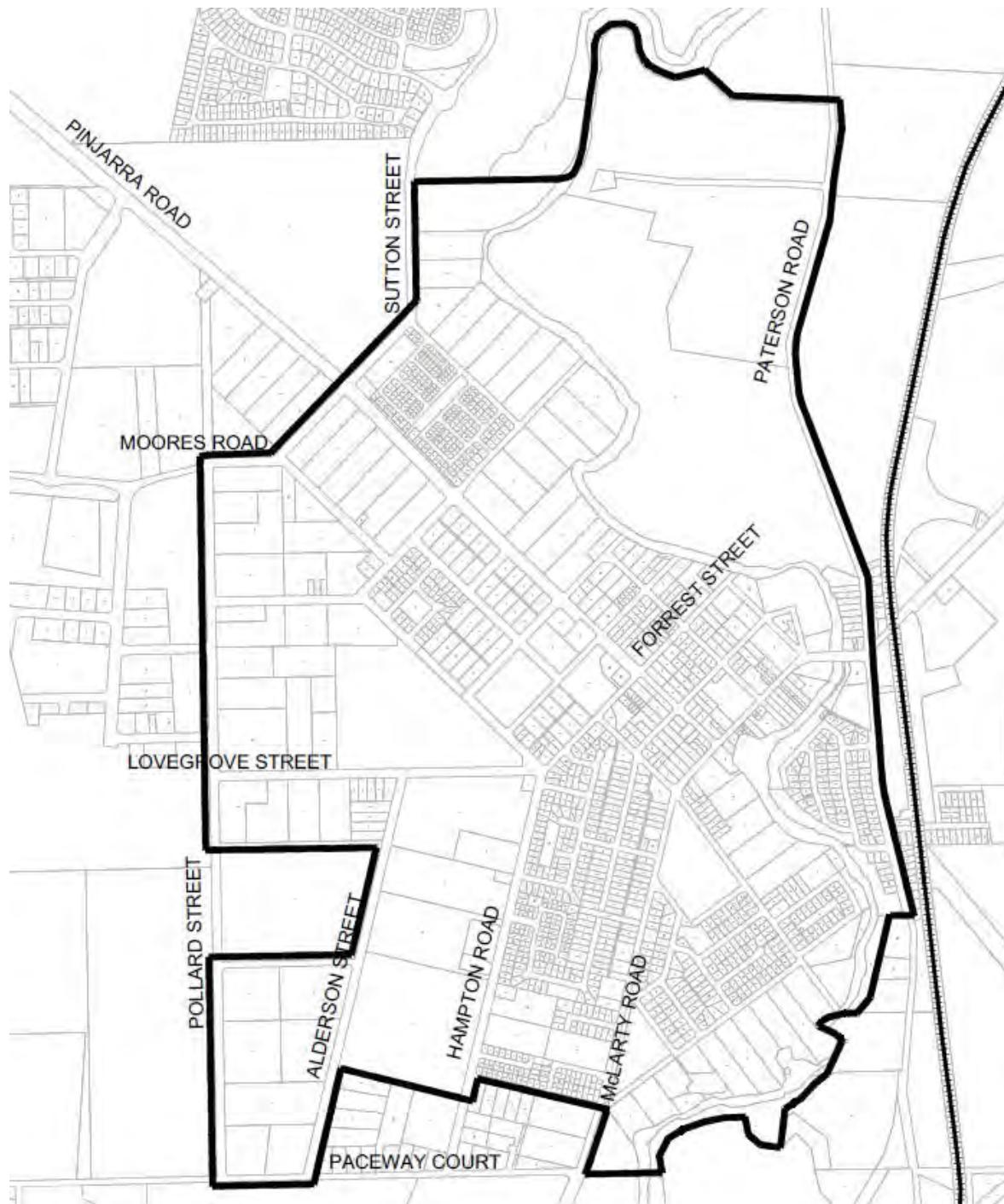
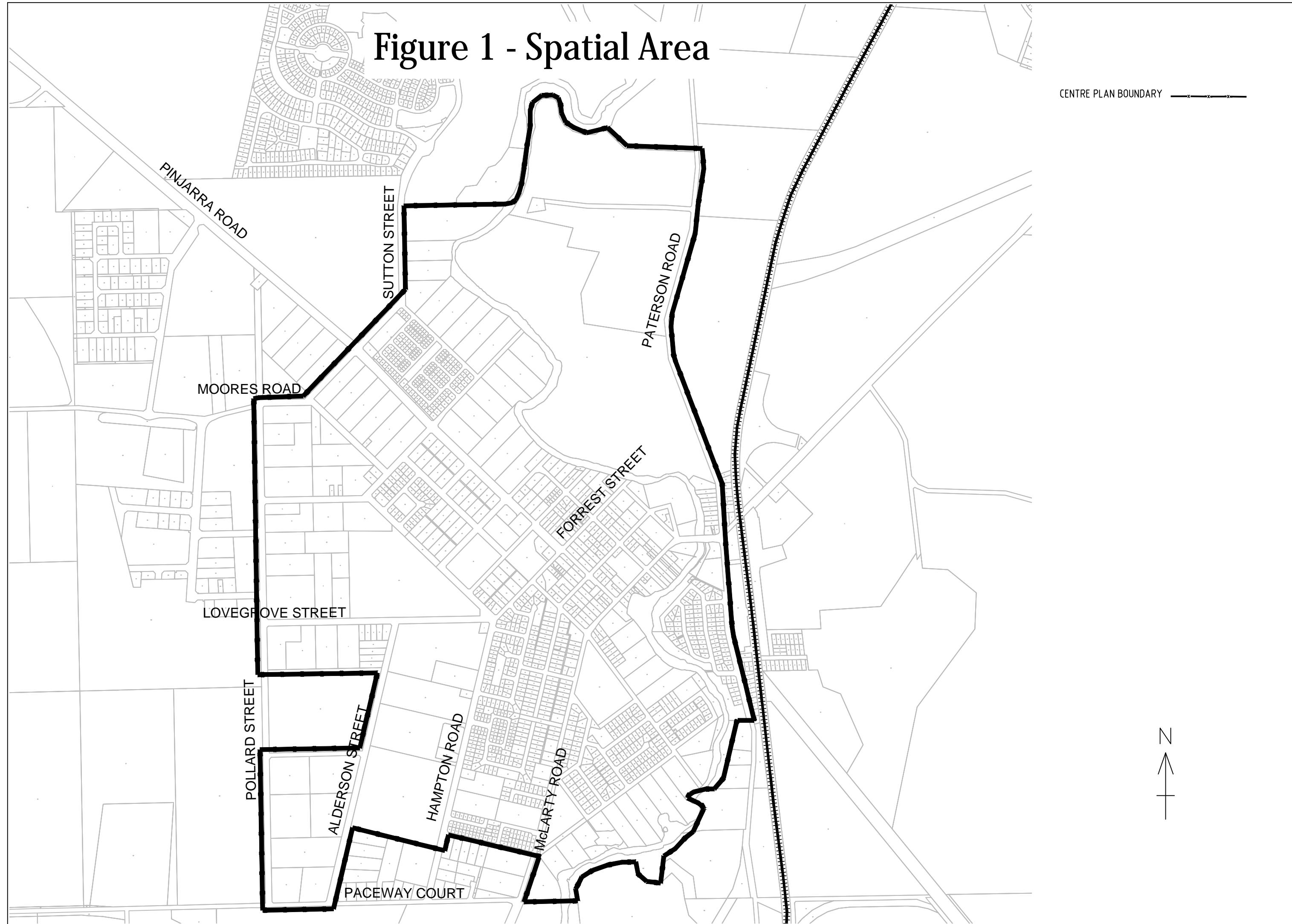


Figure 1 - Spatial Area



3 OBJECTIVES OF THE CENTRE PLAN

The Vision Statement (refer Part 2, Chapter 1) and policy objectives outlined within *State Planning Policy 4.2: Activity Centres for Perth and Peel* (SPP4.2) have been translated to suit the local context of the Pinjarra Town Centre and directly informed the preparation of the following Activity Centre Plan objectives:

- a) To support the development of the Pinjarra Town Centre commensurate with its designation as a Secondary Activity Centre by providing for a comprehensive range of services, facilities, housing options and employment opportunities, structured around a compact town core with sufficient development intensity and distribution of key retail and other attractor land uses to maximise pedestrian flows along streets, encourage walkability and enable efficient high frequency public transit.
- b) To concentrate activities, particularly those that generate high numbers of trips within the traditional central portion of the town centre to reduce the need for multiple vehicle trips, activate secondary businesses adjacent to major attractors, activate the centre beyond traditional retail hours and create a critical mass which would encourage walkability and contribute to the town's sense of place.
- c) To strengthen the rural heritage town character and landscape setting of the centre through sensitive urban design, built form and landscaping.
- d) Support the existing function of George Street and other streets within the town core as the retail and commercial 'main streets' of Pinjarra and discourage uses that have the potential to compromise the level of activity along these streets, particularly within the early stages of development and land use.
- e) Provide pedestrian friendly streetscapes which maximise pedestrian and cycle access to and through the Town Centre and between key destinations including the Murray River foreshore, the Murray River Square and other key nodes of activity.
- f) Enhance vehicle connectivity, movement and parking through interconnected street networks, opportunities for freight and through traffic to bypass the town and on-street and reciprocal parking opportunities.
- g) Provide for a generous network of vibrant, inclusive, accessible and intergenerational public places that reflect high quality landscaping, street art, seating, signage and end of trip facilities that meet the needs of a diverse community.
- h) Enhance the sense of place and arrival into the Town Centre at Pinjarra Road, South-West Highway / McLarty Street and Pinjarra-Williams Rd.

- i) Protect and enhance sensitive environmental features and contribute towards reduced water, energy and material resource use.
- j) Protect, promote and enhance the health of the community by implementing strategies that improve opportunities for healthy living.

4 URBAN FORM PRINCIPLES

The following 10 Urban Form Principles have formed the basis for the preparation of the Centre plan, the land use and development provisions and guidelines contained within Part 1 and the Revitalisation Implementation Plan contained within Part 2A.

1. Concentrate activity within a compact and well defined town core
2. Facilitate opportunities for economic growth and employment creation
3. Celebrate Pinjarra's distinctive character and identity
4. Encourage a high quality built form at a scale that encourages walkability and is appropriate for its location
5. Create a network of vibrant, accessible and inclusive public spaces
6. Create attractive and pedestrian friendly streetscapes
7. Support the health and wellbeing of the community
8. Establish an integrated green space network
9. Make Pinjarra accessible by a variety of transport modes
10. Minimise environmental impact

4.1 Concentrate activity within a compact and well defined town core

Reason:

The most efficient and appealing town centres are the ones that are compact and diverse, where all of the activities that a town centre has to offer are within walking distance of each other. Achieving the necessary level of intensity and activity within the Town Centre has the potential to be undermined by leakage of retail and commercial activities to outer-lying, peripheral locations.

Where nodes of activity already exist outside the core they will be dependent on achieving a critical mass to be successful and sustainable. Activities tend to be more successful where they are co-located in a precinct with similar activities or activities with which there is a synergistic relationship. This should not however occur at the expense of the town core.



Responses:

- A diversity of activities is encouraged within the town centre, especially where multiple uses are provided in a mixed-use building.
- Streets and other public spaces are activated in a variety of ways including street trading, alfresco dining, street performances, busking and events.
- Land uses with a high level of pedestrian patronage or a high worker density are encouraged within the town centre core and discouraged elsewhere.
- Retail and pedestrian-based commercial activities should be focused within the town centre core to strengthen the existing main streets and to enhance the level of activity and vibrancy of the town centre.
- Car-based commercial and retail activities such as drive-through services, showrooms and car sales and servicing should generally be located outside of the town centre.
- Development in the town centre should optimise the use of the land on which it sits to encourage a compact urban form and enable efficient use of a finite amount of town centre land.
- The extent of retail and commercial activities in nodes beyond the core is limited to ensure that the primacy and vitality of the town centre is not diminished.
- A diverse range of housing options are encouraged with higher residential densities along high frequency public transit routes and within defined precincts with mixed use potential rather than being developed on the periphery of the town centre on a stand-alone basis.

4.2 Facilitate opportunities for economic growth and employment creation

Reasons:

A thriving economy is fundamental to the sustainability of an area. It leads to higher incomes and living standards for the community. As the largest town in the Shire, Pinjarra has a major economic role to play. The current economic profile is however narrowly focused toward mining and manufacturing. The Pinjarra community currently ranks amongst the most socio-economically disadvantaged within the country and consistently records an unemployment rate greater than State averages. A sustained effort is needed to diversify the economy and create an environment to invest.



Responses:

- Allocate sufficient land and provide for a diverse range of business premises to suit business needs.
- Provide for a high level of amenity and sense of place.
- Improve the level of infrastructure in the town to create the base level of amenity and liveability to support and attract investment, jobs and people;
- Advocate for the local delivery of education and training which meets the needs of an evolving economy.
- Provide a flexible and adaptable planning framework for Pinjarra which can respond to market opportunities and evolving land use needs over time, including mixed use opportunities that reduce business / residential overheads by providing places that allow people to both reside and work.

4.3 Celebrate Pinjarra's distinctive character and identity

Reasons:

Pinjarra's character is closely linked to its heritage buildings and its relaxed riverine locality on the banks of the Murray River. Growth and increased activity should strengthen rather than compromise the town's highly valued character, identity and 'sense of place'.



Responses:

- Encourage the sensitive restoration and adaptive re-use of heritage places.
- Development on sites adjacent to places of heritage value should complement and minimize impacts on these places through maintaining a sensitive scale, proportion, design and through the preservation of views to heritage elevations and features.
- New buildings should acknowledge and complement the character of the locality through architectural features, building materials and/or a colour palette that is identifiably 'Pinjarra'.
- New development should complement but be visually distinguishable from heritage buildings and should not try to imitate or mimic the heritage architecture or overwhelm the heritage building or place.
- Development adjacent to the river foreshore and other public spaces should be designed to address and integrate with these spaces and enhance opportunities for increased passive surveillance, activation and diversification of services and facilities.
- Install iconic street furniture and public art that shares the local story of Pinjarra and its community and references elements to the town's rural history.
- Provide opportunities to promote a greater awareness of our heritage and to interpret the past.

4.4 Encourage a high quality built form at a scale that encourages walkability and is appropriate to its location

Reasons:

People respond to a built form environment that is attractive, comfortable, interesting, safe and unique to a locality and where buildings are at a ‘human’ scale. The design, scale and quality of buildings are important contributors to the legibility and ‘feel’ of a town, reflecting the importance that business and the community collectively place on the street level pedestrian experience.



Responses:

- Building height and architectural features define the town’s streets and public spaces, creating focal points and wayfinding landmarks that make navigation between key destinations easy and memorable.
- Building facades are of a high quality with design and architectural features that soften building bulk and scale.
- Front doors and entrances are clearly visible and directly accessible from the street.
- Permeable windows and balconies provide built form relief to facades, active and interesting frontages as well as passive surveillance of the street and public spaces.
- Continuous building facades along street frontages with parking areas sleeved behind buildings.

4.5 Create a network of vibrant, accessible and inclusive public spaces

Reason:

The level of activation of public spaces is an indicator of a cohesive, accessible and inclusive town centre. Spaces that encourage multiple user groups to adapt the space to accommodate a diverse mix of activities provides increased opportunities for the community to interact, strengthen social bonds, break down social and cultural barriers and develop a collective sense of ownership and belonging.



Responses:

- Aspirations of multiple user groups should inform the design of public spaces to ensure the diverse needs and aspirations of the community are met.
- Public spaces should be designed specific to local environmental factors and respond with design features that enable activity and passive surveillance during and after business hours and in varying weather conditions.
- Landscaping, lighting, seating, public art and unique design features should contribute to a 'sense of place' and differentiate unique public spaces throughout the town centre.

4.6 Create attractive, pedestrian friendly appealing streetscapes

Reason:

Attractive streetscapes are essential to a vibrant and sustainable centre as they enhance the pedestrian experience and encourage walkability, social interaction and increased foot traffic. Pedestrian activation contributes to the health and wellbeing of the community, passive surveillance and results in a movement economy which benefits local business and enhances the 'visitor' experience.



Responses:

- Create opportunities to provide a finer grained network of streets to disperse traffic and improve pedestrian connectivity.
- Redesign streets to prioritise the pedestrian, focusing on narrower traffic lanes, wider footpaths, on street parallel car parking, large canopy street streets, pedestrian crossing points and geometric design aimed at reducing traffic speed.
- Provide for a continuous built form along street frontages at a height which is sufficient to provide a strong sense of enclosure.
- Provide active and lively street facades with street trading, street art and pedestrian amenities including canopies, shade and seating to assist with pedestrian safety, comfort and interest.
- Implement the staged undergrounding of power lines within each of the Precinct areas.
- Choose street trees and landscaping that delineate the transition between the various Precinct areas, the change in seasons and Pinjarra's connection with the natural riverine environment.
- Install lighting, pavement finishes and way finding signage to make the town centre accessible and legible to all users.
- Construct unique entry statements at key entrance points into the town centre that reinforce the relaxed country 'feel' and character of Pinjarra and establish a 'sense of arrival'. These statements encompass street art, lighting and signage that reflect elements of the old and new, through the adaptive re-use of agricultural / farming equipment, tools and materials.

4.7 Support the health and wellbeing of the community

Reason:

A vibrant and inclusive town centre is dependent upon a healthy, educated and active community. Adequate facilities, services and infrastructure enable the community to achieve a level of health and wellbeing that empowers individuals to reach their potential and actively participate, support and steward the development of an evolving activity centre.



Responses:

- Provide a range of shared use community facilities within the town to meet community social, cultural, education and recreational needs and enhance opportunities for diverse groups to engage and connect.
- Work collaboratively with Department of Education to increase educational opportunities at Pinjarra High School during and after traditional school hours, including the co-location of secondary and tertiary education and encouraging mixed uses that minimize local educational and employment skills and opportunities, meet the changing employment requirements of local business and develop the community's awareness of the benefits and importance of lifelong learning.
- Provide for and support a diverse mix of housing types, densities and price points to suit a diverse population.
- Enhance access to community facilities through increased housing within walking distance of facilities and through improved public transport, pedestrian and cycle linkages via green space and local street networks.

- Encourage opportunities for increased physical activity through the provision of services and design of public spaces, infrastructure and community facilities.
- Design public spaces and facilities to encourage opportunities meeting and social interaction.
- Enhance opportunities for active and passive surveillance over the public realm through active building frontages, clear sightlines and lighting.
- Enhance access to community facilities through increased housing within walking distance of facilities and through improved public transport, pedestrian and cycle linkages via green space and local street networks.

4.8 Establish an integrated green space network

Reason:

Greenspace linkages within urbanized areas facilitate the protection of natural environmental features, contribute to the character and ‘feel’ of an area, increased passive surveillance, an active lifestyle and the health and wellbeing of the community.



Responses:

- Establish an integrated greenspace network that encompasses areas of established open space, foreshore reserve and privately owned land ceded as part of future rezoning or subdivision, which links key destinations and activity nodes throughout the town centre.
- Undertake extensive landscaping of key streets within the town centre that enable the expansion of the broader greenspace network. Serving a dual function, these streets provide for multiple users and modes of transport, however differ to other local streets through a significantly higher level of ‘greening’ within the streetscape through street tree and verge plantings.

- Seating, water stations, ‘nature play activities’ and break out areas containing fitness equipment for informal and formal exercise should be located in various nodes along the network.
- Adjacent development should be designed to address the network and enhance passive surveillance through permeable fencing and the siting of windows and balconies.
- Where achievable, direct access between the integrated network and the adjacent development is encouraged to maximize opportunities for local residents to utilize the path network for recreational or commuting purposes.

4.9 Make Pinjarra highly accessible for a variety of transport modes

Reason:

Activity centres must be accessible by a diverse mix of transport options. Ensuring an integrated network of streets and movement corridors that facilitate vehicle access movement whilst encouraging other modes of transport is a fundamental function of a sustainable and connected activity centre.



Responses:

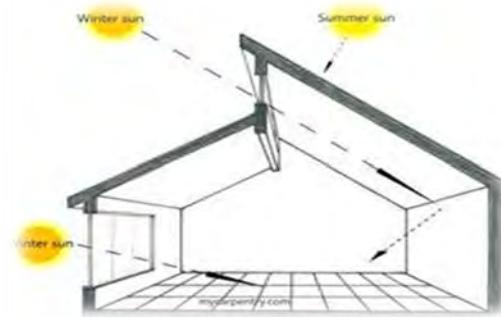
- Provide opportunities for through freight and passenger vehicles to bypass Pinjarra so that only destination traffic needs to access the town.
- Provide alternative routes to enable the removal of Restricted Access Vehicles from Pinjarra Road and South Western Highway within the town centre.
- Provide for multiple local and regional road connections to Pinjarra to improve connectivity from different directions and provide opportunities to disperse traffic away from Pinjarra Road and South Western Highway access.

- Provide for a highly interconnected road network in new subdivisions and investigate opportunities to improve the permeability of the road network in the established part of Pinjarra to improve connectivity and convenience particularly for walking and cycling.
- Redesign Pinjarra Road within the town to an attractive two lane boulevard which better integrates the town and provides a high level of pedestrian and cyclist amenity.
- Advocate for an expanded public transport service to connect Pinjarra with surrounding towns and urban areas.
- Plan for an urban structure, intensity of development and street system that would support a viable and convenient public transport system.
- Advocate for a dedicated high-frequency public transport service to connect Pinjarra with Mandurah and in the longer term an extension of the Armadale rail line to Pinjarra.
- Connect Pinjarra to surrounding communities including Mandurah by continuous high quality on and off street cycle paths along key roads and upgrade on and off street cycle ways within Pinjarra.
- Develop the Murray River foreshore trail between Ravenswood and Pinjarra.
- Provide end of trip cycle facilities and shelters at key public transport stops.
- Consolidated, dedicated public parking facilities should be provided in defined locations and within walking distance of key destinations in the town centre.
- Access to development sites should generally be limited to a single vehicle crossover or where possible consolidated with access points to adjacent sites to minimize the impact of crossovers on safe and efficient movement of pedestrians and cyclists and to increase the availability of verge space for street trees and on-street parking.

4.10 Minimise environmental impact

Reasons:

Built form designs that are responsive to the local environment, reflect solar passive design principles and embrace alternative sources of energy which conserve resources, reduce heating and cooling costs and minimize the potential ‘heat island’ effects often associated with activity centres.



Responses:

- Water use efficiency is to be maximized through water sensitive urban design landscaping and the capturing of rain and storm water on site for re-use.
- New development should be oriented and designed to minimize summer heat gain, winter heat loss and support cross ventilation through the appropriate siting of doors and windows and the use of eaves, awnings and verandahs.
- The use of alternative sources of energy, 'green walls' and 'roof top gardens' are encouraged.
- Use Water Sensitive Urban Design principles in the upgrade of streetscapes including swales, flush kerbing, the planting of local endemic street trees and vegetation to soften the hard surfaces of streets and provide shade along footpaths.
- Protect and enhance significant areas of native vegetation and undertake revegetation programs in designated areas.

5 ACTIVITY CENTRE PLAN

The Pinjarra Town Centre Activity Centre Plan is located in Figure 2. Key elements of the plan are described below.

5.1 Activity Centre Nodes (Precinct Areas)

The Centre Plan identifies a range of Precincts which recognize and consolidate established nodes of activity within Pinjarra. Whilst the intended focus of each Precinct differs, collectively all will contribute to the critical mass of activity necessary for a sustainable Town Centre. The Precincts are intended to provide for a transition of intensity in activity and built form from the primary business and employment centre of the ‘Core’ Precinct and the consolidated allied health services and facilities of the ‘Health’ Precinct, to the less intensive ‘Mixed Use’ and ‘Heritage and Arts’ Precincts and the outer-lying ‘Residential’ Precincts.

The vision and spatial boundary of each of the defined Precincts are summarized below.

TABLE 2 – VISION AND SPATIAL BOUNDARY OF DEFINED PRECINCT AREAS

Core 	<p><i>The Core precinct is the beating heart of Pinjarra and the focal point for business, employment and civic activity. The vision for the Town Centre core is for a network of appealing, tree-lined, lively and walkable streets framed by mixed-use buildings of a scale and character that complements the materials and forms of Pinjarra’s heritage buildings.</i></p>
Mixed Use 	<p><i>The mixed-use precinct establishes a frame to the Core Precinct that provides for a transition in activity between the Town Centre and the broader residential areas of Pinjarra. The vision for the mixed-use precinct is for streets with a diverse range of complementary uses that enable people to work and reside in the same location or live affordably within a five to ten minute walk from the primary business and employment centre.</i></p>

Health	 <p>The Health Precinct is focused around the Murray Districts Hospital. The Vision for the Health Precinct is for medical and related business support and residential buildings within a landscaped setting that promotes physical and mental well-being, with a strong visual relationship to the Murray River and the hills beyond.</p>
Heritage and Arts	 <p>The heritage and arts precinct is the cultural heart of Pinjarra where the town's history and landscape fuse together. The vision for the heritage and arts precinct is for a relaxing and contemplative place on the banks of the Murray River with a strong landscape theme that provides a setting for Pinjarra's heritage assets and sensitively designed cultural facilities.</p>
Residential	 <p>The residential precincts provide for a broad diversity of housing types within a short walk or bike ride of the activity within the town centre core and the adjacent mixed-use areas. The vision for the residential precincts is for appealing and walkable residential streets with footpaths, street trees and convenient on-street parking, lined with houses that range from single family homes to terraced townhouses, small apartment buildings and clusters of other attached housing.</p>

5.2 Land Use

Land use within each of the defined Precincts are provided under Part 1, Section 6.4.3.

The Precinct specific guidelines contained within Part 1 (section 6.5) outline preferred uses at ground and above street level, which seek to maximize pedestrian activation at street level. Other than those uses referred to under section 6.4.3.2 land uses not listed within the land use table may be considered within the context of the Objectives of the Centre Plan, the overarching Guiding Principles and the relevant Precinct vision.

5.3 Movement

The Activity Centre Plan (Figure 2), the Local Movement Network plan (Figure 3) and the regional road network reflected under Part 2B (section 4.1) recognize the need for improved vehicle access and connectivity throughout the Town Centre and between

Pinjarra and outer-lying areas. A key feature of the movement network is the expansion of the current grid street network which includes the extension of unconstructed road reserves and the inclusion of new local roads and river crossings at Forrest Street and Camp Road. The network ensures improved east-west and north-south access, encourages dispersal of traffic and provides greater movement options between key destinations.

As the centre matures and the number of residents and people working within Pinjarra reaches a sufficient critical mass to support a high frequency public transport system, Pinjarra and McLarty Roads is to accommodate multiple transit stops within walking distance of key activity nodes and medium to high density housing. These proposed transit stops are reflected on the Residential Density Plan (Figure 5) which seeks to ensure an intensity of density that ensures walkable catchments to public transport are maximized.

As reflected within the Greenspace Network Plan (Figure 4), a number of streets within the Town Centre are identified for landscape upgrades to a standard that encourages pedestrian activity and movement and the use of alternative modes of transport.

5.4 Public Open Space

Trees in urban areas have social, environmental and recreation benefits, including reducing air pollution, minimizing the impact of heat islands, encouraging outdoor activity, providing habitat and support to biodiversity and enhancing local amenity.

To provide relief to a more urbanized town, public open space linkages are to form a key urban form element of the Town Centre (refer Greenspace Network Plan – Figure 4). The extensive network encompasses over 7 km of environmental linkages which include existing open space, foreshore reserve and privately owned land identified for inclusion. Achievement of the network is considered a key outcome that will contribute towards the containment of activity, facilitate access and the movement of pedestrians and cyclists throughout the town centre and ensure the highly valued natural amenity and character of Pinjarra is protected and enhanced. Achievement of the network as contemplated will require management to mitigate bushfire risk and the ceding of existing privately owned land generally as part of future subdivision or development.

5.5 Residential Densities

Residential density within the centre plan area requires significant upcoding to ensure the necessary provision and diversity of housing required for an activated and sustainable town centre. Densities within the ‘Mixed Use’ and ‘Health’ Precincts are defined under the Precinct Guidelines at a minimum of R80 which will enable an appropriate level of density to support a future high frequency public transport network. Within the ‘Core’ Precinct an R-AC0 code applies, with a minimum density of R100, which ensures a density that is commensurate with housing options expected within a vibrant and sustainable Town Centre.

Residential densities within the ‘Residential’ Precincts are defined under Table 3 (below) and within the Residential Density Plan (Figure 5) as a base code, dual code or as a density range.

Base densities of R20 are identified on the periphery of the centre and in areas with new housing stock where infill will prove challenging in the short to medium term.

Density ranges apply to those areas where development is to be guided by local structure plans. These areas are identified under Figure 5 and under Part 1 (section 6.4.1.5). A balanced representation of each density encompassed within the ranges specified, along with a mix of densities within a street block are encouraged to ensure an adequate provision of housing and a diversity in housing types that support integrated and vibrant local communities that live within walking or cycling distance of the town centre. Dwelling targets are established for these residential areas subject to density ranges under Part 1, (section 6.4.1.5, Table 7) which are based on applying the average density within the range outlined in Figure 5 across the estimated net developable area.

Dual coded residential precincts are identified within a 5 minute walk of key public transit routes and within areas that have the potential for infill development at a significantly higher density. This is considered necessary to ensure that as the town matures, an appropriate level of density and critical mass of residents is achieved to support walkability and a high frequency public transport system. To ensure development of these sites for a single residential dwelling is not unduly compromised in the short to medium term however, the general provisions contained in Part 1, (section 6.4.2.5) support the development of single dwellings at the lower density. As the centre matures and residential demand for sites within close proximity to public transport and activity nodes within the Town Centre increases over time it is anticipated that development pressure will trigger redevelopment of these sites will occur. In the short to medium term, it is anticipated that the few landowners wanting to develop at the lower density will contribute to the evolving mix of residential density and housing types within the town centre. It is expected however that further reiterations of the activity centre plan may remove the flexibility provided in relation to development at the lower density to ensure development potential of the town centre is realized in the longer term.

TABLE 3 – RESIDENTIAL DENSITY

Precincts	Residential Density Coding
<i>Core</i> <i>Health</i> <i>Mixed Use</i> <i>Heritage & Arts</i> <i>Residential</i>	R-AC0(b) / Minimum R100 Minimum R80 Minimum R80 Minimum R60 As specified under the Residential Density Plan (Figure 5)

5.6 Development Height

As reflected on the Maximum Development Height Plan (Figure 6), built height within the Town transitions from a maximum of 2 storeys to 5 storeys (21 m).

The future Shire of Murray Civic Buildings (proposed to encompass the street block on which the Shire offices are currently located) are provided the greatest development height within the town centre. This ensures that the future civic and community buildings and the associated public spaces are legible and easily recognized within the context of the broader town skyline. To ensure future development along the Murray River is in keeping with the natural topography and does not detract from the visual amenity of the waterfront, maximum development heights are restricted to 2 storeys / 9 m.

Within ‘Residential’ Precincts on the periphery of the town centre, development heights default to the provisions of the Residential Design Codes.

With the exclusion of the ‘Residential’ Precincts, the Precinct Guidelines specify minimum development heights of 2 storeys across the Activity Centre plan area. This minimum ensures opportunities for adaptive re-use and mixed use development is not compromised in areas within close proximity to a future high frequency public transit route, key destinations or activity nodes.

5.7 Beyond the Lifespan of the Structure Plan

Pursuant to the *Planning and Development (Local Planning Schemes) Regulations 2015* the centre plan will only be in effect for a period of 10 years, or as otherwise determined by the Commission. It is relevant to acknowledge that as a developing town centre the Vision, Objectives and Guiding Principles outlined under the Activity Centre Plan are unlikely to be fully realized within the initial statutory timeframe of the plan.

Whilst a range of precincts are identified within the current activity plan area, as growth and demand continues beyond the lifespan of the current centre or subsequent updates of the plan, intensification of activity within the broader core business and employment area is likely to occur. It is therefore anticipated that as development and land use demand increases over time, the spatial boundary of precincts may transition, requiring modifications to future renditions of the endorsed centre plan.

Future updates of the Activity Centre Plan, is intended to be guided by Part 2B, Section 6 (Figure 1) which contains a Long Term Growth Plan and strategic overview for the longer term growth of the Pinjarra Town Centre.

Parts 1 and 2 of the Activity Centre Plan and revitalization strategy acknowledges the importance of a high frequency public transport network to a sustainable Town Centre. Whilst it anticipated that the establishment of a high frequency commuter railway station

at Pinjarra is well beyond the scope of the current plan, it is considered appropriate to identify land within walking distance of the established Pinjarra Train Station for the purposes of a future, long term transit oriented station precinct, including an adjacent urban expansion area which has the potential to accommodate in excess of 1,200 residential dwellings. Part 2B, Section 6 reflects the manner in which a Station Precinct could be accommodated within the Town Centre.

Under the current Activity Centre Plan land south-east of George Street and the Murray River (and accessed via the existing pedestrian bridge) is designated as one of the 'Residential' Precincts. It is anticipated however that in the longer term that it may contribute to the walkable catchment of a future 'Station' Precinct.

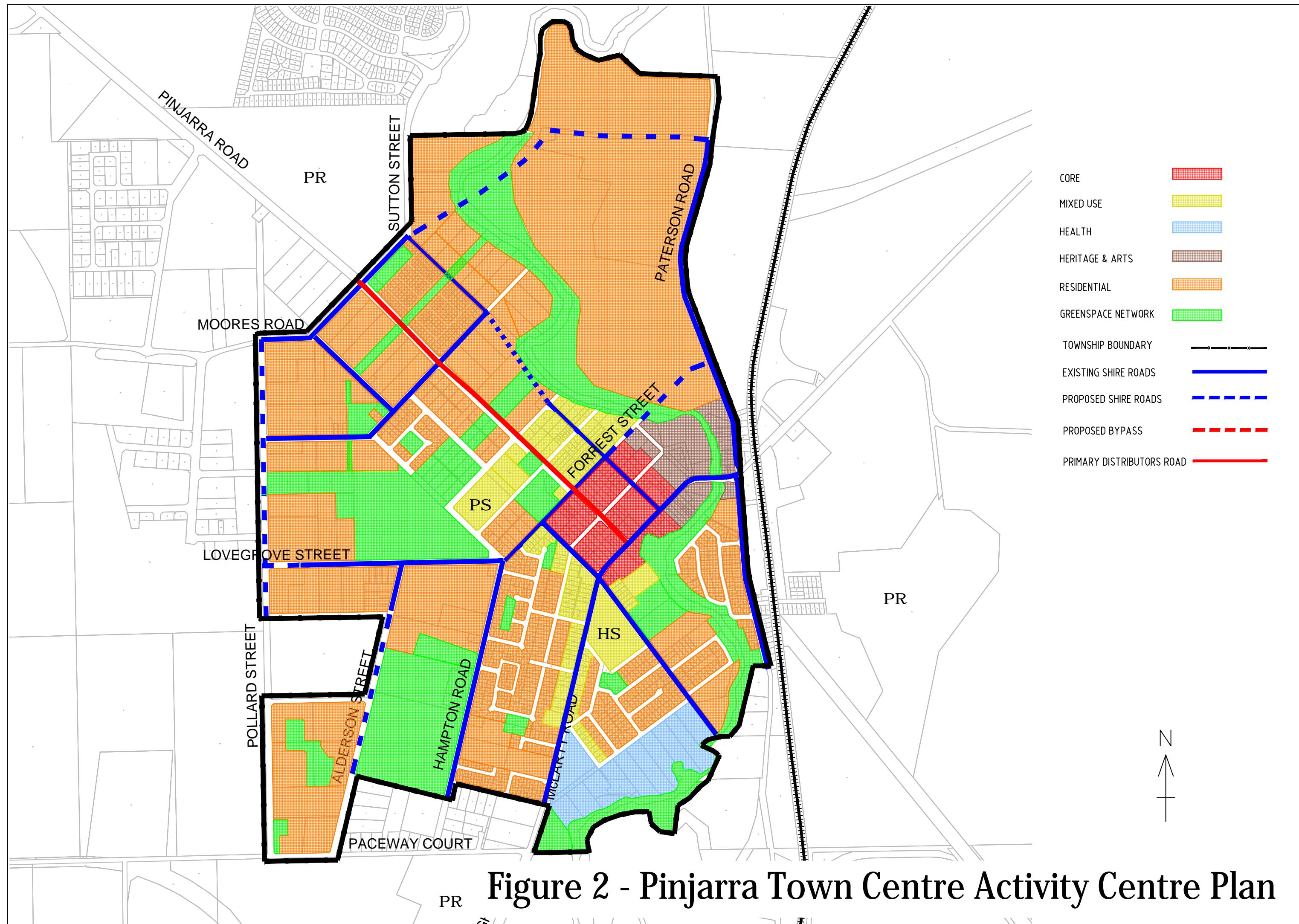


Figure 2 - Pinjarra Town Centre Activity Centre Plan

Figure 3 - Local Movement Network

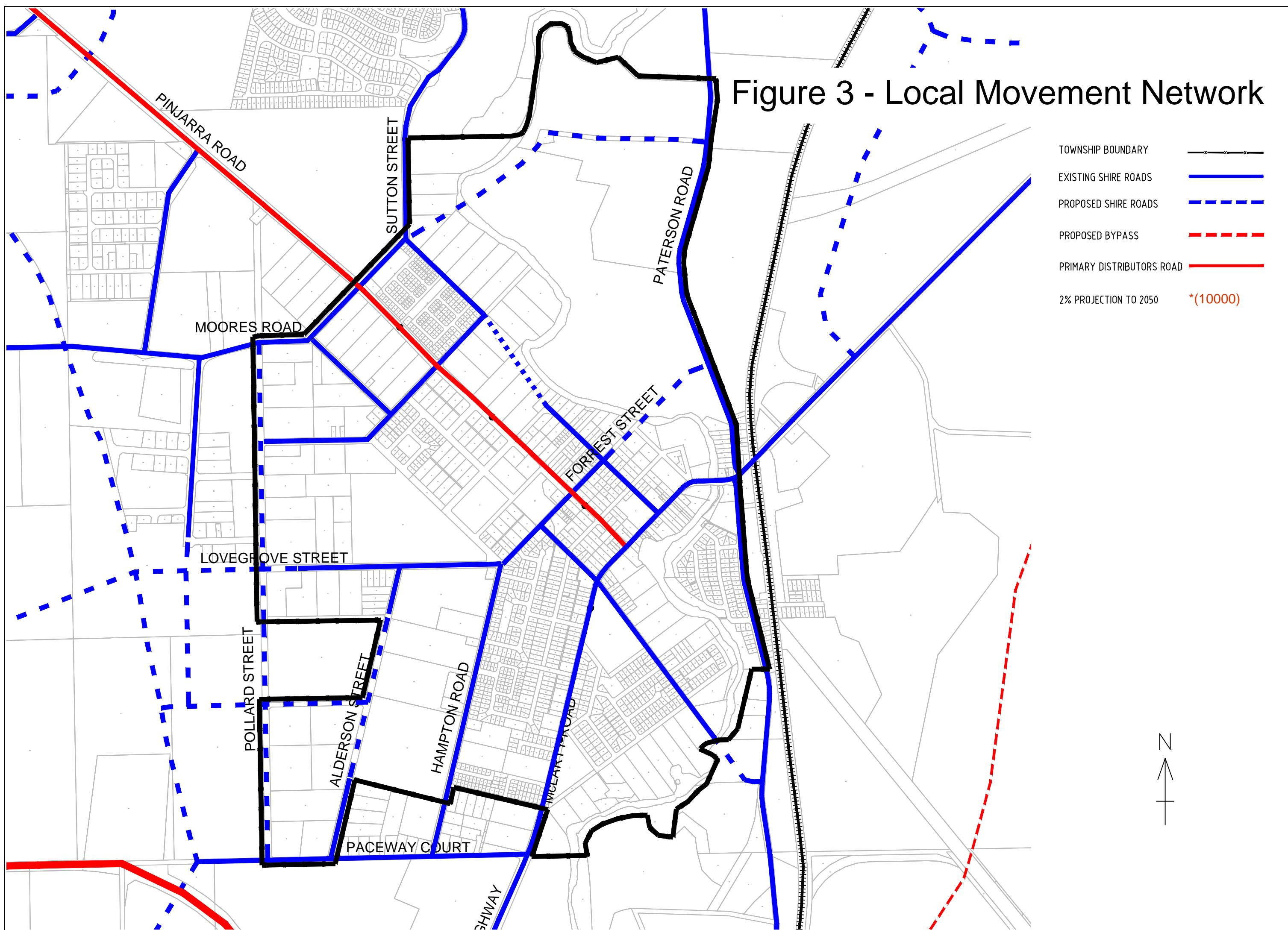


Figure 4 - Greenspace Network

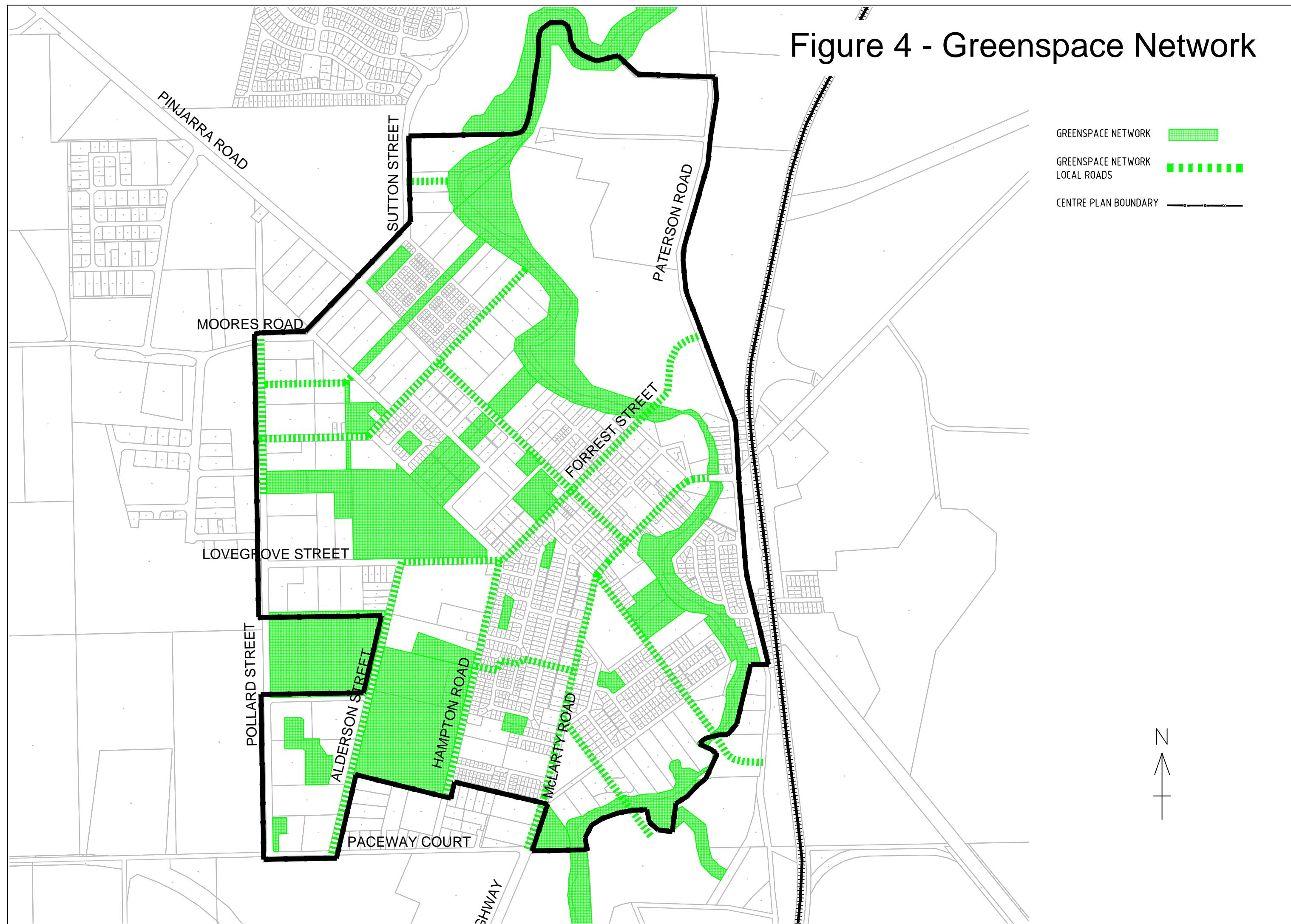


Figure 5 - Residential Density Plan

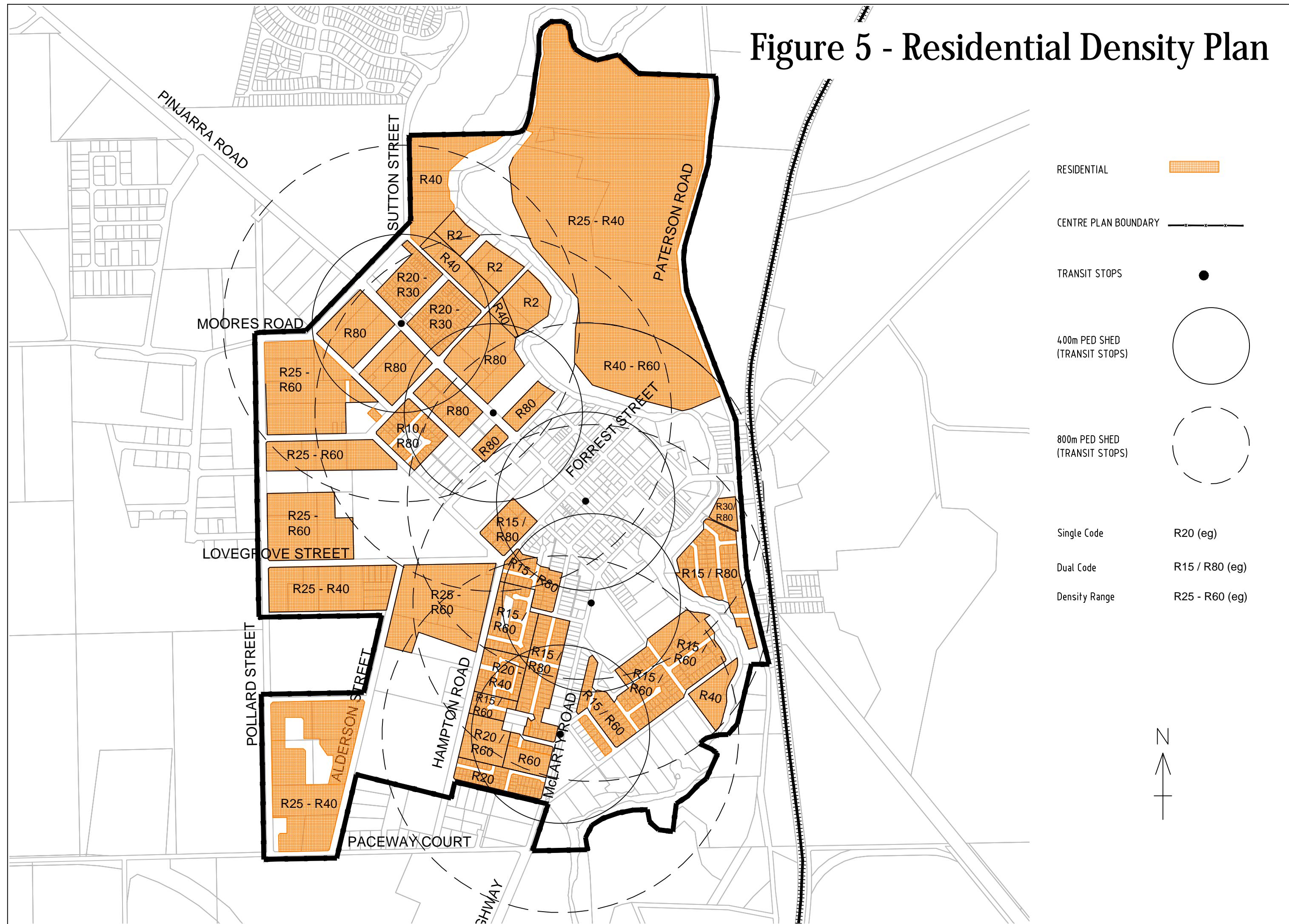
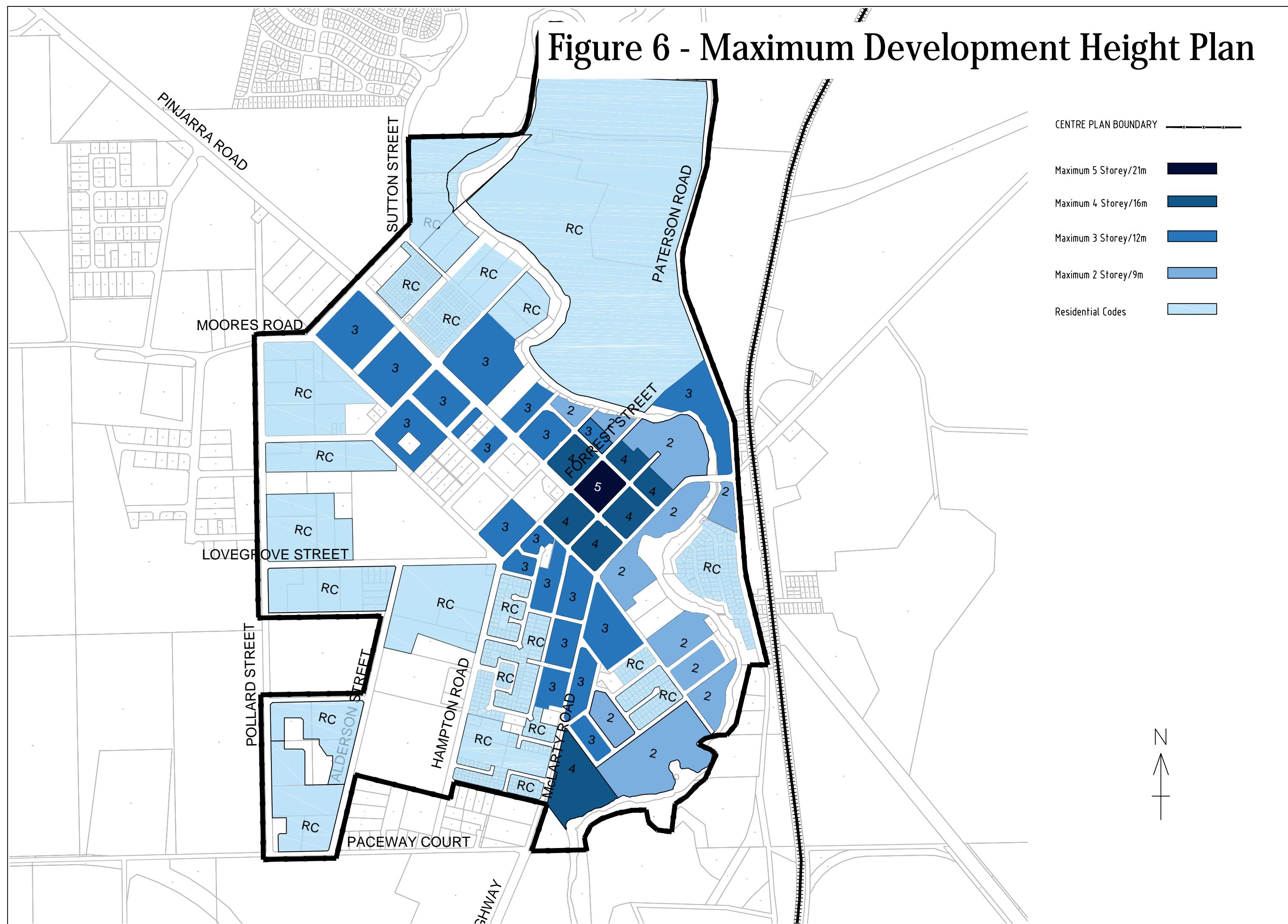


Figure 6 - Maximum Development Height Plan



6 IMPLEMENTATION

6.1 Scheme Relationship & Operation

- 6.1.1 The current statutory framework guiding land use in development within the activity plan area is the *Peel Region Scheme*, the Shire of Murray's *Town Planning Scheme No. 4* (TPS4) and the *Pinjarra Town Centre Local Planning Policy*, which applies only to the portion of the Activity Centre Plan area currently zoned 'Town Centre' under the Shire of Murray's TPS4.
- 6.1.2 The Activity Centre Plan has been prepared in accordance with Schedule 2, Part 5, clauses 31 and 32 of the *Planning and Development (Local Planning Scheme) Regulations 2015* and has been informed by the WAPC's *State Planning Policy 4.2: Activity Centres for Perth and Peel (2010)* and the draft *Planning and Development (Local Planning Schemes) Regulations 2015 Structure Plan Framework*.
- 6.1.3 Until such time as the centre plan has been approved by the Western Australian Planning Commission (WAPC), the *Pinjarra Town Centre Local Planning Policy* will continue to provide interim policy guidance in relation to preferred land use and development within the 'Town Centre' zone.
- 6.1.4 Implementation of the plan is to be achieved through a range of Peel Region Scheme and Local Scheme amendments (refer Part 1, Section 6.2, Tables 4 and 5), along with various regional and local infrastructure revitalization projects and initiatives (refer Part 2A).
- 6.1.5 Should any provisions of the approved centre plan be inconsistent with Local Planning Policy or the Western Australian Planning Commission's *Residential Design Codes*, the provisions of the approved Activity Centre Plan and associated general and precinct specific provisions (refer Part 1, Sections 6.4 & 6.5) prevail.
- 6.1.6 The centre plan is to be adopted pursuant to the deemed provisions of the *Planning and Development (Local Planning Schemes) Regulations* (Schedule 2, Part 5, clause 31).
- 6.1.7 The adopted plan is not part of the scheme and does not bind Council or the Western Australian Planning Commission in respect of any application for planning approval. A decision maker is however required to give due regard to the provisions within Part 1 in determination of an application for subdivision, land use and/or development

6.2 Implications

- 6.2.1 Implementation of the Activity Centre Plan requires Peel Region Scheme and Local Scheme amendments identified within Tables 4 and 5 (below). Additional statutory related processes are outlined within Table 6 (below).

Table 4 – Statutory Implementation of Activity Centre Plan (Region Scheme Amendments)

Purpose of Amendment	Subject Lots	Current PRS Zoning
All PRS zoned land not currently zoned 'Urban' to be rezoned to 'Urban'	Numerous lots – to be identified	'Rural'

Table 5 –Statutory Implementation of Activity Centre Plan (Local Scheme Amendments)

Purpose of Amendment	Subject Lots	Current TPS Zoning
All zoned land within the Activity Centre Plan area not currently zoned 'Town Centre' to be rezoned to 'Town Centre'.	Numerous lots - to be identified	Encompasses land currently zoned 'Rural', 'Service Commercial', 'Residential', 'Residential Development', 'Private Clubs and Institutions', 'Civic Use', 'Special Use' and 'Public Purposes'
Introduce statutory provisions of Part 1 into Part VI of the Scheme (ie. land use table, objectives of 'Town Centre' zone, subdivision, development and land use provisions.	N/A – textual changes only	
Introduce a Developer Contribution Area (DCA) and prepare an associated Developer Contribution Plan (DCP) encompassing all zoned land within the Activity Centre Plan area.	Numerous lots- to be identified – Textual and scheme map modifications required	As above.

Table 6 – Additional Statutory Related Processes Requiring Implementation

Requirement	Subject Lots	Current TPS Zoning
Upon approval of the Activity Centre Plan by the Western Australian Planning Commission, the interim <i>Pinjarra Town Centre Local Planning Policy</i> is to be revoked.	N/A	N/A
Investigate potential for the reclassification of Conservation Category Wetland (CCW) area to accommodate proposed residential development as contemplated under Activity Centre Plan	Pinjarra Rd / Sibbald St	'Service Commercial'

6.3 Interpretations

The definitions of terms and expressions used in this document shall have the same meaning as set out in Table 1 of Town Planning Scheme No. 4 or Schedule 1, Part 6 (General definitions used in Scheme) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, unless defined below:

- **'adaptive re-use'** means the process of adapting or modifying a heritage place or building for a compatible new use, different from its original or previous use.
- **'architectural feature'** means a tower element, spires, gable, moulding or awning built into the design and construction of the building.
- **'drive-through facility'** means a component of land or a building designed or used for the sale and serving of goods direct to persons driving or seated in motor vehicles.
- **'maximum building height'** means the maximum vertical distance between the finished floor level and the highest point of any part of the building above it, but does not include any lift plant, water tower or similar utility or services not exceeding 3 m in height or any architectural feature or decoration, other than a free standing sign, not used for any form of accommodation or any open roofed structures which may be developed to provide recreation and open space opportunities for building occupants which may be approved by the decision maker.
- **'storey'** means a space within a building which is situated between the top of any floor and the top of the floor next above it (or if there is no floor above, between the top of the floor and the ceiling or roof above) and does not include a basement, mezzanine or loft.

6.4 Subdivision, Development & Land Use – General Provisions

The preceding Objectives (Part 1, Section 3) and Guiding Principles (Part 1, Section 4) are to be implemented through the following general provisions.

6.4.1 Subdivision

- 6.4.1.1 There is a general presumption against the subdivision of land within the Centre Plan area unless it has been adequately demonstrated to the satisfaction of the decision maker that subdivision will not prejudice the orderly and proper planning of the area and/or compromise the Objectives, Guiding Principles outlined within Part 1, achievement of the densities envisaged under *Figure 5 – Density Code Plan* and Table 4 below (where applicable), and the built form outcomes defined under the relevant Precinct Guidelines.
- 6.4.1.2 Subdivision and/or development of the land parcels within the 'Residential Precincts' outlined within Table 6 are subject to an endorsed local structure plan, unless it has been adequately demonstrated to the satisfaction of the decision maker the proposal will not prejudice the orderly and proper planning of the area and/or compromise achievement of the Objectives, Guiding

Principles and built form outcomes sought under the relevant Precinct Guidelines.

- 6.4.1.3 The lots identified within Table 7 are to be encompassed within overall consolidated local structure plans for the group of lots specified to facilitate integrated and comprehensive planning for residential development within the locality.
- 6.4.1.4 Local structure plans and subsequent subdivision applications within ‘Residential Precincts’ must demonstrate capacity to achieve the densities reflected within the *Figure 5 – Density Code Plan* and the dwelling targets identified within Table 7.
- 6.4.1.5 Local structure plans and subsequent subdivision applications within ‘Residential Precincts’ should seek to ensure a balanced representation of each density encompassed within the ranges specified under Figure 5 and provide for a range of densities within a street block to encourage vibrant and distinct streetscapes and a range of housing types and sizes for a diverse urban community. Where applicable higher residential densities are to be focused closer to designated public transport routes.

Table 7 – ‘Residential Precinct’ Lots Subject To A Local Structure Plan

Lots Subject to Local Structure Plans	Dwelling Targets
Lots 110 & 300 (No 13 & 30) Hampton Road	574 dwellings
Lots 136 (No. 45), 135 (No. 51), 1 (No. 31) and 20 (No. 29) Moores Rd, Lots 130 (No. 25) and 129 (No. 19) Tuckey St, Lots 128 (No. 128), 2 (No. 233), 3 (No. 29), 132 (No. 11) and 133 (No. 28) Thomas St and Lot 127 (No. 2) Longo Avenue.	840 dwellings
Lots 222 & 12 Paterson Rd	2,306 dwellings
Lot 2 (No. 43) James, Lots 62 (No. 1853) and 63 (No. 1837) Pinjarra Rd and Lots 64 (No. 41), 65 (No. 33), 66 (No. 25) and 67 (No. 17) Wilson St	698 dwellings
Lot 89 (No.11) Moores Rd, Lots 88 (No. 1774), 87 (No. 30) and 84 (No. 2) Tuckey Street, Lots 86 (No. 1798) and 85 (No. 1800) Pinjarra Rd and Lot 84 (No. 2) Tuckey Street.	650 dwellings
Lots 74, 73, 72, 71 and 70 (No. 42) Sutton St	170 dwellings
Lots 5 (No18), 30 (No. 28), 34 (No. 26), 33 (No. 24) Camp Rd and Lots 31 (No 11), 38 (No. 9), 37 (No. 7), 36 (No. 5), 35 (No. 3) Orchard St.	352 dwellings
Lots 800 (No.40) & 10 (No. 42) Camp Rd	90 dwellings

- 6.4.1.6 Subdivision or development of those lots within the ‘Heritage and Arts Precinct’ identified under Table 8 below are subject to an endorsed local development plan, unless it has been adequately demonstrated to the satisfaction of the decision maker the proposal will not prejudice the orderly and proper planning of the area and/or compromise the overarching Objectives and the guiding principles and specific vision and built form outcomes identified for the Precinct under the Precinct Guidelines (Part 1, Section 6.5).

Table 8 – ‘Heritage & Arts Precinct’ Lots Subject To A Local Structure Plan

Portion of Lot 222 Paterson Rd, Lots 221, 10, 9, 8, 7, 6, 5, 4 and 3 Paterson Rd, Lots 2, 12 and 13 South West Highway
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- 6.4.1.7 Land identified as part of the greenspace network on Figure 4 is to be set aside, ceded and developed as part of the normal subdivisional 10% public open space contribution. Where the greenspace network does not make up the full 10% public open space contribution then cash-in-lieu of public open space is to be provided unless otherwise agreed by the decision maker in a particular case to provide funding to help acquire and develop the overall greenspace network within the town centre.
- 6.4.1.8 In circumstances where land adjacent to the Murray River does not provide for a foreshore reserve or where the subject lot is identified as part of the broader greenspace network, subdivision will be subject to a condition requiring the ceding of land for the purposes of foreshore reserve or public open space and may include a condition requiring the preparation and implementation of a foreshore or public open space management plan.

6.4.2 Development

- 6.4.2.1 Development within the centre plan area is to be undertaken in accordance with the following elements and provisions of the Pinjarra Town Centre Activity Centre Plan:
- Objectives (Part 1, Section 3);
 - Greenspace Network Plan (Part 1, Figure 4)
 - Density Code Plan (Part 1, Figure 5);
 - Development Height Plan (Part 1, Figure 6);
 - The provisions contained within this part (Part 1, 6.4.2); and the
 - Precinct Guidelines (Part 1, Section 6.5).

- 6.4.2.2. Department stores and supermarkets over 300m² are not permitted outside of the Core Precinct.
- 6.4.2.3 Applications for planning approval that do not comply with the development standards specified for the respective precinct under the ‘Precinct Guidelines’, (Part 1, section 6.5) should not be supported unless it can be adequately demonstrated to the satisfaction of the decision maker, the proposal will not compromise the Objectives of the Activity Centre Plan and the overarching and precinct specific Guiding Principles contained within the ‘Precinct Guidelines’.
- 6.4.2.4 Development within the centre plan area is to be connected to the reticulated sewerage network.
- 6.4.2.5 Single dwellings and associated ancillary dwellings are only to be permitted on lots within the ‘Residential’ Precinct in circumstances where a dual residential density code applies.
- 6.4.2.6 In circumstances where a dual residential density code applies to lots within the ‘Residential’ Precinct, grouped or multiple dwellings at a lower density than the higher density code specified under Figure 5, should not be permitted unless it can be adequately demonstrated to the satisfaction of the decision maker that development will not compromise potential for the site to achieve development at the higher density.
- 6.4.2.7 In circumstances where the ‘Precinct Guidelines’ relating to the ‘Residential Precincts’ (refer Part 1, Section 6.5) are silent, the relevant provisions of the WAPC’s Residential Design Codes (R-Codes) apply.
- 6.4.2.8 Development on a site or building of heritage significance identified under the State or Local Heritage Register or List and/or located within a designated Heritage Area under Town Planning Scheme No. 4 is to be designed and constructed in a manner consistent with the Shire’s Heritage Places Local Planning Policy to ensure retention and protection of the heritage significance of the place.
- 6.4.2.9 Cash-in-lieu of car parking may be considered by the decision maker for development applications in circumstances where it has been sufficiently demonstrated that development will result in a significant built form outcome and/or benefit to the community and adequate on-street or reciprocal parking can be achieved in the short to medium term.
- 6.4.2.10 Cash-in-lieu contributions towards car parking may contribute towards consolidated parking facilities. The locations of which are to be identified under the Pinjarra Town Centre Car Parking Strategy (refer Part 2B).

6.4.2.11 With the exclusion of development with a construction cost of less than \$100,000, a 1 % contribution of the cost of development proposed within the Core, Mixed Use, Health and Heritage & Arts Precincts should be provided as cash in lieu for investment in public art or provided through architectural detail integrated into the development to the satisfaction of the decision maker. Such detail may include but not be limited to feature artwork and/or architectural, lighting or landscape features that contribute to the visual richness and interest of the streetscape and public realm.

6.4.3 Land Use

- 6.4.3.1 Pursuant to Schedule 1, Part 3, cl. 18(7) of the *Planning and Development (Local Planning Scheme) Regulations 2015*, in considering an application for land use within the centre plan area, due regard is to be given to Table 9 (below) and the relevant Precinct Guidelines (Part 1, Section 6.5) which outline land use principles and preferred uses at ground and upper floor levels.
- 6.4.3.2 Uses listed under Table 1 of Town Planning Scheme No. 4 which are not listed under Table 9 below are considered a non-permitted ('X') use within the centre plan area.
- 6.4.3.3 With the exception of those uses not permitted under section 6.4.3.2 above, other uses not listed under Table 9 may be considered acceptable where it can be adequately demonstrated to the satisfaction of the decision maker that the use is consistent with the Vision and Objectives of the Activity Centre Plan, the general provisions (Part 1, section 6.4) and the relevant Precinct Guidelines (Part 1, Section 6.5)
- 6.4.3.4 Proposed uses that are to be considered under 6.4.3.3 are to be assessed as a discretionary ('D') use and may be subject to advertising prior to determination of the application.
- 6.4.3.5 The symbols 'P', 'I', 'D', 'A' and 'X' shown in Table 9 are as defined under Schedule 1, Part 3 cl.18(2) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.
- 6.4.3.6 Interpretations of uses listed within Table 9 are as described under Town Planning Scheme No. 4 (the Scheme), with the exception of the following uses which are defined within Schedule 1, Part 6 (General definitions used in Scheme) of the *Planning and Development (Local Planning Schemes) Regulations 2015*: 'convenience store', 'exhibition centre', 'holiday accommodation', 'holiday house', 'liquor store – large', 'liquor store – small', 'nightclub', 'reception centre', 'serviced apartment', 'short-term accommodation', 'small bar', 'tavern', 'tourist development'.

6.4.3.7 Notwithstanding the permissibility of uses as set out under section 6.4.3 a shop is not permitted outside of the town core precinct except under the following circumstances where the following conditions are met:

- The floor space does not exceed 300m² net lettable area
- The parcel of land is on a separate lot of not less than 1000m²
- The aggregate shop net lettable area on any group of adjoining lots with a single street block does not exceed 1000m², and
- The direct street frontage of any lot containing a shop is at least 20 metres in width.

Table 9 – Land Use

	Core	Mixed Use	Health	Heritage & Arts	Residential
<i>Art gallery</i>	P	P	X	P	X
<i>Bank</i>	P	P	X	X	X
<i>Bed & Breakfast</i>	P	P	P	P	D
<i>Car park</i>	D	D	D	D	X
<i>Child day care centre</i>	P	P	D	D	A
<i>Cinema/theatre</i>	P	X	X	D	X
<i>Civic building</i>	P	D	D	D	A
<i>Club premises</i>	P	A	X	A	X
<i>Convenience store</i>	P	P	D	D	A
<i>Community purpose</i>	P	P	P	P	P
<i>Consulting rooms</i>	P	P	P	D	X
<i>Dwelling</i>					
- <i>Single</i> (*refer 6.4.2.5)	X	X	P	P	P*
- <i>Grouped</i>	D	P	P	P	P
- <i>Multiple</i>	P	P	P	P	D
- <i>Ancillary</i>	X	X	X	X	P*
<i>Drive Through Facility</i>	X	X	X	X	X
<i>Dry cleaning agency</i>	D	D	D	X	X
<i>Educational establishment</i>	P	P	D	D	D
<i>Exhibition Centre</i>	P	D	X	D	X
<i>Family day care centre</i>	D	D	D	D	D
<i>Funeral parlour</i>	X	X	D	X	X
<i>Garden Centre</i>	I	I	X	I	X
<i>Hardware outlet</i>	I	X	X	X	X
<i>Health Centre</i>	P	P	P	D	X
<i>Health Retreat</i>	P	P	A	X	X
<i>Health Studio</i>	P	P	P	D	X
<i>Holiday Accommodation</i>	P	P	D	D	A
<i>Home Occupation</i>	P	P	P	P	D
<i>Home Store</i>	D	D	D	D	A
<i>Hospital</i>	X	X	P	X	X
<i>Hotel</i>	P	X	X	X	X
<i>Infant Welfare Clinic</i>	D	D	P	X	D
<i>Kindergarten</i>	D	D	D	X	D
<i>Motel</i>	D	D	D	X	X
<i>Medical Clinic</i>	P	P	P	X	X
<i>Home office</i>	P	P	P	P	P
<i>laundromat</i>	P	P	D	X	X
<i>Liquor store – large</i>	D	D	X	X	X
<i>Liquor store – small</i>	P	P	X	X	X
<i>Lodging House</i>	P	D	X	X	X

Market	D	D	X	D	X
Night Club	A	X	X	X	X
Office	P	P	P	P	X
Place of Public Worship	P	D	I	D	X
Private Club	P	D	X	X	X
Public Amusement	P	D	X	X	X
Public utility	D	D	D	D	D
Reception Centre	D	D	X	D	X
Residential Hotel	P	D	X	X	X
Restaurant / Café	P	P	I	P	A
Restricted Premises	D	X	X	X	X
Retirement Village	X	X	D	D	D
Serviced Apartment	P	P	D	P	X
Small Bar	P	P	X	P	X
Shop	P	P	I	P	X
Take-away food outlet	P	P	I	D	X
Tavern	P	X	X	I	X
Telecommunications infrastructure	D	D	D	D	D

6.4.4 Developer Contributions

6.4.4.1 The decision maker is to require a subdivider and/or developer to set aside and cede land for road reserves/road widening for the following roads:

Table 10 – Road Reserve Widths And Widening Requirements

Road	Portion	Width
Forrest Street	Dixon Avenue to Paterson Road	20 metres
James Street	Roe Avenue to Wilson Road	20 metres
Moores Road	Pollard Street to Pinjarra Road	38 metres
Pinjarra Road	Murray Street to Roe Avenue	4.5 metre widening on north side
Pinjarra Road	Roundabouts at intersections with Murray Street, Forrest Street and Roe Avenue	Widening for intersection design
Pollard Street	Moores Road to Paceway Court	39m depending on detailed design of central drainage corridor
Sutton Street	Pinjarra Road to Paterson Road	38 metres

6.4.4.2 The decision maker is to require the subdivider and/or developer to construct and/or upgrade the following roads to an urban main street standard, including road pavement, on street parking, roundabouts and intersection treatments, dual use paths or full width paved verges, street trees and street furniture, where the roads are included within the lots being subdivided and/or developed or directly abutting such lots.

Table 11 – Road Upgrades and Construction Requirements

Road	Portion
Alderson Street	Paceway Court to Lovegrove Street
Forrest Street	Dixon Avenue to Paterson Road
Hampton Road	Paceway Court to Lovegrove Street
James Street	George Street to Wilson Road
Longo Avenue	Thomas Street to Reserve 23781
Lovegrove Street	Pollard Street to Hampton Road
Moores Road	Pollard Street to Pinjarra Road
Pinjarra Road	George Street to Sutton Street
Pollard Street	Moores Road to Paceway Court
Sutton Street	Pinjarra Road to Paterson Road
Thomas Street	Pollard Street to Longo Avenue
Tuckey Street	Moores Road to Wilson Road
Wilson Road	Longo Avenue to Pinjarra Road

- 6.4.4.3 Where applicable, subdivision or development approval should be subject to the landowner / developer funding the undergrounding of powerlines within road reserves adjoining the site.
- 6.4.4.4 Consistent with the provisions of State Planning Policy 3.6, it is intended that the Shire will prepare and implement a Development Contribution Area and Development Contribution Plan to assist in the provision of infrastructure for the Activity Centre Plan area. The main infrastructure items will be likely to include ceding of land and development works associated with the construction of roads, traffic management devices such as roundabouts, open space, drainage and pathway networks, undergrounding of powerlines, community infrastructure and public art.

6.4.5 Bushfire Prone Areas

- 6.4.5.1 All development and land use applications for sites identified as bushfire prone are required to include a Bushfire Management Plan, prepared by an accredited assessor in accordance with the provisions of the *Guidelines for Planning in Bushfire Prone Areas*.
- 6.4.5.2 All development within areas identified as Bushfire Prone area is to be undertaken in accordance with State Planning Policy 3.7 (SPP3.7) and the associated *Guidelines for Planning in Bushfire Prone Areas*.

6.4.6 Development within the Flood Fringe

- 6.4.6.1 All development for sites located within the Murray River Flood Fringe are to be constructed at a finished floor level of at least 150mm above the 1:100 ARI flood level.

- 6.4.6.2 To the extent necessary to improve pedestrian interaction between the building and street footpaths, the finished floor level of non-residential buildings may be reduced to the 1:100 ARI flood level.

6.5 Subdivision, Development & Land Use – Precinct Specific Provisions

Further to the general provisions outlined within Part 1, Section 6.4, land use and development is to be undertaken in accordance with the Precinct specific provisions outlined within Part 1, Section 6.5.



Core Precinct



The Core precinct is the beating heart of Pinjarra and the focal point for business, employment and civic activity. The vision for the Town Centre core is for a network of appealing, tree-lined, lively and walkable streets framed by mixed use buildings of a scale and character that complements the materials and forms of Pinjarra's heritage buildings.



Core – Land Use and Development Guidelines

Preferred Land Uses	
Principle	Acceptable outcome
Land uses at ground level shall optimise activation of the frontage to adjacent streets and other public spaces.	Preferred land uses at ground level include: shop, restaurant/café, small bar, art gallery, convenience store, civic use, community purpose, exhibition centre, hotel, place of public worship.
Land uses at upper levels shall optimise resident and worker densities and enable passive surveillance of adjacent streets and other public spaces.	Preferred land uses at upper levels include: office, consulting rooms, serviced apartment, multiple dwelling, cinema/theatre, and educational establishment.
Development Scale and Intensity	
Principle	Acceptable outcome
Development shall be of a scale and intensity appropriate to a town centre location sufficient to encourage walkability and public transport.	R-Code Density : R-AC0(b) / Minimum of R100 Nil setback to side boundaries with the exception of: setbacks which accommodate access to sleeved parking behind development and to heritage buildings that have not been built to the common boundary which are provided a 2 m side setback.
Residential and mixed-use development shall contribute to a lively town centre community.	Storeys above ground level are to be setback to allow for permeable balconies which contribute to the level of activity and facilitates passive surveillance of street.
Responsive Built Form Design	
Built form that is responsive to the local environment, reflects solar passive design principles and utilises alternative sources of energy	New development should be oriented and designed to minimize summer heat gain, winter heat loss and support cross ventilation through the appropriate siting of doors and windows and the use of eaves, awnings and verandahs. The use of alternative sources of energy, 'green walls' and 'roof top gardens' are encouraged. Water use efficiency is to be maximized through water sensitive urban design landscaping and the capturing of rain and storm water on site for re-use.
Building Height	
Principle	Acceptable outcome
Buildings shall be of a height that reflects the hierarchy of the street	Minimum building height of two storeys or equivalent.

network and provides for a sense of enclosure.	Maximum height limits as per the Development Height Plan (refer Part 1, Figure 6).
Buildings shall enable sufficient solar access to adjacent streets and where relevant, other adjacent public spaces.	Buildings enabling sun on the footpath on the opposite side of the street at 12pm Jun 21 st .
Street Interface	
Principle	Acceptable outcome
Buildings shall provide an active and transparent frontage at ground floor level.	<p>Ground floor tenancies adjacent to a street or other public space with the primary pedestrian access from that street or public space.</p> <p>Minimum of 75% of ground floor commercial street frontage with a maximum sill height of 900mm and a minimum head height of 2400 mm above the adjacent footpath.</p> <p>Obscure or reflective glazing on ground floor is avoided</p>
Buildings shall contribute to a generally cohesive and continuous streetscape.	<p>Mandatory street setback of 0 m, with dedicated al-fresco areas, covered arcades, building lobbies and corner architectural articulation excepted.</p> <p>Building frontages constructed to both side boundaries at the frontage to streets or other public spaces.</p>
Buildings shall provide shade and shelter to the adjacent footpath.	Canopy, awning or arcade cover of at least 2.8m depth over the adjacent footpath for the full length of building frontages.
Buildings shall present a fine-grained rhythm of structure and tenancies to the street, with large tenancies 'sleeved' by smaller tenancies.	Maximum 7.5m of glazed shop front between piers.
Buildings shall present a welcoming entrance from the street.	<p>Entrance doors recessed by at least 1m from the street boundary.</p> <p>Entrances at-grade with adjacent footpath, unless flood protection measures require otherwise. Flood protection measures including ramped or stepped pedestrian access is accommodated within the development site.</p>
Buildings shall provide sufficient ground floor heights to accommodate a range of commercial uses.	Minimum floor-to-floor height of 3.6m for the ground floor.

Service areas, mechanical equipment and bin storage areas shall be located to reduce the visual impact on the public domain.	Service areas, mechanical equipment, services and bin storage areas located at the rear of a building, within a basement or where necessary screened from view from the street or other public space, other than a right-of-way by incorporation into the building design.
Car-parking areas shall be located to reduce the visual impact on the public domain.	Car parking located at the rear of a building, within a basement, within a parking structure sleeved from the street by active land uses, on a rooftop, or otherwise screened from view from the street or other public space other than a right-of-way.

Neighbour Interface

Principle	Acceptable outcome
Buildings shall respect the curtilage of heritage buildings.	Minimum setback of 2m to boundaries shared with heritage buildings unless the heritage building is built to the common boundary.
Buildings shall provide a reasonable degree of amenity for town centre residents.	Minimum setback of 4m from the side boundary to any major opening or balcony of a dwelling facing the boundary.
Side and rear boundary fencing shall reflect the wall materials of the associated building.	Fencing material as per the major wall material of the associated building.

Character and Identity

Principle	Acceptable outcome
Buildings shall reflect or interpret the forms, colours, and materials of Pinjarra's historic buildings.	<p>Preferred building forms and architectural features include: verandahs and balconies, towers, vertically proportioned windows or glazing panels, horizontal banding, and a clear delineation between the base, middle and top sections of a building elevation.</p> <p>Preferred materials include: red brick, natural stone, painted render, timber, custom orb sheeting or similar, or a combination thereof.</p> <p>Preferred colours include muted natural tones, rather than primary colours.</p>
Buildings shall integrate public art or other decorative detail to provide visual richness.	Contribution towards public art in accordance with clause 6.4.2.11.
Building roofs shall reflect traditional roof forms and materials.	Preferred roof forms include: pitched roofs of at least 25 degrees, unless hidden from view from the adjacent street by a parapet.

Access and Parking

Principle	Acceptable outcome
Vehicle crossovers shall be minimised to reduce pedestrian conflict points and reduce the visual impact on the streetscape	<p>Maximum of one crossover per street for any development and where possible crossovers to be avoided on Pinjarra Road, George Street and James Street.</p> <p>Shared crossovers are encouraged between adjacent developments via an easement arrangement.</p> <p>Maximum crossover width of 6m.</p>
The amount of car parking for town centre residents shall reflect a town centre lifestyle with proximity to services and employment.	<p>Maximum car-parking provision of 2 bays per dwelling unless dwelling is less than 80 m², wherein a maximum of 1 bay per dwelling applies.</p> <p>No on-site parking for residential visitors.</p> <p>Cash in lieu of on-site parking is encouraged where opportunities for consolidated car parks is available.</p>
The amount of car parking for retail and commercial uses shall be commensurate with an urban centre rather than a suburban shopping centre.	<p>Non-residential uses at 3 bays per 100 m²</p> <p>Cash in lieu of on-site parking is encouraged where opportunities for consolidated car parks is available.</p>
Signage	
Principle	Acceptable outcome
Signage shall be integrated into the design of the associated building, rather than on stand-alone pylons.	<p>Signage integrated into building elevation features such as panels or towers, or integrated with canopies and awnings designed in a manner which does not extend the building height or visually dominate the building.</p> <p>Under verandah signs which provide a minimum ground clearance of 2.4 metres.</p>
Signage shall be of a pedestrian scale and not significantly obscure building openings.	<p>Maximum sign area of 10 m².</p> <p>Maximum sign area of 2.5 m² within 5m of the adjacent footpath and in any case where located on a window or door not exceed 30% of the glazed area of the each window or door.</p>

Mixed Use Precincts



The mixed-use precinct establishes a frame to the Core Precinct that provides for a transition in activity between the Town Centre and the broader residential areas of Pinjarra. The vision for the mixed-use precinct is for streets with a diverse range of complementary uses that enable people to work and reside in the same location or live affordably within a five to ten minute walk from the primary business and employment centre.



Mixed Use – Land Use and Development Guidelines

Preferred Land Uses	
Principle	Acceptable outcome
Land uses at ground level shall provide activation of the frontage to adjacent streets and other public spaces and enable changes of use over time.	Preferred land uses at ground level include: shop, restaurant/café, small bar, art gallery, convenience store, grouped dwellings and multiple dwellings designed in a manner that accommodates for adaptive change of use over time.
Land uses at upper levels shall complement and support the uses within the adjacent town centre core precinct.	Preferred land uses at upper levels include: office, home office, consulting rooms, serviced apartments, grouped or multiple dwellings, holiday accommodation and educational establishment.
Land uses at upper levels shall enable passive surveillance of adjacent streets and other public spaces.	Major openings to habitable rooms, office space or other commercial activities that are predominantly occupied during business hours.
Development scale and intensity	
Principle	Acceptable outcome
Development shall be of a scale and intensity appropriate to a location, provides for a transition between the town centre and the broader residential precincts, encourages walkability and public transport	<p>Minimum density of R80.</p> <p>Maximum height limits as per the Development Height Plan (refer Part 1, Figure 6).</p>
Development shall provide for affordable residential opportunities within a convenient walk of the town centre at medium residential densities.	A range of dwelling sizes and types are provided as part of a mixed use development
Development shall incorporate sufficient landscaping to transition between the urban environment of the town centre and the suburban environment of the residential hinterland.	<p>Minimum of 15% site coverage for water sensitive landscaping.</p> <p>Where achievable green walls or roof top gardens may contribute towards landscaping site coverage.</p>

Building height	
Principle	Acceptable outcome
Buildings shall be of a height that reflects the hierarchy of the street network and provide a sense of enclosure.	<p>Minimum building height of two storeys or equivalent.</p> <p>Maximum height limits as indicated on the Development Height Plan (refer Part 1, Fig 6), unless otherwise prescribed within the Precinct Guidelines.</p>
Building heights shall provide an amenable transition to adjacent residential precincts.	<p>Maximum of 2 storeys for buildings within 6m of an adjacent residential precinct.</p> <p>Maximum of 3 storeys within 10m of an adjacent residential precinct.</p>
Buildings shall enable sufficient solar access to adjacent streets and other adjacent public spaces.	Buildings enabling sun on the footpath on the opposite side of the street at 12pm Jun 21 st .
Responsive Built Form Design	
Built form that is responsive to the local environment, reflects solar passive design principles and utilises alternative sources of energy	<p>New development should be oriented and designed to minimize summer heat gain, winter heat loss and support cross ventilation through the appropriate siting of doors and windows and the use of eaves, awnings and verandahs.</p> <p>The use of alternative sources of energy, 'green walls' and 'roof top gardens' are encouraged.</p> <p>Water use efficiency is to be maximized through water sensitive urban design landscaping and the capturing of rain and storm water on site for re-use.</p>
Street interface	
Principle	Acceptable outcome
Non-residential buildings shall provide an active and transparent frontage at ground floor level.	<p>Ground floor tenancies adjacent to a street or other public space with the primary pedestrian access from that street or public space.</p> <p>Minimum of 75% of the ground floor street frontage with a maximum sill height of 900mm and a minimum head height of 2.4m above the adjacent footpath.</p>
Residential uses at the ground floor shall provide for passive surveillance of the adjacent footpath.	<p>A clear line of sight to pedestrians on an adjacent footpath from at least one ground floor major opening to a habitable room for each dwelling adjacent to the footpath.</p> <p>Ground floor residential uses no more than 1.2m above an adjacent footpath.</p>

Buildings shall contribute to a cohesive and continuous streetscape.	<p>Street setback of between 0m and 2.5m for buildings with commercial uses at the ground floor level with the exception of Pinjarra Road where a setback of 4.5 m is provided.</p> <p>Street setbacks of between 2.5m and 4m for buildings with residential uses at the ground floor level.</p> <p>Entrances at-grade with adjacent footpath, unless flood protection measures require otherwise. Flood protection measures including ramped or stepped pedestrian access is accommodated within the development site.</p>
Buildings shall provide shade and shelter to the adjacent footpath where there is a direct interface between non-residential uses and the street.	Canopy, awning or arcade cover of at least 2.8m depth over the adjacent footpath for the full length of ground floor commercial building frontages with a 0m setback.
Buildings shall present a fine-grained rhythm of structure and tenancies to the street, with large tenancies 'sleeved' by smaller tenancies.	Maximum 7.5m of glazed shop front between piers.
Buildings shall present a welcoming entrance from the street.	<p>Entrance doors recessed by at least 1m from the street boundary.</p> <p>Verandahs are provided to the front elevation with a minimum depth of 2.4 m and a length of at least 50% of the width of the front of the dwelling, or a minimum of 4m (whichever is the lesser)</p>
Buildings shall provide sufficient ground floor heights to accommodate a range of commercial uses and to enable conversion from residential uses to commercial uses in the longer term.	Minimum floor-to-floor height of 3.6m for the ground floor.
Service areas, mechanical equipment and bin storage areas shall be located to reduce the visual impact on the public domain.	Service areas, mechanical equipment, services and bin storage areas located at the rear of a building, within a basement or where necessary screened from view from the street or other public space, other than a right-of-way by incorporation into the building design.
Resident, staff and long-term car parking areas shall be located to reduce the visual impact on the public domain.	Car parking located at the rear of a building, within a basement, within a parking structure sleeved from the street by active land uses, on a rooftop, or otherwise screened from view from the street or other public space other than a right-of-way.

<p>Front fencing shall balance the competing demands of privacy and passive surveillance.</p>	<p>Permeable fencing (excluding piers) to primary street to no more than 750 mm above the adjacent footpath.</p> <p>Fencing is to be of a style, material and colour that is in keeping or complements the character of the town centre.</p>
Neighbour interface	
Principle	Acceptable outcome
<p>Buildings shall respect the curtilage of heritage buildings.</p>	<p>Minimum setback of 2m to boundaries shared with heritage buildings unless the heritage building is built to the common boundary.</p>
<p>Buildings shall provide a reasonable degree of amenity for residents.</p>	<p>Residential development as per the R-Codes.</p> <p>Non-residential development with a minimum 3m setback to a side boundary.</p> <p>Non-residential development with a minimum 6m setback to a rear boundary.</p> <p>Minimum 50% of solar access to an existing adjacent outdoor living area at 12pm June 21st.</p>
<p>Side and rear boundary fencing for non-residential buildings shall reflect the wall materials of the associated building.</p>	<p>Fencing material as per the major wall material of the associated building.</p>
Character and Identity	
Principle	Acceptable outcome
<p>Buildings shall interpret the colours, and materials of Pinjarra's historic buildings.</p>	<p>Preferred materials include: red brick, natural stone, painted render, timber, custom-orb sheeting or similar, or a combination thereof.</p> <p>Preferred colours include muted natural tones, rather than primary colours.</p>
<p>Non-residential buildings shall integrate public art or other decorative detail to provide visual richness.</p>	<p>Contribution towards public art in accordance with clause 6.4.2.11.</p>
<p>Residential buildings shall present a human scale and building forms that are recognisably residential in character.</p>	<p>Preferred features of residential buildings include: Verandahs and balconies, vertically proportioned windows and traditional pitched roofs.</p>

Building roofs for mixed-use and non-residential buildings shall reflect traditional roof forms and materials.	Preferred roof forms include: pitched roofs of at least 25 degrees, unless hidden from view from the adjacent street by a parapet.
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Access and Parking

Principle	Acceptable outcome
Vehicle crossovers shall be minimised to reduce pedestrian conflict points and reduce the visual impact on the streetscape	<p>Maximum of one crossover per street for any development and where possible crossovers to be avoided on Pinjarra Road, George Street and James Street.</p> <p>Shared crossovers or reciprocal access between adjacent developments.</p> <p>Maximum crossover width of 6m.</p>
Onsite parking is to be sleeved behind development	Parking and garages are suitably screened from the street
The amount of car parking for residents shall reflect an inner suburban lifestyle with proximity to services and employment.	<p>Car-parking is consistent with deemed to comply provisions of R-Codes.</p> <p>No on-site parking for residential visitors. Provision of on-street parking bays is encouraged where safe to do so.</p> <p>Cash in lieu where justified to the satisfaction of the decision maker.</p> <p>Reciprocal parking between residential and commercial visitors is encouraged in the case of mixed-use buildings.</p>
The amount of car parking for commercial uses shall be commensurate with an urban centre rather than a suburban shopping centre.	<p>Non-residential uses at 3 bays per 100 m²</p> <p>Cash-in-lieu or reciprocal parking arrangements may be supported where justified to the satisfaction of the decision maker.</p>
Commercial visitor parking shall be located where it is convenient and available for reciprocal use.	Commercial visitor parking located with direct pedestrian access to the main building entrance(s).

Signage

Principle	Acceptable outcome
Signage shall be integrated into the design of the associated building, rather than on stand-alone pylons.	Signage integrated into building elevation features such as panels or towers, or integrated with canopies and awnings designed in a manner which does not extend the building height or visually dominate the building.

	<p>Under verandah signs which provide a minimum ground clearance of 2.4 metres.</p>
Signage shall be of a pedestrian scale and not significantly obscure building openings.	<p>Maximum sign area of 10 m².</p> <p>Maximum sign area of 2.5 m² within 5m of the adjacent footpath and in any case where located on a window or door not exceed 30% of the glazed area of each window or door.</p>

Health Precinct



The Health Precinct is focused around the Murray District Hospital. The Vision for the Health Precinct is for medical, related business support and residential buildings within a landscaped setting that promotes physical and mental well-being, with a strong visual relationship to the Murray River and the hills beyond.



Health – Land Use and Development Guidelines

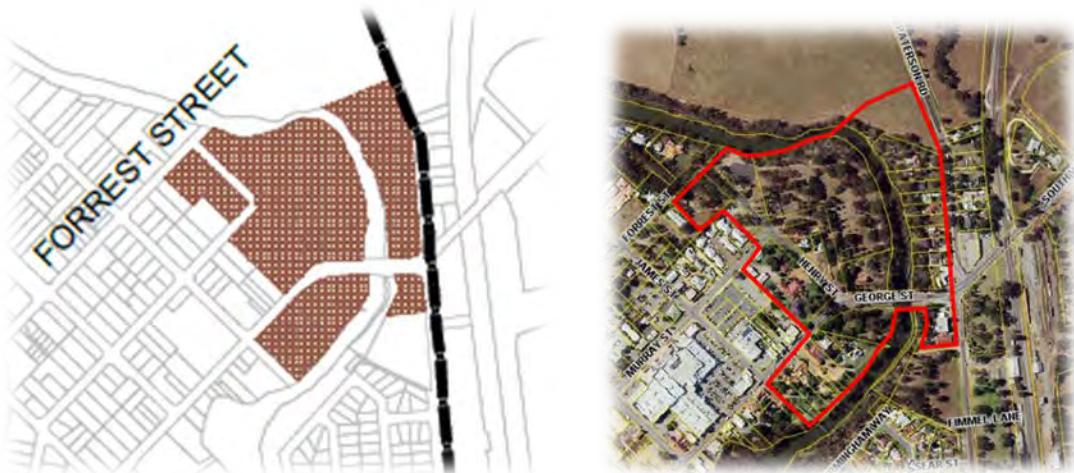
Preferred land uses	
Principle	Acceptable outcome
Land uses shall provide or support the provision of health services:	<p>Preferred land uses at ground level include: hospital, medical centre, consulting rooms, residential aged care, aged and dependent dwellings.</p> <p>Preferred uses above ground level include: grouped and multiple dwellings, serviced apartments, office</p>
Land uses at upper levels shall enable passive surveillance of adjacent streets and other public spaces.	Major openings to habitable rooms, office space or other commercial activities that are predominantly occupied during business hours.
Development scale and intensity	
Principle	Acceptable outcome
Development shall be of a scale and intensity appropriate to the provision of health and support services in a landscaped campus setting.	Minimum open space provision of 50% in lieu of any plot ratio control.
Development shall provide for affordable residential opportunities within a convenient walk of the hospital and other health services.	Minimum density of R80.
Building height	
Principle	Acceptable outcome
Buildings shall be of a height that reflects the landscaped setting along the Murray River.	<p>Minimum building height of two storeys.</p> <p>Maximum height limits as indicated on the Development Height Plan (refer Part 1, Fig 6).</p>
Building heights shall provide an amenable transition to adjacent residential precincts.	As above
Responsive Built Form Design	
Built form that is responsive to the local environment, reflects solar passive design principles and utilises alternative sources of energy	New development should be oriented and designed to minimize summer heat gain, winter heat loss and support cross ventilation through the appropriate siting of doors and windows and the use of eaves, awnings and verandahs.

	<p>The use of alternative sources of energy, 'green walls' and 'roof top gardens' are encouraged.</p> <p>Water use efficiency is to be maximized through water sensitive urban design landscaping and the capturing of rain and storm water on site for re-use.</p>
Street interface	
Principle	Acceptable outcome
Non-residential buildings shall address adjacent streets or other public spaces.	<p>Main entrances to buildings (or tenancies) with a direct line of sight and access from a street or public space.</p> <p>Minimum of 60% of the ground floor street frontage with a maximum sill height of 900mm and a minimum head height of 2400mm above the adjacent footpath.</p>
Residential uses at the ground floor shall provide for passive surveillance of the adjacent footpath.	<p>A clear line of sight to pedestrians on an adjacent footpath from at least one ground floor major opening to a habitable room for each dwelling adjacent to the footpath.</p> <p>Ground floor residential uses no more than 1.2m above an adjacent footpath.</p>
Buildings shall contribute to a streetscape with a landscape character.	<p>Maximum street setback of 4m.</p> <p>Any fencing to the primary street to be 50% visually permeable and no more than 750mm in height above the adjacent street reserve.</p> <p>Residential development provides verandahs to the front elevation with a minimum depth of 2.4 m and a length of at least 50% of the width of the front of the dwelling, or a minimum of 4 m (whichever is the lesser)</p>
Buildings shall provide sufficient ground floor heights to accommodate a range of commercial uses and to enable conversion from residential to uses such as consulting rooms in the longer term.	Minimum floor-to-floor height of 3.6m for the ground floor, with the exception of lots addressing Jubilee Drive and Lots 11 to 16 (No.s 12 – 40) Bedingfeld Road
Service areas, mechanical equipment and bin storage areas shall be located to reduce the visual impact on the public domain.	Service areas, mechanical equipment and bin stores located at the rear of a building, within a basement or screened from view from the street or other public space other than a right-of-way.
Resident, staff and long-term car-parking areas shall be located or designed to maintain a landscaped interface between buildings and the street.	Minimum vegetated landscaping provision of 50% for all street setback areas.

Neighbour interface	
Principle	Acceptable outcome
Buildings shall respect the curtilage of heritage buildings.	Minimum setback of 3m to any boundaries shared with heritage buildings.
Buildings shall provide a high degree of amenity for residents.	<p>Minimum setback of 0m to the side boundary for the first 15m behind the front building line only.</p> <p>Minimum 3m setback to the remainder of the side boundary.</p> <p>Minimum setback of 4m from the side boundary to any major opening or balcony of a dwelling facing the boundary.</p> <p>Minimum 50% of solar access to an existing adjacent outdoor living area at 12pm June 21st.</p>
Side and rear boundary fencing shall reflect the wall materials of the associated building.	Fencing material as per the major wall material of the associated building.
Character and Identity	
Principle	Acceptable outcome
Buildings shall interpret the colours, and materials of Pinjarra's historic buildings.	<p>Preferred materials include: red brick, natural stone, painted render, timber, custom-orb sheeting or similar, or a combination thereof.</p> <p>Preferred colours include muted natural tones, rather than primary colours.</p>
Buildings shall integrate public art or other decorative detail to provide visual richness.	Contribution towards public art in accordance with clause 6.4.2.11.
Residential buildings shall present a human scale and building forms that are recognisably residential in character.	<p>Preferred features of residential buildings include: Verandas and balconies, vertically proportioned windows, and traditional pitched roofs.</p> <p>Permeable fencing (excluding piers) to primary street to no more than 750mm above the adjacent footpath.</p>
Building roofs for mixed-use and non-residential buildings shall reflect traditional roof forms and materials.	Preferred roof forms include: pitched roofs of at least 25 degrees, unless hidden from view from the adjacent street by a parapet.
Development shall integrate buildings into a landscape environment.	<p>A deep-soil provision for tree planting at the rear of the building or within a courtyard space.</p> <p>Shade tree provision at the rate of 1 tree per 4 bays for car-parking areas of 4 bays or more.</p>
Access and Parking	

Principle	Acceptable outcome
Vehicle crossovers shall be minimised to reduce pedestrian conflict points and reduce the visual impact on the streetscape	<p>Maximum of one crossover per street for any development. Shared crossovers or reciprocal access between adjacent developments.</p> <p>Maximum crossover width of 6m.</p>
The amount of car parking for town centre residents shall reflect an inner suburban lifestyle with proximity to services and employment.	<p>Car-parking provision is consistent with deemed to comply provisions of R-Codes.</p> <p>Provision of on-street parking bays for visitors where safe to do so.</p> <p>Cash-in-lieu where justified to the satisfaction of the decision maker.</p> <p>Reciprocal parking between residential and commercial visitors in the case of mixed-use buildings.</p>
The amount of car parking for commercial uses shall be commensurate with an urban centre rather than a suburban shopping centre.	<p>Non-residential uses at 3 bays per 100 m²</p> <p>Cash-in-lieu or reciprocal parking arrangements may be considered where justified to the satisfaction of the decision maker.</p>
Non-residential visitor parking shall be located where it is convenient and available for reciprocal use.	<p>Non-residential visitor parking located with direct pedestrian access to the main building entrance(s).</p> <p>Non-residential visitor parking may be located between the building and the front boundary only where it can be demonstrated that on-street parking is not safe or not permitted.</p>
Signage	
Principle	Acceptable outcome
Signage shall be integrated into the design of the associated building, rather than on stand-alone pylons.	<p>Signage integrated into building elevation features such as panels or towers, or integrated with canopies and awnings designed in a manner which does not extend the building height or visually dominate the building.</p> <p>Under verandah signs which provide a minimum ground clearance of 2.4 metres.</p>
Signage shall be of a pedestrian scale and not significantly obscure building openings.	<p>Maximum sign area of 10 m².</p> <p>Maximum sign area of 2.5 m² within 5m of the adjacent footpath and in any case where located on a window or door not exceed 30% of the glazed area of the each window or door.</p>

Heritage and Arts Precinct



The heritage and arts precinct is the cultural heart of Pinjarra where Pinjarra's history and landscape fuse together. The vision for the heritage and arts precinct is for a relaxing and contemplative place on the banks of the Murray River with a strong landscape theme that provides a setting for Pinjarra's heritage assets and sensitively designed cultural facilities.



Heritage & Arts – Land Use and Development Guidelines

Preferred land uses	
Principle	Acceptable outcome
Land uses at ground level shall provide activation of the frontage to adjacent streets and other public spaces and enable changes of use over time.	Preferred land uses at ground level include: art gallery, civic use, restaurant/café, small bar, serviced apartment, shop, convenience store, community purpose, exhibition centre
Land uses at upper levels shall complement and support the intended vision for the precinct.	Preferred land uses at upper levels include: bed and breakfast, holiday accommodation, office, serviced apartment, multiple dwelling.
Land uses at upper levels shall enable passive surveillance of adjacent streets and other public spaces.	Major openings to habitable rooms, office space or other commercial activities that are predominantly occupied during business hours.
Development scale and intensity	
Principle	Acceptable outcome
Development shall be of a scale and intensity appropriate to a precinct with a strong emphasis on landscape qualities.	<p>Density of R60</p> <p>Minimum open space provision of 50% in lieu of any plot ratio control.</p>
Building height	
Principle	Acceptable outcome
Buildings shall be of a height that reflects the landscaped setting along the Murray River.	<p>Minimum building height of two storeys or equivalent.</p> <p>Maximum height limits as indicated on the Development Height Plan (refer Part 1, Figure 6).</p>
Building heights shall provide an amenable transition to adjacent residential precincts.	Maximum of 2 storeys for buildings within 6m of the adjacent residential precinct.
Buildings shall enable sufficient solar access to adjacent public spaces.	Buildings enabling sun on at least 50% of any adjacent landscaped public spaces.
Responsive Built Form Design	
Built form that is responsive to the local environment, reflects solar passive design principles and	New development should be oriented and designed to minimize summer heat gain, winter heat loss and support cross ventilation through the appropriate siting of doors and windows and the use of eaves, awnings and verandahs.

utilises alternative sources of energy	<p>The use of alternative sources of energy, ‘green walls’ and ‘roof top gardens’ are encouraged.</p> <p>Water use efficiency is to be maximized through water sensitive urban design landscaping and the capturing of rain and storm water on site for re-use.</p>
Street interface	
Principle	Acceptable outcome
Buildings shall address adjacent streets or other public spaces.	<p>Main entrances to buildings (or tenancies) with a direct line of sight and access from a street or public space.</p> <p>Minimum of 60% of the ground floor street frontage with a maximum sill height of 900mm and a minimum head height of 2400mm above the adjacent footpath.</p>
Buildings shall contribute to a streetscape with a strong civic and landscape character.	<p>Minimum street setback of 4m.</p> <p>Any fencing to a street or other public space no more than 900 mm in height above the adjacent street reserve</p>
Buildings shall present a welcoming entrance from the street.	<p>Entrance doors with a clear line of sight from an adjacent street or public space.</p> <p>Entrances associated with a forecourt or other landscaped space.</p>
Buildings shall provide sufficient ground floor heights to accommodate a range of non-residential uses.	Minimum floor-to-floor height of 3.6m for the ground floor.
Service areas, mechanical equipment and bin storage areas shall be located to reduce the visual impact on the public domain.	Service areas, mechanical equipment and bin stores located at the rear of a building, within a basement or screened from view from the street or other public space other than a right-of-way.
Long-term car-parking areas shall be located or designed to maintain a landscaped interface between buildings and the street.	<p>Long-term car parking located at the rear of a building, within a basement, within a parking structure sleeved from the street by active land uses, on a rooftop, or otherwise screened from view from the street or other public space other than a right-of-way.</p> <p>Car-parking areas within a street setback area limited to 6 bays and for short-term use only.</p>

	Minimum vegetated landscaping provision of 50% for all street setback areas.
Neighbour interface	
Principle	Acceptable outcome
Buildings shall respect the curtilage of heritage buildings.	Minimum setback of 3m to all side boundaries. Minimum setback of 6m to rear boundaries.
Side and rear boundary fencing for non-residential buildings shall reflect the wall materials of the associated building.	Solid fencing material as per the major wall material of the associated building Other fencing with at least 50% visual permeability.
Character and Identity	
Principle	Acceptable outcome
Buildings shall interpret the colours, and materials of Pinjarra's historic buildings.	Preferred building forms and architectural features include: verandahs and balconies, towers, vertically proportioned windows or glazing panels, horizontal banding, and a clear delineation between the base, middle and top sections of a building elevation. Preferred materials include: red brick, natural stone, painted render, timber, custom-orb sheeting or similar, or a combination thereof. Preferred colours include muted natural tones, rather than primary colours.
Buildings shall integrate public art or other decorative detail to provide visual richness.	Contribution towards public art in accordance with clause 6.4.2.11.
Building roofs shall reflect traditional roof forms and materials.	Preferred roof forms include: pitched roofs of at least 25 degrees, unless hidden from view from the adjacent street by a parapet.
Development shall integrate buildings into a landscape environment.	Deep-soil provision for tree planting at the rear of the building or within a courtyard space. Shade tree provision at the rate of 1 tree per 4 bays for car-parking areas of 4 bays or more. Buildings with a direct line of sight from major spaces to the Murray River reserve wherever possible.
Access and Parking	
Principle	Acceptable outcome

Vehicle crossovers shall be minimised to reduce pedestrian conflict points and reduce the visual impact on the streetscape.	<p>Maximum of one crossover per street for any development and where possible crossovers to be avoided on George Street.</p> <p>Shared crossovers or reciprocal access between adjacent developments.</p> <p>Maximum crossover width of 6m.</p>
The amount of car parking shall be commensurate with the expected typical daily demand rather than peak demand.	<p>Residential car parking is consistent with deemed to comply provisions of R-Codes.</p> <p>Cash-in-lieu or reciprocal parking arrangements may be considered where justified to the satisfaction of the decision maker.</p>
Visitor parking shall be located where it is convenient and available for reciprocal use.	<p>Visitor parking located with direct pedestrian access to the main building entrance(s).</p> <p>Visitor parking may be located between the building and the front boundary only where it can be demonstrated that on-street parking is not safe or not permitted.</p>

Signage

Principle	Acceptable outcome
Signage shall be integrated into the design of the associated building, rather than on stand-alone pylons.	<p>Signage integrated into building elevation features such as panels or towers, or integrated with canopies and awnings designed in a manner which does not extend the building height or visually dominate the building.</p> <p>Under verandah signs which provide a minimum ground clearance of 2.4 metres.</p>
Signage shall be of a pedestrian scale and not significantly obscure building openings.	<p>Maximum sign area of 10 m².</p> <p>Maximum sign area of 2.5 m² within 5m of the adjacent footpath and in any case where located on a window or door not exceed 30% of the glazed area of the each window or door.</p>

Residential Precincts

The residential precincts provide for a broad diversity of housing types within a short walk or bike ride of the town centre core and the adjacent mixed-use areas. The vision for the residential precincts is for appealing and walkable residential streets with footpaths, street trees and convenient on-street parking, lined with houses that range from single family homes to terraced townhouses, small apartments and other forms of attached housing such as studios above garages with laneway access.



Residential – Land Use and Development Guidelines

Preferred land uses	
Principle	Acceptable outcome
Land uses shall provide or support the provision of health services:	Preferred land uses include: single dwellings, grouped dwellings, multiple dwellings, bed and breakfast accommodation and home occupation.
Development scale and intensity	
Principle	Acceptable outcome
Development shall provide for a range of housing types of a scale and intensity appropriate to a residential neighbourhood.	R-Code as specified in the Residential Density Plan (refer Part 1, Figure 5). Variations to the densities specified may only be considered in circumstances where it has been demonstrated to the satisfaction of the decision maker that development will not compromise future potential for development to be retrofitted and/or adapted to increase provision of dwellings consistent with the minimum densities specified.
Building height	
Principle	Acceptable outcome
Buildings shall be of a height that is consistent with community expectations of a residential neighbourhood.	Maximum height limits as indicated on the Development Height Plan (refer Part 1, Figure 6).
Responsive Built Form Design	
Built form that is responsive to the local environment, reflects solar passive design principles and utilises alternative sources of energy	New development is encouraged to be oriented and designed to minimize summer heat gain, winter heat loss and support cross ventilation through the appropriate siting of doors and windows and the use of eaves, awnings and verandahs. The use of alternative sources of energy, 'green walls' and 'rooftop gardens' are also encouraged. Water use efficiency should be maximized through water sensitive urban design landscaping and the capturing of rain and storm water on site for re-use.
Street interface	
Principle	Acceptable outcome
Dwellings shall provide for passive surveillance of any adjacent street or other public space.	A clear line of sight to pedestrians on an adjacent footpath from at least one major opening to a habitable room for each dwelling adjacent to the public realm.

	<p>Ground floor residential uses no more than 1.2m above an adjacent footpath.</p> <p>In areas with densities of R30 and higher, verandahs are provided to the front elevation at a minimum depth of 2.4 m and a length of at least 50% of the width of the front of the dwelling, or a minimum of 4 m (whichever is the lesser)</p>
Buildings shall contribute to a streetscape with a suburban landscape character.	<p>Minimum street setback as per R-Codes</p> <p>Solid fencing (excluding piers) to primary street to no more than 750mm above the adjacent primary street reserve.</p> <p>Fencing above 750 mm has at least 50% visual permeability. Minimum water sensitive landscaping provision of 50% for all primary street setback areas.</p>
Service areas, mechanical equipment and bin storage areas located to reduce the visual impact on the public domain.	Service areas, mechanical equipment and bin stores located at the rear of a building, within a basement or screened from view from the street or other public space other than a right-of-way.
Car-parking areas located to reduce the visual impact on the public domain.	Garages, carports or open parking areas located behind the main building line, except for on-street parking.

Neighbour interface

Principle	Acceptable outcome
Buildings shall respect the curtilage of heritage buildings.	Minimum setback of 2m to any boundaries shared with heritage buildings.
Buildings shall provide a high degree of amenity for residents.	<p>Side and rear setbacks as per the R-Codes for boundaries shared with an existing dwelling.</p> <p>Minimum 0m setback for both side boundaries where a dwelling shares the boundaries with another dwelling that is part of the same development.</p>

Character and Identity

Principle	Acceptable outcome
Buildings shall interpret the colours, and materials of Pinjarra's historic buildings.	<p>Preferred materials include: red brick, natural stone, painted render, timber, custom-orb sheeting or similar, or a combination thereof.</p> <p>Preferred colours include muted natural tones, rather than primary colours.</p>

<p>Residential buildings shall present a human scale and building forms that are recognisably residential in character.</p>	<p>Preferred features of residential buildings include: Verandahs and balconies, vertically proportioned windows, and traditional pitched roofs.</p>
<p>Development shall integrate buildings into a suburban landscape environment.</p>	<p>A deep-soil provision for tree planting at the rear of single dwellings or multiple dwelling developments or within a courtyard space for attached dwellings.</p> <p>Shade tree provision at the rate of 1 tree per 4 bays for open car parking areas of 4 bays or more</p>

Access and Parking

Principle	Acceptable outcome
<p>Vehicle crossovers shall be minimised to reduce pedestrian conflict points and reduce the visual impact on the streetscape.</p>	<p>Maximum of one crossover per street for any development. Shared crossovers or reciprocal access between adjacent developments.</p> <p>Maximum crossover width of 4.5m.</p>
<p>The amount of car parking for residents shall reflect community expectations for a residential neighbourhood.</p>	<p>Car-parking provision is consistent with deemed to comply provisions of R-Codes.</p>
<p>Residential visitor parking shall be located where it is convenient and available for reciprocal use.</p>	<p>Provision of on-street parking bays where safe to do so.</p> <p>Residential visitor parking located with direct pedestrian access to the dwellings entrance(s).</p>

PART TWO

- A: Pinjarra Town Centre Revitalisation Strategy
- B: Supporting Documents



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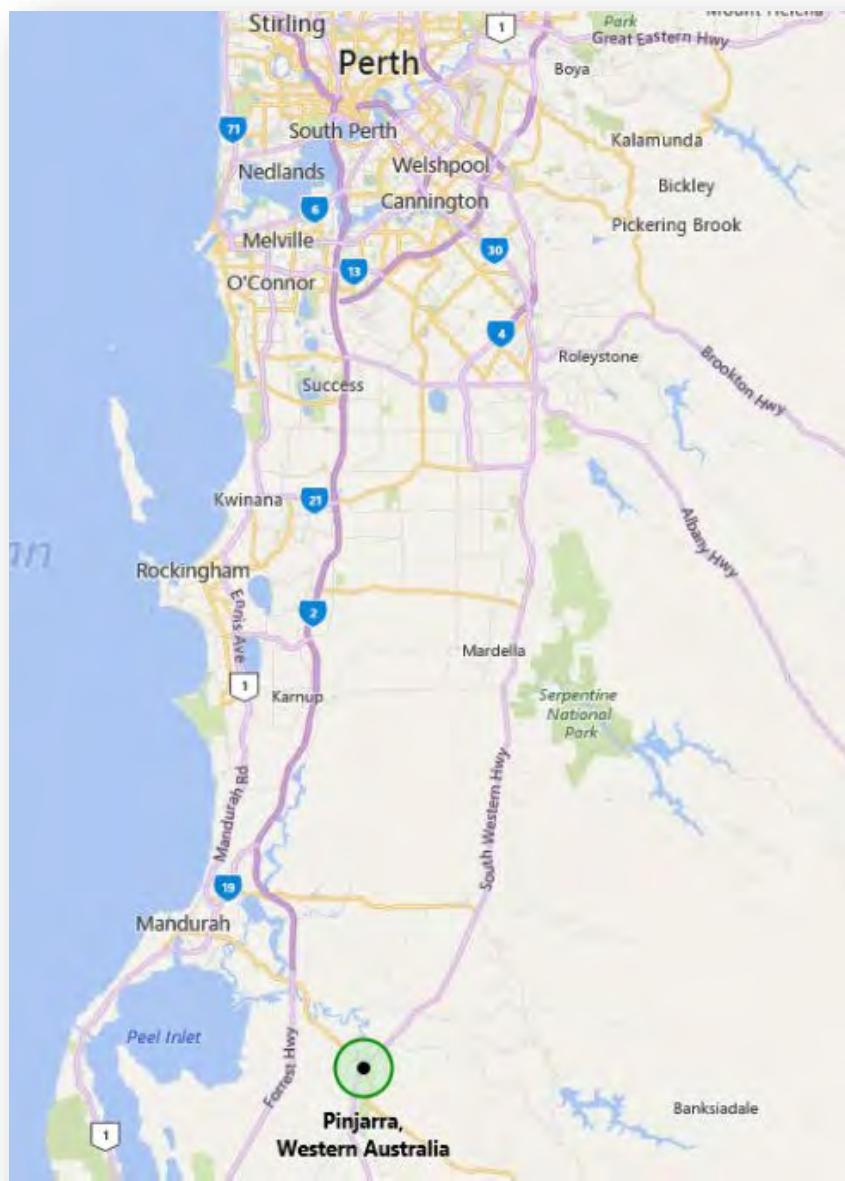


PINJARRA TOWN CENTRE REVITALISATION STRATEGY



1 Current Context

Pinjarra is situated on the banks of the Murray River and is located approximately 80 km south of Perth and 20 km south-east of Mandurah.



The Murray River and its associated foreshore contributes to the natural character and landscape of the locality. The river and foreshore is highly valued by the community due to its cultural and historic importance, providing an important social and recreational place for locals and visitors to enjoy the relaxed riverine location.



The historic town is one of the earliest European settlements to occur within Western Australia and consequently it features many early heritage buildings and places that contribute to its built form character, including the Edenvale Homestead which was home to former Premier of Western Australia Sir Ross McLarty who lived there during his childhood and for most of his political life.

Another important built form feature of the town is its traditional street network. At present however, existing streets in the town are primarily focused on the movement of vehicles and subsequently provide a low level of pedestrian amenity. Pedestrian paths, landscaping, street trees, shade, seating, public art, street furniture and way-finding signage is either limited or does not currently form part of the 'Pinjarra' streetscape. Although works are currently underway to upgrade a number of streets within the 'Core' Precinct, there remains significant opportunities in key locations throughout the town to enhance the pedestrian experience, convey the town's local story or welcome and invite residents and visitors to stay or visit.

Existing lots within the townsite are large and predominantly contain low density housing or commercial/retail development that is reaching the end of its building life.

As outlined in more detail within Part 2B, business activity and diversity in the town is limited and dispersed. This is primarily due a number of factors including but not limited to; the physical constraint and the detrimental impact heavy haulage vehicles continue to have on the town's amenity as they utilize the town's 'main streets' to commute between the metropolitan area and the south-west; the relatively small resident catchment relying on Pinjarra for daily or weekly needs, the lack of public transport servicing the town and competition from other larger centres.

A further constraint influencing the long term sustainability of the town is the current age demographic imbalance. As highlighted in Part 2B, the local community is predominantly older residents, with many younger people choosing to leave the town and seek educational or employment opportunities elsewhere. This population imbalance results in a lower visible presence of young adults within the town than might otherwise be expected within an established activity centre.

As also highlighted in more detail within the following part, in addition to the factors outlined above, the Australian Bureau of Statistics (ABS) and other research sources indicate the Pinjarra community is currently one of the most socially and economically disadvantaged in the State, experiencing lower than average household incomes, higher levels of unemployment, lower educational levels and limited employment opportunities. Local surveys undertaken by the Shire as part of the Revitalisation Strategy and Activity Centre Plan engagement process also indicate that a lack of access to public transport and services is of significant concern to the local community and does little to assist local residents with improving educational or employment opportunities.

Further to the existing context briefly summarized above, in 2015 the Western Australian Planning Commission (WAPC) released a range of strategic planning documents which anticipate that the Peel Region's population will reach a population of 444,000 people by 2050 (*source: draft Perth and Peel @ 3.5 million, May 2015*). A significant portion of this growth is expected to be accommodated within the Shire of Murray, which will increase the current population from around 18,000 people to an estimated population of 164,256.

Given the broad considerations discussed above and those further described within Part 2B of the Strategy, it has become acutely clear that intervention is necessary to harness the potential opportunities that growth and revitalization may bring to the town and that the constraints identified can be overcome.

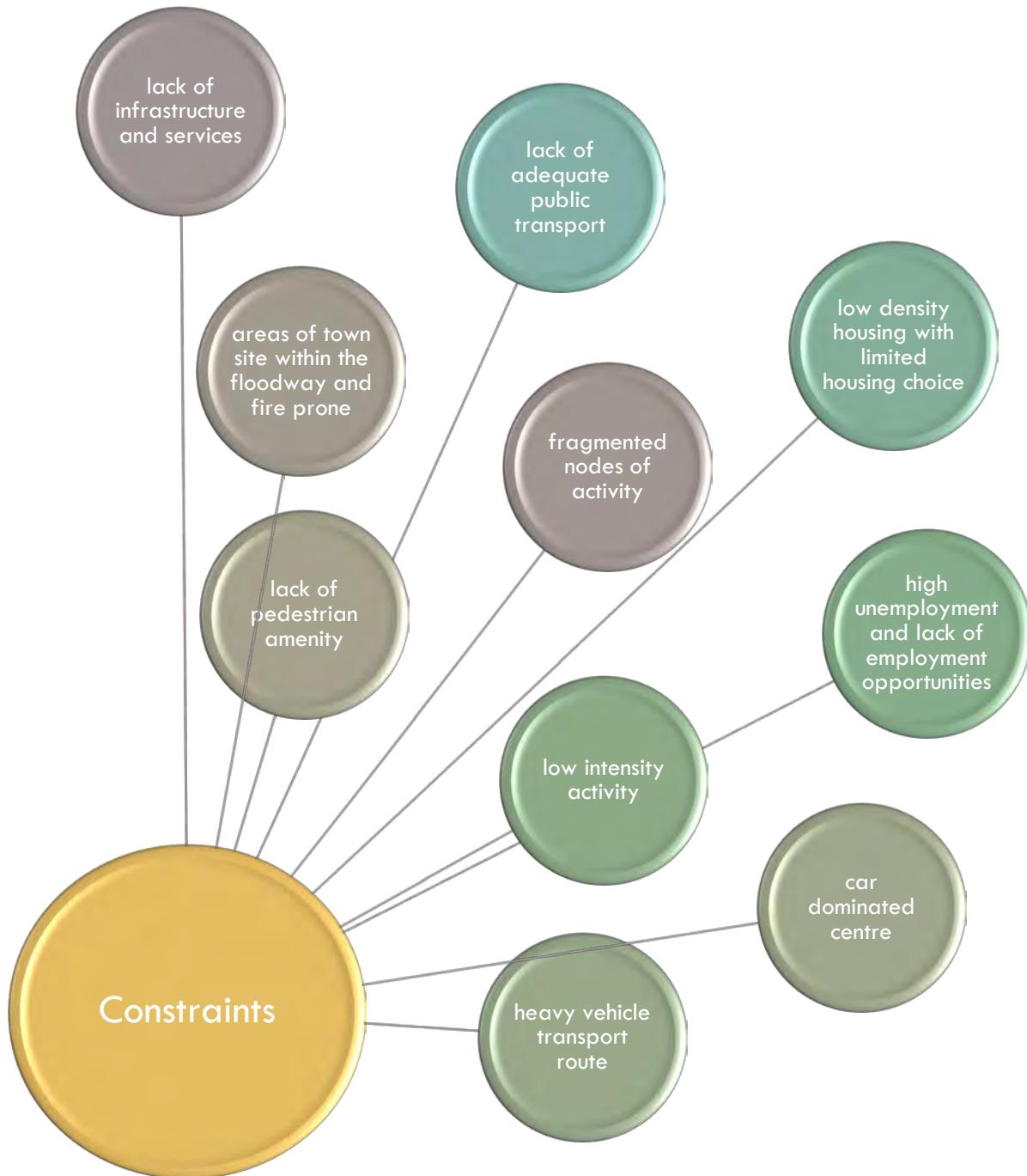
To ensure the long term sustainability of the Pinjarra Town Centre and the Vision, Objectives and Guiding Principles outlined within Parts 1 & 2 of this document can be delivered, implementation of the Activity Centre Plan and the following Revitalisation Strategy are considered necessary.

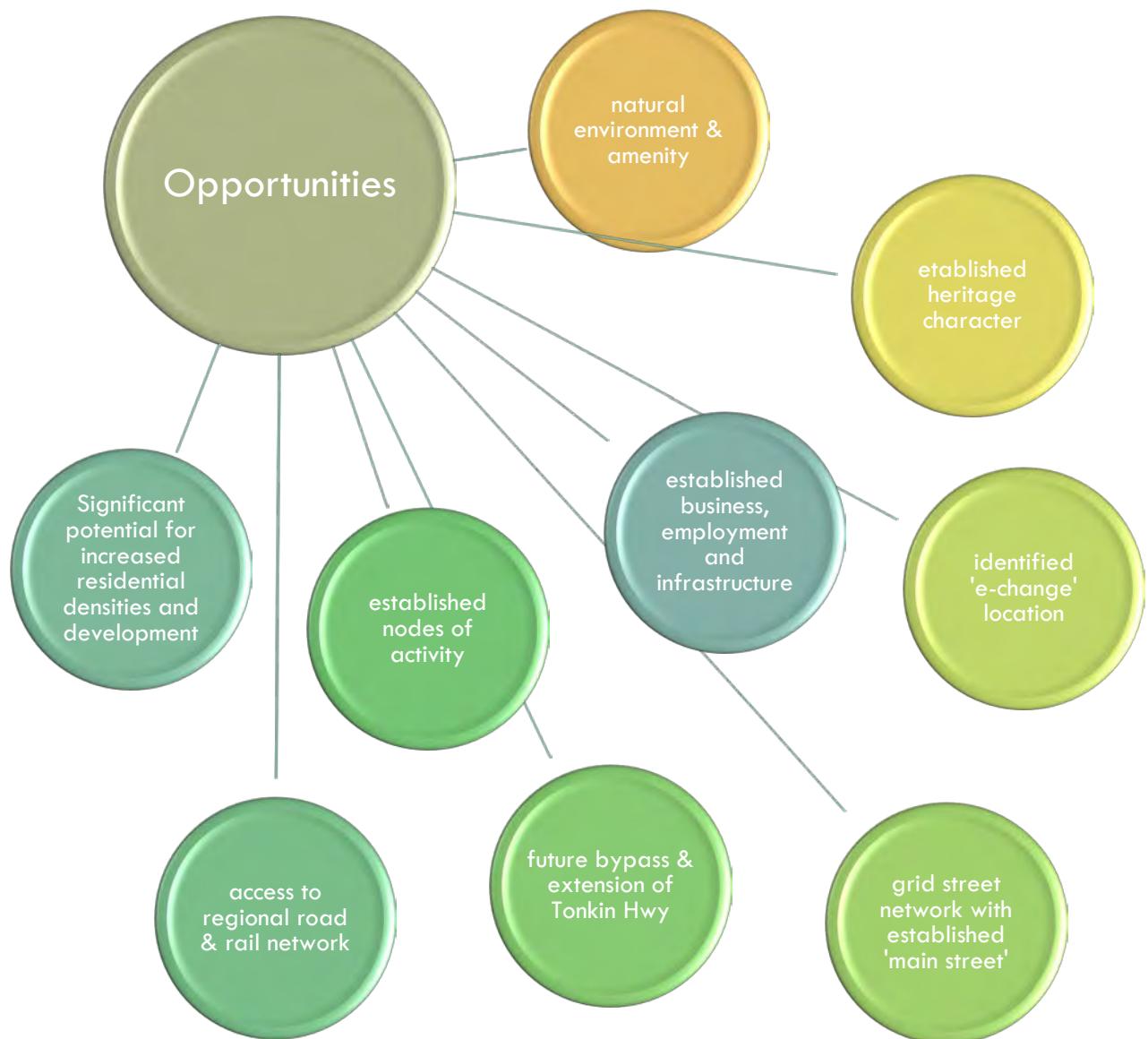
2 Constraints and Opportunities

Whilst a limited range of constraints and opportunities have been highlighted, the following diagrams identify a more extensive range of competitive opportunities which will need to be leveraged and constraints to be overcome to achieve the key outcomes and aspirations sought by the community and for Pinjarra to become a revitalized and sustainable Town Centre.

As reflected in the range of opportunities identified below, Pinjarra already has the established urban form structure and natural amenity to enable the town to build on its current strengths and assets.

Furthermore, whilst a range of constraints currently impact the town, none are considered insurmountable or cannot be overcome through a robust planning framework (ie. Activity Centre Plan) and the implementation of a range of revitalization strategies and actions.





3 Community Engagement and Consultation

To determine the best way in which to harness the opportunities and overcome the constraints identified and understand the longer term aspirations of the community, an extensive range of community engagement and consultation has been undertaken over the previous 18 months. The important feedback received during this process has directly informed the preparation of the *Pinjarra Town Centre Revitalisation Strategy and Activity Centre Plan*.

Engagement included community workshops, information sessions and formal consultation processes as part of the *Murray River Foreshore and Exchange Hotel Masterplan*, the *Civic Precinct Masterplan*, the *Local Community Planning Workshops*, the *Murray Business Strategic Planning Workshop* and more recently, the *Revitalisation Strategy and Activity Centre Plan*. Consultation included targeted stakeholder groups and on-line surveys covering a range of questions which sought to identify the existing issues, constraints and opportunities to achieving a revitalised Pinjarra Town Centre.

The outcome of these engagement and consultation processes provided a clear direction for the preparation of the Strategy, with the community advising the following key outcomes are sought for a revitalised Town Centre:

- 
- ✓ Improved public transport
 - ✓ Retain the 'country' and 'relaxed' feel of Pinjarra
 - ✓ Protect and celebrate the town's heritage and character
 - ✓ Ensure strong links to the river and local environment
 - ✓ Remove heavy traffic from George Street
 - ✓ Provide more destinations and entertainment during and after business hours (eg. restaurants, shops, café's, cinema)
 - ✓ Provide more community facilities and services for seniors, youth and families
 - ✓ More public spaces that provide for a range of uses by different community groups
 - ✓ More housing and a mixture of housing types and densities that are within walking distance
 - ✓ Increase development height so people know they have arrived in the Town Centre
 - ✓ Improve streetscapes including street trees for colour and shade, street art and furniture that tells Pinjarra's story and reflects the town's unique identity
 - ✓ More tourist accommodation, activities and attractions

4 Vision Statement

The following Vision was established as a result of the collective feedback received through the extensive community engagement process:

Pinjarra is distinct and important place and destination within the Peel Region, a place where people want to live, work, meet, relax and visit. It is a town that is known for its culture of innovative thinking and its business, employment and community networking opportunities. The Town Centre's historic, country character and strong connection to the Murray River is reflected in landscaping, street art and building design. Contemporary development creates a buzzing, yet relaxed atmosphere and access around the town and along the riverfront is easy, convenient and supported by a high quality pedestrian path network and public transport that frequently connects Pinjarra with Mandurah and other key destinations within and outside the region.

5 Revitalisation Strategy

People and actions transform towns and places. Great 'places' are not just about good urban design, they are created when people have a strong emotional connection, feel a sense of belonging and are compelled to live, work, stay or return.



Revitalisation of the Pinjarra Town Centre requires more than just a planning framework to guide land use and development. It requires a strategy and actions that are implemented in ways that overcome constraints and ensure opportunities are harnessed to transform the town and strengthen the community's sense of belonging and connection to Pinjarra.

Fundamental to revitalisation is the need to strengthen the town's current 'sense of place'. Achieving this outcome requires stakeholder engagement and commitment to creating an environment that is inclusive, accessible, engaging, interactive and memorable.

The Town Centre Vision provides clear direction as to the areas of focus for revitalization strategies and projects. Opportunities to live, work, engage, participate and strengthen Pinjarra's unique character is achievable through collaboration and working with the community, local business owners, State Government agencies and other relevant stakeholders.

The following outlines how this is intended to be achieved.

6 Infrastructure and Projects

As highlighted within the documents prepared under Part 2B in support of the Strategy, the town and broader Shire has a range of significant challenges which will need to be overcome to achieve the Vision above. Improved services, facilities and infrastructure will be fundamental to a viable and sustainable town. Projects considered critical to achieving the established Vision are summarized below:

- ✓ *Construction of the Pinjarra Bypass*
- ✓ *Downgrading of and the transfer of management from MRWA to the Shire of the portions of Pinjarra Road, George Street and McLarty Rd within the revitalization area*
- ✓ *Redevelopment of the Exchange Hotel site*
- ✓ *Redevelopment of the Civic Precinct*
- ✓ *Implementation of the Murray River Foreshore Masterplan*
- ✓ *Implementation of the Murray Leisure Centre*
- ✓ *Implementation of the Edenvale Landscape Masterplan*
- ✓ *Advocate for underused public land within the town centre to be sold with proceeds reinvested in key town infrastructure.*
- ✓ *The undergrounding of power and subsequent streetscape upgrades*
- ✓ *Improved public transport opportunities*

7 'Place-Making'

In addition to the above major infrastructure projects, implementation of a range of 'Place Making' strategies and actions will also be necessary to create an environment that encourages innovative and clever ideas and provides interesting and inspiring experiences and opportunities for locals and visitors. A critical ingredient to creating such an environment and an authentic sense of place which is uniquely 'Pinjarra' is unlocking the potential skills, talents and interests of our community

and those people willing to work collaboratively to drive change and bring revitalization ideas and projects ‘to life’.

Of the range of revitalization approaches available, the following are considered to be the most practically achievable and likely to result in a range of positive outcomes for the town and community:

- ✓ Actions or projects that are temporary in nature and activate local streets and public space. There are many relatively low-cost, quick ways to do this and involves thinking about public spaces (ie. roads, verges, parks and parking spaces) beyond the way in which they may be currently used. Under utilised space or areas that currently detract from the amenity of the street or town and would benefit from creative ‘interventions’ become priority locations or venues for actions or projects.
- ✓ Actions or projects that are longer term and recognize that for Pinjarra to become a key destination it should strive to have at least 10 destinations or places that attract people and/or encourage them to stay longer in the Town Centre and encourage them to return. Projects and actions identified within the Pinjarra Activity Centre Plan and within the following Implementation Plan support the enhancement or development of a range of existing and proposed destinations and places. Implementation of these projects and actions will collectively reinvigorate, refresh and reposition the town as a destination and ensure a unique and memorable ‘Pinjarra’ experience. Those considered most important to creating Pinjarra’s 10 key destinations are the:

- [Edenvale Homestead](#);
- [Murray River Foreshore](#);
- [Exchange Hotel site](#);
- [Civic Precinct](#);
- [Murray Performing Arts Centre](#);
- [Pinjarra Heritage Trail](#);
- recreational trails and activities provided within greenspace linkages;
- retail, leisure and entertainment uses along George and James Streets;
- unique streetscapes within the town (ie. public art, street furniture, landscaping); and
- the various ‘place-making’ destinations that continue to develop throughout the town centre as an outcome of various revitalization projects.

8 Implementation Plan

The key infrastructure, projects and the revitalisation approaches identified above have informed the following projects and actions considered critical to achieving a revitalised Town Centre. The Implementation Plan encompasses key projects and actions that will collectively contribute to achieving the Vision and aspirations of the community and ensure the town has sufficient capacity to adapt and embrace the changes that growth will bring and ensure the long term sustainability of Pinjarra.

<i>Infrastructure Projects</i>		<i>Responsible Agencies</i>	<i>Timeframe</i>
			<i>Short : 0-5 Years Med : 5-10 years Long : 10 + years</i>
1	Facilitate redevelopment of the Exchange Hotel site	Shire of Murray Private developer	Short Term
2	Investigate opportunities to relocate restricted access vehicles from the town centre.	Shire of Murray Main Roads WA	Short Term
3	Advocate for underused public land within the town centre to be sold with proceeds reinvested in key town infrastructure.	Shire of Murray	Short Term
4	Prepare detailed plans for the redevelopment of the Murray River Square.	Shire of Murray	Short Term
5	Prepare detailed plans for the redesign of Pinjarra Road at a two lane boulevard standard with high level of pedestrian and cyclist amenity.	Shire of Murray Main Roads WA	Short Term
6	Confirm projected traffic volumes on key roads within the town centre and associated cross-sections as part of the District Structure Planning for surrounding urban growth areas.	Shire of Murray	Short Term
7	Prepare a Traffic Management Plan for key town centre streets.	Shire of Murray	Short Term
8	Develop entry statements at key town centre entrances.	Shire of Murray	Short Term
9	Negotiate the relocation of the Pinjarra Fire Station to an alternate site.	Shire of Murray Department of Fire and Emergency Services	Short Term
10	Initiate discussions with the state government in relation to the relocation of the Pinjarra Police Station.	Shire of Murray Police Services	Short Term
11	Prepare an open space strategy which aims at acquiring key portions and developing the	Shire of Murray	Short Term

	greenspace network through mechanisms including developer contributions and cash in lieu of public open space.		
12	Revise maintenance service levels for public areas within the town centre.	Shire of Murray	Short Term
13	Prepare and implement a Local Water Management Strategy for the town centre including initiatives for water conservation, reuse and water sensitive urban design initiatives.	Shire of Murray Department of Water	Short Term
14	Establish Developer Contribution Arrangements for key infrastructure within the town centre.	Shire of Murray	Short Term
15	Provide end of trip cycle facilities and shelters at key public transport stops and prepare policies for end of trip facilities to be provided in new developments.	Shire of Murray	Short to Medium Term
16	Finalise the preparation and implement the staged implementation of the Murray Leisure Centre Masterplan	Shire of Murray Department of Education	Short to Medium Term
17	Undertake the staged implementation of the Murray River Foreshore Masterplan.	Shire of Murray	Short to Medium Term
18	Prepare a Pinjarra Town Centre Car Parking Strategy aimed at providing well distributed consolidated public parking facilities within the town centre core. The strategy will identify the location and size of parking areas and put in place arrangements for the acquisition, construction and ongoing management of parking areas, including arrangements for cash in lieu of onsite parking and monitoring arrangements. It will also address parking locations to service public uses including recreation, civic and any future light rail/public transport facility and will need to consider evolving technology and the associated impacts on vehicle use/requirements over time.	Shire of Murray	Short Term
19	Prepare guidelines to encourage the sustainable building design and apply these to Shire community buildings.	Shire of Murray	Short to Medium Term

20	Install way finding signage throughout the town centre.	Shire of Murray	Medium Term
21	Prepare and implement streetscape plans for key roads within the town centre which promote improved pedestrian and cycling, formalise on street parking and capture opportunities to create a more cohesive pedestrian friendly public realm.	Shire of Murray	Short to Long Term
22	Negotiate and implement staged undergrounding of power lines across the revitalisation area <i>*Anticipated that this requirement may form conditions of subdivision and/or development approval which may facilitate the funding and timeframe for project</i>	Shire of Murray Western Power Private landowners (potentially as part of subdivision/development conditions or contributions)	Short to Long Term (staged process)
23	Advocate for an expanded public transport service to connect Pinjarra with surrounding towns and urban areas, for a dedicated high-frequency public transport service to connect Pinjarra with Mandurah and in the longer term an extension of the Armadale rail line to Pinjarra. <i>* Will require early engagement of all parties and preparation of strong business case to demonstrate the cost / benefit analysis.</i>	Department of Transport (DoT) Public Transport Authority (PTA) Shire of Murray Peel Development Commission Relevant Federal Government agencies	Short to Long Term
24	Plan for the construction of the new road links to connect the town centre based on the local Movement Network Plan.	Shire of Murray Main Roads WA Private landowners	Short to Long Term
25	Ensure new subdivisions within the town centre provide affine grained, pedestrian friendly and highly interconnected street network.	Shire of Murray Private landowners	Short to Long Term
26	Develop the Murray River foreshore trail between Ravenswood and Pinjarra.	Shire of Murray Private landowners	Short to Long Term
27	Connect Pinjarra to surrounding communities including Mandurah by continuous high quality on and off street cycle paths along key roads	Shire of Murray	Short to Long Term

	and upgrade on and off street cycle ways within Pinjarra.	Main Roads WA Developers	
28	Finalise and implement the Edenvale Landscape Masterplan.	Shire of Murray	Short to Long Term
29	Implement the Sir Ross McLarty Reserve Masterplan.	Shire of Murray	Short to Long Term
	Continue the program of conservation and improvement of Shire owned heritage buildings and associated grounds.	Shire of Murray	Short to Long Term
30	Undertake a management program of natural areas including weed removal, erosion control, fire management, revegetation in public spaces.	Shire of Murray	Short to Long Term
31	Lobby for funding and construction of the Pinjarra Eastern Bypass Road <i>*In the short term will require strong cost / benefit business case to be prepared to support prioritization of funding and construction of the bypass</i>	Shire of Murray Main Roads WA Other relevant State and Federal Govt agencies	Medium to Long Term
32	Concurrent to construction of the Pinjarra Bypass, finalise with Main Roads WA the transfer of management of Pinjarra Road, George Street and McLarty Road to the Shire	Shire of Murray Main Roads WA	Medium to Long Term
33	Seek funding and undertake redevelopment of the Civic Precinct consistent with endorsed Master Plan	Shire of Murray External funding agencies	Medium to Long Term
34	Plan and provide Shire related community infrastructure consistent with the Community Infrastructure Plan.	Shire of Murray External funding agencies	Medium to Long Term
35	Seek funding and construction for new bridges across Murray River consistent with Activity Centre Plan.	Shire of Murray Main Roads WA	Medium to Long Term
36	Prepare a Master Plan for a Murray Performing Arts & Cultural Centre and lobby for funding and construction of the Centre consistent with the endorsed Master Plan	Shire of Murray external funding agencies	Long Term

'Place making' Projects		Responsible Agencies	Timeframe <i>Short : 0-5 Med : 5-10 Long : 10 +</i>
1	<p>Undertake 'place making' workshops that strengthen Shire, community and key stakeholder relationships, as well as experience and expertise in initiating revitalization projects, actions and events.</p> <p><i>*focus should be on enabling community driven projects as well as developing and supporting local 'champions'</i></p>	Shire of Murray Community Other relevant stakeholders	Short Term
2	Expand the Shire's Town Centre Façade Refurbishment Program to include facades addressing the Murray River foreshore	Shire of Murray	Short Term
3	Seek Council's endorsement and funding of an annual 'Street Art Fund' that provides small grants and resources for local secondary students and artisans to utilize recycled local materials to create unique street art and furniture for the Town Centre.	Shire of Murray External funding agencies Local Secondary Schools and creative community	Short Term
4	<p>Work with community in residential areas to develop an 'Adopt a Verge' program to facilitate the enhancement of local water sensitive urban design street verges.</p> <p><i>*Liaise with private landowners to develop 'demonstration' sites / streets, prepare information sheets that advise of local species and urban water sensitive urban design principles</i></p>	Shire of Murray Private landowners	Short Term
5	Work with community to establish an annual 'Innovation Workshop' where the community puts forward new ideas, proposals and projects that are subsequently shortlisted (prioritized) for consideration by Council for funding and implementation.	Shire of Murray Community External funding agencies	Short Term

	<i>*Council will need to commit to an annual budget for implementation of action.</i>		
6	Prepare and implement a Town Centre Streetscape Plan which includes a staging and implementation plan for identified Precinct Areas	Shire of Murray	Short Term
7	Source 'leaders' or 'champions' of other successful revitalization areas / projects that are kept to present to the Shire, community and key stakeholders lessons learnt and provide inspiration or innovative ideas that may benefit Pinjarra's revitalization. <i>* Strong focus should be on 'people centered' strategies that strengthen leadership and inspire 'champions' within the local community</i>	Shire of Murray Community External stakeholders Revitalisation leaders	Short Term
8	Work with Department of Education to increase educational opportunities at Pinjarra High School during and after traditional school hours and encourage mixed land use opportunities that provide education and training consistent with requirements of local business.	Shire of Murray Department of Education and Training Pinjarra High School Local business community	Short Term
9	Prepare policies and guidelines to encourage street trading within the town centre.	Shire of Murray	Short Term
10	Prepare policies and guidelines to encourage the installation of public art within the town centre.	Shire of Murray	Short Term
12	Prepare an activation strategy aimed at improving the level of activity within public spaces in the town centre.	Shire of Murray	Short Term
13	Investigate and engage with the creative / knowledge based entrepreneurs and businesses (both local and within the metropolitan area) to ascertain specific work / housing / lifestyle needs and preferences and ways in which Pinjarra may provide comparative advantages and 'start-up' incentives that attract and retain new business and residents to the town.	Shire of Murray	Short to Medium Term
14	Develop a positioning strategy and statement for the Town Centre which results in a 'brand'	Shire of Murray	Short to Medium

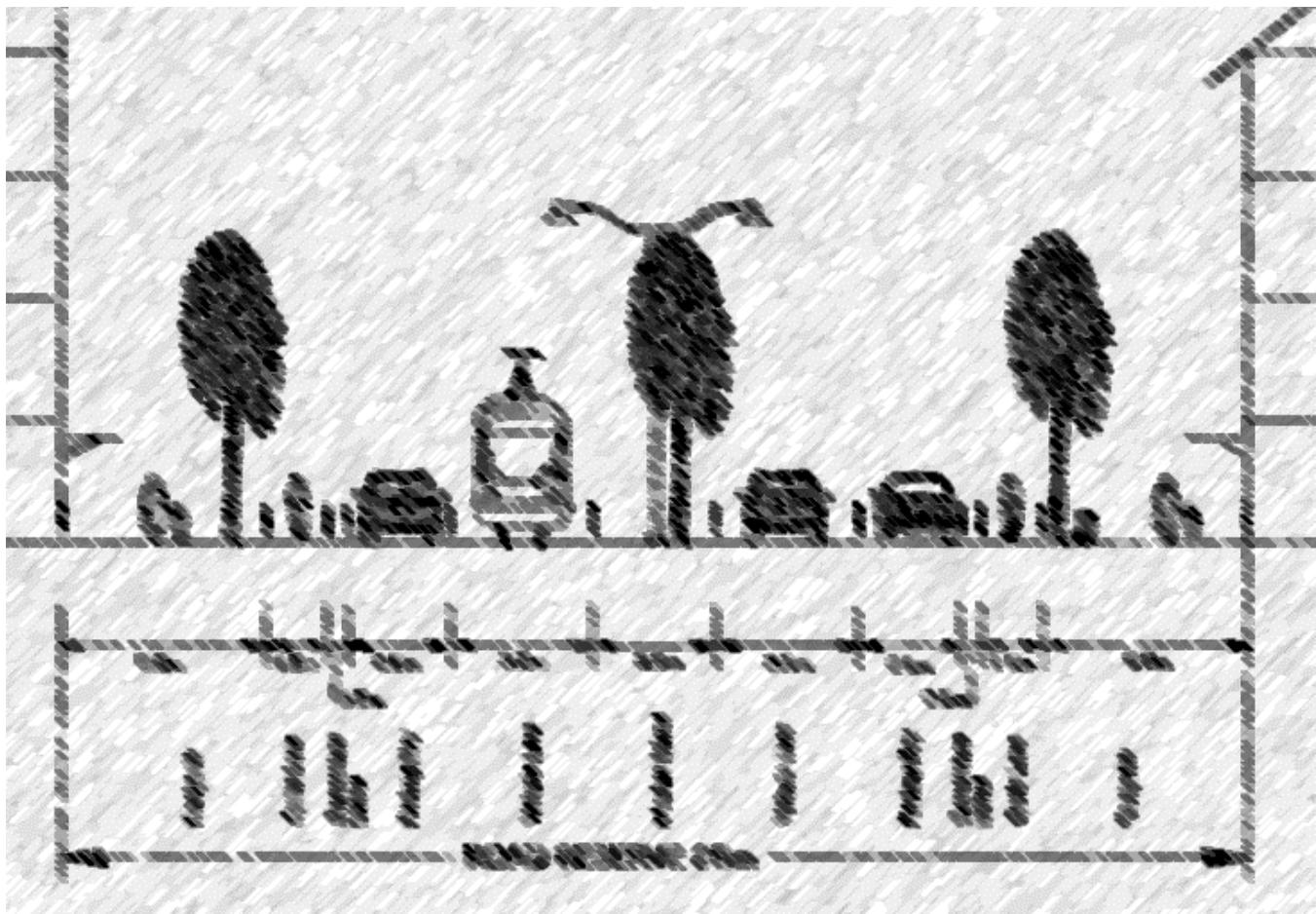
	which business can embrace and utilize for marketing purposes.		Term
15	Develop and implement a way-finding signage strategy that directs visitors to natural and built features of interest within the town and enhances the educational/ tourism experience.	Shire of Murray	Medium Term
16	In support of Action 14 (above), prepare a communications strategy that informs prospective sectors / industry / business of the comparative advantages of locating within Pinjarra.	Shire of Murray	Medium Term
17	Actively attract key land uses that will catalyse further private investment (including budget and high end short stay accommodation, training facilities, professional office space etc).	Shire of Murray	Short to Long Term
18	Help facilitate land assembly in key locations to encourage the future development of larger land take developments such as a discount department store.	Shire of Murray	Short to Long Term
19	Prepare and implement a Greenspace Network Strategy including identification of key nodes for facilities and infrastructure <i>*Early engagement with community will be required to ensure preparation of collaborative plan that results in highly activated and valued greenspace links</i>	Shire of Murray	Medium Term
20	Prepare Masterplan for proposed <i>Pinjarra Town Centre Passenger Rail Station</i> as contemplated under Part 2, Section 6	Shire of Murray Public Transport Authority Heritage Council WA Local Stakeholder Groups	Medium to Long Term

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SUPPORTING DOCUMENTS

BACKGROUND INFORMATION

TECHNICAL REPORTS



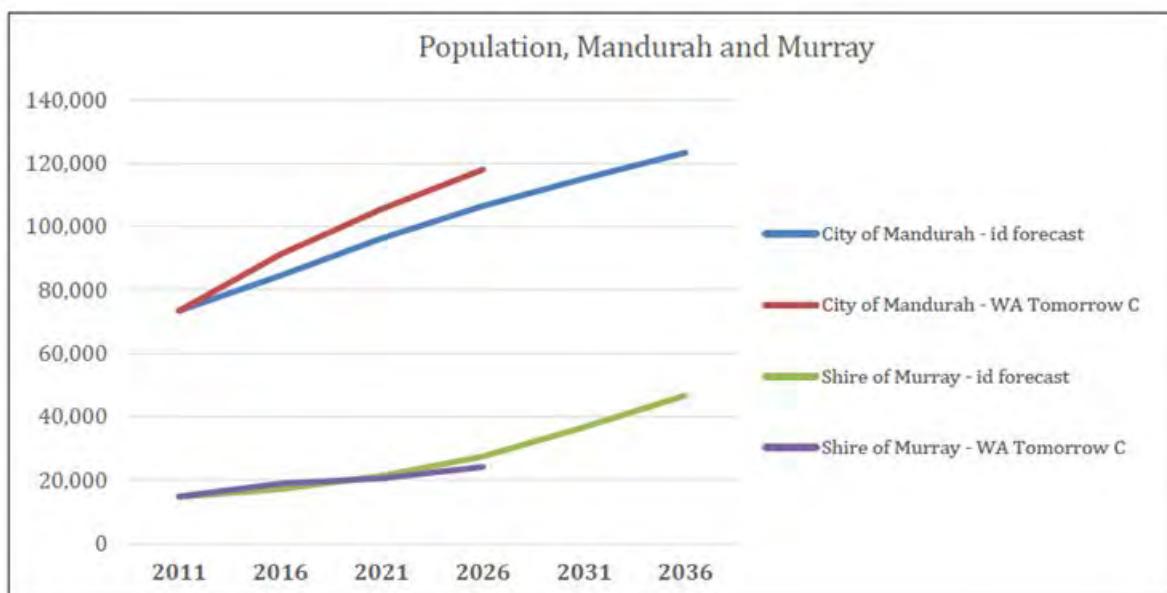
1 SOCIAL CONTEXT

1.1 Population

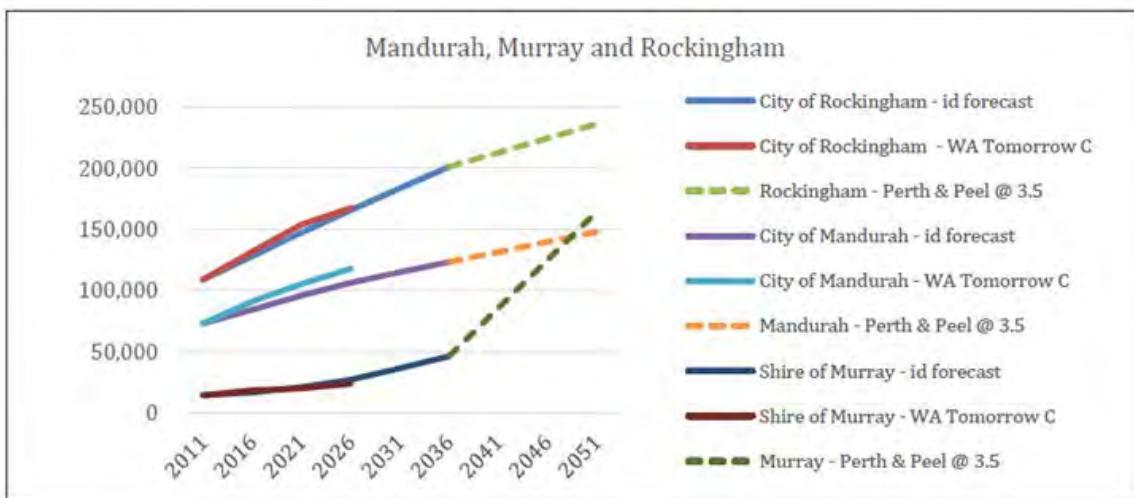
While population projections differ across sources, it is anticipated that the Shire will experience significant growth pressures to 2050.

As reflected in **Figure 1**, projected population based on *WA Tomorrow* data suggests similar growth trends for Mandurah and Murray by 2036, to a population of more than 164,000 people. Murray is however forecast to grow more modestly until around 2026, with an accelerated growth rate of around 5.4% between 2026 and 2036.

Figure 1 - Population Growth (2011 To 2036)

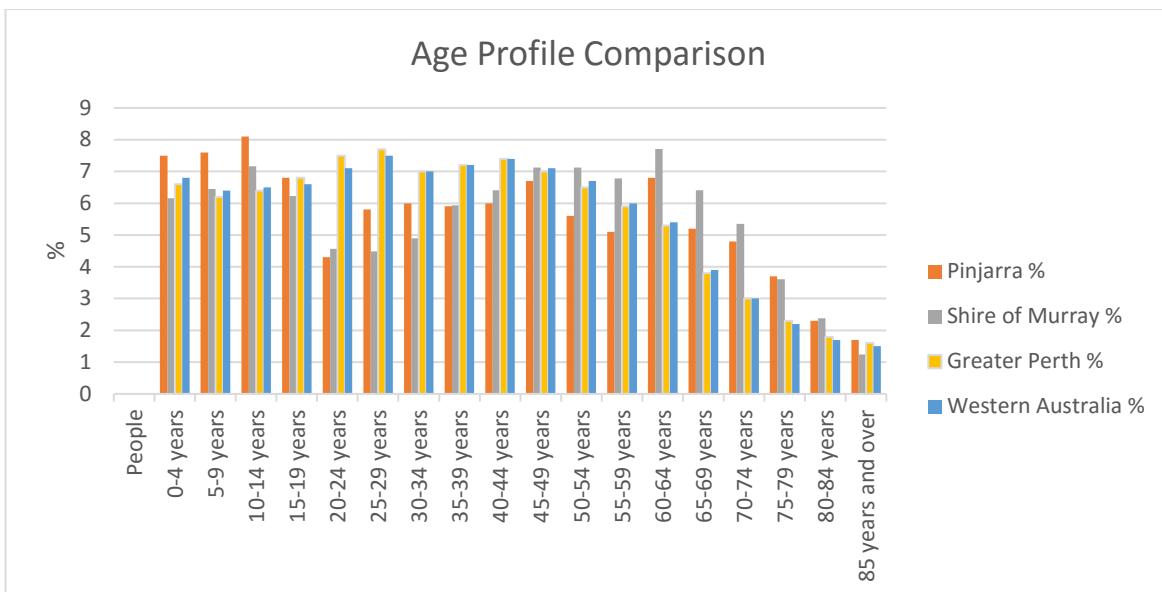


Population projections to 2050 are provided within the *Perth and Peel @ 3.5 million*. As reflected in **Figure 2**, the strategy anticipates a steady growth beyond 2036 for the City of Mandurah and a very sharp growth increase for the Shire of Murray. The projected growth for Murray would equate to a rate of increase at around 7,800 people per year. If achieved, this growth is likely to be unprecedented.

Figure 2 – Comparative Population Growth (2011 To 2050)

1.2 Age Profile

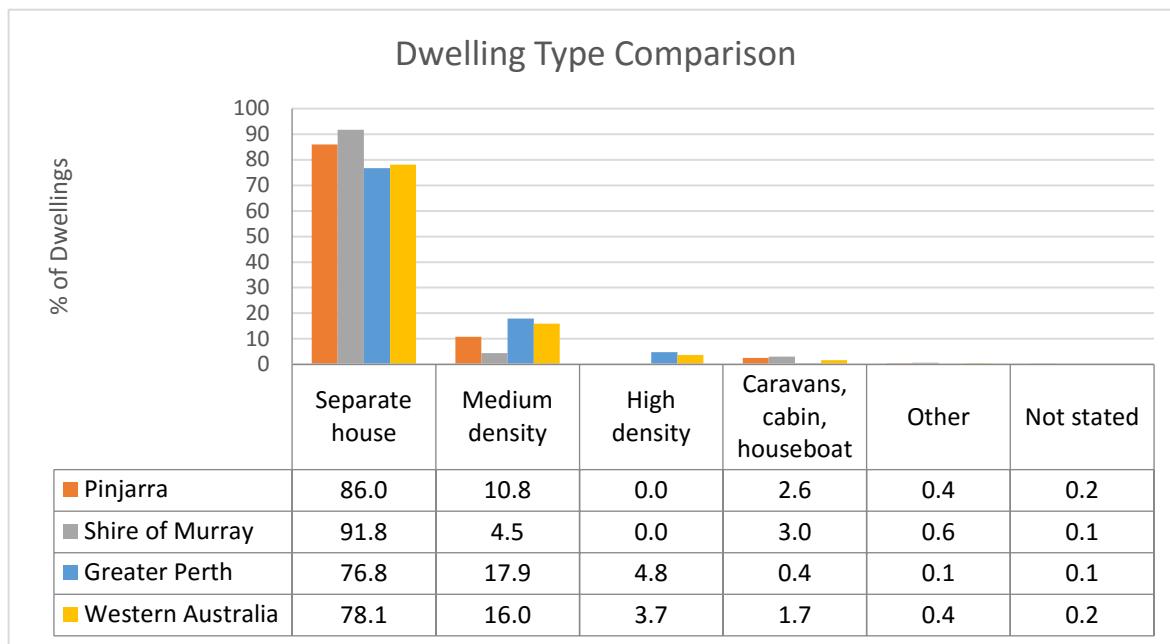
Comparatively, the Shire of Murray has a population profile that reflects higher number of children (0 – 14 years), people over the age of 60 and significantly lower levels of youth and younger adults (20 to 34 year olds). This profile is not uncommon in regional areas, however in order for the Shire and Town Centre to have the diversity to accommodate the range of activity and services required for an efficient and robust centre, strategic intervention and action will be required to attract and retain the 20 to 34 year old cohort.

Figure 3 – Comparative Age Profile

1.3 Housing Type

The predominant housing type in the Shire of Murray is detached dwellings, with 91.8% of households residing in separate homes. Pinjarra has a slightly lower proportion of households in detached dwellings (86%). This figure is significantly higher than greater Perth and the State where only three quarters of homes are detached. Of the single dwellings in Pinjarra only 10.8% are at a medium density. No higher density residential development exists either within the town centre or the broader Shire.

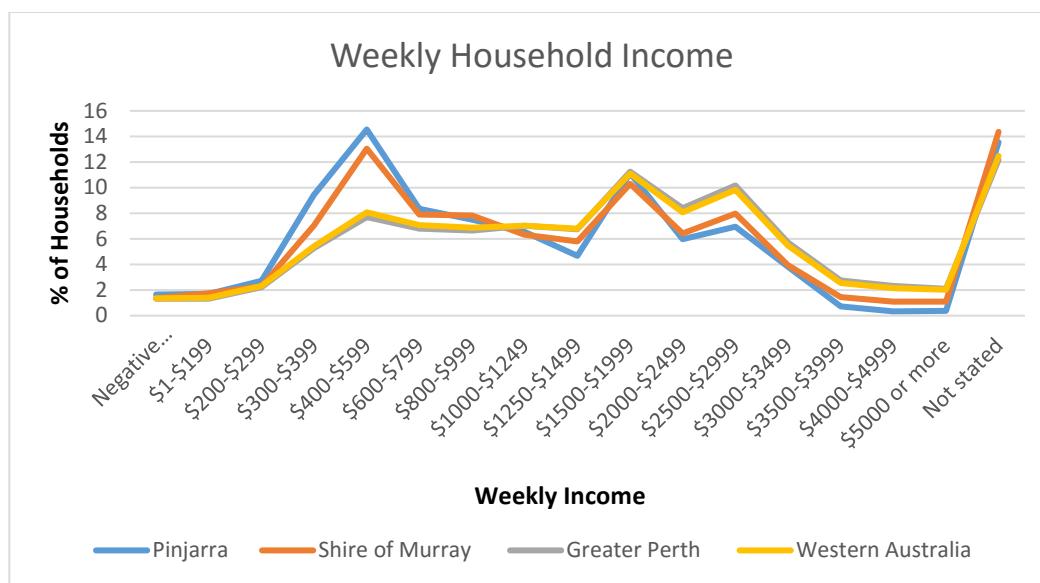
Figure 4 – Comparative Dwelling Types



In order to support the delivery of a revitalised centre, greater housing choice will be required to accommodate a diverse and maturing population. Medium to high density grouped and multiple dwellings housing types for singles, couples and families in the form of town houses, units and studio apartments within walking distance of employment, services and amenities will be essential to accommodating the housing needs anticipated.

1.4 Household Income

Pinjarra has the highest percentage of households earning less than \$799 per week than the broader Shire, greater Perth and the State. As indicated in Figure 5, close to one in six households earn less than \$599 per week.

Figure 5 – Comparative Weekly Household Income

The low level of household income is inherently associated with the relatively low levels of educational attainment within the Shire, higher levels of unemployment and higher number of part time employees within Pinjarra (refer Figures 6, 7 and 8 below).

1.5 Socio-Economic Index

Socio-Economic Indexes for Areas (SEIFA) is a series of 4 numbers which primarily relate to the educational and occupational aspects of socio-economic advantage and disadvantage, as well as access to material, social resources and the ability to participate in society. On a broader comparison of socio-economic disadvantage across Western Australia, the 2011 Australian Bureau of Statistics (ABS) data confirms that Pinjarra is within the 20% of suburbs across the State that have the greatest socio-economic disadvantage.

1.6 Education

A contributing factor to socio-economic disadvantage is educational attainment. Individuals that complete Year 12 or equivalent and undertake tertiary education, generally have greater earning capacity, improved employment stability and wider employment opportunities than those who do not. Not unexpectedly given the town's socio-economic index, Figures 6 and 7 demonstrate the comparatively lower levels of secondary schooling and tertiary education attained by Pinjarra residents, with the majority of school leavers having only completed Year 10. Less than 30% have completed Year 12, which is significantly lower than the greater Perth area (at just over 50%). A further marked statistic is close to 60% of Pinjarra's population have no formal qualifications.

Figure 6 – Highest Level of Secondary Schooling (2011)

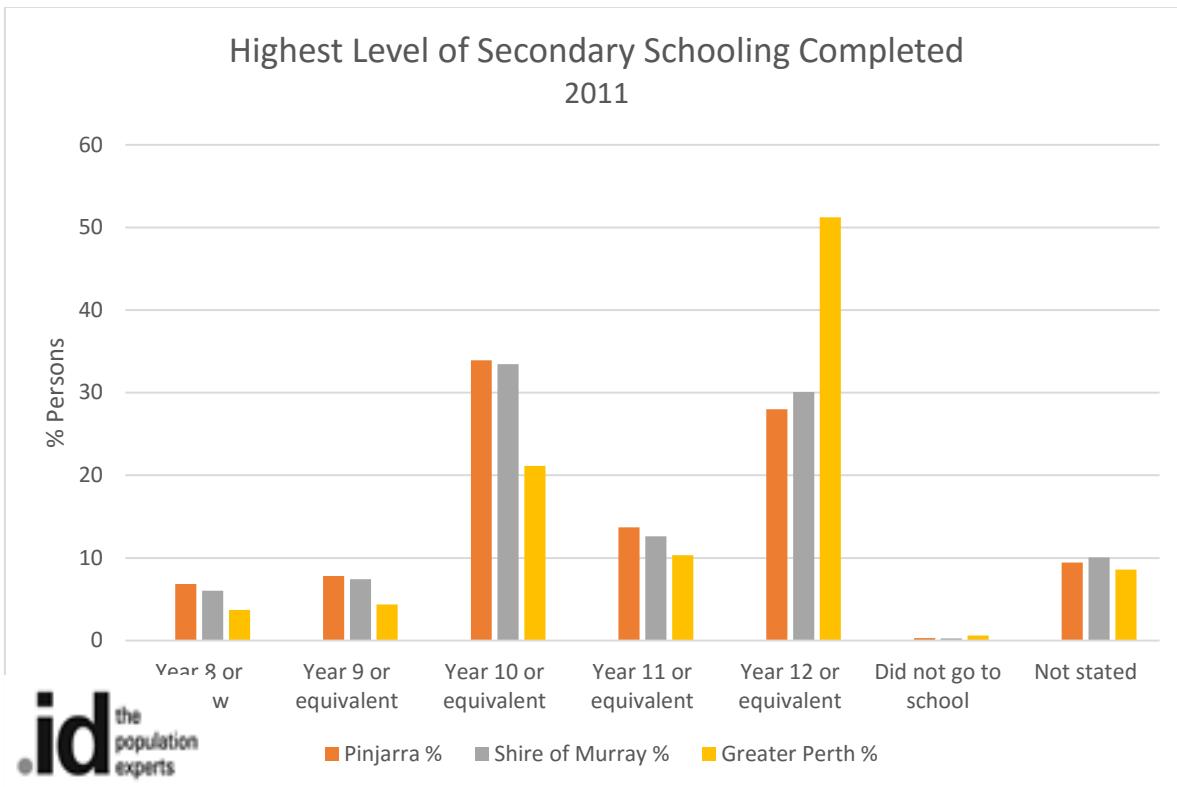
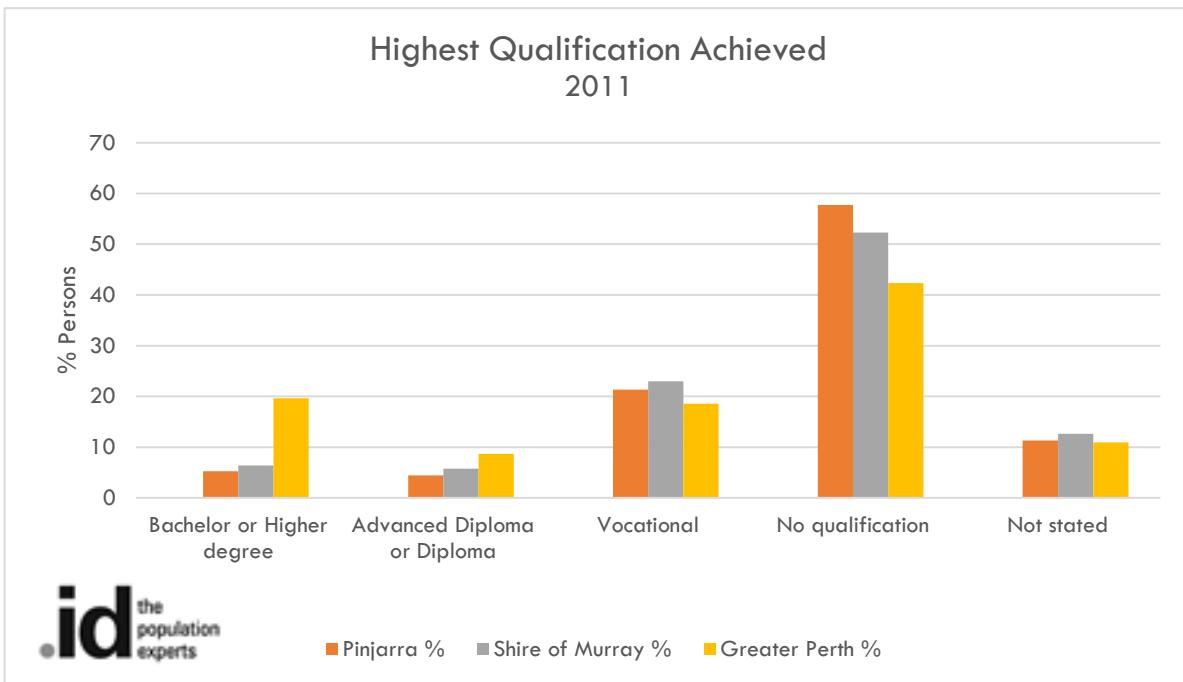


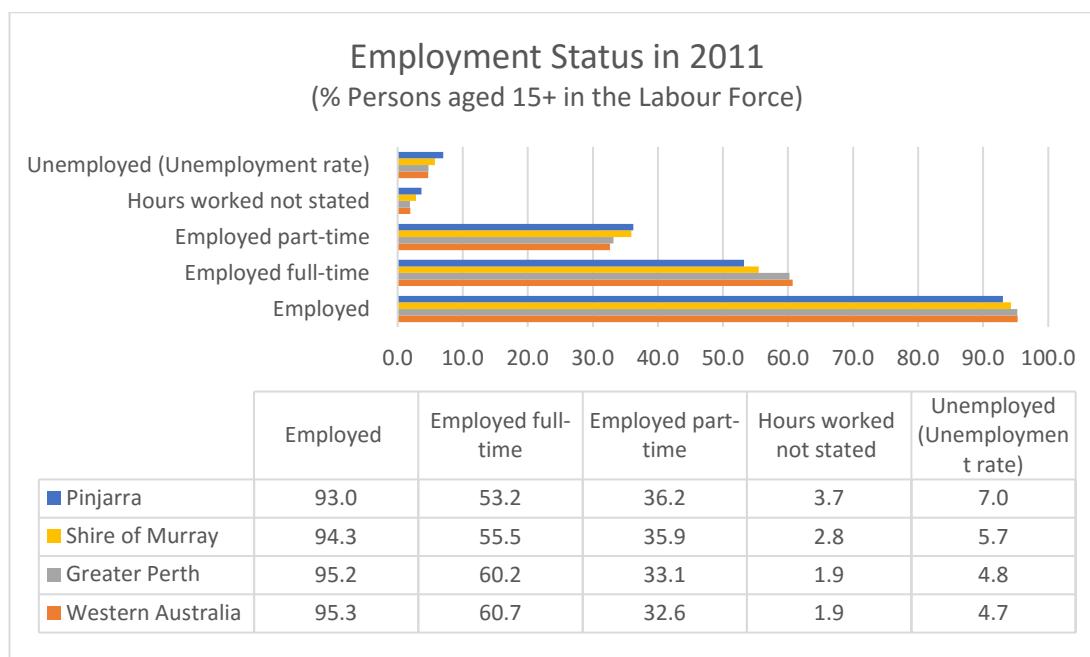
Figure 7 – Highest Qualification Achieved (Educational Attainment) (2011)



1.7 Employment

Pinjarra has higher rates of unemployment (7%), less full time and higher part time employees than the broader Shire, Perth and State averages, which is directly related to the lower household incomes experienced and the low socio-economic index.

Figure 8 – Employment Status (2011)



The major industries of employment within the Shire of Murray include: basic non-ferrous metal product manufacturing, construction and retail trade (refer Figure 9). The Shire of Murray's economic activity is characterised by a range of dispersed high quality knowledge-intensive, export-oriented (KIEO) industries, predominantly associated with the nearby ALCOA alumina refinery and within the town which provide services to meet population driven needs.

As reflected in Figure 10, of the Shire of Murray residents employed in the workforce 48% work locally with 38% working outside of the Shire. The Shire's employment self-containment is indicative of a mismatch between workforce skills, workforce aspirations and the employment opportunities in the shire. The data reflects a locality where many local workers leave for low productivity service jobs elsewhere, while higher productivity workers commute from elsewhere into the Shire for employment.

Figure 9 – Top Employment Industries/Sectors

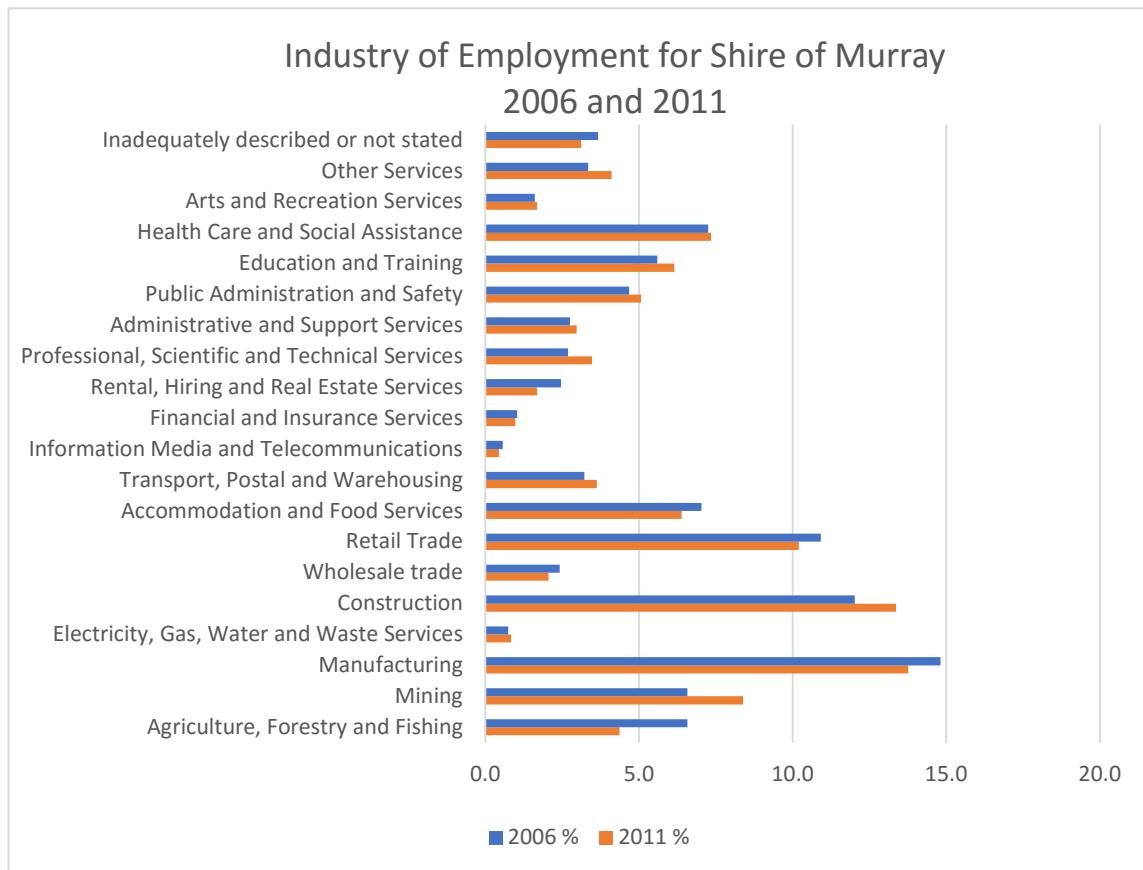
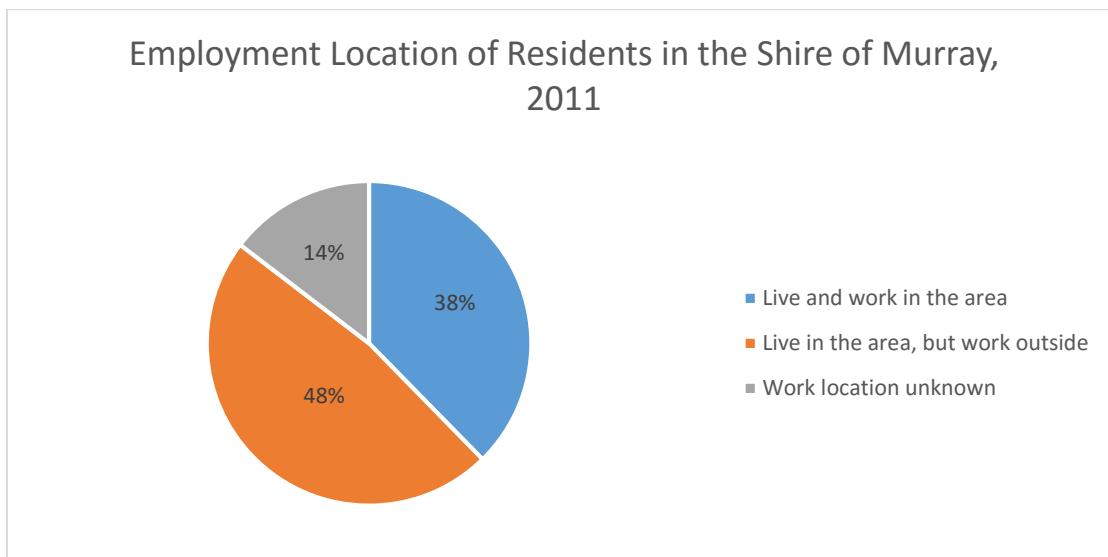


Figure 10 – Employment Self Containment



1.8 Summary

As has been reflected in the social context above, the community is faced with a range of significant challenges that without intervention, will be further compounded by anticipated growth. Determining the most appropriate response is inherently complex and will require a range of critical responses and actions to initiate the positive social and economic changes required for a sustainable Town Centre:

1. A strong commitment from all levels of government and state government agencies to undertake the necessary early planning, funding and implementation of a range of interventions to achieve the necessary infrastructure and services required to deliver the education, jobs, income, transport, housing and lifestyle opportunities necessary for a successful Town Centre.
2. The need for consolidated and staged activity within the town centre that builds a critical level of pedestrian, retail, commercial activity, which translates into increased business enterprise and subsequently an increase in the number and range of local jobs available. To contribute towards this outcome the Centre Plan has included the need for consolidated activity as one of the overarching guiding principles.
3. While Pinjarra may not meet threshold targets to achieve a tertiary education institution in town, a number of alternative education delivery methods should be investigated to encourage higher levels of educational attainment. This includes expansion of educational opportunities at the Pinjarra High School, both during and after traditional 'school hours' in the form of a centralised 'training hub' for the region. To enable this outcome the high school has been incorporated within the Mixed Use Precinct which introduces greater flexibility as to the range of uses accommodated on the site, including co-located training and small business activity.

The Activity Centre Plan and associated Strategy encourages an integrated Town Centre where education and employment are co-located and spatially connected by strong pedestrian linkages that increase the visibility of students within the town centre. Greater movement and awareness of secondary and tertiary students within an activated centre is likely to 'normalize' higher learning, raise local expectation and encourage others to achieve higher educational attainment levels, which in turn facilitates employment opportunities, greater earning capacity and higher household incomes.

4. In order for the Shire and Town Centre to have an age profile that is sufficiently diverse to accommodate the range of activity and services required for an efficient and robust centre, strategic intervention is needed to attract and retain the 20 to 34 year old cohort. Given the health related services and requirements of an aged population it will become essential to have a locally trained workforce capable of meeting this increasing demand. The proposed strengthening of the health related services at the Murray Districts Hospital (within a defined 'Health' Precinct) and the potential expansion of the education and training programs at Pinjarra High School will create synergies between health and education providers that will not only develop local skills and training but also provide direct

employment opportunities for the locally trained 20 to 34 year old cohort. Whilst further investigation should be undertaken as to key attractors for this demographic, research indicates that the retention and/or attraction of this cohort generally requires a diversity in employment types, high quality public transport, range of housing types (including student housing) and affordable lifestyle / leisure opportunities, including those related to the 'night time economy'.

5. Accommodating the needs of an aged population is also likely to require greater diversity in housing stock to allow residents to 'age in place', live within walking distance of daily services, family and friends, as well as within close proximity of additional support services and facilities, including public transport that is convenient for people with lower levels of mobility. The centre plan seeks to address these requirements through significantly increased residential densities and housing within walkable distance of the town centre which is supported by a high frequency public transit system.
6. The Shire of Murray's low employment self-containment is potentially representative of two issues. The first is that the skills of the local workforce do not match the skills required by local employers. Pinjarra has an opportunity through proactive workforce skill-matching to enhance the ability of local residents to achieve local employment. This will require significant partnership and investment with government and private sector agencies to determine the requirements of local and regional employers. Initiating discussions to implement workforce skill matching has been identified as one of a range of key actions for implementation as part of the Mandurah-Murray Growth Plan.
7. The second issue in relation to self-containment relates to the comparative value proposition of establishing a strategic business presence and/or place of residence in Pinjarra. Development of knowledge-intensive, export-oriented (KIEO) industry or businesses and/or employees of this sector residing within the town will require a significantly higher level of amenity. In the case of KIEO workers within the Shire of Murray, many currently choose to live in Mandurah and surrounds as it is perceived to provide a higher level of amenity to that offered within Pinjarra. Changing this perception will require intervention that includes preparing a planning framework that enables the delivery of a range of housing types, greater diversity in educational opportunities, access to a high quality public transport, retail activity and a range of recreational and lifestyle options. Preparation of the objectives, guiding principles and precinct guidelines of the activity centre plan has been directly informed by the need to address these factors.
8. Strategic employment provides the impetus for economic activity beyond that resulting from population growth, as income is generated through the export of goods and services to external markets. Strategic industries typically employ a higher-skilled and higher income workforce that is likely to generate significant flow-on impacts through business to business and consumer expenditure within local economies. Strategic employment includes Knowledge Intensive Producer Services (KIPS) and Export Oriented Employment (EOE), as well as the provision of higher order population-driven employment Knowledge Intensive Consumer Services (KICS). KICS provide high-productivity activity oriented towards a consumer population and higher order KICS for Pinjarra may include medical and allied health services. KIPS are typified by high-productivity business to business

that often supports export oriented business, and for the Peel Region may include Architectural, Engineering and Technical Services. A focus should therefore be the need to facilitate the development of new strategic industries and expansion of existing strategic business.

The activity centre plan recognizes the value in the co-location of knowledge intensive business to enable the sharing of information or in working collaboratively as a sector as part of a knowledge ‘hub’. Identification and the consolidation of health related services and uses within the ‘Health Precinct’ is intended to facilitate such an outcome. Establishing the necessary impetus and business case to attract medical, health and allied related uses to the precinct will however require delivery of necessary services, infrastructure and a skilled, educated local labour force. As previously highlighted, discussions to understand and implement workforce skill matching has been identified as one of a range of key actions as part of the Mandurah-Murray Growth Plan.

9. A further key requirement is to determine and effectively communicate to prospective sectors/industry/business the comparative advantage of locating within Pinjarra. Investigations into potential comparative advantages and ‘start-up’ incentives has therefore been identified as one of a range of key actions for implementation (refer Part 2A).

2 ECONOMIC CONTEXT

In order to understand the existing economic context and the requirements to support the future retail and commercial requirements of the population growth anticipated, Syme Marmion & Co were engaged to undertake an economic assessment for the Pinjarra Town Centre. A full copy of the assessment is located within **Appendix 1**.

Key findings, recommendations and responses incorporated within the Activity Centre Plan are summarized below.

1. Pinjarra is currently comparable in floorspace to other activity centres in Perth.
2. The Pinjarra Town Centre currently provides an oversupply of retail, much of which is located in older building stock that is nearing its building life.
3. The report recognizes that maturation of the centre is likely to intensify over a longer period (30 to 40 years) rather than the shorter timespan generally associated with greenfill development. It is relevant to acknowledge however that given the town centre already contains established services and infrastructure which may significantly reduce development timeframes and costs generally associated with delivery of new greenfill lots, growth may occur sooner than expected (albeit dependent upon a range of other factors including market demand and the availability of employment, housing, public transport).
4. The report projects that by 2051 approximately 92,000 m² of retail floor area will need to be provided. The importance of ensuring the protection of a sufficient area within the defined ‘Core Precinct’ has been accommodated under the Activity Centre Plan which provides sufficient retail floor area to accommodate for the long term growth of the centre. Notably, should the demand for retail and commercial activity not reach that anticipated, the activity centre plan provisions provide sufficient flexibility to enable infill of the Precinct with residential uses that are complementary to retail and commercial uses and activity.
5. The staging of retail and commercial activity is important to the long term sustainability of the centre. The activity centre plan therefore includes general and precinct specific provisions and design guidelines within Part 1 that encourage the consolidation of activity within the ‘Core Precinct’, particularly along George and James Streets in the short to medium term. The plan and associated documentation also seeks to discourage those uses that have the potential to dilute activity and pedestrian activity away from the primary commercial, retail and employment precinct. This presumption against the dilution of activity in the ‘Core’ Precinct is intended to protect the intensification of activity within the centre, ensure a critical mass is achieved through staging and that economic demand necessitates expansion of activity.

6. Whilst the report contains an employment projection of 6,400, this figure does not factor a range of developing sectors including health, aged care, education, tourist accommodation or the ‘e-change movement’ (refer comments below).

It is anticipated that with a local population of over 24,000 and a broader regional population of 444,000 that an upgrade of the established Murray District Hospital and associated health and aged related services is likely to occur, resulting in significant employment opportunities. Based on the projected growth an additional high school and five primary schools are also likely to be required by 2051. It is anticipated that the education sector alone is likely to create employment for approximately 300 people. The ‘Super Connected Lifestyle Locations Report’ commissioned by the NBN also recognizes the rise of ‘lifestyle towns’ and an ‘e-change’ movement where broadband allows residents to work from home, minimize commute times and improve their quality of living. The report projects that by 2026, 8% of the population will work from home and identifies Pinjarra as an identified ‘lifestyle town’. At 8% of the projected population (ie. 24,000) it is anticipated that approximately 1,980 people will reside in Pinjarra and work from home. Excluding jobs created as a result of the growing health care and tourism sector, it is anticipated that approximately 8,580 jobs will be provided or undertaken in Pinjarra by 2051.

7. To ensure a planning framework that supports a developing activity centre the plan and associated strategy includes a specific Guiding Principle and associated responses that enable opportunities for economic growth and employment creation. Furthermore, the framework introduces land uses that provide a level of flexibility for evolving business and employment sector needs over time. It is anticipated that opportunities for the co-location of uses and activity within the Town Centre will facilitate the sharing of resources, ideas and knowledge and provide an environment where entrepreneurial opportunities and joint ventures are encouraged. A key project identified for revitalization is investigating and implementing a strategy to establish Pinjarra as a destination for incubator ‘start up’ businesses, where economic investment and risk is minimized. An environment of lower overhead costs and opportunities to work in close proximity to other sectors that enable synergies to develop between businesses is a key outcome and will establish and build Pinjarra’s reputation as a preferred location for business innovation and investment.
8. Further to the above, it is also relevant to highlight the implications of the future activity centres at Ravenswood and West Pinjarra, approximately 8.3 km and 4.7 km from the Pinjarra Town Centre. Ensuring the sustainability of a range of centres within the Shire by 2051 will require strong, long term strategic planning to clarify the hierarchy of centres and the necessary staging of development to ensure the economic potential for all centres are maximised and one does not function to the detriment of the others. Similar principles should also be applied to the development of other nodes of activity within the Shire, including development proposed on the periphery of the Town Centre. These considerations will need to be addressed as part of the Shire’s Local Planning Strategy.

3 ENVIRONMENTAL CONTEXT

3.1 Topography and Soil Types

Located within the Swan Coastal Plain, Pinjarra's topography is relatively flat, ranging from 9m AHD in the west down to 5m AHD in the north, east and adjacent to the Murray River.

Pinjarra Plain soils cover much of the strategy area immediately adjacent to, and east of the Murray River. These soils are poorly drained and subject to seasonal water logging and nutrient export. Soils within the west and southern portion of the Town Centre are Bassendean Sand which are leached and have a high risk of nutrient export entering the surrounding waterways.

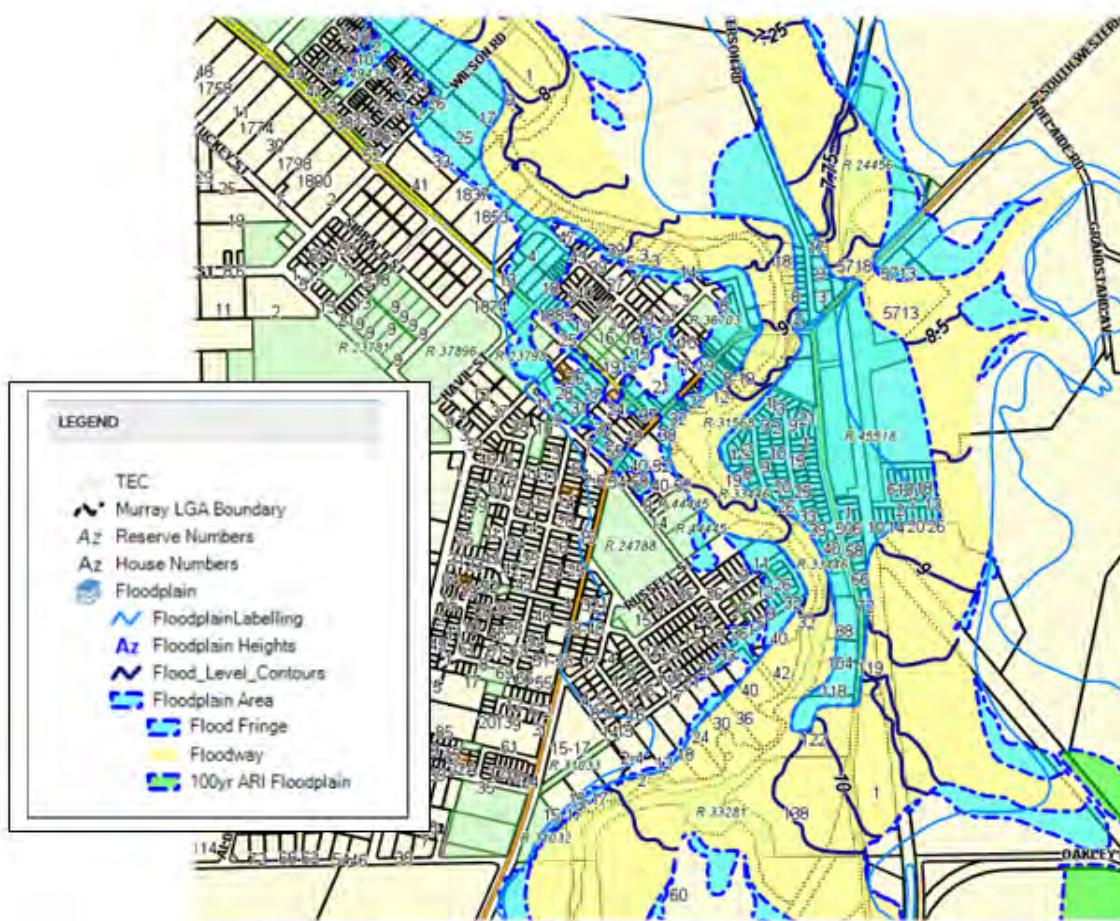
The majority of the strategy area has moderate to low risk of acid sulphate soils (ASS) occurring within 3 m of the natural soil surface, however areas along the Murray River are mapped as having a high to moderate risk of encountering ASS. When exposed to the air naturally occurring ASS is chemically triggered to generate large amounts of sulphuric acid. Future growth and development within higher risk areas will therefore require detailed investigation and management to ensure exposure is avoided or minimized to reduce risk to the environment, the subject development and surrounding infrastructure.

3.2 Groundwater and Murray River Floodway Considerations

Groundwater is seasonally close to the surface throughout the Town Centre with levels ranging from 0 to 6m below ground level. Regional groundwater flow is in a westerly direction towards the Peel Inlet, however local features such as the approximate 4.3 km of the Murray River that winds its way through the Town Centre alter the directional flow on a local scale.

Flood mapping undertaken by the Department of Water reflects a range of sites throughout the strategy area within the 1:100 year Murray River floodway and flood fringe (refer Figure 1 below). Development, including earthworks may impede the flow of water is not generally supported in floodways due to the likelihood of flood waters being displaced to adjacent low lying areas during flood events. The flood fringe, though outside of the floodway, is also affected by flooding but to a lesser degree and consequently development may be considered, provided appropriate measures are taken to ensure development levels above the 1:100 year flood events are achieved and adequate flood protection measures are taken to protect landowners and adjacent neighbours.

The centre plan has been prepared with the understanding that the floodway impacts in some way on a range of lots throughout the area. Whilst this is likely to result in a development constraint it does not prevent future development / redevelopment as contemplated under the plan. Rather than viewing the floodway as a constraint, the Centre Plan interprets the floodway areas as an opportunity to contribute to a range of environmental linkages that serve to retain natural floodway and vegetation corridors whilst also contributing to the broader recreational and pedestrian movement network.

Figure 1 – Floodway and Flood Fringe Areas

3.3 Wetlands

Wetland buffers play an important role in protecting wetlands and assist in maintaining ecological processes and functions. Wetlands and areas of biodiversity value within the strategy area therefore need to be protected and accommodated within open space areas, reserves and conservation links as part of the revitalized Town Centre. The long term management, enhancement and protection of these key ecological and wetland features will require the preparation and implementation of an integrated and comprehensive management plan.

As reflected in Figure 2 (and more specifically in the highlighted image below), much of the centre plan area is mapped as multiple use wetland, with the exception of much of the land abutting the Murray River and a number of smaller sites throughout the centre plan area that are classified as Conservation Category Wetlands (CCW). It is anticipated that these areas will be suitably protected either within existing or future reserves, with the exception of the land parcel on the western side of Pinjarra Road and bounded by Wilson Road and Roe Street (refer image below).

Conservation Category Wetland (CCW)

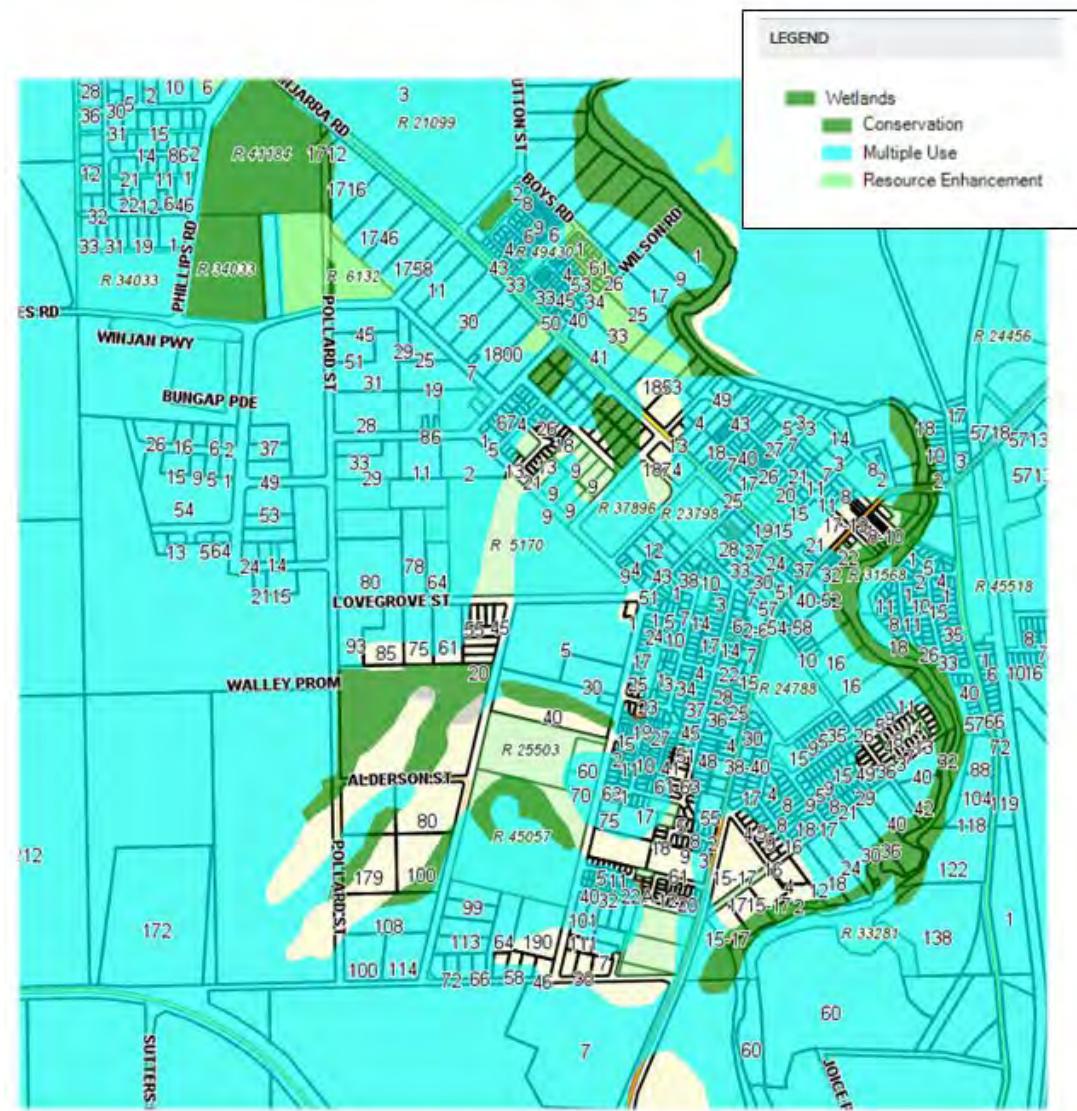


Whilst the wetland classification of these lots is acknowledged, it is relevant to contemplate whether the retention of these environmental features outweighs the environmental benefits of the land parcel (or at least a portion of the land parcel) being developed for high density residential development that would contribute towards the ultimate long term sustainability of a future high frequency public transport network between Pinjarra and Mandurah. Imperative to a sustainable public transport network is reaching a critical density of users within walking distance of transit stops. Situated on Pinjarra Road (which will form part of a future high frequency route), the wetland area is a constraint to future development intensity of the transit route and the town centre. Without the delivery of a sustainable public transport network, the Pinjarra Town Centre and its residents will continue to rely on an increasing number of private vehicles to access the centre, which ultimately will be environmentally detrimental to achieving a 'green' and sustainable Town Centre. Given the aforementioned context, the centre plan contemplates the land parcel accommodating some high residential development whilst also maintaining portions of the wetland as part of the broader greenspace / pedestrian network. It is intended that further investigations be undertaken and discussion initiated with the Department of Parks and Wildlife (the custodians of the wetland mapping and relevant classifications) to clarify the value of the wetland and whether there is any potential for the reclassification of the CCW (or portions of the CCW area) which would enable high quality portions of the wetland to be reserved as part of the proposed broader greenspace / pedestrian network.

Further to integrating key environmental features within the Town Centre through open space / conservation corridors and links, the application of Water Sensitive Urban Design (WSUD) principles within landscape and streetscape works will further encourage conservative use of

water resources, the protection of the Murray River water quality and increase the presence of native vegetation and fauna within the strategy area.

Figure 2 – Wetlands



3.4 Mosquito Risk

The Shire of Murray has been identified as having certain areas with 'frequent high and occasional very high Ross River Virus (RRV) disease risk' (Department of Health, 2016).

As growth occurs within the Shire, there is likely to be increasing pressure for residential development in close proximity to mosquito breeding areas. The highest impact mosquito breeding areas in the Shire are within the saltmarsh areas surrounding the Peel-Harvey Estuary

as salt water mosquito travel further and are generally more persistent biters than freshwater mosquitoes.

Mosquito mapping indicates that the town site is situated outside of the very high and high risk category for disease and therefore intensification of uses within the centre as contemplated are unlikely to increase health risks associated with mosquito breeding.

3.5 Bush Fire

As is the case for many riverine town sites across Australia, bushfire prone areas within the PTCACP area contain regionally significant vegetation that contributes to the environmental value and natural amenity of the town. The need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values is therefore a key consideration for planning and development on affected sites within the centre plan area.

As reflected on Figure 3, portions of the centre plan area are identified as Bushfire Prone. These areas predominantly follow the alignment of the Murray River within adjacent reserves.

To understand the bushfire risk implications on the developing town centre, a Bushfire Management Plan (Hazard Level Assessment) has been undertaken. A full copy of the assessment is provided in **Appendix 2**.

The assessment highlighted that the subject area has significant areas of bushland with an extreme bushfire hazard level, however that it is expected that this hazard will be reduced as development occurs in the future. The assessment also acknowledges that the Greenspace Network can be designed and managed to reduce bushfire risk.

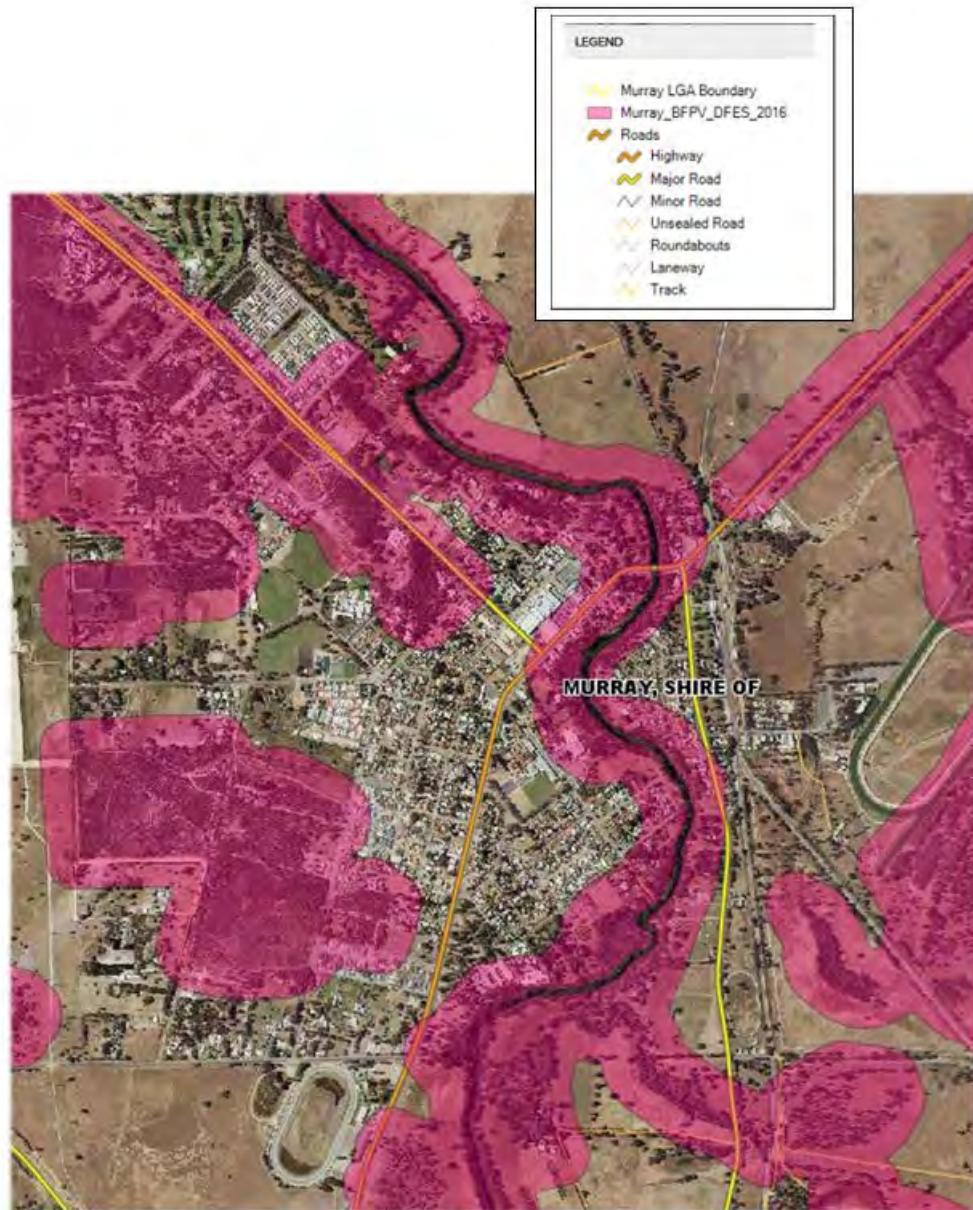
Importantly, the key findings of the assessment were:

- there is no fatal flaw which would prevent further development within the study area; and
- the Activity Centre Plan / Strategy complies with the objectives of SPP3.7.

A range of recommendations were also made, including the following:

- promote the provision of subdivision roads adjoining areas of remnant vegetation which are proposed to be retained;
- promote that the corridors shown in the Greenspace Network are designed and maintained as low threat vegetation. This can still incorporate areas of trees and shrubs provided that there is appropriate gaps and spaces;
- the construction of Pollard Street along the western boundary of the study area connecting to Moores Road is critical for ensuring a suitable road network and multiple access routes for development in the south-western portion of the study area;
- development of the Health Precinct be subject to a separate bushfire management and risk plan due to the likely vulnerable land uses and the proximity of hazard vegetation along the river corridor and adjacent reserves; and
- the need to extend Tuckey Street or to provide an emergency access way.

The recommendations outlined have been addressed as general provisions within Part 1 of the Activity Centre Plan, will form conditions of subdivision approval as part of developer contributions or will form part of the Shire's reserve maintenance program.

Figure 3 – Bushfire Prone Areas

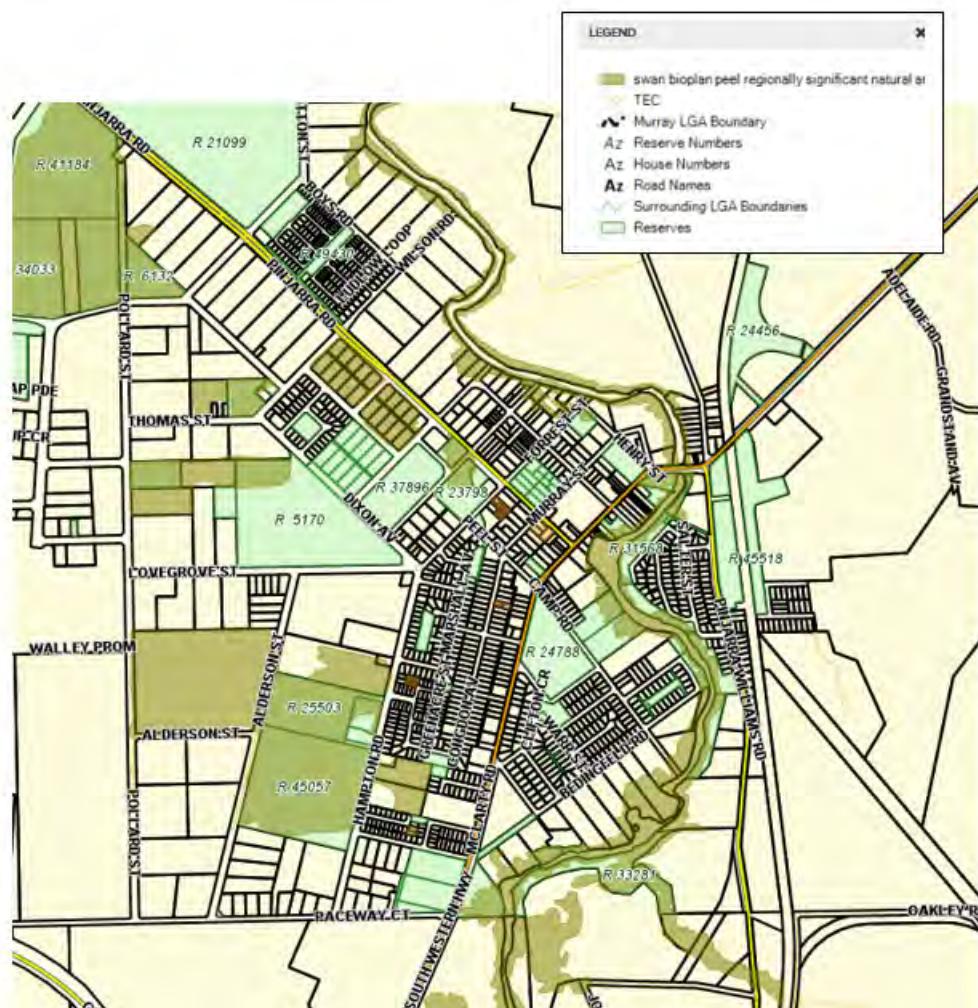
1.6 Biodiversity

The Shire's endorsed Biodiversity Strategy establishes targets for the protection of local natural areas (bushland and wetland) outside of land managed by the Department of Parks and Wildlife. These areas include local reserves, private lands and bushland managed by other State Government agencies. They are areas which the Shire has some level of influence as development is planned and designed.

The activity centre plan area falls within the defined 'Pinjarra Townsite' of the Biodiversity Strategy. As reflected in Figure 4, there are a range of regionally significant natural areas (RSNA's) within the centre plan area. The majority of RSNA's follow the Murray River foreshore and have been included within the proposed green space network identified under the activity centre plan. The remaining more isolated RSNA's within the area are predominantly contained within existing reserved areas or alternatively, are expected to be encompassed within future areas of open space as part of future residential subdivision.

The centre plan does however propose the loss of up to approximately 1.7 ha of vegetation between Sibbald Street and Pinjarra Rd to accommodate high density residential development within walking distance of a high frequency public transport network. This proposed loss will however be subject to further investigation and support from relevant environmental agencies. Importantly however, the proposed loss is well below the maximum clearing of 2.7 ha of natural area within the townsite supported under the Strategy.

Figure 4 – Regionally Significant Vegetation



4 BUILT FORM CONSIDERATIONS

4.1 Travel Demand Management & Traffic Impact Assessment

4.1.1 Movement

The early establishment of Pinjarra and its strategic location en-route between Perth and the south west region has historically provided the town with a high level of transport accessibility. Today a number of regional and inter-regional roads either traverse or converge upon the town.

Whilst in the past this has assisted in the growth of Pinjarra by providing a high level of connectivity and access to the movement economy, in more recent times the increasing volume of freight and passenger through-traffic is beginning to result in safety, congestion and amenity impacts.

The relatively small dispersed nature of Pinjarra town, its predominantly rural hinterland and distance to other towns and urban areas has also meant that the primary and almost exclusive form of transport to and within the town is by private motor vehicle.

Whilst Pinjarra station remains one of the stops along the Perth to Bunbury railway line, the service is slow, infrequent and expensive so it is not suitable as an attractive regular transport option. A recent bus service has established to connect Pinjarra to the Mandurah City and the Perth – Mandurah passenger railway, however this service is infrequent and does not extend to evenings or weekends and so its ability to connect Pinjarra is also limited. Relatively long distances between urban areas and discontinuous or poorly maintained pathways make cycling and walking impractical in the majority of cases.

The lack of suitable transport alternatives is one of the most significant issues facing the Murray community. Without a car people find it more difficult to participate in society, with more and more people becoming socially isolated. Traffic congestion is growing. Lifestyles are becoming more sedentary with resultant implications for community health and fitness. Vehicle emissions are increasing with the growing community carbon footprint contributing to air pollution. People are spending an increasing proportion of their income on transport.

The significant population growth projected for the region provides an opportunity to improve transport connectivity and reduce the current reliance on the private motor car, however this needs to be deliberately planned.

The WAPC predicts that the Mandurah and Murray population will grow from 88,000 to over 300,000 people by around 2050. This would result in an increase in the daily traffic from 175,000 to around 600,000 daily trips based on a business as usual planning approach.

An integrated approach to transport and urban planning is needed at the regional level which seeks to reduce the demand for travel, increase the choice of attractive travel alternatives and enable more active transport options. Modelling undertaken for the Shire by Jacobs indicates that by using a combination of transit oriented urban structuring, measures to increase cycling and walking combined with demand management, the proportion of car driver traffic could be reduced from 55% under the business as usual approach to 40% by 2050. Planning for Pinjarra town and Pinjarra Road between Pinjarra and Mandurah has a key role to play in achieving this outcome. The Strategy proposes a range of initiatives aimed at diversifying the travel mode share to contribute to a planned reduction in in car driver transport in the region.

Table 1 - Estimated Future (2050) Mode Share Outcomes Mandurah - Murray

Mode	Business as usual planning	Transit oriented structuring	Transit plus quality walking, cycling and demand management
Car driver	55%	45%	40%
Car passenger	23%	20%	17%
Public transport	7%	15%	15%
Walking	11%	14%	17%
Cycling	2%	3%	8%
Other	2%	3%	3%
Reduced car driving compared to existing	8%	25%	33%

Table 2 - Potential for Reduced Car Driving Compared To Business As Usual By 2050

	Mandurah	Murray	Combined
Population	148,000	164,000	312,000
Daily car trips (Business as usual)	285,000	316,000	601,000
Daily car trips (Transit structuring)	233,000	258,000	491,000
Daily car trips (Transit structuring plus demand management, walking, cycling)	207,000	230,000	437,000
Potential reduction in daily car trips (compared to business as usual)	-78,000	-86,000	-164,000

4.1.2 Road Network

The key roads which provide access to Pinjarra town are South Western Highway and Pinjarra Road. Portion of the South Western Highway (George Street) within the town core has been constructed in a main street design however the remaining portions of these roads maintain a highway character and have a key function as part of the State highway network and heavy vehicle route. These roads are currently managed by Main Roads WA and have restrictions on design and access aimed at retaining their highway function. This has resulted in safety and amenity consequences for town users.

Bypass roads are planned on both the eastern and western sides of the town. Once constructed these will allow the movement of freight and passenger through traffic to efficiently bypass the town and as the network of roads develops surrounding Pinjarra, there will be additional bypass opportunities, with destination only traffic needing to access Pinjarra. This will enable the form and function of Pinjarra Road and South Western Highway within the town to change to create attractive, pedestrian friendly streets that integrate with rather than dissect the town. In particular as perhaps the key entry road into town, Pinjarra Road provides the greatest opportunity to be down-graded from its current four lane utilitarian character to an attractive two lane entry boulevard with on-street cycle lanes, wide footpaths, on-street parking and high level of landscape treatment.

The historic street pattern in Pinjarra is a regular grid of local roads which provides a high level of permeability to disperse traffic and provide convenience for pedestrians and cyclists. Expansion of the town that took place in the later part of the 20 century also has a modified grid road structure, although less permeable in places which causes some inconvenience and adds to trip length particularly for pedestrians and cyclists. As development continues in the town the permeability of the road structure needs to be enhanced where ever possible.

There is an incomplete network of roads surrounding the town which currently has the effect of concentrating vehicle traffic onto key roads, particularly Pinjarra Road. Pinjarra Road will come under increasing capacity pressure in the future as the Murray population grows and planning will need to ensure multiple access options are available to provide convenient accessibility from different directions and also to enable traffic to be dispersed away from a limited number of access routes.

Plans showing the proposed key street network and hierarchy for Pinjarra and the broader locality are shown in Figures 1 and 2. The plan highlights estimated future traffic volumes. Typical cross sections for each street in the hierarchy are shown in Figure 3 (A – G) which are aimed at maintaining low traffic speed to provide a safe environment for all road users, particularly pedestrians and cyclists.

To generate the required traffic volumes within key roads in the town centre it was important to clarify the base assumptions for the review. The Shire of Murray undertake ongoing traffic counts around Pinjarra and these counts were used and expanded to form the base traffic projections that influence traffic entering and exiting Pinjarra. A 2% growth rate was applied to these roads over a 35 year period to establish the base traffic input. The planning within Pinjarra will influence the base property density and therefore the internal traffic generation, there was a potential range

of densities proposed and the average density was selected to inform the proposed traffic generation. It was calculated that the average properties developed were in the order of 11,500, with a view of 6 vehicle movements per day (vpd) for each property the generation of traffic within Pinjarra was estimated at 69,000vpd. There was a requirement to identify the important internal networks that will assist in the movement of traffic within and around the proposed planned area, these networks would reflect the need for a certain road hierarchy that would align to the Liveable Neighbourhood model.

The ability to develop bypass options for Pinjarra is pivotal to the development of a road network that would be functional within the town of Pinjarra and enable the town centre to act as a social, employment and business destination. The plan also relies on the ability to disperse traffic from a number of routes and these include three new proposed river crossings that improve access and egress opportunities. The ability to disperse traffic provides a balance of traffic across the network and alleviates traffic concentrating on select traffic routes. The proposed outcome provides for a balanced transport outcome for the town site and prioritises the integration of a road network that enables an improved and progressive traffic planning outcome.

4.1.3 Public Transport

With the substantial growth projected for the region and the constraints to a permeable regional road network particularly from the north and west of the town resulting from natural waterways and the Kwinana Freeway/Forrest Highway, a significant mode shift away from the private cars toward public transport will be critical to maintain a high level of accessibility for Pinjarra.

The proportion of people using public transport has risen from 4.5% to 10.5% in Mandurah between 2006 and 2011 due mainly to the construction of the Perth Mandurah railway. The public transport mode share in Murray has however remained very low at less than 1% as it is outside the area of influence of the railway and limited public transport services are available.

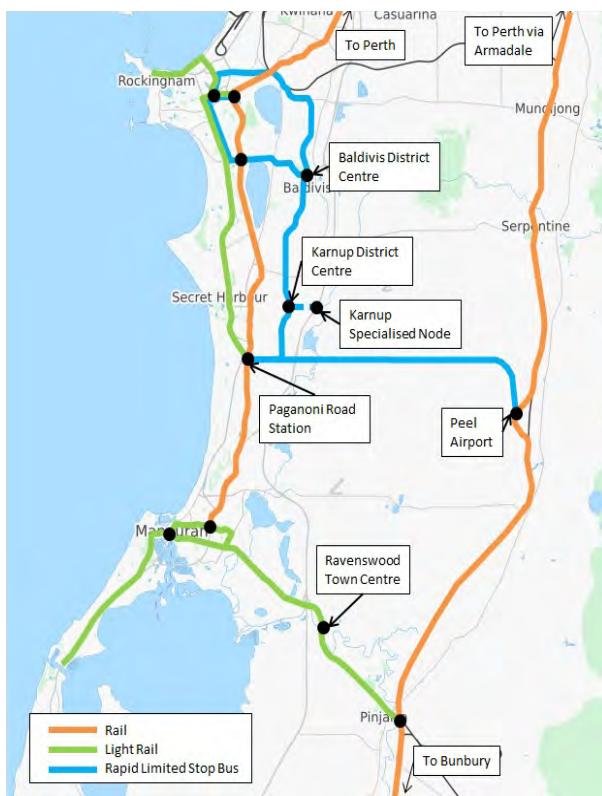
An aspirational target of 15% of all trips in the Mandurah Murray region by public transport has been set by 2050.

To make public transport an attractive and viable alternative there is a need:

- to plan for a public transport network which connects centres of activity;
- to provide high density development around stations/stops and along activity corridors; and
- for services to run on time and at high frequency along dedicated priority corridors.

A possible public transport network plan for the Murray, Mandurah and Rockingham areas as shown below. This network is well connected providing access to all the major centres in the region.

Proposed Public Transport Network



For Pinjarra, the plan includes the following key elements:

- The existing Perth to Mandurah railway;
- A transit corridor comprising light rail or other similar high frequency dedicated service along the Pinjarra Road, between Pinjarra and linking Mandurah via two routes firstly the hospital and Mandurah rail station and a second route direct to the Mandurah centre. With a 70kph speed between centres, 50kph within centres, 15-16 stops between Pinjarra and Mandurah, would allow for a 30 minute travel time end to end;
- Upgrade and electrification of the existing railway between Pinjarra and Armadale.

This network can be supplemented with direct bus links between the growing urban areas and the Pinjarra to Mandurah transit corridor.

While there is no commitment to this public transit network at present it is critical that the option for such a network is protected. This strategy has identified the preferred locations for transit stops within the town, street cross sections that allow for network to be constructed in the future and includes proposals for compact relatively intense development, a diversity of uses and initiatives to encourage walkability which would encourage viable public transit to evolve in the future.

4.1.4 Cycling

Pinjarra is currently poorly serviced by cycling infrastructure with a general lack of dedicated on-street lanes on busy routes making them unsuitable for most cyclists. Off-street paths linking outlying urban areas are disconnected or poorly maintained.

Currently half of all car driver trips in Perth are less than 5km in length. Whilst trips are currently longer in Murray due to the dispersed population, as the area grows the average trip distance will fall to less than 5km, similar to Perth. Cycling is an attractive travel option for such trip lengths if cyclists are provided with suitable infrastructure.

An aspirational target for cycling has been set at 8% for all trips in the Mandurah - Murray region by 2050. To achieve this target infrastructure needs to be provided in a way that is:

- Attractive – with each route feeling attractive where users feel safe;
- Coherent – there should be a choice of routes and the network should be legible and easy to use;
- Comfortable – surfaces should be smooth and well maintained with the number of stops needed along the journey kept to a minimum;
- Direct – routes should be kept direct with no unnecessary detours to enable journey times that are competitive with a car;
- Safe – separate cyclists from motorists and pedestrians where necessary, but allow mixed use along low speed, low volume streets. The design should be predictable in terms of alignment and priority.
- End of trip facilities including secure bike parking, showers and change rooms should be provided as a minimum both in public spaces and for all new non-residential development.

4.1.5 Walking

Planning for improved walkability is a key principle of the strategy. It creates activity and vibrancy, enhances fitness and public health and economic vitality of the town by providing passing trade to secondary uses.

An aspirational target for walking has been set at 17% of all trips in the Mandurah - Murray region by 2050.

To encourage walking an attractive experience must be offered compared to other modes. There are four overarching principles needed to encourage walkability which must collectively be provided to encourage walkability:

- A reason to walk – encourage a diverse mix of uses structured in a compact setting with comfortable interconnected streets linking uses.
- A safe walk – smaller block sizes, which provide the opportunity for a finer grain of streets to disperse traffic. Streets designed with narrow lanes, wide verges, medians where traffic

volumes necessitate, on street parking to buffer the pedestrian from moving vehicles, street trees and geometry designed to help slow traffic.

- A comfortable walk – a sense of enclosure provided by built form framing the street up to 1:3 but no greater than 1:6 with continuous built form and parking sleeved behind buildings.
- An interesting walk – ground floor of buildings oriented to the street, active and lively facades, street trading, and street art to enhance the walking experience.

4.1.6 **Parking**

Given the fragmented land ownership within the town centre and particularly the town centre core, new parking provision within Pinjarra are to include a series of consolidated public parking stations distributed to provide convenient parking access to the town users. Parking areas should be sleeved behind active building frontages so that they do not impact upon the activity level and attractiveness of streets.

Vehicular access points to the parking stations should be located in a way that assists to reduce traffic congestion within the town centre by directing traffic away from the busiest areas. They should also avoid busy pedestrian street fronts. Pedestrian access points should be strategically positioned to help enhance pedestrian activity along streets and therefore activate secondary businesses by providing additional passing trade.

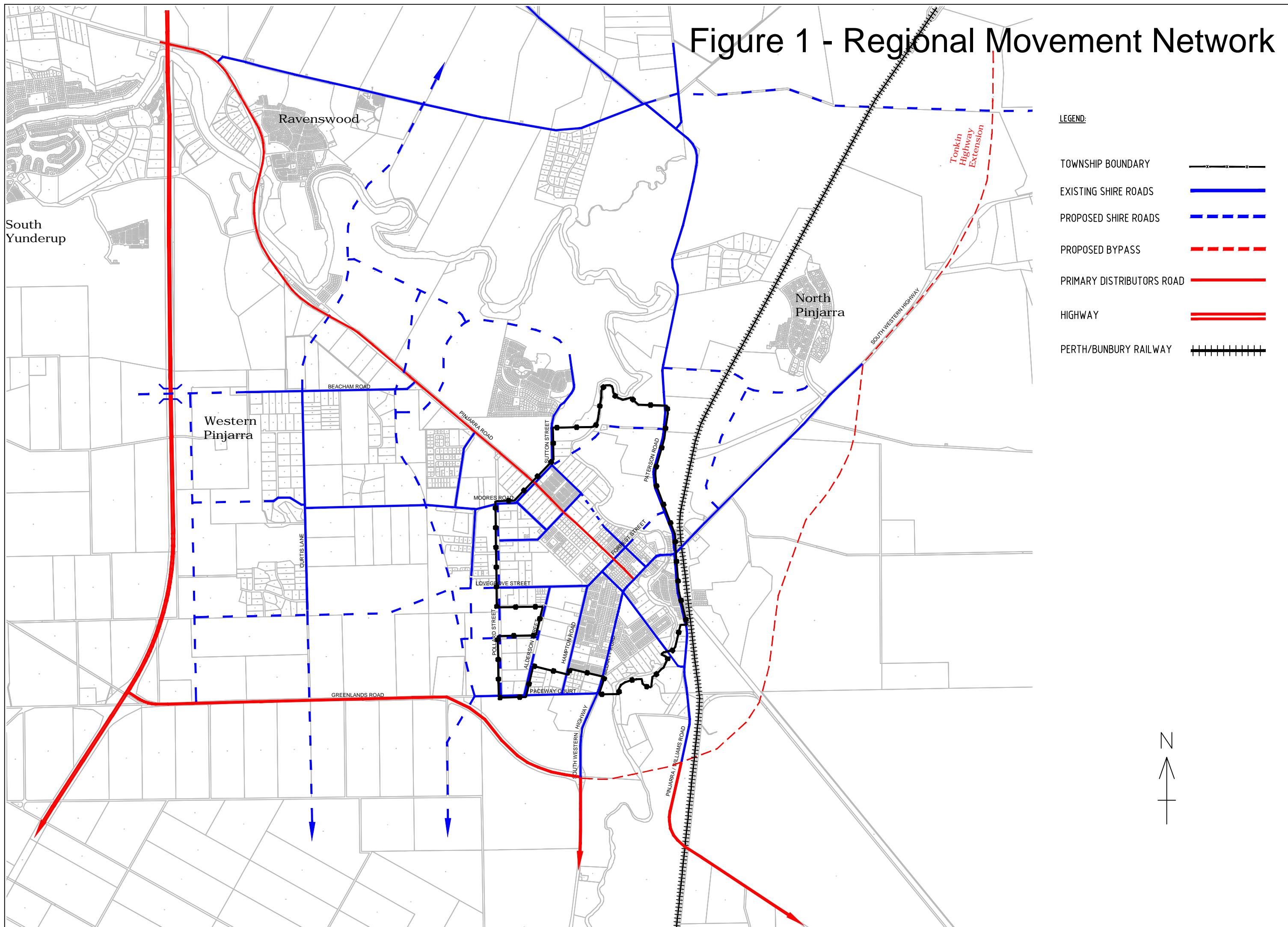
It is envisaged that car parking stations will be publicly owned except in the case of major developments such as shopping centres. Land for car parking would be identified, acquired and constructed by the Shire using cash in lieu arrangements. Detailed arrangements for this will be developed as part of a town parking strategy.

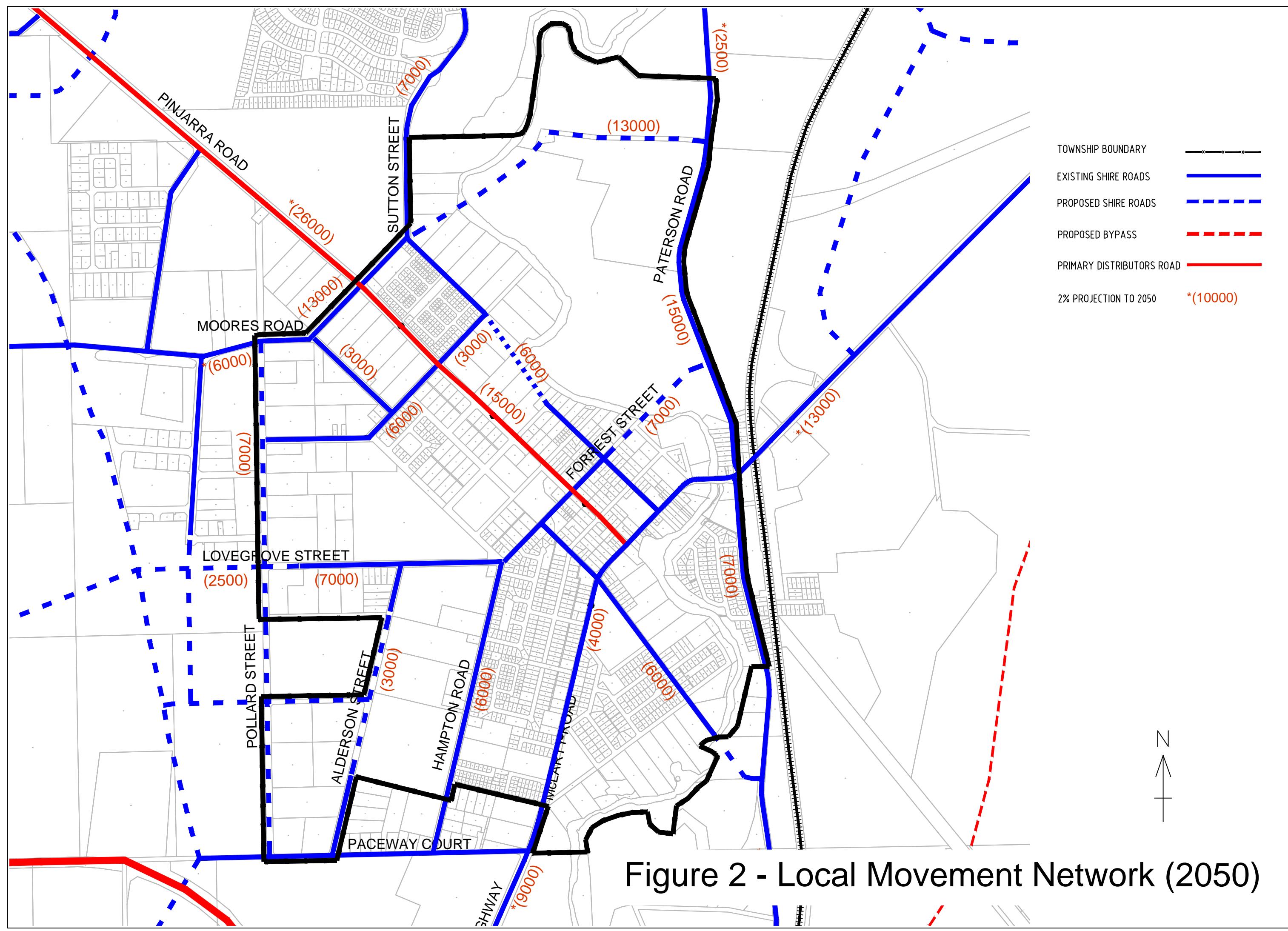
As the parking stations will not be visually prominent it will be important to provide coordinated wayfinding signage throughout the town centre core to clearly highlight the location of parking stations.

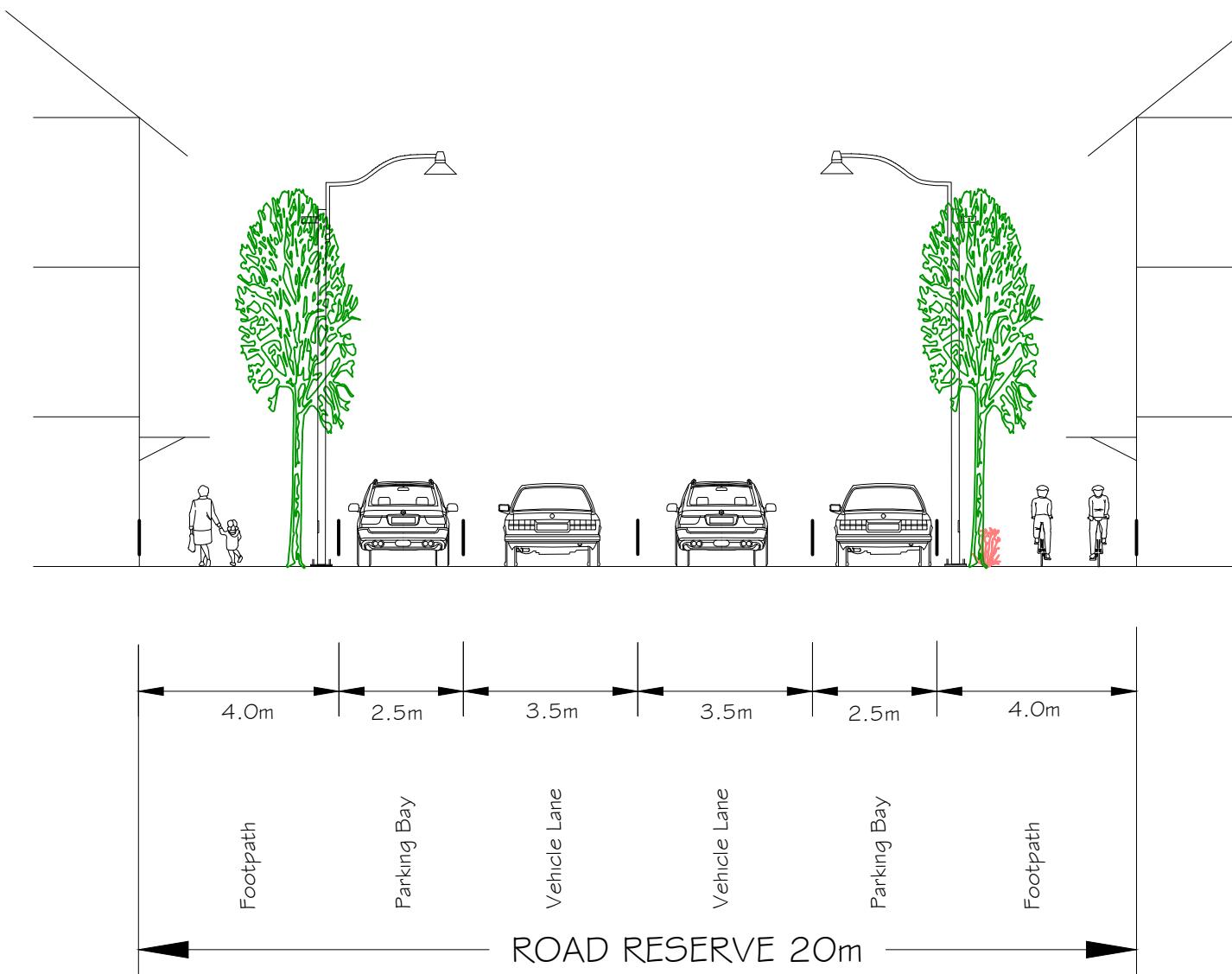
The overall supply of car parking within the town centre should in the longer term reflect and support the desired travel mode share split. In the short to medium term however car parking will still remain the dominant form of transport and therefore sufficient provision needs to be made for car parking although recognising the mixed use nature of the town which provides the opportunity for multi-purpose trips and recognises differing peak periods for different uses.

Whilst parking supply will need to be provided at a higher level for major shopping centres to reflect the need at these centres, other uses within the town centre should be provided with an average rate that will provide flexibility for changing uses over time. This approach may result in some uses undersupplying parking in a particular instance, however given the mixed use nature of the town and the additional parking provided on-street, overall the benefit of a standard rate is considered a more suitable approach. Large expanses of parking in a town centre is an expensive option, disruptive to the urban form and walkability within a town centre. Sufficient car parking aimed at satisfying normal demand is therefore the target.

Figure 1 - Regional Movement Network

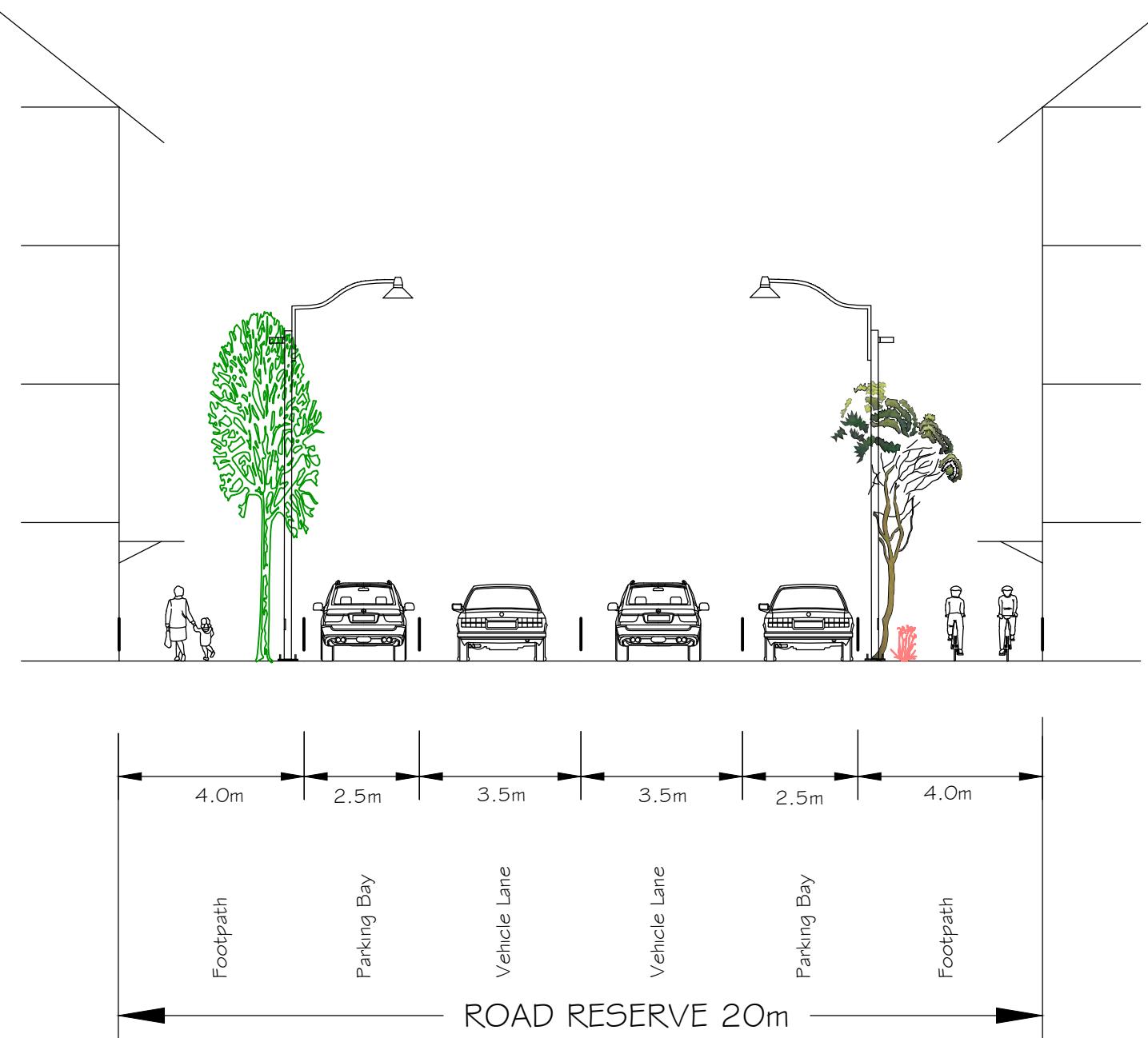






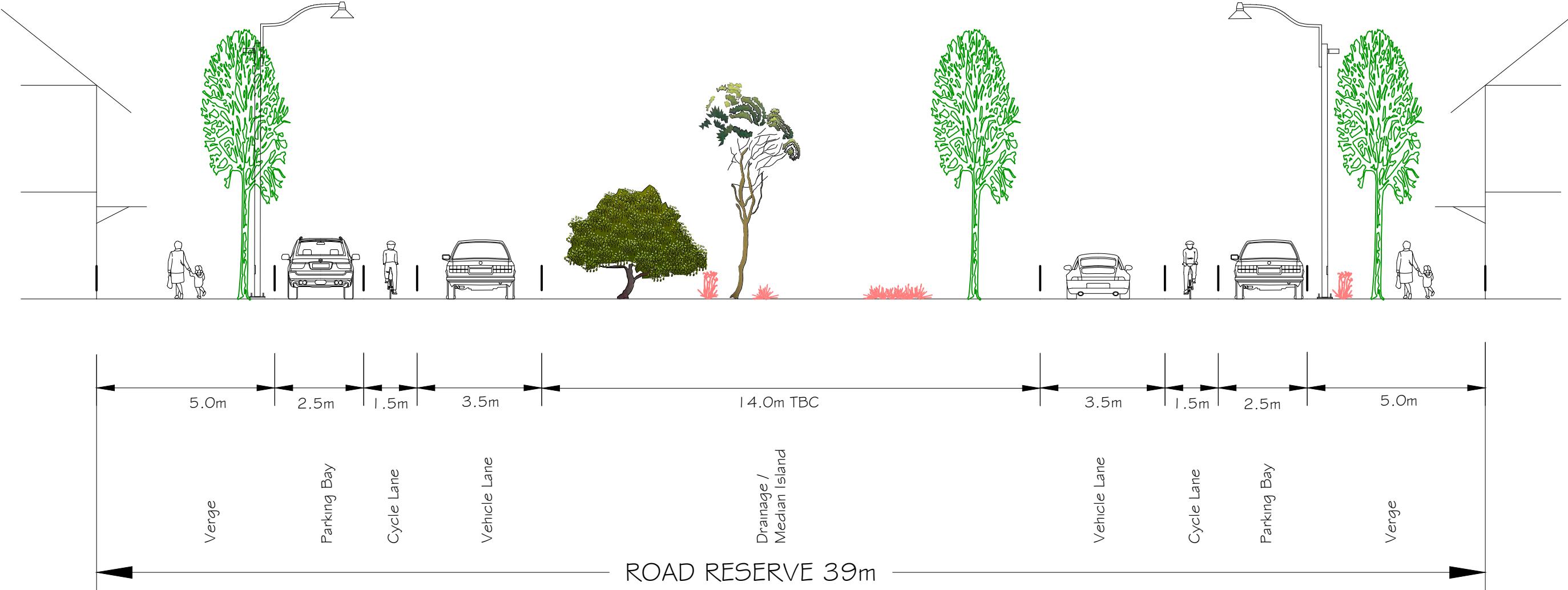
Forrest St and James St

Cross Section



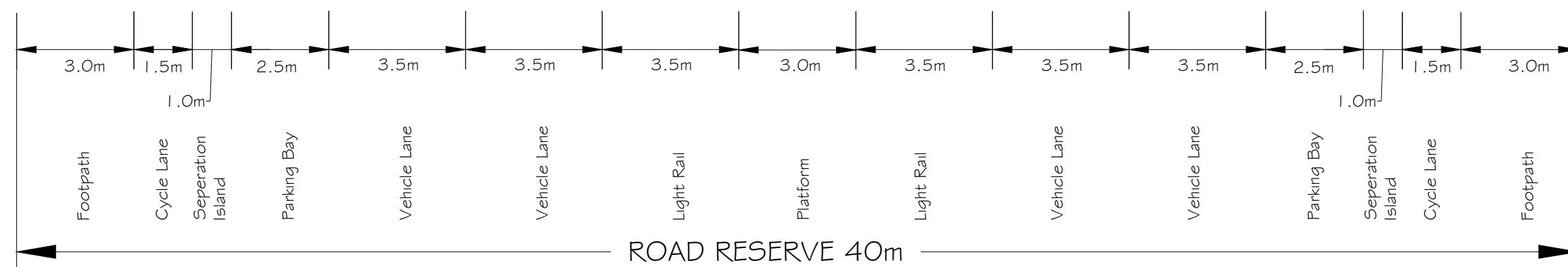
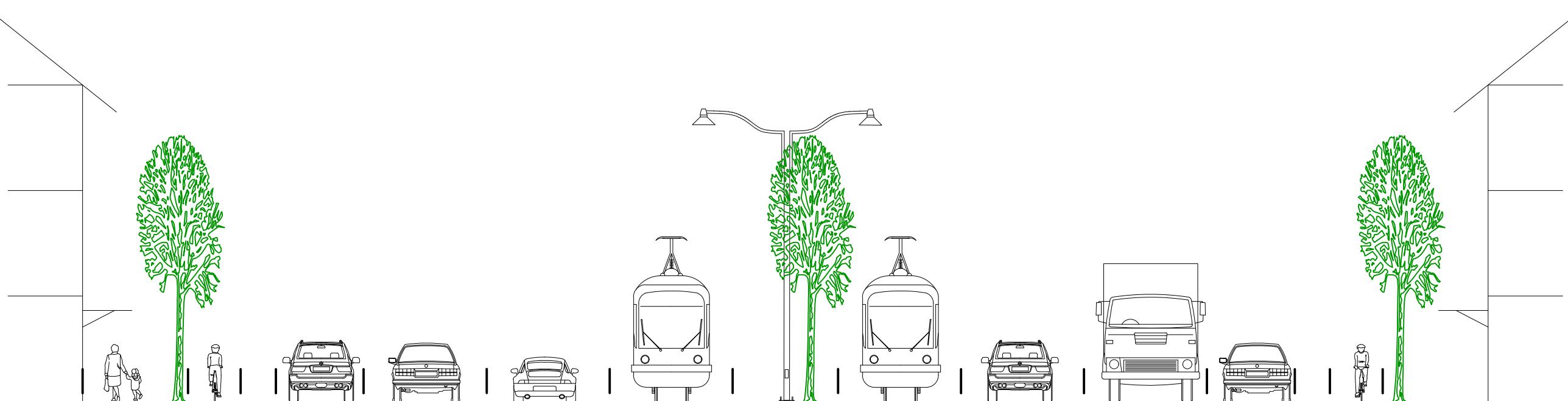
Pinjarra Rd
George St to Murray St
Cross Section

No.	Date	Revision			By	Chkd	Appr'd	Date	C.A.D.D. File Nos.		NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED APPROVED.		DESIGNER TO COMPLETE						Pinjarra Road George St to Murray St Proposed Cross Section		
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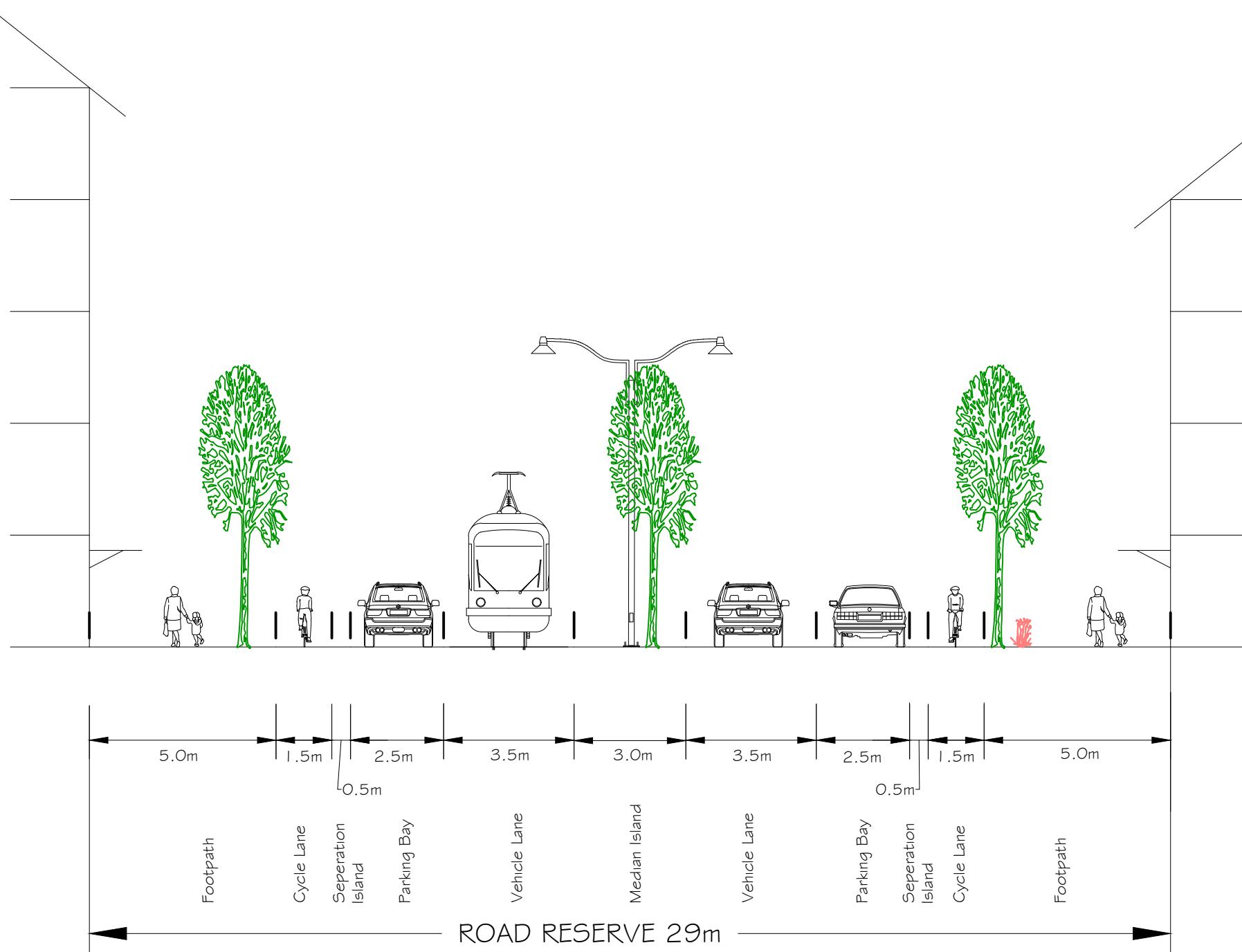
Pollard St
Cross section

No.	DATE	REVISION	BY	CHKD	APPR'D	DATE	C.A.D.D. File Nos.	NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED APPROVED.	DESIGNER TO COMPLETE			Date	Shire of Murray	Pollard St Proposed Cross Section						
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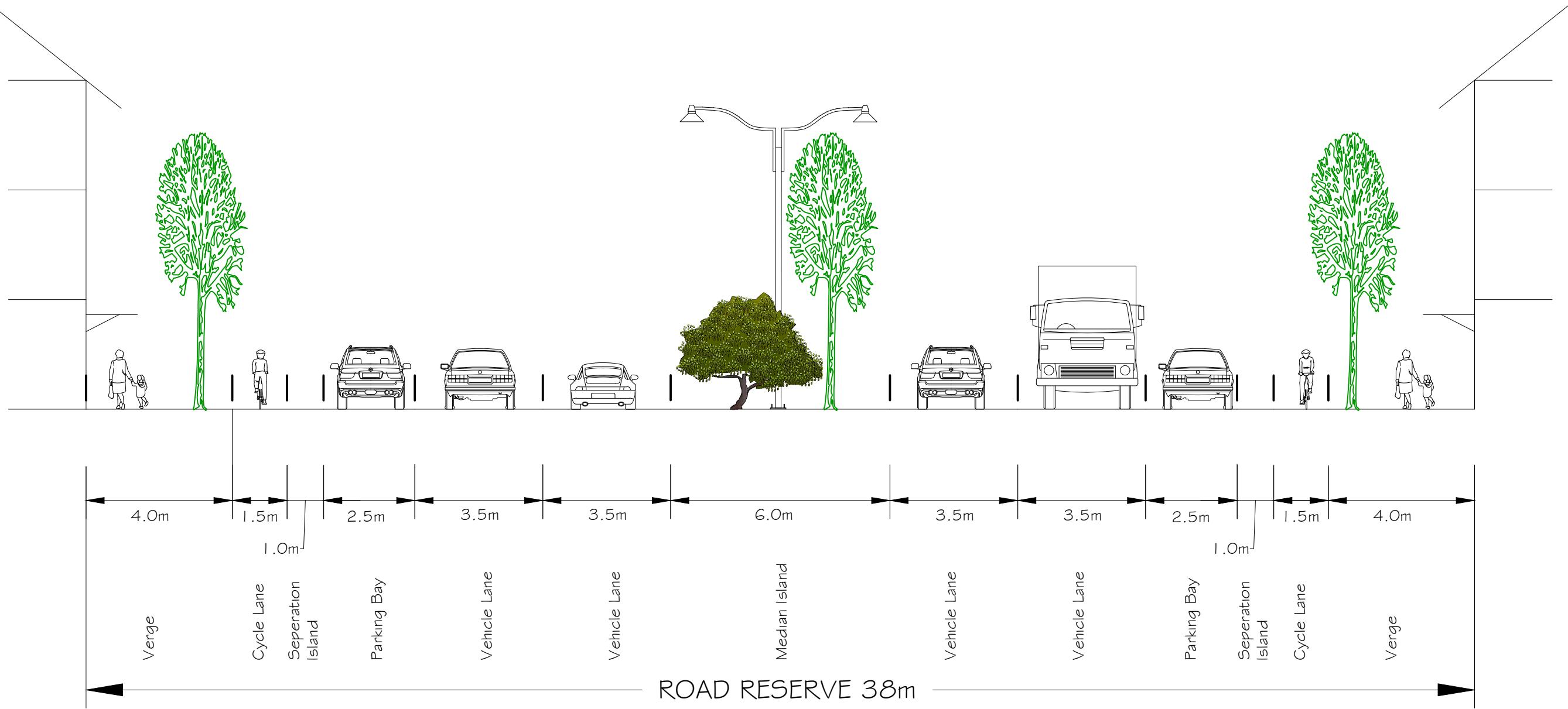
Pinjarra Rd
Roe Av to Sutton St
Cross Section

No.	Date	Revision			By	Chkd	Appr'd	Date	C.A.D.D. File Nos.		NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED APPROVED.		DESIGNER TO COMPLETE		 Shire of Murray	Pinjarra Road Roe Av to Sutton St Proposed Cross Section				
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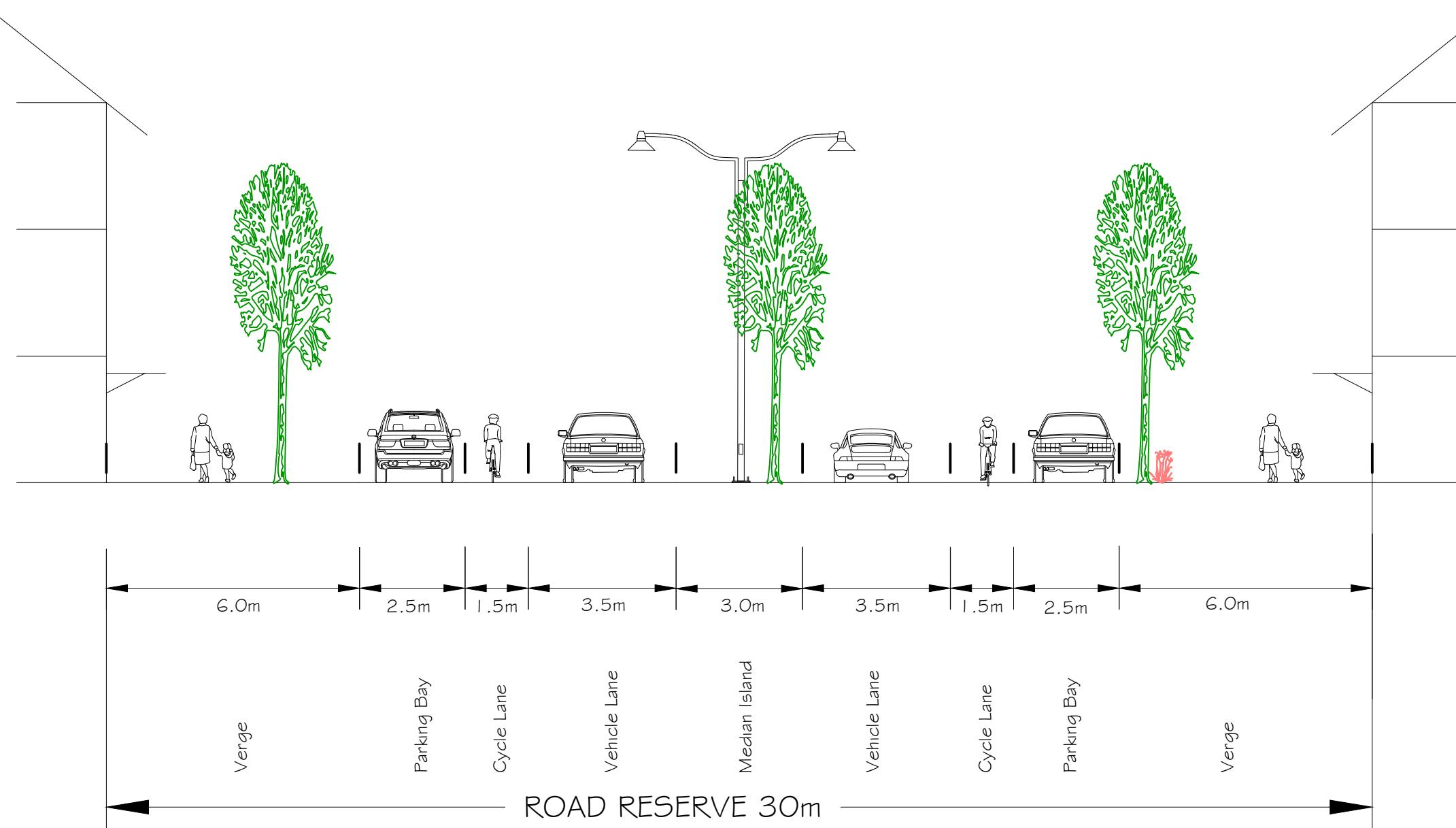
Pinjarra Rd
Murray St to Roe Av
Cross Section

No.	DATE	REVISION	BY	CHKD	APPR'D	DATE	C.A.D.D. File Nos.		NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED APPROVED.	DESIGNER TO COMPLETE		Date		Pinjarra Road Murray St to Roe Av Proposed Cross Section	
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Moore's Rd
Cross Section

No.	DATE	REVISION	BY	CHKD	APPR'D	DATE	C.A.D.D. File Nos.	NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED APPROVED.	DESIGNER TO COMPLETE		Date		Moore's Road Proposed Cross Section	
									Approved				
									Designed	M TASCON	11/16			
									Drawn	M TASCON	11/16			
									Draft Check	ROD PEAKE	11/16			
									Eng. Check	ROD PEAKE	11/16			
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Lovegrove St/Wilson St Hampton Rd/Alderson St Cross Section

No.	DATE	REVISION	BY	CHKD	APPR'D	DATE	C.A.D.D. File Nos.	NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED APPROVED.	DESIGNER TO COMPLETE		Date	Shire of Murray	Pinjarra Road Forrest St to James St Proposed Cross Section	
									Approved	Designed M TASCON 11/16	Drawn M TASCON 11/16			
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4.2 Heritage Considerations

The Shire has a rich cultural heritage. Its abundant waterways and resultant plentiful food supply gave rise to a long aboriginal occupation of the area and it was one of the first areas of European settlement in the state, dating back to the establishment of the town of Pinjarra in the early 1830s.

These early years were characterised by conflict with the local aboriginal population, culminating in one of the areas darkest periods, the Battle of Pinjarra or Pinjarra Massacre in 1834.

The fertile soils of the area lead to it becoming an important agricultural producer for the Swan River Colony. The area benefited from convict built roads and bridges in the mid 1800's, with many ex-convicts settling in the area.

Rail from Perth was pushed through Pinjarra in the 1890's and enabled transport for a developing, largely international, timber industry centered on Dwellingup in the early part of the 20th century.

Prominent families have also contributed to the social heritage of the area including the McLarty family who produced three Members of Parliament, one of which Sir Ross, who went on to become Premier of the state from 1946 to 1962.

The Shire has historically been a small, generally farming community experiencing relatively slow growth, however as the metropolitan urban front edges further south and road and rail infrastructure in the region has improved, the Shire has come under growth pressure.

With the significant growth pressure expected over the next 30 years, the Shire recognises the need to identify and protect those places of heritage value in planning for this growth.

The Shire already possesses a fairly comprehensive suite of heritage management controls, including a Local Government Heritage Inventory which is currently the subject of a formal review. Council have endorsed the current Heritage Inventory as the Heritage List which is to be confirmed through gazettal of Scheme Amendment 273. Importantly, the Amendment also seeks to introduce heritage incentives and best practice heritage management controls under the local planning scheme.

Much of the fabric that demonstrates the area's heritage is still in existence, although many places are in need of restoration and reuse. To address this, a Local Heritage Planning Strategy was also adopted in 2013 which sets the short to medium term heritage management aspirations of the Shire. Several initiatives of the Strategy have been completed including the newly installed Pinjarra Heritage Trail and increased conservation efforts with a number of plans completed for both local government and privately owned properties. Conservation works have also been completed or are currently underway on a range of significant heritage places, including reconstruction of the fire effected wing of Edenvale Homestead and conservation works to the front verandah.

Two heritage areas are identified within the Pinjarra town site, the Pinjarra Heritage Area (George St) and Pinjarra (West) Heritage Area (along James and Forrest Streets), which are subject to provisions within the Activity Centre Plan that guide streetscape and development outcomes including building form, signage and adaptive reuse.

The following highlights the range of State Heritage Listed and Aboriginal Heritage Registered Sites within the Town Centre:

State Heritage Listed Sites-

- 1798 – Edenvale Group, R36706 – Lot 316 George Street, Pinjarra
 - 1749 – Pinjarra Post Office, Lot 216 George Street, Pinjarra
 - 1748 – Pinjarra Court House, 22 George Street, Pinjarra
 - 3957 – Pinjarra Massacre Site, R31032 – Lot 301 McLarty Road, Pinjarra
 - 1758 – Masonic Hall, 1922 Pinjarra Road, Pinjarra
 - 3097 – Pinjarra Railway Yards, Lot 361-363 Pinjarra-Williams Road, Pinjarra

Figure 4 – Heritage Sites (European)

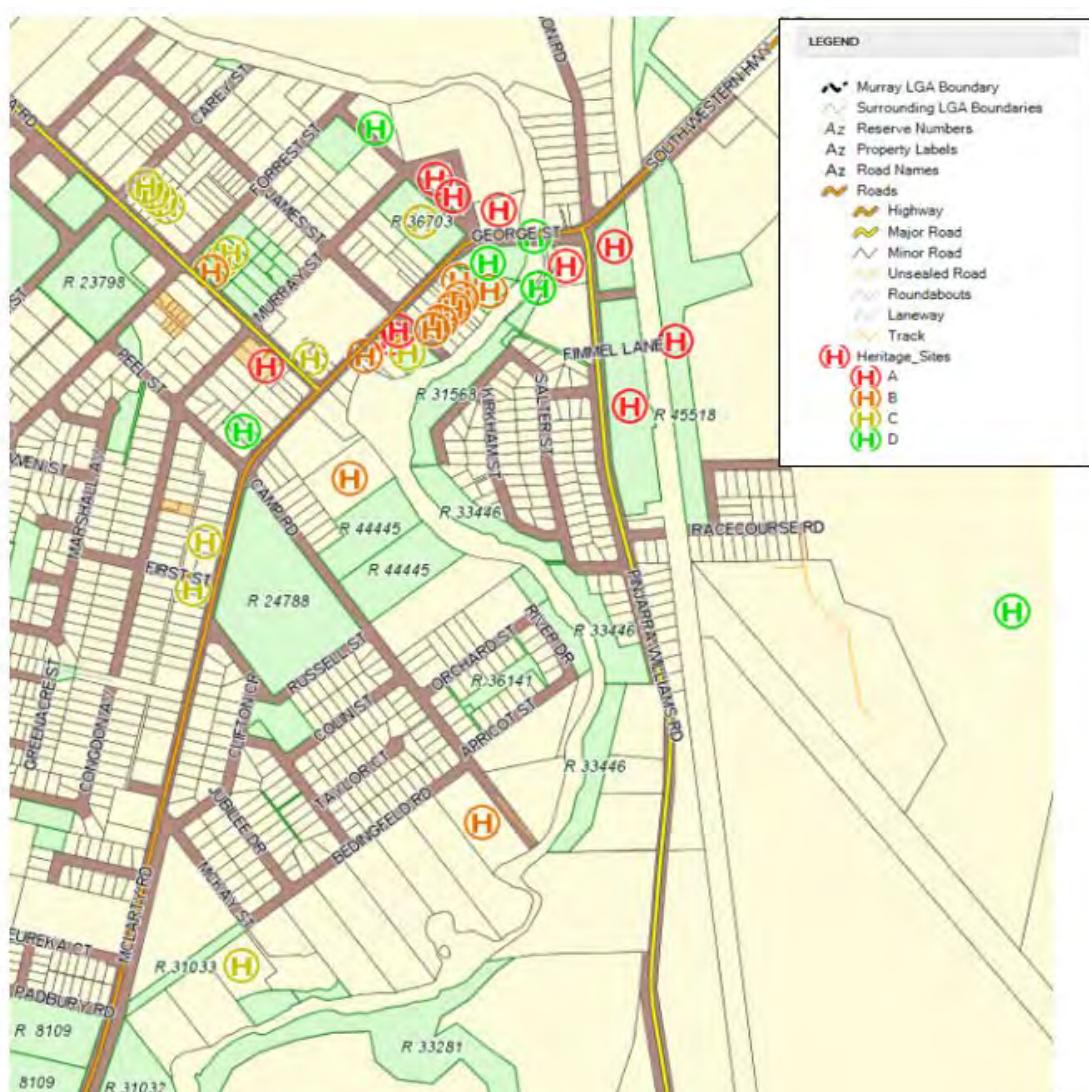


Figure 5 – Heritage Sites (Aboriginal)

Map Layer	Source	Last Updated
Registered Aboriginal Heritage Site	Department of Aboriginal Affairs	Ongoing

Aboriginal Heritage Registered Sites-

- 3681 Waugal – ceremony/mythological
- 3786 Battle of Pinjarra – massacre, meeting place
- 3684 Pinjarra Cemetery – burial site

The activity centre plan ensures the ongoing protection of heritage areas within the town centre, featuring a defined precinct area and associated built form guidelines that encourage development to respect and celebrate the established built form heritage of the town.

4.3 Community Infrastructure

In 2015 Council endorsed the Shire's Community Infrastructure Plan (CIP). The plan outlined a range of community facilities and infrastructure required to meet the needs of a projected future population of 128,846 people.

Based on the more recent Perth and Peel @ 3.5 Million population projections which anticipate a population of up to 164,256 by 2050, it is likely that the facilities identified within the endorsed plan will require some review, which may result in minor increases to that reflected in the adopted CIP. At a regional and district level however, it is not anticipated that the facilities identified within the plan will significantly change.

The community infrastructure requirements identified under the CIP for the Pinjarra Town Centre, over and above those already provided, are summarized below:

- ✓ District Youth Centre
- ✓ District Seniors Centre
- ✓ District Community Health Centre
- ✓ District Library
- ✓ Regional Performing Arts
- ✓ Regional Arts and Cultural Centre
- ✓ Regional Museum
- ✓ District Open Space
- ✓ Neighbourhood Community Centres (2)
- ✓ Local Sporting Complex
- ✓ Local Playspace

4.3.1 Civic Building and Town Square

It is anticipated that the redeveloped Civic building and associated town square will be of a high quality built form design with architectural features that clearly distinguish the site as the primary civic space within the Town Centre. It is anticipated that the buildings and adjacent square will provide for a range of co-located facilities, including a district level library and community centre that caters for youth, seniors and families. The adjacent square will contribute to place activation and encourage the community to interact or relax within a shaded landscaped environment. The outdoor space should accommodate adaptable, multiple uses where the community, town employees, residents and visitors can enjoy a coffee or lunch from adjacent cafés and restaurants, meet with friends, family and colleagues or get involved in the changing events and/or activities on offer. The Civic space should also be a hub of activity in the evening, providing alfresco dining options and valuable outdoor space for social activities and community groups utilizing the adjacent library and meeting rooms.

4.3.2 Murray Leisure Centre

The redeveloped Murray Leisure Centre is proposed to accommodate a range of co-located recreational and community facilities. Along with the aquatic facilities, court and fitness facilities, the centre is expected to also accommodate into the future a district community health centre. As

a key recreational node along the greenspace network, it's anticipated that the redeveloped centre will be designed to encourage direct access from the external path network and with significant architectural features that establishes a presence along the riverfront and enables visibility of activity within and between the centre and the adjacent greenspace link.

4.3.3 Performing Arts & Cultural Centre

It is proposed that a new Performing Arts & Cultural Centre be constructed within the Heritage and Arts Precinct on the eastern side of the Murray River, west of Paterson Rd. The proposed extension of Forrest Street eastwards to Paterson road via a river crossing will enable pedestrian movement between the future performing arts centre and the broader Heritage Precinct. Its location on the Murray River provides a unique opportunity for a high quality, visually commanding facility with architectural features that take advantage of the riverfront views and complement the established heritage character of the Precinct. The centre is proposed to house performance space, seating for up to 1,000 people, rehearsal and studio space, a restaurant / café which contributes to activation of the river's eastern foreshore, art gallery and potentially a museum.



4.3.4 Ross McLarty Oval

The district level Sir Ross McLarty Sporting Complex and Murray Leisure Centre which form part of the ‘Green Space Network’ will continue to serve a district level recreational function for the town centre community and residents in surrounding areas.

4.3.5 Educational Facilities

Educational facilities including a private and a public primary school and a public secondary school currently serve the area. Based on an estimated 11,700 dwellings that may be accommodated within the Town Centre and applying the ratio of schools to dwelling as recommended under the WAPC’s draft *Liveable Neighbourhoods* policy 2015 (i.e 1 primary school to every 1,500 dwellings and 1 high school for every 6,500 – 7,000 dwellings), it is anticipated that an additional 5 primary schools and an additional secondary school will need to be accommodated within the strategy area to meet future growth to 2050.

The draft *Liveable Neighbourhoods* indicates land areas of 4 hectares for public primary schools and 11 hectares for public high schools, however the policy acknowledges that innovative design is encouraged and the size of the site may be varied in certain circumstances. Potential sites for the provision of additional educational facilities are within those areas within the centre plan that are subject to future structure planning and may include land adjacent to the Ross McLarty Oval, where shared use of facilities could potentially be accommodated.

Further investigation into educational requirements, facilities required and potential sites will be subject to future detailed structure planning and liaison with the Department of Education and Training and prospective landowners / developers. The potential sharing and/or co-location of community and educational facilities will need to inform consideration of future requirements.

Importantly, the co-location of facilities and / or shared spaces within the centre plan area will ensure the efficient and highest use of land within the structure plan area and will minimise funding and resource costs. The shift away from single purpose facilities is also likely to be embraced by the community as it enhances opportunities to be exposed to a broader range of activities and services within centralized facilities, and to interact with user groups and individuals that they might not otherwise meet, ultimately contributing towards a more connected and inclusive community.

4.4 Services

4.4.1 Storm Water Management

The centre plan area is already serviced by a hierarchy of existing drainage infrastructure. This existing infrastructure will however require incremental upgrades to service the projected growth and development contemplated under the activity centre plan.

The Shire intends to progress with the longer term planning of an urban drainage strategy for the area. It is anticipated that preparation of the long term drainage strategy will be initiated once clarification is provided by the Department of Planning and Commission as to whether the proposed level of growth and development reflected within the plan is likely to be favourably considered.

It is anticipated that a contribution towards the upgrade of drainage may be included as part of a Development Contribution Plan area and an associated development contribution plan as outlined under Part 1, Clause 7.4.1.

At a site specific level subdivision and development of lots is to be undertaken consistent with the Shire of Murray's *Water Sensitive Urban Design Local Planning Policy* and Policy Manual for the *Drainage of Private Property within Townsites (TE8)*, which in broad terms require the water sensitive urban design principles be considered and addressed, including:

- Connection to the established street drainage network, provided that prior written approval is obtained and all work is to the standard required by the Shire, with any cost of connections and any necessary capital improvements to the drainage network being the responsibility of the applicant.
- Protection to life and property from flooding that would occur in a 100 year Average Recurrence Interval (ARI) flood event
- Rainfall events to minimize runoff as high in the catchment as possible. Use multiple low cost 'in-system' management measures to reduce runoff volumes and peak flows
- Retain and restore existing element of the natural drainage system
- Maximize water use efficiency, reduce potable water demand and maximize the re-use of water harvested
- Minimize pollutant inputs through implementation of appropriate controls.

4.4.2 Reticulated Water

The current water supply to Pinjarra and surrounding areas occurs via a series of pressure reducing valves (PRV's) off the Stirling Trunk Main, as well as PRV's off the South Dandalup trunk mains to the east of Pinjarra. The serviced parts of the Shire between Pinjarra and Furnissdale are divided up into a number of supply 'zones' for operational and planning purposes. These current supply zones include the Pinjarra Gravity zone which is supplied directly from the Stirling Trunk Main on the delivery side of the Ravenswood Pump Station via the Carcoola PRV. The Carcoola PRV supplies Carcoola, Pinjarra, Fairbridge and Alcoa Refinery when required.

The 'near-term' strategy is to remove the Pinjarra water supply zones from direct supply off the Stirling Trunk Main and undertake upgrades or replacements as needed, subject to pressure and flow monitoring and asset condition. The need for reticulated water upgrades will be considered

at subdivision and development stage and are likely to also consider the associated fire flow requirements associated with increased densities.

In the longer term the Corporation have advised the major changes to the system will be the establishment of an ultimate Pinjarra Gravity water supply zone, which will be supplied from future large storage tank(s) proposed to be located on the scarp to the north-east of Pinjarra townsite near Morell Road. This will involve an initial headworks upgrade by around 2022 of a proposed 4 km section of 600 mm diameter water distribution main referred to as the ‘Pinjarra Bypass Main’.

The timing of this project is expected to be reviewed based on operational need, system growth and funding availability. A series of other large distribution mains will be planned and scheduled in future years in conjunction with the installation of the first stage of water storage tanks near Morell Road.

It is relevant to note that the Water Corporation’s long term water source and conveyance planning has been informed by the urban footprint and infill sourced from the draft South Metropolitan Sub-regional Strategy (2010) and the draft South Metropolitan Peel Sub-regional Planning Framework (2015), which identifies most of the growth within the Shire being accommodated within the proposed greenfill urban expansion areas of West Pinjarra and Ravenswood. The Corporation has acknowledged however that planning will be periodically revised if and when planning authorities make changes to the long term urban plan.

4.4.3 Reticulated Sewer

The Pinjarra wastewater treatment plant (WWTP) is situated to the east of the townsite adjacent to the Alcoa ponds. The WWTP is designed to treat incoming wastewater to a secondary standard prior to discharge. Wastewater arriving at the Pinjarra WWTP passes through a series of three facultative treatment lagoons and the treated wastewater is then transferred via a pump station to the Alcoa process runoff pond/surge pond.

Current nominal design and DER licensed capacity of the Pinjarra WWTP is 1,840KL/day. Based on current average flows and assumed growth, the WWTP is approaching capacity. The Water Corporation is currently reviewing planning for the upgrading of the WWTP, including possible options for changes in treatment technology at the plant.

The Corporation has advised that developed (and planned) urban areas across the Shire are divided into a number of Sewer Districts (SD) for planning and operational purposes. Wastewater arising from the Pinjarra SD is treated at the Pinjarra WWTP. Wastewater from the Barragup and Yunderup SDs is currently transferred by pumping to the north-west via the Mandurah sewer systems and onwards to the Gordon Rd WWTP in North Mandurah for treatment and disposal. The long term development of land in the future West Pinjarra and West Murray SD, together with the Yunderup and Barragup SDs, will ultimately be pumped northwards via large transfer pump stations and pressure main/s alongside the Forrest Highway to the Gordon Road WWTP.

The Corporation owns and operates a WWPS within the *Pinjarra Town Centre Activity Centre Plan* (PTCACP) area on Reserve 37191 (Lot 318 Forrest St, Pinjarra). The WWPS site is large and contains an existing Type 40 WWPS and a ground emergency overflow storage tank.

The Corporation's long term wastewater planning for the Pinjarra Sewer District indicates that the Forrest Street WWPS will ultimately need to be rebuilt and upgraded to a Type 180 transfer station in order to cope with the growth in flows across the townsite. The ultimate WWPS will be built within the site to the east of the current WWPS. An exact location and design for the ultimate WWPS has not yet been prepared. The ultimate WWPS will require an odour buffer of at least 30m radius. The Corporation has advised that the Shire that every attempt will be made to contain the buffer within the boundaries of the reserve.

As is the case with reticulated water planning, the Water Corporation's long term wastewater treatment source and conveyance planning has been informed by the urban footprint and infill sourced from the draft South Metropolitan Sub-regional Strategy (2010) and the draft South Metropolitan Peel Sub-regional Planning Framework (2015), which identifies most of the growth within the Shire being accommodated within the proposed greenfill urban expansion areas of West Pinjarra and Ravenswood. It is envisaged that the same principle would apply to reticulated sewer planning in that the Corporation will periodically revise the waste water infrastructure requirements for the PTCACP area, should it be identified to accommodate greater growth than contemplated under the Corporation's long term wastewater strategies.

4.4.4 Power

Electricity is distributed to the sub-region by Western Power through a network of 132 kV and 330 kV bulk transmission power lines that connect to the local distribution network via transition terminals and sub-stations. Whilst new 330kV terminals are planned to be located at Ravenswood (east of the urban expansion areas), this will have minimal impact on the strategy area.

Whilst preliminary advice is yet to be received from Western Power in relation to any longer term planning for the Shire in response to the projected growth anticipated, the service provider will be invited to provide comment on the proposed PTCACP as part of the formal referral process.

5 PLANNING CONTEXT

5.1 State & Regional

5.1.1 Directions 2031 and Beyond

Directions 2031 is a high level spatial framework and strategic plan that establishes a vision for future growth of the metropolitan Perth and Peel region. The document provides a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate a compact and environmentally sustainable city with a population of 3.5 million. This growth is to be achieved through an increased focus on integrated activity centres, movement and green networks. The ‘connected city’ model relies heavily on consolidation of activity and growth and significantly greater rates of infill development within established areas.

A fundamental outcome underpins the strategy which is the delivery of a liveable, prosperous, accessible, sustainable and responsible city.

The objectives and key principles established within the Activity Centre Plan are consistent with the key objectives and outcomes sought under Directions 2031.

5.1.2 Perth and Peel @3.5 Million (draft)

In 2015 the WAPC released the draft *Perth and Peel @ 3.5 million* report and an associated Sub-Regional plan that aims to ensure the fundamental outcomes sought within Directions 2031 spatial framework are achieved. The draft sub-regional document highlights the strong growth anticipated for the south-metropolitan Peel sub-region (encompassing the City of Armadale, Gosnells, Cockburn, Rockingham, Mandurah and the Shires of Serpentine-Jarrahdale, Kwinana, Murray and Waroona), which is forecast to more than double from 523,400 people in 2011 to 1.26 million by 2050. The draft document also projects that a significant proportion of this growth is to be accommodated within the Shire of Murray with a projected ten-fold increase from the current Shire population to an estimated 164,256 people.

Although Pinjarra is currently identified as a ‘Secondary’ activity centre within the Peel Region under the endorsed *State Planning Policy 4.2 – Activity Centres for Perth and Peel*, the draft sub-regional document proposes the downgrading of Pinjarra from a ‘Secondary’ to a ‘District’ activity centre and elevates Ravenswood as the primary activity centre within the Shire.

As Pinjarra is an established activity centre servicing the region with existing infrastructure, services and community facilities and has significant potential to provide for infill development, the Shire is of the view that the town centre should accommodate a significant portion of the future growth anticipated in the Shire, and as such, its role as a ‘Secondary’ centre should be maintained and strengthened under the finalized sub-regional framework.

The Centre Plan area encompasses land already developed as either ‘Urban’ or identified as ‘Urban Deferred’ under the draft sub-regional plan. As reflected within the Activity Centre Plan prepared, through infill development and urbanization of existing greenfill sites within 800 m of the

town centre, Pinjarra has the capacity to accommodate approximately 11,700 dwellings and a local population of between 24,570 to 26,910 people within walking or cycling distance of the centre. The creation of approximately 9,572 additional dwellings (as contemplated under the Activity Centre Plan) is well in excess of the 1,075 infill target set for the Shire (in its entirety) under the draft sub-regional document. Planning for significantly higher levels of infill residential development where it is capable of being achieved is consistent with the overarching sustainable development principles outlined under both the endorsed and strategic planning framework.

It is also relevant to acknowledge that irrespective of the status of Pinjarra as either a 'Secondary' or 'District' centre under the finalized sub-regional framework, the town will need to accommodate a significant portion of future growth. The proposed Activity Centre Plan will ensure an appropriate framework is in place to achieve this outcome.

In addition to the above and to provide a further background context, it is relevant to acknowledge that at its Ordinary meeting of 27 August 2015, Council endorsed the Shire's submission on draft *Perth and Peel @ 3.5 m* and sub-regional spatial plan. Amongst a suite of recommendations made in the submission, the following are considered particularly relevant to the PTCACP area:

- the need to review population projections and urban infill dwelling targets with a greater focus being placed on consolidating existing urban areas and recognizing that any new urban expansion growth areas should be structured to support the existing centre at Pinjarra;
- Elevation of the Ravenswood 'Riverfront' centre to a Secondary Centre status is considered an economic threat to both Pinjarra and Mandurah and would result in all three centres underperforming in their economic role.
- Ravenswood should be retained as a District Centre, with Pinjarra remaining the Secondary Centre for the region (consistent with designations established under SPP4.2 and Directions 2031);
- Pinjarra services a wider rural and agricultural hinterland (similar to Midland and Armadale) and its role as a Secondary Centre to Mandurah should be strengthened, not weakened;
- Department of Transport and Public Transport Authority be requested to explore the potential for an extension of a light rail transit system from the Mandurah Train Station to connect with Pinjarra (primarily via Pinjarra Rd) with station locations including Barragup, Ravenswood and Pinjarra Town Centre within the next Transport Plan review for Perth and Peel @ 3.5 million;
- The possible extension of a heavy rail service connecting Perth to Bunbury along the Kwinana Freeway / Forrest Highway with indicative stations at Ravenswood and West Pinjarra would do little more than enable high speed commuter travel to the Perth CBD, bypassing an existing secondary centre to the Peel Region;
- The location and size of the proposed Open Space Sport area at Blythewood (49 ha) adjacent to the Pinjarra Park Trotting Club is questioned given its isolation to urban growth areas and additional active recreation open space is already earmarked within the Sir Ross McLarty Sporting complex Master Plan;
- Recognition is required of the importance of the riverine and estuary foreshores for managed pedestrian access, nature trails and cycling networks within a broader green space network and how this can be integrated into the Peel Regional Park system;
- There is a need for clear understanding of shared objectives across a range of government agencies for commitments towards collectively planning and facilitating jobs, housing and investment in infrastructure and services;

- Establishment of a Sub-Regional Planning Working Group should be considered to assist in reviewing the Framework plans in consultation with Department of Planning and other relevant Government agencies to help achieve better outcomes in the final Structure Plan;
- Integration of outcomes from the Infrastructure Priorities Plan for Perth and Peel being undertaken by AEC Group Consultants is considered essential to highlight the key infrastructure and servicing needs for the future population growth and assist in formulation of an appropriate infrastructure sequencing strategy;
- The identification of alternate funding options and new governance models for the implementation of the plans including delivery of all the infrastructure is considered a critical element of the plans;
- Higher recognition should be given to potential for localized alternate water supply servicing arrangements, water recycling/managed aquifer recharge schemes and innovative renewable energy / waste supply provision at the sub-regional planning level; and
- An annual reporting mechanism that outlines progress in implementation of the sub regional structure plan is needed to monitor issues which arise, identify barriers to achieving initiatives and possible solutions.

The submission also encompassed a preferred, alternate urban form which is currently the subject of consideration by the Western Australian Planning Commission.

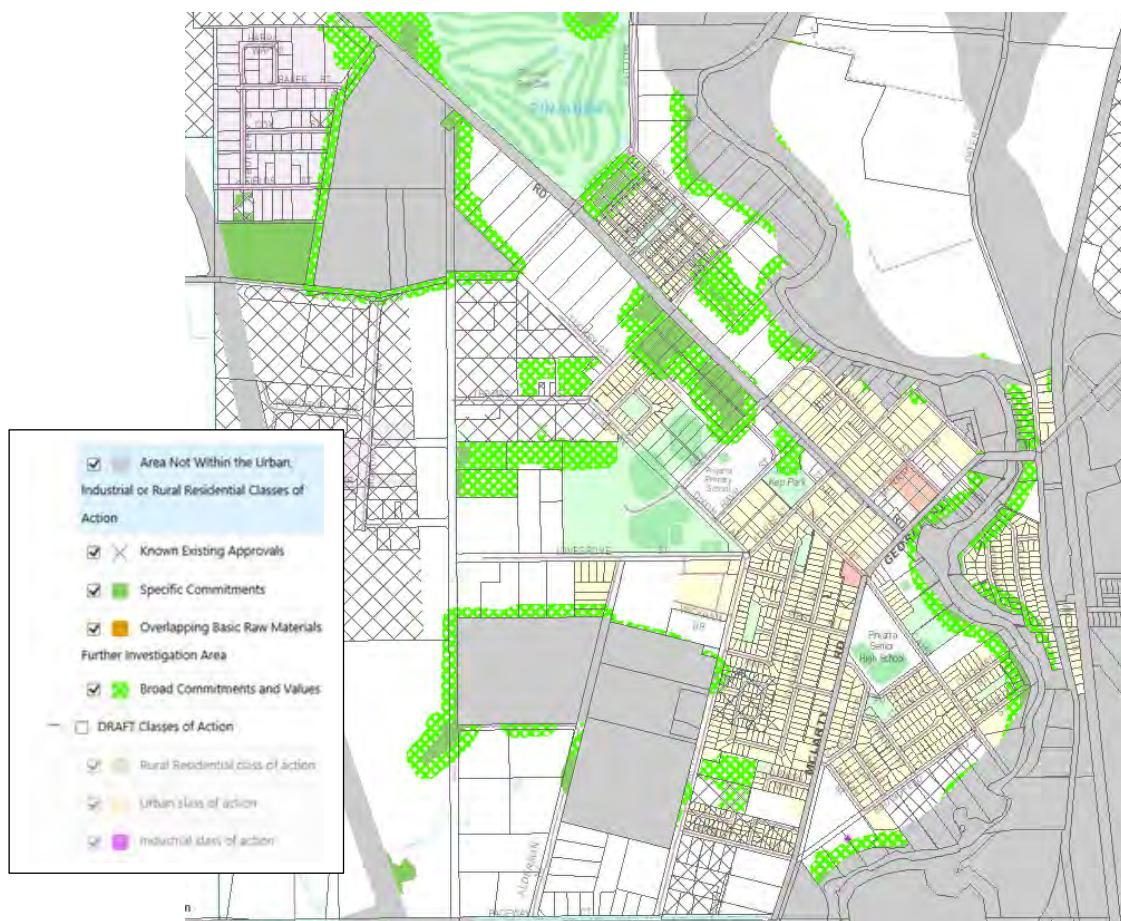
5.1.3 Perth and Peel Green Growth Plan for 3.5 million

The draft Strategic Conservation Plan describes six ‘classes of action’. Relevant to the study area is the ‘Urban Development’ class of action. The draft maps depict three categories of draft commitments and values. As indicated on Figure 1 (below) the study includes areas identified for ‘broad commitments and values’ and ‘specific commitments’.

The draft document does not outline the level of protection to be given to areas identified as having ‘broad’ and ‘specific’ environmental values and commitments. It is envisaged however that both the broad and specific commitments will involve retention of significant environmental values.

Importantly, the majority of areas identified within the figure above will remain protected through accommodation within greenspace linkages reflected under the Activity Centre Plan. There are however some exceptions, including the land parcel on the western side of Pinjarra Road bounded by Wilson Road (to the north) and Roe Street (to the south).

As addressed under Part 2B, Section 3.3, whilst the wetland classification of these lots is acknowledged, it is relevant to consider whether the retention of the environmental features on site outweigh the environmental benefits of a portion of the land parcel being developed for high density residential development which would contribute towards the ultimate long term sustainability of a future high frequency public transport network between Pinjarra and Mandurah. Imperative to a sustainable public transport network is reaching a critical density of users within walking distance of transit stops. Situated on Pinjarra Road (which is proposed to form part of a future high frequency route), if retained the wetland area and associated buffer will constrain the opportunities to maximize residential development potential along the proposed high frequency public transit route.

Figure 1 – Excerpt from Green Growth Plan (Pinjarra Town Centre)

Without the delivery of a sustainable public transport network, the Pinjarra Town Centre and its residents will continue to rely on an increasing number of private vehicles to access the centre, which ultimately will be environmentally detrimental to achieving a ‘green’ and sustainable Town Centre. Given the aforementioned context, the centre plan contemplates the land parcel accommodating some high residential development whilst also maintaining portions of the wetland as part of the broader greenspace / pedestrian network. It is intended that further investigations be undertaken and discussion initiated with the Department of Parks and Wildlife (the custodians of the wetland mapping and relevant classifications) to clarify the value of the wetland and whether there is any potential for the reclassification of the CCW (or portions of the CCW area) which would enable high quality portions of the wetland to be reserved as part of the proposed broader greenspace / pedestrian network.

It is also relevant to note that vegetation on Lot 65 (No. 33 Wilson Road) is not identified for retention as part of an open space / greenspace link under the centre plan. Given the importance of consolidating residential development opportunities within walking distance of the high frequency public transport route proposed along Pinjarra Road, it is considered that from a sustainable development / land use point of view the higher and better use of the land would be for residential development purposes. It is therefore reflected as such on the Centre Plan and will be subject to further discussion with relevant agencies.

5.1.4 Peel and Peel Transport Plan

Transport @ 3.5 million is modelled on the Western Australian Planning Commission's draft Perth and Peel @ 3.5 Million planning frameworks and as such is focused on urban growth areas and projected populations reflected within the draft planning framework. As was outlined in the Shire's submission on the plan, the document fails to recognize the significant urban and industrial growth envisaged in the Shire under the draft sub-regional planning framework and the critical need to ensure public transport opportunities are maximized, including a longer term rapid transit connection between Pinjarra, Mandurah, North Dandalup, Byford and Armadale.

A critical and fundamental component of a sustainable activity centre is a functional and efficient public transport system. State Planning Policy acknowledges that within existing developed areas there are clear opportunities to intensify uses to encourage public transport use and furthermore, as the public transport system is further refined and extended, there will be emerging opportunities for significant new public investments in transit infrastructure. A future Pinjarra Town Centre population in excess of 24,000 people residing within walking distance of public transport is planned under the Activity Centre Plan and achievable. In addition to residents, it is anticipated that with maturity, Pinjarra will provide opportunities for more than 6,400 jobs.

Key objectives of the Transport Plan are to improve connectivity with activity centres and provide a vibrant, and connected transport network which integrates with land use. Implementation of these outcomes necessitates the need for a high frequency public transport network servicing Pinjarra and its residents. Delivery of this critical infrastructure is consistent with sustainable land use and transport planning and fundamental to achievement of the orderly and proper planning of an established Activity Centre with significant growth potential.

5.1.5 Peel Regional Investment Blueprint

The Blueprint provides a strategic planning framework for delivery of a shared vision for the Peel Region. A key focus of the document is economic development, recognizing that it is fundamental to a healthy, balanced and sustainable region. The document outlines a range of transformational strategies that will enhance the region's economic contribution to the State's economy, including:

- broadening and diversifying the region's business and commercial sectors;
- enhancement of the agriculture and food sectors through innovation, investment and research;
- revitalization and expansion of the Peel's regional city, towns and communities;
- consolidation and enhancement of existing tourism attractions and establishment of new visitor experiences; and the
- establishment of a major industrial park and agriculture and food production zone to attract mid-tier to large companies to the region.

The Activity Centre Plan and associated Revitalisation Strategy will support and strengthen economic development and investment within Pinjarra, improve employment, tourism and education opportunities and provide a diversity of housing types and leisure/entertainment

options. These outcomes will also ensure the delivery of a Town Centre that is well positioned to service the developing Peel Business Park and Peel Food Zone. It is also anticipated that the Activity Centre Plan and associated Strategy will inform the economic planning undertaken as part of the City of Mandurah and Shire of Murray Regional Centres Development Plan (ie. the Mandurah-Murray Growth Plan).

5.1.6 State Planning Policy 4.2 – Activity Centres for Perth and Peel (SPP4.2)

The primary purpose of the policy is to specify broad planning requirements for the planning and development of new activity centres and the redevelopment and renewal of existing centres in Perth and Peel. The Policy is primarily concerned with the distribution, function, broad land use and urban design criteria of activity centres and with the co-ordination of land use and infrastructure planning.

SPP4.2 establishes a hierarchy of centres across the Peel Region and identifies Mandurah as the ‘Strategic Metropolitan Centre’, supported by Pinjarra as the ‘Secondary Centre’ and Ravenswood (Riverfront) as a ‘District’ Centre.

SPP4.2 also acknowledges circumstances in which mixed business (ie bulky goods, large scale retail and service commercial related uses) may be accommodated within or adjacent to an activity centre. Given, that these uses are heavily reliant on exposure to vehicle traffic and the products sold often necessitate reliance on vehicles and the need for expansive parking, mixed business uses within the centre plan area are considered inconsistent with the objectives and guiding principles of the Strategy and associated activity centre plan. It is anticipated that as part of the preparation of the Shire’s Local Planning Strategy and Scheme review that suitable sites for mixed business will be identified outside of the centre plan area, which may include (but not limited to) sites on Pinjarra Road that are ideally positioned to benefit from high volumes of vehicle traffic and with access to the current and future regional road network.

5.1.7 State Planning Policy 3.1 – Residential Design Codes (SPP3.1)

The Residential Design Codes provide controls for residential design and development in Western Australia. Whilst the document contains Precinct Guidelines which outline residential development requirements within defined Precincts, in circumstances where the guidelines are silent, the performance criteria and relevant Residential Code provisions will continue to apply.

5.1.8 State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP3.7)

Portions of the strategy area are located within a Bushfire Prone Area. A portion of this bushfire prone area contains regionally significant vegetation that contributes to the environmental value and natural amenity of the town. The need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values is therefore a key consideration for planning and development on affected sites within the centre plan area.

To understand the bushfire risk implications on the developing town centre, a Bushfire Management Plan (Hazard Level Assessment) has been undertaken. A full copy of the assessment is provided in Appendix 2.

As addressed in Part 2B, Section 3.5 the assessment highlighted that the subject area has significant areas of bushland with an extreme bushfire hazard level, however that it is expected that this hazard will be reduced as development occurs in the future. The assessment also acknowledges that the Greenspace Network can be designed and managed to reduce bushfire risk.

The key findings of the assessment were that there is no fatal flaw which would prevent development within the study area as contemplated under the Activity Centre Plan / Strategy.

5.1.9 EPA's Guidance for the Assessment of Environmental Factors

The Guidance Statement provides advice on the use of generic separation distances (buffers) between industrial and sensitive land uses to avoid conflicts between incompatible land uses. Furthermore, it advises that wherever practicable it is expected that adverse environmental impacts not extend beyond the boundary of a particular industrial site and in circumstances where this is not possible, adverse environmental impacts should not extend beyond the boundaries of a buffer area. Furthermore, that new sensitive land uses are not appropriate in the buffer. The statement recommends that the protection of sensitive land uses from industrial emissions is assisted by the identification of suitable buffers at the strategic and structure planning stages of the land use planning process.

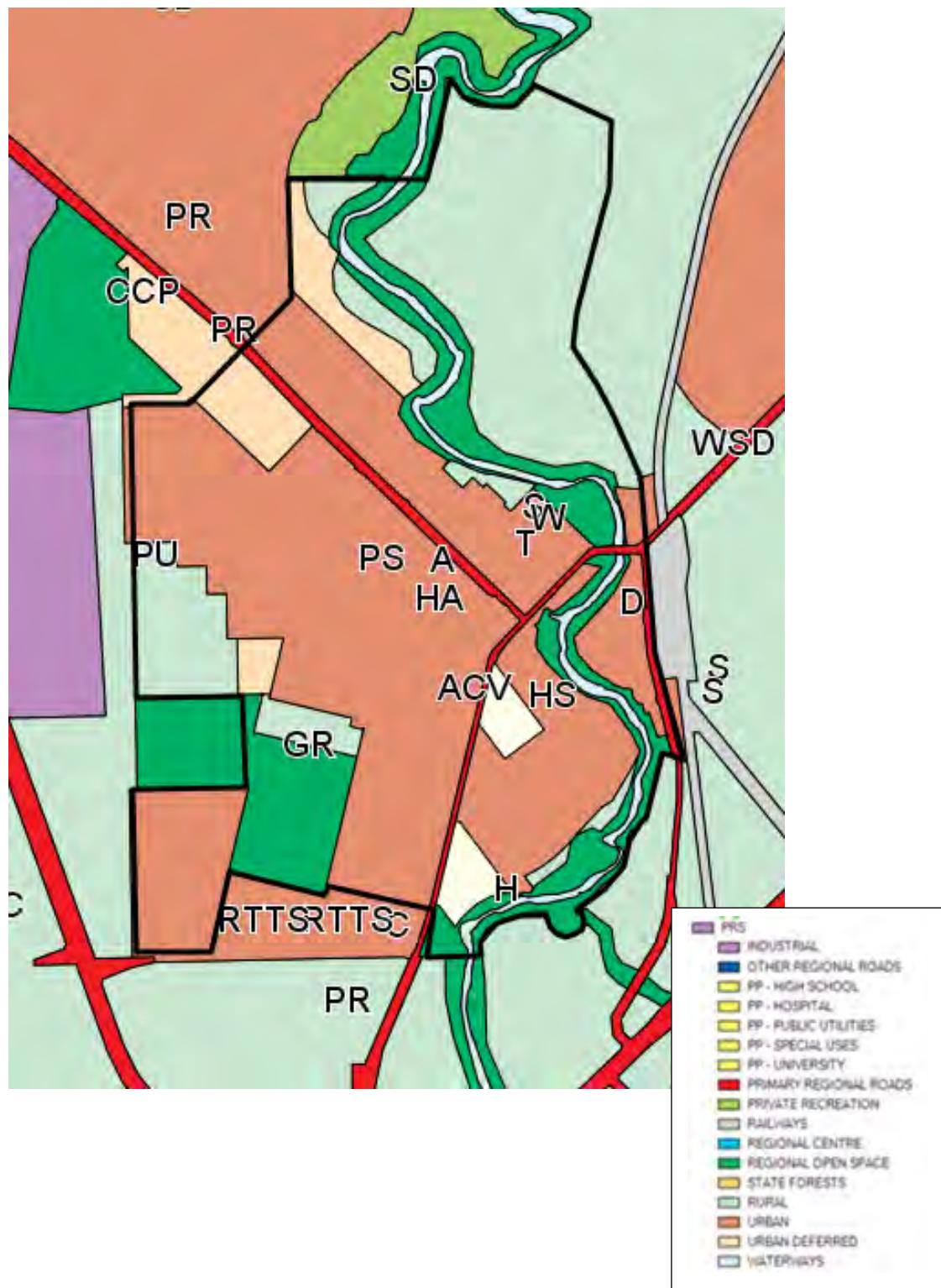
The Water Corporation owns and operates a Waste Water Pump Station (WWPS) within the *Pinjarra Town Centre Activity Centre Plan* (PTCACP) area on Reserve 37191 (Lot 318 Forrest St, Pinjarra). The Corporation's long term wastewater planning for the Pinjarra Sewer District indicates that the Forrest Street WWPS will ultimately need to be rebuilt and upgraded to a transfer station in order to cope with the growth in flows across the townsite. It is intended that the ultimate WWPS will be built within the site to the east of the current WWPS. An exact location and design for the station has yet not been prepared, however the Corporation have advised that that the ultimate WWPS will require an odour buffer of a 30m radius and that every attempt will be made to contain the buffer within the boundaries of the reserve.

5.1.10 Peel Region Scheme

Figure 1 reflects the current range of Peel Region Scheme (PRS) zonings and reserves within the centre plan area.

A range of amendments to the Peel Region Scheme will be required to formalize the implementation of the activity centre plan. The proposed rezonings are defined within Part 1 of the Activity Centre Plan.

Figure 2 – PRS Zonings & Reserves

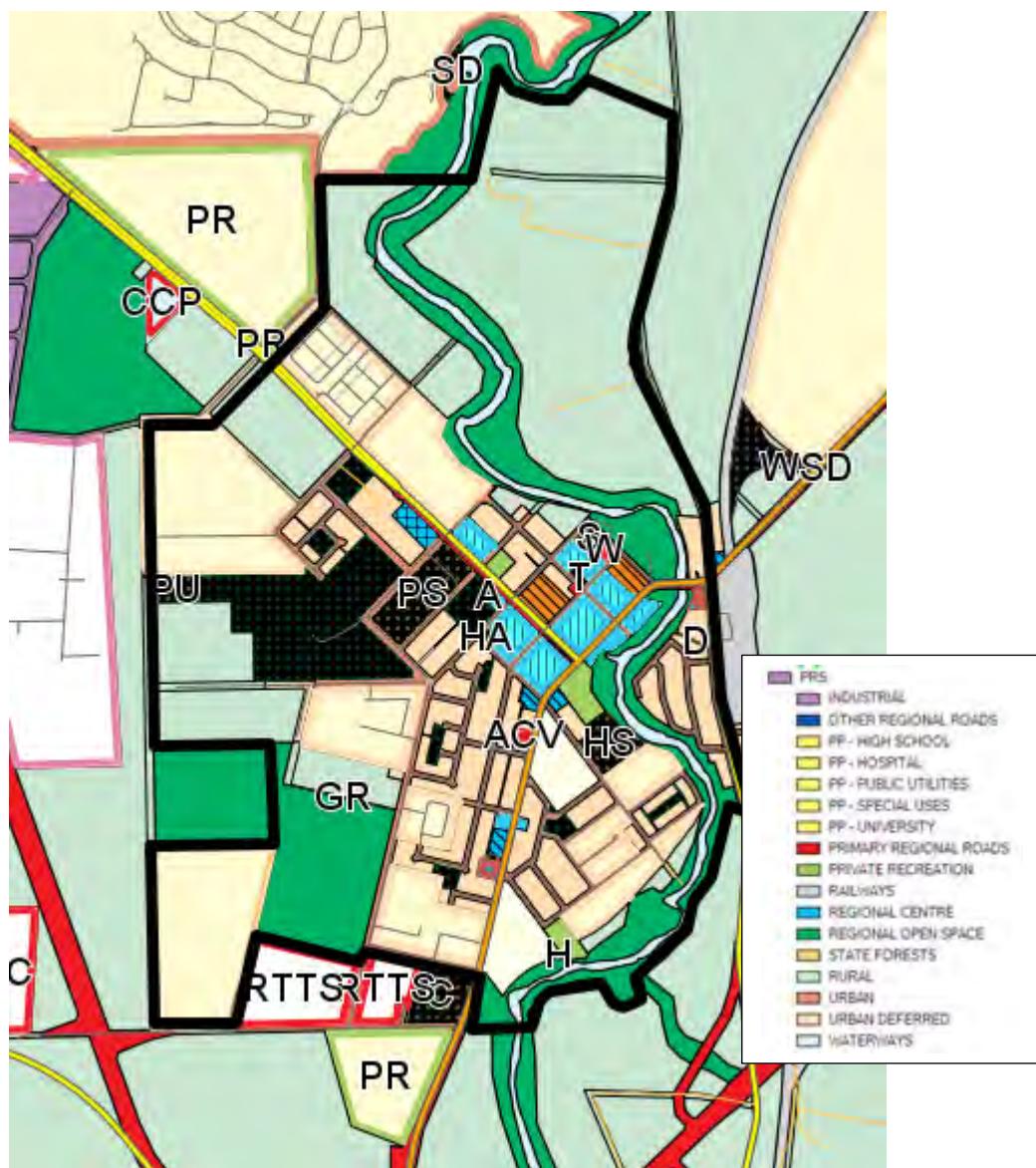


5.2 Local

5.2.1 Shire of Murray Town Planning Scheme 4 (TPS4)

Figure 3 reflects the current zonings and reserves within the strategy area under the Shire of Murray Town Planning Scheme No 4 (TPS4).

Figure 3 – TPS4 Zonings and Reserves



The Shire of Murray's Town Planning Scheme No. 4 (TPS4) is approximately twenty years old, and while having continued to inform land use and development of the Pinjarra Town Centre,

significant anticipated growth and economic pressures in the Murray Shire have necessitated the need for updated scheme provisions that facilitate delivery of a sustainable town centre. A range of local scheme amendments or the preparation of an updated local scheme will formalize the activity centre plan within the statutory framework. These proposed rezonings are defined within Part 1 of the centre plan.

5.2.2 Town Centre Local Planning Policy (LPP)

Council endorsed the Town Centre LPP in February of 2016. The policy relates to land within the centre plan area zoned 'Town Centre' under TPS4 and has been prepared as an interim guide for land use and development within the zone. The policy outlines specific objectives and preferred land uses and built form, with a key intent being to encourage a compact activity centre and the consolidation of retail and commercial development within the 'Core Precinct' to facilitate the level of intensity required for a sustainable Town Centre. The Policy further acknowledges that uses that have the potential to dilute activity within the Core Precinct or encourage high volumes of traffic are to be discouraged.

The LPP will continue to guide land use and development within the Town Centre zone until such time as the activity centre plan has been approved by the Commission, at which time the policy will be revoked.

6 LONG TERM GROWTH PLAN

The Shire of Murray and Pinjarra are expected to experience significant growth over the next 30 years that requires long term strategic planning to ensure the range of competing interests are adequately balanced and the necessary infrastructure and services are provided for the delivery of a vibrant, liveable, sustainable and prosperous Town Centre.

It is intended that future revisions and iterations of the activity centre plan and the preparation of the Shire's Local Planning Strategy be directly informed by the long term growth plan located in Figure 1. A brief summary of the key areas identified to accommodate future growth is provided below.

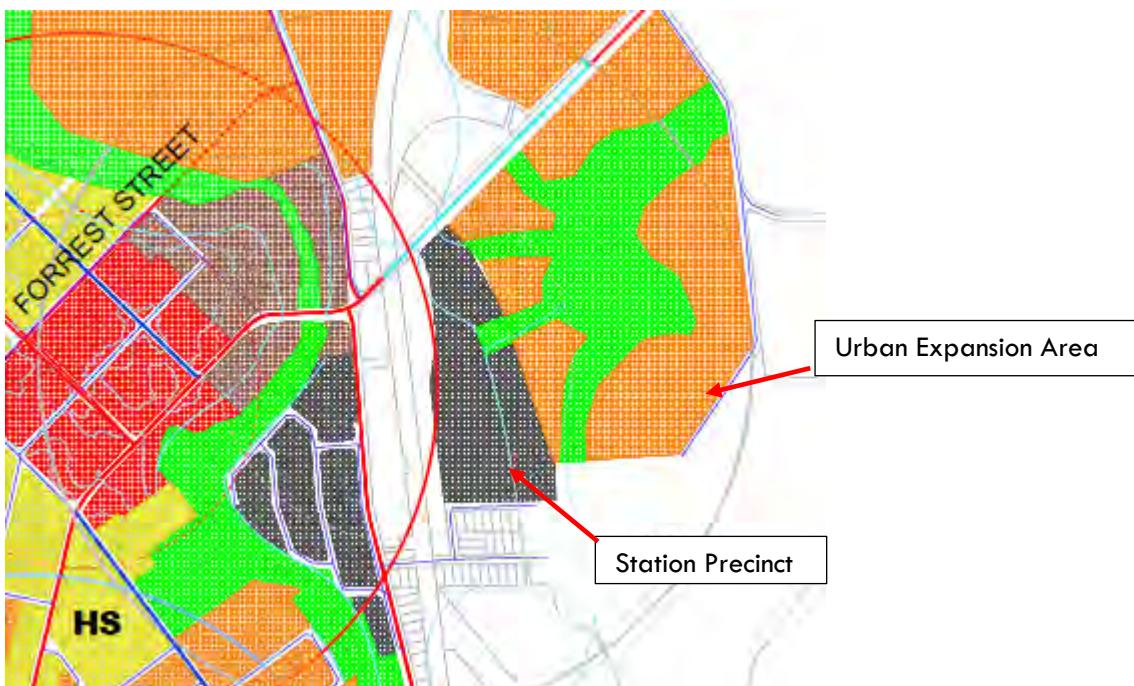
6.1 Future Train Station Precinct

A critical and fundamental component of a sustainable activity centre is a functional and efficient public transport system. State Planning Policy acknowledges that within existing developed areas there are clear opportunities to intensify uses to encourage public transport use and furthermore, as the public transport system is further refined and extended, that there will be emerging opportunities for significant new public investments in transit infrastructure.

The spatial area of the centre plan encompasses approximately 6 square kilometres of land within walking distance of the Core Precinct. A significant omission from the centre plan area however is the Pinjarra Train Station, situated only 470 metres from the 'Core Precinct'. Whilst the station is not currently part of the metropolitan commuter rail network, it would be considered contrary to integrated land use, transport and orderly and proper planning to not identify the established Pinjarra Station as a longer term transit oriented development precinct within the spatial plan for the Town Centre. As the southern-most 'Secondary Centre' within the Perth and Peel metropolitan area servicing an anticipated population of over 180,000 people* by 2050, consolidation of development and activity around a commuter station within walking distance of the town's primary commercial, retail and employment centre, will be a critical necessity and 'game changer' for Pinjarra. (*projected populations for Shires of Murray and Waroona)

Land south-east of George Street and the Murray River (accessed from the town centre via the existing pedestrian bridge) is currently designated under the centre plan as one of the 'Residential' Precincts. It is anticipated however that in the longer term that this established residential area form part of the future Station Precinct.

As reflected below and on Figure 1, there is potential for a future residential expansion area to the east of the Station Precinct which has the capacity to accommodate in the vicinity of 1,200 dwellings. The floodway area than runs through the site has the potential to form a distinct urban form feature of the expansion area and is an ideal setting for a 'botanical park' which links the residential expansion area with the Station Precinct and integrates with the broader green space network. A linear botanical park as contemplated, also has the potential to provide important pedestrian and recreational links for residents commuting between home and other key destinations within the Town Centre.



The aforementioned acknowledged, it is relevant to note that the timing of the Station Precinct will be dependent upon the lifespan of the ALCOA residue management facility and the resultant extinguishing of the associated buffer area.

6.2 Residential Expansion Areas

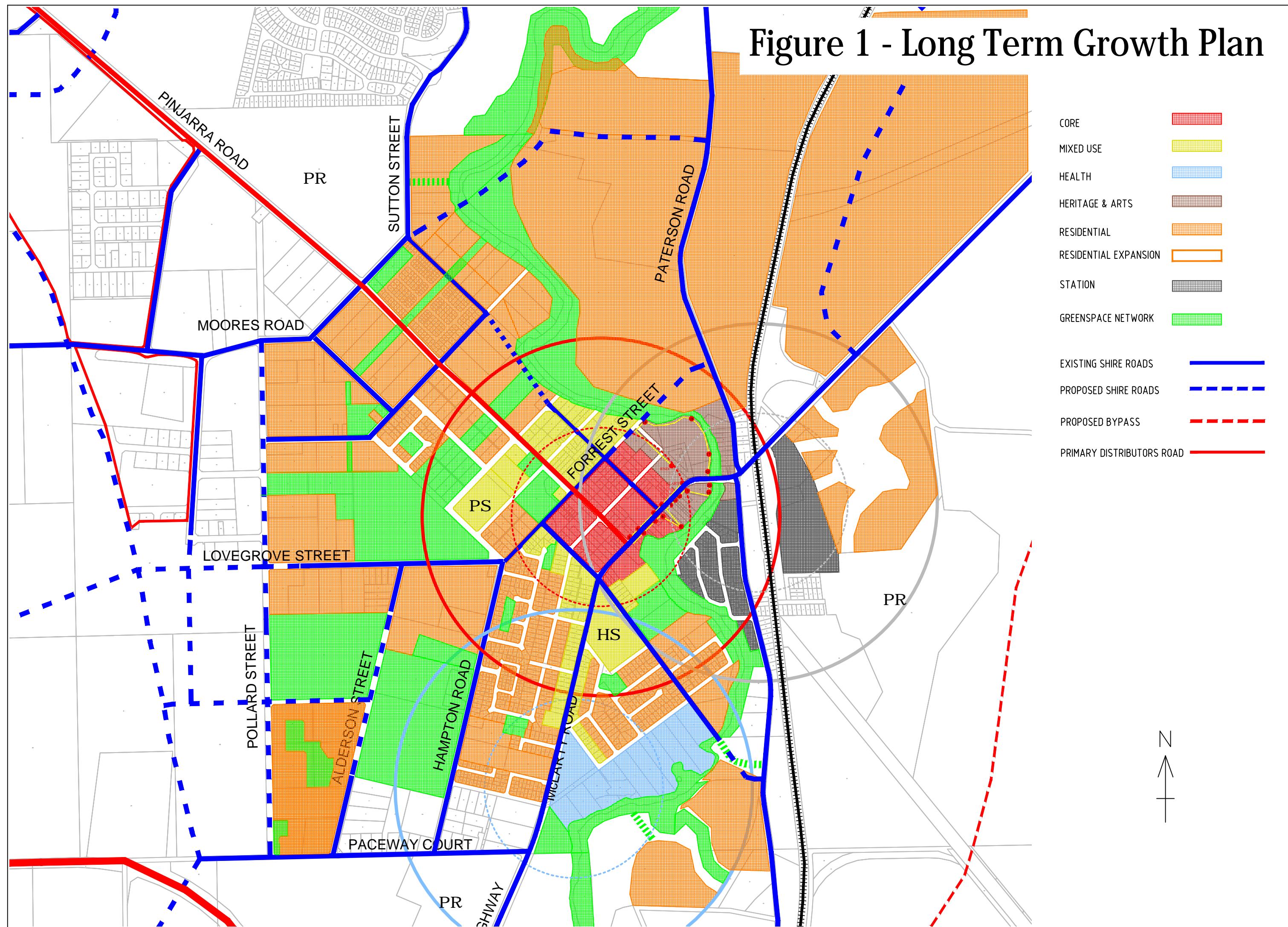
In addition to the expansion area identified east of the Pinjarra Train Station, there remains capacity to accommodate further long term residential development within walking distance of key activity nodes within the centre plan area. These potential residential expansion areas are:

- north and north-east of the 'Residential Precinct' located on the eastern side of the Murray River and south-west of existing development in North Pinjarra; and
- south-east of the Murray River and adjacent to the 'Health Precinct'.

The expansion area on the eastern side of the Murray River ranges from approximately between 1.1 and 2.3 km from the 'Core', 'Mixed Use', 'Heritage and Arts' and future 'Station Precinct' and with the growth anticipated, is likely to be serviced by a high frequency public transport network that commutes between Pinjarra, Ravenswood, Mandurah and the future Nambeelup Industrial Area (a future key employment centre in the region). The expansion area has the potential to be linked to the Town Centre via a local road network and a new pedestrian and vehicle crossing which extends Forrest Street north-east across the river to intersect with Paterson Road. Direct access between the Town Centre, the proposed expansion area and North Pinjarra could be accommodated via new road linkages that minimize the need for all vehicles to commute by South-West Highway.

A further residential expansion area is located adjacent to the Health Precinct, on the south-eastern side of the Murray River. The proposed residential area would be directly accessible to the hospital and associated services via a river crossing, the location of which would need to be determined subsequent to Aboriginal and European heritage investigations. The expansion area is ideally situated to the regional road network, including Pinjarra-Williams Road, the future Pinjarra Bypass Road and the proposed Station Precinct, approximately 1.2 km to 2.2 km from the site. Bushfire management and floodway considerations will however provide some level of constraint to the developable area.

Figure 1 - Long Term Growth Plan



APPENDICES

Commercial Activity in Pinjarra Town Centre

Hazard Level Assessment



The Scale of Commercial Activity in Pinjarra Town Centre

Shire of Murray
August 2016



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1. Introduction

This short report is prepared to inform the planning of the Pinjarra Town Centre. It is an overview intended to provide order-of-magnitude scale for the further development the town. It is envisaged that this will be further refined over time as more detail becomes available. It does not include analysis of industrial uses or estates in the Shire.

2. Context

State Planning Policy 4.2 (SPP 4.2) defines the centre hierarchy in Peel and their respective roles. This has been in place for some time. This gives the hierarchy as:

- Strategic Metropolitan Centre: Mandurah
- Secondary Centre: Pinjarra
- District Centre: Ravenswood (Riverfront) – (designated as emerging centre)

The draft *Perth and Peel @ 3.5 Million* suite of documents designates Ravenswood as a secondary centre with a specialised centre adjacent and gives Pinjarra district status.

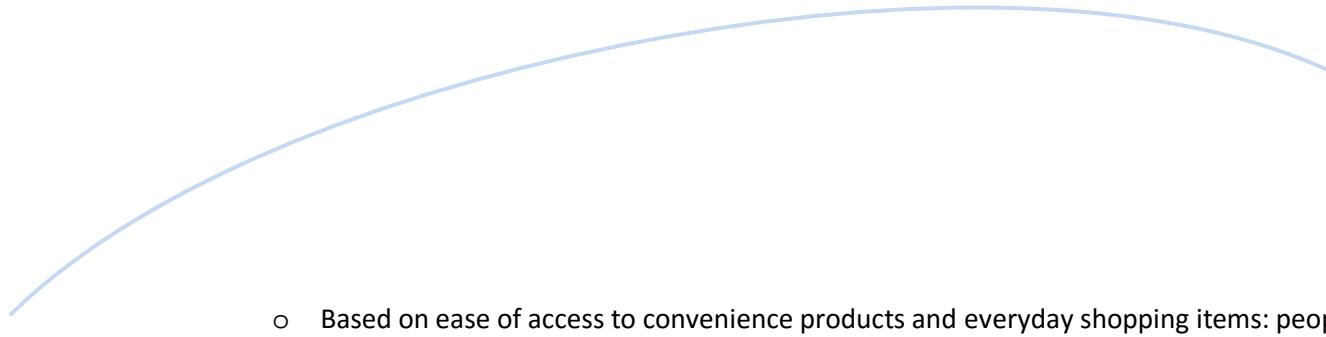
This report and its analysis assumes the status quo position as contained in SPP 4.2, with Pinjarra remaining the secondary centre for the region. There are several reasons for this:

- Pinjarra is already a substantial centre with a mix of commercial, retail, government administration, community and tourist activities and has continuing investment and expansion.
- It services a wide local and regional catchment.
- It is at the intersection of main transport routes and this will be strengthened with the extension of the Tonkin Highway.
- It is consistent with the Shire's position.
- It is likely to continue as the dominant centre in the sub-region and the Secondary centre for Peel over the long term.

3. Primary and Secondary Trade Areas

The trade area concept is generally applied to retail analysis. The extent of the total trade area is the farthest distance consumers are willing to travel to purchase retail goods and services. The size of a retail trade area depends on the variety of goods and services offered in the community and its proximity to competing retail markets. Different business types have different trade areas; people will travel from greater distances to purchase certain goods and services. Individual stores may have their own unique trade area and these areas can often be generalized into:

- Convenience Shopping Trade Areas:

- 
- Based on ease of access to convenience products and everyday shopping items: people will obtain such products as groceries and household items based on travel distance or travel time.
 - Comparison Shopping Trade Areas:
 - Based on price, selection, quality and style. People are more likely to compare such goods as appliances, furniture, etc., as well as travel longer distances for their purchase.

Factors affecting a trade area include:

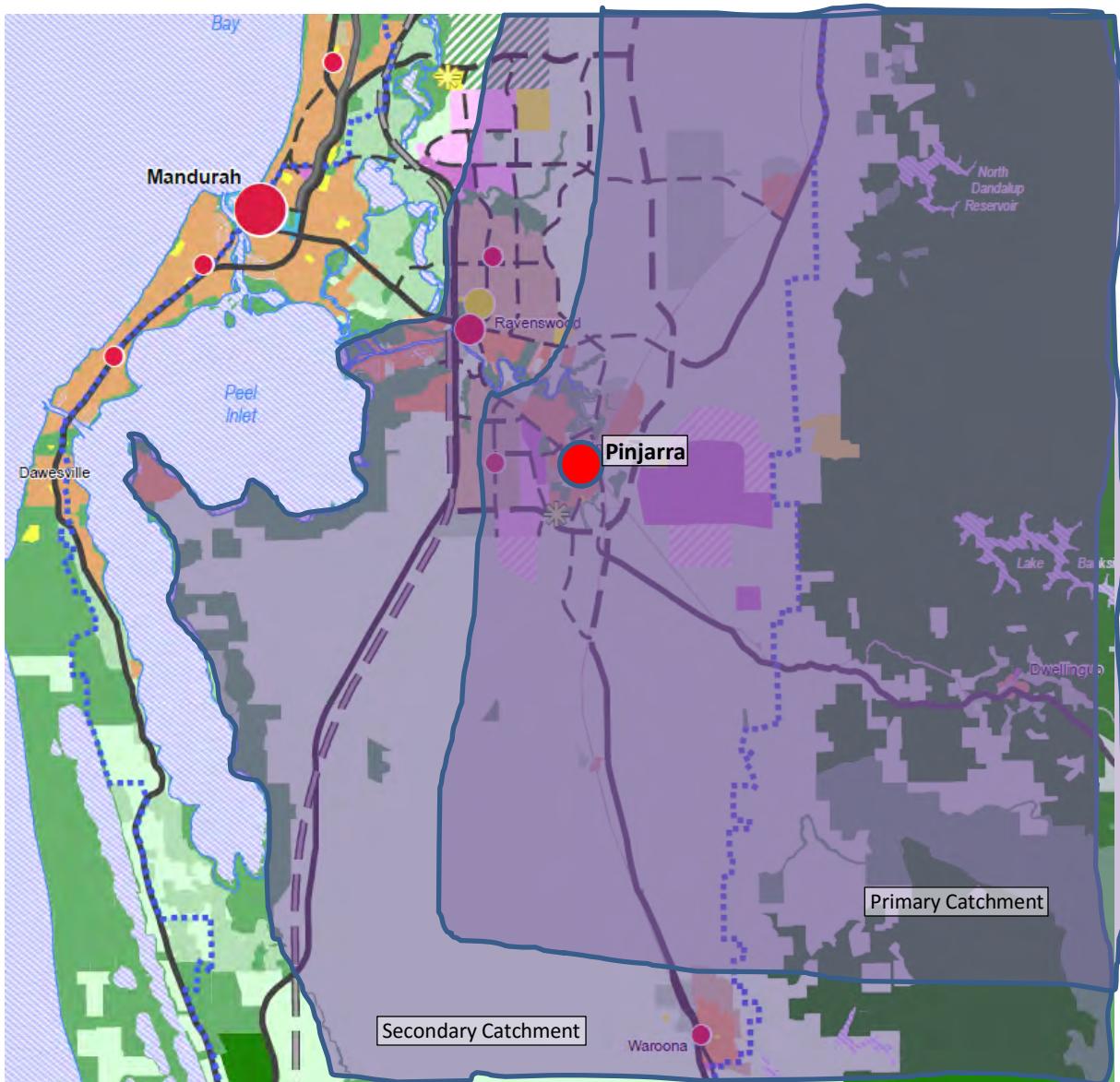
- The size and retail mix of the town.
- The size and retail mix of competing locations.
- The transport network around the town – particularly as it relates to roads in rural areas and major roads to suburban estates.
- Physical barriers such as: oceans, lakes, railway tracks, motorways, or national parks and forests.

A Primary Trade Area is usually the geographic area in which between 55 per cent and 70 per cent of customers and/or spend originate, while a Secondary Trade Area represents a further 15-20 per cent. Combined, these trade areas equal the Main Trade Area (MTA), which usually represents 70-85 per cent of customer spend/origin.

In the Pinjarra neighbourhood there are only a few main roads serving the town and a relatively small number of competing centres. The Pinjarra trade area has been determined by assessing:

- Its position on or near main transport routes;
- Its position in relation to Mandurah as the Strategic Regional Centre;
- Its position in relation to the district centre to the west (the future Ravenswood centre), to the south (Waroona) and to the north (Byford and the future Mundijong centre).
- Its establishment as the main trading and administrative centre in the area.

The primary and secondary trade areas are mapped below.



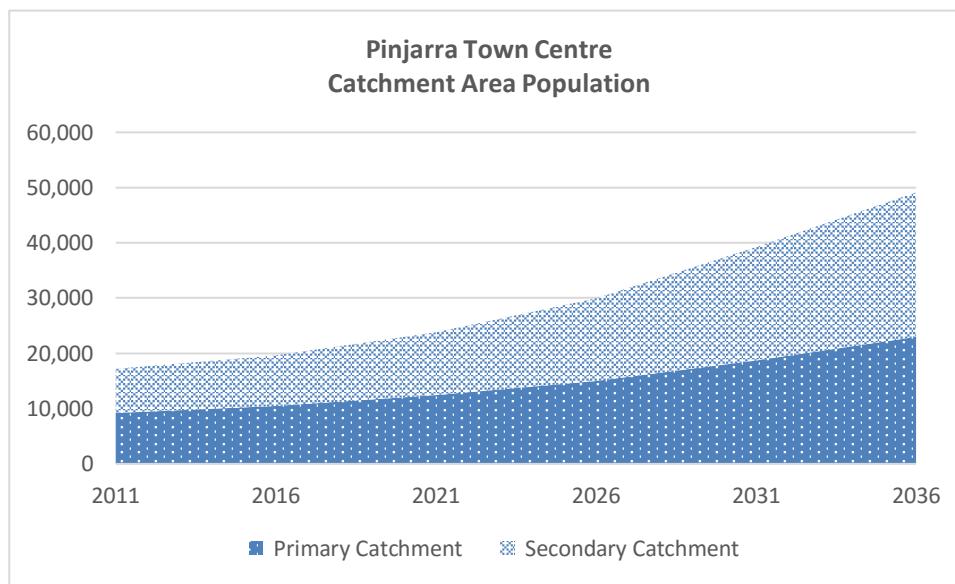
4. Catchment Area Population

Suburb-level population forecasts for the Shire to 2036 are available from analysis prepared for the Shire by .id consultants. This shows the following population for the primary and secondary catchments (note that an estimate of a proportion of the population of the Shire of Waroona has been included in the figures):

Table 1

	2011	2016	2021	2026	2031	2036
Primary Catchment	9,229	10,434	12,399	14,954	18,739	22,989
Secondary Catchment	7,976	9,203	11,411	14,979	20,434	26,151
	17,205	19,637	23,810	29,933	39,173	49,140

Ref: *id forecast, WA Tomorrow, SMCo*



Ref: *id forecast, WA Tomorrow, SMCo*

5. Floor Space Requirements

5.1 Floor Space – Retail to 2036

Indicative floor space requirements for the forecast population can be derived by reference to retail provision norms in other locations. There are still many planning decisions to be made for new accommodation in the region generally, therefore the calculation is at a high level to give an indication based on other regions and centres where the planning framework is more established.

Method 1: Apply a population-based ratio in the primary trade area¹

This indicates a retail area in the town centre of 10,400 in 2016, growing to around 23,000 by 2036.

¹ Ref: previous analysis on the Byford centre

Method 2:

Distribute overall retail provision across different centre types for the whole of the Shire of Murray and including the Shire of Waroona². This assumes Pinjarra continues its role as a designated secondary centre. The results are shown in the following table:

Table 2

Retail Floor Area (m2)	2011	2016	2021	2026	2031	2036
Strategic Regional Centre (Mandurah)	12,888	14,710	17,836	22,423	29,345	36,811
Secondary (Pinjarra)	9,452	10,788	13,080	16,444	21,520	26,995
District (Ravenswood)	6,015	6,865	8,324	10,464	13,694	17,179
Neighbourhood	6,740	7,693	9,327	11,726	15,346	19,250
Local	1,306	1,491	1,807	2,272	2,973	3,730
Large format	2,262	2,581	3,130	3,935	5,149	6,459

This indicates that by 2036 the population in the Shire of Murray will contribute to the viability of around 36,800 m² of retail space in Mandurah as the Strategic Regional Centre and will support a secondary centre (Pinjarra) of around 27,000 m² and a district centre (Ravenswood) at 17,000 m² of shop/retail.

This gives the following combined results. The variation between the two methods is small, indicating some degree of confidence in the analysis.

Table 3

Indicative Retail Floor Area (m2)	2011	2016	2021	2026	2031	2036
Method 1 (low range)	9,200	10,400	12,400	15,000	19,000	23,000
Method 2 (high range)	9,500	10,800	13,000	16,500	21,500	27,000
Average	9,350	10,600	12,700	15,750	20,250	25,000

5.2.Comparison with 2016 Survey

The Shire completed a survey of land use in the town centre in August 2016. The summary figures as surveyed are shown below. Adjusted figures are also shown with the following adjustments:

- Designation of a large hardware store as ‘other retail’ rather than ‘shop retail’
- Removal of education (schools) and health (hospital) institutions
- Removal of out-of-town sporting clubs (harness racing and golf club)

The adjusted figures make comparison with other Perth metro locations using Department of Planning Commercial Centres Land Use Survey data more comparable

² Parameters based on the outcomes of modelling for retail provision across the City of Joondalup.

Table 4: Pinjarra Town Centre Floorspace (m²)

	As Surveyed	Adjusted
Service Industry	2,622	2,622
Shop/Retail	15,899	14,144
Other Retail	1,194	2,949
Office Business	7,449	7,449
Health Welfare & Community Services	32,507	4,917
Entertainment/Recreational & Cultural	19,639	15,295
Utilities & Communications	806	806
Vacant Floor Area	5,751	5,751
Residential (motel)	2,289	2,289
Vacant (Approved Undeveloped)	3,105	3,105
Total	91,261	59,327

The adjusted survey shows 14,144 m² of shop/retail floorspace against modelled figures of 10,600 m² for 2016. The difference may be explained by:

- The current lack of a substantial retail presence for new development within the secondary catchment that will be served by a Ravenswood centre.³
- The continuing presence of an amount of very old and relatively underperforming retail floorspace on the Pinjarra town fringes which serves to inflate the surveyed figures.

For these reasons the longer term indicators of Pinjarra retail as modelled are considered to be a reasonable projection. It also indicates that the high range indicative floor area figures estimated in Method 2 are appropriate for planning purposes.

5.3. Other Uses

The population – derived estimates of floor area allow us to estimate the floor area for other land uses on the assumption that Pinjarra will develop in a broadly similar fashion to comparable activity centres in the Perth metropolitan area. This analysis is undertaken using as reference the land use mix of a series of commercial centres across the Perth metropolitan area⁴.

This shows the following modelled floor space provision to 2036. The table below shows the scale of the Pinjarra town centre across the decades to 2036 assuming it had a land use mix similar to reference

³ The marketing material for the Austin Lakes development notes that it is “5 minutes to the Pinjarra shopping village and medical centre.”

⁴ Data sourced from WAPC Employment Survey 2007

activity centres across the Perth Metro area⁵. Note that this modelling assumes that a substantial commencement is made to the Ravenswood district-level centre within this time frame.

Table 5: Pinjarra Town Centre - Modelled Floorspace (m2)

	2016	2026	2036
Service Industry	835	1,276	2,088
Shop/Retail	10,800	16,500	27,000
Other Retail	2,594	3,963	6,486
Office/Business	5,417	8,275	13,541
Health/Welfare/Community Services	2,172	3,319	5,431
Entertainment/Recreation/Culture	3,010	4,599	7,526
Utilities/Communications	303	463	758
Vacant Floor Area	1,709	2,611	4,272
	26,841	41,006	67,102

When this is compared with the surveyed data, several likely future requirements emerge, as indicated in the following table:

Table 6: Pinjarra Town Centre - Modelled Floorspace (m2) – Changes from Current Provision

	Current	2016	2026	2036
Service Industry	2,622	(1,787)	(1,346)	(534)
Shop/Retail	14,144	(3,344)	2,356	12,856
Other Retail	2,949	(355)	1,014	3,537
Office/Business	7,449	(2,032)	826	6,092
Health/Welfare/Community Services	4,917	(2,745)	(1,598)	514
Entertainment/Recreation/Culture	15,295	(12,285)	(10,696)	(7,769)
Utilities/Communications	806	(503)	(343)	(48)
Vacant Floor Area	5,751	(4,042)	(3,140)	(1,479)

The results indicate that the floorspace in all planning land use categories is currently on par or exceeds those with other activity centres in Perth. Within a 20-year timeframe additional floorspace will be expected in the following areas:

⁵ Reference centres included the average for the Perth Metro area, with additional weight given to Midland SRC and regional centres at Warwick Grove, Whitfords, Wanneroo and Innaloo

Table 7: Pinjarra Town Centre – Net Additional Floorspace (m²) from 2016

	By 2026	By 2036
Shop/Retail	2,350	12,900
Other Retail	1,000	3,500
Office/Business	800	6,100
Health/Welfare/Community Services		500

In other categories, there is likely to be refurbishment, renewal and replacement, but not necessarily a net increase in floorspace over the period.

5.4.Floor Space – to 2050

The figures for 2036 are based on detailed analysis for individual suburbs and development zones up to 2036. They broadly reflect the WAPC WA Tomorrow series, which projects population to 2026. The figures for 2050 are based on the population expectations contained in the draft *Perth and Peel @ 3.5 Million* suite of documents. These indicate a substantial growth spurt beyond 2036 in the Shire of Murray, at an almost unparalleled rate. The population growth rate from the 2036 (.id forecast) figure to the 2050 (Perth and Peel @ 3.5 million) figure for the Shire is at the rate of 7,700 people per year over an extended period. If achieved, this would be unusual, if not unprecedented. For example, at its peak growth rate, at a time when it was the fastest growing LGA in Australia, the City of Wanneroo grew at no more than 5,000 people per annum.

There is therefore some question as to whether these figures would be achieved within the timeframe to 2050. This is important from a planning viewpoint when considering the land and planning provisions that might need to be made to accommodate long term growth. A longer time frame in an established town such as Pinjarra would envisage growth via normal redevelopment and intensification processes (over, say, a 30 – 40 year cycle) as previous development reaches the end of its economic life. This is quite different to a short development time frame of, say 15 – 20 years in a period of high population growth, as might be found, for example, in a large greenfields development, when large areas of centrally located land must be preserved and protected for the rapid installation of a town centre when the population justifies it.

Based on the projected population at 2050 the distribution of retail floor space in the Shire would be approximately as follows:

Table 8: Shire of Murray Retail Floor area at 2051 (nominal)

Retail Floor Area	(m2)
Strategic Regional Centre (Mandurah)	125,000
Secondary (Pinjarra)	92,000
District (Ravenswood)	58,000
Neighbourhood Centres	63,000
Local Centres	13,000
Large format	22,000 ⁶

This indicates that, based on the forecast *Perth and Peel @ 3.5 Million* population, Pinjarra could grow to around 92,000 m² of shop/retail (around the current scale of Booragoon Garden City or Karrinyup Centre) and Ravenswood could grow to 58,000 m² (around the current scale of Whitfords Centre). The Shire population is currently growing at around 500 people annually and this rate is forecast to grow to around 1,850 – 2,000 per annum by 2026 – 2036. If the population were to grow at around 7,700 annually then the forecast *Perth and Peel @ 3.5 Million* population of 164,250 would be reached by 2051. However, if it were to grow at a slower rate, say 4,000 annually – still double that in the 2026–2036 period - then the same population would not be reached for another 15 years at around 2066. Clearly this has ramifications for the rate of building redevelopment – with a much higher proportion of the town's building stock be able to be redeveloped in the normal development cycle as older building stock meets the end of its economic life. It also means that a steady intensification of a previously established town centre footprint is viable.

The floor space mix in the town with the Shire-wide *Perth and Peel @ 3.5 Million* forecast population of 164,250 would be as in the following table:

Table 9: Pinjarra Town Centre – Projected Floorspace (m2)

	2016	2026	2036	2051 (nominal)
Service Industry	2,622	2,622	2,622	7,100
Shop/Retail	14,144	16,500	27,000	92,000
Other Retail	2,949	3,963	6,486	22,100
Office/Business	7,449	8,275	13,541	46,000
Health/Welfare/Community Services	4,917	4,917	5,431	18,500
Entertainment/Recreation/Culture	15,295	15,295	15,295	26,000
Utilities/Communications	806	806	806	2,600
Vacant Floor Area	5,751	5,751	5,751	14,600
	53,933⁷	58,130	76,932	228,900

⁶ Note that this figure is highly variable and might be much larger depending on local planning: for example, an extensive large format precinct at Ravenswood could service a very wide regional market.

⁷ Excludes Residential (motel) and Vacant (Approved Undeveloped) categories shown in Table 4.

6. Employment

Town centre employment can be estimated by reference to averages across the Perth metropolitan area for various classes of land use. These ratios are shown in the following table:

Table 10: Ave Employment Ratios, Perth Metro: floorspace (m²) per employee⁸

	m²
Primary/Rural	65.0
Manufacturing/Processing/Fabrication	41.8
Storage/Distribution	157.1
Service Industry	69.7
Shop/Retail	29.5
Other Retail	67.8
Office/Business	24.5
Health/Welfare/Community Services	36.2
Entertainment/Recreation/Culture	58.3
Utilities/Communications	57.1

This allows the following estimates of town centre workforce over time:

Table 11: Employment, Pinjarra Town Centre

	2016	2026	2036	2051 (nominal)
Service Industry	38	38	38	102
Shop/Retail	479	559	915	3,117
Other Retail	43	58	96	326
Office/Business	303	337	552	1,880
Health/Welfare/Community Services	136	136	150	512
Entertainment/Recreation/Culture	262	262	262	440
Utilities/Communications	14	14	14	45
Total	1,276	1,405	2,026	6,422

This indicates a current town centre workforce of around 1,280, growing to 2,000 by 2036 and to 6,400 at the forecast *Perth and Peel @ 3.5 Million* population for 2051.

Note that these figures specifically exclude workers in the following categories:

- Education (schools)
- Health (hospitals)
- Tourist accommodation (hotels, serviced apartments, guest houses etc.)

⁸ Ref: WAPC Employment Survey 2007

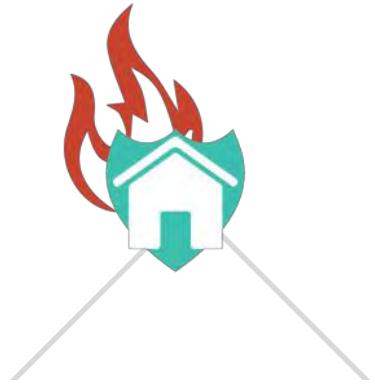
7. Implications of Economic Development Strategies

Economic development strategies for the Shire are evolving. Sectors that are emerging as non-population driven components of economic growth in the Shire and that will likely be fostered over time include:

- Tourism
- Intensive agriculture
- Food processing
- Racing and non-racing equine industries
- Mining and minerals processing

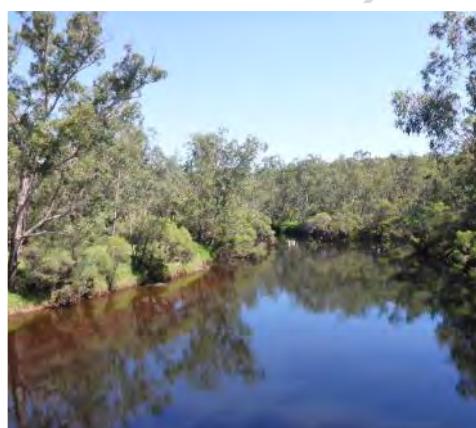
In the main these are not town-centred activities, however there is likely to some spin-off and associated activity that will increase town centre floor-space demand.

Sector	Town centre activity
Tourism	<ul style="list-style-type: none">• Accommodation• Food and beverage• General retail
Intensive agriculture	<ul style="list-style-type: none">• Support services (accounting, legal etc.)• Supplies and logistics• Research• Education
Food processing	<ul style="list-style-type: none">• Support services (accounting, legal etc.)• Supplies and logistics• Research• Education
Racing and non-racing equine industries	<ul style="list-style-type: none">• Support services (veterinary, accounting, legal etc.)• Supplies and logistics• Education
Mining and minerals processing	<ul style="list-style-type: none">• Administration• Support services• Supplies and logistics



Bushfire Management Plan

(Strategic Bushfire Hazard Level Assessment)



Pinjarra Townsite



Pinjarra Bushfire Hazard Level Assessment

Document Reference

Property Details

Street No	Lot No's	Plan	Street Name
Locality	Pinjarra townsite	State	WA
Local Government Area	Murray		
Description of the building or works	Town Centre Structure Plan		

Report Details

Revision	Date	Job No
A	07/04/2017	Preliminary Draft
B	27/04/2017	Additional figures

Practitioner Details

BPAD	Level 2 Practitioner	Accreditation No	27682
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Disclaimer

The measures contained in this report do not guarantee that a building will not be damaged in a bushfire. The ultimate level of protection will be dependent upon the design and construction of the dwelling and the level of fire preparedness and maintenance undertaken by the landowner. The severity of a bushfire will depend upon the vegetation fuel loadings; the prevailing weather conditions and the implementation of appropriate fire management measures.



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28 April 2017
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Pinjarra Bushfire Hazard Level Assessment

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1.0 INTRODUCTION

1.1 Background

This strategic bushfire hazard level assessment is prepared for the Shire of Murray for the Pinjarra townsite.

The study area for this assessment is shown in Figure 1 and this comprises of an area of approximately 5 square kilometres.

The Shire of Murray has prepared a draft Pinjarra Town Centre Revitalisation Strategy & Activity Centre Plan. The Strategy establishes a range of objectives, vision and design principles for the town centre which focus on strengthening the existing activity nodes through defined precincts. These precincts are:

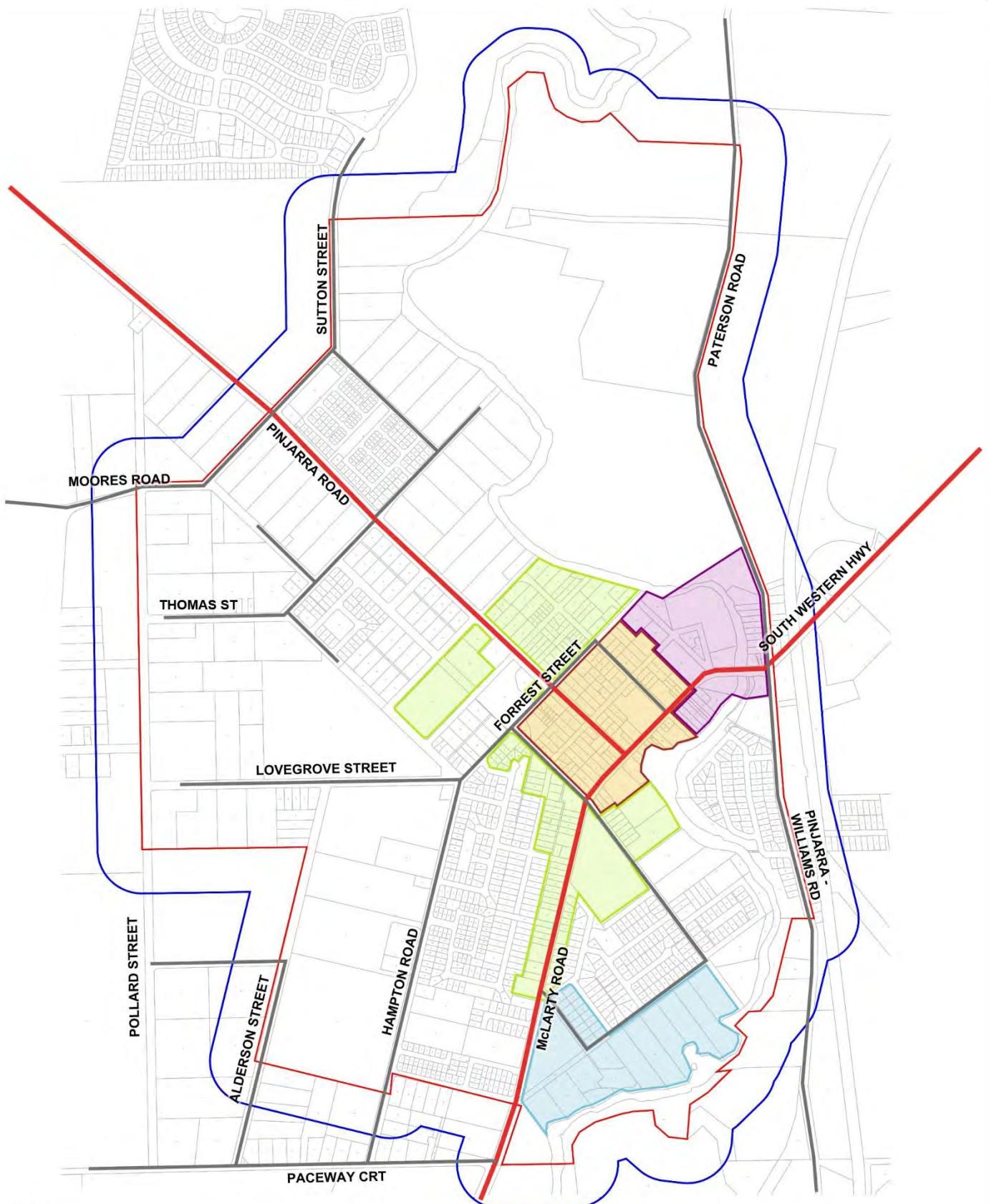
- ❖ Core Precinct which contains the town centre commercial, employment and civic activities.
- ❖ Mixed Use Precinct which provides for a transition between the town centre and the broader residential areas.
- ❖ Health Precinct which is focussed around the Murray Districts Hospital.
- ❖ **Heritage and Arts Precinct adjacent to the Murray River recognising the town's history and landscape values.**
- ❖ Residential Precinct which provides for a broad diversity of housing.

The Strategy also includes a Greenspace Network which recognises existing open space, foreshore reserves and privately owned land.

Substantial portions of the study area are included on the State Map of Bush Fire Prone Areas as shown in Figure 2. The designation of bushfire prone land then triggers the provisions of State Planning Policy SPP3.7 Planning in Bushfire Prone Areas.

SPP3.7 promotes that strategic planning documents should include high level consideration of relevant bushfire hazards when identifying or investigating land for future development. It requires that any strategic planning proposal is to be accompanied by:

- a) A BHL assessment determining the applicable hazard level(s) across the subject land, in accordance with the methodology set out in the Guidelines;
- b) The identification of any bushfire hazard issues arising from the relevant assessment; and
- c) Clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages.



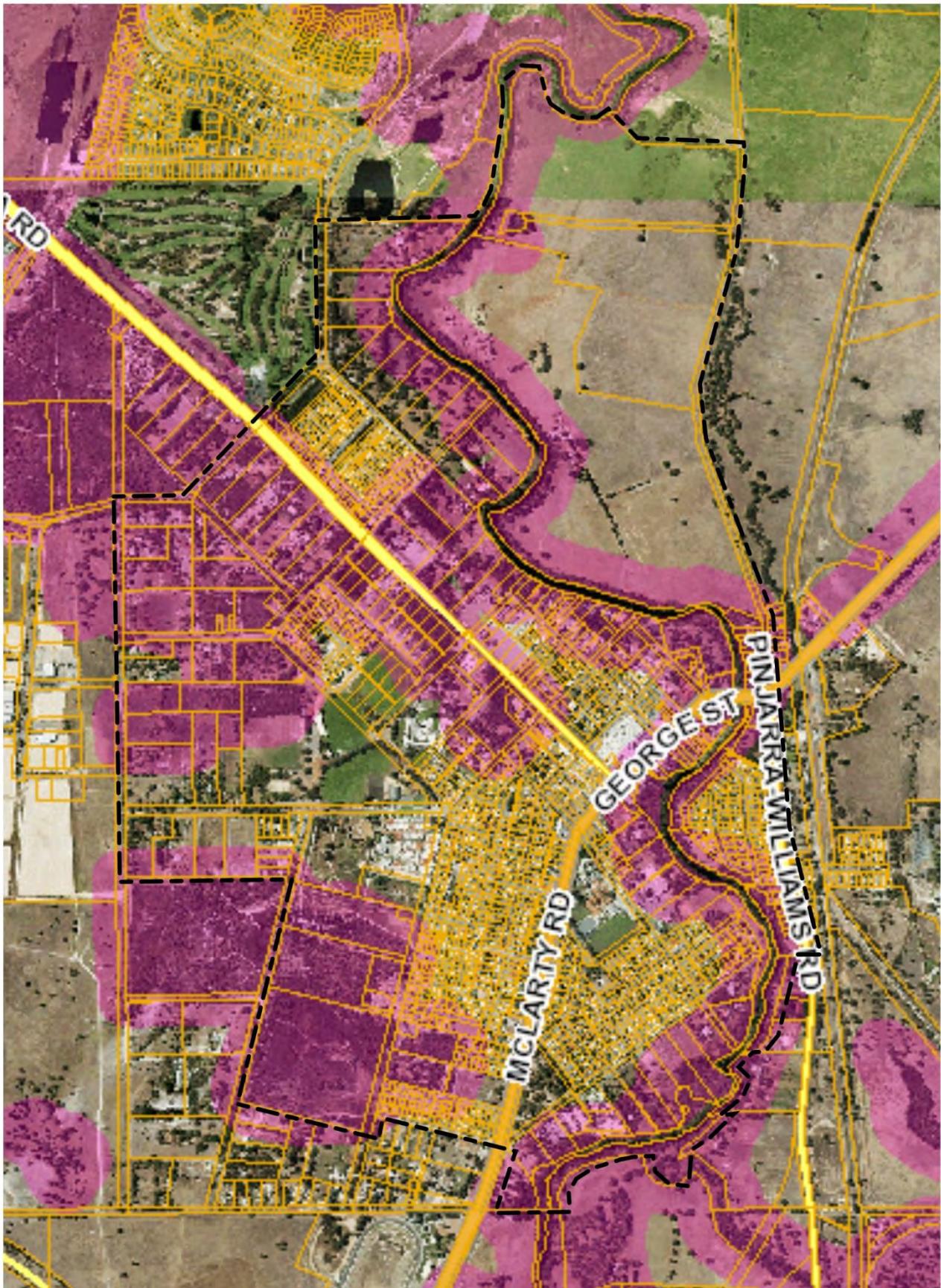
LEGEND

STUDY AREA		PRECINCTS
150m MAPPING BUFFER		CORE
PRIMARY ROADS		MIXED USE
SECONDARY ROADS		HEALTH
		HERITAGE & ARTS
		RESIDENTIAL (Balance Area)

FIGURE 1
STUDY AREA



Rev	Description	Date
A	Preliminary	24/03/2017



LEGEND

STUDY AREA



BUSHFIRE PRONE LAND



NOTE Bushfire prone land is comprised of:

- Bushfire prone vegetation; and
- A 100m buffer area.

FIGURE 2
BUSHFIRE PRONE LAND



Rev	Description	Date
A	Preliminary	24/03/2017

1.2 Methodology and Assumptions

The bushfire hazard assessment in this report is a "broad brush" assessment to support the preparation of the local planning strategy. The purpose of the assessment is to:

- a) Identify areas with a moderate or extreme hazard rating which require a more detailed analysis before any development / subdivision occurs;
- b) To identify any wider bushfire management issues in the locality which should be considered; and
- c) Ensure that bushfire management measures are considered as early as is possible in the planning process.

The bushfire hazard level assessment has been prepared in accordance with the methodology contained in the Guidelines for Planning in Bushfire Prone Areas (1). The classification of vegetation has also had regard to the methodology used for Bushfire Attack Level (BAL) Assessments and the Visual Guide for Bushfire Risk Assessment in Western Australia (2).

The preparation of this assessment has included:

- Site Inspections;
- Reviewing district vegetation surveys;
- Use of aerial photography; and
- Measurement of slopes and distances on site.

It is noted that the consultant did not have any authority to enter private property and all inspections were conducted from public areas. Where an area could not be physically inspected the vegetation type and hazard rating has been assigned on the basis of the surrounding complexes.

The following assumptions have been made in the report:

1) Existing Conditions

The assessment has been undertaken based upon the existing conditions at that time. The assessment does not consider any vegetation modification or fuel reduction which might be done as part of a development.

The vegetation classifications are also based upon the expected mature state of any vegetation.

2) Predominant Vegetation

The Guidelines recommend that vegetation types be mapped based upon units of 2,500m² but at the scale of this assessment this would require significant time and effort without providing any substantial improvement in the analysis. The predominant vegetation type in and adjacent to each investigation area has been used based on 1 hectare units.

1 WAPC (2015) Guidelines for Planning in Bushfire Prone Areas Appendix 2

2 Department of Planning (2016) Visual Guide for Bushfire Risk Assessment in Western Australia

Pinjarra Bushfire Hazard Level Assessment

3) Fuel Loads

The classification of vegetation requires that consideration be given to the fuel loads associated with each vegetation class as well as to the tree height and foliage coverage. The relative fuel loads are shown in Table 1.

Table 1 Indicative Fuel Loads

Vegetation Classification	Surface Fuel Load (t/ha)	Overall Fuel Load (t/ha)
Forest	25	35
Woodlands	15	25
Shrubland	15	15
Scrub	25	25
Mallee/Mulga	8	8
Rainforest	10	12
Tussock Moorland	17	17
Grassland	4.5	4.5

Source: AS3959 Table B2

4) Slope

Slope is the predominant gradient of the vegetated areas measured over 100m distance. At the scale of this assessment the slopes are general by nature and tend to be averaged with the following terms being used:

- Low slope means a slope of between 0 and 5 degrees (10%);
- Moderate slope means a slope of between 5 and 10 degrees (18%);
- Steep slope means a slope of between 10 and 15 degrees (28%); and
- Very steep slope means a slope of between 15 and 20 degrees (40%).

5) Fire Break Notice

The Fire Break Notice distinguishes between lots that are less than or greater than 4,000m² (one acre). Specifically:

- a) Where the area of land is 4000m² or less, all flammable material on the entire property shall be reduced and maintained to a height of less than 5 centimetres.
- b) Where the area of land is more than 4001m² in size, a 3 metre wide firebreak shall be installed and maintained immediately inside all external boundaries of the land and also immediately surrounding all buildings situated on the land.

Hence where the prevailing lot size are (or will be less) less than 4,000m² the development is more likely to reflect suburban characteristics with maintained lawns and gardens.

2.0 EXISTING CONDITIONS

2.1 Land Use

Pinjarra townsite is located at the junction of the South Western Highway and Pinjarra Road which connects to Mandurah. The Pinjarra - Williams Road also provides regional access to the east and connects to Dwellingup.

The town is defined as a secondary centre of the Peel Region and provides a range of commercial, educational, health, recreation and civic services. The existing conditions are shown in Figure 3.

The key features which have dictated the setting and layout town are as follows:

- The Murray River which bisects the study area and forms the northern boundary of the town;
- The Perth - Bunbury railway line and the historical Hotham railway and associated reserve;
- A major transmission line to the west of the town; and
- Conservation reserves on the south west and southern portions of the town.

The town has all normal infrastructure and services; however, these do not extend for all of the study area. In particular, the reticulated water supply does not currently service parts of the south western and northern portions of the study area which is a reflection on the level of development.

2.2 Topography

The study area is relatively flat with an elevation of 5m and 9m AHD.

The slopes are generally very low being less than 3 degrees (5 percent) with few moderate slopes. There are short steep slopes associated with the river corridor and adjacent floodway. The river is generally several metres below the surrounding land with the land on the southern side having a lower elevation than the land on the northern side. The associated slopes only extend over a short horizontal distance generally between 20 to 30m.

A significant portion of the study area is situated within the 1:100 flood level / plain of the Murray River.

2.3 Vegetation

There are extensive areas of vegetation within the study area on both public and private land. The vegetation generally reflects the associated landform units with:

- Large areas of scrub (tall shrubland) on sandy soils; and
- Eucalyptus species especially along the river corridor.

The riparian corridor of the Murray River contains a wide range of vegetation including heath, acacia shrubland, marri, flooded gum, tuart, melaleuca and ti-tree shrubland. Wetland areas and river pools contain samphire, marshes, sedges and rushes.

In many areas including roadside verges and reserves the management of weeds is an ongoing issue.

Photographs of the local vegetation types are shown in Figure 4.

2.4 Climate

The Study Area generally experience a temperate climate characterised by mild, wet winters and warm to hot, dry summers. The mean maximum temperature reaches 30⁰ C in February with the highest recorded maximum temperature being 41.6⁰ C in February 2014 (3). The lowest mean maximum temperature is 11⁰ C in August.

There is an average rainfall of 671 mm per year.

In summer, there is an average of:

- 52 days with temperatures over 30⁰ C; and
- 10 days with temperatures over 35⁰ C.

The fire weather season can be loosely defined as the period during which the fuel state and the atmospheric conditions are conducive to the spread of fire. The fire weather season extends from approximately mid-October to mid-May. Severe, Extreme or Catastrophic fire weather days occur when the Fire Danger Index (FDI) is equal to or greater than 50. These are significant to fire agencies because of the difficulty of suppressing fires under these conditions.



LEGEND

STUDY AREA ——————

150m MAPPING BUFFER ——————

- | | |
|-----------------------------|---------------------------------|
| 1) PEEL ZOO | 10) RIVER PARK |
| 2) GOLF COURSE | 11) LIFESTYLE VILLAGE |
| 3) CARAVAN PARK | 12) ST JOSEPH'S PRIMARY SCHOOL |
| 4) TELECOMMUNICATIONS TOWER | 13) HIGH SCHOOL |
| 5) INDUSTRIAL ESTATE | 14) RECREATION COMMUNITY CENTRE |
| 6) McClARTY PARK | 15) HOSPITAL |
| 7) PINJARRA PRIMARY SCHOOL | 16) AGED CARE |
| 8) CIVIC CENTRE | 17) TROTTING TRACK |
| 9) FIRE STATION | |

FIGURE 3
EXISTING CONDITIONS



Rev	Description	Date
A	Preliminary	24/03/2017

Pinjarra Bushfire Hazard Level Assessment

Photo No 1

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Public reserve with regular maintenance.



Photo No 2

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Public reserve / playground with regular maintenance.



Photo No 3

Vegetation Classification

Excludable - 2.2.3.2(e) Non Vegetated Areas

Description

Medium density residential development.



Figure 4 Local Vegetation Examples

Pinjarra Bushfire Hazard Level Assessment

Photo No 4

Vegetation Classification

Class G Grassland – Open tussock
G-23

Description

Unmanaged grassland typically on large residential or semi-rural land. Also presents as weeds in reserves and includes broad acre pasture and grazing areas.



Photo No 5

Vegetation Classification

Class G Grassland – Sown pasture
G-26



Photo No 6

Vegetation Classification

Class G Grassland – Open tussock
G-23



Figure 4 Local Vegetation Examples

Pinjarra Bushfire Hazard Level Assessment

Photo No 7

Vegetation Classification

Class D Scrub - Closed scrub D-13

Description

Scrub vegetation with grassland.
Height to 4m with continuous
foliage to ground level.



Photo No 8

Vegetation Classification

Class D Scrub - Closed scrub D-13

Description

Scrub vegetation with grassland.
Height to 4m with continuous
foliage to ground level.



Photo No 9

Vegetation Classification

Class D Scrub - Closed scrub D-13

Description

Scrub vegetation to 4m in height
with continuous foliage to ground
level. Grassland including
Watsonia in the foreground.



Figure 4 Local Vegetation Examples

Photo No 10

Vegetation Classification

Class B Woodland - Woodland B-05

Description

Woodland vegetation - not the spacing between trees with no significant understorey.



Photo No 11

Vegetation Classification

Class B Woodland - Woodland B-05

Description

Reserves with unmanaged grassland also have the potential to be classified as woodland vegetation.



Photo No 12

Vegetation Classification

Class B Woodland - Woodland B-05

Description

Woodland vegetation grassland understorey. Foliage cover less than 30%. Where greater than 30% it can be classified as open forest.



Figure 4 Local Vegetation Examples

Photo No 13

Vegetation Classification

Class A Forest - Open forest A-03

Description

Forest vegetation with scrub understorey. Foliage cover is greater than 30%. Has significant fuel loads.



Photo No 14

Vegetation Classification

Class A Forest - Open forest A-03

Description

Forest vegetation with scrub understorey. Foliage cover is greater than 30%. Has significant fuel loads.



Photo No 15

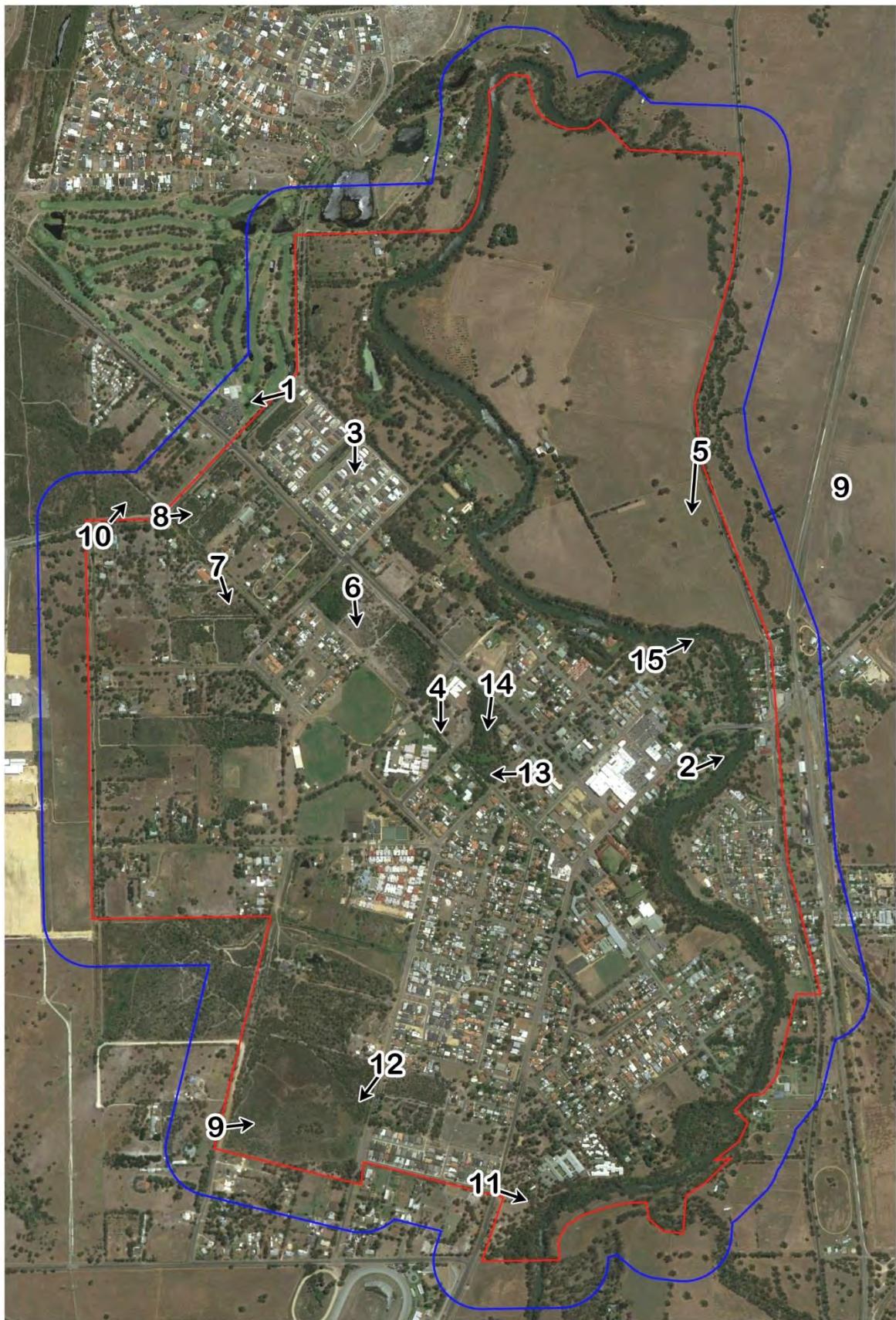
Vegetation Classification

Class A Forest - Open forest A-03

Description

Vegetation along the river corridor which has varied characteristics. Has been grazed in some areas, while other have maintained parkland. Forest classification provides a more conservative classification especially given the steep slopes.





LEGEND

STUDY AREA



150m MAPPING BUFFER



FIGURE 4
PHOTOGRAPH LOCATIONS



Rev	Description	Date
A	Preliminary	24/03/2017

3.0 BUSHFIRE HAZARD LEVEL ASSESSMENT

The bushfire hazard primarily relates to the vegetation on the site, the type and extent (area) of vegetation and its characteristics. The methodology for determining the bushfire hazard level is contained in the Guidelines for Planning in Bushfire Prone Areas (Section 4.1 and Appendix 2).

This classifies vegetation based on tree height and the percentage of canopy cover and the characteristics of the different hazard categories (4) are documented in Table 2.

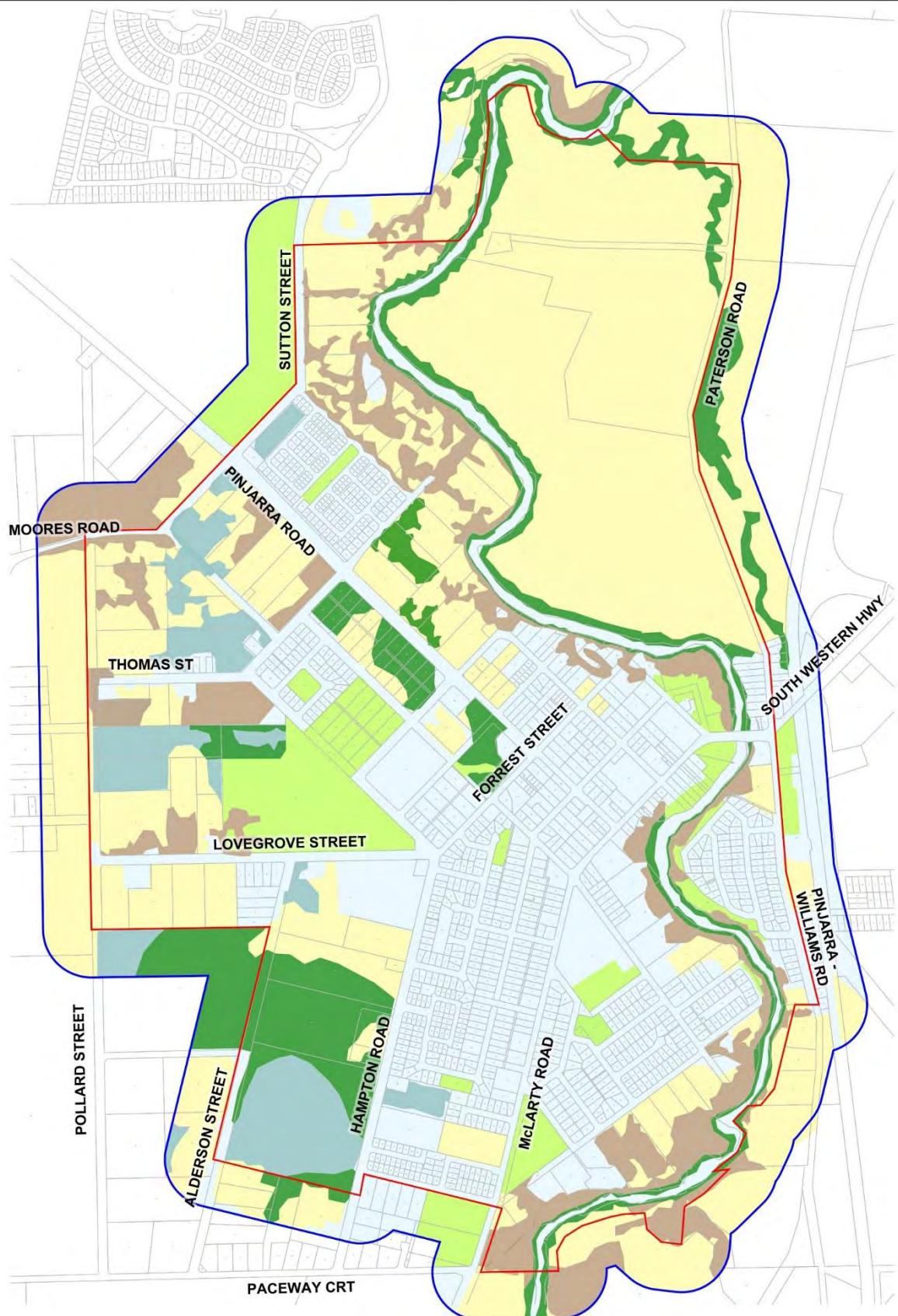
The vegetation classifications based upon these categories are shown in Figures 8 and 9.

Table 2 Vegetation Classifications

- | | |
|-----------------|---|
| Extreme Hazard | <ul style="list-style-type: none">• Class A Forest• Class B Woodland (05)• Class D Scub• Any classified vegetation with a greater than 10 degree slope |
| Moderate Hazard | <ul style="list-style-type: none">• Class B Open Woodland (06), Low Woodland (07) Low Open Woodland (08) Open Shrubland (09) *• Class C Shrubland• Class E Mallee/Mulga• Class G Grassland including sown pasture and crops• Vegetation that has a low hazard level but is within 100 metres of vegetation of vegetation classified as a moderate or extreme hazard. |
| Low Hazard | <ul style="list-style-type: none">• Low threat vegetation, may include the following: areas of maintained lawns, gold courses, public recreation reserves and parklands, vineyards, orchards; cultivated gardens, commercial nurseries, nature strips and windbreaks.• Managed grassland in a minimal fuel condition meaning that there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short cropped grass to a nominal height of 100mm.• Non vegetated areas including waterways; roads; footpaths; buildings or rock outcrops. |

* As per AS3959 Table 2.3 Note 2 - Overstoreys of open woodland, low open woodland, tall open shrubland should be classified to the vegetation type on the basis of their understoreys; others to be classified on the basis of their overstoreys.

4 WAPC (2015) Guidelines for Planning in Bushfire Prone Areas Appendix 2 - 2017 revised methodology



LEGEND

STUDY AREA



CLASS C SHRUBLAND



150m MAPPING BUFFER



CLASS D SCRUB



VEGETATION CLASSIFICATIONS



CLASS G GRASSLAND



CLASS A FOREST



LOW THREAT VEGETATION



CLASS B WOODLAND



DATE OF INSPECTION 16th March 2017

FIGURE 5
VEGETATION CLASSIFICATIONS



Rev	Description	Date
A	Preliminary	24/03/2017

Pinjarra Bushfire Hazard Level Assessment

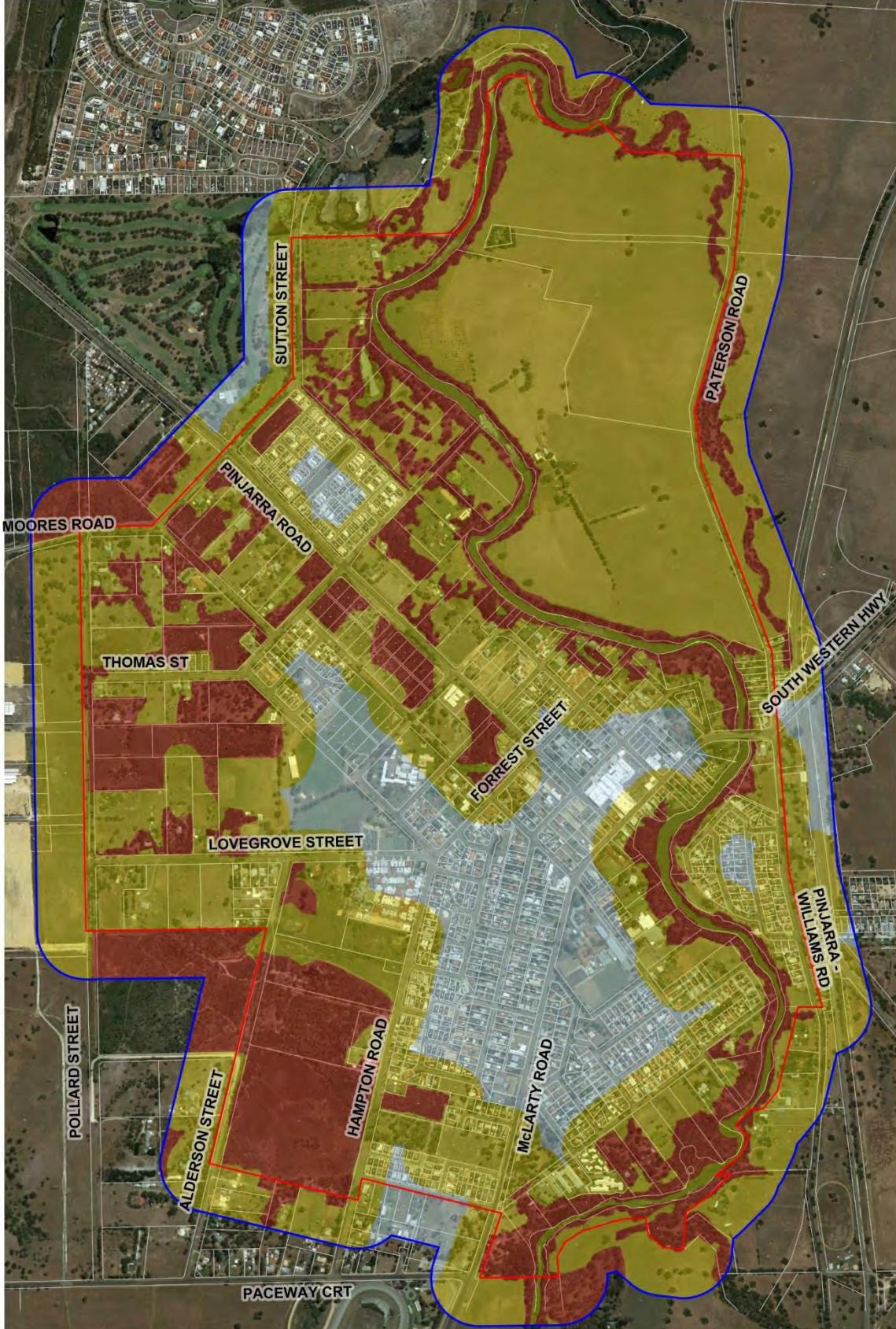
The classification of vegetation is based on the approach applied in AS3959 to identify which vegetation type or types predominate in the bushfire hazard assessment area as shown in Table 2.

Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas (2015) stipulates that any cleared areas which would have a low hazard rating but are within 100m of the areas with an extreme hazard rating are to be assigned a moderate hazard rating to reflect the increased level of risk. Grassland areas including sown pasture and crops are classified as having a moderate hazard rating.

The bushfire hazard levels for the townsites are shown in Figure 6. Figure 7 distinguishes between:

- Vegetation with a moderate hazard rating; and
- The 100m buffer which has a moderate hazard rating.

Figure 7 also shows the development precincts.



LEGEND

STUDY AREA		BUSHFIRE HAZARD
150m MAPPING BUFFER		EXTREME HAZARD
		MODERATE HAZARD
		LOW HAZARD

NOTES

- 1) BUSHFIRE HAZARD LEVEL PREPARED IN ACCORDANCE WITH APPENDIX 2 OF GUIDELINES.
- 2) LAND WITHIN 100m OF VEGETATION THAT HAS A MODERATE OR EXTREME HAZARD RATING IS AUTOMATICALLY ASSIGNED A MODERATE LEVEL.
- 3) DATE OF INSPECTION - 16th March 2017

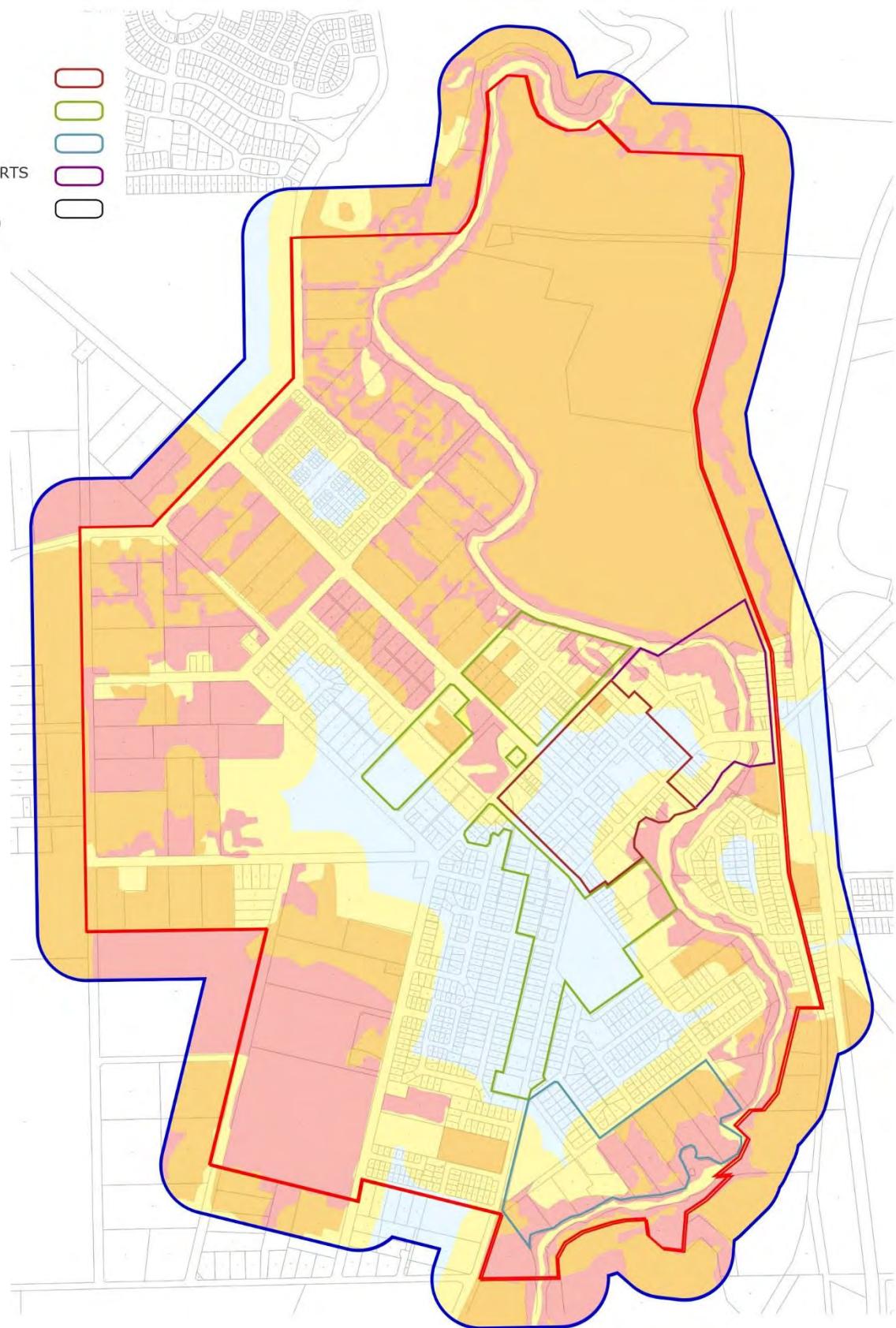
FIGURE 6
BUSHFIRE HAZARD LEVELS



Rev	Description	Date
A	Preliminary	24/03/2017

PRECINCTS

- CORE
- MIXED USE
- HEALTH
- HERITAGE & ARTS
- RESIDENTIAL
(Balance Area)

**LEGEND**

STUDY AREA

BUSHFIRE HAZARD

150m MAPPING BUFFER

EXTREME HAZARD

MODERATE HAZARD - VEGETATION



MODERATE HAZARD - 100m BUFFER



LOW HAZARD

**NOTES**

- 1) BUSHFIRE HAZARD LEVEL PREPARED IN ACCORDANCE WITH APPENDIX 2 OF GUIDELINES.
- 2) LAND WITHIN 100m OF VEGETATION THAT HAS A MODERATE OR EXTREME HAZARD RATING IS AUTOMATICALLY ASSIGNED A MODERATE LEVEL.
- 3) DATE OF INSPECTION - 16th March 2017

FIGURE 7**BUSHFIRE HAZARD - MODERATE VEGETATION**

Rev	Description	Date
A	Preliminary	24/03/2017

4.0 DEVELOPMENT ISSUES

The bushfire management development issues identified in the assessment and examination of the strategy plan are summarised in Figure 8.

In relation to this it is noted that:

- a) The Greenspace Network plan is proposing a number of linkages through the townsite which will be landscaped but the specifications for this are unknown.
- b) The conservation reserves between Alderson Street and Hampton Road are designated aboriginal heritage sites with the southern portion being vested to the National Parks Authority.
- c) The wetlands which have been shown on Figure 8 are formally recognised by the Department of Water and the EPA however the classification level is unknown.
- d) The river corridor is also a classified wetland.
- e) The floodway line has been shown which is the active floodway as distinct from the 1:100 year flood plain.

4.1 Development Hazard Interface

The level of the bushfire hazard is directly proportional to the distance / setback from the areas of high fuel loadings. On the urban fringe the combination of embers and radiation caused by urban fuel combustion (adjacent structures, fences, stored material etc) has been identified as a predominant source of ignition (5).

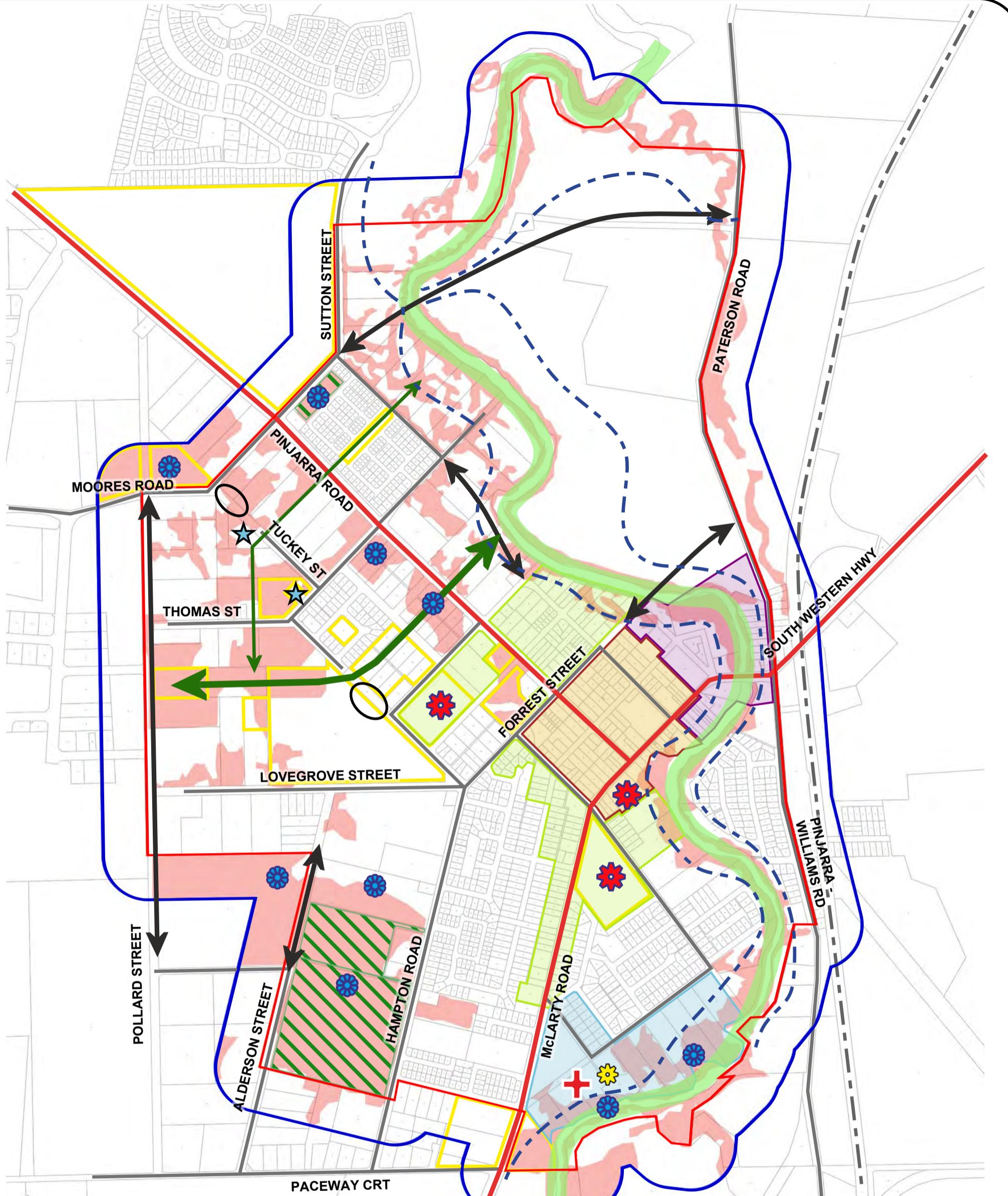
The overarching policy intent for Planning in Bushfire Prone Areas is for development to have a Bushfire Attack Level (BAL) of 29 or below (6). The setback requirements for BAL-29 are shown in Table 3.

Table 3 BAL-29 Setbacks

Vegetation Class	Minimum Setbacks (m) – BAL29				
	Upslopes & Flat Land	Downslope (degrees)			
		>0 - 5	>5 - 10	>10 - 15	>15 - 20
A Forest	21m	27m	33m	42m	52m
B Woodland	14m	17m	22m	28m	35m
C Shrubland	9m	10m	11m	13m	15m
D Scrub	13m	15m	17m	19m	21m
E Mallee/Mulga	8m	9m	10m	11m	13m
F Rainforest	9m	11m	15m	19m	25m
G Grassland	8m	9m	10m	12m	14m

5 Handmer J & Haynes K (2008) – Community Bushfire Safety CSIRO Publishing Melbourne Pages 77 & 81.

6 WAPC (2016) Planning Bulletin 111 Planning in Bushfire Prone Areas.



LEGEND

STUDY AREA		MAJOR RESERVES		HOSPITAL		PRECINCTS
150m MAPPING BUFFER		CONSERVATION RESERVE		SCHOOL		CORE
PRIMARY ROAD		RIVER CORRIDOR		AGED CARE		MIXED USE
SECONDARY ROAD		PROPOSED ROAD		CHURCH		HEALTH
RAILWAY		ACCESS ISSUE		WETLAND		HERITAGE & ARTS
FLOODWAY (1:100 boundary is greater)		PROPOSED GREEN CORRIDOR		EXTREME BUSHFIRE HAZARD		RESIDENTIAL (Balance Area)

FIGURE 8
BUSHFIRE MANAGEMENT ISSUES



Rev	Description	Date
A	Preliminary	24/03/2017

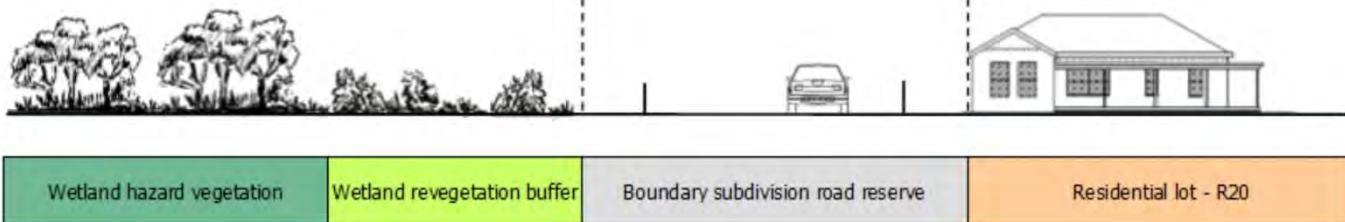
BAL setbacks from wetlands includes any required buffer areas

The vegetation within the buffer will be classified vegetation under AS3959 i.e. shrubland, scrub or forest depending upon the planting species and density.

The BAL setback is measured from the edge of the buffer vegetation.

Asset Protection Zone
Should preferably be 20m but can be reduced provided a BAL-29 rating applies.

The dwelling is to be constructed in accordance with AS3959.



It is not preferred for development to physically abut reserves with hazard vegetation even where the required BAL-29 setback distance can be provided.

Hazard vegetation classified under AS3959 i.e. shrubland, scrub, woodland or forest.

Asset Protection Zone
Should preferably be 20m but can be reduced provided a BAL-29 rating applies.

The dwelling is to be constructed in accordance with AS3959. The BAL rating is determined by the vegetation class, effective slope and development setback.



Subdivision road

The preferred treatment option for the hazard interface is to have a physical boundary such as a subdivision road.

Hazard vegetation classified under AS3959 i.e. shrubland, scrub, woodland or forest.

Asset Protection Zone
Should preferably be 20m but can be reduced provided a BAL-29 rating applies.

The dwelling is to be constructed in accordance with AS3959. The BAL rating is determined by the vegetation class, effective slope and development setback.



Subdivision road

Hazard vegetation

Subdivision road

Residential lot

FIGURE 9
DEVELOPMENT HAZARD INTERFACE



Rev	Description	Date
A	Preliminary	24/03/2017

The provision of a clear separation zone between the vegetation and development areas provides the simplest form of fire management. It is recognised that as there is a desire for people to live in closer contact with natural landscape particularly on the urban fringe, the provision of a wide low fuel zone area which is devoid of trees may not be acceptable. For many communities, substantial modification of the native vegetation is not seen as acceptable (7).

The promotion of landscape and vegetation protection measures to create a desirable residential character means that the interface between urban development and bushland areas is becoming less clear. Consequently, it is necessary to adopt more sophisticated approaches to vegetation and landscape management in relation to subdivision design and fire management.

Hence a key design issue is the relationship of the development to the vegetation areas which are classified as being a bushfire hazard. This applies:

- Primarily to areas of protected remnant vegetation which are generally external to any development but also occur in the internal habitat and landscape protection areas; and
- Secondly to the areas of public landscaping and parks.

Figure 9 shows the options to be considered in relation to the development/hazard interface. It is highlighted that where it is required to provide a revegetated buffer to a wetland, then that buffer will form part of the hazard vegetation. Consequently, any development setbacks that are required for bushfire management, including for BAL ratings, are measured from the outside edge of the wetland buffer.

This issue will also apply when one parcel of land is developed and adjoins undeveloped land which is likely to contain hazard vegetation even if only grassland.

4.2 Landscape Design

Well managed, designed and publicly accessible landscape areas are likely to have a lower bushfire hazard and this has implications for the adjoining development and subdivision design. The creation of open spaces within areas of extensive vegetation will break the continuity of tree canopies and help slow down or stop the spread of fire through the canopies. The result would be a series of groups of trees with large gaps between them, giving the appearance of a park like landscape.

While the risk of a bushfire in an urban environment might be low, if the land is defined as being bushfire prone then the characteristics of the vegetation in public areas will affect the subsequent BAL ratings.

Low threat vegetation (BAL-Low) is defined (8) as one or a combination of any of the following:

- (a) Vegetation of any type that is more than 100m from the site.
- (b) Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.
- (c) Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site, or each other.

7 Ramsay C. & Rudolf L. (2006) Landscape and Building Design for Bushfire Areas. Collingwood CSIRO Publishing Page 39.

8 AS3959 Clause 2.2.3.2

Pinjarra Bushfire Hazard Level Assessment

- (d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within **20m of the site or each other, or other areas of vegetation being classified.**'
- (e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.
- (f) Low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks. NOTE: Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).

The character of low threat vegetation and designed landscapes can be quite varied and examples of this are shown in Figure 10.

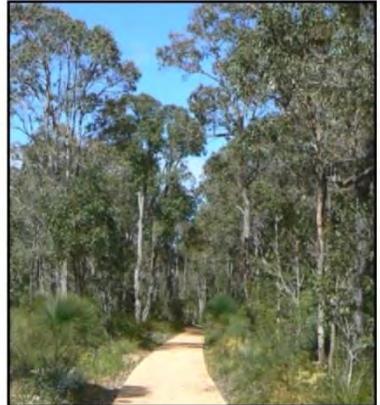
The design and development of open space areas and landscaped reserves should recognise that deliberately lit bush fires (arson) are a crime and that the accepted techniques for crime prevention also apply to bush fires. These are reflected in the Designing Out Crime Guidelines which state in relation to landscaping that (9):

Landscape treatments are an essential element of urban spaces; parks, gardens and enhanced private spaces are a component of successful urban form. The ill-considered placing of plants and structures can cause and create environments that accommodate antisocial and criminal behaviour. The creation of quality environments contributes to community pride and can encourage use of public realm spaces providing enhanced security through natural surveillance and legitimate uses.

Appropriate design measures for public areas include:

- Providing natural surveillance from activity land uses and activity rooms for communal and public areas;
- Establishing community focal points at locations where surveillance is essential;
- Ensuring public shelters do not impede surveillance;
- Co-locating movement systems to encourage surveillance in public areas; and
- Encouraging mixed uses to extend hours of surveillance, ensuring compatible uses and avoiding conflicting uses.

REMNANT BUSHLAND
<ul style="list-style-type: none"> • Retained understory with high fuel loads; greater than 8 tph. • Few if any open spaces and limited or no surveillance. • Likely weed infestation contributing to fuel loads. • Potential access restrictions. • Maintenance may be sporadic.



MODIFIED BUSHLAND
<ul style="list-style-type: none"> • Reduced understory with moderate fuel loads less than 8 tph. • Some open spaces . • Weed management programs. • Less access restrictions. • Moderate maintenance annually or seasonally.



MANAGED PARKLAND
<ul style="list-style-type: none"> • Reduced understory with low fuel loads less than 5 tph. • Formal open spaces. • Weed management programs. • Minimal access restrictions and improved surveillance. • Regular maintenance programs weekly or monthly.



URBAN LANDSCAPING
<ul style="list-style-type: none"> • Reduced understory with low fuel loads less than 5 tph. • Formal landscaping areas. • Weed management vegetation programs. • Minimal access restrictions and improved surveillance. • Regular maintenance programs weekly or monthly.



FIGURE 10
LANDSCAPE TYPES



Rev	Description	Date
A	Preliminary	24/03/2017

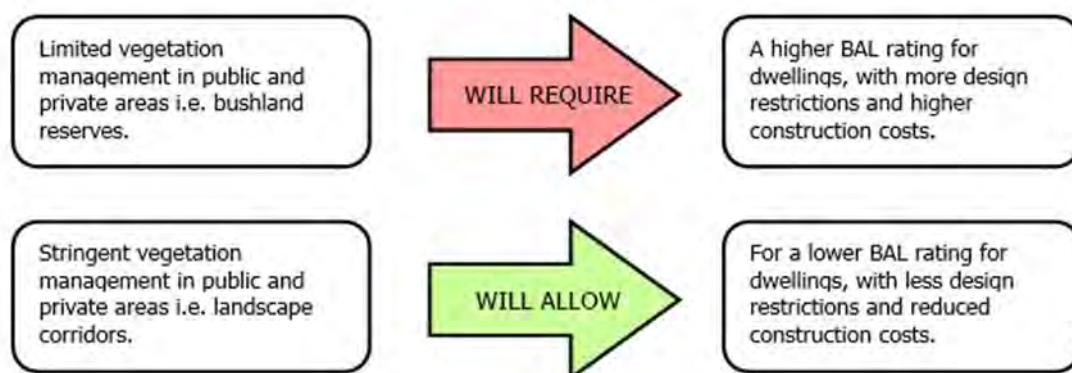
4.3 Housing Affordability

Where dwellings are located more than 100m from the hazard vegetation they are classified as having a low hazard rating and do not require any specific protection measures.

An important element of the Planning for Bush Fire Protection Guidelines is that it permits the 100m separation distance to be reduced providing that the construction standard of the dwellings is increased to align with the appropriate Bush Fire Attack Level for that location.

The design of the subdivision can elect to design the landscaping and actively manage the remnant vegetation so as to minimise the fire risk and hence reduce the required construction standard of the dwellings. Alternatively, where there is only passive management of the vegetation then the required construction standard of the dwellings will increase.

This is illustrated below.



4.4 Access

One of the most significant design issues to be considered in the subdivision and development of land is the need for multiple access.

Element 3 of the Bushfire Protection Criteria has an objective to ensure that the vehicular access serving a subdivision/development is safe in the event of a bush fire occurring. The performance criteria seek to ensure that the subdivision design allows emergency and other vehicles to move through the development easily and safely at all times.

The acceptable solution is to provide two different vehicular access routes, both of which connect to the public road network, and which are available to all residents/the public at all times. By providing two access options, residents can evacuate and fire services can enter even when one access route is blocked by fire. These access routes should be in different directions.

The townsite road network is based upon a grid pattern which generally provides excellent access.

As shown in Figure 8 the Strategy Plan shows a number of proposed road connections. The most critical of these is the construction of Pollard Street along the western boundary of the study area connecting to Moores Road. If this is not provided then development

Pinjarra Bushfire Hazard Level Assessment

of the south western portion of the study area and in particular Thomas and Lovegrove Streets is unlikely to comply with the Bushfire Protection Criteria.

Access in the Thomas Street area is also limited because Tuckey Street does not connect through to Moores Road. Consideration should be given to extending this connection or providing an emergency access way.

The proposed Greenspace Network will be connecting from the river through McLarty Park and westward to Pollard Street. While there is remnant vegetation at the western end of this corridor, this will be separated from other vegetation areas to the east by the open space McLarty Park. However, there is no direct road connection through McLarty Park. While Pollard Street will provide north - south access on the western boundary, a second north - south access or emergency access way should be examined in any subsequent structure plan potentially on the western boundary of McLarty Park and Pony Club. This will also depend upon the extent of the proposed subdivision in this area,

4.5 Vulnerable Land Uses

SPP3.7 Planning in Bushfire Prone Areas defines a vulnerable land use as one where persons may be less able to respond in a bushfire emergency. The Guidelines then explain that such uses include hospitals, nursing homes and retirement villages, tourist accommodation including camping grounds and ecotourism, childcare centres, educational establishments, places of worship and corrective institutions. This definition may also encompass places of assembly, retail and office premises as well as subsidiary uses of residential development, such as family day care centres or home businesses, and essential infrastructure such as energy, transport, telecommunications and other utilities.

While there are a number of expected vulnerable landuses within the townsite the following ones are specifically noted:

- Murray District Hospital;
- Bedingfeld Lodge;
- **Belswan Pinjarra's Lifestyle Village;**
- Jehovah Witness church in Tuckey Street; and
- Family Church in Wilson Road.

The Murray District Hospital and Bedingfeld Lodge are located in the Health Precinct on the southern edge of the townsite. They are adjacent to the river corridor with significant areas of hazard vegetation. This also includes Reserve 3102 which contains woodland type vegetation with slashed grassland.

Further development of the Health Precinct will need to carefully examine the proximity of hazard vegetation and the need to provide suitable setback distances. Any bushfire management plan for this area will need to consider evacuation issues.

The Jehovah Witness church in Tuckey Street is presently at the end of a cul-de-sac being more than 200m in length. The site is surrounded by bushland and would benefit from having an emergency access way connecting to Moores Road. It is also expected that as the area is progressively developed then the extent of the hazard vegetation will be reduced.

The Family Church in Wilson Road is adjacent to Reserve 6131 which is proposed to be retained as bushland in the Strategy. Any management plan for Reserve 6131 will need to consider suitable setback distances to the church.

4.6 High Risk Land Uses

High risk land uses are those uses which may lead to the potential ignition, prolonged duration and/or increased intensity of a bushfire. Examples include service stations, landfill sites, bulk storage of hazardous materials, fuel depots.

It is expected that high risk land uses, especially those relating to industry will be located in the industrial estate on the western side of the town.

Within the study area the most likely high risk land use will potentially be a service station.

While the majority of the Core and Mixed Use Precincts have a low bushfire hazard rating it would be prudent to ensure that a service station is a discretionary use in the Planning Scheme so that any potential bushfire management issues can be addressed.

4.7 Environmental Considerations

There are significant environmental features within the study area which require consideration in any subsequent development. This is reflected in the Strategy and the most notable features are:

- The river corridor and in particular the associated vegetation;
- The conservation reserves between Alderson Street and Hampton Road are designated aboriginal heritage sites with the southern portion being vested to the National Parks Authority;
- The wetlands which have been shown on Figure 8 are formally recognised by the Department of Water and the EPA however the classification level is unknown; and
- Regionally significant areas of bushland.

These areas are protected in the Greenspace Network and the preceding bushfire management issues relating to the development interface need to be considered.

4.8 Bushfire Protection Criteria

In considering the bushfire management issues, it is necessary to demonstrate that the Bushfire Protection Criteria in the Guidelines can be achieved now or in subsequent planning stages. Given the broad nature of the Strategy it is difficult to undertake a detailed assessment against the Bushfire Protection Criteria.

A summary of the compliance with the Bushfire Protection Criteria is documented in Table 4.

Pinjarra Bushfire Hazard Level Assessment

Table 4 BPC Summary

No	ACCEPTABLE SOLUTION	COMPLIANCE	WHEN	COMMENT
Element 1 Location				
A1.1	Development Location Must have a moderate hazard level and maximum BAL-29 rating	Yes	Structure Plan Scheme Amendment Subdivision	Proposed development areas will have a moderate bushfire hazard rating.
Element 2 Siting and Design of Development				
A2.1	Asset Protection Zone This functions as the low fuel zone required for the BAL-29 rating	Yes	Structure Plan Scheme Amendment Subdivision	A maximum BAL-29 rating can be achieved with appropriate setback distances.
Element 3 Vehicular Access				
A3.1	Two Access Routes	Yes	Structure Plan Scheme Amendment Subdivision	The proposed Local Movement Network will ensure multiple access routes. The construction of Pollard Street is a critical feature.
A3.2	Public Road	Yes	Structure Plan Scheme Amendment Subdivision	Subdivision roads to be designed and built in accordance with the Municipal Engineering Guidelines
A3.3	Cul-de-sac	Deferred	Structure Plan Scheme Amendment Subdivision	
A3.4	Battle-axe	Deferred	Structure Plan Scheme Amendment Subdivision	
Element 4 Water				
A4.1	Reticulated Areas	Yes	Structure Plan Scheme Amendment Subdivision	All development and lots are expected to have reticulated water and hydrants.
A4.2	Non-Reticulated Areas	N/A		
A4.3	Individual Lot Non Reticulated	N/A		

5.0 CONCLUSION

This bushfire hazard level assessment has been undertaken to support and inform the **preparation of Council's** town centre Revitalisation Strategy. The assessment has been undertaken at a strategic level given that it was not possible to physically inspect all of the vegetation units in each investigation area.

The study area has significant areas of bushland with an extreme bushfire hazard level. It is expected that this hazard will be modified where development occurs while noting that the Greenspace Network will protect vegetation areas with high environmental values. The Greenspace Network will also create corridors linking these areas but these public spaces can be designed and managed so that the landscaping does not increase the bushfire risk.

The proposed development reflecting the Greenspace Network, new access roads and the land use precincts is shown in Figure 11. The subsequent bushfire hazard levels for the completed development are shown in Figure 12. These both show bushland areas which are expected to be retained in their natural state generally meaning forest, woodland or scrub vegetation as defined classifications. This is different to public open space and landscaped areas which have managed vegetation. While these areas may have trees, they tend to have less understorey vegetation with weeds being controlled and corresponding low fuel loads.

The objectives of State Planning Policy 3.7 Planning in Bushfire Prone Areas are in summary to:

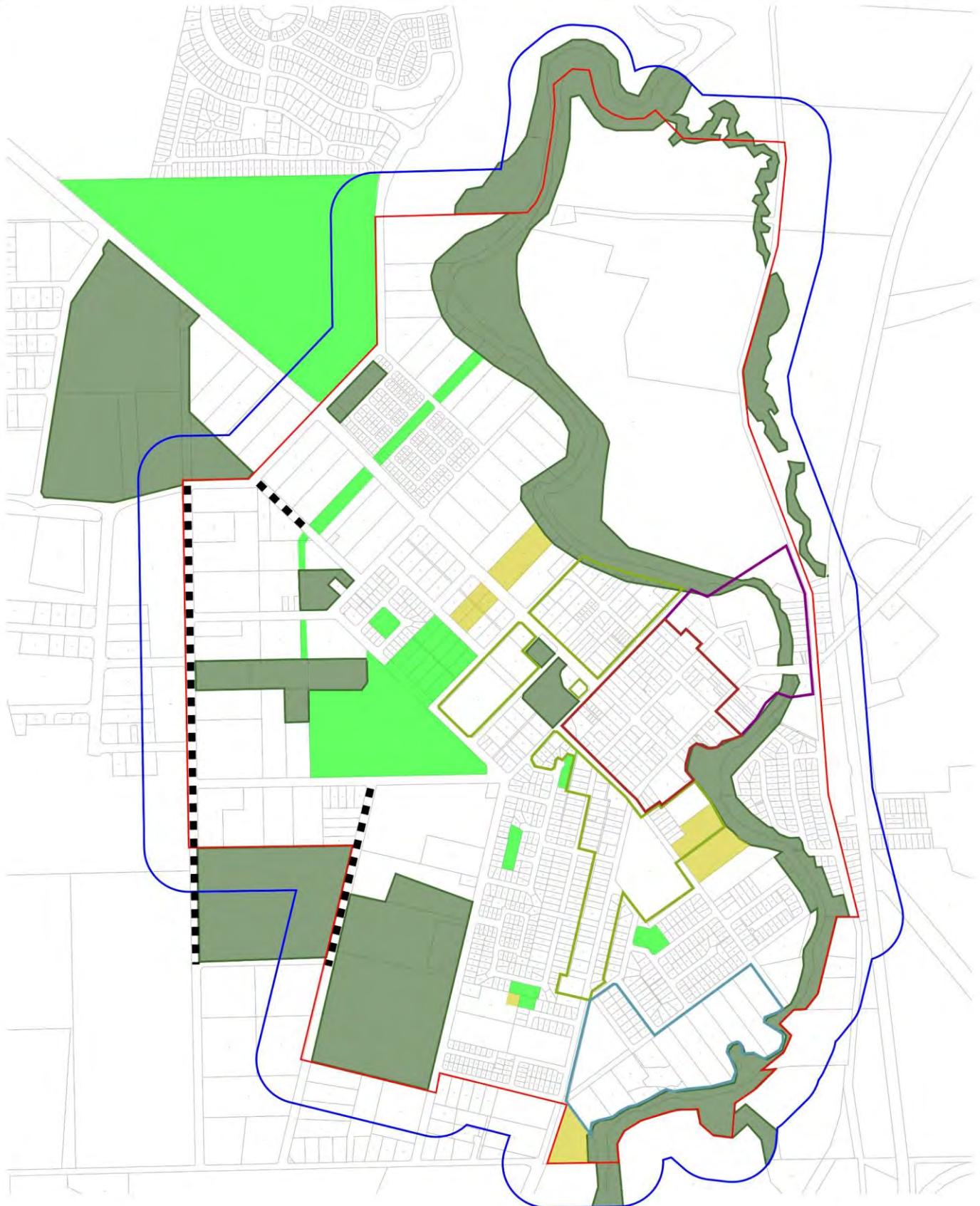
1. Avoid any increase in the threat of bushfire to people, property and infrastructure.
2. Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making.
3. Ensure that strategic planning proposals take into account bushfire protection requirements and include specified bushfire protection measures.
4. Achieve an appropriate balance between bushfire risk management measures and environmental protection.

SPP3.7 promotes that the maximum Bushfire Attack Level to be used for the design of subdivision or development is BAL-29. However, there is a growing recognition that increased setbacks may be required adjacent to large areas of hazard vegetation, where there is a long fire run, and a need to have a "defendable space" between the hazard and development.

From the available information, **there is no 'fatal flaw' which would prevent** further development within the study area. The Strategy and recommendation strategically comply with the objectives of SPP3.7 and it is expected that any subsequent subdivision or development will comply with the Bushfire Protection Criteria.

It is recommended that the Strategy:

1. Reflect the need to for maximum BAL-29 ratings and associated development setbacks.
2. Promote the provision of subdivision roads adjoining areas of remnant vegetation which are proposed to be retained.



LEGEND

STUDY AREA



BUSHLAND AREAS



PRECINCTS

150m MAPPING BUFFER



PUBLIC OPEN SPACE



CORE

PROPOSED ROADS



POS WITH MANAGED VEGETATION



MIXED USE

HEALTH



HERITAGE & ARTS



RESIDENTIAL
(Balance Area)



FIGURE 11
PROPOSED DEVELOPMENT



Rev	Description	Date
A	Preliminary	27/04/2017

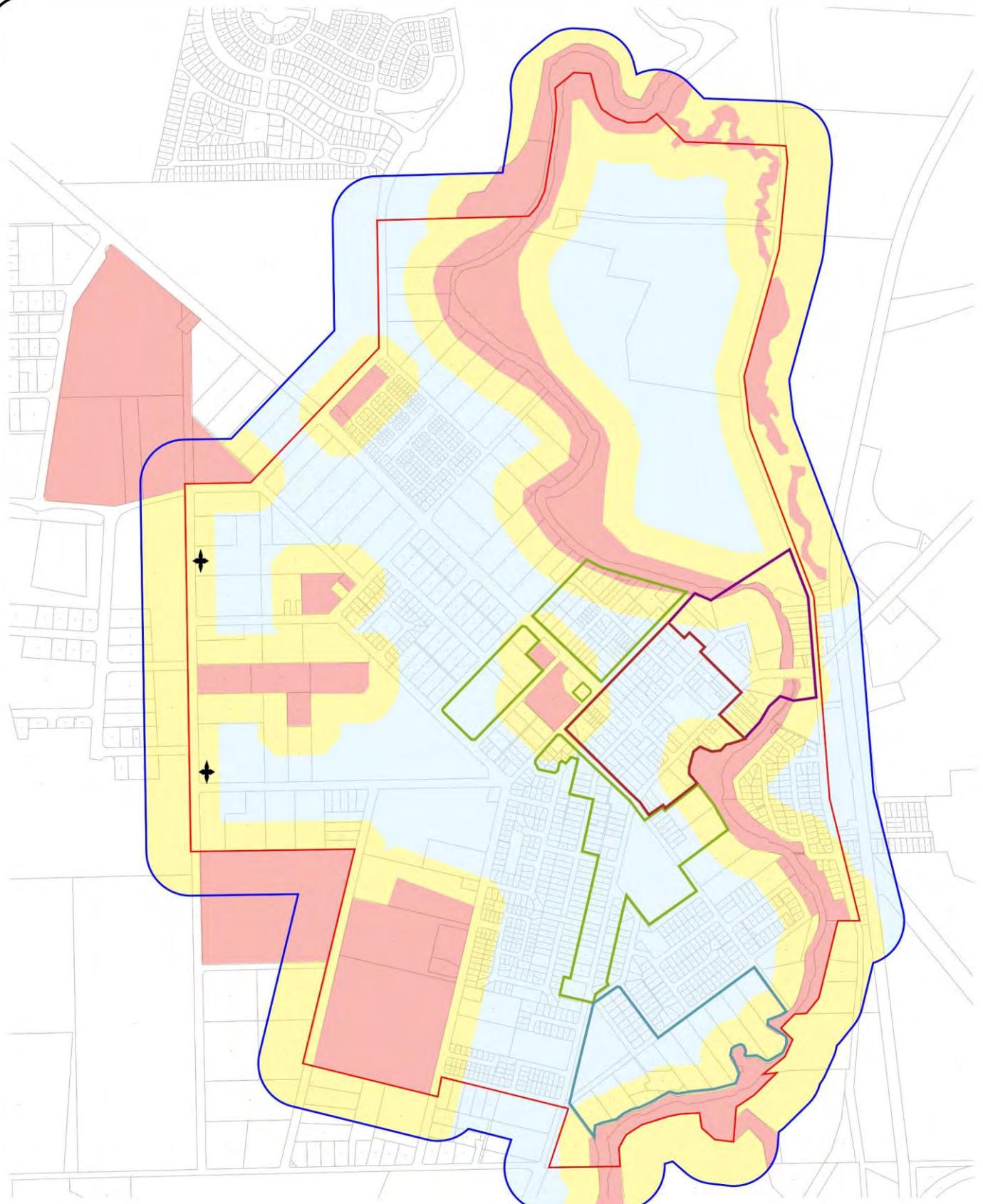


FIGURE 12
PROPOSED DEVELOPMENT
BUSHFIRE HAZARD LEVELS



Rev	Description	Date
A	Preliminary	27/04/2017

Pinjarra Bushfire Hazard Level Assessment

3. Promote that the corridors shown in the Greenspace Network are designed and maintained as low threat vegetation. This can still incorporate areas of trees and shrubs provided that there is appropriate gaps and spaces.
4. Promote that the corridors shown in the Greenspace Network are developed in accordance with the Designing Out Crime Guidelines and in particular encouraging surveillance in public areas.
5. Recognise that where the Strategy promotes housing affordability objectives these may require additional development setbacks to reduce the BAL rating and associated increased construction costs.
6. That the construction of Pollard Street along the western boundary of the study area connecting to Moores Road is critical for ensuring a suitable road network and multiple access routes for development in the south western portion of the study area.
7. That development of the Health Precinct be subject to a separate bushfire management and risk plan due to the likely vulnerable land uses and the proximity of hazard vegetation along the river corridor and adjacent reserves.
8. That the Strategy recognise the need to extend Tuckey Street or to provide an emergency access way to improve protection for the Jehovah Witness church.
9. That the management of Reserve 6131 consider the provision of an asset protection zone for the adjacent Family Church in Wilson Road.
10. That a service station (high risk land use) be classified as a discretionary use in the Planning Scheme so that any potential bushfire management issues can be addressed.
11. Recognise that where development occurs in a staged manner or where an adjacent property remains undeveloped then it will be necessary to provide appropriate bushfire management measures including the application of the AS3959 construction standards.
12. Stipulate that any subsequent structure plans, amendments or subdivision applications are to demonstrate how the proposed development will comply with the Bushfire Protection Criteria.

6.0 REFERENCES

- Cheney P & Sullivan A (2008) *Grassfires – Fuel, Weather and Fire Behaviour.* CSIRO Publishing Collingwood
- DFES (2011) *Firebreak Location, Construction and Maintenance Guidelines*
- Ellis, S, Kanowski, P & Whelan, R (2004), *National Inquiry on Bushfire Mitigation and Management*, Canberra. Council of Australian Governments.
- DFES (2007) *Visual Fuel Load Guide.* Perth. Fire & Emergency Services Authority of Western Australia.
- Gould J and Cruz M (2012) *Australian Fuel Classification: Stage II;* Australasian Fire and Emergency Service Authorities Council Melbourne
- Handmer J. & Haynes K. (Eds) (2008). *Community Bushfire Safety.* Collingwood CSIRO Publishing.
- Institute of Public Works Engineering Australia WA Division Inc. (2009) *Local Government Subdivisional Guidelines* Perth
- Keelty J (2011) *A Shared Responsibility – The Report of the Perth Hills Bushfire February 2011 Review* Government Printer Perth
- Keelty M (2012) *Appreciating the Risk – Report of the Special Inquiry into the November 2011 Margaret River Bushfire* Government Printer Perth
- Leading Emergency Services (2011) *Major Incident Review, Lake Clifton, Roleystone and Red Hills Fires*
- Leonard J (2009) *Report to the 2009 Victorian Bushfires Royal Commission Building performance in Bushfires* CSIRO
- Middelmann, M. H. (Editor) (2007) *Natural Hazards in Australia: Identifying Risk Analysis Requirements.* Geoscience Australia, Canberra
- Ramsay C. & Rudolph L. (2006) *Landscape and Building Design for Bushfire Areas.* Collingwood CSIRO Publishing.
- Standards Australia (2009) *AS/NZS ISO 31000 Risk Management- Principles and Guidelines* Sydney. Standards Australia International Ltd.
- Standards Australia (2009) *AS 3959 – Construction of Buildings in Bush Fire Prone Areas.* Sydney. Standards Australia International Ltd.
- Shire of Murray (2016) *Pinjarra Town Centre Revitalisation Strategy & Activity Centre Plan*
- WAPC (2006) *Designing Out Crime Guidelines*
- WAPC (2015) *Guidelines for Planning in Bushfire Prone Areas*
- Webster J (2012) *Essential Bushfire Safety Tips* CSIRO Publishing Collingwood