



Kalamunda Activity Centre Precinct Structure Plan

December 2024

Endorsement Page

This structure plan is prepared under the provisions of the City of Kalamunda Local Planning Scheme 3.

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

09 May 2025

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



An officer of the Commission duly authorised by the Commission pursuant to section 24 of the *Planning and Development Act 2005* for that purpose, in the presence of:

Witness Rhianne Fiander

Date 03 June 2025

Date of Expiry 03 June 2035

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Contents

1. Implementation	10
1.1 Activity Centre Precinct Structure Plan Area	11
1.2 Operation	12
1.3 Staging	12
1.4 Precinct Structure Plan Objectives	12
1.5 Development Requirements for the Activity Centre	14
1.6 Local Development Plans	24
1.7 Additional Information	26
1.8 Variations	27
2. Explanatory Report	28
2.1 Introduction & Purpose	29
2.2 Background & Planning Process	41
2.3 Planning Framework	51
2.4 Activity Centre Framework	57
2.5 Environment	70
2.6 Employment & Retail Analysis	75
2.7 Movement	81
2.8 Servicing	101
2.9 Implementation	107
3. Appendices	111
Appendix A: Built form design guidelines	112
Appendix B: Placemaking and engagement report	165
Appendix C: Bushfire management plan	189
Appendix D: Employment and retail analysis	230
Appendix E: Historical and Aboriginal baseline assessment	264
Appendix F: Transport assessment	295
Appendix G: Engineering services report	375
Appendix H: Landscape master plan	402
Disclaimer	451

Tables

Table 1 – Activity Centre Objectives	13
Table 2 – Land Use	14
Table 3 – R-Code Application	15
Table 4 – General Requirements	16
Table 5 – Built Form Development Requirements	21
Table 6 – Movement Network Development Requirements	22
Table 7 – Local Development Plan requirements	25
Table 8 – Additional Information Requirements	26
Table 9 – Surrounding Environment	35
Table 10 – Land Ownership	39
Table 11 – Consultation summary	42
Table 12 – Precincts	49
Table 13 – Key Planning Documents	51
Table 14 – Other Planning Documents	53
Table 15 – SPP4.2 Provisions and Compliance	56
Table 16 – Frontage Types	58
Table 17 – Sustainability Measure	74
Table 18 – Retail Supply – Key Centres within and Outside the Catchment	76
Table 19 – Population Projections	78
Table 20 – Projected Population Growth Rates	78
Table 21 – Turnover Estimates, 2017	79
Table 22 – Market Share Estimates, 2017	79
Table 23 – Kalamunda Town Centre Floorspace Scenarios	80
Table 24 – Road Hierarchy Characteristics	81
Table 25 – Road Hierarchy Characteristics	82
Table 26 – 2015 Road Network Intersection Performance	84
Table 27 – Key Road Functions	86
Table 28 – Canning Road / Mead Street – Committed Upgrade to Mead Street Approach	88
Table 29 – Canning Road / Heath Road – Existing Arrangement	89
Table 30 – Proposed Road Network Arrangements	91
Table 31 – Proposed Pedestrian Facilities	97
Table 32 – Proposed Cyclist Facilities	98

Figures

Figure 1 – Kalamunda Activity Centre Precinct Structure Plan area	11
Figure 2 – Kalamunda Activity Centre Precinct Structure Plan	20
Figure 3 – Movement Network Plan	23
Figure 4 – Local Development Plan Site Locations	24
Figure 5 – Key Planning Documents	29
Figure 6 – Kalamunda SA2 Demographic Overview	31
Figure 7 – Proportion of Population by Age – SA2 vs Greater Perth	32
Figure 8 – Dwelling Structure Proportion	33
Figure 9 – Total Occupied Dwellings	33
Figure 10 – Number of Bedrooms Proportion	33
Figure 11 – Dwelling Stock by Bedroom	33
Figure 12 – Total Household Income, 2016 (Per Annum)	34
Figure 13 – Regional Context Plan	36
Figure 14 – Location Plan	37
Figure 15 – Aerial Photograph	38
Figure 16 – Landownership Map	40
Figure 17 – Opportunities and Constraints Plan	47
Figure 18 – Kalamunda Activity Centre Word Cloud	48
Figure 19 – Precinct Plan	50
Figure 20 – Built Form Controls Map	60
Figure 21 – Landscape Master Plan	62
Figure 22 – Key Spaces and Features	64
Figure 23 – Main Street Element	65
Figure 24 – Central Mall Element	66
Figure 25 – Barber Street Piazza Element	67
Figure 26 – Future Potential Shared Street and Civic Space Element	68
Figure 27 – Journey Element	69
Figure 28 – Pre-Development Bushfire Hazard Level	72
Figure 29 – Kalamunda Town Centre Main Trade Area and Retail Supply	77
Figure 30 – Surrounding Road Hierarchy	83
Figure 31 – Movement Network Plan	90
Figure 32 – Cross Section Reference Map	93
Figure 33 – Power Supply Map	103

Executive Summary

The Kalamunda Activity Centre Precinct Structure Plan will facilitate the ongoing development and redevelopment of the Kalamunda town centre, shaping its future positioning as a contemporary, attractive and functional centre for residents and visitors.

The town centre is at a crossroad, whereby its future and function need an effective combination of vision and practical implementation to enable its ongoing relevance and commerciality whilst retaining key elements of its character and identity.

The current town centre is diverse in nature, land use and design. Heritage, topography and an active and engaged local community provide great opportunities to leverage from. Critically, the Kalamunda town centre contains some of the trademarks of a well-performing district centre but not all and lacks any real cohesion.

This plan will provide the greatest opportunity to date to deliver a robust planning framework that can facilitate this coordination and much needed activation to key parts of the town centre.

The planning for this activity centre has been led by the City of Kalamunda in consultation with the local community, business owners and the Department of Planning, Lands and Heritage/WA Planning Commission (DPLH/WAPC).

The activity centre is planned to provide:

- Reinforcement of Haynes Street as the traditional 'main street' with highly active edges, a mix of uses, pleasant pedestrian environment and a built form outcome that reflects the character of Kalamunda.
- Central Mall becoming a food and beverage focus supported by a one-way shared vehicle/pedestrian street.
- A consolidation of retail and commercial activity within the town centre core expanding from its current approximately 20,000sq.m shop/retail and other retail floor space to an additional 2,800 – 3,800sq.m.
- Creation of a new civic space on Railway Parade at the top end of Haynes Street as a multi-use public space creating a focal point for the town centre.
- Consolidation of employment generating land uses including larger format commercial, retail and civil uses around Mead Street leveraging off Kalamunda Central shopping centre.
- Celebration of cultural features by creating synergies between Stirk Park including Stirk Cottage, Zig Zag Cultural Centre and Bibbulmun Track.
- A 'frame' to the town centre core that supports predominantly residential and mixed use development that contributes to the walkable catchment of the town centre
- Consolidated parking areas in appropriate locations.
- Highly legible, safe and well-designed pedestrian linkages to connect all parts of the activity centre as well as important community focal points beyond.

Implementation of the plan requires both private and public investment. This plan is a framework to guide future change; re-energising a traditional town centre to attract new investment and people to the area. In the absence of significant growth projections in the residential or commercial sectors, the success of the precinct structure plan will rely on the co-operation

and collaboration of the City of Kalamunda, State government agencies, local business owners and the community more broadly.

This precinct structure plan, as required by the relevant clauses of the deemed provisions, provides the primary land use, built form and strategic planning controls for the Kalamunda activity centre, and is to be given due regard in the consideration of development and subdivision applications by the relevant determining authority.

The Kalamunda activity centre precinct structure plan will facilitate the provision of a district centre to service the future of Kalamunda in a manner and form consistent higher level planning documents, and the direction of the City and the DPLH/WAPC.

Precinct Structure Plan Content

This precinct structure plan is made pursuant to LPS 3, including the deemed provisions for local planning schemes of the Planning and Development (Local Planning Schemes) Regulations 2015 (the deemed provisions) and State Planning Policy 4.2 Activity Centres for Perth and Peel. The precinct structure plan comprises three parts:

Part One: Implementation – sets out the planning provisions to guide the assessment and approval of development and subdivision.

Part Two: Explanatory Report – provides a summary of the vision, objectives, context and technical analysis to support the precinct structure plan.

Technical Appendices – containing technical studies and reports prepared by various qualified consultants to support the precinct structure plan.

Summary Table

Element	Data
Total Area covered by the Precinct Structure Plan	70.72ha
Area of each land use proposed:	Residential - 10.24ha Centre - 13.17ha Mixed Use - 11.17ha Public Purpose - 5.38ha
Local Open Space	Existing - 12.86ha
Estimated number of dwellings	Existing ~530 dwellings Potential ~400+ additional dwellings
Estimated population (Kalamunda-Maida Vale – Gooseberry Hill SA2)	Existing ~14,889 (at 2016) Potential ~16,590 (by 2026)
Number of high schools	Nil
Number of primary schools	Nil
Estimated commercial floor space	Existing: ~20,000sq.m Potential: ~ 23,800sq.m (medium-long term)

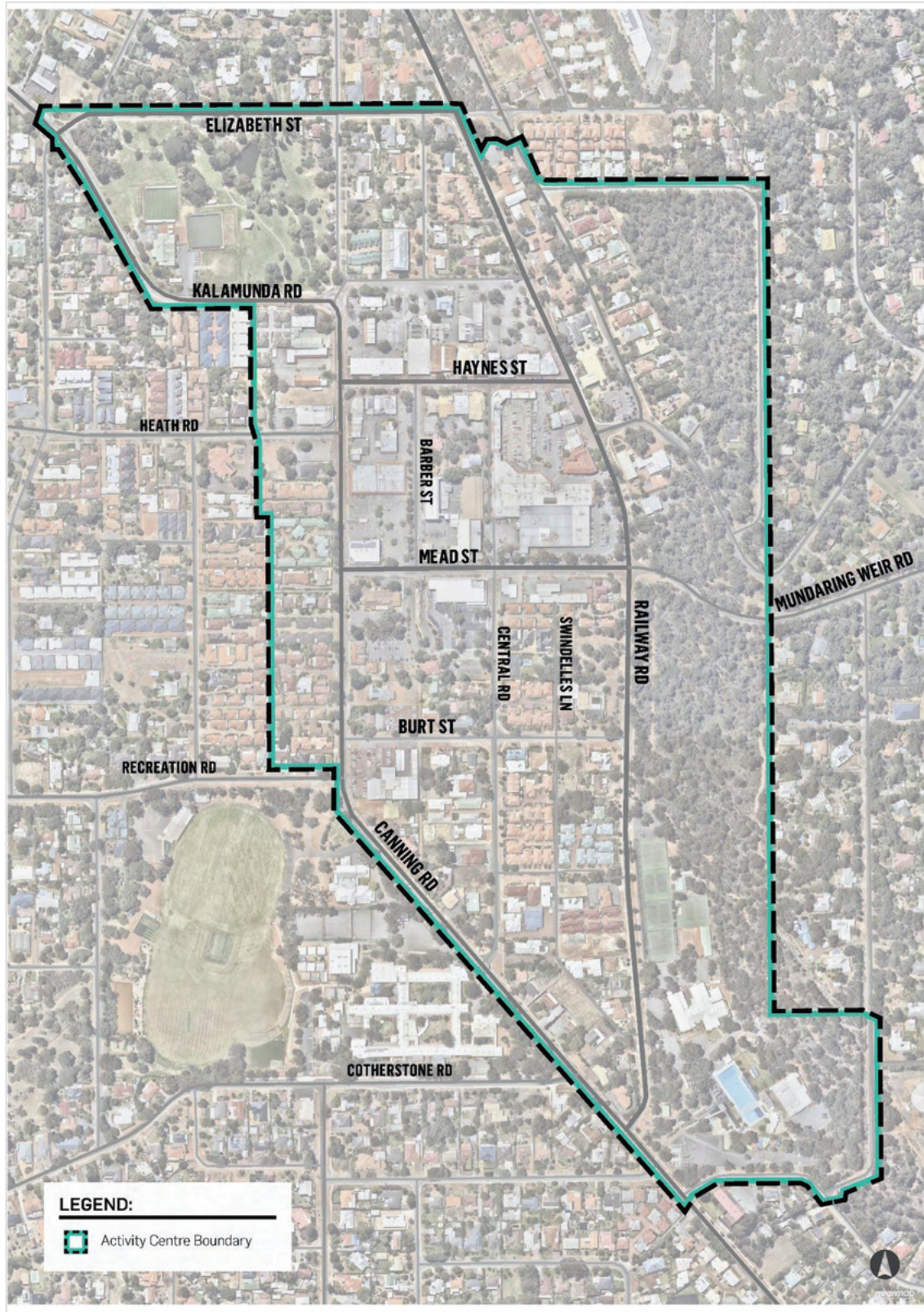
1. Implementation



1.1 Activity Centre Precinct Structure Plan Area

This precinct structure plan applies to the Kalamunda activity centre as the land identified Figure 1 – Kalamunda Activity Centre Precinct Structure Plan area as defined by the black dotted boundary.

Figure 1 – Kalamunda Activity Centre Precinct Structure Plan area.



1.2 Operation

This precinct structure plan comes into effect on the day it is approved by the WA Planning Commission (WAPC), the date of which is outlined on the endorsement page. As per the deemed provisions from the date of endorsement this precinct structure plan is to have effect for a period of 10 years, unless otherwise determined by the WAPC.

Unless otherwise specified, the words and expressions used in this precinct structure plan shall have the respective meanings given to them in City of Kalamunda Local Planning Scheme No.3 (LPS 3).

Nothing in this precinct structure plan is to be interpreted as limiting clause 5.5 of LPS 3 which allows for variations to site and development standards and requirements. Nothing in this precinct structure plan is to be interpreted as limiting clause 27 of the deemed provisions that outlines that a decision-maker for an application for development approval or subdivision approval in an area that is covered by a precinct structure plan is to have due regard to, but is not bound by, the precinct structure plan when deciding the application.

1.3 Staging

Further development in the precinct structure plan area can be progressed in the near term, as services are already available, and the road network within and surrounding the activity centre are pre-existing.

The staging of future development will take place in line with market demand given the fragmented landownership within the activity centre.

Staging for public realm improvements is to be undertaken in accordance with the Kalamunda Landscape Master Plan.

Place management and activation ideas explored in Appendix B - Place Making and Engagement Report should be investigated as a priority, particularly the preparation of a place management and activation plan to support 'quick win' improvements and place activation in partnership with local businesses and community groups.

1.4 Precinct Structure Plan Objectives

1.4.1 Activity Centre Objectives

Development and subdivision in the precinct structure plan area shall align with the objectives outlined in **Table 1** that relate to key elements around the themes of Urban Form, Community, Land Use and Activity, and Movement. These themes were formulated by the visioning process undertaken with the local community and business owners.

These objectives are to be read in conjunction with the objectives of the applicable Zones contained in LPS 3.

Table 1 – Activity Centre Objectives

Theme	Objectives
Urban Form	• Create a home in the forest. • Development a new 'main street' environment along Haynes Street supported by Central Mall, Mead Street, Barber Street Canning Road and Railway Road. • Encourage built form outcomes that connect the heritage character of the town centre. • Promote buildings that reflects the materiality and landscape of the area through use of local material and colour palettes. • Connect the cultural elements of the town centre to create a meaningful and cohesive story.
Community	• Strengthen and support existing events, festivals, markets and activities and create new place activation opportunities that contribute towards a vibrant and activated town centre. • Encourage co-location of community facilities • Create places that cater for all members of the community from youth to the elderly.
Land Use and Activity	• Create a location that caters for daily needs of the community. • Encourage land uses that operate beyond traditional business hours. • Enhance safety and vibrancy of the public realm by encouraging passive surveillance of it and facilitating social interaction within it. • Enhance housing and social diversity. • Enable a critical mass of residents, visitors and workers to support new and enhance existing retail and community offerings.
Movement	• Improve connections and better integrate major land uses and activities in the town centre. • Promote pedestrian and cyclist priority streets that are safe and accessible for all. • Encourage walking, cycling and public transport use. • Ensure destinations and places are well-connected and legible.

1.5 Development Requirements for the Activity Centre

1.5.1 Land Use Permissibility

The precinct structure plan land uses have land use permissibility as per **Table 1** Zoning Table within LPS 3 for the corresponding zone as outlined in **Table 2**.

The activity centre and precinct objectives in section 1.4.1 should inform decision-making where discretion is sought to guide the land use outcomes envisaged for the precinct structure plan area.

Table 2 – Land Use

Structure Plan Map Land Use category	Equivalent Zone/Reserve in accordance with LPS 3
Centre (DC1)	Centre (DC1) Zone
Residential	Residential Zone
Mixed Use	Mixed Use Zone
Public Purpose	Public Purpose reserve
Local Open Space	Local Open Space Reserve

1.5.2 General Requirements

The following provision apply to all development in the precinct structure plan area including:

These provisions are to be read in conjunction with the Built Form Design Guidelines (BFDG) which provide a set of development standards that allow for increases in density over time while maintaining the fine-grained, village environment that local residents cherish (refer Appendix A).

The BFDG relies on the overall framework set out in the WA Planning Commission's State Planning Policy 7.3 Residential Design Codes (R-Codes) Volume 1 and 2. Where there is a conflict, the requirements of this Precinct Structure Plan and the BFDGs prevail.

The below development standards in **Table 4** are applicable to all subdivision and development within the precinct structure plan area to be read in conjunction with the BFDGs and the R-Codes (Volume 1 and 2).

For residential and mixed-use development, the following provisions in **Table 3** of the R-Codes apply unless otherwise varied by LPS 3, this precinct structure plan, the BFDG or any other local planning policy:

Table 3 – R-Code Application

Residential Design Codes	Single Houses	Grouped Dwellings	Multiple Dwellings
Volume 1 Part B	R40 and below	R25 and below	R10 to R25
Volume 1 Part C	R50 and above; R100-SL; R-AC	R30 and above R100-SL; R-AC	R30 to R60
Volume 2	NA	NA	R80 and above; R-AC

In instances where a requirement refers to a provision of Volume 2 of the R-Codes, these are intended to apply to all development in the Precinct Structure Plan area except for Single House and Grouped Dwellings unless otherwise specified.

Table 4 – General Requirements

Control	Requirement
Site Planning & Massing	
1. Development Requirements and Frontage Types	For the most critical street edges within the activity centre a series of more detailed development standards based on 'Frontage Types' are imposed to ensure an appropriate interface with the adjacent public realm that is consistent with the intended urban design outcome. This includes minimum and maximum front setback requirements as well as a range of other considerations relating to the design of the front building facade. - Development standards as per Table 5 - Built Form Development Requirements. - Frontage designation as per Figure 2 - Kalamunda Activity Centre Precinct Structure Plan. - On sloping sites, achieving at grade entrances is challenging. Floor levels may vary from 0.5m above to 0.5m below grade along footpath, but building entries must conform to BCA universal access requirements and AS1428.1. - Clear glazing requirement apply to street facing facades (measured up to 3m in height). - Frontage Build-Out requirements are intended to create a consistent built edge along a street, and relate to the identified building line across the front of the site, as set by the front setback. - Building Articulation of ground floor shopfronts is encouraged, including inset entries, creative signage, window displays, transom windows, and varying materials such as timber or brick expressed as piers, plinths, and beams to provide visual interest. Unarticulated glazed shopfronts are not encouraged.
2. Plot Ratio	Maximum plot ratio allowed as per Figure 2 - Kalamunda Activity Centre Precinct Structure Plan and associated provisions of the R-Codes (Volume 1 or 2).
3. Building Height	- For properties with designated Frontages on Figure 2 - Kalamunda Activity Centre Precinct Structure Plan, heights as per Table 5 - Built Form Development Requirements. - For properties without a designated Frontage, heights as per the designated R-Coding identified in Figure 2 - Kalamunda Activity Centre Precinct Structure Plan and associated provisions of the R-Codes (Volume 1 or 2). - Maximum heights are set in storeys.
4. Ground Floor Residential	- In Residential and Mixed Use areas, residential uses at ground floor may be appropriate. - Design principles and configuration for appropriate ground floor residential interfaces are outlined in sections 3.6 and 3.7 of the R-Codes, Volume 2. . These provisions do not apply to sites subject to a 'Frontage Type' as per Figure 2 - Kalamunda Activity Centre Precinct Structure Plan. - Where no 'Frontage Type' is designated, street setback requirements are set according to the designated R-Coding as per Figure 2 - Kalamunda Activity Centre Precinct Structure Plan, with associated front setbacks as per the R-Codes (Volume 1 or 2). - In general, finished floor level of ground floor residential facing the street should not exceed 1m above footpath level. - Finished floor levels of ground floor residential should not be below the footpath level, unless the building is setback 10m or more from the street.
5. Corner Buildings	- Corner lots should locate a building at the corner of the site addressing both street frontages. - The corner should be emphasised and articulated in the architectural expression of the building (eg. corner entry, special awning treatment, signage, vertical element). - Minimum Frontage Build-Out requirements, if required by Frontage type, can be reduced by 20% on corner sites.

Control	Requirement
6. Transition Provisions	a. Applies to all properties that share a lot boundary with properties outside the precinct structure plan area. b. Applies to all Attached Streetscape properties (R-AC4, R-AC3) that share a lot boundary with Detached Streetscape properties (R40-R60). c. Transition must be addressed using either of these approaches: i. Internal boundary setback (side or rear) of applicable property to be increased by 3m (in addition to otherwise required setback). ii. Height limit along applicable boundary reduced to 2 storeys, with upper levels set back minimum of 6m from lower building face.
7. Response to Topography	a. Section 3.1 of the R-Codes, Volume 2 provides guidance on undertaking a site analysis to inform new development ensuring that building site design interfaces appropriately with surrounding buildings and public realm. b. Minimise the use of large retaining walls. If they are taller than 1.5m, they should be stepped and landscaped. c. Incorporate retaining as part of the overall building or as part of the landscape proposal. d. Design the building for 'up-slope' and 'down-slope' conditions relative to the street by: i. balancing car parking access with the creation of a strong building façade along the street. Car parking access often works best at 'down-slope' side of the building. ii. minimising the setback for up-slope conditions to achieve a close relationship between the building and street edge. iii. aiming for level access to the entry door wherever possible. However, where buildings are close to the street and have a residential ground floor, setting finished floor levels slightly higher can assist with privacy (max. 1m in accordance with 'Ground Floor Residential' requirements). For commercial uses, entries should be designed to achieve universal access requirements. e. Balance cuts into the land with fill, instead of only using cuts or fill alone. Use parts of the slope for the open spaces associated with the development, incorporating it as terracing, and create flat outdoor spaces around the buildings. f. Utilise the slope for undercroft (undercut) or basement car parking wherever possible.
Building Character	
8. Place Identity	a. New buildings within the Kalamunda Activity Centre should have an architectural character that is attractive and compatible with the surrounding buildings. This character should draw from prominent materials and colours of the area, and should express and strengthen the intended place identity of "Home in the Forrest." b. All development (inclusive of Single House and Grouped Dwellings) must comply with section 2.2 Place Identity of the BFDGs as follows: i. While replicating historical buildings is not the aim, new projects should creatively interpret these existing materials, forms, and patterns in a contemporary manner. ii. Buildings should pick up on the fine grained rhythm of the street using building articulation or repeating vertical elements to add texture and create pedestrian scale. iii. Appropriate feature materials and forms are those that link the project to the surrounding bush or the agricultural hinterlands. These include use of stained or painted timber, stone, wrought iron, heritage brick, earthy colours, and simple roof forms found in vernacular agricultural buildings. c. Due regard will be given to the indicative colour palette contained in the BFDGs for all development proposals.

Control	Requirement
9. Prominent Sites	a. Prominent Sites designation as per Figure 2 – Kalamunda Activity Centre Precinct Structure Plan. b. New buildings on sites designated as Prominent must: i. Achieve an exemplary standard of architectural design, as determined by the City of Kalamunda's Design Review Panel ii. On corner sites, respond architecturally to the corner condition in a way that emphasises the corner. Examples of this include increased height, vertical architectural element, corner entry, bay window, blade signage, special awning treatment, distinctive cladding material, etc. iii. On sites that terminate vistas, place vertical elements, bays or entries (elements that are obvious at a distance) at the centre of the view line. iv. Other solutions to both corner sites and sites that terminate vistas may be appropriate and can be agreed with the Design Review Panel.
Other Requirements	
10. Servicing - Wastewater	a. All development will be required to be connected to scheme water and reticulated sewerage and be in accordance with the Government Sewerage Policy- Perth Metropolitan Region b. Development proposals north of Haynes Street will require establishment of a wastewater pump station in proximity to Stirk Park to provide a service which must be developer funded until such time as the project is scheduled on Water Corporations Capital Program. Proponents/landowners are required to liaise with Water Corporation to arrange appropriate infrastructure provisions for wastewater services, prior to lodgement.
11. Car Parking Rates	a. Parking rate to be supplied at a rate of: - Shop/Retail - 4.5 car bays per 100sq.m - Office – 2 car bays per 100sq.m - Residential – refer to car parking requirements in accordance with the R-Codes, Volume 1 or 2. - All other uses – refer to Local Planning Scheme No. 3. b. Car parking areas are to be designed to AS2890.1 and AS2890.6. c. Non-residential car parking requirements are encouraged to be provided and/or shared across different sites within the activity centre boundary, subject to appropriate agreements being put in place. d. For Frontage Types 1, 2, and 3 (refer Figure 2) car parking shall not sit between the building and the street. e. For Frontage type 4, car parking between the building and the street is discretionary, depending on the proposed land use and building configuration. Where it is supported, it should be limited to an access aisle and single row of parking bays and screened at the street by a 1m landscape strip. f. If the Minimum Frontage Build-Out requirements are met (Table 5– Built Form Development Requirements), car parking may be brought close to the street for the balance of the street edge screened by a 1m landscape strip. g. Car parking for the activity centre is encouraged to be consolidated through reciprocal parking arrangements or through other appropriate means as agreed with the City of Kalamunda.

Control	Requirement
12. Bicycle Parking	a. Bicycle parking for commercial land uses should be provided at the following rates: - 1 space per 200sq.m of commercial floor space (tenancies less than 1000sq.m) - 1 space per 250sq.m of commercial floor space (tenancies over 1000sq.m)
13. Landscaping	a. A Landscape Plan is required for all development applications within the precinct structure plan area. b. For Multiple Dwellings and mixed use development, design principles relating to deep root zones, tree retention and planting on built structures are outlined in Sections 3.3 and 4.12 of the R-Codes, Volume 2. c. When proposing to remove a tree worthy of retention (according to design criteria of the R-Codes, Volume 2, Section A3.3.1), the applicant must either replace the tree with an equivalent tree in a deep soil zone onsite or take on the offset requirements listed A3.3.7 of the R-Codes, Volume 2. d. For Non-Residential development, shade trees are to be provided on site at a rate of 1 tree for every 6 car bays (at ground level). e. Landscaping is to have regard to the principles and objectives of the Kalamunda Landscape Master Plan, which has been endorsed by the City of Kalamunda (refer Appendix H).
14. Heritage	a. The City of Kalamunda has prepared a Municipal Inventory of Heritage Places, in accordance with Section 45 of the Heritage of Western Australia Act 1990. b. Properties on a Local Heritage List may be subject to a heritage agreement with the City in order to protect and preserve the elements identified as having cultural heritage value. c. Properties on a Local Heritage List may be exempt from certain Scheme requirements, per Kalamunda Local Planning Scheme 3, Section 7.5(c). d. Owners of properties listed on the State Register of Heritage Places or the National Heritage List should contact the City of Kalamunda and the Heritage Council of WA to understand their responsibilities and development constraints.

Figure 2 – Kalamunda Activity Centre Precinct Structure Plan

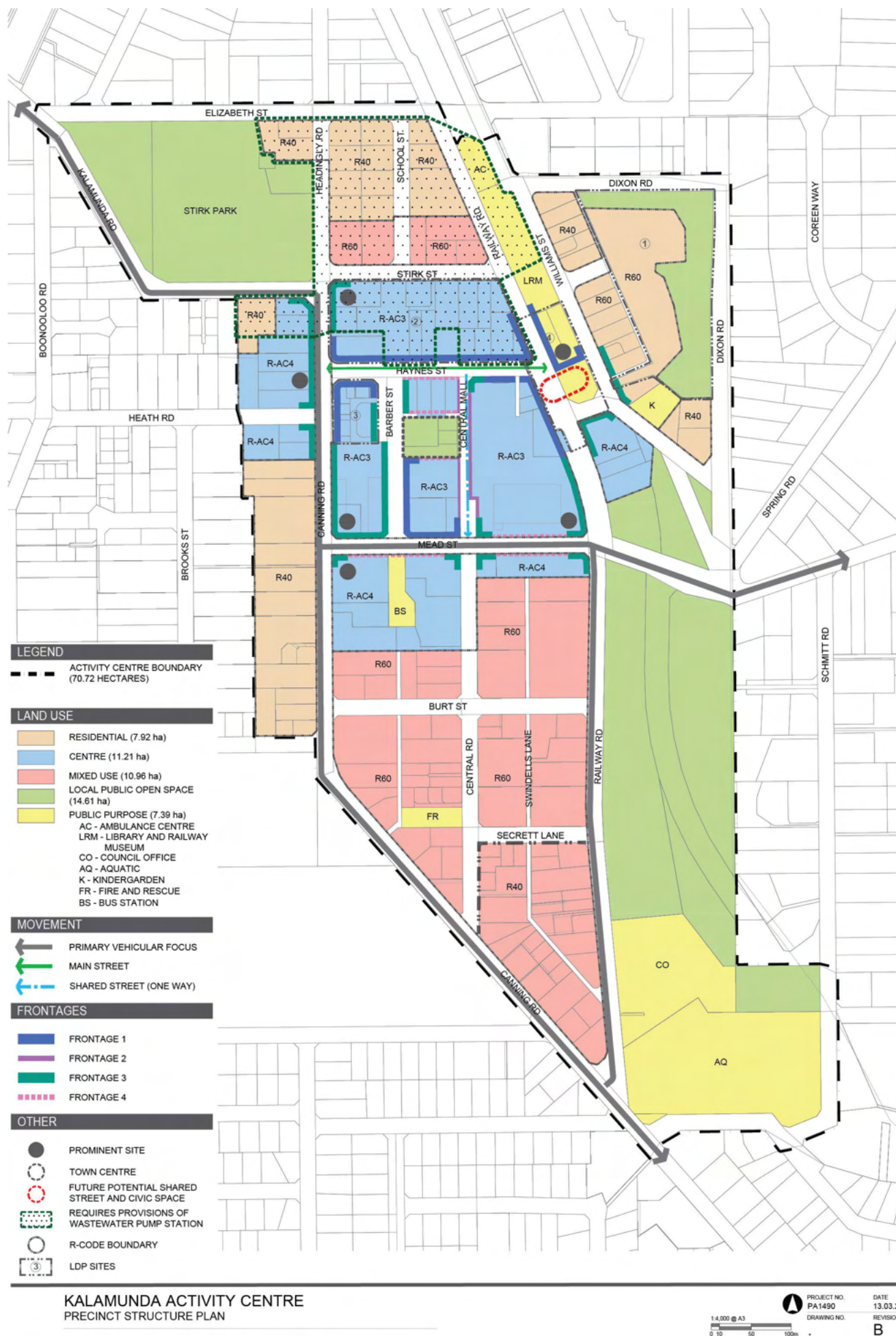


Table 5 – Built Form Development Requirements

Element	Provision	Frontage 1	Frontage 2	Frontage 3	Frontage 4	No Frontage
Front Setback	Min. Setback	Nil	Nil	Nil	Nil	Refer R-Codes (Volume 1 or 2)*
	Max. Setback	0.5m	0.5m	0.5m	Discretionary	None
	Upper Level Setback	2.5m (above 3rd storey)	2.5m (above 2nd storey)	2.5m (above 3rd storey)	2.5m (above 3rd storey)	2.5m (above 3rd storey)
Ground Floor	Floor Level	Footpath Level (+/- 0.5m)	Footpath Level (+/- 0.5m)	Footpath Level (+/- 0.5m)	Discretionary	Refer R-Codes (Volume 1 or 2)
	Min. Floor to Floor Height	4.5m	4.5m	4.2m	4.2m	Refer R-Codes (Volume 1 or 2)
	Min. Clear Glazing %	70%	70%	50%	50%	None
	Min. Frontage Build-Out	80%	80%	60%	Discretionary	None
Awnings	Min. % of Frontage	90%	90%	80%	Discretionary	None
	Min. Depth	2.5m	2.5m	2m	Discretionary	N/A
	Min. Height	3m	3m	3m	3m	N/A
	Max. Height	4.5m	4.5m	4.5m	4.5m	N/A
Onsite Parking	Between Street + Building	No	No	No	Discretionary	Discretionary
Building Entrance	Primary Pedestrian Access	Public footpath	Public footpath	Public footpath	Refer R-Codes (Volume 1 or 2, Section 3.7)	Refer R-Codes (Volume 1 or 2)
Building Height	Max # Storeys	Refer R-Codes (Volume 1 or 2)	3	Refer R-Codes (Volume 1 or 2) * Maximum 4 storeys in R-AC3		
Boundary Wall Height	Max. # Storeys	Refer R-Codes (Volume 1 or 2)	3	Refer R-Codes (Volume 1 or 2)		
Side / Rear Setback	Min. Setback	Refer R-Codes (Volume 1 or 2)				
Building Bulk	Max Plot Ratio	Refer R-Codes (Volume 1 or 2)				
*Primary Street Setback for Non-residential development within the Residential and Mixed Use zones: - Minimum 2m - Maximum 3m						

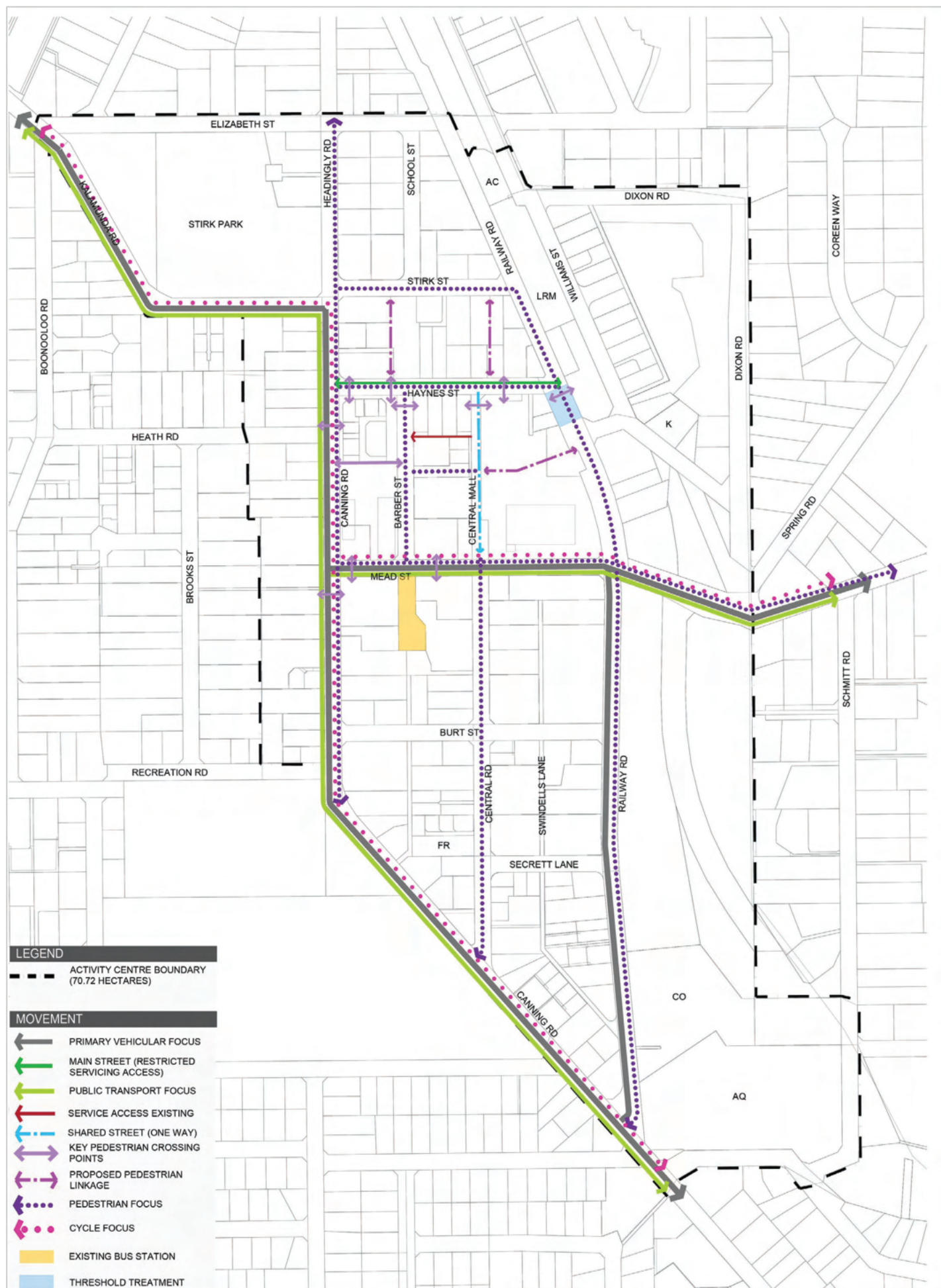
1.5.3 Movement

Key elements of the movement network are identified in **Figure 3** – Movement Network Plan and **Table 6** – Movement Network Development Requirements. The following provisions apply to development and/or subdivision and should be read in conjunction with Part 2.

Table 6 – Movement Network Development Requirements

Control	Requirement
1. Service Vehicle Access Points	a. Major service vehicle access points should be in the general location and function as outlined on the Movement Network Plan. b. All major site access arrangements are subject to a Transport Impact Assessment at the development or subdivision application stage.
2. Proposed Pedestrian Linkages	a. Pedestrian linkages through the precinct structure plan area are to be provided generally where indicated on the Movement Network Plan (Figure 3). b. Designated pedestrian linkages are to provide direct connections through the precinct structure plan area, and should be designed generally in accordance with the following: i. Shall provide suitable level of shelter and/or be tree-lined. ii. Be of a typical minimum width of 3 metres. iii. Be of a grade and treatment so that it is able to be utilised by all sectors of the community. iv. Provide wayfinding signage at appropriate points to direct users of the activity centre. v. Be well lit and provide seating at appropriate intervals. c. Where the linkage passes through a building (for example a shopping centre), appropriate arrangements are to be put in place to allow for pedestrian passage at reasonable hours. d. Where a pedestrian linkage is shown where there is existing development, the linkage is to be provided when/if that existing development is substantially redeveloped and at the discretion of the City of Kalamunda.
3. Shared Street (Central Mall)	a. Central Road will be extended north to form a one-way shared street. b. Development interfacing with Central Mall shall be in accordance with the applicable Frontage Type requirements as per Table 5 – Built Form Development Requirements.

Figure 3 – Movement Network Plan



1.6 Local Development Plans

A Local Development Plan(s) (LDP) is required prior to any development or subdivision for land identified as a LDP site on **Figure 4 – Local Development Plan Site Locations map**. The key considerations for each LDP Site are identified in **Table 7**.

Figure 4 – Local Development Plan Site Locations

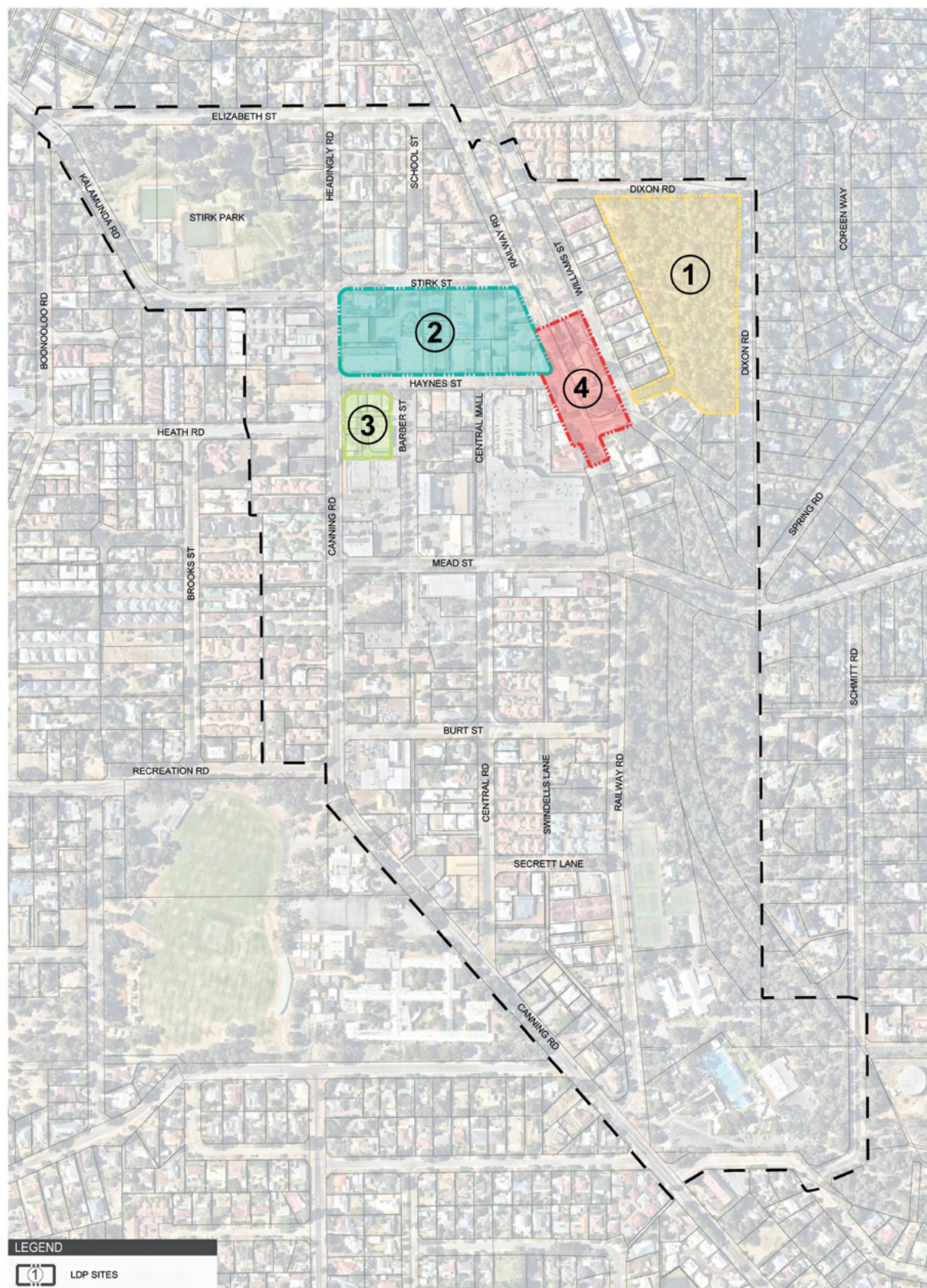


Table 7 – Local Development Plan requirements

LDP Site	General Description	Considerations
1	6 (Lot 608) Dixon Road, Kalamunda	• Bushfire risk within local open space. • Protection of remnant vegetation. • Opportunity for aged care or retirement land uses. • Responsive to the topography of the site. • Consolidate access points. • Aboriginal Heritage – investigate heritage place 17064 which is identified as a modified tree. Its status is an "Other Heritage Place" – Stored Data/ Not a Site. Obtain necessary approvals under the Aboriginal Heritage Act 1972 as required.
2	Lots bound by Canning Road, Stirk Street, Railway Road and Haynes Street.	• Consolidation of land parcels where possible to achieve more developable land parcels. • Delivery of 'proposed pedestrian linkages' in accordance with the Movement Network Plan. • Restricted servicing access off Haynes Street to reduce loading and service areas dominating the streetscape. • Resolution of topographical changes across the site.
3	Lots bound by Canning Road, Haynes Street and Barber Street.	• Consolidation of land parcels where possible to achieve more developable land parcel(s). • Investigate closure of internal access road to provide additional developable land. • Maintain the consolidation of service access.
4	Future Potential Shared Street and Civic Space	• Investigate the opportunity to redevelopment the existing library and co-locating this with additional community uses such as performance space, function facilities etc. • Provide appropriate visual and physical connections to Zig Zag Cultural Centre, library and Bibbulmun track. • Incorporate seating, playgrounds (e.g. waterplay) and opportunities for social interaction and informal gathering. • Incorporation of a public art piece to terminate the view on Haynes Street will act as an attractor and aid in wayfinding. • Appropriate interface with the 'Shared Zone' on Railway Parade to improve the east-west connection. • A Traffic Management Plan be prepared with supporting analysis to determine impacts and mitigation strategies associated with closing the segment of Railway Road during events.

The LDP(s) shall co-ordinate development in an integrated manner, taking into account, built form siting and controls, vehicle access points and car parking areas, building entries and pedestrian access. Provisions of LDPs shall ensure land uses and activities that actively or passively contribute to the public realm are located at the ground level of buildings and other non-active land uses shall be located in the upper level(s) or the rear of buildings.

A Local Development Plan shall be prepared and approved in accordance with the *Planning and Development (Local Planning Scheme) Regulations 2015*.

1.7 Additional Information

Additional information required to ensure the fulfillment of the requirements of the precinct structure plan is outlined in Table 8. The below is in addition to the lodgement requirements of LPS 3.

Table 8 – Additional Information Requirements

Additional Information	Description	Approval Stage	Consultation Required
Heritage Impact Statement	Where development involves a place on the State Register of Heritage Places and the City of Kalamunda Local Heritage List.	Subdivision and / or Development Application	City of Kalamunda
Transport Impact Assessment	Where development proposes to vary the parking requirements of the precinct structure plan.	Development Application	City of Kalamunda
Acoustic Assessment	Environmental Noise Assessment demonstrating capacity for non-residential development to comply with noise regulations, including taking into account future residential development in the activity centre area.	Development Application	City of Kalamunda
Landscape Plan	Landscape Plan to be prepared in accordance with Built Form Design Guidelines and having regard to the principles and outcomes of the precinct structure plan Landscape Master Plan.	Development Application	City of Kalamunda
Bushfire Management Plan	SPP 3.7 policy measure 6.4 requires subdivision and development applications to be accompanied by the following information in accordance with the Guidelines: 1. A BAL Contour Map or BAL assessment to determine the indicative acceptable BAL ratings across the subject site. 2. The identification of any bushfire hazard issues arising from the BAL Contour Map. 3. An assessment against the bushfire protection criteria requirements demonstrating compliance within the boundary of the subdivision site.	Subdivision and / or Development Application	City of Kalamunda

1.8 Variations

If a development application or subdivision application does not comply with the provisions and controls of this precinct structure plan, the responsible authority may vary any provision or control where it is satisfied that:

- Such a variation will not prejudice the achievement of the objectives of this precinct structure plan; and
- The orderly and proper planning and amenity of the precinct structure plan area will be maintained.

2. Explanatory Report



2.1 Introduction & Purpose

The purpose of the Kalamunda Activity Centre Precinct Structure Plan is to facilitate the development of a district activity centre in Kalamunda, Western Australia, as contemplated and planned for in a variety of state and local planning documents.

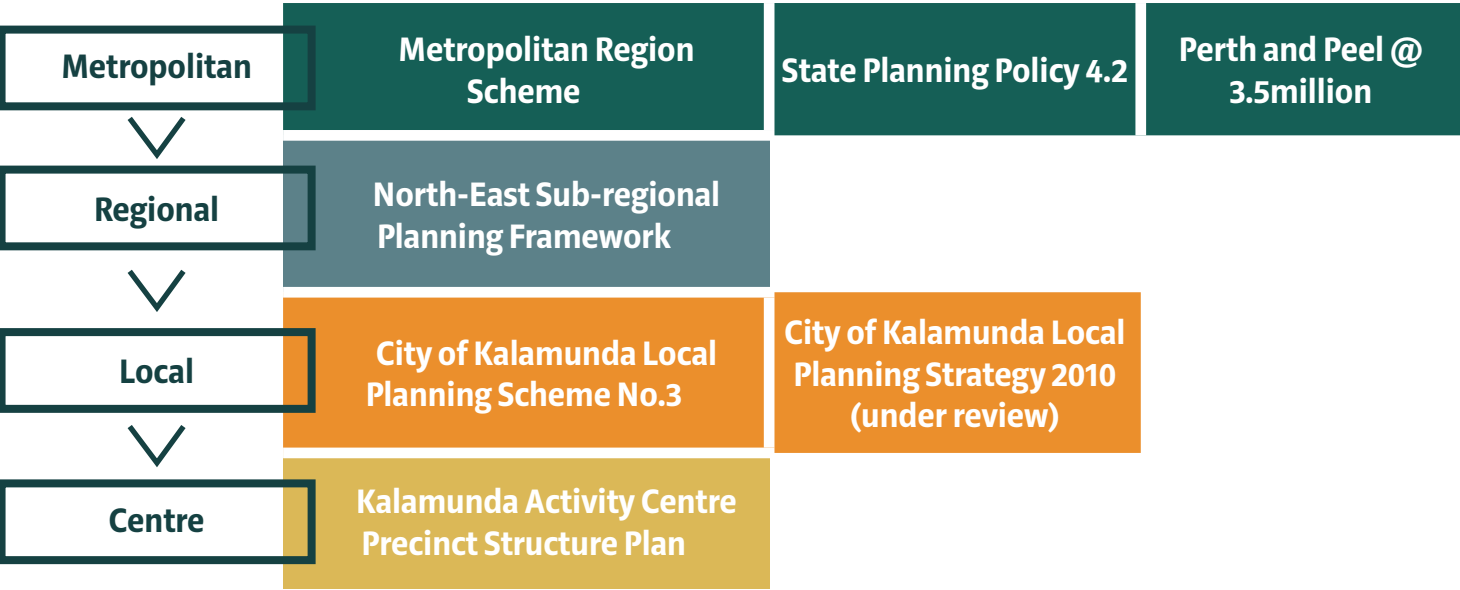
This precinct structure plan will facilitate the ongoing development of the Kalamunda town centre, shaping its future positioning as a contemporary, attractive and functional centre for residents and visitors. The town centre is at a crossroad, whereby its future and function need an effective combination of vision and practical implementation to enable its ongoing relevance and commerciality whilst retaining key of its character and identity.

The current town centre is diverse in nature, land use and design. Heritage, topography and an active and engaged local community provide great opportunities to leverage from. Critically, the Kalamunda town centre contains some of the trademarks of a well-performing district centre but not all and lacks any real cohesion.

This precinct structure plan will provide the greatest opportunity to date to deliver a robust planning framework that can facilitate this coordination and much needed activation to key parts of the town centre.

The precinct structure plan is made pursuant to the requirements of LPS 3, SPP4.2, and the deemed provisions. **Figure 5** outlines the key relevant planning documents to the activity centre.

Figure 5 – Key Planning Documents



2.1.1 Location

Kalamunda is located approximately 25 kilometres from Perth CBD in the growing hills area and has an estimated population of 25,190 by 2050 (refer Figure 13).

2.1.2 Area and Land Use

Kalamunda could be said to be one of the 'first tree change' communities that has grown over time from a small village to an emerging town centre due to increased vehicular mobility, new urban settlement and the desire for a 'rural lifestyle' in proximity to Perth CBD.

Kalamunda has a unique history evolving from the timber and orchard industries and a popular holiday destination for people from Perth and Fremantle. Kalamunda History Village and Stirk Cottage are an important element of the town's history.

Present day, wider Kalamunda has a diverse landscape of national and regional parks, State forests, wineries, and local industries such as orchards, intensive horticulture and the like. It is also becoming an emerging urban area with expanding industrial and transport hubs in areas such as Forrestfield and High Wycombe, and also an attractive City for families to reside in areas such as Lesmurdie, Maida Vale and Gooseberry Hill.

Taking a closer look at the heart of Kalamunda, the town centre has a mixture of vibrant, energised spaces and streetscapes, while other areas lack a sense of identity and commercial investment resulting in a fragmented town centre. Built on a traditional grid pattern although irregular, the town centre has a mix of lot sizes, building scales and dispersed commercial and retail uses. Former development has been strongly car-orientated to cater for the convenience of motorists. This has resulted in a number of developments failing to contribute to the streetscape with dominant parking areas, large setbacks and minimal street activation or presence.

2.1.3 Demographic Profile

Population & Demographic Attributes

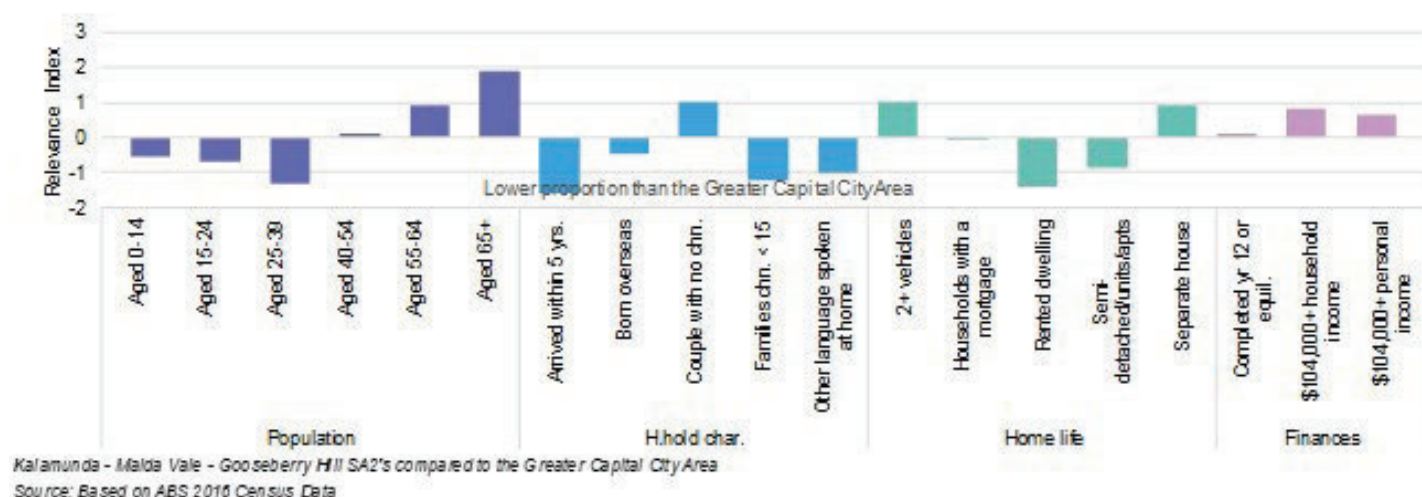
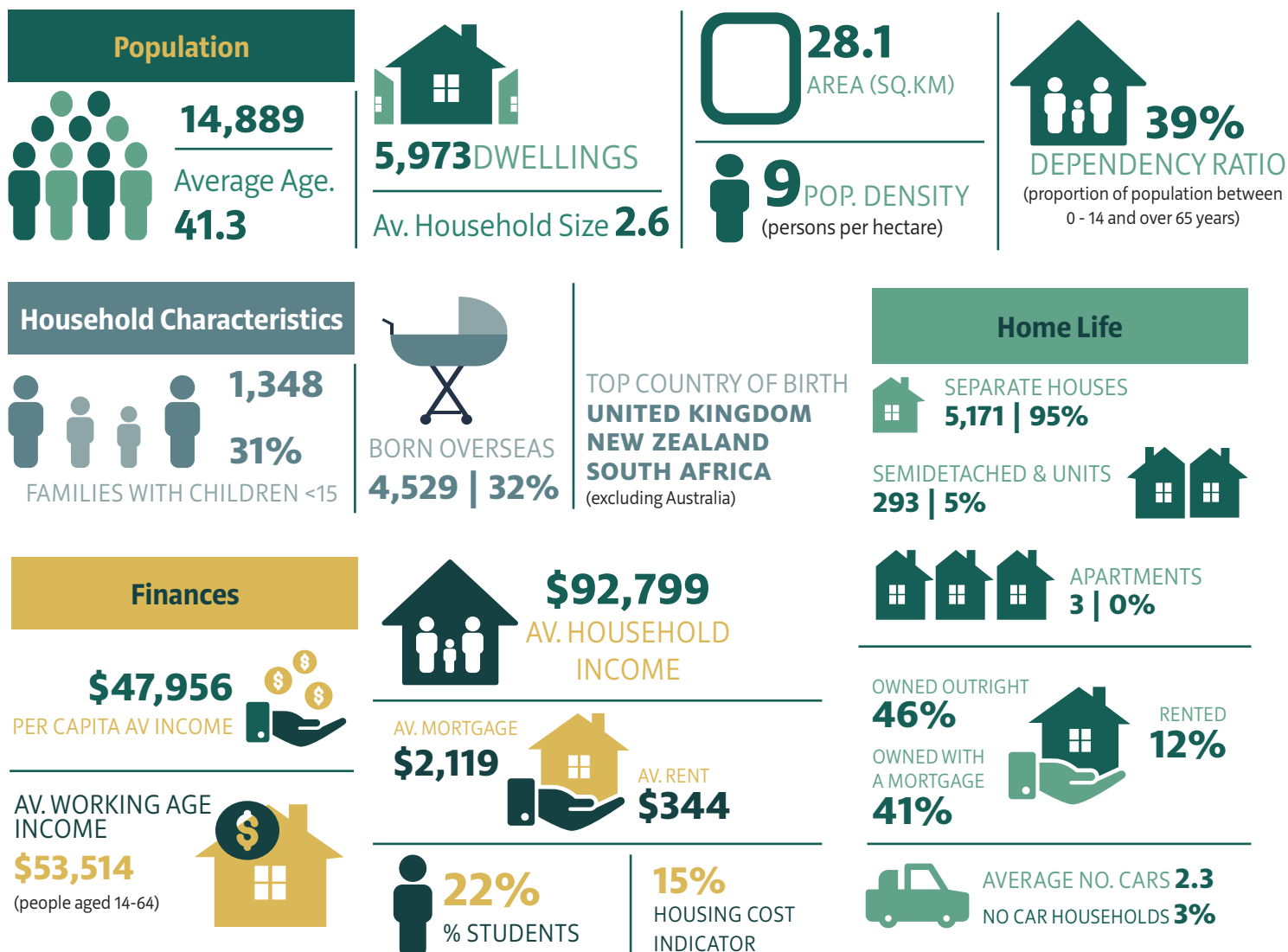
This high level demographic analysis relates the suburbs of Kalamunda, Maida Vale and Gooseberry Hill which forms the Kalamunda Statistical Area Level 2 spatial area (SA2) (2016) according to the Australian Bureau of Statistics (ABS).

Demographic analysis was undertaken at a SA2 spatial area given detailed data is not available for the population residing within the activity centre boundary. The data analysed therefore illustrates the attributes of residents that regularly frequent the activity centre, including the limited number of households within the precinct structure plan area.

SA2s have a population range of 3,000 to 25,000 persons and an average population of about 10,000 persons. Population levels have been relatively stable over the past five years in the region. An ageing population, declining household sizes and increased rental vacancy levels have resulted in a moderate decline in the estimated resident population over this period.

Figure 6 provides a demographic snapshot of the Kalamunda SA2 area.

Figure 6 – Kalamunda SA2 Demographic Overview

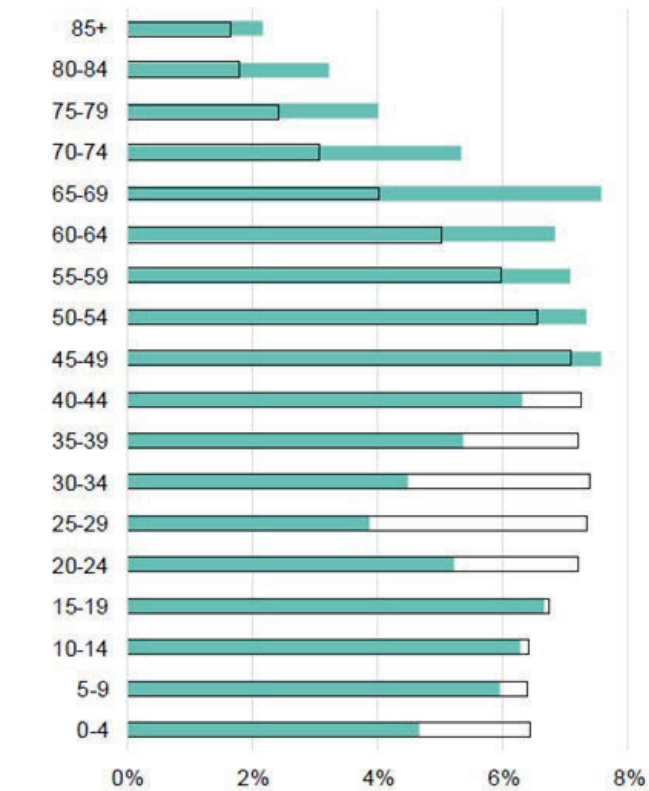


Age Structure

Figure 7 compares the performance of the SA2 against the Greater Perth are in a number of key demographic indicators. The region was estimated to have a relatively older age profile than the Perth average. As shown in Figure 7, the region had a particularly large baby boomer cohort as of 2016 and a large number of residents aged 80 and above.

The demography points to the area being a location for older more settled families, couples without children and lone person households. It is not a strong destination for younger families although presentation of the area as a viable lifestyle destination for such may improve this demographic over time.

Figure 7 – Proportion of Population by Age – SA2 vs Greater Perth



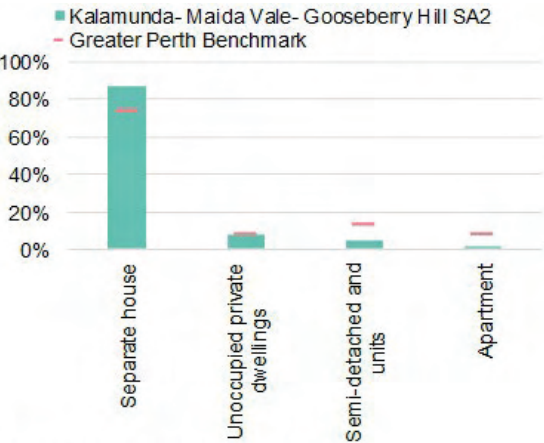
SA2's compared to the Greater Capital City Area
Source: Urbis, based on ABS 2016 Census Data

Housing Stock Attributes

The region had a larger proportion of separate houses accounting for 87% (5,171 houses) of all occupied dwellings as of 2016. This is above the Greater Perth benchmark by 14%. Moreover, nearly 55% (3,002 houses) of dwellings in the region had four or more bedrooms compared to 45% across Perth.

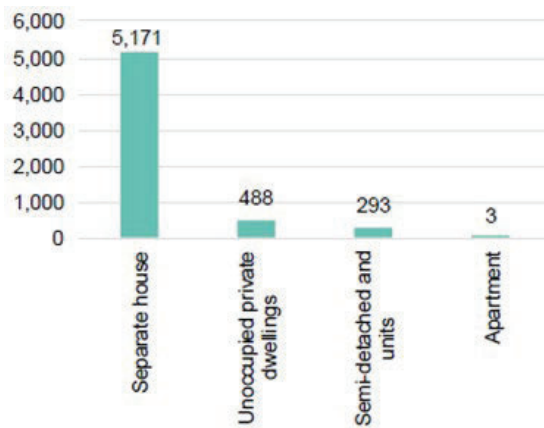
The dwelling stock implies that the area is able to accommodate families however the lack of smaller and diverse housing products may potentially limit the retention and attraction of other cohorts. Refer to Figures 8-11 for housing stock attributes.

Figure 8 – Dwelling Structure Proportion



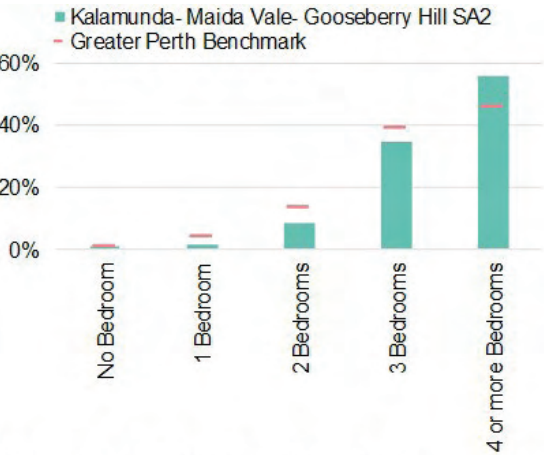
Source: Based on ABS 2016 Census Data

Figure 9 – Total Occupied Dwellings



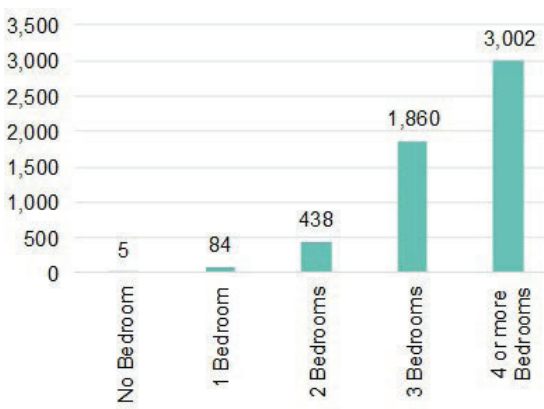
Source: Based on ABS 2016 Census Data

Figure 10 – Number of Bedrooms Proportion



Source: Based on ABS 2016 Census Data

Figure 11 – Dwelling Stock by Bedroom

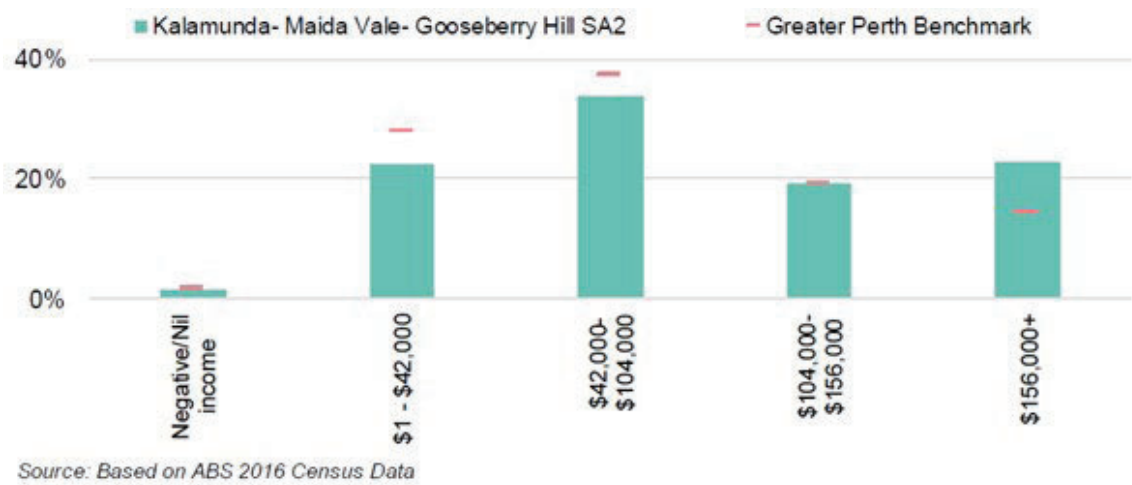


Source: Based on ABS 2016 Census Data

Household Income Attributes

Residents within the region were found to, on average, live in medium to high income households. There was a particularly large number of households found to be earning more than \$156,000 per annum compared to Perth-wide averages (refer **Figure 12**).

Figure 12 – Total Household Income, 2016 (Per Annum)



2.1.4 Regional & Local Context

The surrounding environment has been more generally described in **Table 9** and a location plans provided at **Figures 14-15**.

Table 9 – Surrounding Environment

Surrounding Environment	Immediate Area	Wider Area
North	- Stirk Park is at the edge of the town centre in the north-west. - Areas of residential are located north of Stirk Street. - Core of the town centre from Stirk Street to the southern side of Mead Street.	- Predominantly residential area. - Kalamunda Community Garden. - Service Station. - Zig Zag Scenic Drive (Gooseberry Hill).
East	- The Kalamunda History Village - Zig Zag Cultural Centre. - Kalamunda Library. - Local public open space. - Tennis Courts and Kalamunda Water Park. - City of Kalamunda administration building. - Kalamunda Community Centre at Jorgensen Park.	- Predominantly low density residential and rural-residential area. - Department of Housing development. - Parks and Recreation Reserve / Jorgensen Park, Kalamunda National Park, Greenmount State Forest. - Mundaring Weir.
South	- Mixed use area comprising predominantly residential (R30 density) strata developments. - Scattered commercial, retail and community uses between Mead Street to the southern side of Burt Street.	- Kalamunda Performing Arts Centre. - Kalamunda Senior High School. - Kalamunda Sporting Precinct. - Predominantly residential (R10 – R20 density) single dwelling and strata developments. - Carmel and Pickering Brook Rural areas. - Kalamunda Skate Park. - Bickley Valley Wine Region.
West	- Commercial/retail uses forming part of the town centre core along Headingly Street. - Predominantly residential (R20, R30 density) strata developments.	- Predominantly residential (R10 – R30 density) single dwelling and strata developments. - Escarpment and Swan Coastal Plain.

Figure 13 – Regional Context Plan

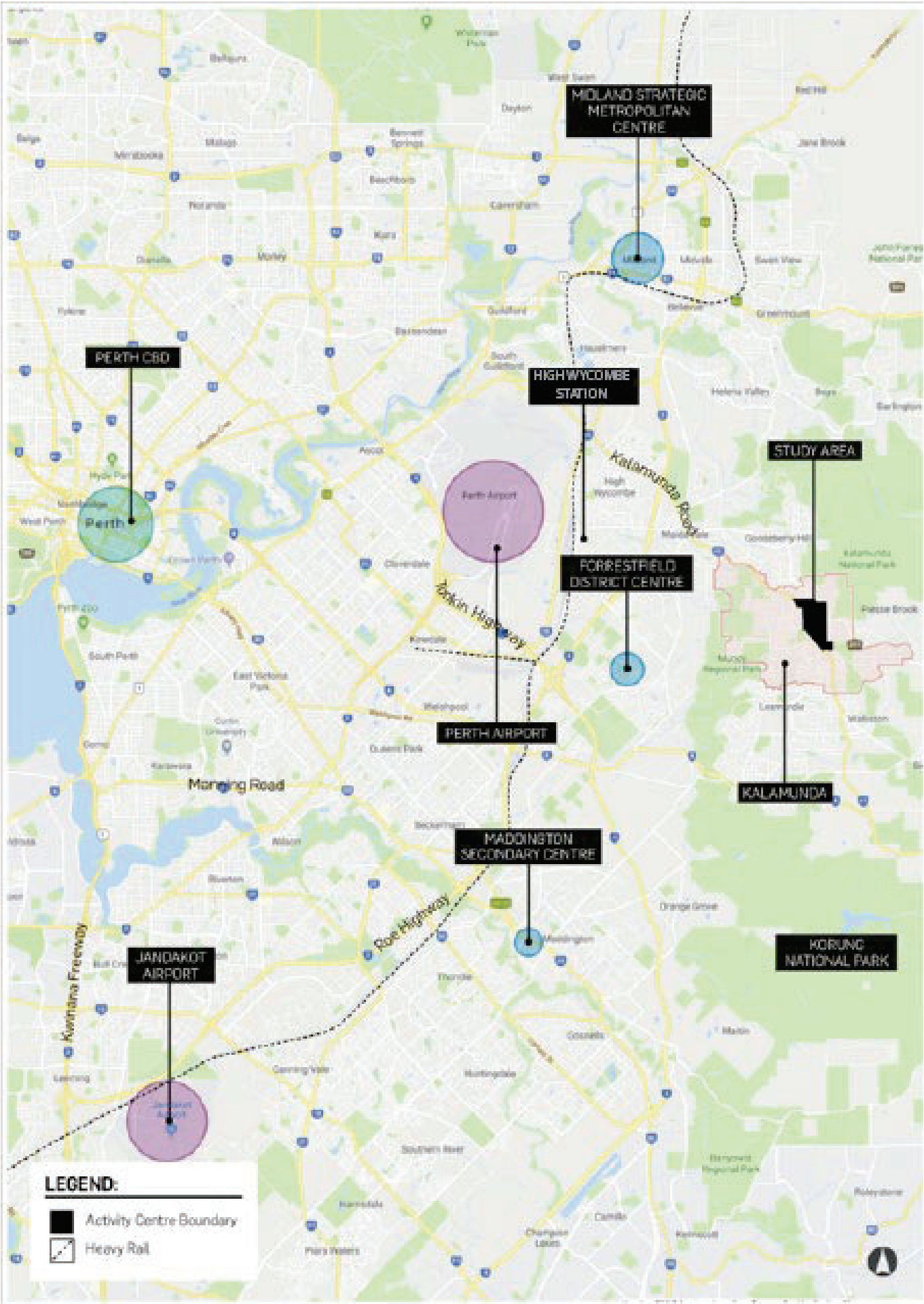


Figure 14 – Location Plan

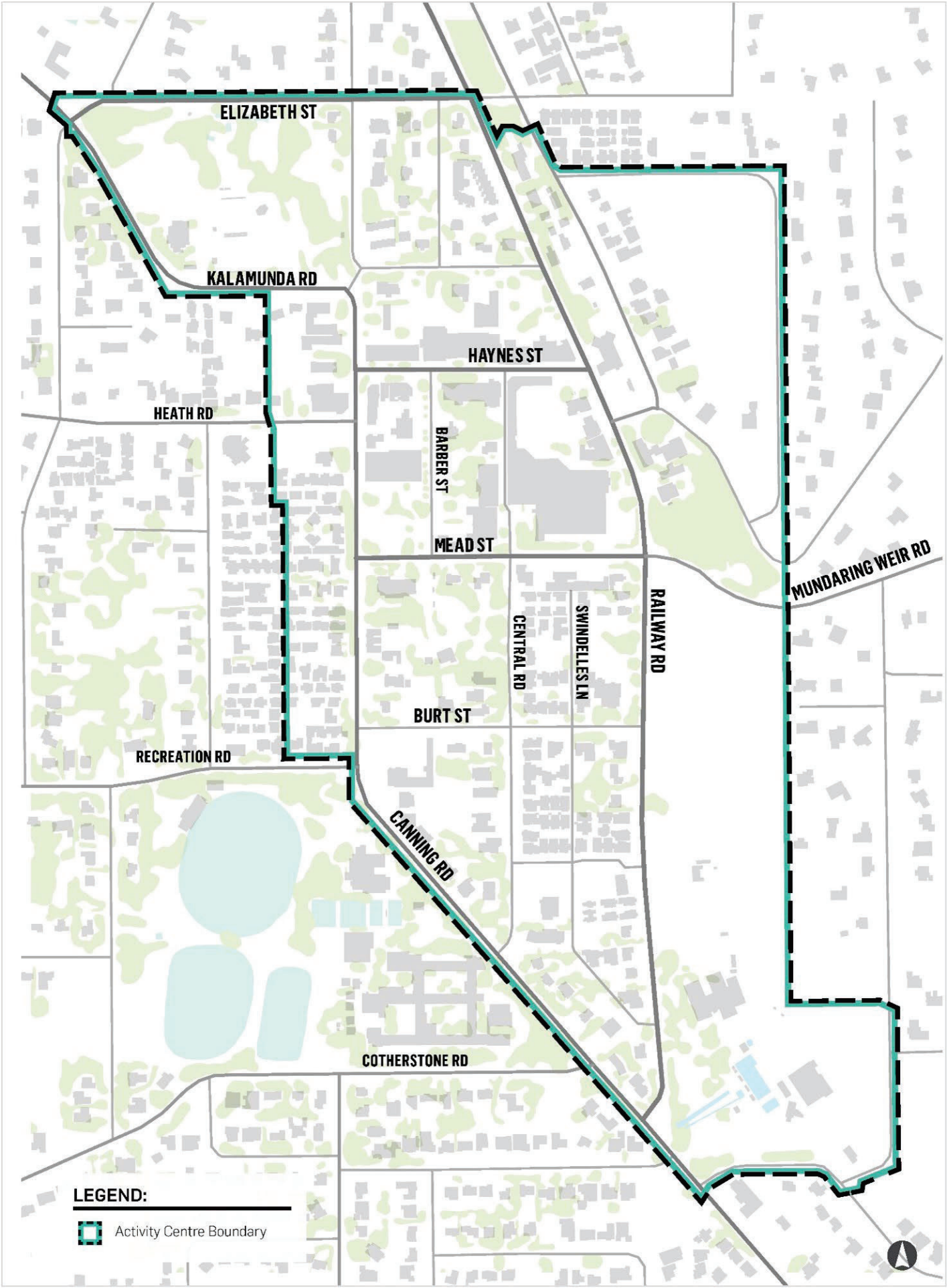
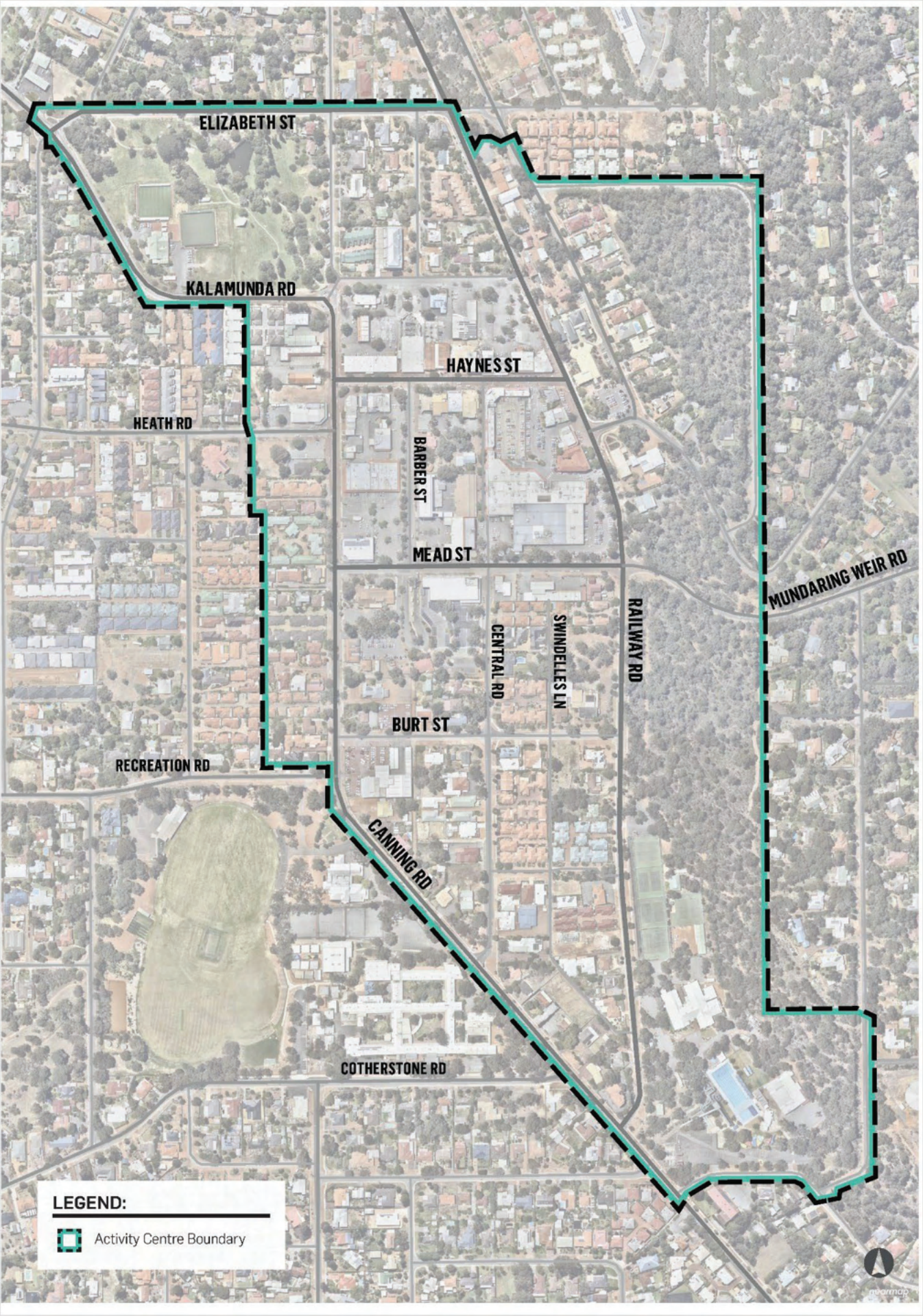


Figure 15 –Aerial Photograph



2.1.5 Legal Description

The landownership for the precinct structure plan area is broadly illustrated in **Figure 16**. The core of the town centre and surrounding area is predominantly within private ownership, with the City of Kalamunda having scattered landholdings in the central and northern areas.

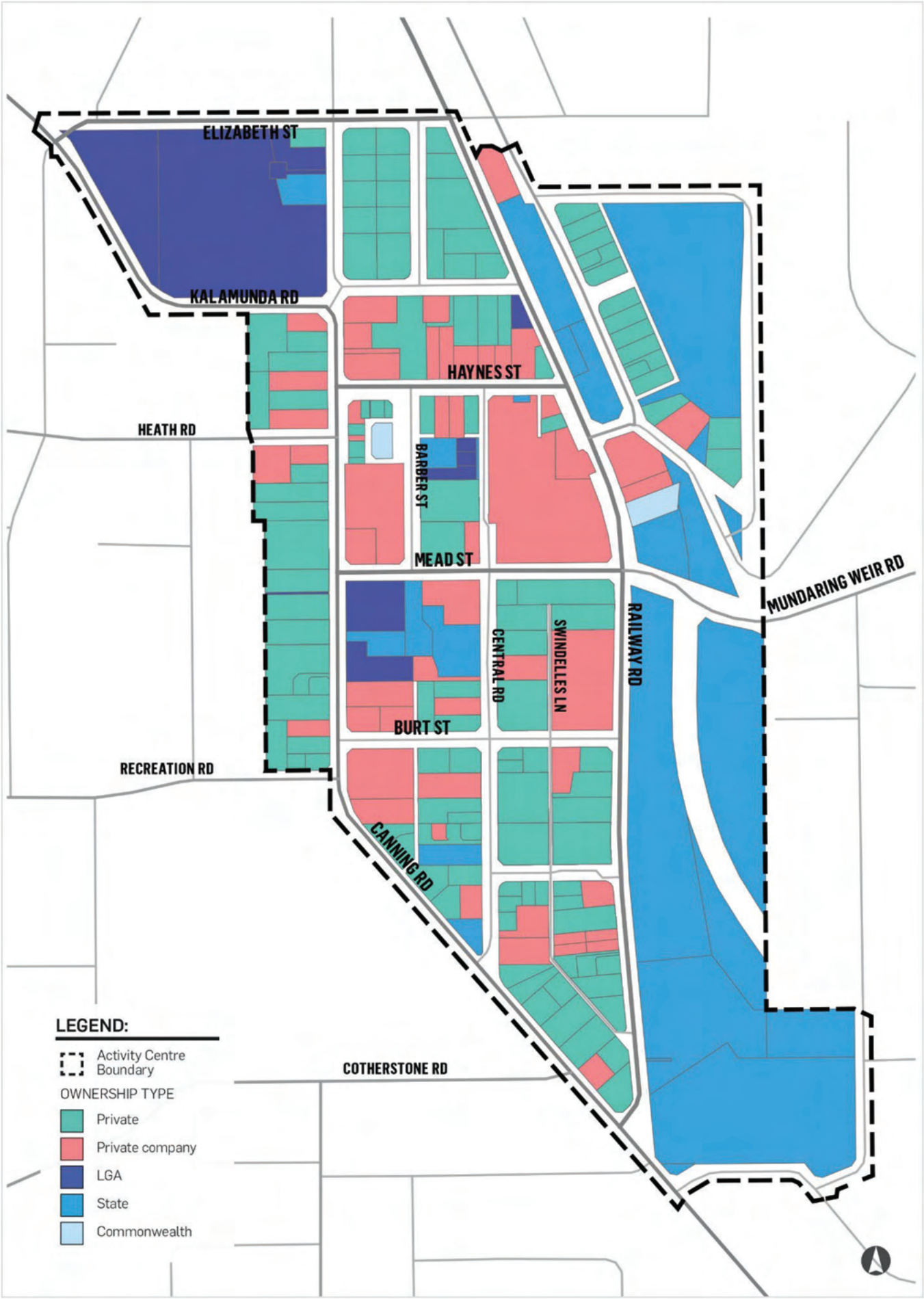
Along the eastern boundary is a large 'Local Open Space' reserve running north-south along the old railway alignment. There are also a number of 'Public Purpose' reserves including the railway museum, St John's ambulance, aged facilities, bus station, community purposes and churches.

A summary of the study area landownership data is provided in **Table 10**.

Table 10 – Landownership

Type	Area (sqm) ¹	Percent (area)	# of proprietors	# of lots	Percent of lots
Commonwealth	1,051.63	0%	1	1	1%
Company (Private)	88,499.99	29%	65	42	23%
LGA	9,081.50	3%	8	8	4%
Private	200,370.44	65%	449	130	70%
State	8,610.30	3%	4	4	2%
Grand Total	307,613.86	100%	527	185	100%
¹ Area relates to lot parcels only and excludes areas such as roads and other reserves.					

Figure 16 – Landownership Map



2.2 Background & Planning Process

2.2.1 Community & Stakeholder Engagement

Urbis in collaboration with the City of Kalamunda undertook the first stage of stakeholder and community consultation to seek insights on the local perception of the town centre and how it could better meet local needs and aspirations. This included engagement with local business owners, landowners and tenants, local Chamber of Commerce, local organisations and the broader community.

A consultation program was designed to target the key stakeholders of Kalamunda's town centre area. Multiple opportunities and events were held to ensure that all relevant voices within the City were captured over February and March 2018 including:

- Business owner 'coffee chats' attended by 14 business owner(s).
- 2x "Coffee Club" sessions with local business owners (17 meetings held in total over 13 and 15 February 2018). These sessions were one on one with business owners to hear their thoughts on improvements that could be made to the Town centre to improve and attract new business.
- 2x Pop-up container workshops including Jane Jacobs Walks and Idea/Emotional Mapping (24 and 25 February 2018). Led by David Snyder from Spaced Out Place-makers, this process involved local community members leading walking tours of the town centre, sharing their experiences and providing user insights.
- Community Visioning Exercise (15 March 2018). This 3 hour workshop involved ideas and emotional mapping around the key themes of connectivity, land use, built form and public realm.
- Online Survey conducted over 6 weeks with 44 people completing the survey.

The engagement exercises mentioned above were specifically structured to ensure a range of stakeholders and user groups' inputs were received. The key themes of land use, public realm, connectivity, placemaking/business opportunities and built form have continued to be highlighted across the many engagement opportunities and guided the urban design framework.

A summary of the engagement process is provided in the Place Making and Engagement Report at Appendix B prepared by Spaced Out Placemakers.

Pre-lodgement Consultation

A range of consultation activities took place to inform the development of this precinct structure plan as detailed in **Table 11**.

Table 11 – Consultation summary

Consultation Type	Parties	Summary of Outcomes
Opportunities and Constraints Workshop – 31 January 2018	City of Kalamunda, Urbis	The City of Kalamunda and Urbis held an opportunities and constraints workshop as part of the first phase of preparing the Kalamunda Activity Centre Precinct Structure Plan. This provided an appreciation and understanding of the existing planning framework, the local context and environment, physical site constraints and opportunities, and matters that require further investigation/analysis. A literature Review and Context Analysis Report was subsequently prepared describing the physical, social, economic and environmental context of the town centre and surrounding area. It also identifies preliminary high-level opportunities and constraints to be considered in the future planning of the site.
Business Owner meetings – 13 and 15 February 2018	Business owners, City of Kalamunda, Urbis	These sessions were one on one with business owners to hear their thoughts on improvements that could be made to the Town centre to improve and attract new business.
Pop-up container Workshops – 24 and 25 February 2018	Local community, Spaced Out, City of Kalamunda, Urbis	Led by David Snyder from Spaced Out Place-makers, this process involved local community members leading walking tours of the town centre, sharing their experiences and providing user insights.
Community Visioning Exercise – 15 March 2018	Local community, Spaced Out, Edgefield Projects, City of Kalamunda, Urbis	This 3 hour workshop involved ideas and emotional mapping around the key themes of connectivity, land use, built form and public realm.
Meeting with the Department of Planning, Lands and Heritage – 25 June 2018	Department of Planning, Lands and Heritage, City of Kalamunda, Urbis	This meeting was to discuss the approach to the Kalamunda activity centre zoning and land use permissibility to inform a scheme amendment and Part 1 Implementation provisions.
Design Workshop – 2 August 2018	City of Kalamunda, Edgefield Projects, Urbis	This workshop was undertaken to test ideas and concepts to inform the preparation of the Kalamunda Activity Centre Precinct Structure Plan and the public and private realm guidelines. The workshop covered movement, built form, public realm, economics, tourism and planning process.
Meeting with the Department of Planning, Lands and Heritage – 9 August 2018	Department of Planning, Urbis on behalf of the City of Kalamunda	This meeting was to table additional options to approaching the Kalamunda activity centre zoning and land use permissibility to inform a scheme amendment and Part 1 Implementation provisions.

As outlined above, the preparation of this precinct structure plan has been undertaken with appropriate levels of consultation between the applicant and relevant stakeholders prior to lodgement.

2.2.2 Opportunities and Constraints

These opportunities and constraints should be read in conjunction with the plan at **Figure 17**.

Opportunities

Existing Land Use and Development
Review extent and boundary of District Centre zone to create a consolidated but well-connected town centre core with a clear role.
Reinforce Haynes Street as the 'main street' of the town centre. The focus on this main street should be strengthened through future planning and design interventions.
Extend the town centre to include uses such as the IGA, the ALDI and Bus Depot and the zig Zag Cultural Centre.
Reinforce gateways and entries statements to the town centre. There are relatively clear gateway points but little legibility beyond the threshold as to where the town centre is.
Investigate potential development and redevelopment opportunity sites along Canning Road including the RSL site and Jack Healey Community Centre.
Improve the entrance to the pedestrian mall on Central Mall. This entrance is an important (and highly visible) gateway to the pedestrian mall and weekend markets.
Connect the town centre to its past by strengthening the physical connections to the adjacent History Village and Stirk Park.
Investigate underdeveloped and underutilised sites in city centre for mixed used and residential re-development.
Create a town square/focal point for the town centre.
Locate additional civic and government services in the town centre to attract and retain users in the town centre.
Natural Environment
Create clear connections (physical or otherwise) to the surrounding natural features including Jorgensen Park, Bibbulmun Track, Stirk Park, walk and bike trails and wine trails etc.
Provide more greenery, trees and gardens including native and deciduous trees.
Capitalise on natural view sheds from the undulating topography. Topography supports views for future tourism and food and beverage uses in northern area and lends itself to alfresco offering.
Utilise existing vegetation as landmarks and to soften and enhance the streetscape in the town centre.
Opportunity to introduce drainage systems such as pollution traps to reduce silt and litter adversely impacting on Poison Gully.

Infrastructure

- Transition the existing power network to underground power to improve amenity.
- Investigate the potential to extend sewer lines within the study area.
- Drainage system upgraded in 2017.

Access and Movement

- Re-open Central Mall connecting Haynes Street and Mead Street. Whilst this will remain as an activated laneway for hosting festivals, food carts, and other activities during market days, by opening it up it can offer on-street parking and entice more permanent activities on non-market days, in turn supporting adjacent retailers.
- Improve pedestrian connections and wayfinding from the bus depot to the town centre.
- Improve pedestrian connection and wayfinding from the Bibbulmun Track entry to the town centre.
- Create opportunities for safe, accessible and legible pedestrian connections.
- Investigate street improvements to the pedestrian environment along Railway Road and Stirk Street that work with the Bibbulmun Track improvements and surrounding heritage context.
- Investigate the introduction of dedicated cycle routes through the town centre.
- Investigate street improvements to the pedestrian environment along Canning Road between Stirk Park and Kalamunda Senior High School to encourage walking.

Placemaking / Social Infrastructure

- Investigate opportunities to further enhance existing event spaces such as the Town Square Gardens and establish a range of suitable events for this space.
- Create a 'brand' for Kalamunda town centre.
- Establish a hierarchy of street and spaces to improve walkability, general vibrancy (people staying longer and moving around the centre) and business trade.
- Create a nighttime economy.
- Reinforce the existing localised shopping experience and further enhance the existing local identity.
- Better utilise existing community assets throughout the town centre such as Kad's Theatre.
- Explore opportunities to establish a comprehensive approach to the heritage assets and celebrate and communicate the towns history.
- Potential future opportunities for interpretation of Aboriginal heritage values of the area.
- Strengthen and support existing markets and events.

Economic

- Investigate the introduction of housing topologies and density mix in the next phase of preparing the KACPSP.
- Introduce a diverse dwelling mix to appeal to broader market segments.
- Accommodate for the projected growth in younger age cohorts.
- Encourage weekend markets that serve as a valuable attractor for the town centre.
- Capitalise on the town's loyal customer base and leverage the limited direct competition in the wider area.

Constraints

Existing Land Use and Development

- Limited redevelopment opportunity on strata titled development along Canning Road, Central Road and Railway Road adjacent to the town centre.
- Fragmented ownership throughout the town centre creates challenges for land assembly and redevelopment opportunities.
- Iconic entry site at Kalamunda Road / Canning Road roundabout has a Red Rooster firmly entrenched on this site.
- Setbacks and slopes along Barber Street create difficult interfaces between buildings and footpaths.
- Aging Kalamunda Central Shopping Centre is in need of some additional investment and potential reconfiguration to better integrate with surrounds.
- Fragmented car parking in the town centre creates legibility challenges, inefficiency, and a spatially inconsistent built fabric along the streets.
- Perceived poor recent examples of density may make any further density proposals more difficult.
- Disparate and separated development across the central city centre has resulted in multiple, competing main streets and poor concentration of activity.
- Key destination uses are located outside of the town centre (i.e. medical centre, civic and recreational uses) deprive the town centre of user groups and market segments and the ability to leverage usage patterns.

Natural Environment

- Much of the town centre land is sloping, creating challenges with footpath/ building interface, car parking layouts, and large format buildings.
- Bushfire threat is evident particularly along the eastern portion of the study area. Although there is no requirement to retrospectively comply with SPP 3.7, the Guidelines or AS 3959, it is recommended that any of the following existing buildings/land uses are reviewed to determine whether any vegetation modification or fuel management would improve their resilience to bushfire.
- Water quality in Poison Gully Creek impacted by litter and silt entering drainage system.
- Detailed drainage study for the town centre has not been completed and would be beneficial to any further planning to ensure recent upgrades can service future development under the KACPSP.

Infrastructure

- Streetscape infrastructure is dated and inconsistent across the city centre.
- Poor linking between infrastructure assets such as seating and places to linger such as parklets with adequate shade.
- Currently serviced by overhead powerlines which detract from streetscape amenity.
- Limited sewer servicing impacts development potential in parts of the town centre frame.

Access and Movement

- Poor wayfinding and lack of clear and demarcated into the town centre from entry points.
- Inconsistent and illegible pedestrian crossings throughout the town centre creating an unsafe environment for pedestrians and vehicles.
- Limited access to shops on the pedestrian mall on non-market days.
- Inconsistent shelter and shade on main streets.
- Limited opportunities to link trips specifically between education, recreation, civic and health uses.

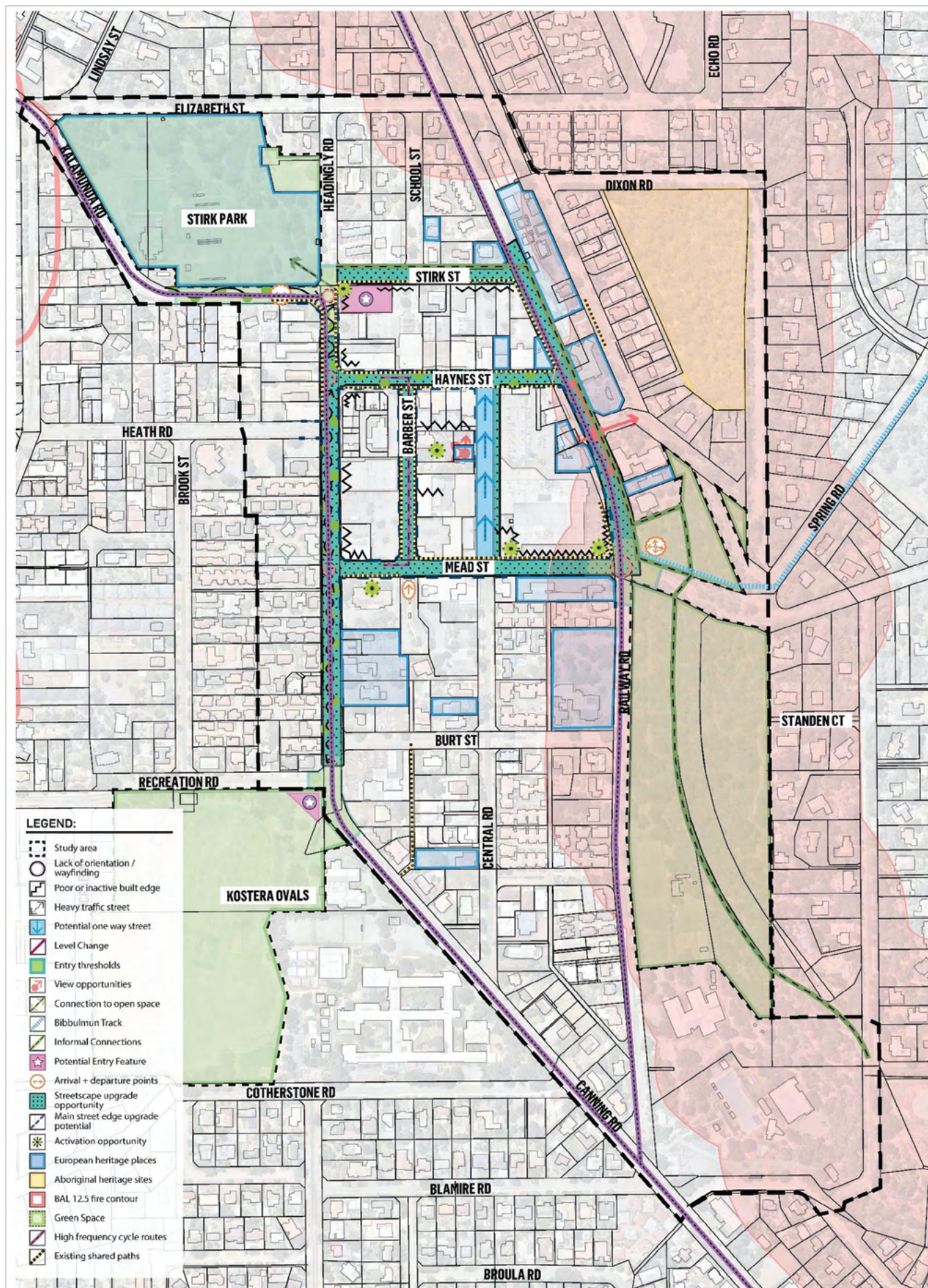
Placemaking / Social Infrastructure

- There is an aging population that may have specific expectations from the town both in service provision and structure.
- Poor micro-climate does not encourage walking, which adversely effects vibrancy and local business trade.
- No evidence of the overarching public art strategy being implemented.
- Re-development inertia resulting from retaining heritage buildings and maintaining a sense of heritage in the streetscape.

Economic

- Limited projected population growth rate.
- Dwelling mix is limited and constrains market appeal for different market segments.

Figure 17 – Opportunities and Constraints Plan



2.2.3 Vision & Overview

The Vision for the Kalamunda Activity Centre Precinct Structure Plan was developed in collaboration with key stakeholders and the local community. The word cloud image in **Figure 18** is a reflection of the most commonly heard words or themes.



Figure 18 – Kalamunda Activity Centre Word Cloud

These words and themes led to the following vision statement:

Kalamunda is a place borne of community spirit with a strong connection to its heritage. The town centre serves as a gateway to the hills and as a hub connecting both locals and visitors alike. Its natural bushland setting and traditional village atmosphere are a platform to enhance Kalamunda's unique offerings, activities and events and provides spaces for community interactions and neighbourhood conversations.

The delivery of the vision will be multifaceted and reliant upon a number of key ingredients available to the site. The enhancement and blending of these key ingredients will be required to ensure success.

The vision statement informed a suite of identified objectives for the precinct structure plan that relate to key elements around the themes of Character, Community, Live/Work/Play and Connected. This informed the overall objectives for the precinct structure plan outlined in Part 1 and the formulation of a design framework based around 'precincts' and 'frontages'.

Precinct Vision Statement

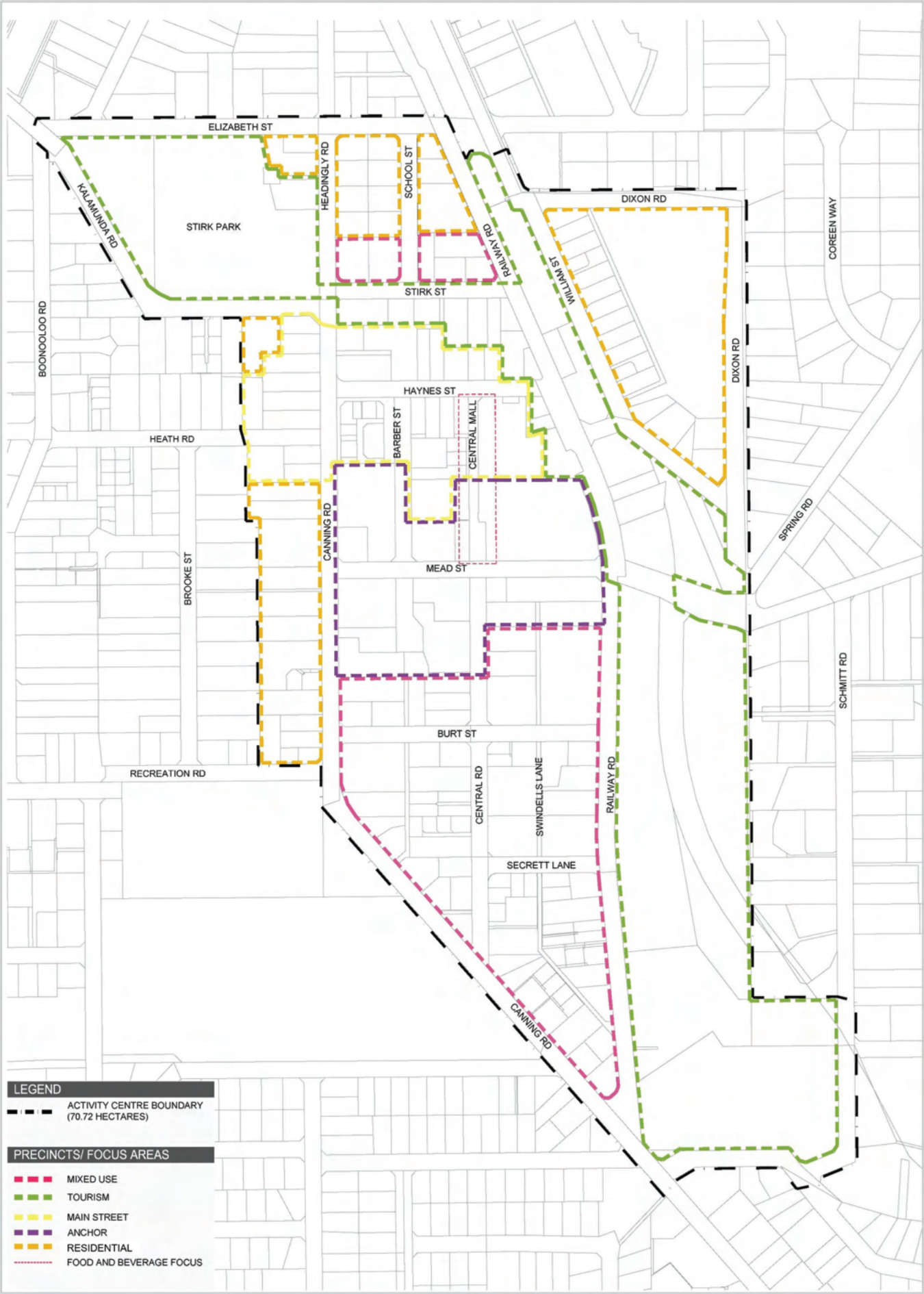
As outlined on **Figure 19** – Precinct Plan, the precinct structure plan area is divided into precincts to guide land use and built form outcomes.

In addition to the Zone objectives contained in LPS 3 and the Activity Centre objectives, subdivision and development in each of the precincts should (where possible) respond to the precinct vision statement in **Table 12**.

Table 12 – Precincts

Precinct	Vision Statement
Main Street Precinct	- This precinct will encompass the primary main street anchored by Haynes Street. - The precinct should accommodate a mix of commercial, retail, mixed use and food and beverage offerings. - The main street will be safe for pedestrian and vehicles alike. - Built form will be sympathetic to the character of Kalamunda encouraging development that is an appropriate scale that interacts with the main street element.
Anchor Precinct	- This precinct supports larger scale uses that aren't appropriate to a main street but are critical in supporting the diversity and range of commercial offerings in the town centre. - This precinct is the focus of large format commercial and retail premises centred around Kalamunda Central (including supermarket/s, mini majors etc). - Small scale, active uses support the anchor tenants and generate additional employment.
Tourism Precinct	- This precinct is the hub for tourism, culture and heritage for the Kalamunda town centre. - Centred around Railway Road and Zig Zag Culture Centre, activity in this precinct leverages off the local and regional identity, building on the heritage and character of the town centre. - Compatible land uses are consolidated where appropriate providing synergies between key cultural feature of the town centre including Stirk Park and Bibbulmun Track.
Mixed Use Precinct	- This precinct supports the Kalamunda town centre core as the centre of activity and employment generation. - Land use is predominantly mixed use encouraging residential and Small scale commercial uses in accordance with existing planning framework. - Small scale professional uses such as home office are encouraged where appropriate.
Residential Precinct	Consistent with the Residential zone, the precinct will provide primarily single and grouped dwelling development in close proximity to the town centre.
Food and Beverage Focus area (as identified on precinct structure plan map)	- The land front Central Mall provides a focus for food and beverage outlets activating the town centre into the evening hours. - Central Mall will function as a shared pedestrian/vehicle zone allowing one-way traffic movement to activate the street.

Figure 19 – Precinct Plan



2.3 Planning Framework

The following section provides an overview of the relevant planning framework as it relates to the Precinct Structure Plan area.

2.3.1 Key Planning Documents

Table 13 – Key Planning Documents

Document	Zones, Controls and Relevant Provisions
Regional Framework	
Metropolitan Region Scheme	All of the site is zoned Urban under the MRS, with the exception of the portion of Kalamunda Road and Canning Road that is within the precinct structure plan boundary. This portion of the road is reserved Other Regional Road. This precinct structure plan is consistent with the Urban MRS zone.
Perth and Peel @ 3.5 million, including the North-East Sub-Regional Planning Framework	Providing a spatial and policy framework for Perth reaching a population of 3.5 million, this document seeks to provide for a more compact Perth, including better planned outer area. Kalamunda is identified with an urban infill dwelling target of 11,452 dwellings and an estimated population of 25,190 people. The precinct structure plan is consistent with the strategies contemplated by Perth and Peel @ 3.5 million in the following ways: • The centre will encourage local employment opportunities aligning with its District Centre designation. • Consolidation of employment generating land uses including larger format commercial, retail and civil uses. • Increasing density in appropriate locations to support a mix of uses in the centre. • A 'frame' to the town centre core that supports predominantly residential and mixed use development that contributes to the walkable catchment of the town centre. • Celebration of cultural features by create synergies between Stirk Park including Stirk Cottage, Zig Zag Cultural Centre and Bibbulmun Track. • Reinforcement of Haynes Street as the traditional 'main street' with highly active edges, a mix of uses, pleasant pedestrian environment and a built form outcome that reflects the character of Kalamunda. • Creation of a new civic space on Railway Parade at the top end of Haynes Street creating a focal point for the community. • Consolidated parking areas in appropriate locations.

Document	Zones, Controls and Relevant Provisions
LPS 3	The City of Kalamunda LPS 3 provides the planning framework for the study area. The study area is primarily zoned 'District Centre', 'Mixed Use', 'Residential' and 'Public Purpose', allowing for a variety of land uses. Further south is the Kalamunda Senior High School and a number of recreational facilities such as the Kalamunda Sporting Precinct within the Public Purpose reserves. The residential areas are generally confined to both the north, south and west of the town centre core with densities ranging from R5 to R40 (including dual density codings). The town centre core is also identified within the 'Special Control Area (SCA) – Kalamunda Town Centre Design Control Area' (Section 6.3 of the LPS 3). The SCA imposes specific design guidelines to any development within the town centre area, and primarily seeks to ensure that any new developments. This precinct structure plan proposes to amend the existing zonings and density codes for the centre, along with some minor textual updates to LPS 3. A separate scheme amendment has been prepared to accompany this precinct structure plan and will be a key implementation action.
Kalamunda Town Centre Planning and Urban Design Guidelines (in effect as of 20 June 2011)	The guidelines were adopted in June 2011 and seek to specifically address urban design issues for new developments and establish a series of design principles and objectives which seek to represent the desired outcomes for developments within the current Kalamunda 'District Centre' area. The existing design guidelines have provided a level of guidance to date, however there is a need to comprehensively plan for the private and public realm to support the town centre based on a sound and implementable precinct structure plan. This precinct structure plan and associated Built Form Design Guidelines (BFDG) will supersede the existing Kalamunda Town Centre Planning and Urban Design Guidelines (2011).
Townscape Improvement Plans 2010	Townscape Improvement Plans (TIP) were prepared in 2010 for Kalamunda town centre and a number of other smaller neighbourhood centres. The TIP provided opportunities and constraints for future development in the Kalamunda town centre, including recommendations for both public and private realm improvements. Council adopted the Kalamunda TIP in December 2010, with further additional work required to be completed, including a schedule of works and projected costs, and a model detailing how town centre improvements could be funded. This precinct structure plan and associated Built Form Design Guidelines (BFDG) will supersede the existing Townscape Improvement Plan.

2.3.2 Other Planning Documents

The following documents are also relevant to the development of the activity centre.

Table 14 – Other Planning Documents

Document	Relevant Provisions and Strategies
State Planning Policies	
SPP 2.7 Public Drinking Water Source	The policy addresses land use and development in public drinking water supply areas. A portion of the town centre along the eastern edge is identified within a Priority 3 (P3) Public Drinking Water Source area. P3 protection areas are defined to manage the risk of pollution of the water source. P3 areas are declared over land where water supply sources need to co-exist with other land uses such as residential, commercial and light industrial developments, although there is some restriction on potentially highly polluting land uses. Land use compatibility in this area will be a due consideration in the preparation of the precinct structure plan to ensure potential risk of on quantity and quality is minimised. No additional high risk land uses are proposed as part of the precinct structure plan beyond that currently envisaged within.
SPP 3 Urban Growth and Settlement	Key considerations for the precinct structure plan include: • Housing should have good access to employment, commercial, recreation and other facilities. • Housing options should be diverse to suit various household sizes, ages and incomes. • Higher density development should be close to commercial facilities and near transport options. • Clustering retail, employment, recreation and other activities in existing activity centres and transport nodes to create attractive, high amenity mixed use urban centres. • Urban development should foster a sense of identity and community. • Vacant and underutilised land should be utilised for urban growth. The key principles and considerations for successful urban growth have been reflected in this precinct structure plan.
SPP 7.0 – Design for the Built Environment	The WAPC has released Design WA Stage 1 to the public, including State Planning Policy No. 7.3 Residential Design Codes Volume 2 - Apartments. As of 24 May 2019, SPP3.1 R-Codes has been renamed State Planning Policy 7.3 Residential Design Codes Volume 1, with all existing context except for Part 6 to remain. The new State Planning Policy 7.3 Residential Design Codes Volume 2 – Apartments will replace the content of Part 6 of the R-Codes, focusing on improved design outcomes for apartments (multiple dwellings). Work is also underway to include policies on Precinct Design, Neighbourhood Design and House Design. Design WA has been used as the performance based assessment tool for new development in the town centre. The BFDGs focus only on the site-specific elements and/or elements that would need to be modified in response to local considerations.

Document	Relevant Provisions and Strategies
SPP 3.5 Historic Heritage Conservation	This policy sets out the principles of sound and responsible planning for the conservation and protection of Western Australia's historic heritage. The study area contains a number of European and Indigenous heritage sites. A Heritage Impact Assessment will be required where development involves a place on the State Register and the Kalamunda Municipal Inventory.
SPP 3.6 Development Contributions for Infrastructure	This policy sets out the principles and considerations that apply to development contributions for the provision of infrastructure in new and established urban areas, and the form, content and process to be followed. The funding mechanisms for future infrastructure requirements will be a consideration for the City of Kalamunda and landowners.
SPP 3.7 Planning in Bushfire Prone Areas	SPP 3.7 directs how land use should address bushfire risk management in Western Australia. It applies to all land which has been designated as bushfire prone. SPP 3.7 seeks to guide the implementation of effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. It applies to all higher order strategic planning documents, strategic planning proposals, subdivision and development applications located in designated bushfire prone areas (unless exemptions apply). The entire suburb of Kalamunda is identified as bushfire prone according to the Department of Fire and Emergency Services mapping (published 31 May 2017). Development and subdivision will need to comply with the requirements of SPP 3.7 and the Bushfire Management Plan at Appendix C.
SPP 5.4 Road and Rail Noise	The purpose of the Policy is to minimise the adverse impact of road and rail noise on noise-sensitive land use and/or development within the specified trigger distance of major transport corridors. The current version of SPP 5.4 does not impact on the study area. Kalamunda Road and Canning Road which run north-south in the east of the town centre are currently designated as 'Other Regional Road' (ORR) under the MRS. In accordance with this Policy, a trigger distance of 200m applies along this road corridor. Future development application may require an acoustic assessment to be undertaken to mitigate potential noise impact from nearby roads.
Local Planning Documents	
City of Kalamunda Local Planning Strategy 2010	City of Kalamunda Local Planning Strategy 2010 was officially endorsed by the WAPC in 2013 and incorporates the overall objectives and desirable outcomes of several key high-level documents which have been adopted by the City of Kalamunda. The overall intent of the Strategy seeks to facilitate sustainable and equitable growth within and around the Kalamunda town centre and provide high levels of connectivity whilst preserving the natural environment. A review of LPS 3 is currently underway by the City of Kalamunda.

Stirk Park Master Plan	The City of Kalamunda has prepared a Master Plan for Stirk Park which intends to guide its development into the future. In preparation of the Master Plan extensive consultation with over 650 residents was conducted to determine the communities desired outcomes for the area and a preferred master plan concept. Stirk Park is located in the identified north-west corner of the identified study area bounded by Elizabeth Street to the north and Kalamunda Road to the west. Whilst on the periphery of the town centre core, Stirk Park has an important role as a place of gathering, events and community activities. Stirk Park is located at a key entry point to the town centre and has a role to play in setting the character, feel and sense of place for the town centre and surrounding residential areas. Whilst Stirk Park is included within the precinct structure plan area it does not substitute the Stirk Park Master Plan which will continue to provide an overarching framework for the development of Stirk Park.
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SPP4.2

State Planning Policy 4.2 – Activity Centres (SPP4.2) is the primary document guides the hierarchy and distribution of activity centres in the Perth and Peel regions.

Some of the key requirements and provisions of SPP4.2 are outlined and addressed in **Table 15**.

Table 15 – SPP4.2 Provisions and Compliance

Provision/s	Note
The Kalamunda Town Centre is identified as a 'District Centre'.	This precinct structure plan facilitates the delivery of a district centre in Kalamunda, and fulfils the requirement for a precinct structure plan for district centres prior to major development.
District centres have the following typical characteristics: • Are to have a greater focus on servicing the daily and weekly needs of residents. They are to have a greater focus local community focus, and provide services, facilities and jobs that reflect the needs of their catchment. • Contain discount department stores, supermarkets, comparison shopping, personal services, speciality shops. • Should be a focal point for bus network. • Should have district level office development and local professional services. • Should cater for 20,000-50,000 persons. • Should accommodate a minimum 20 dwellings per gross hectare residential density within a 400m walkable catchment, and a desirable 30 dwellings per gross hectare. • Should accommodate 30% mix of land uses where there is more than 20,000sq.m of shop retail floorspace.	The Kalamunda Activity Centre Precinct Structure Plan has been prepared in accordance with the requirements of SPP 4.2 and Structure Plan Preparation Guidelines. The activity centre will facilitate the delivery of a district centre in line with the typical characteristics of a district centre: • The precinct structure plan will accommodate a convenience based centre with retail, community and service offerings targeted as the local community. • The centre concentrates activities within the retail core of Haynes Street, Central Mall, Mead Street, Barber Street, Railway Road and Stirk Street. • The Centre is connected to the bus depot providing public transport access to residents and visitors. • The precinct structure plan allows for a range of land uses from retail, commercial, residential, mixed use, entertainment and the like. • The accompanying Employment and Retail Analysis outlines that the trade area for the centre is already at approximately 18,850 persons and is set to grow just over 1,090 persons over the life of the precinct structure plan. • The activity centre allows for increased density in appropriate locations to support a mix of uses in the centre. This is outlined in further detail in other sections.
Retail sustainability/needs assessments are required prior to major development in activity centres.	This precinct structure plan will facilitate an additional 1,500-2,500sq.m of shop retail floorspace based on business as usual with a potential increase to 2,800-3,800sq.m based on an improvement share and productivity in the centre. A Retail Need and Sustainability Assessment is provided. At Appendix D and detailed in Section 4.9.
SPP4.2 outlines a range of matters that are to be addressed in precinct structure plans, under the headings of centre context, movement, activity, urban form, resource conversation and implementation.	All of these matters are addressed throughout the precinct structure plan.

2.4 Activity Centre Framework

2.4.1 Land Use Control

The precinct structure plan area is primarily zoned 'District Centre', 'Mixed Use', 'Residential', 'Local Open Space' and 'Public Purpose' within LPS 3. A scheme amendment is being progressed concurrently with this precinct structure plan to rezone the land to 'Centre' with a 'DC1 – Kalamunda' subcategory for the core of the activity centre, with the exception of the Local Open Space reserves.

The proposed land use permissibility for 'Centre DC1 – Kalamunda' in **Table 1** Zoning table of LPS 3 relates to the land identified as 'DC1 – Kalamunda' on LPS 3 Zoning Map and 'Centre' on the Kalamunda Activity Centre Precinct Structure Plan Map.

All other areas outside of the DC1 – Kalamunda designation shall be in accordance with the equivalent zone in LPS 3 as identified on the precinct structure plan map as follows:

- Land uses in areas designated Mixed Use are to be in accordance with the Mixed Use zone listed in the Zoning Table in LPS 3.
- Land uses in areas designated Residential are to be in accordance with the Residential zone listed in the Zoning Table in LPS 3.
- Land uses in the areas designated Public Purpose and Local Open Space are to be in accordance with the provisions of Part 3 – Reserves of LPS 3.

In making a determination, the responsible authority will have regard to the objectives for the Activity Centre and Precinct vision statements outlined in Part 1 of this precinct structure plan.

2.4.2 Urban Form

The Built form of the Kalamunda activity centre will largely be guided by the Kalamunda Built Form Design Guidelines (BFDGs) (refer Appendix A).

The Design Guidelines create a set of development standards that will allow for increases in density over time while maintaining the fine-grained, built form and character of Kalamunda. The BFDGs provides a transparent framework for planning assessment, allowing flexibility to respond to site and market conditions but also clearly identifying the intended built form and public realm interface in each location. The requirements have been tailored to the specific conditions and opportunities within the activity centre, building on existing functioning patterns and supporting new initiatives that have emerged through the visioning and urban design process.

The BFDG sets out a series of 'frontage' requirements that clearly articulate the intended built form relationship between private lots and the public realm within the centre of Kalamunda. This structure allows for significant flexibility in designing new developments while maintaining the key interfaces to support the town centre activities.

For standards relating to development above street level and not designated with a 'Frontage' type, the BFDG relies on the overall framework set out in the State Planning Policy 7.3 Residential Design Codes, Volumes 1 and 2 (R-Codes). This is one of a suite of planning policies within Design WA, a planning reform initiative intended to improve the quality of design within Western Australia. The following development standards refer to associated sections of Volume 2 of the R-Codes. As such, please refer to both documents when designing new projects. Where there is a conflict, the BFDG prevails. Planning applications are also subject to the balance of the applicable R-Codes sections (Volumes 1 or 2) even if not specifically referenced in the BFDG.

2.4.3 Street Interfaces

For the most critical street edges a series of more detailed development standards (called 'frontages') have been created to ensure an appropriate interface with the adjacent public realm that is consistent with the intended urban design outcome. This includes minimum and maximum front setback requirements as well as a range of other considerations relating to the design of the front building facade. These requirements are set out in Part 1 and the BFDGs (to be read in conjunction with Figure 20 Built Form Control Map) and described in Table 16.

Table 16 – Frontage Types

Frontage	Location	Characteristic
Frontage 1	This is applied to building edges with the highest focus on activation at the ground level, typically in retail main street precincts.	This type is characterised by buildings edging the footpath, generous clear glazing, frequent building entries, awnings, and easy access at grade.
Frontage 2	This is applied to building edges with the highest focus on activation at the ground level and to retain a more intimate scale, typically in the shared space of Central Mall.	This type is characterised by lower building heights and buildings edging the footpath, generous clear glazing, frequent building entries, awnings, and easy access at grade.
Frontage 3	This is applied to building edges with a moderate focus on activation at the ground level, typically on the periphery of retail main street precincts.	This type is characterised by most buildings edging the footpath, modest amounts of clear glazing, frequent building entries, reasonable coverage of awnings, and easy access at grade.
Frontage 4	This is applied to building edges with a moderate focus on activation at the ground level, where flexibility is required to address site conditions or potential land uses.	With appropriate justification, this flexibility can include larger setbacks, entries above footpath level, and even car parking between the building and street. Regardless of the ultimate agreed design solution, the intention is that the resulting building address the adjacent street in a way that creates an attractive, positive urban interface.
No Frontage Designation	Where not identified with a frontage type.	Properties without a nominated Frontage are subject to the design standards of LPS 3, this precinct structure plan and the R-Codes (Volume 1 or 2).

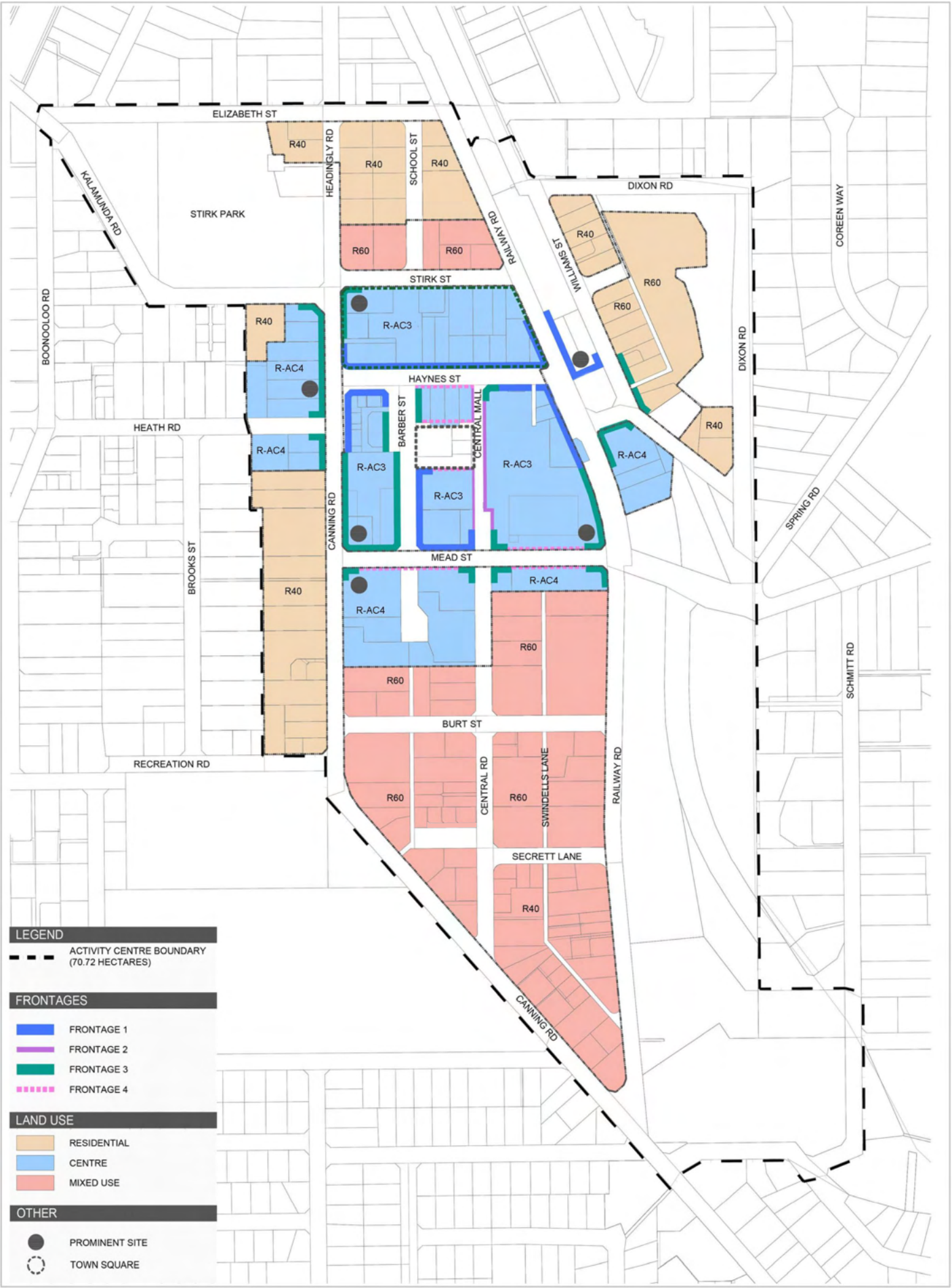
2.4.4 Residential density

There is a level of anticipated residential growth in the activity centre that will provide additional users of the centre. The supply of additional dwelling units will not be limited by infrastructure capacity in the majority of the activity centre. Whilst residential growth would be in line with population projections for the broader area, the residential capacity of the activity centre has been augmented through a combination of encouraging residential development over shops, an upcoding of residential and mixed-use densities in the activity centre boundary and the identification of underutilised sites for redevelopment.

An expectation of an additional 400 dwelling units in the activity centre has been identified that would bring over 850 new residents to the area. The main driver for this growth will be the rezoning of the activity core to accommodate densities more in keeping with a 'town centre' however the massing and bulk of these structures will be moderated by height limits and provisions set out in the BFDGs. The introduction of these residents would be expected to occur over the lifespan of the precinct structure plan as incremental growth occurs.

One identified opportunity for additional housing in the activity centre frame was through the rezoning of split zoning to a single density code. From a review of the existing LPS 3 dual density provisions, it was apparent that the higher code option was an underutilised opportunity to introduce additional density that allowed for greater flexibility. The built form outcomes and restrictions linked to the higher code are now addressed in the BFDGs. This enabled the overall aesthetic of the frame to be improved as the new code requires similar permitted heights and massing but with a more cohesive streetscape output.

Figure 20 – Built Form Controls Map



2.4.5 Public Realm

The activity centre is in an emerging residential area, and the intensity, scale and form of the centre reflects that context. As a result, the centre will be of a low to medium intensity, in low-scale buildings that integrate with the surrounding predominantly single storey residential environment.

The current town centre is diverse in nature, land use and design. Heritage, topography and an active and engaged local community provide great opportunities to leverage from.

Through a number of visioning and community engagement exercises, the future of Kalamunda has been focused around the themes of Urban Form, Community, Land Use and Activity, and Movement. These themes have guided a desired urban form driven by a number of features based around precincts including:

- Reinforcement of Haynes Street as the traditional 'main street' with highly active edges, a mix of uses, pleasant pedestrian environment and a built form outcome that reflects the character of Kalamunda.
- Central Mall becoming a food and beverage focus supported by a one-way shared vehicle/pedestrian street.
- Creation of a new shared street and civic space on Railway Parade at the top end of Haynes Street as a multi-use public space.
- Consolidation of employment generating land uses including larger format commercial, retail and civic uses around Mead Street leveraging off Kalamunda Central shopping centre.
- Celebration of cultural features by create synergies between Stirk Park including Stirk Cottage, Zig Zag Cultural Centre and Bibbulmun Track.
- A 'frame' to the town centre core that supports predominantly residential and mixed use development that contributes to the walkable catchment of the town centre
- Consolidated parking areas in appropriate locations.
- Highly legible, safe and well-designed pedestrian linkages to connect all parts of the activity centre as well as important community focal points beyond.
- Reflect Water Sensitive Urban Design principles and best management practices.

2.4.6 Landscape Master Plan

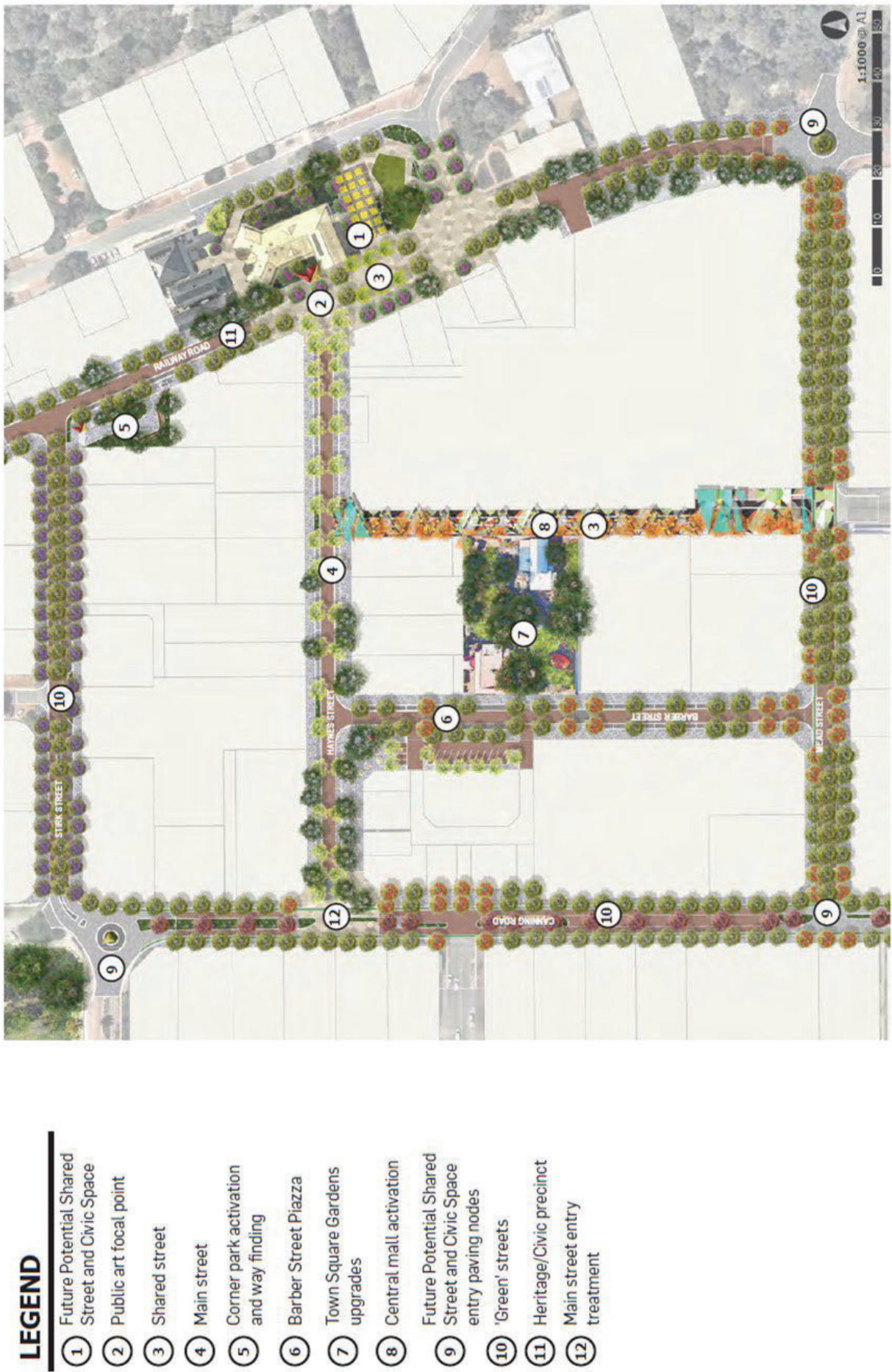
A Landscape Master Plan has been prepared to support the vision for Kalamunda activity centre by interpreting a consolidated set of townscape improvement opportunities that will underpin the successful evolution and growth of the town centre (refer Appendix H).

The Landscape Master Plan provides a guiding document to assist the City of Kalamunda in the prioritisation and delivery of a capital works program to the benefit of the local community, retailers and visitors. The Landscape Master Plan has been informed by community engagement, detailed site assessment, literature review and case studies.

The following list outlines projects or partial projects that could be delivered by the City without significant expenditure. This is in recognition that the time and cost that could be attributed to the entire list of elements and strategies is above the capacity of the City of Kalamunda's current funding and staffing, which will necessitate a Feasibility Framework being devised to tackle this project. The projects identified below will enable the City to demonstrate to the community and stakeholders their commitment to realisation of the Master Plan prior to detailed feasibility studies.

- Trial event closure of Railway Road in conjunction with community event or markets within the town square precinct.
- Undertake tree planting within existing medians on Canning Road.
- Introduce seating along Haynes Street. This seating can be relocated or re-used when upgrade works commence.
- Upgrade and install pedestrian crossings in accordance with the Kalamunda Activity Centre Transport Assessment.

Figure 21 – Landscape Master Plan



2.4.7 Key Spaces & Features

Building on the vision, a number of key spaces and features have been identified as critical elements to the delivery of the Kalamunda Activity Centre Precinct Structure Plan. These elements are described in the follow section and identified in **Figure 22**:

- **Main Street** – A clearly identifiable Main Street enhancing an already function urban fabric and increasing pedestrian focus and connectivity.
- **Central Mall** - Central Mall will become a one-way street acting as the heart of Kalamunda's night time economy, delivering an intimate and vibrant urban experience that supports both day and night-time activities and acts as a counterpoint to the more traditional and heritage spaces of the town centre.
- **Barber Street Piazza**– An area of respite and social gathering, hospitality and community facilities.
- **Future Potential Shared Street and Civic Space** – A flexible and defined town square that colocate heritage, tourism and community facilities and provides a civic focus for the town centre.
- **Journey** – 'Lost and Found in Kalamunda' clearly defined pedestrian and vehicle routes offering a diversity of experience and choice in a safe and vibrant town centre environment.

The elements are supported by a number of strategies that provide more fine grain detail on the more functional aspects of the public and private realm. The BFDGs have been formulated to interface with the public realm objectives.

Figure 22 – Key Spaces and Features



Main Street

Location - Haynes Street

Description – Haynes Street is the traditional retail core of the town centre and still functions as a significant destination. There are a number of interesting and attractive retail offerings along its length that public realm improvements would support. Haynes Street also acts as a connector from Stirk Park, the proposed Barber Street Piazza and Central Mall, to the heritage and civic precinct on Railway Road.

Opportunities and Outcomes

- Maintain a building scale consistent with the existing town centre character to encourage pedestrian activity and protect human comfort.
- Built form outcomes based on frontage types provide an opportunity to create a high focus of activation to the main street and in certain areas constrained by topography and site conditions, greater flexibility to create an attractive and positive urban interface to the street.
- Maintain and enhance the framed view along Haynes Street between Canning Road and Railway Road through avenue tree planting located between parking bays.
- Reduce the road pavement width to assist in slowing vehicle traffic and provide an enhanced pedestrian area.
- Remove kerbs to create a hybrid parking/parklet zone that allows for flexible uses dictated by the adjacent retail use.
- Consider provision of services that allow for irrigation of planting and temporary planter boxes.
- Introduce dedicated seating to provide respite along Haynes Street and encourage informal gathering.
- Resurface paths and parking/parklet zone to provide clear material hierarchy.

Figure 23 – Main Street Element



Central Mall

Location - Existing Central Mall

Description - Central Mall is an important urban space that embraces the food and art culture of the Perth Hills. Refurbished as a flexible space that supports both day and night retail and hospitality offerings, the redeveloped 'lane' will also support markets while also allowing adjacent retailers to comfortably trade. The renewed Mall creates a focal point of the town centre and a gathering place for community events.

Opportunities and Outcomes

- Reconfigure Central Mall to allow one-way traffic through the lane in a shared street environment.
- Encourage a 'food and beverage focus' with land uses (where possible) providing opportunities for alfresco dining.
- Support opportunities for community events such as market days and fairs activating the street in the day and night.
- Provide a safe and pleasant pedestrian environment through opportunities for shade, rest stops, weather protection and footpaths.
- Install traffic management structures to allow ease of closure during events and night-time activities.
- Introduce short term parking opportunities into the lane to support adjacent retailers.
- Plant additional trees to extend existing planting and provide summer shade.
- Install catenary lighting assist in activation and a sense of enclosure.
- Install entry canopy and the north and south ends of the lane to create a sense of arrival and aid in wayfinding.
- Strengthen and support existing events, festivals, markets and activities in Central Mall and Town Square Gardens and create new place activation opportunities that contribute towards a vibrant and activated town centre.
- Central Mall Shared Street should ensure that existing trees are retained wherever possible to maintain its character, while removing items that inhibit the use of the space.

Figure 24 – Central Mall Element



Barber Street Piazza

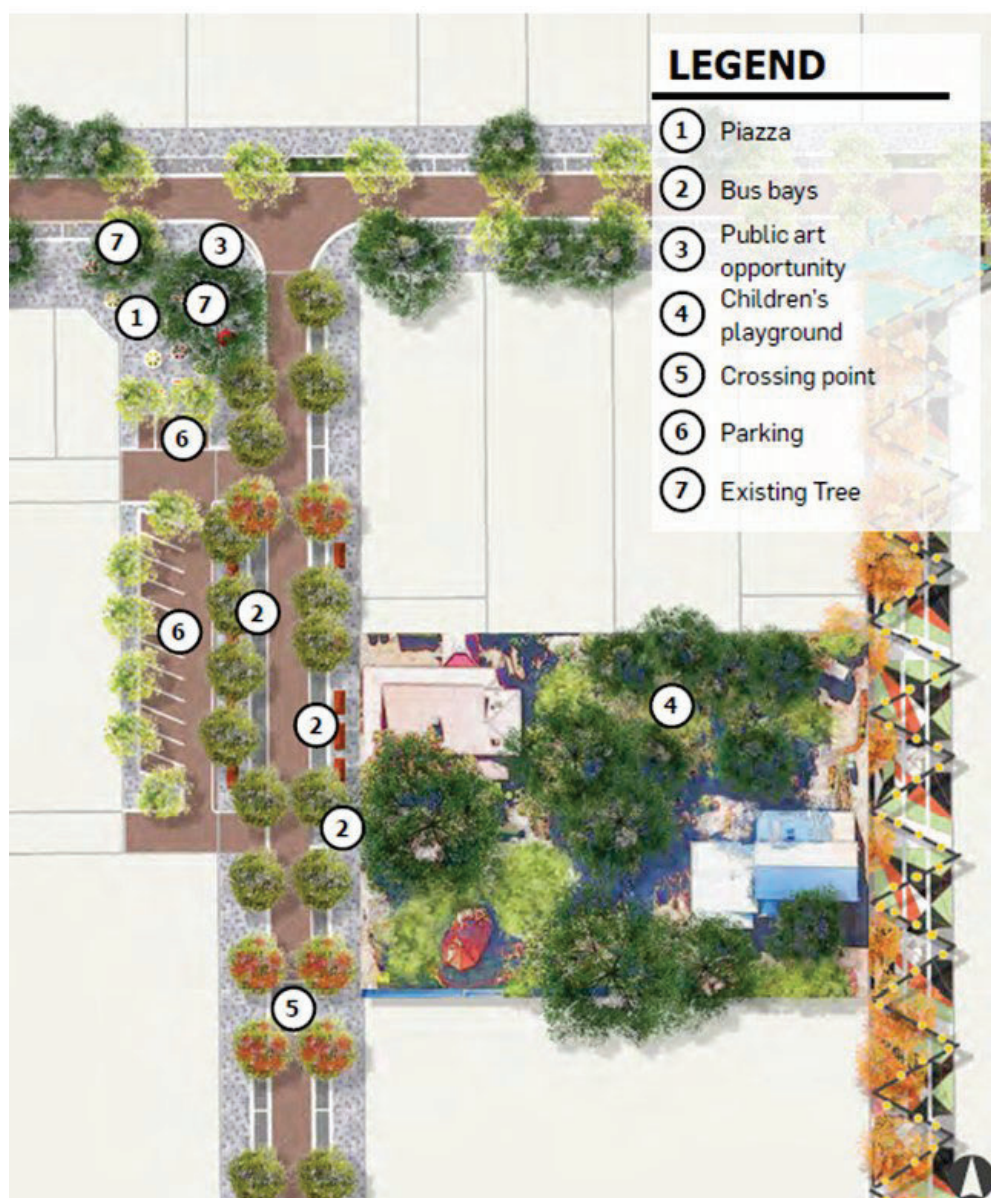
Location – Barber Street in front of the Post Office

Description - Diversity of places and spaces are integral to a successful town centre. The Barber Street Piazza provides an opportunity to deliver some vibrancy and a destination at the west end of Haynes Street. The proposed piazza extends the existing Town Square Gardens associated with the town hall, creating a link between this valued community space and the Main Street.

Opportunities and Outcomes

- Reconfigure parking to increase pedestrian space and development the Barber/Haynes Street corner into a piazza space incorporating seating, play and light.
- Retain existing street configuration to allow for accessible / large vehicle parking such as caravans, RVs or event bus parking.
- Through a Local Development Plan, consolidate of land parcels and the redevelopment the 'Post Office' site to leverage off the adjoining public realm opportunities and access to the south.
- Closure of the internal access road behind the Post Office site to provide additional developable land.
- Consolidation of service access.

Figure 25 – Barber Street Piazza Element



Future Potential Shared Street and Civic Space

Location - Railway Parade and Haynes Street

Description - The future potential shared street and civic space is creating a place where the local community is engaged in the ownership and development of culture, and a sense of place. This is key to providing a focus for the community, embedding a sense of identity as the community evolves and in providing the flexibility necessary to support community events such as markets, performances and events.

Opportunities and Outcomes

- Redeveloping the existing library and co-locating this with additional community uses such as performance space, function spaces etc. will assist in consolidating a civic focus for the town centre.
- Improve the connection (visual and physical) between the existing Zig Zag cultural centre, library and Bibbulmun track.
- Create a shared space with the ability to close this section to traffic for large events.
- Relatively level area, allowing a more adjustable event space and improved access for all.
- Numerous valued assets such as heritage, views, significant vegetation and cultural activities
- Facilities such as waterplay, seating and play will allow residents and visitors to gather informally
- Incorporation of a public art piece to terminate the view on Haynes Street will act as an attractor and aid in wayfinding.
- Connects the current cultural and civic uses to the east, with the heritage buildings with their associated retail and hospitality uses to the west.
- Retain parking required within flexible space to meet demand for adjacent community facilities, however opportunity to close parking area for events.

Figure 26 – Future Potential Shared Street and Civic Space Element



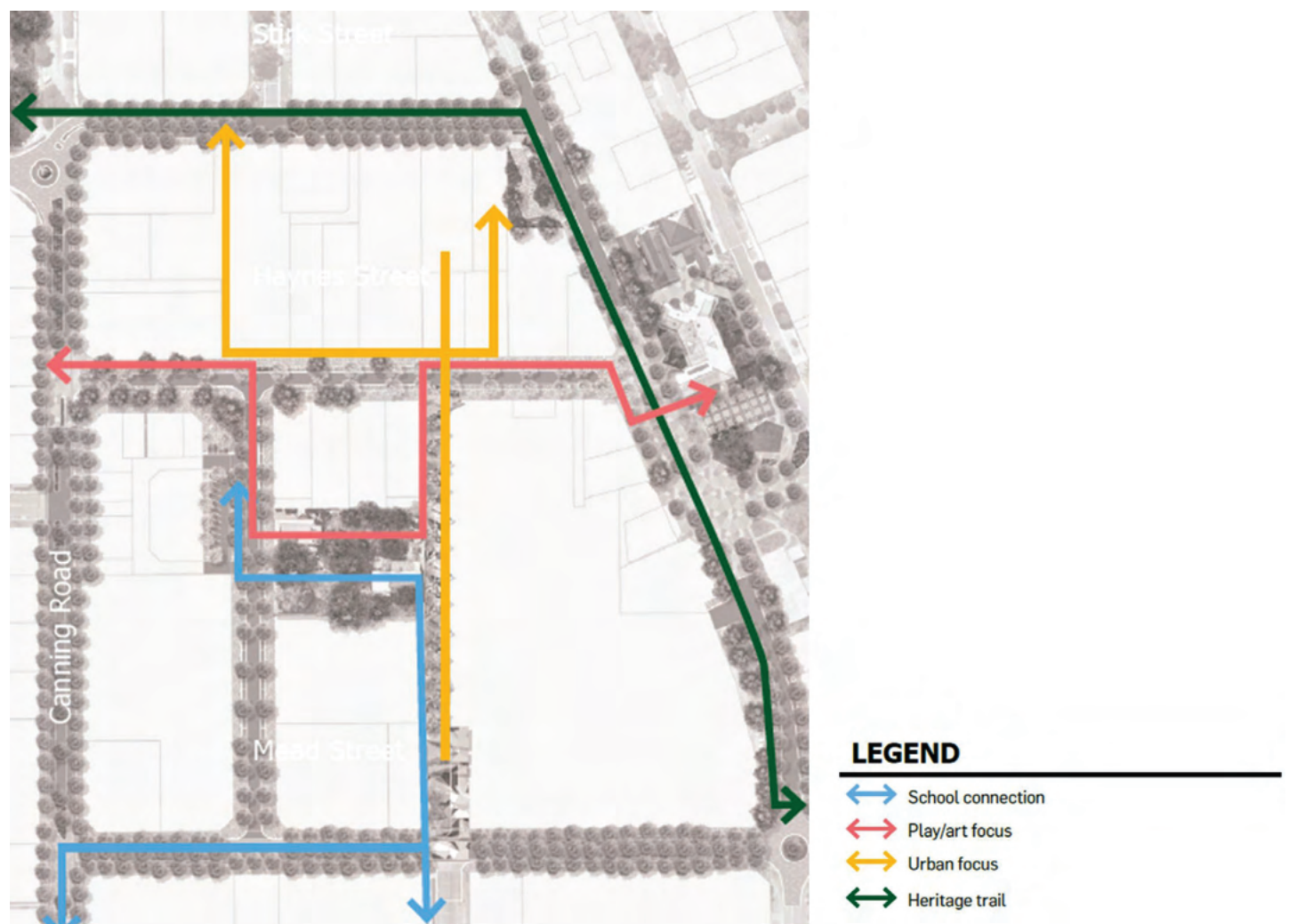
Journey

Description - The precinct structure plan supports pedestrian and cycle access within the activity centre as well as to a number of key destinations peripheral to the core of the town such as Kalamunda Senior High School, Stirk Park and the Bibbulmun Track. Refer to Movement Network Plan at Figure 30.

Opportunities and Outcomes

- Create pedestrian linkages through the precinct structure plan area to provide direct connections between key destinations increasing permeability, legibility and way-finding through the activity centre.
- Pedestrian linkage in locations where there is existing development, the linkage is to be provided when/if that existing development is substantially redeveloped and at the discretion of the City of Kalamunda.
- Reconfiguration of Central Mall to allow one-way traffic with controlled access increasing pedestrian and vehicle movement in a shared zoned.
- Rationalised road pavements to deliver improved pedestrian spaces and increased activation within road reserves.
- Dedicated on road cycleway on Mead Street and Canning Road to support commuter and recreational use.
- Prioritisation of pedestrian movement networks over vehicular within the town centre core.
- Creation of shared space in support of the future potential civic space to allow for large civic events.

Figure 27 – Journey Element



2.5 Environment

2.5.1 Bushfire

A Bushfire Management Plan has been prepared by Strategen to support the activity centre (refer Appendix C).

Native Vegetation – modification and clearing

The majority of the project area comprises existing development and is either non-vegetated, or managed in a low-threat state (as per Clauses 2.2.3.2 (e) and (f) of AS3959 (SA 2009)). Remnant vegetation is limited to the eastern portion of the project area, and occurs in relatively large and intact parcels, as well as fragmented plots within private landholdings.

While the northern parcel of remnant vegetation (Lot 6 (no. 606) Dixon Road) is proposed to be partially developed for residential purposes, the remaining areas of remnant vegetation within the project area are proposed to be retained as 'Local Open Space', with the exception of isolated clearing which may be required to accommodate appropriate asset protection zones (APZs) or vehicular access.

Potential environmental impacts resulting from implementation of the proposal will be addressed in accordance with standard State and Commonwealth legislative requirements under the Environmental Protection Act 1986 and Environment Protection and Biodiversity Conservation Act 1999, during future planning and development processes.

In response to identification of the above environmental values, future development within the project area should aim to (where possible) avoid clearing of native vegetation through the strategic location of lot boundaries and building envelopes, as well as construction of dwellings to BAL-29 to minimise impacts from Asset Protection Zones (APZs).

Revegetation / Landscape Plans

No revegetation is proposed as part of the proposal. The Landscape Master Plan identifies future landscaping opportunities in the public realm. Any landscaping proposed in the vicinity of habitable buildings will consist of low fuel managed gardens and street scaping, consistent with Clause 2.2.3.2 (f) of AS3959. Any exceptions to this should be assessed on a case-by-case basis to ensure that the landscaping works do not introduce a bushfire risk to adjacent development.

Bushfire hazard levels (BHL)

The eastern portion of the project area was identified to have a predominantly 'Extreme' BHL attributed to the presence of Class A forest and Class B woodland within areas proposed as 'Parks and Recreation' and 'Residential' within the ACP. Low-threat and non-vegetated areas within 100 m of Class A forest and Class B woodland vegetation are considered to have a 'Moderate' BHL as a result of their proximity to bushfire fuels.

The eastern portion of the project area is predominantly non-vegetated or in a low-threat managed state. As such these areas have a 'Low' BHL (refer Figure 28 Pre-development Bushfire Hazard Level).

Bushfire hazard issues

Classified vegetation has been identified within the precinct structure plan area and surrounding local area which has the potential to have a significant bushfire impact on proposed development if unmanaged. There is a considerable bushfire hazard associated with vegetation in the eastern portion of the project area within areas proposed to be retained as 'Local Open Space', as well as private landholdings to the east of the project area. Given the vast areas of national parks and State forest east of the project area, there is also significant landscape scale bushfire risk to the project area with the potential for extended fire runs through heavily vegetated forest.

As such, future development within 100m of classified vegetation should incorporate suitable levels of defendable space, compliant APZs, access provisions, fire fighting water supply and increased building construction standards at the various bushland interfaces outlined above.

Following provision of these design measures, Strategen considers the bushfire risk and associated hazards are manageable through adoption of standard Guideline acceptable solutions.

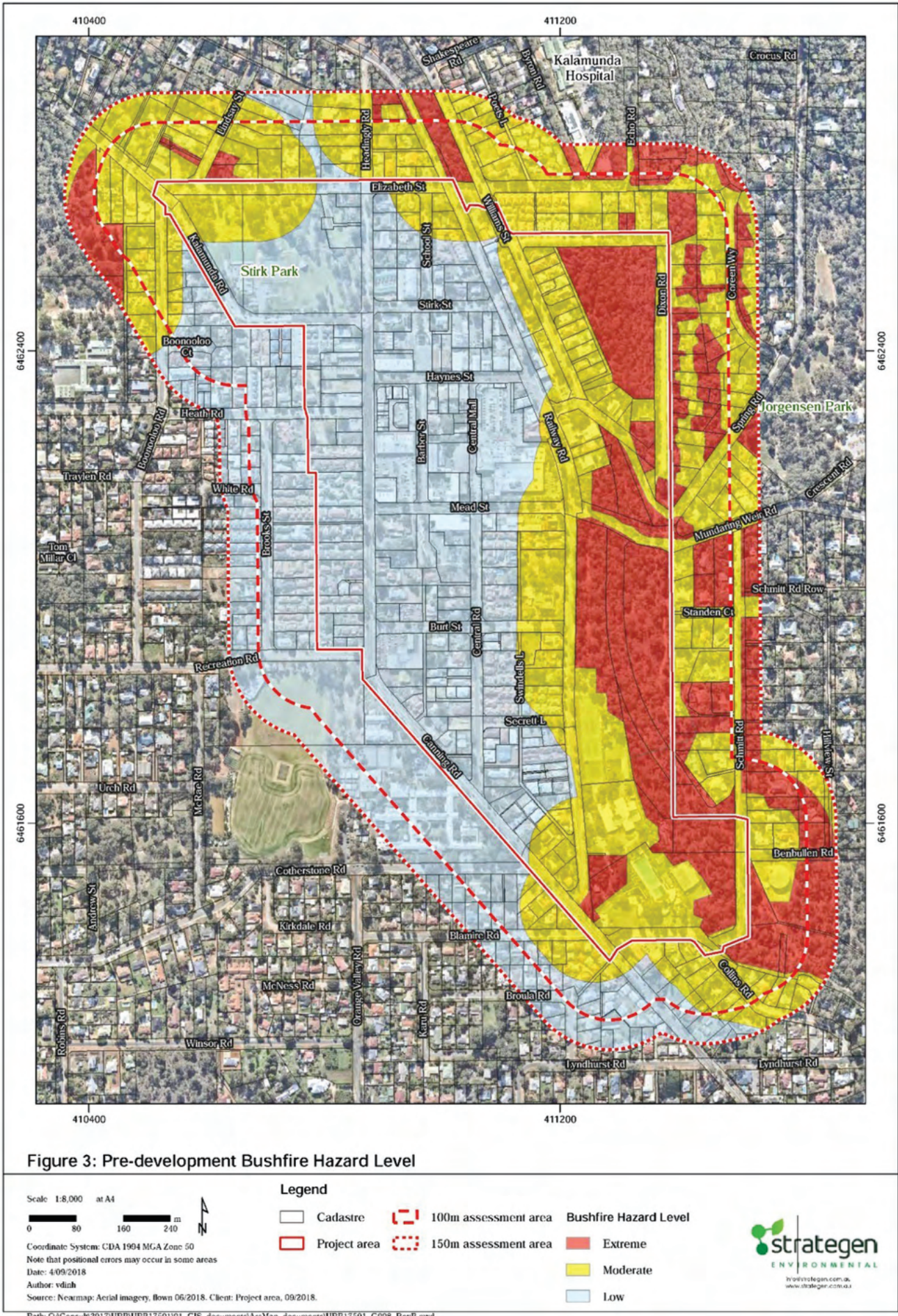
Bushfire management measures

Given that the entire activity centre plan area is currently identified as a bushfire prone area, any future strategic planning documents, strategic planning proposals, subdivision and development applications located within the project area will need to comply with the requirements of SPP 3.7 and the associated Guidelines. Ensuring compliance with SPP3.7 and the Guidelines will require implementation of the following measures:

- undertaking a BAL assessment (or BAL contour assessment) to support future subdivision and development applications, or building licences (developer/ landowner).
- ensuring future lots/ habitable buildings are located in an area which is not subject to a rating higher than BAL-29 (developer/ landowner).
- ensuring future lots/ habitable buildings can accommodate appropriate APZs (developer).
- ensuring occupants of future development areas are provided with two different vehicular access routes which connect to the public road network and provide safe access/ egress to two different destinations (developer).
- ensure that proposed public and private road/ driveway infrastructure is constructed in accordance with A3.1 to A3.7 of the Guidelines (where applicable; developer).
- ensure that firebreaks are installed in accordance with the Guidelines and the City's Fire Hazard Reduction Notice (developer/ landowner).
- ensure an appropriate water supply is provided to any future lots/ habitable buildings through either reticulated water supply or water tanks, in accordance with A4.1, A4.2 or A4.3 of the Guidelines (developer).

Additional management measures are also outlined in the Bushfire Management Plan depending on the nature of future development proposals.

Figure 28 – Pre-Development Bushfire Hazard Level



2.5.2 Heritage

A Historical and Aboriginal Heritage Baseline Assessment has been prepared to support this precinct structure plan (refer Appendix E). The following section provides a summary of the potential historic heritage and Aboriginal heritage issues that may impact on future development in the precinct structure plan area.

Historical Heritage

There are a number of known historic heritage places within the precinct structure plan area that are included on the WA State Register, and the Kalamunda Municipal Inventory. These places are identified within the Historical and Aboriginal Heritage Baseline Assessment (refer Appendix E). Where future development is proposed, including new development adjacent to heritage places, internal refurbishment of heritage places, or proposed demolition of heritage places, impact assessments will be required to be prepared and approved by the relevant level of government prior to any works taking place.

The Kalamunda and District Historical Society manages a heritage trail in the town. Consideration could be given to consultation with the Society to investigate further interpretive opportunities in the future.

Aboriginal Heritage

The precinct structure plan area is generally developed, and as such future works within these developed areas is unlikely to impact on any unknown Aboriginal sites.

However, there are undeveloped areas within the precinct structure plan area where potential for Aboriginal cultural heritage significance to remain. Therefore, it is recommended that a full Due Diligence Assessment be prepared in accordance with the Due Diligence Guidelines to provide a more comprehensive understanding of the boundaries and significant aspects of the Registered sites 25023 (Poison Gully Creek) and 3758 (Helena River) and whether any future works or development of the activity centre may impact on cultural values.

A scarred tree has been identified in the undeveloped land in the north-east of the precinct structure plan area. Its current condition is unknown. The eastern boundary of the precinct structure plan area includes two sections of relatively undeveloped land, which is mapped as native vegetation. There is potential for previously unknown tangible Aboriginal heritage sites, such as artefact scatters, to be present in these areas.

Where future works to those undeveloped areas is proposed, an Aboriginal heritage survey should be undertaken to assess its potential for Aboriginal heritage sites. The provisions of the NSHA are understood to apply if survey is proposed. Where works are proposed in the north-eastern undeveloped land, the scarred tree should be located and recorded if impacts to it are proposed.

There are complex issues in the south west regarding native title, ILUAs and the Settlement. The application by the Whadjuk for registration of their ILUA is pending. It is recommended that consultation occur with the Land, Approvals and Native Title Unit of the Government of Western Australia, to understand and keep up to date with the progress of the ILUA, and associated future implications.

It is recommended that known heritage places, including their heritage curtilages be mapped and recorded appropriately. Consideration should also be given to consultation with the Kalamunda and District Historical Society and the Whadjuk People, to identify any sites of value within the precinct structure plan area that have not been included on heritage registers and to explore any opportunities for interpretation of the heritage values of the area in the future activity centre.

2.5.3 Sustainability

The sustainability of the Kalamunda activity centre will be driven by its efficient urban design and complementary mixture of land uses, resulting in more effective use of land and encouraging efficient means of transportation. Innovation on an ongoing basis will provide opportunities for reducing waste and using resources more efficiently.

The sustainability and resource conservation measures in **Table 17** are encouraged for all development in the activity centre.

Table 17 – Sustainability Measure

Means	Measure
Transport	The centre will offer sustainable development through: • The provision of an urban structure conducive to walking and cycling by concentrating core activities in a pedestrian friendly environment • A land use mix that promotes cross visitation and reduces the need for intra-centre car trips. • The centre being located on bus routes. • Reduction in on-site car parking standards. • Requirements for bicycle parking and end of trip facilities.
Water	The minimisation of water usage will be encouraged through the use of water efficient fittings and the incorporation of waterwise plants into landscape designs. Whilst not required, there may be opportunities in individual developments for the innovative use of greywater and/or stormwater.
Energy	To achieve effective passive solar outcomes and efficient solar energy collection, the massing and layout of new buildings must consider the arc of the sun as a primary design consideration. Any new proposals should carefully consider the repercussions of design decisions on solar access to communal open space, internal living spaces, as well as the overshadowing impact on adjacent properties and buildings. Design proposals should strive to protect solar access to solar panels on adjacent buildings and avoid overshadowing primary outdoor spaces and courtyards on adjacent properties.
Materials and Waste	It is important to acknowledge that all constructed elements within the private and public realm will have an embodied energy (the fuels/power, materials, human resources etc) that was used to produce and install them. Along with this, all built items will ultimately be removed or degrade naturally. Factoring this into the choices of materials and the sources of those materials, will be essential to ensure that the redevelopment is as sustainable as possible, not just in regard to the immediate environment but also globally. There is opportunity to implement native seed collection and propagation to provide provenance specific species suitable for landscape plantings. Other opportunities exist to capture and re-use materials from the area, such as local timber from maintenance works, rock and boulders, transplants of suitable trees and shrub and site mulch.

2.6 Employment & Retail Analysis

2.6.1 Key Findings

An Employment and Retail Analysis has been prepared by Urbis at Appendix D to support the development of the precinct structure plan. The analysis is intended to provide the context and evidence base for the precinct structure plan and to provide guidance on the appropriate quantum and timing of future floorspace provision within the town centre.

This analysis explores key demographic factors, household types, income distribution, dwelling distribution and population projections. The purpose of this task is to understand the current and future retail needs of local residents.

The key findings are summarised below with detail provided in the following sections.

- **Convenience Offering:** The Kalamunda activity centre currently accommodates a mixture of stand-alone retail stores, small multi-tenancy retail properties and the Kalamunda Central Shopping Centre. The vast majority of retail shops are considered to be convenience retail offerings which is a reflection of the relatively low level of population density within Kalamunda and surrounds and the proximity of higher order centres (e.g. Midland).
- **Low Development Activity:** The activity centre was estimated to have 20,700sq.m of retail floorspace as of 2017. The only notable growth in retail over the past decade is an ALDI store (equivalent to 1,600sq.m). Unlike many of Perth's other district centres, the Kalamunda activity centre is not home to a discount department store or a large number of specialty non-food retailers.
- **Low Population Growth:** Across the defined retail trade area – which extends from Maida Vale to the west, Lesmurdie in the south, Pauls Valley in the East and Helena Valley in the north – population growth has been limited. Over the 2012 to 2017 period, the trade area's population increased by only 0.1% per annum. This represents relatively low growth compared to other outer-ring areas in Perth and reflects the established nature of the area and lack of major planned development areas and infill development activity. A moderate decline in the resident population in the surrounding suburbs (defined by the suburbs of Kalamunda, Maida Vale and Gooseberry Hill) is expected to be attributable to declining household sizes as residents age and increased rental vacancy rates. generally older families, couples and singles. There is a relatively low level of young families despite the housing stock consisting predominantly of large family homes.
- **Below Average Turnover:** Based on Property Council and Urbis databases, the activity centre is considered to be trading at levels approximately 20% below benchmark district centres and large neighbourhood centres. Moreover, the activity centre has a high level of vacant floorspace (equivalent to more than 3,000sq.m) of which some of this floorspace could accommodate retail uses.
- **Limited Retail Demand:** The lack of population growth combined with geographical constraints that limit visitation to the centre from the wider area are considered key reasons behind low levels of retail development activity in the centre and below average turnover volumes. Additionally, the retail offering is dispersed across a large area and it is not co-located with other destination uses (e.g. hospital, administration building, etc.) and the public realm does not adequately encourage trip linking. The lack of residential population growth will limit the extent of retail demand growth in the catchment. Any future redevelopment or expansion of retail provision in the activity centre will thus likely require increased visitor / tertiary trade and / or increased market shares. That is, the activity centre will need to draw a greater share of spending in order to support redevelopment and / or expansion of the retail offering.

2.6.2 Floor Space

Within the catchment as profiled there was a total of 28,200sq.m of PLUC 5 Shop-Retail floorspace (net lettable area) as of 2015. Table 18 illustrates the level floorspace within shopping centres in the catchment based on Urbis and Property Council databases equivalent to 19,000sq.m.

The dominant shopping centre in the catchment is the Kalamunda Central Shopping Centre with an estimated 7,300 sq.m of retail floorspace. Of note however, is that the centre accounts for just 40% of the total retail floorspace in the Kalamunda activity centre.

A recent addition to the floorspace in the activity centre is a stand alone ALDI store with floorspace equivalent to approximately 1,600sq.m. We note that while there are a number of plans and concepts to upgrade the presentation and access to centres within the catchment, including Kalamunda Central and the Sanderson IGA, it is our understanding that there are no plans to introduce new retail floorspace within the catchment.

Table 18 – Retail Supply – Key Centres within and Outside the Catchment

Complex No.	Complex Name	Shop Retail and Other Retail Floorspace (Sq.m)	Key Centre	Key Centre Retail Floorspace (Sq.m)	Key Tenants
Within Catchment					
750	Kalamunda Centre	19,068	Kalamunda Central Shopping Centre	7,300	Coles
752	Gooseberry Hill	895	Gooseberry Hill Village	895	
754	Kalamunda Glades	3,760	Kalamunda Glades	4,983	Woolworths
755	Sanderson	2,197	Sanderson IGA	2,729	IGA
757	Lesmurdie	700	Lesmurdie IGA	1,080	IGA
Not identified	Aldi Kalamunda	1,600	Aldi	1,600	Aldi
Total		28,220		18,857	
Outside Catchment (Key Centre Only)					
751	Forrestfield Forum	13,271	Forrestfield Forum & Market Place	11,600	Coles, Woolworths
758 & 768	High Wycombe & High Wycombe Hotel	6,944	The Village High Wycombe & High Wycombe Village	5,809	Coles, Supa IGA
Total		20,215		17,409	

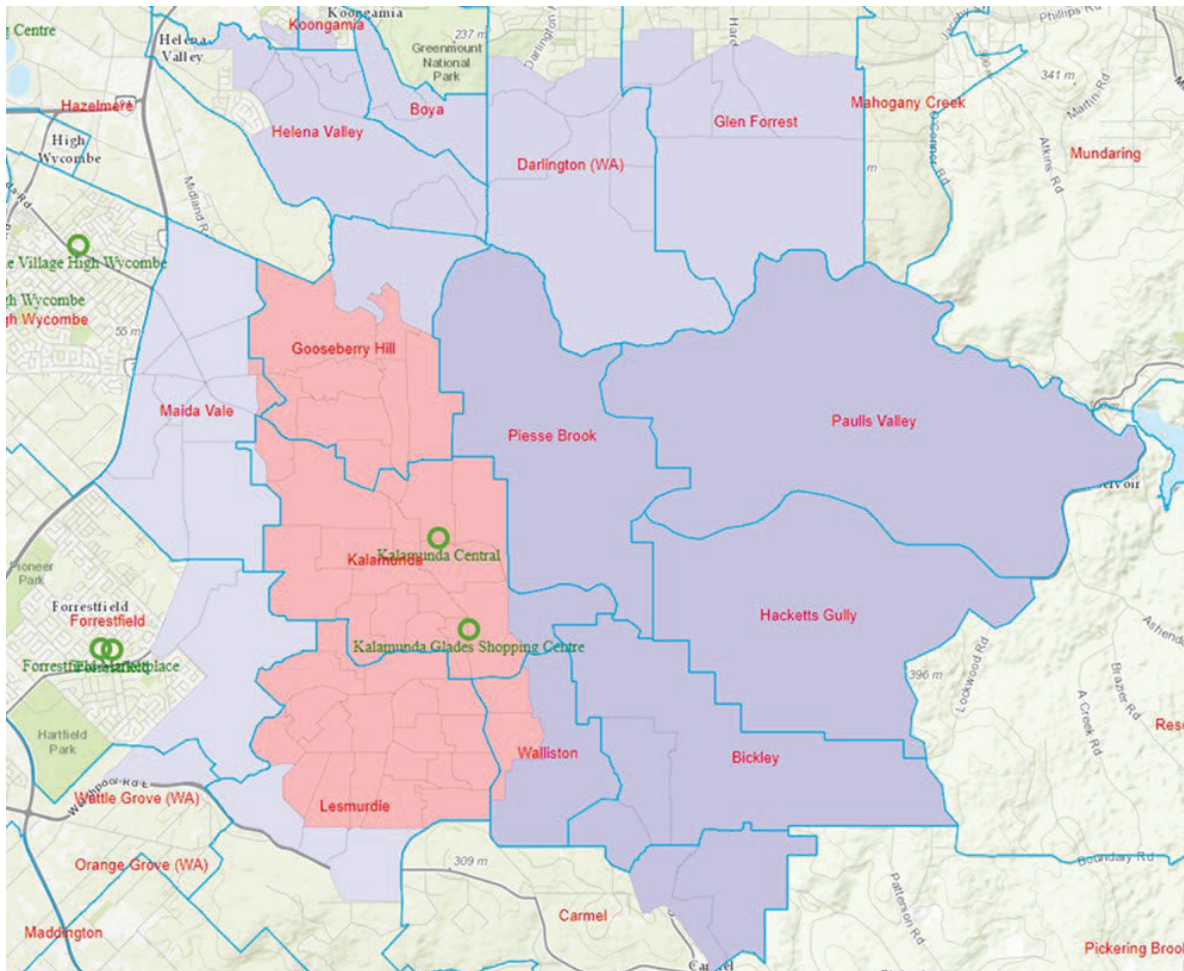
Source: Urbis

2.6.3 Trade Area Analysis

The definition of a trade area for a retail development is based on a range of factors including the strength, range and appeal of shops/services provided in the core area, the location, the quality and relative offer of competing centres/precincts, road and public transport accessibility, and physical and geographical barriers.

Based on an assessment of these attributes, the Kalamunda activity centre trade area has been defined as a central primary catchment and three secondary catchments (refer **Figure 29**).

Figure 29 – Kalamunda Town Centre Main Trade Area and Retail Supply



The primary catchment broadly corresponds to the suburbs of Kalamunda, the majority of Gooseberry Hill to the north and Lesmurdie to the south and the western portion of Walliston. Depending on the role and scale of a centre, the primary catchment typically represents approximately 50% to 70% of spending in a centre.

The extent of the secondary catchment west and secondary catchment north are limited by accessibility and the proximity of convenience-based centres in the wider area.

In addition to the catchment areas, spending from residents residing outside these areas forms a considerable level of demand. Whilst visitation estimates are not accurately known, tertiary (i.e. non-resident) trade is expected to represent approximately 10-20% of spending in the activity centre.

2.6.4 Population Growth

The level of population growth in the trade area has been very low over the 2012 to 2017 period. Despite Perth's population increasing considerably over this period, population levels only moderately increased and are projected to increase by approximately 1,090 persons over the coming decade.

The established nature of surrounding urban areas combined with an ageing profile implies that household sizes will decrease. Growth will therefore be driven by moderate infill development in Kalamunda and growth within the secondary north and west catchments.

The lack of residential population growth will limit the extent of retail demand growth in the catchment. Any future redevelopment or expansion of retail provision in the activity centre will likely require increased visitor / tertiary trade and / or increased market shares.

Refer to **Table 19** and **20** which details the projected population and growth rates for the catchment.

Table 19 – Population Projections

	2012	2017	2022	2027
Total Primary	18,840	18,850	18,980	19,190
Secondary				
West	6,310	6,270	6,450	6,810
East	2,110	2,030	2,090	2,220
North	7,780	8,000	8,090	8,020
Total Secondary	16,200	16,300	16,630	17,050
Total Trade Area	35,040	35,150	35,610	36,240

1. As at June 30. Source: ABS; Western Australia Tomorrow 2015; SA Fi; Urbis

Table 20 – Projected Population Growth Rates

	Annual Population Growth (no.)			Annual Population Growth (%)		
	12 – 17	17 – 22	22 – 27	12 – 17	17 – 22	22 – 27
Total Primary	2	26	42	0.0%	0.1%	0.2%
Total Secondary	20	66	84	0.1%	0.4%	0.5%
Total Trade Area	22	92	126	0.1%	0.3%	0.4%

1. As at June 30. Source: ABS; Western Australia Tomorrow 2015; SA Fi; Urbis

2.6.5 Retail Need Assessment

Floor Space Demand Estimates

Retail tenancies are estimated to be underperforming, on average, compared to Perth-wide benchmarks. This is evidenced by turnover input for Kalamunda Central, the high level of vacancies in the centre and advertised lease costs. Overall, the activity centre is estimated to attract approximately \$121 million of retail expenditure per annum (as of 2017), refer **Table 21** and **22**.

Current demand in the Kalamunda activity centre is expected to be driven heavily by the primary catchment. The primary catchment is estimated to support approximately 60-65% of expenditure in activity centre – equating to a market share of 25%.

Whilst population growth is expected to be larger within the secondary north and west catchments, there is a high level of competition in these suburbs that captures a large – and potentially increasing – share of additional retail expenditure. As such, the secondary catchments are expected to support approximately 20-25% of expenditure in the catchment – equating to a market share of 10%.

A review of Tourism Research Australia visitor data suggests that visitation levels are equivalent to approximately 350-400 day trips per day, on average. Additionally, input through community and business engagement suggest that visitation – especially weekend visitation – forms a critical component of patronage and revenue within the activity centre. As such, this analysis assumes that tertiary trade contributes approximately 15% of turnover within the activity centre.

Given the relative under-trading performance of the activity centre, future redevelopment and expansion of retail provision will require increased population growth, market shares and / or visitor expenditure.

Table 21 – Turnover Estimates, 2017

	Floorspace (sq.m.)	Turnover (p.a.)	Sales Density (\$/sq.m.)
Shop Retail	16,600	\$106,738,000	\$6,430
Other Retail	4,100	\$14,350,000	\$3,500
Total Retail	20,700	\$121,000,000	\$5,845

Table 22 – Market Share Estimates, 2017

	Primary Catchment	Secondary Catchment	Total Trade Area	Total Centre (inc. tertiary)
Retail Expenditure	\$305,000,000	\$262,000,000	\$567,000,000	-
Centre Sales	\$76,250,000	\$26,200,000	\$102,450,000	\$121,000,000
Market Shares	25%	10%	18%	-

Floor Space Scenarios

Urbis assessed two scenarios in order to understand the likely level of future demand for retail floorspace within the activity centre (refer **Table 23**).

Scenario one is a business as usual scenario whereby the activity centre is able to maintain its market shares over the coming decade. Under this scenario, the overall retail expenditure captured by the centre is estimated to increase by \$16.5 million to \$137.5 million. This equates to an additional 1,500 – 2,500sq.m of retail floorspace demand.

Scenario two proposes a higher market share and visitor expenditure capture and a 103% improvement in the average turnover levels per square metre (to levels still below comparable benchmarks). Whilst this scenario is not a forecast, it provides an indication of the potential demand outcomes if the centre improves its desirability to residents and visitors as a place to visit and shop. Under this scenario, this overall retail expenditure capture increases by \$36.1 million to \$157.2 million. This scenario suggests an additional 2,800 – 3,800sq.m of retail floorspace might be required by 2027.

Table 23 – Kalamunda Town Centre Floorspace Scenarios

Scenario	2027 Market Share Capture	Indicative Spend Capture	Implied Sq.m	Implied Net New Floor Space Deman (approx)
Business As Usual	18%	\$137,550,000	22,500 – 23,500	1,500 – 2,500
Improved share, improved productivity	21%	\$157,200,000	24,000 – 25,000	2,800 – 3,800

Retail Demand Projections

Based on the findings of the Retail Needs Assessment the retail demand projections are:

Low Demand Growth: Based on forecast population growth levels in the trade area, per capita real expenditure growth and stable visitation levels, the need for additional retail floorspace is expected to be limited to approximately 1,500 to 2,500sq.m by 2027 on a business as usual basis. However, given below average trading levels and current high vacancy levels, this demand growth may not eventuate into development activity.

Focus on Increased Desirability and Visitation: Given the retail modelling under a business as usual scenario suggests that retail expansion will be limited in the activity centre, the focus should be on measures that increase the desirability of the centre. Initiatives should focus on increasing population levels within the immediate area, increasing visitor expenditure and increasing trip-linking and co-location. Urbis assessed the potential demand if public realm and associated activation and policy control initiatives encourage increased expenditure in the activity centre.

Under this scenario, both trading levels and market shares increase and translate into future additional demand equivalent to 2,800 to 3,800sq.m. Whilst this scenario is not a forecast, it provides an indication of the potential demand outcomes if the centre improves its desirability to residents and visitors as a place to visit and shop.

2.7 Movement

A Transport Assessment has been prepared by SLR Consulting and provided at Appendix F to support this precinct structure plan.

2.7.1 Existing Situation

The existing road network encapsulating the Kalamunda Activity Centre consists of a range of different road classifications, as defined by the Main Roads Western Australia (MRWA) Road Information Mapping System.

The functional hierarchy of the higher order routes including Canning Road, Mandaring Weir Road, Haynes Street and Mead Street is likely to remain consistent given their connectivity and role in the broader network. Whilst the form of the road connections may be altered as part of the precinct structure plan, the hierarchical function of these connections is generally maintained, unless future road function is significantly altered.

The hierarchy of the key roads within the precinct structure plan is illustrated in **Figure 30**.

It is anticipated that based on the form and function of the existing connections, the daily traffic demands utilising each road type can be classified as per this hierarchy. The daily traffic demands summarised in Table 24 should be considered for each road hierarchy designation. Recent traffic demand data was sourced from the City of Kalamunda by way of consultant investigations conducted on behalf of the City. The most pertinent demand data is summarised in **Table 25**.

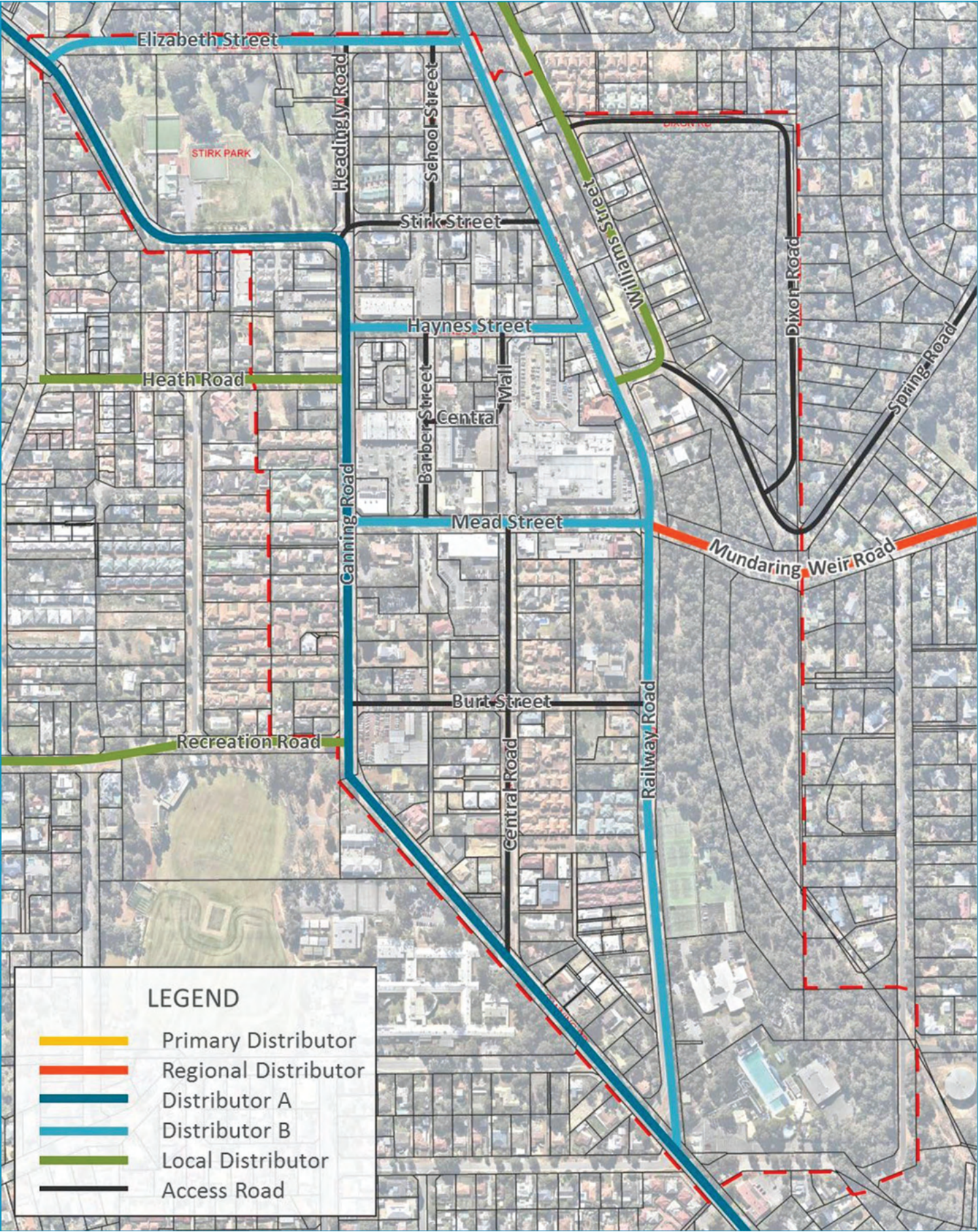
Table 24 – Road Hierarchy Characteristics

Road Classification	Number of Lanes	Typical Speed Limits	Typical Volumes (vpd)
Regional Distributor	2-4	60km/hr- 80km/hr	>15,000
Distributor A	2	60km/hr-70km/hr	10,000 – 15,000
Distributor B	2	50km/hr	5,000 - 10,000
Local Distributor	2	50km/hr	3000 - 5000
Access Road	2	40km/hr-50km/hr	<3000

Table 25 – Road Hierarchy Characteristics

Road	Count Location	Year of Data	Average Weekday Demand (vpd)	85th Percentile Speed (km/h)
Railway Road	North of Burt Street	2011	4,863	60.5
	North of Burt Street	2013	5,384	56
	South of Burt Street	2015	5,038	61
Canning Road	North of Burt Street	2012	11,255	57
	North of Burt Street	2015	7,857	57
Haynes Street	West of Barber Street	2015	3,726	30
	West of Railway Road	2015	3,081	31
Mead Street	West of Railway Road	2011	4,091	42.1
	West of Railway Road	2015	4,521	35
	West of Central Road	2015	4,543	45
	West of Barber Street	2015	4,209	41
Barber Street	South of Nestobrae Lane	2015	1,638	37
	South of Haynes Street	2015	1,789	28

Figure 30 – Surrounding Road Hierarchy



(Source: SLR Consulting)

Traffic Operation

Based on turning movement surveys and analysis undertaken by Opus in 2016, the existing road network can be assessed as operating well within typically accepted performance thresholds during the peak hour periods. Table 26 reproduces the key performance metrics reporting by Opus for the study intersections situated within the study area.

Table 26 – 2015 Road Network Intersection Performance

Intersection	Critical Intersection Approach Level of Service	Intersection Degree of Saturation	95th Percentile Vehicle Queue (veh)
Haynes St / Barber St	A	0.12	0.4
Haynes St / Canning Rd	B	0.33	1.1
Haynes St / Railway Rd	A	0.24	0.6
Canning Rd / Heath Rd	C	0.35	1.6
Mead St / Barber St	A	0.13	0.5
Canning Rd / Mead St	C	0.40	2.2
Mead St / Railway Rd	A	0.37	2.3
Canning Rd / Stirk Rd	A	0.49	3.6

Table 26 results clearly indicate that recent traffic demands can be accommodated by the current road network with Degree of Saturation (DOS), Level of Service (Los) and queues all being within reasonable performance thresholds.

The 2015 Opus findings are still considered applicable to the current situation given recent traffic growth has been limited and there have been no significant local redevelopments or road network changes.

Safety (Crash History)

Crash data has been sourced from MRWA for the Kalamunda Activity Centre study extents for the periods between 1 January 2013 and 31 December 2017.

Based on the results, of the four crashes resulting in a fatality (and of four total crashes involving pedestrians), it is understood that two of these occurred recently in December 2017, and involved elderly members of the community, aged between 86 and 93 (both drivers and pedestrians involved). Whilst this sudden spike in fatal pedestrian crashes is a substantial outlier from the remaining data-set, it is considered that the extreme ages of the road users involved have a significant role in the crash occurrence, potentially causing slower reaction times or lack of general road awareness. Nevertheless, these crashes have been considered in the overall road enhancement strategy, particularly in areas of high pedestrian traffic.

Based on SLR's findings, there does not appear that there are any trends with regards to pedestrian or cyclist crashes that would be a result of existing design deficiencies.

Public Transport

The Kalamunda Bus Station is located on the southern leg of the Mead Street/Barber Street intersection. Eight bus services utilise the station with approach/departure routes travelling along Railway Parade and Canning Road. Bus routes that service the station include 279, 282, 283, 291, 295, 296, 297, and 299.

Other bus stops are also located on Canning Road (north/south bound), Mead Street (east/west bound), and Railway Road. There are no other public transport services within the study area. Service frequencies vary by time-of-day and by service but can approach <15 minutes in peak hour periods.

Active Travel

As reported in Section 3.3, there have been several traffic crashes that have resulted in pedestrian fatalities, two of which occurred within the most recent 9-10 months. Pedestrian path facilities located in verges are generally low quality and users are subject to numerous conflict points where vehicles must cross the verge to enter/exit development sites and intersections.

The format and design criteria of existing crossing facilities throughout the study area vary significantly and there is a lack of consistency of design philosophy or approach.

Mid-block connectivity/legibility is limited through development sites given existing buildings and significant off-street car parking facilities. The lack of midblock crossings is important as it requires pedestrians either travel significantly longer distances than desirable, or forces users to navigate through car parking and vehicle circulation areas that at night have poor levels of passive surveillance.

On-street line-marked or dedicated off-street separated bicycle facilities are non-existent within the precinct structure plan area.

2.7.2 Proposed Transport Proposals & Priorities

The key transport related proposals which form part of this precinct structure plan are illustrated on **Figure 31 - Movement Network Plan** and include:

- Improvement to urban design and built form to support:
 - Pedestrian mobility and safety
 - Cyclist mobility and safety
 - Space activation and improvement in passive surveillance and security
- Sustainable car parking provision.

Proposed Road Network Structure & Hierarchy

Table 27 outlines the key priorities that were noted during stakeholder engagement. These were used in the determination of the function and intended design intent of the recommended road hierarchy and cross-section forms that would also support the precinct structure plan urban design and economic revitalisation goals.

Table 27 – Key Road Functions

Road Classification	Prioritised User Groups	Key Function	Future Considerations & Design Intent
Canning Road	- Private Vehicles - Buses - Cyclists	- Operates as the primary north-south route through Kalamunda - Carries significant vehicle and cycle traffic through the town to south-eastern destinations from Perth	- General function to remain consistent with existing use - Provision of enhanced pedestrian and cycle connectivity
Mead Street	- Private Vehicles - Cyclists	- Operates as the primary east-west route through Kalamunda - Carries significant vehicle and cycle traffic through the town to south-eastern destinations from Perth	- General function to remain consistent with existing use - Provision of enhanced cycle facilities to the allow east-west travel.
Haynes Street	- Private Vehicles - Pedestrians	Activated lower order road that services pedestrian and vehicle access to surrounding retail tenancies	- Reduction in private vehicle emphasis along road connection - Provision of enhanced tenancy frontages with wide verges encouraging pedestrian use - Restrict servicing access for lots fronting Haynes Street such to minimise vehicle crossing on main pedestrian spine.¹

Road Classification	Prioritised User Groups	Key Function	Future Considerations & Design Intent
Railway Road	- Private Vehicles - Pedestrians - Cyclists	- A north-south route that operates similarly to Canning Road with a smaller traffic throughout - Provides pedestrian access to various community facilities along the eastern activity centre boundary.	Enhanced road formation to encourage safe travel by pedestrians and cyclists.
Barber Street	- Private Vehicles - Pedestrians	Activated lower order road that services pedestrian and vehicle access to surrounding retail tenancies	- Existing functionality to generally be maintained. - To investigate periodically closing Barber Street to accommodate events and markets.
Central Mall	Pedestrians	- Provides pedestrian connectivity to a somewhat underutilised outdoor shopping mall - Single one-way laneway for private vehicle and service vehicle access to rear of tenancies	- Provide an enhanced share-way street to reprioritise movements by active users encouraging connectivity to shops. - Allow infrequent access from service vehicles and high priority private vehicles (i.e. PWD and Taxis / Rideshares)
Stirk Street	- Private Vehicles - Pedestrians	- Minor east-west connection that services access to parking and servicing facilities for Haynes St tenancies - Occasional pedestrian utilisation between Stirk Park and surrounding uses.	Existing functionality to generally be maintained

¹Servicing Strategy for individual lots to be determined during detailed application phase. Servicing access to primarily be gained via Stirk Street using access easement through various landholdings, however will be assessed on a case-by-case basis.

Network Performance Capacity

Road network operational modelling of the current and anticipated land use scenarios projected to arise in the town centre have been conducted by SLR Consulting in addition to that undertaken previously by Opus and Shawmac.

Prior studies have identified that the following intersection operations are constrained, at present and under future land use scenarios that are more conservative than that now projected as part of the current Activity Centre planning:

- Canning Road / Mead Street – right turn from Mead Street operating with excessive delays.
- Canning Road / Heath Road – right turn from Heath Road operating with excessive delays.

With respect to Canning Road / Mead Street, the City of Kalamunda has advised that capacity improvements to address current deficiencies are planned. The upgrades consist of a new lane on the Mead Street approach which will provide dedicated lanes for left and right turning traffic. **Table 28** summarises SIDRA modelling prepared by SLR Consulting with respect to the proposed Mead Street upgrade.

Table 28 – Canning Road / Mead Street – Committed Upgrade to Mead Street Approach

Assessment Scenario		Degree of Saturation	Average Delay	Critical Delay / Level of Service	95th Percentile Vehicle Queue (veh)
2015	Existing (Single Lane) Approach	0.418	3.9	28.5 / D	2.1
	Committed Dual Lane Approach	0.414	3.7	26.1 / D	2.1
2031	Existing (Single Lane) Approach	0.750	6.1	53.0 / F	4.4
	Committed Dual Lane Approach	0.548	4.6	45.4 / E	2.3

It is clear from **Table 28** that the committed upgrading of the Mead Street approach will not provide sufficient capacity at the 2031 time horizon assuming background growth approximating 1.5% per annum from 2015 is achieved. Only the right turn from Mead Street to Canning Road operates beyond typically accepted performance thresholds; therefore, there are two possible solutions that would address this capacity issue:

1. Signalise the intersection
2. Restrict right turn movement from Mead Street.

Option 1 is recommended on the basis of this study given the banning of the right turn would only shift demand to another, possibly more critical intersection like Haynes Street which is undesirable. Signalisation of the intersection could be accommodated with no additional land resumptions given the already wide road reserve. Signalisation would have the additional benefit of also improving pedestrian safety and amenity at the intersection.

SIDRA modelling of the Canning Road / Heath Road intersection was undertaken to evaluate and confirm the prior 2016 Opus finding which indicated over capacity operations, but no upgrading proposal.

Table 29 – Canning Road / Heath Road – Existing Arrangement

Assessment Scenario	Degree of Saturation	Average Delay	Critical Delay / Level of Service	95th Percentile Vehicle Queue (veh)
2015	0.402	2.9	32.3 / D	1.8
2031	0.797	6.2	75.0 / F	5.1

The **Table 29** results indicate that the existing right turn delays will increase significantly by 2031, even with relatively low 1.5% per annum background traffic growth from 2015. Similar to that identified earlier for Canning Road / Mead Street, there are two possible solutions that could be progressed to mitigate the right turn issue being signalisation or the banning/restriction of the right turn movement out of Heath Road.

In this instance, the banning or restriction of the right turn movement is preferred (Option 2) given the proximity of the intersection to Haynes Street (55m) would introduce potential up/down stream consequences along Canning Road. Additionally, movements wishing to turn right out of Heath Road have the ability to redistribute to other reasonable routes.

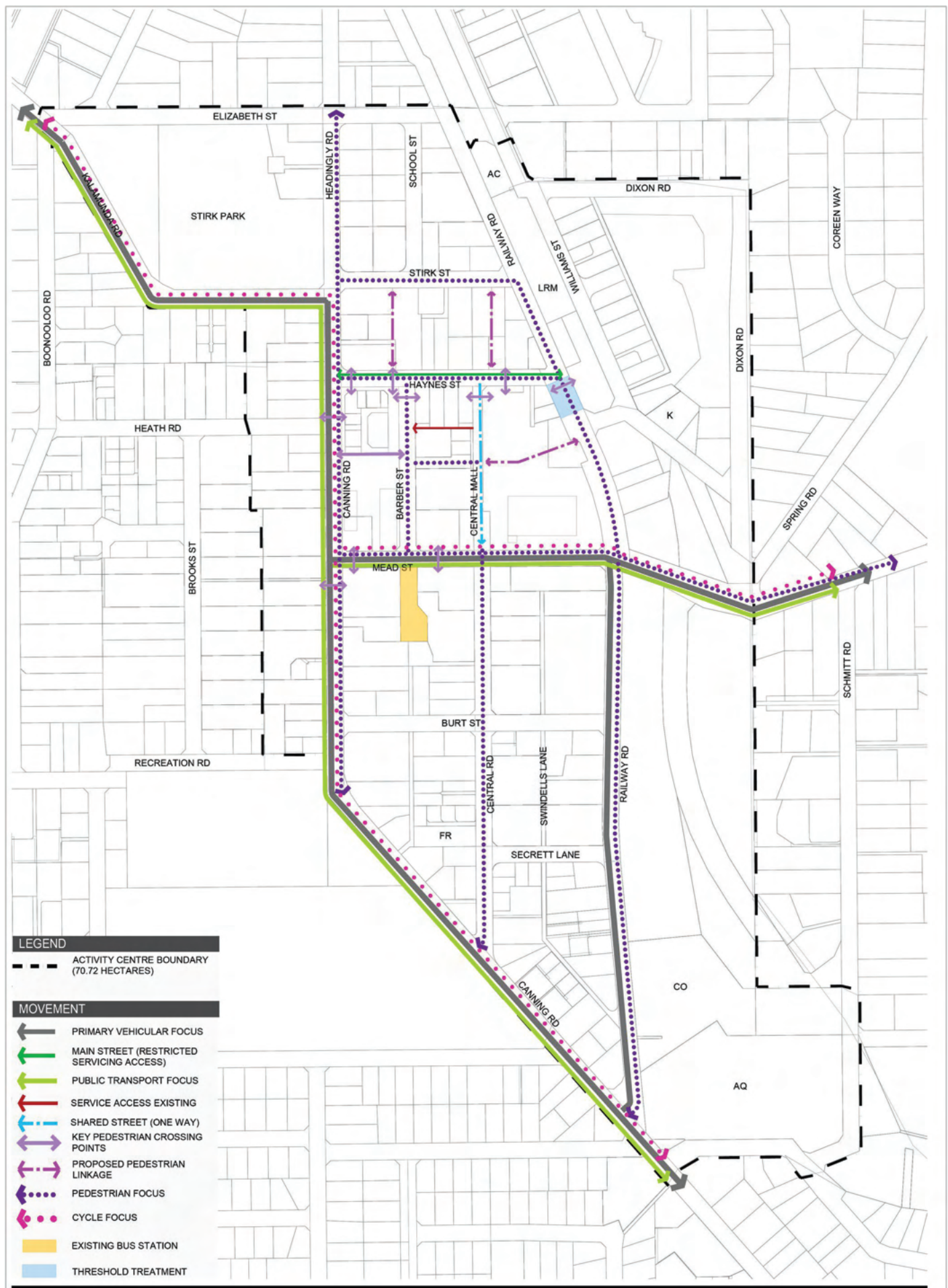
Given the significance of road functions, further traffic analysis is recommended at the following intersections to investigate potential safety or operational upgrades that would provide network benefit:

- Canning Road / Railway Road intersection.
- Canning Road / Recreational Road intersection.

It is anticipated that upgrades to these two intersections would include, but not be limited to the following:

- Channelised right turn treatments (short or full-length).
- Localised parking restrictions that would improve sight lines and allow vehicle passing.
- Splitter island treatments on minor road legs including pedestrian refuge.

Figure 31 – Movement Network Plan



Road Network Connectivity

This precinct structure plan proposes the following major changes to the existing road network arrangements (layout and connectivity):

- Central Mall reconfiguration to allow one-way vehicle movement.
- Future potential civic space threshold treatment.

These changes were identified in response to urban design and revitalisation priorities/goals, being:

- Improve amenity and of the activity centre area.
- Improve market holding capacity.

Table 30 – Proposed Road Network Arrangements

Investigation	Recommendation
Central Mall	
The Central Mall does not currently permit vehicle traffic between the Central Road (Kalamunda Central car park north of Mead Street) and Nestobrae Lane south of Haynes Street. The Pedestrian Priority Zone (PPZ) / Shareway arrangement would differ to the current situation in that vehicles would be legally permitted to travel through the link formed between Mead Street and Haynes Street. Both north and southbound one-way options were examined. The high-level findings of the north vs south review can be summarised as: • A southbound arrangement would introduce: - Operational impacts on Haynes Street as vehicles entering the Shareway would queue and block Haynes Street while they are waiting for opposing pedestrians and westbound traffic. - Operational and legibility issues at the Mead Street intersection which would be directly opposite the existing Central Road intersection, thereby creating an unsignalised four-way intersection. - Safety concerns as vehicles entering the Shareway from Haynes Street would turn across the southern pedestrian verge at higher speeds compared given the preceding road environment. • A northbound arrangement would provide: - Flexibility for the intersection with Haynes Street to be reconfigured to left in/left out should this be desired to improve traffic flow and/or pedestrian safety. Sight distance would be achieved through the localised restriction of car parking in close proximity to the intersection.	Whilst Perth specific examples are limited at this time, the PPZ / Shareway approach would be consistent with that recently approved by the City of Perth for the Hay Street Pedestrian Priority Zone project. The urban design of the shared street should allow local traffic but discourage through or unnecessary trips. This can be achieved via a combination of the following: • The PPZ/Shareway should be signed as a Shared Zone and vehicles accordingly be legally subjected to a 10km/h speed limit. • Adoption of design elements incorporating the following: - Contrasting surface/pavement treatment which reinforces that it is not a typical road with threshold treatments at vehicle entries/exits. - Flush levels between pedestrian spaces and shared spaces - Bollards, paving and other streetscape furniture delineating exclusive pedestrian spaces from shared vehicle/pedestrian spaces. - Limited shared space width so as to reinforce low traffic speeds. - Constrained number of parking and loading opportunities - • Parking only for persons with a disability or special purpose, i.e. emergency vehicles • Loading only during pre-determined periods and taxi/rideshare at other times of day. • The final direction of traffic for Central Mall should be further considered at the detailed design phase and in consultation with community and business representatives.

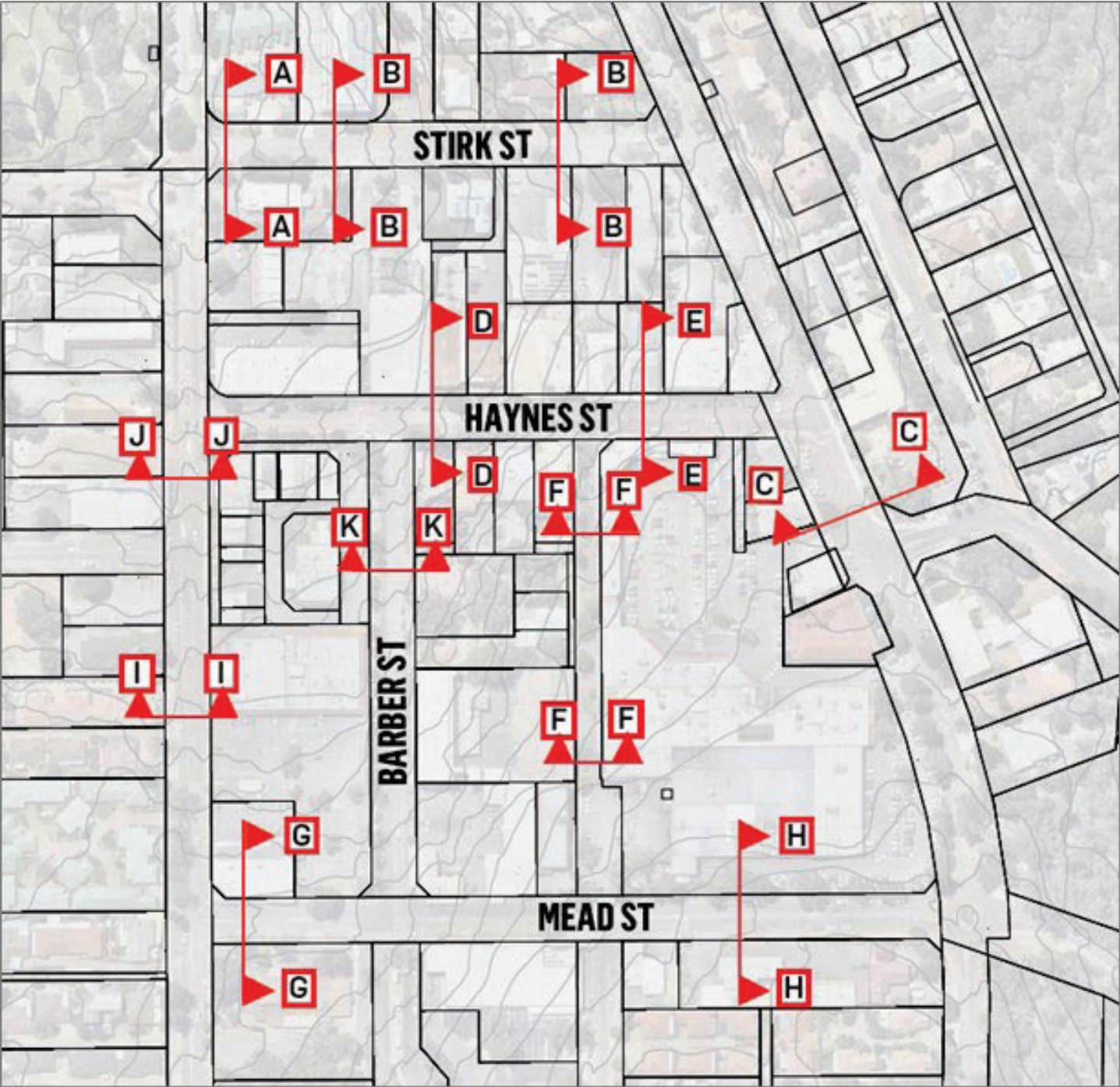
Safer interactions between vehicles and pedestrians given vehicles would only approach the conflict area from the 10km/h Shareway, perpendicular to Haynes Street with good sight lines. - The north and southbound arrangements are similar with respect to: - Their convenience and ability to service fronting development. - Their ability to connect with the Central Mall that extends to Barber Street. Whilst the reconfiguration of the pedestrian Central Mall isn't required to address or mitigate traffic or transport issues, it is seen to improve or provide for the following: - Increased amenity for pedestrians and cyclists given the higher standard of urban design and activation. - Potential for more convenient loading opportunities for fronting/nearby businesses. - Potential for improved parking opportunities for persons with a disability. - Potential for pick-up/set-down facilities for taxis and ride-share	
FUTURE POTENTIAL SHARED STREET AND CIVIC SPACE	
The raising of the Railway Road pavement surface between Haynes Street Williams Street has been investigated as an urban design treatment to improve pedestrian connectivity east of Haynes Street and which could be closed to vehicular traffic during events. The treatment would be approximately 40m in length. Traffic and pedestrian surveys undertaken in 2018 indicate traffic demands on Railway Road immediately south of Haynes Street exceed 400-500vph for the majority of the day whilst pedestrian movements are generally low. When closed to traffic during events, traffic otherwise using this segment of Railway Road would be required to divert via other routes north-south routes including either/ both Canning Road and Williams Street. At this time, it isn't understood how frequently, how long, and on what days this section of road could be closed in support of events.	A Traffic Management Plan should be prepared with supporting analysis to determine impacts and mitigation strategies associated with closing the segment of Railway Road during events. The existing combination of traffic and pedestrian movements is not projected to change materially on typical (non-market/non-event days). Accordingly, the facility should not be signed as a Shared Zone as it the overwhelmingly majority of use is by vehicles and is not 'shared'. Pedestrians crossing Railway Road would therefore do so as per a typical road crossing which could be accommodated within the raised segment. A lower speed limit is recommended in this zone to support amenity improvements. - The design of the raised threshold should incorporate the following principles: - Contrasting surface/pavement treatment. - Flush levels between pedestrian verge. - Bollards, paving and other streetscape furniture delineating exclusive pedestrian spaces roadway. - Limited road cross-section to reinforce low traffic speeds.

Road Network Cross-Sections

The street/road cross-sections introduced here and included at Appendix F have been developed in response to the urban design priorities and also such that they are appropriate with regards to the anticipated function and demand of the roads/streets.

A Cross Section Reference Map is provided in **Figure 32** for ease of reference.

Figure 32 – Cross Section Reference Map



Cross Section A-A (Stirk Street Corners)



- Wide verges to encourage shared pedestrian and cyclist use.
- 2m wide median to provide separation between conflicting traffic streams and to provide a refuge for crossing pedestrians.

Cross Section B-B (Stirk Street)



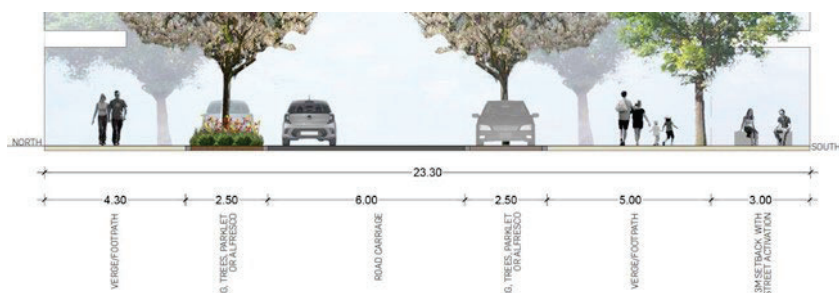
- Wide verges to encourage shared pedestrian and cyclist use.
- 2m wide median to provide separation between conflicting traffic streams and to provide a refuge for crossing pedestrians.
- Parallel on-street parking to cater for retail tenancies to the south and residential properties to the north.

Cross Section C-C (Railway Road)



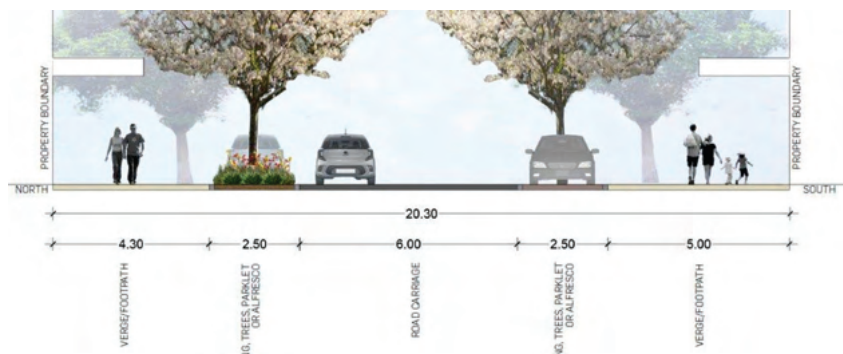
- Wide verges to encourage shared pedestrian use alongside community facilities.
- Wider than standard verges to allow for off-street cycle travel (potential protected lane) in lieu of an on-street lane.
- Parallel on-street parking to cater for retail tenancies and community facilities.
- Threshold treatment and shared space to town square to allow for community events.

Cross Section D-D (Haynes Street West)



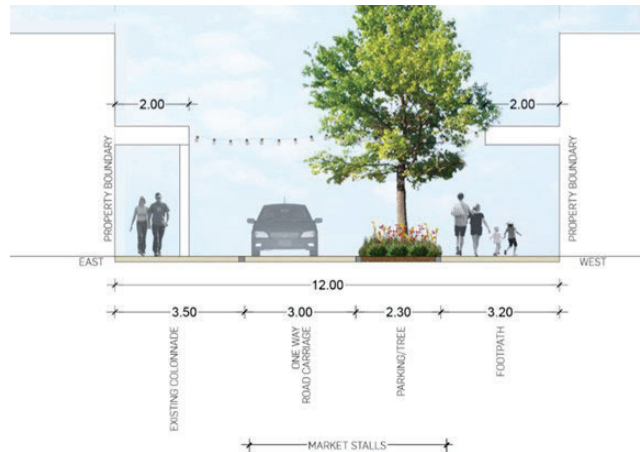
- Increased verge width for potential alfresco spill for tenancies along this section.
- Parallel on-street parking to cater for retail tenancies and food and beverage locations.
- Suggest lower speed environment than surrounding streets to increase awareness for all users.

Cross Section E-E (Haynes Street East)



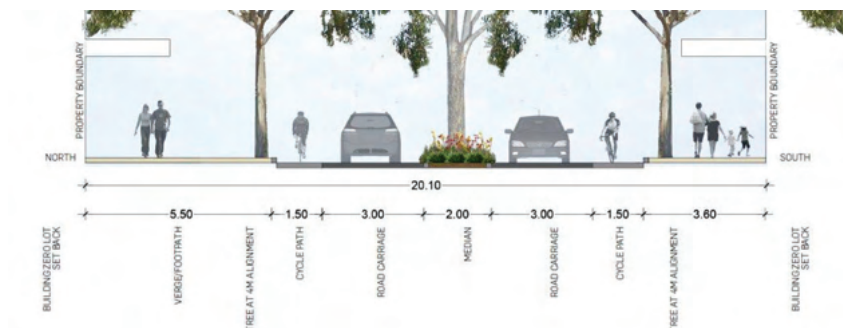
- As Above.

Cross Section F-F (Central Mall)



- Single southbound travel lane for vehicles.
- Consistent pavement treatment across footpaths and road carriage to emphasis shared user environment.
- Limited parking spaces to discourage unnecessary through-traffic.
- Limited shared space width so as to reinforce low traffic speeds.

Cross Section G-G (Mead Street Corners)



- Cross Section G-G (Mead Street Corners) Dedicated 1.5m on-street cycle lanes to facilitate higher demand along this major east-west connection.
- 2m wide median to provide separation between conflicting traffic streams and to provide a refuge for crossing pedestrians.

Cross Section H-H (Mead Street)



- Dedicated 1.5m on-street cycle lanes to facilitate higher demand along this major east-west connection.
- 2.5m parking lane allowance provides a buffer between cycle and parked vehicles that would allow a reduction to the risk of bicycle collision with car doors.
- 2m wide median to provide separation between conflicting traffic streams and to provide a refuge for crossing pedestrians.
- Single parking lane to provide access to retail tenancies and activity centre core to the north.

Cross Section I-I (Canning Road)



- Dedicated 1.5m on-street cycle lanes to facilitate higher demand along this major north-south connection.
- 5m wide median to provide separation between conflicting traffic streams and to provide a refuge for crossing pedestrians.
- Median will also accommodate dedicated turning lanes where required.

Cross Section J-J (Canning Road)



- As previous section.
- Dedicated separated footpath for highly utilised north-south pedestrian connection to the activity centre core.

Cross Section K-K (Barber Street)



- Provision for long vehicle parking and loading zone along western frontage to service surrounding tenancies.
- Retention of existing Australia Post parking and circulation aisle along the western section.
- Wide footpaths on both sides to accommodate pedestrian movement to existing bus terminal from Haynes Street.

Pedestrian Facilities

A series of pedestrian facilities improvements are warranted in response to existing deficiencies and also the increased demands likely to result from the precinct structure plan improvements. There is existing demand and potential increased demand for pedestrian trips between the following key land uses/destinations:

- Zig Zag Gallery and community services
- Bibbulmun Track entrance
- Coles Kalamunda and surrounding shops
- Kalamunda Bus Station
- Stirk Park
- Kalamunda IGA
- Jack Healey Centre
- City of Kalamunda offices
- Community pool
- Kalamunda High School
- Zig Zag Heritage Trail

The desire lines generated from the connection of these major uses has been illustrated on Figure 31, which highlights key pedestrian crossing locations along the central road network. A summary of investigations and proposed recommendations for pedestrian facilities is provided in Table 31.

Table 31 – Proposed Pedestrian Facilities

Investigation	Recommendation
In 2018, GHD undertook a study assessing the suitability of several pedestrian crossings within the town centre, principally on/near Haynes Street. The GHD Pedestrian Crossing Assessment report included traffic and pedestrian surveys and evaluated the demand of the eight crossing locations The GHD assessment concluded that none of the eight crossing locations strictly met the minimum demand thresholds for combined pedestrian and vehicle iteration that would warrant a line marked zebra crossing. Furthermore, it has been identified by site observations that pedestrian crossing facilities are inconsistent in their location, design (dimensions and line marking/signage). It is considered critical that pedestrian crossing facilities are improved such that they are as consistent across the activity centre area so that users (motorists and pedestrians) are aware of their responsibilities and intended actions do not require site specific interpretation on a case by case basis.	In addition to the rectification of the issues identified in the GHD pedestrian crossing study, SLR has identified a number of recommended upgrades to each of these key crossings based on the future demand anticipated throughout the activity centre. All crossing locations, except those located on Canning Road should comprise the following elements: • Install TGSIs at all crossing points • Raised crossing with contrasting pavement treatment • Reduced crossing distance with kerb build-outs and lane narrowing • Parking restrictions on approach/departure to improve sight lines. It is recommended that all crossing locations on roads of similar function incorporate a consistent form so that users (motorists and pedestrians, etc.) expectations and behaviours are consistent. This will reduce confusion when comparing the current arrangements which consist of many different crossing treatments.

Cyclist Facilities

Previous studies and planning documents prepared on behalf of the City have outlined recommended improvements to the bicycle network. These studies, in combination with site observations and investigations have informed the precinct structure plan bicycle network. A summary of investigations and proposed recommendations for cyclist facilities is provided in **Table 32**.

Table 32 – Proposed Cyclist Facilities

Investigation	Recommendation
The City of Kalamunda Bicycle Plan identifies Canning Road and Railway Road as Strategic routes which "provide safe and direct connections between Principal Routes and major trip generators such as shopping centres, industrial areas or major health, education, sporting and civic facilities" (City of Kalamunda 2017). The Plan also defines Central Road and Headingly Street as a Safe Active Streets which are lower order, lower speed (<30km/h) routes where cyclists and vehicles share the street pavement. SLR Consulting sourced bicycle demand data from Strava to supplement the demands surveys collected by Cardno in their City of Kalamunda Bicycle Plan technical reporting. The Strava heat map data has been evaluated with recognition made of the fact that cyclists who typically use and post ride data to Strava are recreational or 'sport' cyclists, not commuters or convenience cyclists. Accordingly, certain routes may be overrepresented in terms of their relative use, i.e. mountainous ride favoured by recreational cyclists. It is evident from the bicycle data that there is a significant demand for trips along Canning Road, Mead Street, and Railway Road. Other, lower order connections cater for lower levels of rider demand and can be typically described as local or parallel routes.	Whilst the Cardno technical report and City of Kalamunda Bicycle Plan do not identify specific facility upgrades within the precinct structure plan area, a number of road segments have been identified that warrant improved on-road facilities, including: • Canning Road: dedicated on-street bicycle lanes • Mead Street: dedicated on-street bicycle lanes Whilst the Cardno technical reporting and City of Kalamunda Bicycle Plan do not identify upgrades on these specific segments, the installation of on-street facilities would be consistent with their designation as Strategic Routes (Canning Road) and an extension of a Training Route (Mundaring Weir Road). The designation of these dedicated on-street facilities is supported by the existing demand data that identifies this route as one of the most trafficable roads within the precinct structure plan area. The design treatment recommended for Canning Road is consistent with that proposed in the Bicycle Plan for another segment approximately 500m south of the precinct structure plan area. The delivery of similar treatments on this route would ensure continuity for all road users, minimising the risk of unnecessary conflict. The road hierarchy and cross-sections respectively illustrate the extent and form of the recommended on-road cycle lanes (refer Figure 31 - 32 and Appendix F). Dedicated, on-street facilities are not strictly warranted on other roads/streets. An approach consistent with the previously defined Safe Active Streets would be reasonable on other lower order, connecting streets where speeds and demands permit, i.e. Central Road, Burt Street, Haynes Street, Stirk Street, Headingly Street, Heath Road, and Elizabeth Street.

2.7.3 Car Parking

Existing Utilisation

Car parking surveys completed in 2011 by Shawmac indicate that whilst some parking areas were well utilised during peak periods, i.e. (75-100% occupancy), the cumulative peak demand observed across the wider precinct structure plan area was relatively low and did not exceed ~60% of the available supply. The parking demand profile surveyed by Shawmac in 2010 in addition to three discrete desktop observations made by SLR Consulting using aerial imagery concluded to the following observations:

Weekday Demand

- On and off-street parking demands across the activity centre area did not exceed 60%
- Despite observations being made across a period of several years and on different days, the occupancies are generally consistent
- The demand profile is reasonably flat between 10am and 3-4pm.

Weekend Demand

- On and off-street parking demands across the activity centre area did not exceed 60%, even on market days
- Despite observations being made across a period of several years and on different days, the occupancies are generally consistent albeit there is greater variance when compared to the weekday sample
- The demand profile has a pronounced peak occurring at 11AM and demands taper off into the afternoon/evening. SLR desktop observations confirm that the profile is less consistent than that reported for the weekday sample.

Many of the on-street parking supplies were surveyed as having peak occupancies in the order of 40-75%. Typically, on-street parking is much more heavily used and this result indicates that there is an oversupply of street parking. Based on the quantitative 2011 car parking demand surveys and a qualitative review of the precinct structure plan area, there also appears to be an oversupply of off-street car parking within the study area.

Consistent with the Shawmac findings, the expanded desktop observations made by SLR Consulting also confirm that the current/recent demand for car parking is materially lower than the available off and on-street supply. Peak weekday parking utilisation approaches 70-80% only for a few zones.

It is evident that parking demands are higher on weekends, particularly during market events. Parking occupancy approaches 90-100% in central areas on market days; however, it is still <50% in outer zones. Accordingly, it can be determined that:

- The demand for parking on weekdays and non-market weekend days is comparatively low, lower than that which can be determined in accordance with the Planning Scheme rates.
- The demand for parking on market weekend days is significantly higher than other days, however, there is still underutilised parking available in the outer zones of the study area.

The 2011 Opus study identified that for core, a theoretical parking requirement of 1,987 spaces when calculated in accordance with the then current planning scheme. This equated to a requirement rate of 6.1 spaces per 100sq.m of then current floor area.

For the same core, Opus also identified an off-street parking supply of 1,575 spaces which equated to a supply rate of 4.8 spaces per 100sq.m of combined use. The SLR desktop audit relied on aerial imagery and hence may be prone to some survey error. To address this issue, the same aerial imagery review process was also undertaken for the 2011 situation so the observable difference could be quantified.

This approach identified only minor changes in the available off-street car parking supply within the core. The most significant change occurred as a result of the development of Central Heights at 10 Barber Street which redeveloped a pre-existing at-grade car park. For the purposes of this study, the supply rates are assumed to be generally the same given there has been an opposing increase in floor area.

State Planning Policy 4.2 Comparison

The SPP 4.2 Activity Centres for Perth and Peel describes a sustainable car parking rate of provision:

- 2 spaces per 100sq.m for showrooms and office
- 4-5 spaces per 100sq.m for shops

Based on the car parking studies completed to date, the existing rate of requirement and supply for parking exceeds these rates within the activity centre.

Local Government Car Parking Rate Comparison

A comparison of the planning scheme requirements/rates for car parking provision has been undertaken with regard to the City of Kalamunda and a selection of other Western Australian local government areas.

The reason for the review or benchmarking is due to the Shawmac and SLR parking demand assessments both confirming that the actual car parking demand is significantly less than that which would be required in accordance with the City's Planning Scheme.

The comparison found that the City of Kalamunda Local Planning Scheme rates are comparable to those required in other local government areas.

Recommendation and Strategies

Generally, the City of Kalamunda Planning Scheme rates are comparable to those required in other local government areas; however, based on the level of current parking oversupply, it may be reasonable that some of the land use rates are reduced. The combined rate of existing requirement and supply are higher than that noted in SPP 4.2.

It is recommended that local planning scheme rates be reduced based on the comparative requirement stated in other planning instruments, and also the parking study results which confirm an existing oversupply of parking.

Whilst the determination of a suite of land use parking rates requires a further parking study to be undertaken, it would be reasonable to adopt an upper limit range rate of 4.5 spaces per 100sq.m for retail uses and 2 spaces per 100sq.m for office uses. These rates represent a reduction in the requirement and supply parking rate approximating 7-40% respectively.

On the basis of the above, the overall parking strategy for the activity centre is as follows:

- Provide an integrated set of land uses that will enable reciprocal parking, thereby reducing overall demand.
- Transition towards more consistent seven-day trading as opposed to the current weekday and weekend disparity arising from market led trade, assisting to spread traffic and parking demands over an extended period.
- Prepare, implement and commit to a parking management strategy.
- Prioritise the provision (location and quantum) for older persons and those with disabilities in response to the current and projected Kalamunda demographics.
- Conceal parking in basements and behind or above street level to promote an active street environment and one that reduces significant at-grade car parking supplies.

2.8 Servicing

An Engineering Servicing Report has been prepared by JDSi Consulting Engineers provided at Appendix C and summarised below.

2.8.1 Sewer

Existing Situation

The Water Corporation owns and maintains the sewerage reticulation system across the Perth Metropolitan area.

The precinct structure plan area possesses several operational Water Corporation gravity sewer lines and two privately owned pump stations. There is the potential for existing sewer lines to be extended in order to service all lots within the precinct structure plan area. Currently the sewer network in the area is collecting and flowing downstream west. An investigation would need to be undertaken to determine what amendments to the existing sewer infrastructure would be required to service additional lots and increased lot densities.

All sewer lines in the precinct structure plan area are standard DN150 PVC pipe, with the exception of a single DN300 gravity line extending from the Kalamunda District Hospital (to the North East of the precinct structure plan area), south along Williams Street, across Haynes Road and finally exiting the area to the west.

Current Planning

Whilst the Water Corporation has planning in place across the Perth Metropolitan region, it requires updating as revised re-zoning and planning occurs to ensure additional loads are taken into account. The Water Corporation has carried out a review of the current planning based on the forecast dwelling numbers and developable areas for each of the precincts, and has advised of required upgrades for the ultimate development.

Future Requirements

The Water Corporation's adopted, long term wastewater planning for the Kalamunda Sewer District is attached in Appendix A of the Engineering Services Report (Appendix C). The green linework shows the various sub-catchments and assumed SDF's based on ultimate flows arising from the full development at the zonings and density codes shown in the City's current Town Planning Scheme.

The capacity limits of the various 150mm and 225mm retic. sewers will be based on the gravity hydraulic characteristics of gravity sewers (150 sewers typically can accept up to 6 L/s SDF depending on grade; 225 sewers can accept up to 22L/s SDF depending on grade).

JDSi have overlayed the Water Corporation sub-catchments and assumed SDF flows onto the precinct structure plan, and it appears the long-term flows from the full development of the proposed land uses can be accommodated in the downstream gravity sewers. However, this would need to be confirmed by Water Corporation following a review of the entire Kalamunda sewer planning at some point in the future should the zoning changes be accepted and included in a revised LPS 3.

2.8.2 Water

Existing Situation

The water supply assets with the precinct structure plan area are owned by the Water Corporation. No water supply assets owned by other potable water providers were identified by Dial Before You Dig (DBYD) checks of the precinct structure plan area. The precinct structure plan area is currently well serviced by a network consisting of steel, cast iron and asbestos cement pipes.

Of note, there is a DN460/535/610 steel distribution main running north to south through site towards a water storage facility in the south-east corner. Stretching from Headingly Road, down through Barber Street, Central Road and Canning Road and across Collins Road.

Current Planning

The Water Corporation undertook a review of its current water distribution network across a large portion of the Perth Metropolitan Region as part of their Pressure Management Program, and are looking at implementing District Metered Areas (DMA's) to help identify where losses in their system may be occurring. A DMA is defined as a discrete part of a water distribution network, and is created by closing boundary valves or permanently disconnecting pipes to neighbouring areas. This will then allow the Water Corporation to control and meter water into a particular DMA in order to calculate the water balance for that area. This in turn will help to identify any losses within a particular system to allow the Water Corporation to prioritise any maintenance and upgrade works required.

Future Requirements

Water Corporation have advised that it is not possible to determine if any of this network will need to be upgraded to support servicing of the land use categories indicated in this precinct structure plan. Depending on the hydraulic demands of individual land uses or buildings, it is possible that some short sections of reticulation main may need to be upgraded, replaced, re-laid or duplicated as necessary.

In Water Corporation's experience, most domestic water services can be adequately provided off 100 or 150mm retic mains. In some instances, particularly with mixed use class buildings under the BCA, or high rise, multi-storey buildings, the fire servicing requirements under the BCA drive the need for a large domestic fire service which can't be provided off a 100mm main. In these cases, the developer/builder/landowner will need to fund and undertake a water reticulation main upgrades.

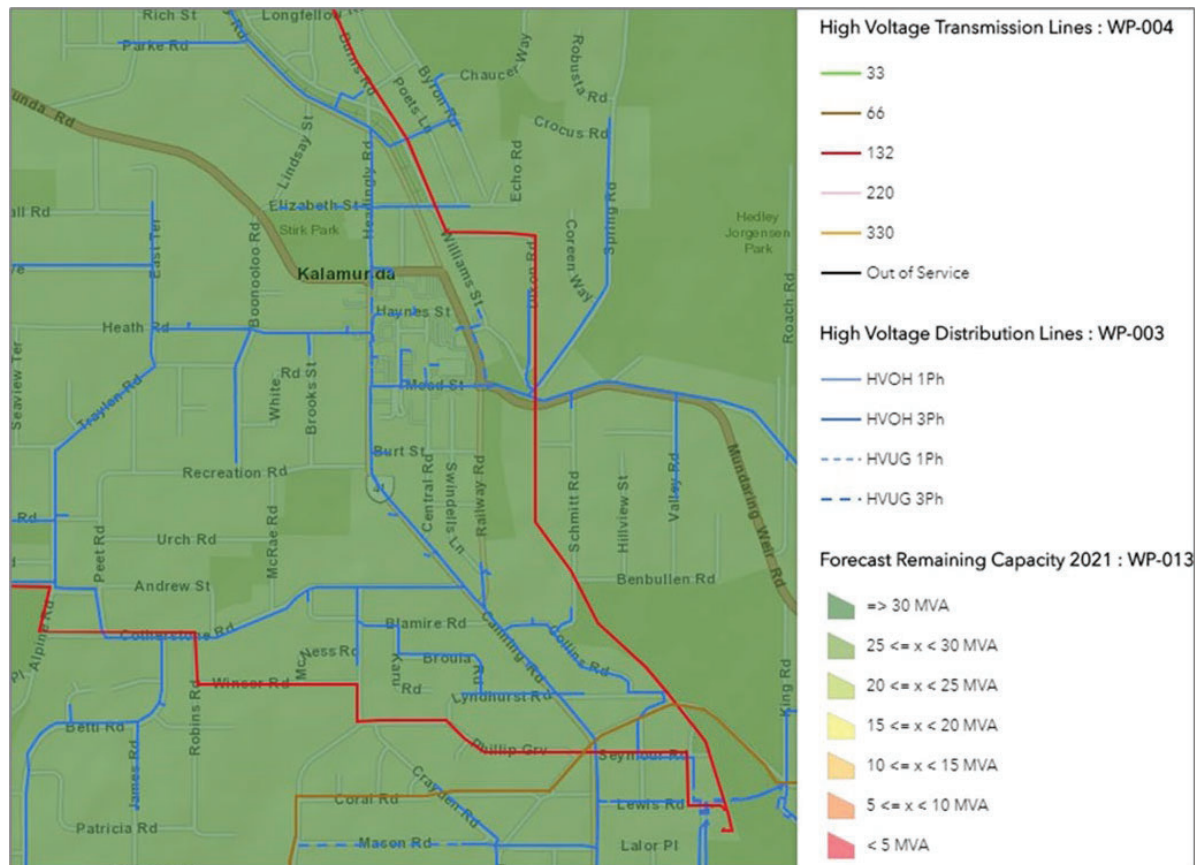
2.8.3 Power

Existing Situation

Western Power owns and operates the electrical supply network within the precinct structure plan area and therefore all electrical supply equipment and cables will need to be installed in accordance with Western Power UDS specifications. Western Power's high voltage (HV) assets located within the precinct structure plan area include an existing 132kV transmission line and several high voltage distribution line assets (refer **Figure 33**).

The precinct structure plan area currently uses a combination of overhead and underground power networks. To improve the amenity of the town centre overhead lines may be moved underground. As planning progresses, discussion with Western Power and the City of Kalamunda would need to occur regarding this.

Figure 33 – Power Supply Map



(Source: Western Power Network Capacity Mapping Tool, September 2018)

Current Planning

Western Power regularly monitor their current network demand, and take into account proposed local government Structure Plans to forecast potential network shortfalls across their expansive network. While they currently have planning forecasts showing remaining capacity until 2036, Western Power will not allow the reservation of power supply for any future development. It is on a "first come, first serve" basis and, therefore, Western Power cannot advise with any certainty where the power supply to support the future development of the precinct structure plan will come from.

Future Requirements

Based on the forecast loading, JDSi has calculated the required power demand for the ultimate development of the KACP to be in the order of 37MVA. The Western Power Network Capacity Mapping Tool indicates forecasted capacity of the precinct structure plan area to be in excess of 30 MVA in 2021, and remains over 30 MVA in the 2026 and 2031 projections. This suggests that there would be sufficient capacity to service a rise in power demand following an increase in density.

Western Power has advised they are willing to set up a working group with the City of Kalamunda to work through planning of the area and review timing of developments to better inform both the City and themselves of the future upgrades required, and to help plan the upgrades through either their future network upgrading program, or working with the City and developers should upgrades be required due to specific development projects.

2.8.4 Telecommunications

Existing Situation

The National Broadband Network (NBN) rollout map indicates that the precinct structure plan area is well serviced with NBN currently. Early discussions with NBN should be undertaken to ensure adequate servicing for future planning requirements.

In addition to NBN there is an Optus fibre cabling along the entire length of Railway Road continuing along Canning Road to the south. There is also widespread Telstra assets present throughout the precinct structure plan area.

Future Upgrades

NBN have advised they have capacity to meet the required demands of the precinct structure plan as development occurs. It will assess each application on a case by case basis to determine load demand and will work with the developer to provide the relevant infrastructure.

General communication services for development will consist of the installation of a standard pit and pipe network in accordance with NBN Co guidelines and standards. The current design practice for road reserves, pavement and verge provisions will make adequate allowance for services including broadband in accordance with the agreed Utilities Service Providers handbook. There will be some local land requirements for equipment sites, similar to current provisions which will be accommodated at detailed subdivision stage. In addition to headworks charges for development works, developers will be required to cover the costs of trenching and ducting for the infrastructure, however NBN Co will cover the other costs of installing fibre infrastructure, including backhaul. All communication assets within the development will remain in the ownership of the provider and easements will need to be granted in favour of the service provider.

2.8.5 Gas

Existing Situation

ATCO Gas infrastructure is well reticulated through the precinct structure plan area. No high-pressure mains exist, however an extensive network of medium pressure 70kPa PVC lines and lot connections are present throughout the site. ATCO gas will provide additional advice on the capacity to service the subject area once proposed changes to the current planning are finalised.

Future Upgrades

ATCO Gas has advised the existing gas network has capacity to supply most of the proposed growth. Any growth above current capacity has been identified in ATCO Gas' forward planning, and reinforcement will be undertaken as part of standard network growth. This will ensure gas is available to this area as it grows.

2.8.6 Drainage

Existing Situation

The City of Kalamunda does not have any planning / management strategies currently in place for drainage in the precinct structure plan area. The City does however have plans to upgrade drainage within Barber Street, Haynes Street, Canning Road and Kalamunda Road. A portion of the proposed upgrade works have been completed to date.

Future Requirements

It is recommended that a detailed drainage study of the precinct structure plan area is completed to provide guidance on any further upgrades that may be required to accommodate future development. It is recommended that this is carried out prior to any further road upgrades within the precinct structure plan area to avoid potential reworks being required should drainage infrastructure require upgrading.

Discussions with the City of Kalamunda has indicated a desire for lot owners to manage their drainage within their lot (up to a 1 in 100 ARI event), with the City to deal with road and POS drainage. However, this approach is relatively onerous due to the very low permeability of the ground in the area. Large onsite storage tanks would be required with low flow outlets still needing to be permitted into the City's stormwater drainage network to allow for emptying of the on-site storage. Alternatively, it is recommended a developer contribution plan (DCP) be investigated to provide a framework to seek contributions from landowners/development to facilitate the maintenance/upgrades to the drainage network as required.

Key Drivers & Recommendations

There are a number of key drivers and recommendations for a project the magnitude of the activity centre upgrade.

Key Drivers

The precinct structure plan area is currently well serviced with power, water, wastewater, telecommunications and gas reticulation, based on the current land use status. However, the proposed increase in population, commercial and retail space, and associated increases in transport, energy and water use, as well as the incorporation of large public areas to attract more visitors to the area, are the key driver forces affecting the existing infrastructure capacities.

These drivers exert direct pressure onto these utilities and ultimately produce a number of challenges.

Overhead Power

While a number of overhead power lines have been converted to underground, there are still several HV & LV overhead lines within the precinct structure plan area. These will restrict road upgrade and verge treatments, as well as greatly detract from the amenity of the area. JDSi recommend the City liaise with Western Power to discuss opportunities for inclusion in their future State Underground Power Program (SUPP). This program presents an opportunity to share the cost of undergrounding power between the State Government, Western Power, local councils and property owners.

Staging of Works

With over 50Ha of developable land being rezoned, and with a major portion of the area being owned by individual lot owners, staging of the works becomes a very complex situation. Should a majority of landowners wish to develop within a very short timeframe, a significant pressure would be put on a majority of services, forcing upgrades to be required earlier than would be expected through "organic growth". Western Power, ATCO Gas, and to a lesser extent the Water Corporation develop their forward works programs based on a steady rate of development. By staging the re-zoning of particular precincts, and reducing the "instant" impact on services, service reinforcements are more likely to be funded by the utilities as opposed to needing to be funded upfront by the developer.

Collaborative Approach

Due to the size of the proposed precinct structure plan area and the impact it will have on multiple service provider assets, JDSi recommends a working group be formed between the City of Kalamunda and the relevant Authorities. This will enable open dialogue between all parties, and help identify required upgrades, critical timing of upgrades, and any potential fatal flaws or network modifications.

2.9 Implementation

The Kalamunda activity centre precinct structure plan is a statutory document per the deemed provisions. In alignment with higher level planning documents, the precinct structure plan is the key statutory tool which guides the built form, layout and land use intent for the area.

This precinct structure plan, upon endorsement, will be the key document on which all development applications and subdivision proposals should be assessed. Key implementation mechanisms are outlined in Quick Wins and Further Plans and Studies to support the delivery of the precinct structure plan.

2.9.1 Quick Wins

Continue to foster and empower the town team movement to implement the ideas presented in this KACP
Establish formal and regular lines of communication between the City, community representatives and the business community
Identify vacant spaces and introduce a program to support place activation ideas throughout the town centre. Engage with landowners, business and community groups to facilitate short term and low cost place making initiatives.
Trial event closure of Railway Rd as per figure 5 in conjunction with community event or markets within the town square precinct.
Undertake tree planting within existing medians on Canning Road
Introduce seating along Haynes Street. This seating can be relocated or re-used when upgrade works commence.
Upgrade and install pedestrian crossings in accordance with the KACP traffic report.
Utilise temporary equipment, furniture and lighting to test the ideas and concepts presented in the Landscape Masterplan prior to undertaking more substantial streetscape improvements.
Collect public art contributions through developments within and around Kalamunda town centre and facilitate public art projects in the locations identified in the KACP Landscape Masterplan on the advice of the Kalamunda Arts Advisory Committee.
Establish a working group with relevant utility service providers to enable open dialogue and identify required upgrades, timing and significant constraints with infrastructure modifications, in accordance with the recommendations of the Engineering Servicing Report.

2.9.2 Further Plans and Studies

Document	Description	Stage	Responsibility
Local Planning Policy	Local Planning Policy to adopt the Built Form Design Guidelines under the Local Planning Framework.	Concurrent with Precinct Structure Plan	City of Kalamunda
Local Planning Scheme Amendment	Amendment to LPS 3 to modify the relevant statutory provision to achieve alignment with the Precinct Structure Plan.	Concurrent with Precinct Structure Plan	City of Kalamunda and WAPC
Local Development Plans	A Local Development Plan(s) (LDP) is required prior to any development or subdivision for land identified as a LDP site. The LDP(s) shall co-ordinate development in an integrated manner, taking into account built form siting and controls, vehicle access points and car parking areas, building entries and pedestrian access. A Local Development Plan shall be prepared and approved in accordance with the Planning and Development (Local Planning Scheme) Regulations 2015.	Post-Approval of the Precinct Structure Plan	Landowner / developer

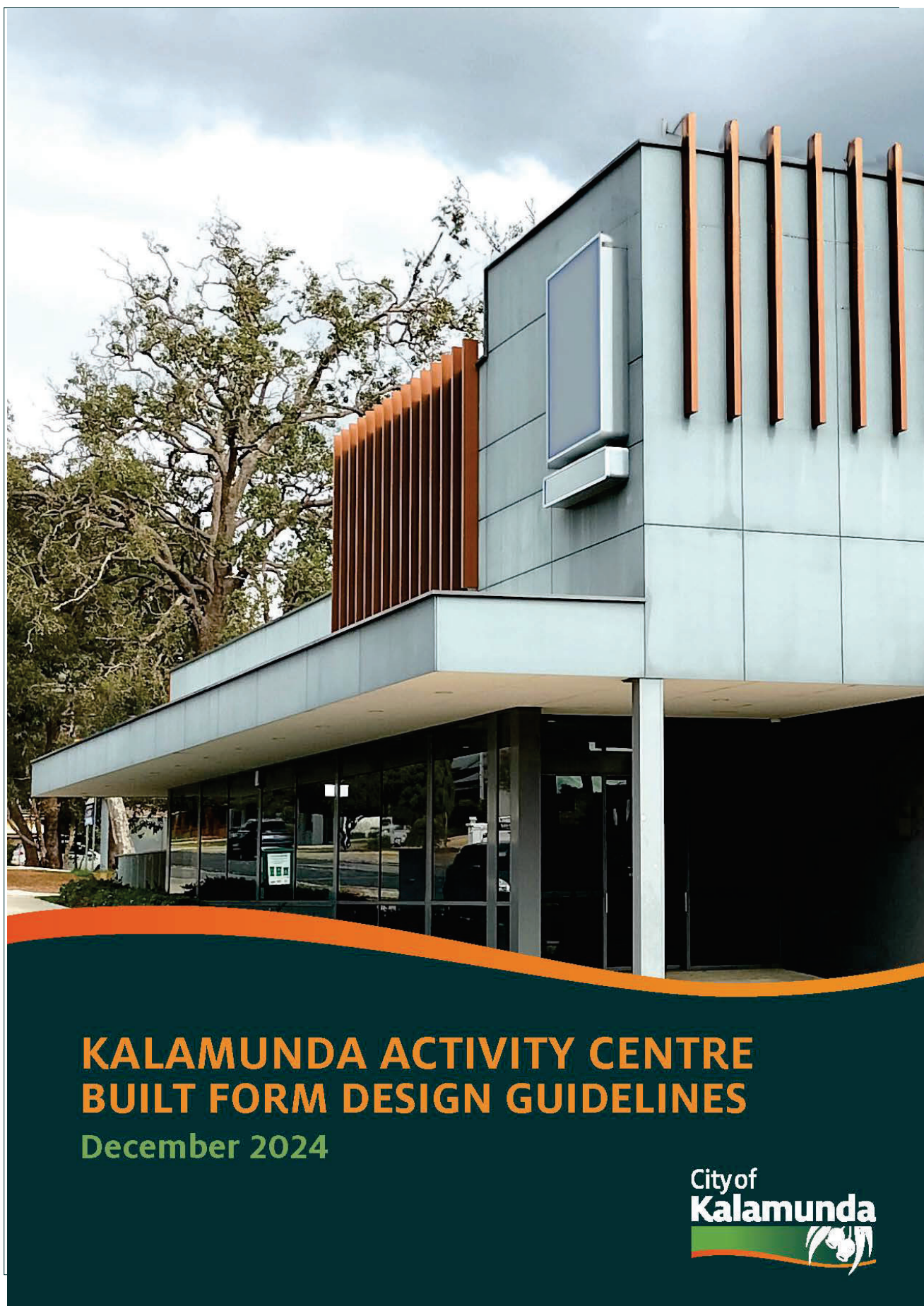
Document	Description	Stage	Responsibility
Parking Strategy	An overall parking strategy for the activity centre that: 1. Provides an integrated set of land uses that will enable reciprocal parking, thereby reducing overall demand. 2. Transitions towards more consistent seven-day trading as opposed to the current weekday and weekend disparity arising from market led trade, assisting to spread traffic and parking demands over an extended period. 3. Prepare, implement and commit to a parking management strategy. 4. Prioritise the provision (location and quantum) for older persons and those with disabilities in response to the current and projected Kalamunda demographics. 5. Conceal parking in basements and behind or above street level to promote an active street environment and one that reduces significant at-grade car parking supplies. 6. Provide recommended policy provisions to inform a future local planning policy for cash in lieu of parking which will detail when funds should be collected and expended based on the provision of parking in the town centre. 7. Investigate future potential parking locations for the expenditure of cash in lieu of parking funds. 8. Undertake a review of the parking standards in the Local Planning Scheme to ensure that the parking supply through development accurately represents the demand generated.	Post-Approval of the Precinct Structure Plan	City of Kalamunda
Landscape Feasibility Framework and Implementation Plan	Assessment of project feasibility and the funding arrangements available and anticipated for landscape and public realm infrastructure. The Implementation Plan will be developed with due consideration of the City's ability to fund projects through the long term financial plan and annual budgets and will also identify which projects could potentially receive external funding.	Post-Approval of the Precinct Structure Plan	City of Kalamunda
Aboriginal heritage survey	Assess potential for Aboriginal heritage sites. The provisions of the NSHA are understood to apply if survey is proposed. Where works are proposed in the north-eastern undeveloped land, the scarred tree should be located and recorded if impacts to it are proposed.	Post-Approval of the Precinct Structure Plan and /or when development and subdivision applications are made over land identified with as an Aboriginal heritage site.	City of Kalamunda

Place Making Strategy	Refine and determine actions from the Place Making and Engagement Report for implementation. Prepare separate place making strategy linked with the precinct structure plan.	Post-Approval of the Precinct Structure Plan	City of Kalamunda
Detailed Drainage Study	It is recommended that a detailed drainage study of the KACP area is completed to provide guidance on any further upgrades that may be required to allow future development of the area. It is recommended that this is carried out prior to any further road upgrades within the KACP, to avoid potential reworks being required should drainage infrastructure require upgrading.	Post-Approval of the Precinct Structure Plan and prior to any further road upgrades being undertaken	City of Kalamunda

3. Appendices



Appendix A: Built form design guidelines



Appendix B: Placemaking and engagement report



Appendix C: Bushfire mangement plan



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Kalamunda Activity Centre

Bushfire Management Plan (Strategic planning proposal)

Prepared for
City of Kalamunda
by Strategen

March 2019



Appendix D: Employment and retail analysis

KALAMUNDA ACTIVITY CENTRE PLAN – EMPLOYMENT AND RETAIL ANALYSIS

DRAFT REPORT

Shire of Kalamunda



MAY 2018

Appendix E: Historical and Aboriginal baseline assessment

KALAMUNDA ACTIVITY CENTRE

HISTORICAL AND ABORIGINAL HERITAGE BASELINE ASSESSMENT

15 DECEMBER 2017
PA1490
DRAFT
PREPARED FOR KALAMUNDA CITY COUNCIL

URBIS

Appendix F: Transport assessment

KALAMUNDA ACTIVITY CENTRE PLAN

Transport Assessment

Prepared for:
City of Kalamunda

SLR Ref: 620.12121.00000-R01
Version No: v1.1
March 2019



Appendix G: Engineering services report

Kalamunda Activity Centre ENGINEERING SERVICING REPORT



JDS171397
February 2019

INTEGRITY

We are open, honest, and consistent in our principles and conduct, so we're able to build trusted relationships with our clients and partners.

RESPECT

We treat everyone with respect and dignity and develop relationships founded on understanding and trust.

ACCOUNTABILITY

We always assume responsibility for our actions and make decisions in line with our economic, social, and ethical obligations.

EXCELLENCE

We pursue excellence in everything we do, challenging ourselves to look beyond the obvious and ensure ongoing improvement.



Kalamunda Activity Centre - Landscape Master Plan



Disclaimer

The original report is dated 29 May 2018 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis' opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of City of Kalamunda (Instructing Party) for the purpose of This Precinct Structure Plan has been prepared to guide the future use and development of the Kalamunda town centre. (Purpose) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.



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