



Wattle Grove South Local Structure Plan

August 2025 | 20-119

A Collaborative Proposal Between Hesperia
Projects Pty Ltd (ATF Wattle Grove Trust) and
Jardim Property Group, in Consultation with
Department of Planning, Lands and Heritage

element. | PART OF  SLR

Acknowledgement of Country

We acknowledge the Whadjuk people of the Noongar nation as Traditional Custodians of the land on which we live and work.

We acknowledge and respect their enduring culture, their contribution to the life of this city, and Elders, past and present.

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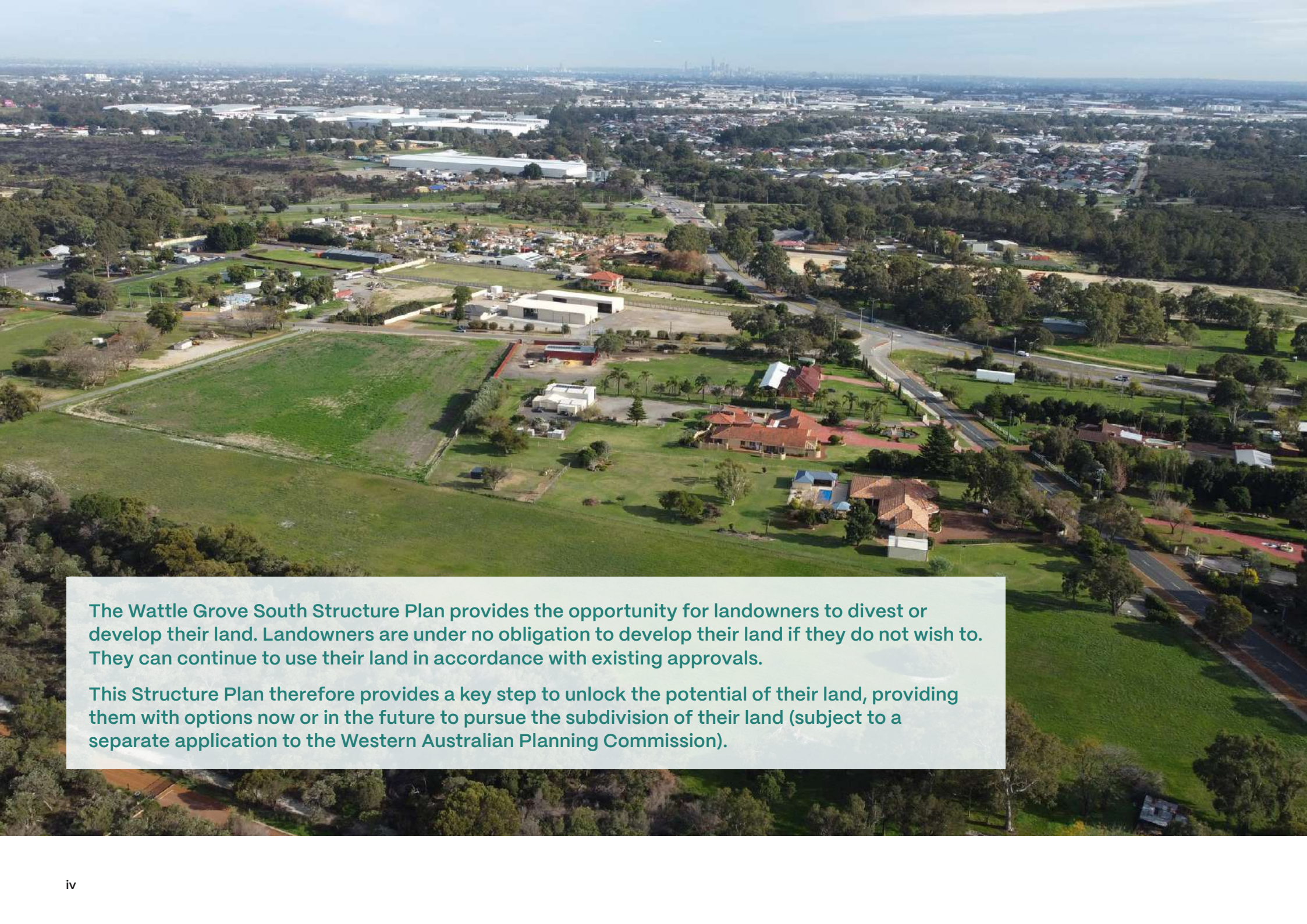
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The Wattle Grove South Structure Plan provides the opportunity for landowners to divest or develop their land. Landowners are under no obligation to develop their land if they do not wish to. They can continue to use their land in accordance with existing approvals.

This Structure Plan therefore provides a key step to unlock the potential of their land, providing them with options now or in the future to pursue the subdivision of their land (subject to a separate application to the Western Australian Planning Commission).

Record of Endorsement

This Structure Plan is prepared under the provisions of the *City of Kalamunda Local Planning Scheme No. 3* and in accordance with the *Planning and Development (Local Planning Schemes) Regulations 2015*.

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

.....Date

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

.....

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

.....Witness

.....Date

..... Date of Expiry of this Structure Plan

Table of Amendments

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by the WAPC

Table of Density Plans

Density Plan No.	Area of density plan application	Date endorsed by the WAPC

Executive Summary

The Wattle Grove South Structure Plan (Structure Plan) has been prepared to guide the subdivision and development of land known as Wattle Grove South. It has been prepared by Element Advisory (Part of SLR) and the technical consulting team, in consultation with the Department of Planning, Lands and Heritage, Hesperia Projects Pty Ltd (ATF Wattle Grove Trust), and Jardim Property Group.

Covering an area of approximately 126 hectares south of Welshpool Road East and Crystal Brook Road, Wattle Grove South has long been earmarked by the State Government for urban development. The area is identified within both the Western Australian Planning Commission (WAPC) Perth and Peel @3.5Million Sub-Regional Planning Framework (WAPC, 2018). The project will implement urban (primarily residential) development consistent with the site's designation for urban expansion under the framework and follows the Metropolitan Region Scheme 'Urban' rezoning proposal (MRS 1388/57).

The Structure Plan sets out a design and management framework that seeks to achieve the following objectives:

- Respond to the Western Australian Planning Commission and City of Kalamunda objectives to deliver immediate housing supply for the region, where a range of residential lot typologies are to be provided to cater to the wider socio-demographic.
- Provide a Structure Plan that is designed to be flexible yet coordinated, ensuring orderly development and alignment with the surrounding precincts
- Protect and integrate the environmentally significant vegetation and fauna habitat as part of proposed areas of the Conservation Reserves.

- Foster an urban form and open space that creates a unique sense of place which integrates natural features within the project area. Create linkages, recreational nodes and landscaped green circuits promoting walkable connections within the area and to the surrounding landscape to maximise accessibility to public open space, ensuring an equitable distribution of public open space throughout Wattle Grove South.
- Emphasise tree retention and tree planting as a valued intrinsic feature of the Wattle Grove South urban landscape, to foster a healthy and prosperous community, in accordance with the principles of the City of Kalamunda's Urban Forest Strategy (2023-2043).
- Provide a centralised location for a new primary school which is integrated and functions as the heart of Wattle Grove South community.
- Incorporate sustainable urban water management strategies to improve water quality and reduce nutrient levels exports by adopting best practice urban water management as the minimum standard.

The Structure Plan is fragmented with multiple landowners with varying levels of appetite to develop their land for urban development purposes. Some landowners are motivated to develop their land, whilst others may not wish to participate in development in the short-medium term, if at all.

The purpose of the Wattle Grove South Structure Plan is to facilitate and guide the coordinated development of the project area, whilst respecting non-participating landowners. The Structure Plan shall provide the necessary guidance for landowners to unlock their landholdings for redevelopment through orderly and proper planning, at the appropriate time.

Item	Data	Section number referenced within the Structure Plan Report
Total area covered by the Structure Plan	126 hectares	
Residential area	66.7 hectares	page 103
Light Industry area	0.37 hectares	
Total estimated lot yield	1666 lots	
Estimated number of dwellings	1666 dwellings	
Estimated residential density		
– Per site hectare	24.97 per site hectare ¹	
– Per gross urban hectare	13 dwellings per site hectare	
Estimated Population (@3.2pp/household)²	5,331 persons	
Number of primary school	1 primary school	page 104
Estimated areas of public open space and conservation areas provided for:		
– Conservation Area Reserves	4.31 hectares	
– Potential Conservation Area Reserves	1.69 hectares	
– Local Open Space Reserves	10.44 hectares (10.2%)	
Note:		
1. Based on the residential zoned land (exclusive of roads, public open space, conservation areas).		
2. Based on Australian Bureau of Statistics (2021) for Wattle Grove relating to average people per household of 3.2 persons.		
Note: Areas are approximate only and are subject to survey and detailed design.		

Technical Appendices

Appendix A – Environmental Assessment Report

Appendix B – Conservation Area Management Plan

Appendix C – Bushfire Management Plan

Appendix D – Transportation Noise Assessment

Appendix E – Landscape Masterplan

Appendix F – Tree Canopy Retention and
Landscaping Management Strategy

Appendix G – Local Water Management Strategy

Appendix H – Transport Impact Assessment

Appendix I – Engineering Services Report

Appendix J – Aboriginal and Heritage Cultural
Evaluation

PART ONE: IMPLEMENTATION



1. Structure Plan Area and Operation

The Wattle Grove South Structure Plan applies to the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan map (Plan 1). The Structure Plan is in effect from the date stated on the cover [_____] and for a period of 10 years, or for any other period approved by the Western Australian Planning Commission (WAPC).

Refer to Plan 1 – Structure Plan Map

This Structure Plan comprises the following sections:

- **Part One – Implementation;** includes the Structure Plan (Plan 1) and outlines the requirements that will be applied when assessing subdivision and development applications over the land to which the Structure Plan relates.
- **Part Two – Explanatory Section;** is to support the Structure Plan contained in Part One by providing the background and explanatory information used to prepare the Structure Plan.
- **Technical Appendices;** contains all technical and specialist reports prepared in support of the Structure Plan

2. Purpose

The purpose of this Structure Plan is to facilitate the coordinated delivery of residential land in Wattle Grove South, as defined by the Urban zone created under Metropolitan Region Scheme Amendment No.1388/57 (hereon the 'project area').

2.1 Respecting Landowner Intent

The Structure Plan area consists of multiple landowners with varying levels of appetite to develop their land for residential purposes. As a result, the Structure Plan area is fragmented by various landowners, some who are motivated to develop their land, and others who may not wish to participate in the development of their land in the short-medium term, if at all.

To enable coordinated development to occur over the Structure Plan area, whilst respecting non-participating landowners, the proposed Structure Plan shall provide the necessary spatial guidance for landowners to unlock their landholdings for redevelopment. The purpose of this Structure Plan is therefore to facilitate orderly and proper planning across the project area. This will be achieved through the following actions:

- Setting a spatial development framework across the project area by dividing it into six (6) areas known as 'Planning Precincts'.
- Each of these precincts shall require a developer to undertake further planning over their Planning Precinct, in accordance with the implementation section 4.4 of this document. A developer's responsibilities are defined for each of the Planning Precincts.
- When a developer is ready to undertake detailed design over their Planning Precinct, they will be required to apply to the Western Australian Planning Commission and the City of Kalamunda to seek either an amendment to this Structure Plan, or if the proposal is deemed generally in keeping with this Structure Plan, they may progress to the next stage of planning through a subdivision application to the Western Australian Planning Commission.

2.2 Design and Management Objectives

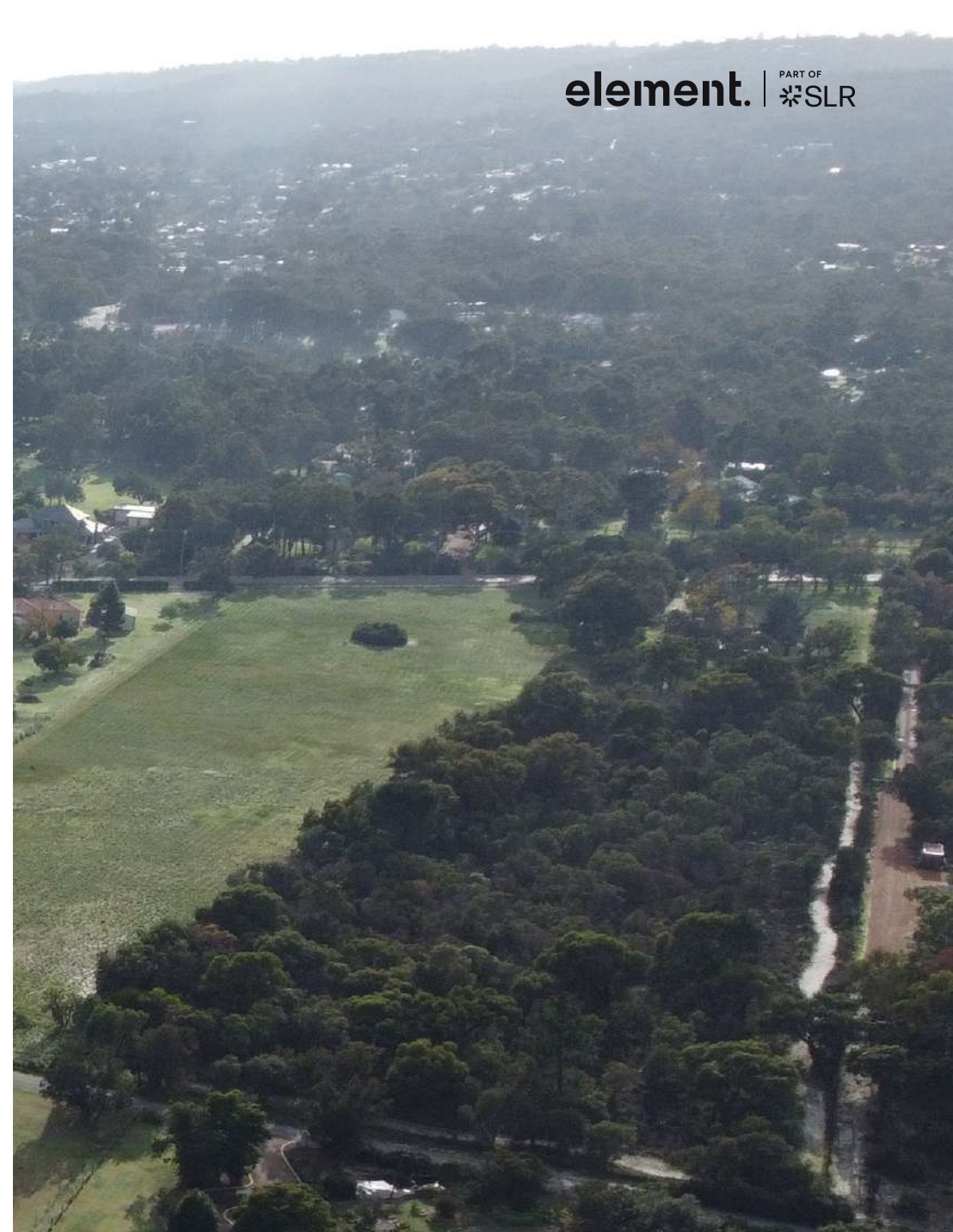
The Structure Plan sets out a design and management framework that seeks to achieve the following objectives:

- Foster an urban form and open space that creates a unique sense of place which integrates natural features within the project area. Create linkages, recreational nodes and landscaped green circuits promoting walkable connections within the area and to the surrounding landscape to maximise accessibility to public open space, ensuring an equitable distribution of public open space throughout Wattle Grove South.
- Protect and integrate the environmentally significant vegetation and fauna habitat as part of areas of the Conservation Reserves.
- Emphasise tree retention (where possible) and tree planting as a valued intrinsic feature of the Wattle Grove South urban landscape, to foster a healthy and prosperous community, in accordance with the principles of the City of Kalamunda's Urban Forest Strategy (2023–2043).
- Provide a Structure Plan that is designed to be flexible yet coordinated, ensuring orderly development and alignment with the surrounding precincts.
- Provide a centralised location for a new primary school which is integrated and functions as the heart of Wattle Grove South community.
- Incorporate sustainable urban water management strategies to improve water quality and reduce nutrient levels exports by adopting best practice urban water management as the minimum standard.
- Respond to the WAPC and City of Kalamunda objectives to deliver housing supply for the region (refer to City of Kalamunda Housing Strategy, 2021), where a range of residential lot typologies are to be provided to cater to the wider socio-demographic.

2.3 Implementation of Environmental Framework

Following formal assessment of the Metropolitan Region Scheme Amendment 1388/57 under Part IV of the Environmental Protection Act 1986, the Environmental Protection Authority (EPA) concluded that the amendment may be implemented, subject to a suite of Environmental Conditions being implemented to protect the site's key environmental values, as well as the Greater Brixton Street Wetlands which is in proximity of the project area. The Wattle Grove South Structure Plan has been designed to meet the requirements of the Environmental Conditions for the Metropolitan Region Scheme Amendment Report 1388/57 – Wattle Grove South (refer to Appendix A – Environmental Assessment Report), and align with the EPA's objectives and mitigation hierarchy. Through avoidance, minimisation, rehabilitation, and adaptive management, the proposal considers:

- Protection and management of conservation of Threatened Ecological Communities and significant flora and fauna within Conservation areas through the Conservation Area Management Strategy (CAMS), which will guide future Conservation Area Management Plans (CAMPs) for each Conservation Area.
- Tree canopy retention (including black cockatoo potential nesting trees) within the urban development through the Tree Canopy Retention and Landscaping Management Plan (TCRLMP).
- Maintenance of hydrological regimes and likely improvement in water quality via the Local Water Management Strategy, which will guide future Urban Water Management Plans (UWMPs).
- Preservation of cultural heritage and visual amenity.
- Sustainable urban development which minimises its environmental impact within the site and the nearby Greater Brixton Street Wetlands.



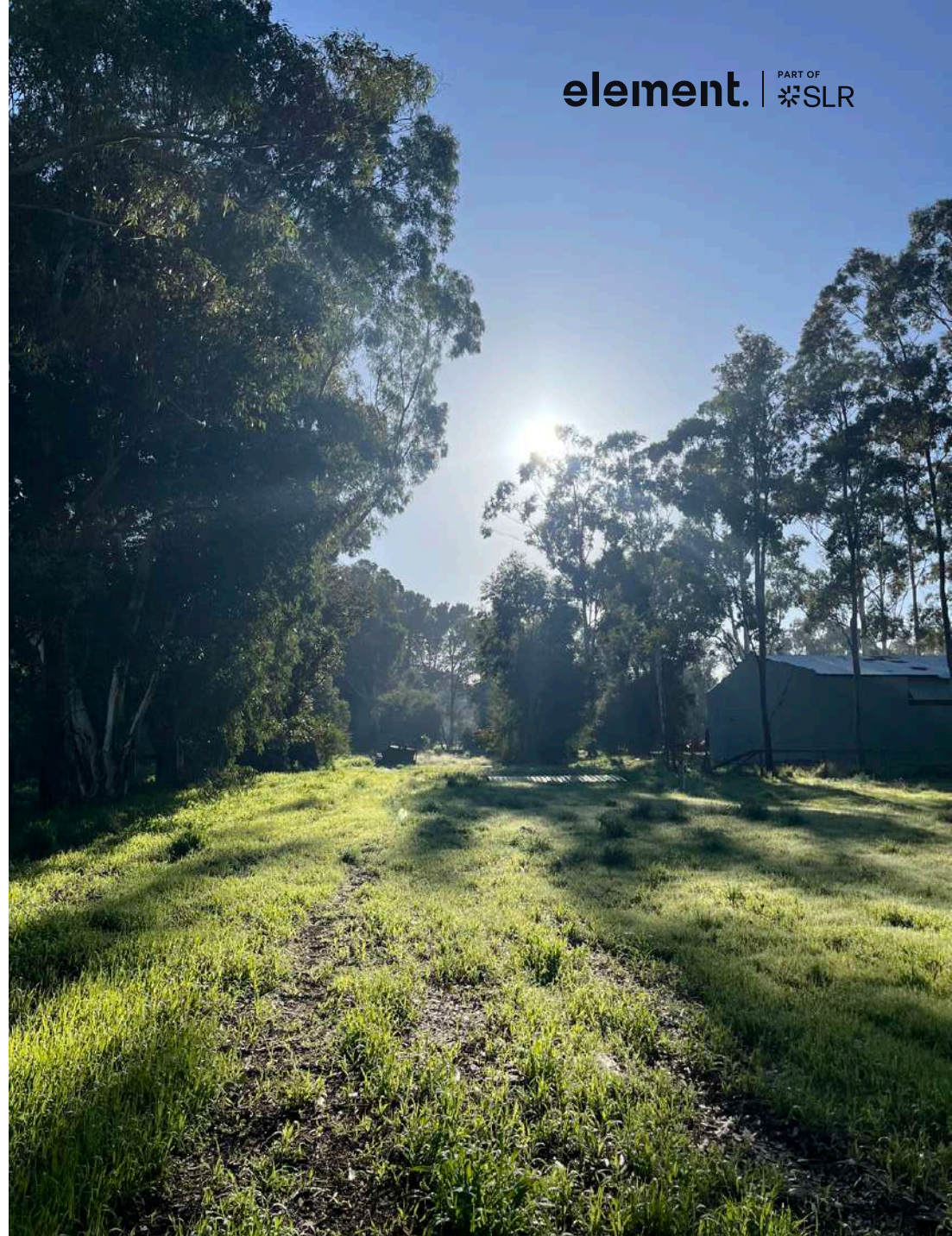
Proposed Conservation Area on Lot 210 Crystal Brook Road

3. Staging

The staged development of the Structure Plan area is anticipated to begin in 2026, with the development front commencing from the south-western portions of the site.

At the time of publication, there are two developers leading the development of the Structure Plan area within Precinct B (Jardim Property) and Precinct D (Hesperia Projects Pty Ltd, ATF Wattle Grove Trust).

The Structure Plan design has been prepared with due consideration to the fragmented land ownership of the area. Consideration has been given to the spatial location of Public Open Space on individual landholdings where possible, and the placement of road reserves to facilitate the staged implementation of development across the Planning Precincts.





4. Subdivision and Development Requirements

Plan 1 – Structure Plan Map covers an area of approximately 126 hectares of fragmented landholdings.. Plan 1 designates the land uses, zones and reserves applicable to the Structure Plan area. Land use permissibility within the area shall be in accordance with the corresponding zone or reserve under the City of Kalamunda Local Planning Scheme No.3 (LPS3).

Pursuant to clause 27(1) of Schedule 2 of the Regulations:

A decision-maker for an application for development approval or subdivision approval in an area covered by a structure plan that has been approved by the Commission is to have due regard to, but is not bound by, the structure plan when deciding the application.

4.1 Land Use Zones and Reserves

4.1.1 Residential Zone

Subdivision and development of the land is to be undertaken in accordance with the Plan 1 – Structure Plan Map and the residential densities as outlined in Part 2. A Residential Density Code Plan is to be approved at the time of subdivision for each Planning Precinct.

4.1.2 Road Reserves

Road reserves are to be provided within the Structure Plan area generally in accordance with Plan 1 – Structure Plan Map, with cross-sections generally in accordance with the WAPC’s Liveable Neighbourhoods operational policy requirements, with some modifications as identified in Table 6 of the Transport Impact Assessment, Appendix H. Road reserves will be landscaped in a manner generally consistent with the street cross-sections set out in the Landscaping Masterplan.

Wattle Grove South includes ‘Green Streets’ which are designed to accommodate additional trees. ‘Green Streets’ are designed to provide key east-west vegetation linkages through the Precincts, providing a desirable shady pedestrian and cycling focussed environment, connecting the community to their primary school site and the network of public open spaces. Further details are provided in Part 2 of this Structure Plan and the Landscape Masterplan in Appendix E.

Refer to Plan 1 – Structure Plan Map, – Proposed Road Network, and Appendix E – Landscape Masterplan

4.1.3 Public Open Space Reserves

The Structure Plan is to provide a minimum 10 per cent of the gross subdivisible area as public open space, in accordance with the WAPC’s Liveable Neighbourhoods requirements. Public open space is to be provided generally in accordance with the Plan 1 – Structure Plan Map and the Public Open Space Schedule (Table 9) included in Part Two. This may be further refined during development of Urban Water Management Plans and subdivision layout detail. An updated Public Open Space Schedule is to be provided at the time of subdivision for determination by the WAPC, and upon the advice of the City of Kalamunda.

The timing for the delivery of Public Open Space will be subject to considerations of land fragmentation, and the staged release of residential lots during each respective subdivision.

4.1.4 Conservation Area Reserves

As part of the EPA Report 1788, four 'Conservation Areas' were identified as containing significant environmental values (threatened and priority flora, threatened ecological community and threatened fauna habitat), with four additional 'Potential Future Conservation and Rehabilitation' areas also identified, subject to further investigations. The EPA supports the retention of values as depicted in Figure 2 of EPA Report 1788. These retention areas are represented on Plan 1 – Structure Plan Map.

4.1.5 Public Purpose – Primary School

Plan 1 – Structure Plan map designates a local Public Purposes reserve (Public Purposes – Education) for a primary school site. This is centrally located within the project area as per the Department of Education requirements of Development Control Policy 2.4 – School Sites (DC 2.4) / Operational Policy 2.4 Planning for School Sites. Refer to Part 2 of the Structure Plan for further information.

4.1.6 Light Industrial Zone

A Light Industry zone area is designated along a portion of the southern boundary of Precinct B for the purposes of continuing existing business operations for the incumbent landowner on Lot 303 (69) Brentwood Avenue. The uses allowed within a 'Light Industry' zone, under the City of Kalamunda's Local Planning Scheme No. 3, will cover the operations required.

1.1.1 Potential Local Neighbourhood Centre – Precinct A

The City of Kalamunda's Activity Centres Strategy (March, 2021) identifies the potential for future commercial land in Wattle Grove South, subject to detailed planning to determine whether there will be any future commercial demand, and whether an activity centre is required. The Wattle Grove Structure Plan recognises there is an opportunity for a Neighbourhood Activity Centre in Precinct A. This opportunity may be further investigated by the landowners in Precinct A, during their subsequent investigations.

This would require the preparation of a local economic needs assessment, to be prepared in accordance with State Planning Policy 4.2 – Activity Centres, in liaison with the City of Kalamunda.

4.2 Density and Development

4.2.1 Density and R-Codes

Plan 1 designates the R-Codes applicable to subdivision and development in the Structure Plan area. Subdivision and development within the Structure Plan area is to be in accordance with a Residential Density Code Plan, to be approved at the time of subdivision for the respective Planning Precinct. The Residential Density Code Plan shall be consistent with the residential density ranges identified on Plan 1 and the locational criteria contained in clause 4.2.2.

Residential Density Code Plans are not required if the WAPC considers that the subdivision is for one or more of the following purposes:

- a) The amalgamation of lots;
- b) Consolidation of land for "superlot" purposes to facilitate land assembly for future development;
- c) The creation of a Retained Development Lot (refer to section 4.3.11);
- d) The purposes of facilitating the provision of access, services or infrastructure; or
- e) Land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential purposes.

4.2.2 Locational Criteria

R-Code ranges provide flexibility for subdivision design to respond to market demand by adjusting the lot/housing product as development in the Structure Plan area progresses. The allocation of residential densities shall be in accordance with the following criteria:

- a) R30 shall generally be applied as the base density code throughout the Structure Plan area, noting that in certain circumstances a lesser density code may be permitted (refer to clauses 4.2.2 (d) and (e)).
- b) R40 applies to single house and grouped dwelling lots that comply with the following criteria:
 - Located within proximity (approximately 250m) of public open space; or
 - Abutting or directly opposite the primary school; or
 - Located at the end of street blocks to create a unique streetscape and built form character.
- c) R80 for planned survey strata lot product overlooking public open space, located in Precinct B.
- d) In order to provide for a diverse range of lot sizes to cater to a wider socio-demographic market, it is anticipated some larger lot product (R20) may be provided across the Structure Plan area.
- e) In the interest of retaining trees and associated Asset Protection Zones on private lots, detailed subdivision design will require a nuanced approach to lot size and dimensions. This is expected to result in some larger lot product being designed into some street blocks for the benefit of tree retention. The refined boundaries prepared and submitted with a subdivision application (accompanied by a tailored Residential Density Code Plan) shall provide the necessary detail to define final density boundaries, with the intention of prohibiting future landowners from further subdividing lots, and thereby avoiding tree removal as a result of subsequent subdivision.

4.2.3 Residential Medium Density Code (R-MD) Requirements

The following provisions shall replace the development standards applicable to lots with a density code of R25 or greater under State Planning Policy 7.3 – Residential Design Codes for Medium Density Housing (where final densities are to be shown on the Residential Density Code Plans submitted with subsequent subdivision applications, as required by the Western Australian Planning Commission).

The variations are informed by market based dwelling design tests for Single House standards for medium density housing. These are consistent with the aspirations of SPP7.0 and the design principles of the relevant built form elements. The provisions provide a mechanism to the City of Kalamunda to implement the Western Australian Planning Commission’s adopted R-MD provisions to the Structure Plan area:

Primary Street Setback:

- A 3m minimum setback to the primary street boundary. No averaging of the front setback is required.

Secondary Street Setback:

- 1m minimum setback to the secondary street.

Side Lot Boundary Setbacks:

- 1.2m setback (where a wall height of 3.5m or less with major openings).
- 1.0m setback (where a wall height of 3.5m or less without major openings).

Boundary Walls:

- Boundary walls are permitted to be built on both side boundaries up to:
 - 2/3 length to one side boundary.
 - 1/3 maximum length to second side boundary for wall height 3.5m or less.

Garage Setback:

- 4.0m minimum setback from the primary street (front loaded).
- 1.5m minimum setback from a secondary street.
- 0.5m minimum setback to laneway (rear loaded).

Open Space and Outdoor Living Area:

- An outdoor living area (OLA) with an area of 10% of the lot size or 20 sqm, whichever is greater, directly accessible from a habitable room of the dwelling and located behind the street setback area.
- At least 70% of the OLA must be uncovered and includes areas under eaves which adjoin uncovered areas. The OLA has a minimum 3m length or width dimension.
- No other R-Codes site cover standards apply.

Garage Width: Where lots have a width between 10.5–12m, a double garage shall have a maximum width of 6m as viewed from the street, subject to:

- Garage setback a minimum of 0.5m behind the building alignment.
- A major opening to a habitable room directly facing the primary street.
- An entry feature consisting of a porch or veranda with a minimum depth of 1.2m.

4.2.4 Local Development Plans

Local Development Plans (LDPs) shall be required, where applicable, as a condition of subdivision and may be prepared and implemented pursuant to the provisions of Local Planning Scheme No.3 and the *Planning & Development (Local Planning Schemes) Regulations 2015* (the Regulations) for:

- a) Lots directly abutting Public Open Space;
- b) Lots which require tree retention considerations;
- c) Lots serviced by a laneway;
- d) Lots affected by noise which require 'Quiet House' design attenuation, where identified in an approved noise management plan; and
- e) Where required for Group Dwelling sites.

LDPs may additionally address the following elements:

- a) Vehicle access and egress – crossover placement;
- b) Building orientation;
- c) Open space;
- d) Garage setbacks and width;
- e) Fencing;
- f) Setbacks; and
- g) Visual privacy.

4.2.5 Development Layout – School Site

An indicative layout of school buildings and recreational facilities on the proposed Primary School site is provided in Figure 19. The conceptual layout shows the recreational/oval facilities and associated car parking area in the northern portion of the Primary School site. This is deliberately placed to minimise any potential bushfire impact from the adjacent Conservation Area Reserve on Lot 210. A strip of public open space is located between the Conservation Area and the Primary School site to provide desirable east-west dual use path connectivity for the community, whilst also providing separation to the bushland.

4.2.6 Aboriginal Heritage

According to the Department of Planning Lands and Heritage Aboriginal Affairs Aboriginal Cultural Heritage Inquiry System the project area is partly affected by two registered Aboriginal Heritage sites located along the southern boundary near the Tonkin Highway reserve. These sites are identified as:

- ID 4343 Brentwood Road Swamp. Type: Artefacts/Scatter – (Located Within the Structure Plan boundary)
- ID 4342 Brentwood Road Quarry. Type: Artefacts/Scatter – (Located Outside the Structure Plan boundary)

4.2.6.1 Avoidance Strategy

Brentwood Road Swamp artefacts scatter and registered heritage site is situated within the easement for the Dampier to Bunbury Natural Gas Pipeline (DBNGP). There are significant statutory limitations that apply to development and excavation of land within the DBNGP corridor will largely protect the Brentwood Road Swamp heritage site from risk of physical disturbance.

Existing trees within the project area that may have important cultural associations for the Whadjuk Noongar people be identified, and if possible, retained within future public open spaces and road reserves.

4.2.6.2 Minimisation Strategy

It is recommended that subdivision or development within the vicinity of the Brentwood Road heritage site (ID 4343) be subject to:

- An application for Section 18 approval, pursuant to the Aboriginal Heritage Act 1972. A Section 18 submission will need to be supported by an Aboriginal Heritage Survey.
- Engagement with Traditional Owners typically forms part of a Section 18 application. It is also recommended that an Archaeological Site Survey (and Archaeological Management Strategy in the event artefacts are uncovered) also be submitted with the application.
- Through the Section 18 process, conditions can be placed on any subdivision or development proposals to avoid or minimise potential impacts on the Brentwood Road Swamp heritage site.
- Where retention of endemic trees is not possible or practical, it is proposed that this be ameliorated through the relevant tree species being afforded recognition and respect in the Tree Conservation and Retention Landscape Management Plan.

4.2.7 European Heritage

There are no registered State Heritage Sites within the project area.

4.3 Other Requirements

4.3.1 Bushfire Prone Areas

A Bushfire Management Plan (BMP) has been prepared in support of the Structure Plan in accordance with State Planning Policy 3.7 – Planning in Bushfire Prone BMP. Where appropriate, a BMP may form part of any application to subdivide in accordance with SPP 3.7. Implementation of bushfire management requirements will, where appropriate, be addressed as a condition of subdivision or development approval. This may include a notification being placed on the Certificate of Title(s) of the lots to advise prospective purchasers of the bushfire risk and the requirements of the BMP, and/or implementation of building setback requirements on Local Development Plans.

4.3.2 Protection or Management of Environmental or Landscape Features

This Structure Plan is supported by an Environmental Assessment Report that outlines a range of environmental factors to be considered when progressing subdivision and development within the Structure Plan area. These items are identified and summarised below.

Refer to Appendix A – Environmental Assessment Report

4.3.2.1 Conservation Area Management Plan

The Structure Plan identifies four areas of Conservation areas which reflect remnant areas of environmental significance as defined by the EPA's Environmental Conditions and mapping set under the Ministerial Statement. A Conservation Area Management Plan (CAMP) will need to be prepared for the respective Planning Precinct it sits within, in accordance the Conservation Area Management Strategy (CAMS) attached as Appendix B. The CAMS has been prepared to inform the requirements of the CAMP, as per Environmental Condition 4 of the Ministerial Statement. This is to address the following items:

- Provide for the installation and maintenance of appropriate fencing around the periphery of the retention area; Provide for the monitoring of occurrences of Threatened Ecological Community (TECs) and populations of threatened flora;
- Identify actions that will be implemented to ensure that:
 - occurrences of TECs that are in 'degraded' condition are restored to achieve a condition rating of 'good' or better, in accordance with Keighery 1994;
 - populations of threatened flora are maintained or increased;
 - buffers to threatened flora are established and maintained;
 - the spread of existing weed species and pathogens, and the introduction of new weed species and pathogens, is minimised;
 - provides that the only development to occur within the retention area is to be development for the purposes of conservation or incidental purposes; and
- Satisfactory arrangements have or will be made for the implementation of the CAMP.

The Structure Plan also notes the allocation and configuration of Potential Conservation areas (located in Planning Precincts A, B, C and E). A proponent seeking to subdivide or develop these tentatively identified areas will be required to undertake further investigations to demonstrate whether these areas do indeed need to be conserved, or can be developed (refer to EAR for further information).

4.3.2.2 Tree Canopy Retention and Landscaping Management Plan

Tree retention and new tree planting support the protection of significant biodiversity values, the consolidation of fauna habitat and linkages, and the achievement of an urban canopy coverage above a minimum of 20% in Wattle Grove South.

Best practice shall be implemented during subdivision and development stages to retain trees. Factors that may mitigate retention include natural attrition, unintended impacts of servicing requirements, bushfire risk management, public safety and development requirements. Prior to subdivision and/or development, a Tree Canopy Retention and Landscaping Management Plan (TCRLMP) will need to be prepared to address the criteria listed under the Tree Canopy Retention and Landscaping Management Strategy (TCRLMS) – refer to Appendix F.

4.3.2.3 Construction Environmental Management Plan

Prior to subdivision and/or development, a Construction Environmental Management Plan (CEMP) will need to be prepared by proponents. This can be undertaken as a condition of subdivision approval.

4.3.3 Water Resource Management

Future development is to accord with the principles established in the Wattle Grove South District Water Management Strategy (DWMS) and Local Water Management Strategy (LWMS) to protect the water quality, hydrology and the environmental values of the Brixton Street Wetlands. The Wattle Grove South LWMS (Hyd2o 2025) promotes an adaptive management approach for the site which is underpinned by the continued implementation of the current groundwater and surface water monitoring program.

An Urban Water Management Plan (UWMP) will be required as a condition of subdivision approval addressing water sensitive design measures in accordance with the adopted LWMS. Locations requiring specific local drainage management will be defined at the subdivision stage and documented in future UWMP's.

4.3.4 Land Use Investigations

There are no registered contaminated sites within the Structure Plan area. Immediately adjacent to the southern boundary of the project area (Precinct F) is the former City of Gosnells landfill site which has been classified as 'Remediated for Restricted Use'.

4.3.5 Acid Sulphate Soils

Subdivision and development of land that is identified as being within a 'high to moderate' acid sulphate soil risk area will be required to undertake an acid sulphate soil assessment and management plan as a condition of approval.

4.3.6 Noise Mitigation Considerations

The Structure Plan area is located outside of the Perth Airport ANEF 20 contours. A portion of the Structure Plan is however affected by the N65 and N60 noise contours. Whilst these do not preclude the development of the site for residential purposes, Perth Airport consider this classification to have some impact on future residences given that the expected sound is at a level which conversation is disturbed.

Perth Airport encourages local governments to make use of the N65 and N60 contours to inform current and future residents of aircraft noise exposure. It is therefore recommended that areas shaded in Figure 4–8 of the Transportation Noise Assessment (Appendix D) (being above the 50 Event N65 contour) consider building insulation and architectural treatments in accordance with Table 4–2 (spatially this applies to south–western portion of the project area).

Houses constructed within the Tonkin Highway noise exposure categories are to be constructed with Quiet House Design architectural upgrades, as informed by Appendix A of SPP5.4 and are to be protected by a noise wall covering the extent of the residential area of the Structure Plan. Traffic noise mitigation will be negotiated between the proponent and Main Roads WA, and comprise a joint noise management plan. The Transportation Noise Assessment is to be reviewed by the proponent of the respective Planning Precinct and updated as road traffic noise mitigation and the subdivision finished lot levels are finalised.

4.3.7 Notification on Title

In respect of applications for the subdivision of land, the City of Kalamunda shall recommend to the Western Australian Planning Commission that a condition be imposed on the grant of subdivision approval for a notification to be placed on the Certificate(s) of Title(s) to advise of the following:

- Land or lots affected by a Bushfire Attack Level rating of 12.5 or above.
- Lots affected by traffic noise associated with the southbound carriageway of Tonkin Highway or Welshpool Road East.
- Lots affected by potential aircraft noise from the Perth Airport.

4.3.8 Infrastructure Arrangements

The Engineering Servicing Report and Transport Impact Assessment accompanying the Structure Plan demonstrate that the project area can be readily serviced with upgrades to infrastructure managed through normal infrastructure planning and development processes.

All infrastructure necessary to service the future subdivision and development of the Structure Plan area shall be upgraded, modified, or extended, where applicable. Road access to the development will be provided via existing roads.

Infrastructure upgrades shall be considered as part of detailed engineering design, required as a condition of subdivision approval for the first stages of development.

4.3.9 Development Contributions

Proponents of each Planning Precinct will be required to coordinate and fund infrastructure for their respective Precinct.

- Neighbourhood Roads: shall be equitably distributed and delivered by the developers for each of the Planning Precincts.
- Public Open Space: equitable distribution of public open space within each of the 'Planning Precincts' across the project area in accordance with Plan 1 – Structure Plan Map. Alternatively through agreed cash-in-lieu arrangements.
- Noise Wall: construction requirements to minimise noise impacts from Welshpool Road East (Precinct A only).
- Noise Wall: construction requirements to minimise noise impacts from Tonkin Highway (Precincts A, B, D and F only), to be funded by the proponent of noise emissions: Main Roads WA.

Where necessary, landowners may enter into individual developer agreements to assist in localised staging and delivery.

4.3.10 Conservation Areas – Future Tenure and Management

The Structure Plan allocates Public Open Space – Conservation Area reserves and Public Open Space – Potential Conservation Area reserves in accordance with the requirements of the Environmental Conditions for the Metropolitan Region Scheme Amendment Report 1388/57 – Wattle Grove South. Whilst the Environmental Conditions specify the requirement to retain and protect the high environmental values contained within these Conservation Areas, further consideration on the intended future ownership and funding arrangements to protect these reserves is required; whether they are to be ceded as Parks and Recreation reserves under the Metropolitan Region Scheme (to the State), or ceded and managed by the City of Kalamunda as local reserves. Resolution between the Western Australian Planning Commission, Department of Water and Environmental Regulation/Department of Biodiversity Conservation and Attractions and the City of Kalamunda will be required to resolve the implementation of these reserves to ensure appropriate conservation, management, tenure and landowner compensation matters are addressed.

4.3.11 Creation of Retained Development Lots

In fragmented land ownership areas such as Wattle Grove South, it is often problematic to coordinate land assembly. The Western Australian Planning Commission and the City of Kalamunda anticipates that as part of this process there will be existing landowners that wish to retain their homes on a lot ('Retained Development Lots'). Key considerations for the Western Australian Planning Commission and the City of Kalamunda will be:

- the impact of Retained Development Lots without compromising logical subdivision road and lot layouts; and
- the capacity for a Retained Development Lot to be further subdivided and integrated as part of the intended subdivision layout (if and when the lot owner moves).

A subdivision application for a Retained Development Lot shall include a plan demonstrating how the proposed lot will integrate with and not prejudice the surrounding planned development. Where the applicable services cannot be connected prior to the future residential development being frontal to the lot, a condition of subdivision approval shall be imposed requiring arrangements being made with the City of Kalamunda for payment of a bond for works (as applicable). In these circumstances, the applicable standard servicing conditions may be omitted, to facilitate early titling of the Retained Development Lot.

4.4 Additional Details

At the subdivision application stage to the Western Australian Planning Commission, the City of Kalamunda or other government agencies, will request that the Commission impose conditions requiring the preparation and/or implementation of technical reports. Table 1 provides guidance as to the likely supporting technical documentation requirements at the subdivision application stage, and during the subsequent clearance of conditions of the subdivision approval.

Table 1. Information to be submitted with an application for subdivision approval/condition clearance

Additional Information	Approval Stage	Responsible Agency (Consultation Required)
Bushfire Management Plan (Review) and / or Bushfire Attack Level Contour Plan Assessment	Subdivision Application	City of Kalamunda Department of Fire and Emergency Services
Transport Impact Assessment	Subdivision Application	City of Kalamunda
Noise Management Plan (Highway and Aircraft Noise Considerations)	Subdivision Application	Department of Water and Environmental Regulation City of Kalamunda
Civil Engineering Infrastructure Report	Subdivision Application	City of Kalamunda
Environmental Documentation Please refer to Table 2 for requirements specific to your Planning Precinct		City of Kalamunda Department of Water and Environmental Regulation Department of Biodiversity, Conservation and Attractions
Public Open Space Schedule	Subdivision Application	City of Kalamunda
Residential Density Code Plan	Subdivision Application	City of Kalamunda
Local Development Plans (as required)	Condition Clearance	City of Kalamunda Department of Planning Lands and Heritage (dependent on the site design variations being sought)
A Section 70A Notification is to be placed on each Certificate of Title within the AS3959 construction zone, advising purchasers and successors of obligations under the Fire Management Plan and bushfire construction requirements (only applicable to lots affected by bushfire restrictions, as defined by your Bushfire Management Plan.)	Condition Clearance	Department of Planning Lands and Heritage
Acid Sulphate Soil Management Plan	Condition Clearance	Department of Water and Environmental Regulation

Additional Information	Approval Stage	Responsible Agency (Consultation Required)
High Pressure Gas Pipeline Safety Audit – Dampier to Bunbury Natural Gas Pipeline (Precincts A, B, D,F)	Condition Clearance	If deemed necessary by Department of Planning Lands and Heritage, Australian Gas Infrastructure Group
Aircraft Noise Notification A notification, pursuant to Section 165 of the Planning and Development Act 2005 placed on the certificates of titles of the proposed lot(s) advising of the existence of aircraft noise.	Condition Clearance	Western Australian Planning Commission Perth Airport

Table 2. Information to be submitted to address environmental considerations

The project area is subject to environmental conditions that have been set out in the Ministerial Statement (MS) for Metropolitan Region Scheme Amendment No.1388/57. For clarity, these requirements have been outlined in the below implementation table so that landowners and developers are aware of their obligations when pursuing the redevelopment of their land, for each respective Planning Precinct.

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT A	DEVELOPER	Urban Water Management Plan (UWMP)	To be prepared in accordance with endorsed District Water Management Strategy (2021,hyd2o), the Local Water Management Strategy (2025, hyd2o) and MS environmental condition 8. The UWMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.	DWER, DBCA and COK
		Flora and Vegetation Survey Reports Required for Lots 880 and 881 Crystal Brook Road and Lots 8 and 9 Brentwood Road. Black Cockatoo Survey Reports Required for Lots 880 and 881 Crystal Brook Road and Lots 8 and 9 Brentwood Road.	Further flora and vegetation and black cockatoo surveys required for Lots 8 and 9 Brentwood Road to confirm if conservation significant flora and vegetation, and black cockatoo habitat still remains due to clearing taken place over the past few years. Surveys to be informed by the requirements of MS environmental conditions 3, 4 and 5, and following past ecological assessments: – JBS&G (2024) Ecological Survey Effort – Technical Memo – Phoenix Environmental (2024) Black Cockatoo Habitat Assessment for Wattle Grove South	DWER and COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT A	DEVELOPER	Conservation Area Management Plan (CAMP)	<p>To be prepared in accordance with the Conservation Area Management Strategy (2025, Coterra) and MS environmental condition 4.</p> <p>The CAMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.</p> <p>Environmental outcomes of the CAMP will be dependent on:</p> <ul style="list-style-type: none"> – results of flora and vegetation and black cockatoo survey reports. – environmental values that are identified from site surveys that require retention and rehabilitation (as per MS environmental condition 3 and 4). 	DWER, DBCA and COK
		Environmental Offset Plan	<p>If applicable; and may also be dependent on:</p> <ul style="list-style-type: none"> – results of flora and vegetation and black cockatoo survey reports. – final design of conservation areas and whether relevant environmental outcomes in MS environmental condition 3 can be achieved and require offsets instead. 	DWER
		Tree Canopy Retention and Landscape Management Plan (TCRLMP)	<p>To be prepared in accordance with the Tree Retention and Canopy Strategy and MS environmental conditions 6 and 7.</p> <p>The TCRLMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of TCRLMP will be dependent on:</p> <ul style="list-style-type: none"> – results of black cockatoo surveys identifying any: <ul style="list-style-type: none"> – known nesting trees and roosting sites requiring retention (as per MS environmental condition 3) – potential nesting trees require retention or replacement planting (as per MS environmental condition 6). 	DWER and COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT A	DEVELOPER	Wetland Buffer Assessment Report Required for Conservation Category Wetlands (CCW) (UFI 8026 and UFI 8027) and portion of Resource Enhancement Wetland (UFI 15257) – located adjacent to Precinct A and within Lot 501 Boundary Road	Wetland Buffer Assessment Report to include assessment of wetlands and associated buffer distances required to Precinct A. Wetland Buffer Assessment Report to be informed by: – Pentium Water (2024) Wetland Assessment: Wattle Grove South MRS Amendment 1388/57	DBCA
		Public Open Space Schedule	To demonstrate allocation of appropriate areas of restricted and unrestricted public open space for Precinct A, showing trees intended to be retained.	COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT B	DEVELOPER	Urban Water Management Plan (UWMP)	To be prepared in accordance with endorsed District Water Management Strategy (2021,hyd2o) and the Local Water Management Strategy (2025, hyd2o) and MS environmental condition 8. The UWMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.	DWER, DBCA and COK
		Flora and Vegetation Survey Reports Required for Lots 3 and 210 Crystal Brook Road.	Surveys to be informed by the requirements of MS environmental conditions 3, 4 and 5, and following past ecological assessments: – JBS&G (2024) Ecological Survey Effort – Technical Memo – Phoenix Environmental (2024) Black Cockatoo Habitat Assessment for Wattle Grove South	DWER, DBCA and COK
		Black Cockatoo Survey Reports Required for Lots 3 and 210 Crystal Brook Road.		
		Conservation Area Management Plan (CAMP)	To be prepared in accordance with the Conservation Area Management Strategy (2025, Coterra) and MS environmental condition 4. The CAMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of CAMP will be dependent on: – results of flora and vegetation and black cockatoo survey reports. – environmental values that are identified from site surveys that require retention and rehabilitation (as per MS environmental condition 3 and 4).	DWER, DBCA and COK
		Environmental Offset Plan	If applicable; and may also be dependent on: – results of flora and vegetation and black cockatoo survey reports. – final design of conservation areas and whether relevant environmental outcomes in MS environmental condition 3 can be achieved and require offsets instead.	DWER

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT B	DEVELOPER	Tree Canopy Retention and Landscape Management Plan	<p>To be prepared in accordance with the Tree Retention and Canopy Strategy and MS environmental conditions 6 and 7.</p> <p>The TCRLMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of TCRLMP will be dependent on:</p> <ul style="list-style-type: none"> - results of black cockatoo surveys identifying any: <ul style="list-style-type: none"> - known nesting trees and roosting sites requiring retention (as per MS environmental condition 3) - potential nesting trees require retention or replacement planting (as per MS environmental condition 6). 	DWER and COK
		Wetland Assessment Report	Wetland Assessment Report to include assessment of wetlands and associated buffer distances required to Precinct B. Note: Pentium Water Wetland Assessment Report has been submitted to DBCA to commence wetland reclassification process.	DBCA
		Public Open Space Schedule	To demonstrate allocation of appropriate areas of restricted and unrestricted public open space for Precinct B, showing trees intended to be retained.	COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT C	DEVELOPER	Urban Water Management Plan (UWMP)	<p>To be prepared in accordance with endorsed District Water Management Strategy (2021,hyd2o), the Local Water Management Strategy (2025, hyd2o) and MS environmental condition 8.</p> <p>The UWMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.</p>	<p>DWER, DBCA and COK</p>
		Flora and Vegetation Survey Reports <p>Required for Lots 21, 801, 802, 803, 804 Crystal Brook Road, Lot 4 Victoria Road. Lots 502, 503 and 504 Brentwood Road.</p> Black Cockatoo Survey Reports <p>Required for Lot 21 and 803 Crystal Brook Road, Lot 4 Victoria Road and Lots 502, 503 and 504 Brentwood Road.</p>	<p>Surveys to be informed by the requirements of MS environmental conditions 3, 4 and 5, and following past ecological assessments:</p> <ul style="list-style-type: none"> – JBS&G (2024) Ecological Survey Effort – Technical Memo – Phoenix Environmental (2024) Black Cockatoo Habitat Assessment for Wattle Grove South. 	<p>DWER and COK</p>
		Conservation Area Management Plan (CAMP)	<p>To be prepared in accordance with the Conservation Area Management Strategy (2025, Coterra) and MS environmental condition 4.</p> <p>The CAMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of CAMP will be dependent on:</p> <ul style="list-style-type: none"> – results of flora and vegetation and black cockatoo survey reports. – environmental values that are identified from site surveys that require retention and rehabilitation (as per MS environmental condition 3 and 4). 	<p>DWER, DBCA and COK</p>

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT C	DEVELOPER	Environmental Offset Plan	<p>If applicable; and may also be dependent on:</p> <ul style="list-style-type: none"> – results of flora and vegetation and black cockatoo survey reports. – final design of conservation areas and whether relevant environmental outcomes in MS environmental condition 3 can be achieved and require offsets instead. 	DWER
		Tree Canopy Retention and Landscape Management Plan	<p>To be prepared in accordance with the Tree Retention and Canopy Strategy and MS environmental conditions 6 and 7.</p> <p>The TCRLMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of TCRLMP will be dependent on:</p> <ul style="list-style-type: none"> – results of black cockatoo surveys identifying any: <ul style="list-style-type: none"> – known nesting trees and roosting sites requiring retention (as per MS environmental condition 3) – potential nesting trees require retention or replacement planting (as per MS environmental condition 6). 	DWER and COK
		Public Open Space Schedule	To demonstrate allocation of appropriate areas of restricted and unrestricted public open space for Precinct C, showing trees intended to be retained.	COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT D	DEVELOPER	Urban Water Management Plan (UWMP)	<p>To be prepared in accordance with endorsed District Water Management Strategy (2021,hyd2o), the Local Water Management Strategy (2025, hyd2o) and MS environmental condition 8.</p> <p>The UWMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.</p>	DWER, DBCA and COK
		Flora and Vegetation Survey Reports Required for Lots 83, 54 Victoria Road. Black Cockatoo Survey Reports Required for Lots 83, 54 Victoria Road.	<p>Surveys to be informed by the requirements of MS environmental conditions 3, 4 and 5, and following past ecological assessments:</p> <ul style="list-style-type: none"> – JBS&G (2024) Ecological Survey Effort – Technical Memo – Phoenix Environmental (2024) Black Cockatoo Habitat Assessment for Wattle Grove South 	DWER and COK
		Conservation Area Management Plan (CAMP)	<p>To be prepared in accordance with the Conservation Area Management Strategy (2025, Coterra) and MS environmental condition 4.</p> <p>The CAMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of CAMP will be dependent on:</p> <ul style="list-style-type: none"> – results of flora and vegetation and black cockatoo survey reports. – environmental values that are identified from site surveys that require retention and rehabilitation (as per MS environmental condition 3 and 4). 	DWER, DBCA, and COK
		Environmental Offset Plan	<p>If applicable; and may also be dependent on:</p> <ul style="list-style-type: none"> – results of flora and vegetation and black cockatoo survey reports. – final design of conservation areas and whether relevant environmental outcomes in MS environmental condition 3 can be achieved and require offsets instead. 	DWER

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT D	DEVELOPER	Tree Canopy Retention and Landscape Management Plan	<p>To be prepared in accordance with the Tree Retention and Canopy Strategy and MS environmental conditions 6 and 7.</p> <p>The TCRLMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of TCRLMP will be dependent on:</p> <ul style="list-style-type: none"> - results of black cockatoo surveys identifying any: <ul style="list-style-type: none"> - known nesting trees and roosting sites requiring retention (as per MS environmental condition 3) - potential nesting trees require retention or replacement planting (as per MS environmental condition 6). 	DWER and COK
		Wetland Assessment Report	<p>Wetland Assessment Report to include assessment of wetlands and associated buffer distances required to Precinct D.</p> <p>DBCA has previously requested submission of application for wetland reclassification of REW UFI 8037 (within Lots 106 and 107) to be submitted. Pentium Water has undertaken wetland and buffer assessment as part of EIA process.</p> <p>Note: Pentium Water Wetland Assessment Report has been submitted to DBCA to commence wetland reclassification process.</p>	DBCA
		Public Open Space Schedule	To demonstrate allocation of appropriate areas of restricted and unrestricted public open space for Precinct D, showing trees intended to be retained.	COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT E	DEVELOPER	Urban Water Management Plan (UWMP)	To be prepared in accordance with endorsed District Water Management Strategy (2021,hyd2o), the Local Water Management Strategy (2025, hyd2o) and MS environmental condition 8. The UWMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.	DWER, DBCA and COK
		Flora and Vegetation Survey Reports Required for Lots 1, 2, 3, 4, 51, 52, 502 and 503 Victoria Road.	Surveys to be informed by the requirements of MS environmental conditions 3, 4 and 5, and following past ecological assessments: – JBS&G (2024) Ecological Survey Effort – Technical Memo – Phoenix Environmental (2024) Black Cockatoo Habitat Assessment for Wattle Grove South	DWER and COK
		Black Cockatoo Survey Reports Required for Lots 1, 2, 3, 4, 51, 52, 502 and 503 Victoria Road.		
		Conservation Area Management Plan (CAMP)	To be prepared in accordance with the Conservation Area Management Strategy (2025, Coterra) and MS environmental condition 4. The CAMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of CAMP will be dependent on: – results of flora and vegetation and black cockatoo survey reports. – environmental values that are identified from site surveys that require retention and rehabilitation (as per MS environmental condition 3 and 4).	DWER, DBCA and COK
		Environmental Offset Plan	If applicable; and may also be dependent on: – results of flora and vegetation and black cockatoo survey reports. – final design of conservation areas and whether relevant environmental outcomes in MS environmental condition 3 can be achieved and require offsets instead.	DWER

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT E	DEVELOPER	<p>Tree Canopy Retention and Landscape Management Plan</p>	<p>To be prepared in accordance with the Tree Retention and Canopy Strategy and MS environmental conditions 6 and 7.</p> <p>The TCRLMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of TCRLMP will be dependent on:</p> <ul style="list-style-type: none"> - results of black cockatoo surveys identifying any: <ul style="list-style-type: none"> - known nesting trees and roosting sites requiring retention (as per MS environmental condition 3) - potential nesting trees require retention or replacement planting (as per MS environmental condition 6). 	DWER and COK
		<p>Public Open Space Schedule</p>	<p>To demonstrate allocation of appropriate areas of restricted and unrestricted public open space for Precinct E, showing trees intended to be retained.</p>	COK

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
PRECINCT F	DEVELOPER	Urban Water Management Plan (UWMP)	To be prepared in accordance with endorsed District Water Management Strategy (2021,hyd2o), the Local Water Management Strategy (2025, hyd2o) and MS environmental condition 8. The UWMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3.	DWER, DBCA and COK
		Flora and Vegetation Survey Reports Required for Lot 100 Victoria Road.	Surveys to be informed by the requirements of MS environmental conditions 3, 4 and 5, and following past ecological assessments: – JBS&G (2024) Ecological Survey Effort – Technical Memo – Phoenix Environmental (2024) Black Cockatoo Habitat Assessment for Wattle Grove South	DWER and COK
		Black Cockatoo Survey Reports Required for Lot 100 Victoria Road.		
		Conservation Area Management Plan (CAMP)	To be prepared in accordance with the Conservation Area Management Strategy (2025, Coterra) and MS environmental condition 4. The CAMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of CAMP will be dependent on: – results of flora and vegetation and black cockatoo survey reports. – environmental values that are identified from site surveys that require retention and rehabilitation (as per MS environmental condition 3 and 4).	DWER, DBCA and COK
		Environmental Offset Plan	If applicable; and may also be dependent on: – results of flora and vegetation and black cockatoo survey reports. – final design of conservation areas and whether relevant environmental outcomes in MS environmental condition 3 can be achieved and require offsets instead.	DWER

Planning Precinct	Responsibility	Information Required As Part of Your Subdivision Application	Commentary	Responsible Agency (Consultation Required)
		<p>Tree Canopy Retention and Landscape Management Plan</p>	<p>To be prepared in accordance with the Tree Retention and Canopy Strategy and MS environmental conditions 6 and 7.</p> <p>The TCRLMP is to be consistent with the achievement of the relevant environmental outcomes in MS environmental condition 3. Environmental outcomes of TCRLMP will be dependent on:</p> <ul style="list-style-type: none"> - results of black cockatoo surveys identifying any: <ul style="list-style-type: none"> - known nesting trees and roosting sites requiring retention (as per MS environmental condition 3) - potential nesting trees require retention or replacement planting (as per MS environmental condition 6). 	<p>DWER and COK</p>
		<p>Public Open Space Schedule</p>	<p>To demonstrate allocation of appropriate areas of restricted and unrestricted public open space for Precinct F, showing trees intended to be retained.</p>	<p>COK</p>

Plan 1 – Local Structure Plan

Legend

-  Local Structure Plan & MRS Amendment Boundary
-  Precinct Boundaries
-  High Pressure Gas Pipeline Easement
-  Water Corporation Land
-  Resource Enhancement Wetland
(DRCIA advice to WAPC 28 August 2021 indicates values commensurate with Multiple Use Wetland LFI 18207 and portion of LFI 15267) subject to reclassification with DRCIA)
-  Residential R20 - R40
-  Residential R80
-  Light Industry
-  Public Purpose - Primary School
-  Public Open Space - Conservation
(As per EPA Assessment Report 1788)
-  Public Open Space - Potential Conservation
(As per EPA Assessment Report 1788 - See Note 1)
-  Public Open Space - Recreation
-  Existing Road
-  Neighbourhood Connector A (22m)
-  Neighbourhood Connector B (20m)
-  Access Road (18m)
-  Access Road (15m)
-  Access Road (12m)
-  Lane (6m)

-  Potential Neighbourhood Activity Centre
-  Intersection: Full Movement
-  Intersection: Left in/Left Out

Notes

- 1** Conservation and Potential Conservation areas to be investigated further and determined by proponents as part of Local Structure Plan Amendments.
- 2** Landowners are not forced to redevelop their land. It is their individual choice whether they wish to proceed to develop or remain as-is.
- 3** The location of Public Open Space can potentially be modified by a proponent as part of their final design solution, subject to justification being provided through a Structure Plan amendment and/or subdivision application.
- 4** Upgrades to Welshpool Road intersection will be required in the future in accordance with the Transport Impact Assessment (PTG 2025) - proposed roundabout, subject to detailed design with City of Kalamunda and Main Roads WA. Opportunity for Neighbourhood Activity Centre in Precinct A - subject to further investigations undertaken by Precinct A landowners.
- 5** Land proposed to be used for Open Air Display, subject to development approval.

Please Note: This Structure Plan does not prevent landowners from continuing to use their land for existing approved land uses. Landowners and businesses can remain on their land, and will be able to continue to operate in accordance with existing approvals.



PART TWO: EXPLANATORY SECTION



1. Introduction and Purpose

This Structure Plan has been prepared by Element Advisory (Part of SLR) and the technical consulting team, in coordination with the Department of Planning, Lands and Heritage, Hesperia Projects Pty Ltd (ATF Wattle Grove Trust), and Jardim Property Group. The purpose of the Wattle Grove South Structure Plan is to facilitate and guide the coordinated development of the project area, whilst respecting non-participating landowners, to enable them to remain on their land. The Structure Plan shall provide the necessary guidance for landowners to unlock their landholdings for redevelopment through orderly and proper planning.

The Structure Plan covers multiple land parcels and comprises approximately 126 hectares located south of Welshpool Road East and Crystal Brook Road, and north of Tonkin Highway. The project area applies to the Urban zoned area of the Metropolitan Region Scheme (subject to MRS amendment No.1388/57, progressing at the time of publication).

1.1 Background

Wattle Grove South represents a consolidated area of the wider 'Urban Expansion' footprint identified by the Western Australian Planning Commission's (WAPC) North-East Sub-Regional Planning Framework. The Frameworks identified the following key considerations for the 'Crystal Brook Urban Investigation Area':

- geotechnical analysis/land suitability to provide connections to reticulated wastewater services;
- bushfire risk; and
- protection of significant environmental attributes.

The proposed boundaries of the urban area which formed the MRS amendment proposal is a direct response to these key considerations and in particular, feedback provided by the local community during the consideration of a draft conceptual masterplan for the broader Wattle Grove area, and the subsequent decision in late 2020 by the City of Kalamunda Council to reduce the urban development area to the south of Crystal Brook Road. In particular, this decision primarily responded to the higher quality environmental features associated with the Crystal Brook located to the north of Crystal Brook Road, which are excluded from this Structure Plan area.

This Structure Plan is therefore consistent with the WAPC's Framework as it promotes a consolidated 'Urban' area as envisaged by the North-East Sub-Regional Planning Framework. The proposal advocates for a consolidated urban form, focusing residential development in an area with existing infrastructure, whilst protecting environmental features to create sustainable communities that will become attractive places to live and work. Development of the project area for urban purposes represents the most efficient use of the land given:

- it's strategic location in close proximity to the existing urban front;
- the capacity of existing and planned infrastructure and services;
- the High Wycombe Train Station and nearby major arterial routes (e.g. Tonkin Highway and Roe Highway); and
- it is in close proximity to employment hubs including the Maddington Kenwick Strategic Employment Area (MKSEA).

1.2 Requirement for a Structure Plan

A Structure Plan is generally required to be prepared and approved prior to subdivision and development of the land where identified under a local planning scheme and in accordance with the *Planning & Development (Local Planning Schemes) Regulations 2015*.

A Structure Plan is required in line with the 'Urban Development' zone under the City of Kalamunda's Local Planning Scheme No.3. The Structure Plan is informed by a comprehensive review of town planning, environmental, and engineering considerations and has been prepared in accordance with the provisions of the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 Part 4 'Structure Plans'. The documentation has been prepared in coordination with the following consultants:

Consultant	Discipline
Hesperia	Development Project Manager
Element Advisory (Part of SLR)	Planning and Urban Design
EPCAD	Landscape Design
PTG Consulting	Transport Modelling and Assessment
Hyd2o	Water Management
Coterra Environment	Environmental Investigations
Western Environmental	Bushfire Management
Horizon Heritage Management Element Advisory (Part of SLR)	Cultural Heritage
TABEC	Civil Engineering and Servicing

2. Site and Context Analysis

2.1 Location and Context

The project area is located within the south–western portion of the suburb Wattle Grove in the City of Kalamunda, approximately 15 kilometres south–east of the Perth CBD and 14 kilometres south of Midland Strategic Metropolitan Centre (refer Figure 1 – Location Plan, Figure 3 – Site Aerial). The subject site sits at the edge of the Wattle Grove urban front and has direct access to existing infrastructure and nearby major arterial routes (e.g. Tonkin Highway and Roe Highway). It is bounded by Welshpool Road East (north–west) and Crystal Brook Road (north), Tonkin Highway (west), Brentwood Road (north–west) and the City of Gosnells municipal boundary (south–east).

Refer to Figure 1. Location Plan

The project area is situated within close proximity to established and future residential, commercial, public open space areas and services including:

- Residential development within the suburb of Forrestfield, approximately 2 kilometres to the north;
- The Maddington Kenwick Strategic Employment Area (MKSEA) on the western side of Tonkin Highway;
- Beckenham Train Station approximately 4.5 kilometres to the south–west;
- Westfield Carousel approximately 5 kilometres south–west;
- Hartfield Park Recreation Centre approximately 700 metres north;
- Earmarked City of Gosnells District Open Space, located immediately adjacent to the south–east boundary of the subject site;
- Lesmurdie National Park located 1.2 kilometres north–east; and
- High Wycombe Train Station 7 kilometres to the north.

Refer to Figure 2. Context Plan

The land to the immediate south of the Structure Plan is located within Orange Grove in the City of Gosnells. Whilst currently zoned for Rural purposes under the MRS and General Rural under the City of Gosnells Local Planning Scheme No. 6 (LPS 6), the land to the immediate south is identified as an expansion area for longer term urban development under the WAPC’s draft ‘South Metropolitan Peel Sub–Regional Planning Framework.’

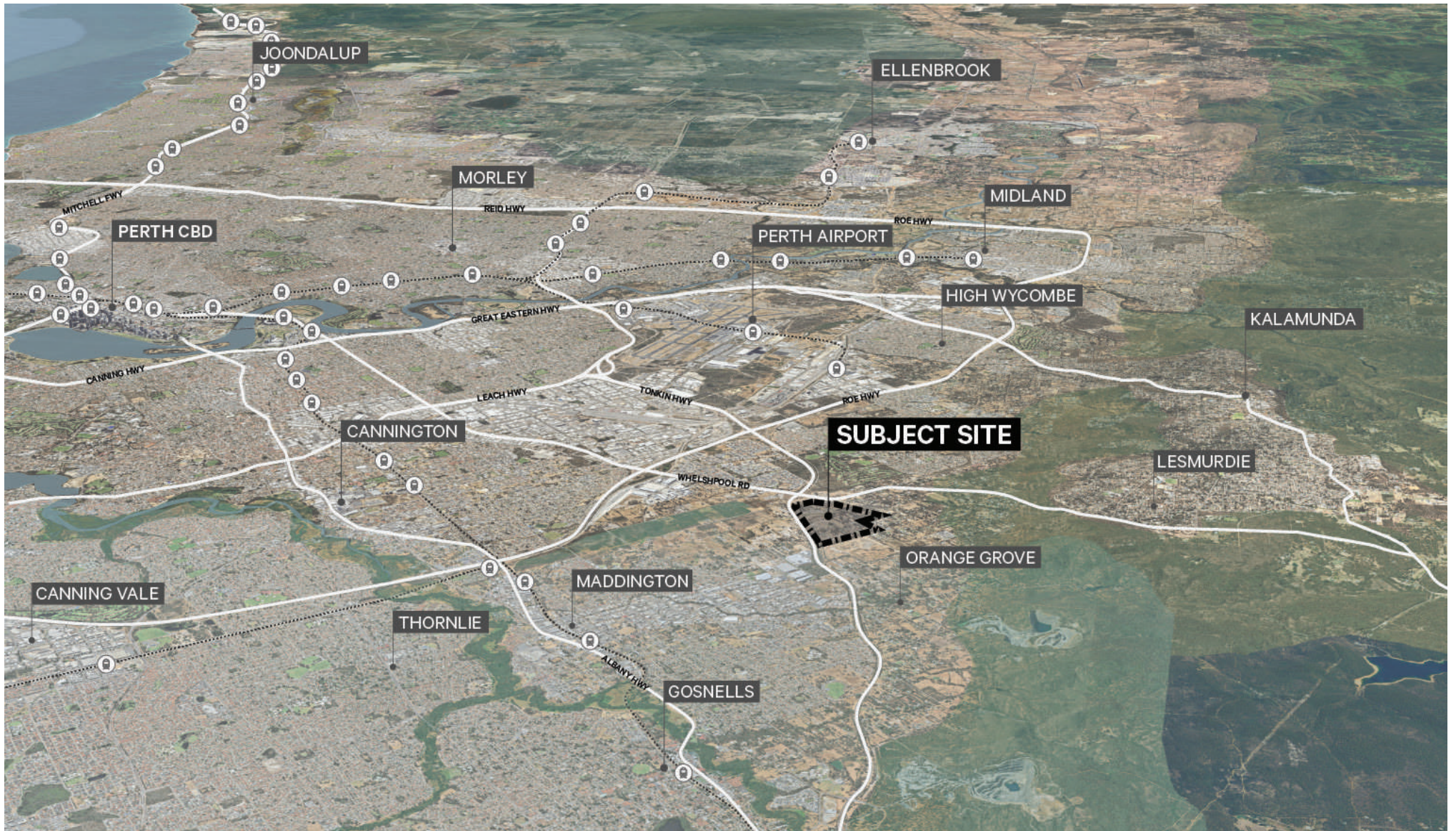


Figure 1. Location Plan



Figure 2. Context Plan

2.2 Land Uses

Most recently the Structure Plan land has been used for rural-residential purposes, or comprising vacant land. There are existing homestead lots, some of these lots also supported composite business and limited horticulture activities, including a turf-farm. Historically Lot 251 (No. 111) Victoria Road was used as a former poultry farm, however, this land use ceased over a decade ago. Whilst a turf farm previously operated on Lots 303, 53, 214 and 213 to the south of Brentwood Road. There are no activities being undertaken on the site that would generate any offsite impacts relating to dust or noise necessitating a buffer. The owner of the turf farm has confirmed its intention to commence urban development upon rezoning for urban purposes.

Historical aerial imagery from 1953 shows many lots were already subdivided and cleared for rural land uses including pasture and horse and equestrian activities. It also shows extraction activities occurred in and adjacent to the south of the Structure Plan area between 1953 and 1974 and that remnant vegetation was cleared across many lots in the north and centre of the Structure Plan between 1974 and 1995. Rural residential development began around 2010 in the north and north-west.

Refer to Figure 3. Site Aerial

Shopping Centres	Activity Centre	Local School
① Belmont Forum	① Wattle Grove North NAC	① Kewdale Primary
② Westfield Carousel	② Whelshpool Road East CC	② Queen Park Primary
③ Maddington Shopping Centre	③ Lewis Road LAC	③ Wattle Grove Primary
④ Kalamunda Central	④ Edinburgh Road NAC	④ Forrestfield Primary
	⑤ Crystal Brook NAC	⑤ Beckham Primary
	⑥ Holmes Road CC	⑥ Kenwick Primary
	⑦ Anderson Road CC	⑦ Orange Grove Primary
	⑧ Hawtin Road South CC	⑧ Lesmurdie Senior High School
	⑨ High Wycombe South DAC	⑨ Lesmurdie Primary
	⑩ Berkshire Road LAC	⑩ Falls Road Primary
	⑪ High Wycombe East LAC	⑪ Kalamunda Senior High School
	⑫ Kalamunda DAC	⑫ Kalamunda Primary
	⑬ Orange Valley CC	⑬ Gooseberry Hill Primary
	⑭ Kalamunda South NAC	⑭ High Wycombe Primary
	⑮ Lesmurdie Road LAC	
	⑯ Sanderson Road NAC	
	⑰ Walliston CC	



Figure 3. Site Aerial

2.3 Tenure and Land Ownership

The Structure Plan covers an area comprising 126 hectares over multiple individual land parcels and landowners summarised in Table 1.

The Dampier to Bunbury Natural Gas Pipeline (DBNGP) sits adjacent to the Tonkin Highway road reserve. An easement applies to Lots 12, 53, 60 and 303 Brentwood Road, Lot 146 Welshpool Road East, and Lots 12, 51, 106, 107, 249 and 266 Victoria Road. The Structure Plan does not adversely impact the DBNGP corridor and associated easements.

Table 3. Land Ownership Details

Lot	Address	Plan	Area (Ha)	Certificate of Title
1	16 Crystal Brook Road	D 89357	1.0001	2049/543
1	71 Victoria Road	D 17111	0.8094	1899/178
2	10 Crystal Brook Road	D 89357	1.0001	2049/544
2	75 Victoria Road	D 20390	1.6189	1184/893
2	731 Welshpool Road East	D17824	1.4891	2095/458
3	101 Victoria Road	D 22344	2.0003	533/143A
3	4 Crystal Brook Road	D 89357	1.0005	2049/545
3	48 Victoria Road	D 24545	2.0286	1279/390
4	15 Brentwood Road	D 89357	1.7082	2049/546
4	95 Victoria Road	D 22344	2.0682	1260/435
6	66 Victoria Road	D 36699	2.0291	2086/347
7	112 Victoria Road	D 38638	2.0306	303/193A
8	30 Brentwood Road	D 78133	1.0028	1880/97
9	38 Brentwood Road	D 78133	1.000	1880/98
12	135 Victoria Road	D 20055	1.0270	1468/687
12	60 Brentwood Road	D 69292	2.7161	1719/145

Lot	Address	Plan	Area (Ha)	Certificate of Title
13	50 Brentwood Road	D 69293	1.4712	1719/146
17	100 Victoria Road	DP 31257	1.0290	2525/515
21	102 Victoria Road	DP 31257	1.0000	2525/516
41	83 Victoria Road	DP 73806	2.0359	2883/197
51	87 Victoria Road	DP 410912	1.0000	2942/341
52	89 Victoria Road	DP 410912	1.0337	2942/342
53	63 Brentwood Road	D61568	2.0320	1602/152
54	96 Victoria Road	D 75466	2.0306	1854/759
55	90 Victoria Road	D 75466	2.0290	1854/760
56	70 Victoria Road	D 82046	0.9757	2137/85
81	54 Victoria Road	D 85279	1.0000	1996/451
82	60 Victoria Road	D 85279	1.0004	1996/452
83	56 Victoria Road	D 85279	1.0284	1996/455
84	58 Victoria Road	D 85279	1.0287	2000/598
89	78 Victoria Road	D 96434	4.1136	2137/84
100	125 Victoria Road	D 72046	2.0315	1787/877
100	20 Brentwood Road	D78132	1.0001	1890/322
101	121 Victoria Road	D 72046	2.0308	1787/878
101	14 Brentwood Road	D 78132	1.1687	1890/323
106	126 Victoria Road	D 58020	1.8714	1555/885
107	122 Victoria Road	D 85261	1.0873	2010/934
108	120 Victoria Road	D 85261	0.9458	2010/935
146	721 Welshpool Road East	P3380	3.2908	1877/347
210	30 Crystal Brook Road	P 3380	4.9493	1083/183

Lot	Address	Plan	Area (Ha)	Certificate of Title
213	41 Brentwood Road	P3380	4.0625	1104/948
214	53 Brentwood Road	P3380	4.0619	1234/524
249	131 Victoria Road	P 3380	3.9004	1219/312
251	111 Victoria Road	P 3380	4.0646	1978/845
254	79 Victoria Road	P 3380	1.6467	1184/894
255	61 Victoria Road	P 3380	2.0804	1711/245
262	86 Victoria Road	P 3380	1.0001	2112/497
264	108 Victoria Road	P 3380	2.0305	1877/577
266	128 Victoria Road	P 3380	1.0383	1608/726
303	69 Brentwood Road	D100106	3.0731	2199/265
340	65 Victoria Road	D 68789	1.9996	1711/244
501	31 Brentwood Road	P 27676	1.0133	2515/874
502	25 Brentwood Road	P 27676	1.0295	2515/875
502	53 Victoria Road	D 89202	0.8976	2067/367
503	23 Brentwood Road	P 27676	1.0422	2515/876
503	57 Victoria Road	D 89202	1.0033	2067/368
504	21 Brentwood Road	P 27676	1.0998	2515/877
801	42 Crystal Brook Road	P59946	1.000	2705/459
802	46 Crystal Brook Road	P59946	1.173	2705/460
803	40 Crystal Brook Road	P59946	1.232	2705/461
804	38 Crystal Brook Road	P59946	1.127	2705/462
880	739 Welshpool Road East	P41806	1.1483	2576/720
881	737 Welshpool Road East	P41806	1.1196	2576/721
1	52 Crystal Brook Road	D13302	1.542	1096/830

Lot	Address	Plan	Area (Ha)	Certificate of Title
2	60 Crystal Brook Road	D13302	1.810	1101/876
201	70 Crystal Brook Road	P61512	1.001	2735/888
202	76 Crystal Brook Road	P61512	1.000	2735/889
203	64 Crystal Brook Road	P61512	1.000	2735/890
204	68 Crystal Brook Road	P61512	1.024	2735/891
2	42 Victoria Road	D80126	1.000	1958/595
3	20 Victoria Road	D83684	1.000	1953/804
4	36 Victoria Road	D83685	1.108	1950/779
21	80 Crystal Brook Road	D80126	1.109	2049/224
20	47 Victoria Road	P18364	0.949	1927/471

2.4 Environment

2.4.1 Topographical Features

Regional topographic contour mapping indicates that the Structure Plan area is relatively flat, falling to the north, with elevation ranging from 22m Australian Height Datum (AHD) in the north of the site to 36m AHD in the south.

The site is located between the Yule Brook Main Drain (approximately 200m to the north) and Bickley Brook Main Drain (approximately 1.8km to the south), which are both external to the site. Surface water is expected to drain from approximately south-east to north-west throughout the majority of the site, via existing flow paths and culverts, toward the Yule Brook Main Drain and the Brixton Street Wetlands on the opposite side of Tonkin Highway.

The site is located within the Swan Coastal Plain 2 (SWA2 – Swan Coastal Plain subregion) of Western Australia. The Swan Coastal Plain is described as a low-lying coastal plain which is often swampy, with sandhills also containing dissected country rising to the duricrusted Dandaragan plateau on Mesozoic, mainly sandy, yellow soils. The site lies predominantly within the Pinjarra system, with the southern portion within the Forrestfield system. The site comprises three geomorphological units.

2.4.2 Acid Sulphate Soils

Acid Sulphate Soil (ASS) is the common name given to naturally occurring soil and sediment containing iron sulfides. When disturbed and exposed to air they oxidise and produce sulfuric acid, iron precipitates, and concentrations of dissolved heavy metals such as aluminium, iron and arsenic. The disturbance of ASS releases acid and metals which can cause significant harm to the environment and infrastructure. The WAPC's Bulletin 64 (WAPC 2003) ASS risk mapping for the site indicates it is located within an area of moderate to low risk of ASS occurring within 3m of natural soil surface. Further assessment of the potential need for an ASS investigation will be undertaken at the subdivision design and construction planning stage of the project. This approach is consistent with DWER requirements and potential investigation triggers.

2.4.3 Site Contamination

There are no registered sites on the Contaminated Sites Database (DWER 2018) in the Structure Plan area. The nearest known contaminated site for restricted use is located 380 metres to the west, with a total of five contaminated sites in a 1 km radius, including two that have been remediated for restricted use.

A small number of properties within the Structure Plan area have been used for commercial activities, including a former poultry farm (Lot 251 Victoria Road) and a former turf farm (Lots 303, 53, 214 and 213 on the southern side of Brentwood Road). Given the known current and historic land uses, land within the site is considered to be suitable, or could be made suitable, for the intended residential land use.

The former City of Gosnells Kelvin Road landfill borders the south-eastern boundary of the site. A number of investigations and a mandatory audit pursuant to the provisions of the *Contaminated Sites Act 2003* have been undertaken. As a result of the investigations, in June 2022 DWER reclassified the lots which comprise the former Kelvin Road landfill footprint from 'Possibly contaminated – investigation required' to 'Remediated for restricted use'.

2.4.4 Hydrological Features

The site is within the catchment of Yule Brook, and is located between the Yule Brook Main Drain (approximately 200m to the north) and Bickley Brook Main Drain (approximately 1.8km to the south), which are both external to the site.

Post seasonal rain events, overland water within the site flows in a north-westerly direction following the topographical gradient. The surface water flow (if it is not infiltrated in the Yoganup Formation sandy soil profile) is intercepted by open roadside drains located along Boundary Road, Brentwood Road and Victoria Road and piped drains within private landholdings. The roadside drains are located above the groundwater table (Hyd2o 2024). These drains direct the surface water in a westerly to south-westerly direction towards three culvert outlets, positioned under Tonkin Highway, located at the western ends of Brentwood Road, Victoria Road and Boundary Road.

Five years of seasonal water monitoring data show that the groundwater depth ranges from 4 m to 20 m below natural surface, the seasonal fluctuation in water table varies across the site, and the presence of a distinct groundwater mound centred over the former turf located on the western boundary of the site.

The groundwater used for turf irrigation was drawn predominantly from the Leederville Aquifer, which is below the Superficial Aquifer. There is limited movement of groundwater between the two Aquifers due to the presence of the Kardinya Shale which acts as a barrier. As a result, of the former turf farm irrigation practices and geological factors, the groundwater drawn from the Leederville Aquifer and used for irrigation then infiltrated and accumulated in the Superficial Aquifer, resulting in groundwater mounding in the Superficial Aquifer over the long term.

Additionally, the geology along the western and north-western boundary of the site is predominately sand over clayey sand and clay sediments associated with the Bassendean Sands and Guildford Formations. Based on the soil permeability and geophysical studies undertaken within and adjacent to the site, the presence of non-contiguous Guildford Formation clayey soil forms a hydraulic

barrier which strongly influence local groundwater flow, with the seasonal groundwater flows confirming a radial flow direction (i.e. flowing north-west to flowing south-east) from the mound and limiting groundwater flow in a westerly direction.

Cessation of the turf farm is likely to affect groundwater levels locally. Groundwater monitoring from the past two years in proximity of the mound confirms water levels have reduced.

2.4.5 Geomorphic Wetlands

Regional geomorphic wetland mapping (WALGA 2019) indicates that two Resource Enhancement Wetlands (REW) that partially intersect the site (refer to Table 4 and Figure 4 – Geomorphic Wetlands, below).

Table 4. Geomorphic Wetlands Details

Geomorphic Wetland Unique Identifier (UFI)	Wetland Category	Wetland Type
UFI 8037	Resource Enhancement	Sumpland
UFI 15257	Resource Enhancement	Palusplain

Pentium Water (2024) undertook a wetland assessment of both REWs (UFI 8037 and portion of UFI 15257) within site. The first REW (portion of UFI 15257) is identified as a seasonally waterlogged Palusplain located in the northern corner of the site. This wetland has been subject to historical impacts including clearing of native vegetation and infilled during the construction of Tonkin Highway, the installation of Water Corporation and DBNGP pipelines and the establishment of rural livestock paddocks and commercial landscape supply business.

The second REW (UFI 8037) is identified as a seasonally inundated sumpland located on the western boundary of the site which has been subject to historical impacts including clearing of native vegetation and infilling works to facilitate the construction of Tonkin Highway, the Water Corporation pipeline, DBNGP and an operational turf farm.

Given the Completely Degraded state of both wetlands, and their ecological values no longer being present, Pentium Water (2024) advised the wetland values are representative of Multiple Use Wetland (MUW) wetland management category. An application to DBCA to amend the dataset for the two REWs (UFI 8037 and portion of UFI 15257) and remove these two wetlands from the dataset will occur concurrently with the lodgement of the Structure Plan and LWMS.

Two Conservation Category Wetlands (CCW) (UFI 8026 and UFI 8027) and portion of REW (UFI 15257) are located within Lot 501 immediately north of the site on the opposite side of Boundary Road. Land use planning typically requires a buffer of 50m between the boundary of a CCW and any potential development; however, Pentium Water's (2024) wetland assessment identified there is currently no separation buffer from the two CCWs (UFI 8026 and UFI 8027) and a portion of REW (UFI 15257) within Lot 501. The wetland has been subject to historical anthropogenic impacts, specifically the existing infrastructure corridors, which both frame and intrude into the mapped wetlands areas and immediate surrounds within Lot 501. The two CCWs (UFI 8026 and UFI 8027) and portion of REW (UFI 15257) are in a Degraded to Completely Degraded condition, and Pentium Water (2024) concluded the ecological values of these wetlands are more aligned with the management categories for REW and/or MUW.

Notwithstanding, it is noted that Lot 501 is to be incorporated into the new Tonkin Highway/Welshpool Road East interchange and further consideration to the interface in this location will be required following detailed design by MRWA.

To the west of the site, on the opposite side of Tonkin Highway, is the Greater Brixton Street Wetlands which is listed as a nationally important wetland and comprises a complex series of significant wetlands, including areas of seasonally waterlogged flats (palusplain) and seasonally inundated basins (sumplands) which are mapped as CCW, REW and MUW. The wetlands support several threatened flora species and TECs that depend significantly on the seasonal rainfall and associated surface water flows, which seasonally fills and waterlogs the low permeable clay layers forming a perched groundwater layer (DBCA 2018).

The wetland is currently subject to pressures from introduced weeds and fauna (rabbits and foxes), water abstraction, inappropriate fire regime, pollution (particularly from surrounding non-residential land uses), uncontrolled fill and rubbish dumping, altered drainage and recreational activities.

The proposed urban development provides the opportunity to significantly reduce the export of nutrients from the site and thereby, reduce any existing adverse impacts on the Greater Brixton Street Wetlands by improving water quality. The proposed stormwater management system will seek to maintain the existing hydrological regime and maintain existing groundwater flows post development (if required by the DWER and DBCA).

Refer to Figure 4. Geomorphic Wetlands (Source: Coterra Environment)

2.4.6 Biodiversity and Natural Assets

2.4.6.1 Flora and Vegetation

Vegetation on the subject site is highly fragmented, consisting of limited areas of remnant native vegetation separated by significantly altered areas containing a combination of cleared and parkland cleared areas. Three native vegetation communities have been mapped as occurring within the limited areas of native vegetation in the subject site.

Some remnant native trees are scattered throughout the site, however, the majority of trees are non-native or exotic trees, such as planted eastern states species, including *Corymbia citriodora* (lemon scented gum) or foreign taxa such as *Olea europaea* (olive tree).

Vegetation condition across the site ranges from Completely Degraded to Excellent, with the vegetation condition being predominantly Completely Degraded and Cleared, which is characteristic of the highly modified environment and current land uses within the area, which comprises a mixture of residential and semi-rural living, rural land uses and composite business. The areas mapped as having Excellent to Good vegetation condition reflect remnant vegetation occurring in limited localised areas within portions of some private lots.

The areas of higher quality vegetation that have conservation value will be retained in Conservation Area Public Open Space, within public ownership for preservation and management by a yet to be determined government agency.

Refer to Figure 5. Vegetation Condition Mapping (Source: Coterra Environment)

2.4.6.2 Ecological Communities and Conservation Significant Flora

Based on the ecological assessment undertaken, the subject site contains one Federal-listed threatened ecological community (TEC) Banksia Woodlands on the Swan Coastal Plain (listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]) and two State-listed TECs Banksia attenuata woodlands over species rich dense shrublands (FCT 20a) and Shrublands and Woodlands of the eastern side of the Swan Coastal Plain (FCT 20c), both are listed as Critically Endangered under the *Biodiversity Conservation Act 2016* (BC Act).

These TECs are restricted to discrete patches of remnant vegetation amongst housing and semi-rural properties. Notwithstanding, these areas coincide with the areas of higher quality remnant vegetation and will be retained in Conservation Area Public Open Space areas within public ownership.

The survey area also identified two conservation significant flora taxa, being *Conospermum undulatum* (listed as Vulnerable under the EPBC Act and BC Act) and *Isopogon autumnalis* (listed as Priority 3 by DBCA) (previously named *Isopogon drummondii*), concentrated in two localised areas within the site. These two areas also coincide with the areas of higher quality remnant vegetation and will be retained in Conservation Area Public Open Space.

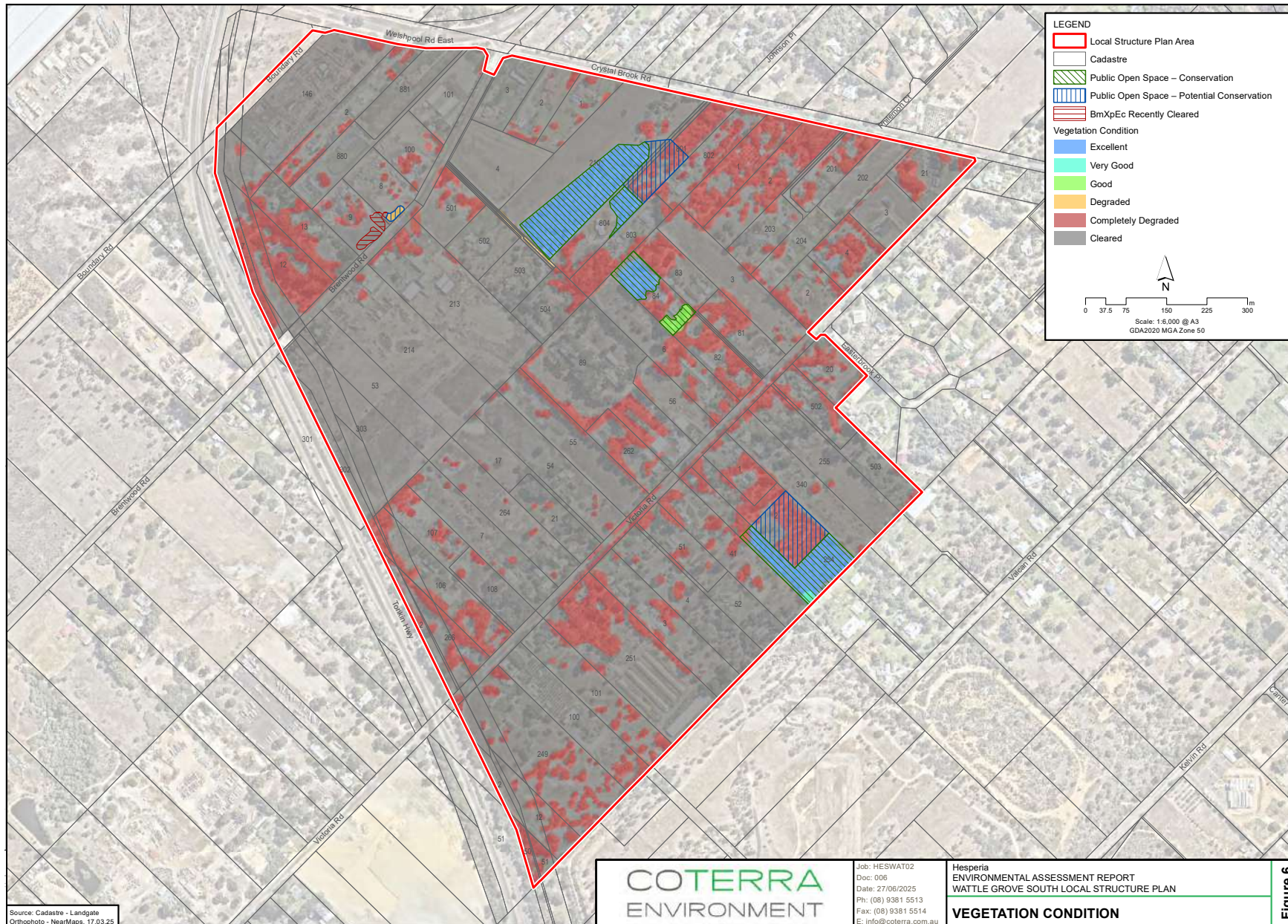


Figure 5. Vegetation Condition Mapping (Source: Coterra Environment)

2.4.6.3 Native Fauna

Due to the subject site being mostly cleared of native vegetation and used for rural purposes, the small areas of remnant vegetation that remain within the site provide the greatest significant fauna habitat and comprise mostly of Banksia Woodlands, which exists in four distinct patches, as well as one very small patch of Eucalyptus Woodland in Very Good Condition.

As a result of the historical clearing and disturbance within the subject site, the fauna diversity is low and most of the site is considered to have very little conservation significant fauna in general. The surrounding environment is also representative of clearing and rural land uses containing modified vegetation to the north, west and south of the site. Large areas of intact vegetation are located to the east of the subject site and considered to provide better fauna habitat than the site itself (360 Environmental 2018).

Based on the density of suitable foraging species for Carnaby's Cockatoo, Forest Red-tailed Black Cockatoo and Baudin's Black Cockatoo, most of the site (greater than 95%) is comprised of low foraging habitat value. The limited areas of Banksia Woodland and Eucalyptus Woodland habitats is comprised of medium and/or high quality foraging habitat for all three black cockatoos and coincide with the areas of remnant vegetation that will be retained.

Regionally, the site represents 0.03% of potential foraging habitat within a 12 km radius, and Black Cockatoo known breeding and roosting sites are within a 15 km radius of the site.

The majority of the potential nesting trees (native trees with a diameter at breast height greater than 500mm and known to potentially develop suitable nesting hollows for black cockatoos) are scattered in areas of degraded habitat or cleared land/paddocks. None of the potential nesting trees recorded within the site contain suitable hollows for black cockatoos. Given the semi-urban nature of the subject site, and in the absence of confirmed or historic breeding observations and the absence of any trees with suitable hollows, it is unlikely that the site represents breeding habitat for any of the three black cockatoos (Phoenix Environmental 2024).

The Rainbow Bee-eater (*Merops ornatus*) and Southern Brown Bandicoot (*Isoodon obesulus fusciventer*) have historically been recorded within the areas of higher quality remnant vegetation that will be retained in Conservation.

2.4.6.4 Regional Ecological Linkages

Ecological corridors have been identified in the Perth metropolitan region to limit the effects of fragmentation across areas of remnant bushland. Across the Project Area there is one Regional Ecological Linkage at the north-westernmost extent of the Project Area (Link ID: 40), which connects the Brixton Street Wetlands and the Hartfield Road Bushland (WALGA 2008). The very small portion of the subject site (portions of Lot 146 Welshpool Road East and Lot 12 Brentwood Road) falls within a Regional Ecological Linkage that has been extensively cleared of native vegetation and filled.

Refer to Figure 6. Regional Ecological Linkages (Source: Coterra Environment)

2.4.6.5 Environmentally Sensitive Areas

Environmentally sensitive areas (ESAs) are declared by the Minister for the Environment under section 15b of the *Environmental Protection Act 1986*. Eight ESAs are mapped within the subject site according to the dataset available through DWER (2020).

Many of the ESAs mapped within the site are associated with the locations of declared rare flora, however based on surveys undertaken by AECOM (2020) many of these areas have been historically cleared and the Threatened flora associated with the ESA boundary are no longer present. Accordingly, the corresponding ESAs are no longer considered to be applicable.

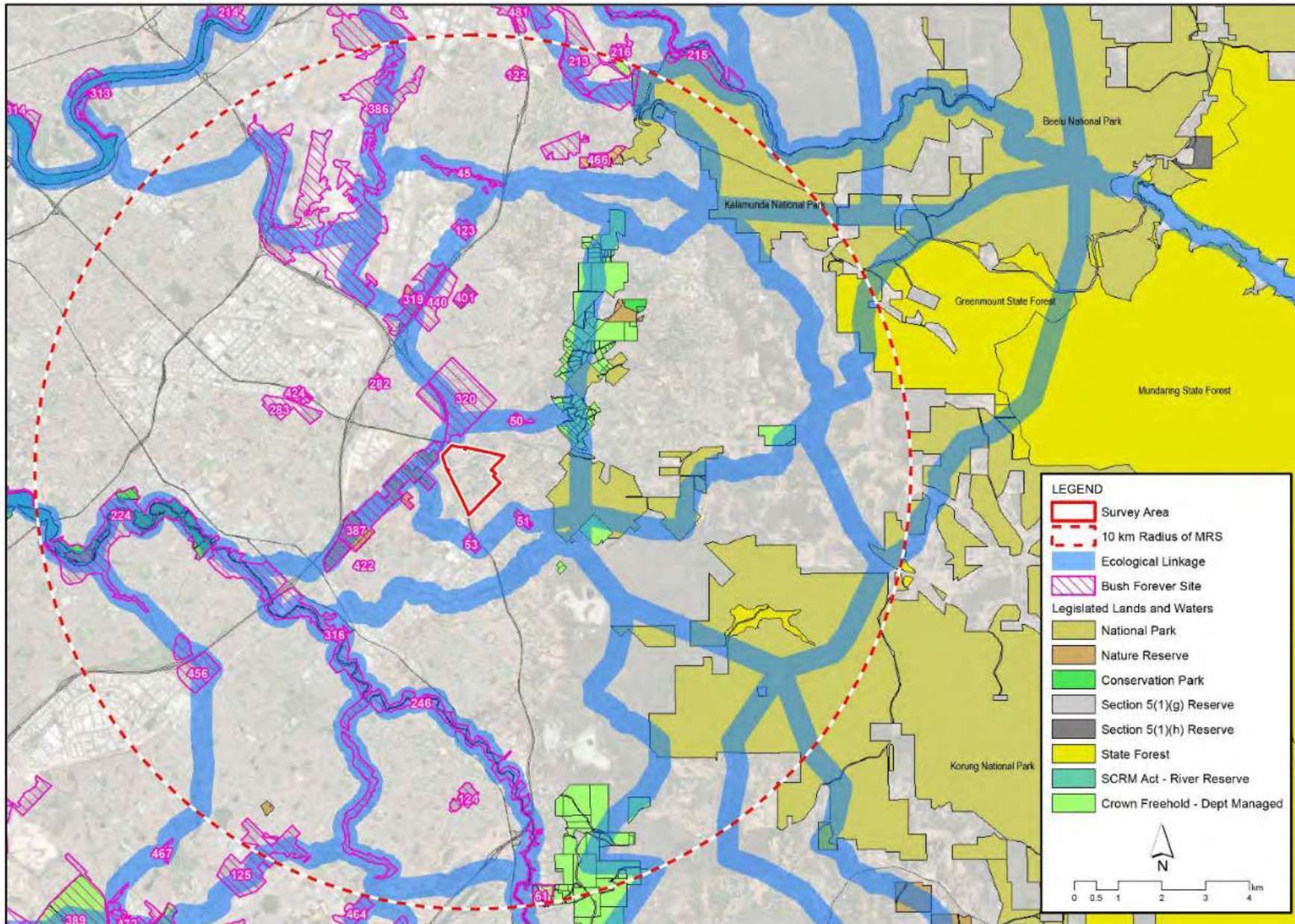


Figure 6. Regional Ecological Linkages (Source: Coterra Environment)

2.5 Noise

The site adjoins Tonkin Highway to the west with Welshpool Road East to the north, both of which are considered 'Strategic Freight/Major Traffic Routes'. As such, a road traffic noise assessment is required in accordance with State Planning Policy No. 5.4 Road and Rail Noise.

Refer to Appendix D – Transportation Noise Assessment.

The Transportation Noise Assessment recommends a combination of noise attenuation in the form of a noise wall, architectural upgrades (Quiet House Design) to future residential development, along with notifications on title for affected lots. Noise mitigation strategies are to be detailed in a Joint Noise Management Plan prepared in consultation with MRWA.

In addition, aircraft noise from the future parallel runway is also to be given consideration. The relevant policy for aircraft noise is State Planning Policy No. 5.1 Land Use Planning in the Vicinity of Perth Airport (SPP 5.1) by the WAPC. SPP 5.1 is supported by Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport, 2004, also by WAPC.

The Structure Plan is located outside of the 20 ANEF contour. SPP 5.1 states "There is no restriction on zoning or development within this noise exposure zone, which is identified as 'Acceptable' for all building types in the building site acceptability table [of AS 2021]. According to AS 2021 however, noise nuisance may still be experienced in areas below the 20 ANEF exposure level, particularly in the case of newly exposed communities."

Perth Airport also provide N65 contours, which represent the average number of aircraft events above a noise level of 65 dB LAmax and how the site relates to N65 contours is shown in Figure 7 noting the impact is from the future parallel runway. The location of the 50 events line has been approximated across the Structure Plan.

Refer to Figure 7. N65 Noise Contour – Aircraft Noise (Source: Lloyd George)

Perth Airport encourages local governments to make use of the N65 and N60 contours to inform current and future residents of aircraft noise exposure. It is therefore recommended that areas shaded in Figure 4–8 of the Transportation Noise Assessment (Appendix D) (being above the 50 Event N65 contour) consider building insulation and architectural treatments in accordance with Table 4–2 (spatially this applies to south–western portion of the project area).

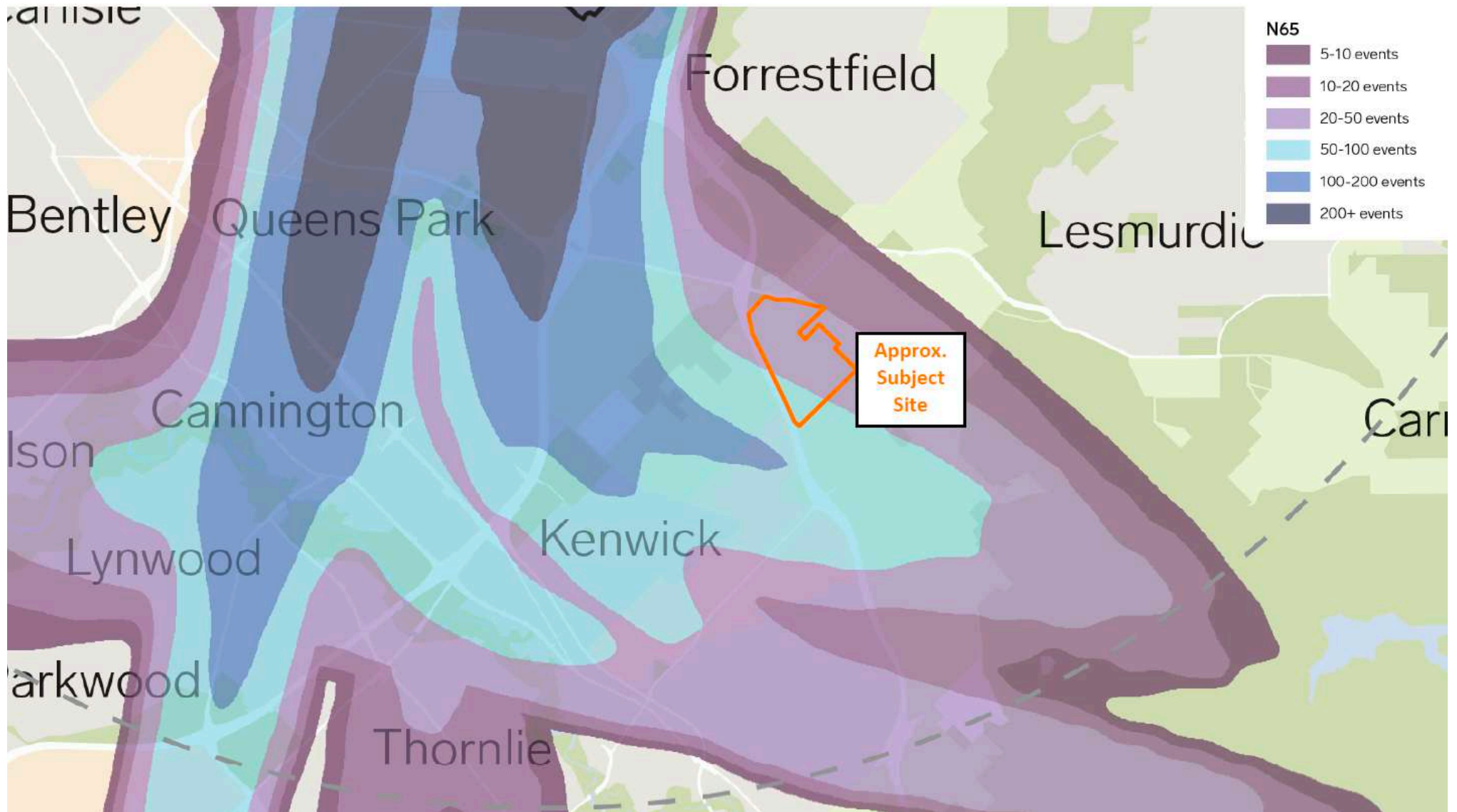


Figure 7. N65 Noise Contour - Aircraft Noise (Source: Lloyd George)

2.6 Physical Infrastructure and Services

An Engineering Services Report has been undertaken in support of the Structure Plan, attached as Appendix H. The report provides a summary of infrastructure availability for the Structure Plan land, refer to Table 5.

Table 5. Infrastructure Availability

Gas Infrastructure	There is no reticulated gas supply within the site or generally within the immediately adjacent area. However, an ATCO Gas high-pressure gas main is located in Welshpool Road East to the west of the site, terminating near the Lancelot Garden cul-de-sac, Wattle Grove. Welshpool Road East also contains a medium-pressure gas main that extends through the existing Wattle Grove residential development north of Welshpool Road East and west of Tonkin Highway. In discussions with ATCO, a connection to and extension of the existing high-pressure main in Welshpool Road East could allow a reticulated gas network to be provided to the site.
Wastewater	The subject area is not currently serviced by a wastewater scheme but sits within the Water Corporation license area and is covered by the Wattle Grove Sewer District (SD) conceptual wastewater planning. Water Corporation long-term planning shows the site ultimately being serviced via a gravity sewer extension to the south-west along Brentwood Road and Bickley Road connecting to the existing DN900 branch sewer main located in Bickley Road, near Dulwich Street in Maddington.

Wastewater (continued)	To enable the initial development of the site, an interim solution involving the extension of gravity sewer mains from the Wanaping Road Pump Station No. 7 along Wanaping Road, Bickley Road and Brentwood Road to the site is proposed. A Water Corporation scoping report for the delivery of the interim solution is currently being prepared.
Water	The site is within the Water Corporation license area for the provision of reticulated water. With respect to water planning, the site is situated at the eastern edge of the Trunk Mains PRV scheme. The Water Corporation has advised the water planning will be revised as the land is rezoned to 'Urban'. The site and services in the Urban Expansion area will be included in the Water Corporation's water planning and hydraulic modelling undertaken to determine the impact on existing customers and the changes required to the size and timing of future distribution mains. In the interim, the Water Corporation has advised that water supply to a future urban development of the site will be supplied from the Trunk Main PRV scheme. An extension of the existing mains adjacent to and throughout the site will not have sufficient capacity or pressure to serve the proposed development, and as such, the initial supply is likely to be via new water reticulation mains, typically DN250 PVC and DN200 PVC as required. The Water Corporation will undertake planning and will follow in with distribution mains in the future as needed.

<p>Electricity</p>	<p>The site has a 66kV high voltage (HV) overhead power line extending along the south-eastern side of Brentwood Road. The site also has 22kV HV overhead power lines running along the north-western side of Brentwood Road and Victoria Road and a low voltage (LV) overhead power line on the south-eastern side of Boundary Road. The existing HV feeder cables that traverse the site will be able to provide power to the proposed development.</p> <p>Western Power will require the 22kV HV overhead power lines that are adjacent to the proposed residential development to be undergrounded as part of the subdivision works.</p> <p>A review of the Western Power Network Capacity Mapping Tool indicates that there is capacity in the existing network to service the initial stages of development within the site. The mapping tool indicates that the capacity for the north-western portion of the site is between 15MVA-20MVA, whilst the south-eastern portion immediately adjacent to Victoria Road has a capacity of less than 5MVA. As development increases, Western Power will need to carry out various system reinforcement measures to maintain adequate supply.</p>
<p>ecomunications</p>	<p>The site is within the NBN network footprint and NBN fixed line services are available within the site. The existing road reserves within the site contain NBN services within a Telstra pit and pipe network.</p> <p>Alternative providers such as Opticomm, have advised that they can also provide communication services for any proposed development of the site.</p>

The report concludes that all required utilities are available and can be extended to service the proposed development. There are no engineering or servicing constraints to the development of the site that cannot be resolved through orderly standard engineering design and construction. Significant planning has already been undertaken by the relevant authorities to support existing developments within the vicinity of the site.

Refer to Appendix I – Engineering Services Report.

2.7 People Movement

2.7.1 Existing Movement Network

The project area has excellent vehicular accessibility to regional road networks, being located adjacent to Tonkin Highway and Welshpool Road East. Crystal Brook Road and Welshpool Road East both provide eastward connectivity to Lesmurdie and Kalamunda. Welshpool Road East also provides a direct link to the establishing industrial employment node Maddington–Kenwick Strategic Employment Area, consisting of the Roe Highway Logistics Park. Beyond this connections to Roe Highway, Perth Airport and the High Wycombe Train Station.

The existing adjoining road network consist of the following elements:

- The Tonkin Highway/Welshpool Road East intersection is located at the north western boundary of the site. The intersection is a four-way signalised intersection.
- Welshpool Road East/Crystal Brook Road intersection is located at the north western boundary of the site. The intersection is a three-way stop-controlled T-intersection.
- Brentwood Road/Crystal Brook Road intersection is located at the northern edge of the site. The intersection is a three-way give way-controlled T-intersection comprising single approach and departure lanes.
- Victoria Road/Crystal Brook Road intersection is located at the eastern corner of the site. The intersection is a three-way give way-controlled T-intersection comprising single approach and departure lanes for all legs.

Bus accessibility is currently limited to route 283, operating along Crystal Brook Road, however improved bus services are anticipated as development progresses, in consultation with the PTA. Paths area available along Crystal Brook Road and Welshpool Road East which allows pedestrian cycling access to Kalamunda or Wattle Grove and Forrestfield. The Tonkin Highway Upgrade project will provide a PSP running adjacent to the Structure Plan area, which will enable cycling trips to nearby employment areas and regional facilities.



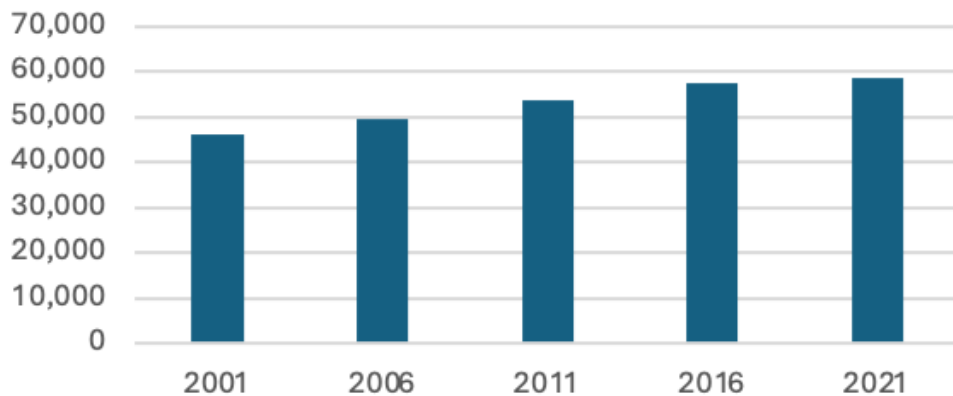
3. Community Context

3.1 People

The population of the City of Kalamunda has grown steadily over a period of twenty years increasing from 46,000 in 2001 to almost 59,000 in 2021 (circa 28% increase). The population of Wattle Grove however has increased substantially during the same period from 1,000 in 2001 to 6,500 in 2021. The median age within Wattle Grove is 34 years, which is lower than the median age across Kalamunda (40 years), and slightly lower than the WA and national median age of 38.

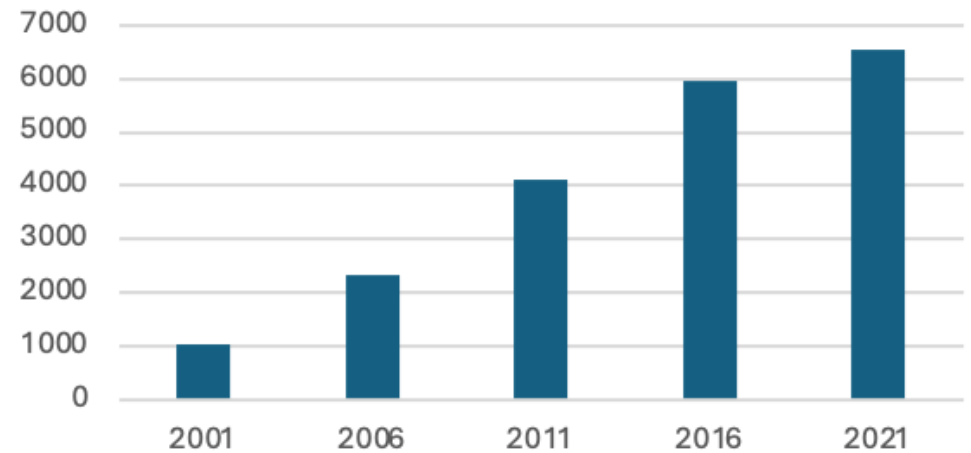
The proportion of families without children within Wattle Grove (25.3%) is significantly lower than the Kalamunda average (39.4%) and the number of single parent families (11.2%) significantly less than the Kalamunda (14.6%) and state (15.1%).

City of Kalamunda, Total Population 2001-2021



Source: Australian Bureau of Statistics

Wattle Grove, Total Population 2001-2021



Source: Australian Bureau of Statistics

Table 6. Population Profile

Statistic	Wattle Grove	City of Kalamunda	Western Australia	Australia
Population	6,647	58,762	2,660,026	25,422,788
Median Age	34	40	38	38
People per Household	3.3	2.6	2.5	2.5
Median Weekly Household Income	\$2,377	\$1,866	\$1,815	\$1,746
Family Composition:				
– Couple Family without children	25.3%	39.4%	38.8%	38.8%
– Couple family with children	62.4%	44.8%	44.6%	43.7%
– One parent family	11.2%	14.6%	15.1%	15.9%

3.2 Housing

Housing within Wattle Grove generally consists of large, single-family homes, with the average number of bedrooms per dwelling of 3.9, higher than both the City of Kalamunda and Western Australia average. Perhaps reflective of this housing stock, the percentage of households within Wattle Grove spending more than 30% of their income on mortgage repayments is higher than both the City and State average.

Table 7. Housing Profile

Statistic	Wattle Grove	City of Kalamunda	Western Australia	Australia
Dwellings (Private)	2,048	23,315	1,147,872	10,852,208
Dwelling Occupancy:				
– Occupied	96.4%	93.9%	89.1%	89.9%
– Unoccupied	3.6%	6.1%	10.9%	10.1%
Dwelling Structure:				
– Separate House	99.8%	93.8%	79.7%	72.3%
– Semi Detached, Townhouse, etc	0%	4.9%	13.0%	12.6%
– Flat or Apartment	0%	0.4%	6.5%	14.2%
Ave no. of bedrooms	3.9	3.6	3.3	3.1
Rental Stress (over 30% income)	24.5%	31.0%	28.3%	32.2%
Mortgage Stress (over 30% income)	13.7%	12.7%	13.0%	14.5%

3.3 Economy

The local economy in Wattle Grove is closely associated with medical and aged care services with the proportion of people employed in these industries above Western Australia and national averages. Workforce participation rates are higher than rates in the City of Kalamunda, WA and nationally, perhaps reflective of the lower median age.

Table 8. Economy Profile

Statistic	Wattle Grove	City of Kalamunda	Western Australia	Australia
Workforce participation	72.9%	64.1%	63.9%	61.1
Industry of employment (top responses):				
Hospitals (except Psychiatric Hospitals)	5.0%	3.4%	4.2%	4.5%
Iron Ore Mining	3.0%	3.1%	2.9%	0.4%
Takeaway Food Services	2.5%	-	1.9%	1.9%
Aged Care Residential Services	2.5%	-	1.9%	2.1%
Road Freight Transport	2.4%	2.8%	1.2%	1.1%

3.4 History and Heritage

4.4.1 Aboriginal Cultural Heritage

The south-east area of Whadjuk Noongar boodja was the territory of Munday, leader of the Beeloo people. Munday (pronounced mun-dee) was a recognised and important negotiator for Perth’s Whadjuk community. Munday’s land stretched southeast from the Derbal Yerrigan between the Mandoorn in the north and the Djarlgarro in the south.

The Noongar calendar has six seasons, which broadly document the changing availability and quality of important resources like water, plants, and animals. People’s movement through the landscape varied over the year, guided by these changes, and this used to happen at Wattle Grove as well. For example, during the season of Makuru the Beeloo camped in the Kalamunda and Mundaring hills. In the season of Kambarang and into the summer months, they would move camp closer to the Djarlgarro where Goolamrup at Kelmscott was one of the main camps. Of particular importance to the Noongar were the rich swamps and waterways such as Djarlgarro, which provided abundant seasonal food from the animal and plant life. The waterways are also of mythological and spiritual importance as evidence of the Nyittiny story of the Waugyl, a powerful figure in the form of a rainbow serpent that formed the landscape while on its westward journey from beyond the hills to the ocean. The Waugyl is recognised today as the power that creates and maintains the fresh flow of drinking water for humans in all watercourses and springs.

A search of the Department of Planning Lands and Heritage’s Aboriginal Heritage Inquiry System identified two registered Aboriginal Heritage sites located along the southern boundary of the Structure Plan near the Tonkin Highway reserve. These sites are identified as:

- ID 4343 Brentwood Road Swamp. Type: Artefacts/Scatter
- ID 4342 Brentwood Road Quarry. Type: Artefacts/Scatter

Refer to Figure 8. Mapped Boundary of Registered Aboriginal Heritage Sites

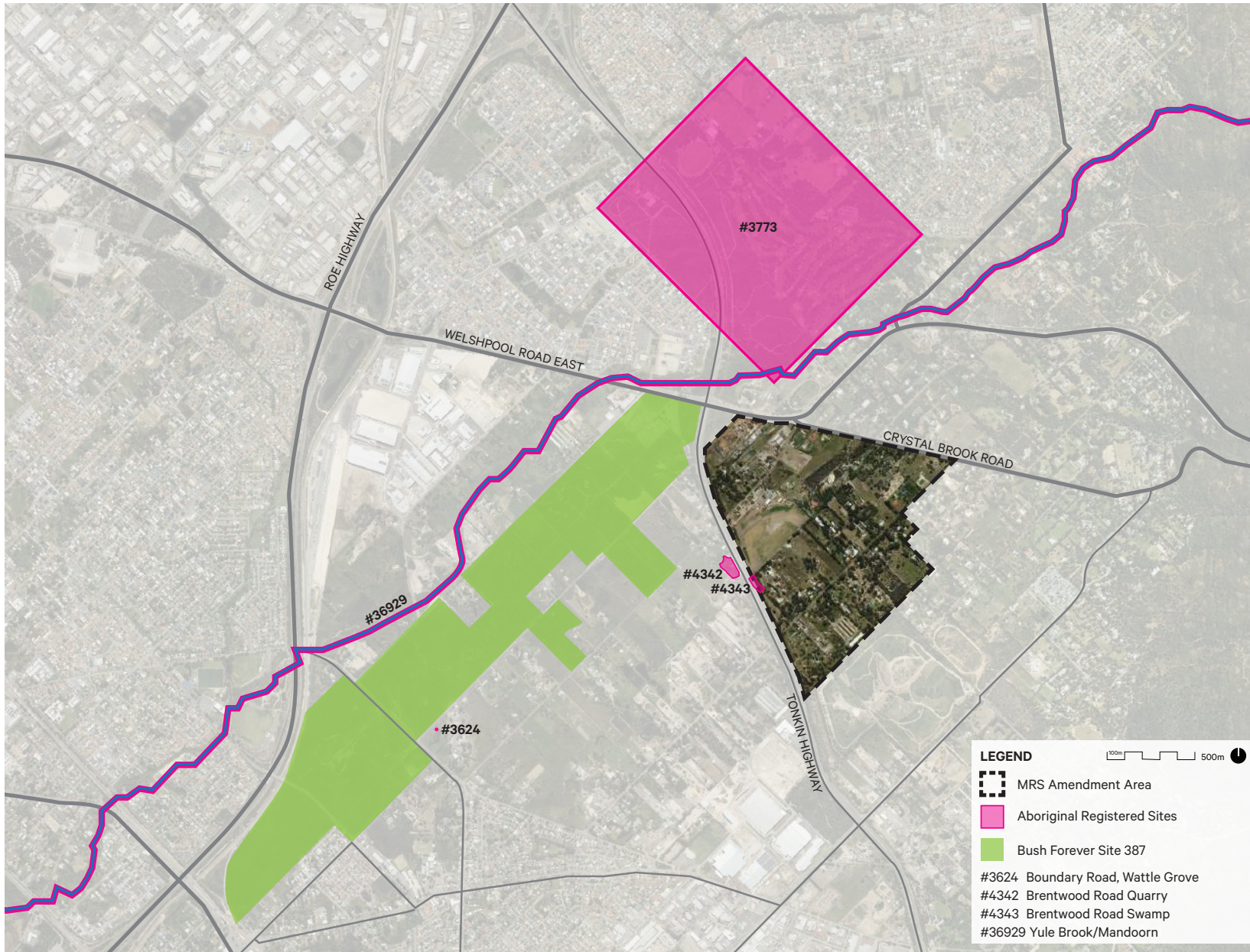


Figure 8. Mapped Boundary of Registered Aboriginal Heritage Sites

A site assessment was undertaken by Horizon Heritage Management (2021) to verify the location of Brentwood Road Swamp (Site ID 4343). Brentwood Road Swamp artefacts scatter and registered heritage site is situated within the easement for the Dampier to Bunbury Natural Gas Pipeline (DBNGP). No archaeological evidence was found at the site during an archaeological survey undertaken by Archae-aus and Ethnoscience in 2019. Similarly, no artefacts were identified during the visit to the site with Traditional Owners on 5 December 2022. There are significant statutory limitations that apply to development and excavation of land within the DBNGP corridor will largely protect the Brentwood Road Swamp heritage site from risk of physical disturbance.

DPLH ID 4342 Brentwood Road Quarry is listed on the Register of Aboriginal Sites as an artefact scatter and quarry with a reliable location. The site was located and recorded to a site identification level by Archae-aus Pty Ltd in 2019 while undertaking an archaeological heritage survey for proposed Tonkin Highway Upgrades and Grade Separation for Main Roads WA. Archae-aus identified a dense scatter of quartz and fossiliferous chert flaked artefacts in a deflated sand dune on the west side of Tonkin Highway, outside of the project area. As such, this site will not be impacted by the development within the proposed Structure Plan.

Additionally, the October 2018 ACHM Aboriginal Heritage Impact Assessment of the City of Gosnells MKSEA Planning Scheme Report concluded ID Sites 4342 and 4343 as no longer likely to constitute as archaeological sites under section 5 of the AHA 72.

3.4.1 European Heritage

The first land grants over Wattle Grove were Canning Location 246 (100 acres) issued to George Keith in 1886, and Location 207 (50 acres) to Mary Jeffery in 1887. This area becomes the heart of the Wattle Grove community. By 1888 Loc. 246 was in the hands of Alexander Forrest, pastoralist and entrepreneur, who used it to hold cattle.

Welshpool Road was known as early as 1889, and one account states that an early market gardener, Benjamin Dewing was born in Welshpool in Wales, and named his property after the Welsh town. The area became known as Wattle Grove apparently because of the wattle trees that lined both sides of Welshpool Road.

In the post-World War II period, Wattle Grove remained largely rural but underwent modest subdivision and development. At this time Welshpool Road extended in a straight alignment from Welshpool to the small cluster of orchards at the base of the foothills near Lesmurdie. Since the earliest days of dairies and poultry farms, much of Wattle Grove has developed into other agricultural uses such as equestrian studs, paddocks, horticultural nurseries, pet kennels, hobby farms and cattle breeders.

There are no registered State Heritage Sites located within the Structure Plan area. It is noted that there is one heritage site (Other Heritage Sites – City of Kalamunda Municipal Heritage Places) documented, known as 'White's home and store, located on the corner of Crystal Brook Road and Victoria Road.



4. Governance Context

4.1 Zoning and Reservations

4.1.1 Metropolitan Region Scheme

MRS Amendment 1388/57-Wattle Grove South was referred to the Environmental Protection Authority (EPA) for Its consideration and in April 2022, the EPA determined that the scheme amendment should be formally assessed under Part IV of the *Environmental Protection Act 1986*.

In accordance with the EPA’s Instructions for the Environmental Review (assessment no. 2335), the MRS Amendment underwent a formal environmental assessment which resulted in a suite of environmental investigations, technical studies and Environmental Review document being prepared for public review.

The WAPC advertised the Environmental Review along with the MRS Amendment for a 60 day public review period, from Tuesday, 8 October 2024 to Monday, 9 December 2024. The WAPC received 108 public submissions and provided their summary of submissions to the EPA on 11 December 2024, and their Response to Submissions on 21 February 2025.

The EPA undertook its assessment of MRS Amendment 1388/57-Wattle Grove South and published its assessment report (Report 1788) on 30 July 2025. The EPA advised the Minister for Environment that it:

- has assessed the potential impacts to inland waters, flora and vegetation, and terrestrial fauna values
- has considered the proposed management measures being able to mitigate impacts
- recommends that the amendment may be Implemented, subject to the recommended environmental conditions (provided in Appendix A of EPA Report 1788).

The Structure Plan follows the ‘Urban’ minor amendment request under the MRS. The land subject to the MRS amendment comprises the Structure Plan boundary. Accordingly, the Structure Plan can be supported under the MRS Urban zone that is currently being implemented.

Refer to Figure 9. Minor ‘Urban’ MRS Amendment.



Figure 9. Minor ‘Urban’ MRS Amendment.

4.1.2 City of Kalamunda Local Planning Scheme No. 3

The landholdings within Structure Plan area are currently undergoing a rezoning under the Metropolitan Region Scheme which proposes to rezone the site from Rural to Urban under the MRS, along with a concurrent rezoning to Urban Development. Therefore the current 'Special Rural' and 'Rural Composite' zones of LPS 3 will be rezoned automatically to Urban Development. This will also remove Special Control Area 4 (SCA 4) – Poultry Buffer (a 300m poultry farm buffer around Lot 251 (111) Victoria), the Bushfire prone area and Additional Use No. 29 (A29). A29 allows Lot 108 (No. 120) Victoria Road, Wattle Grove to operate as an Art Studio, Art Gallery and Art School subject to restrictions.

LPS 3 Response:

The Structure Plan satisfies the relevant provisions of LPS 3:

- The Structure Plan is to be prepared for approval pursuant to Part 4 of the deemed provisions.
- The Structure Plan guides development over the proposed Urban Development area.

Refer to Figure 10. Existing Local Planning Scheme No.3 Zoning

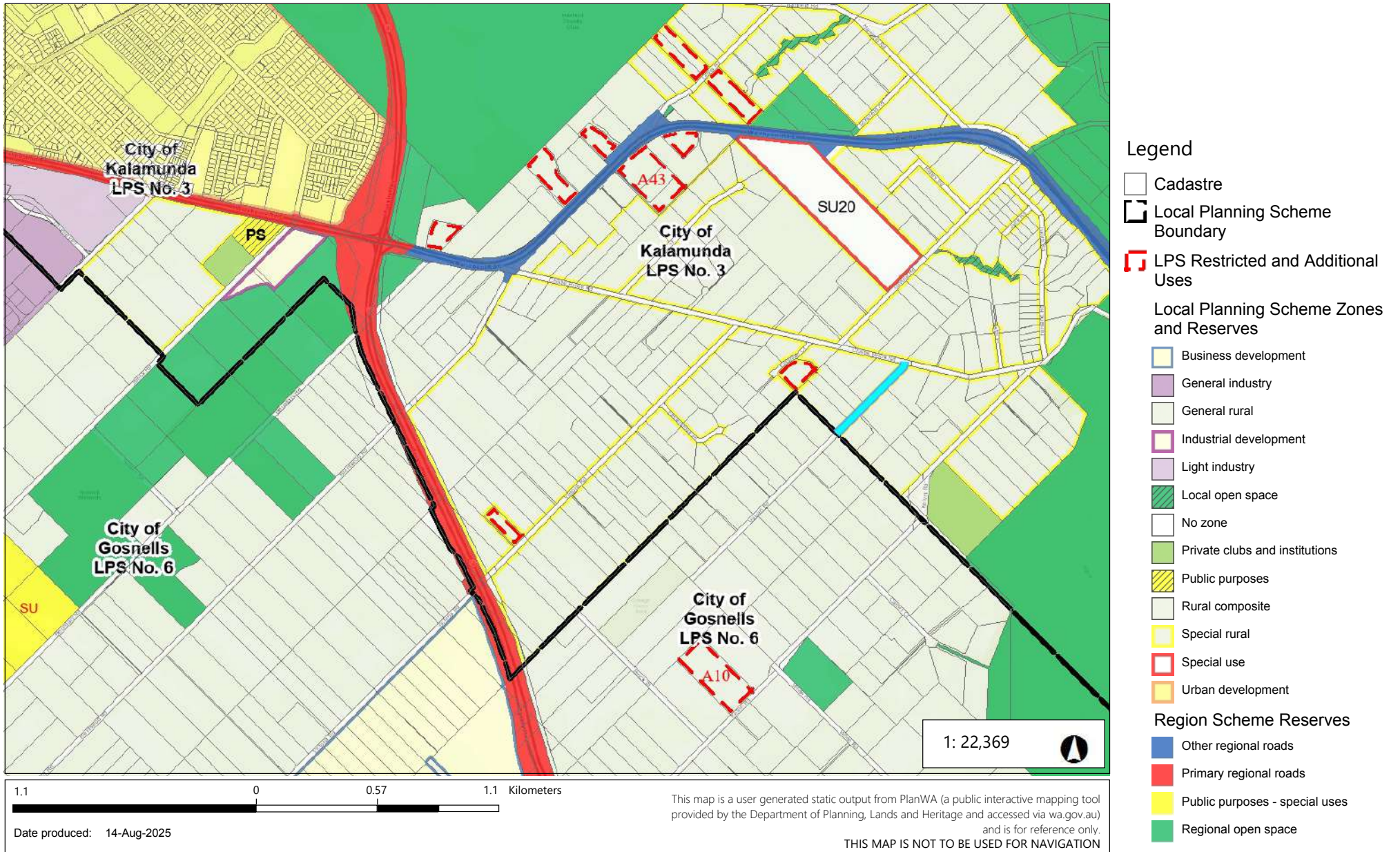


Figure 10. Existing Local Planning Scheme No.3 Zoning

4.2 Regional and Sub-Regional Structure Plans

4.2.1 Perth and Peel@3.5million

The Perth and Peel @ 3.5 Million framework provides strategic guidance for government agencies and local governments on land use, land supply, land development, environmental protection, infrastructure investment and the delivery of physical and community/social infrastructure for the Perth and Peel regions.

The document seeks to meet the targets identified under Directions 2031 and the State Planning Strategy 2050. The suite of documents also includes four subregional planning frameworks for the Central, North-West, North-East and South Metropolitan Peel sub-regions. The four sub-regional planning frameworks detail where future homes and employment should be located, and where important environmental assets should be avoided and protected.

This plan has a key objection to promote greater infill development across Perth and Peel. To meet the projected population by 2050, 800,000 new homes are required. Almost half of these houses (380,000 dwellings) will need to be built as infill development in existing built-up areas. Infill development areas are closely aligned with Stage 1 of the METRONET project.

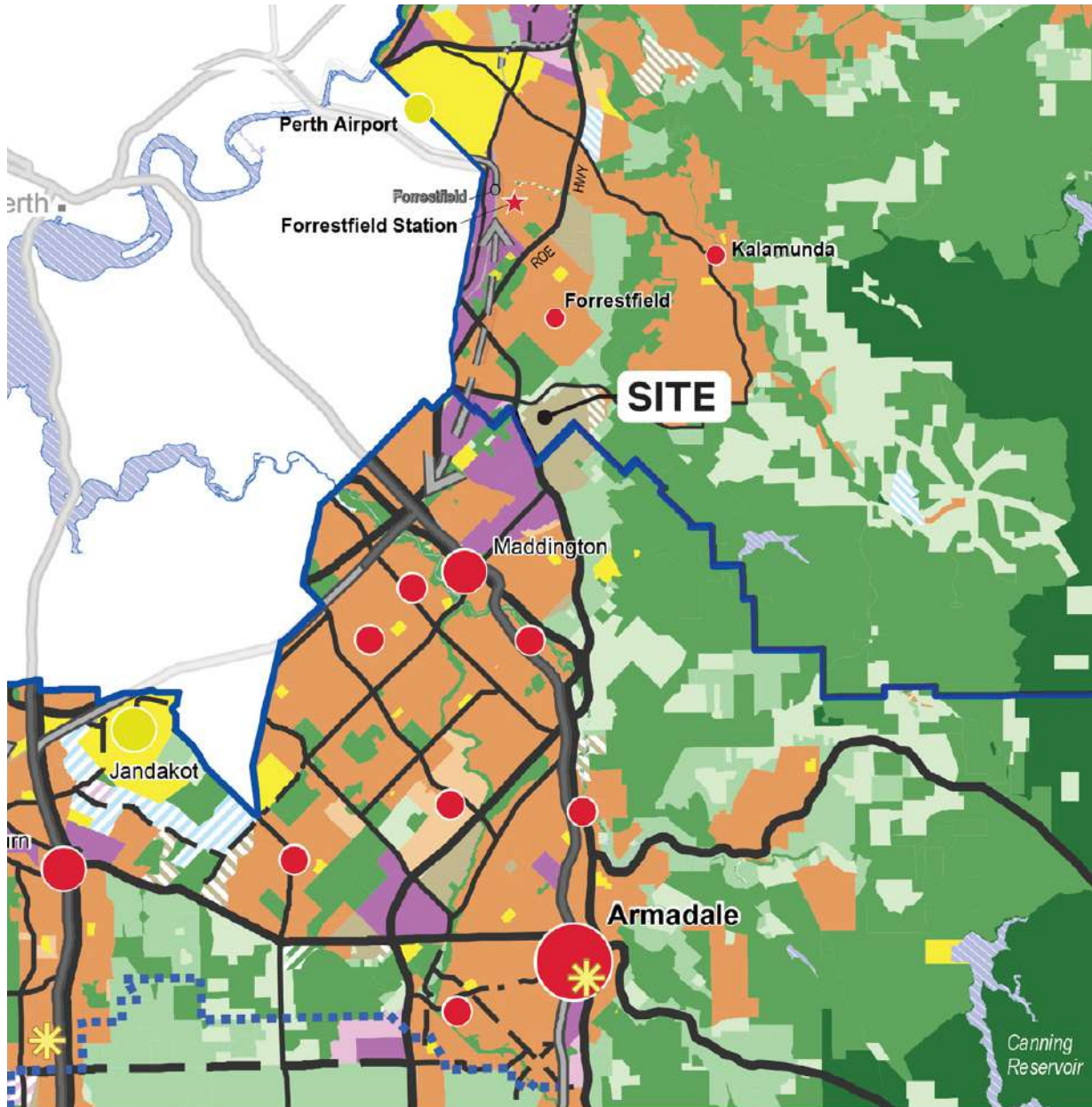
4.2.2 North-East Sub-Regional Planning Framework

The Framework advocates for a consolidated urban form that focuses residential development in areas with existing infrastructure (or within identified service areas) to minimise environmental impacts and create sustainable communities that are attractive places to live and work. It contains strategic priorities for developing underutilised urban land that can be serviced with the required infrastructure and that is located in proximity to activity centres, transit corridors and/or areas of high amenity. Under the North East Sub-Regional Planning Framework (the framework), the subject site is identified as 'Crystal Brook (Wattle Grove South) Urban Expansion' area.

Refer to Figure 11. North-East Sub-Regional Planning Framework.

Structure Plan Response:

The Structure Plan directly responds to Perth and Peel@3.5million and the North-East Sub-regional Planning Framework. The Structure Plan guides the ultimate realisation of urban (primarily residential) development consistent with the site's designation for urban expansion under the framework and follows the MRS 'Urban' and LPS 3 'Urban Development' rezoning.



Legend

- Sub-region boundary
- Swan Valley Planning Act boundary
- Framework land uses**
 - Railway
 - Urban
 - Urban deferred
 - Urban expansion
 - Urban investigation (Refer to Table 2 for key considerations)
 - City centre
 - Industrial
 - Industrial expansion
 - Industrial investigation (Refer to Table 5 for key considerations)
 - Rural residential
 - Rural
 - State forest
 - Open space
 - Open space investigation

- Public purposes
- Waterway
- Planning investigation (Refer to Table 3 for key considerations)
- Regional roads (MRS)**
 - Existing
 - Proposed
- Rail**
 - Passenger rail/station - existing
 - Passenger rail/station - proposed Stage 1 METRONET
 - Passenger rail - further investigation
 - Freight rail - proposed
- NOTE: Transit corridors are shown on Plan 5
- Public purposes - proposed
- Proposed open space - sport
- Activity centres**
 - Strategic metropolitan
 - Secondary
 - District
 - Other (Classification to be determined by more detailed planning)
 - Specialised

NOTE: This is a conceptual representation of broad planning intentions within the sub-region. Further planning processes and decision-making under relevant legislation will need to be undertaken, including with reference to amendment of statutory instruments and detailed planning.

Figure 11. North-East Sub-Regional Planning Framework.

4.3 State Government Planning Strategies and Policies

4.3.1 State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region

State Planning Policy 2.8: Bushland Policy for the Perth Metropolitan Region (SPP 2.8) provides a policy and implementation framework that will ensure bushland protection and management issues are addressed and integrated with broader land use planning and decision-making.

Policy Response:

No Bush Forever sites occur within the Structure Plan, with the closest sites located approximately 100 metres to the north-west (Site 387, the Greater Brixton Street Wetlands) and 50 metres to the north-east (Site 320, Hartfield Road Bushland). The Structure Plan will not impact either Bush Forever site.

The Structure Plan makes provision for the protection and conservation of significant native vegetation to be ceded as Conservation Public Open Space and managed under a CAMP.

4.4 State Planning Policy 3.0 Urban Growth and Settlement (SPP 3.0)

State Planning Policy 3.0 Urban Growth and Settlement sets out the principles and considerations that guide the development of new urban growth and settlements. It focuses on consolidation in areas with good access to employment, services and transportation, minimised environmental impact and efficient use of suitable land and infrastructure.

Policy Response:

The Structure Plan area is contemplated for future residential development under Perth and Peel @3.5million and the North-East Sub-Regional Framework. The Structure Plan coordinates the provision of infrastructure and services suitable for urban development in a planned manner that will meet future population and housing needs. The Structure Plan will result in a sustainable pattern of settlement, rounding out the established suburb of Wattle Grove an optimising the area's ready access to transport, services and employment. Essential services can be extended southwards to support future development, in a manner that recognising and promoting the site's unique environmental values.

4.5 State Planning Policy 7.0 – Design of the Built Environment

SPP7.0 sets out the objectives, measures, principles and processes which apply to the design and assessment of built environment proposals. The SPP establishes a definition of 'good design' through ten design principles which include:

1. Responding to context and character
2. Recognising landscape quality
3. Providing appropriate built form and scale
4. Balancing functional and built quality needs
5. Optimising sustainability
6. Providing amenity
7. Creating legible places
8. Optimises safety
9. Supporting community needs
10. Aesthetics – attractive buildings and places

These principles have guided the preparation of the Wattle Grove South Structure Plan.

4.5.1 State Planning Policy 3.4 Natural Hazards and Disasters (SPP 3.4)

State Planning Policy 3.4 Natural Hazards and Disasters identifies the need for the planning of urban areas to consider natural hazards including flooding, bush fire, landslides, earthquakes, cyclonic activity, coastal erosion, severe storms, storm surge and tsunamis. The risk of flooding and bushfire is particularly relevant to the local scheme amendment.

Policy Response:

The Structure Plan area is not subject to flood risk. Although regional geomorphic wetland mapping (WALGA 2019) indicates that two Resource Enhancement Wetlands (and UFI 8037) partially intersect the site, neither present a flood risk. REW (UFI 8037) has been cleared and filled and no longer exists and REW (UFI 15257) was significantly modified during the construction of Tonkin Highway and the DBNGP. REW (UFI 15257) is also largely located within the DBNGP corridor, which precludes residential development. Bushfire risk is addressed in the response to SPP3.7 below.

4.5.2 State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)

State Planning Policy 3.7 Planning in Bushfire Prone Areas 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 and strategic planning proposals in designated bushfire prone areas (unless exemptions apply). The accompanying Guidelines for Planning in Bushfire Prone Areas provide supporting information to assist in the interpretation of the objectives and policy measures outlined in SPP 3.7.

Policy Response:

The subject site is identified within a 'bushfire prone area' on the state-wide Map of Bush Fire Prone Areas as prepared by the Office of Bushfire Risk Management and updated in 2021. A Bushfire Management Plan (BMP) has been prepared to support the Structure Plan. The BMP includes an assessment of vegetation within and surrounding the site to determine applicable bushfire hazards, in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas (AS 3959)*, and an assessment of the bushfire protection criteria outlined in the Guidelines. Future development of the Structure Plan can be managed with appropriate bushfire management strategies, the details of which are to be confirmed in future BMPs prepared at the subdivision and development stage.

4.5.3 Draft State Planning Policy 4.1 State Industrial Buffer Policy (SPP 4.1)

Draft State Planning Policy 4.1 State Industrial Buffer Policy (SPP4.1) refers to the EPA’s Environmental Protection Guidance Statement No.3 Separation Distances Between Industrial and Sensitive Land Uses which provides advice on which land uses require separation. It recommends separation distances in the absence of site-specific modelling including for schemes and scheme amendments during the environmental impact assessment process. The objectives of SPP 4.1 are to:

- Protect existing and proposed industry, and infrastructure facilities from encroachment by incompatible land uses that would adversely affect efficient operations;
- Avoid land use conflict between existing and proposed industry/ infrastructure facilities and sensitive land uses; and
- Promote compatible land uses in areas impacted by existing and proposed industry and infrastructure facilities.

Policy Response:

MKSEA

The Structure Plan is not impacted by the operations of the MKSEA. The Structure Plan is located to the east of the proposed MKSEA and is separated by the Tonkin Highway road reserve and adjoining DBNGP easement corridor – spanning a distance in excess of 120 metres. Future land uses within the MKSEA industrial area (General Industry, with an emphasis on warehouse and logistics operations) will therefore not result in industries associated with emissions considerations. The potential for noise emissions is addressed in the response to State Planning Policy 5.4 Road and Rail Noise below.

Dog Kennels

The Structure Plan is not impacted by surrounding dog kennels. There are four (4) dog kennels located outside of the Structure Plan, which remains well separated from the kennels and the existing sensitive receptors.

Address	Comments
Kennel No. 1 Swan Animal Haven 714 Welshpool Road East, Wattle Grove (City of Kalamunda)	Located 60m to an existing dwelling.
Kennel No. 2 Paws Claws and Beaks Retreat 810 Welshpool Road East, Wattle Grove (City of Kalamunda)	Located 120m to an existing dwelling.
Kennel No. 3 Allbreeds K9 Bootcamp and Pet Retreat Brentwood Road, Kenwick (City of Gosnells)	Located 60m to an existing dwelling.
Kennel No. 4 Blue Cross Animal Services 207 Brentwood Road, Kenwick (City of Gosnells)	Located 70m to an existing dwelling.

Dog kennel operations are managed/monitored by the City of Kalamunda and the City of Gosnells. The approvals issued require the operators to meet their respective conditions of operation, including compliance with noise emissions received by existing dwellings (generally located within 60m of the kennels).

Poultry Farms

The Structure Plan is no longer impacted by the historical operations of two poultry farms previously located in proximity to the Structure Plan area. A former poultry farm located at Lot 251 (No. 111) Victoria Road, Wattle Grove recently closed and a second poultry farm located south-west of the site, on the western side of Tonkin Highway in Kenwick, has been decommissioned, ceasing operations prior to the commencement of residential development in the Structure Plan area.

Turf Farm

The owner of the existing Turf Farm is situated across Lots 303, 53, 214 and 213 on the southern side of Brentwood Road has confirmed operations have ceased. The Brentwood Road Turf Farm is a supplementary operation to primary operations based in Gingin and North Dandalup. The Brentwood Road operations are primarily administrative and provide a staging function.



Former Turf Farm Site – Looking North-West (Source: Western Environmental)

4.5.4 State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport

State Planning Policy 5.1 Land Use Planning in the vicinity of Perth Airport acknowledges the fundamental importance of Perth Airport to the continued economic development of Western Australia, and the negative impacts of airport noise on sensitive land uses (i.e. residential development). SPP 5.1 is predicated on the Australian Noise Exposure Forecast (ANEF), which was prepared by Perth Airport Pty Ltd in consultation with Air Services Australia. The ANEF chart shows contours representing a forecast of future noise exposure around an airport that has been endorsed by Air Services Australia on the basis of approved operational arrangements and air traffic forecasts.

Policy Response

The Structure Plan lies outside of the 2020 Ultimate ANEF contours. SPP 5.1 states:

“There is no restriction on zoning or development within this noise exposure zone, which is identified as ‘Acceptable’ for all building types in the building site acceptability table [of AS 2021].”

According to AS 2021 however, noise nuisance may still be experienced in areas below the 20 ANEF exposure level, particularly in the case of newly exposed communities.

It is also acknowledged that the Structure Plan may be impacted by the Perth Airport N65 contours which represent the average number of aircraft above a noise level of 65 dB LA_{max} due to the planned future parallel runway and future frequency of aircraft noise. The Structure Plan is supported by a Noise Impact Assessment which considers aircraft noise impacts.

4.5.5 State Planning Policy 5.4 – Road and Rail Noise (SPP 5.4)

State Planning Policy 5.4 – Road and Rail Noise aims to minimise the adverse impact of road and rail noise on noise sensitive land-use and/ or development within the specified trigger distance of strategic freight and major traffic routes and other significant freight and traffic routes. Under the SPP 5.4 the appropriate criteria for assessment comprises:

EXTERNAL

- LA_{eq}(Day) of 60 dB(A);
- LA_{eq}(Night) of 55 dB(A).

INTERNAL

- LA_{eq}(Day) of 40 dB(A) in living and work areas; and
- LA_{eq}(Night) of 35 dB(A) in bedrooms.

Noise received at an outdoor area should also be reduced as far as practicable, with an aim of achieving an LA_{eq} of 50 dB(A) during the night period.

Policy Response:

As required by SPP5.4, the Structure Plan is supported by a Noise Assessment Investigation which considers road noise impacts associated with Tonkin Highway and Welshpool Road East.

4.5.6 Development Control Policy 2.2 – Residential Subdivision (DC 2.2)

DC 2.2 establishes requirements for residential subdivision.

Policy Response:

The Structure Plan establishes the guiding framework for eventual residential subdivision in the Wattle Grove South expansion area. It makes provision for a primary school and a variety of residential densities and public open space typologies, including Conservation and Recreation Public Open Spaces. The Structure Plan makes provision for future neighbourhoods, connected by a road network that comprises a hierarchy of neighbourhood connectors, key access streets and dual use paths that promote cycling and walking. The road network includes clear connection points to Crystal Brook Road and Welshpool Road East and contemplates the future extension of public transport services.

The Structure Plan responds directly to the LPS 3 Schedule 11 – DA3 structure planning requirements for Wattle Grove South. It ensures future residential subdivision can adequately manage bushfire risk and protect and enhance identified areas of environmental value via dedicated Conservation Public Open Space, managed by the CAMP. As guided by the Landscape Masterplan, including the Tree Retention and Canopy Strategy, the Structure Plan also ensures future residential subdivision supports the retention of existing, and planting of new canopy trees in the public realm. The landscape led Structure Plan promotes the retention of existing trees through the careful configuration and alignment of lot boundaries and road reserves. The consolidation of the existing urban canopy through new tree planting will achieve a minimum urban canopy coverage of 20%.

4.5.7 Development Control Policy 2.3 – Public Open Space in Residential Areas (DC 2.3)

Development Control Policy 2.3 – Public Open Space in Residential Areas seeks to ensure that residential development is supported by adequate provision of public open space which contributes to the amenity of a place. DC 2.3 typically requires the provision of 10 percent of the gross subdivisible area to be provided as public open space, corresponding to the requirements of Liveable Neighbourhoods. Public Open Space is to be ceded by the subdivider ‘free of cost’ to the Crown as a Reserve for Recreation.

Policy Response:

The Structure Plan provides for 10 percent of Gross Subdivisible Area to be provided as public open space. The Structure Plan will primarily deliver a mix of Conservation and Recreation Public Open Space, in the form of Conservation Public Open Spaces, local parks and linear recreation parkland, many of which include informal ‘kick about’ and exercise areas.

4.5.8 Development Control Policy 2.4 – School Sites (DC 2.4) / Operational Policy 2.4 Planning for School Sites

Development Control Policy 2.4 – School Sites (DC 2.4) / Operational Policy 2.4 Planning for School Sites outlines the general requirements for school sites in residential areas, generally corresponding to the requirements of Liveable Neighbourhoods. The Operational Policy also sets out physical site servicing and access requirements.

Policy Response:

The Structure Plan facilitates future urban, primarily residential, development. It makes provision for a primary school which has been sited following consultation with the Department of Education. The proposed primary school meets the design requirements for DC 2.4 and Operational Policy 2.4 given that:

- An approximate 4.25 hectare primary school site is provided.
- The school site is located conveniently to the future neighbourhoods of the Structure Plan and is central to the wider Wattle Grove South which it will serve.
- There are no identifiable extreme topographical features requiring extensive onsite earthworks, clearing or presenting geotechnical issues. The roads abutting school are capable of construction to site levels that relate appropriately with the school site.
- Infrastructure services can be made available to the school site at the subdivision stage.
- The school site is serviced by key access roads and a neighbourhood connector, which will facilitate cycle and pedestrian networks. This shall provide for dual use cycling and pedestrian access and enable adequate and safe pick up and set down of students with sufficient on-street parking opportunities surrounding the school site.

4.5.9 Draft Development Control Policy 4.3 – Planning for High-Pressure Gas Pipelines (WAPC 2016)

The DBNGP runs inside the western boundary of the subject site. The development of land within the DBNGP corridor is subject to restrictions originating under the Petroleum Pipelines Act 1969, Energy Coordination Act 1994 and the Dampier to Bunbury Pipeline Act 1997. Planning Bulletin 87: High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region (WAPC 2007) and draft Development Control Policy 4.3 – Planning for High-Pressure Gas Pipelines (WAPC 2016) seek to protect people from unacceptable levels of risk by protecting high pressure gas pipelines from unregulated encroachment. The draft DC 4.3 policy is intended to replace Planning Bulletin 87.

Policy Response:

The Australian Gas Infrastructure Group (management authority of the DBNGP) was consulted during the MRS Amendment pre-referral process, in relation to future residential development interfacing with the existing pipeline easement in Wattle Grove South. The Australian Gas Infrastructure Group has confirmed

a '0' metre setback applies to residential lots adjacent to the easement. A 90 metre separation distance may apply to sensitive land uses based on a Quantitative Risk Assessment that identifies that a reduced setback is possible. The Structure Plan integrates future development with the pipeline corridor by reimagining the corridor land as a linear recreation parkland and a landscaped green corridor that promotes accessibility and linkages along the western boundary of the Structure Plan area. Residential development will not occur within the corridor as per the agreement with the Australian Gas Infrastructure Group. Road/pedestrian pathways provide additional separation at the residential interface.

4.5.10 Liveable Neighbourhoods

Liveable Neighbourhoods (LN) was prepared by the WAPC to implement the objectives of the State Planning Strategy and deliver the strategies and actions of metropolitan spatial frameworks. It is an operational policy that guides structure planning (regional, district and local), subdivision and development for new urban areas, including greenfield and large brownfield (urban infill) sites.

Policy Response:

The Structure Plan will facilitate future residential development and subdivision in line with the requirements of LN. The Structure Plan achieves:

- An urban structure based on interconnected, safe and walkable neighbourhoods.
- A sense of community, identity and place by responding to the site's local rural and foothills landscape character.
- Future development of a variety of residential densities, housing types and lot sizes to cater for diverse housing needs.
- A range of public open spaces that meet the typical 10% Gross Subdivisible Area requirement, of which not more than 2% is restricted for drainage purposes.



4.6 Local Planning Policies

Local Planning Policy 32 – Public Open Space

In August 2021, Council resolved to adopt draft Local Planning Policy 32 – Public Open Space. The policy applies to the design, assessment and determination of residential planning proposals that create three or more lots and results in the provision of Public Open Space, including scheme amendments. The primary policy objectives include:

- Guiding Council, the City and applicants in considering the planning of Public Open Space in new and existing urban areas;
- Ensuring Public Open Spaces provide a balance of recreational, environmental conservation and sports spaces;
- Ensuring existing and future developments exhibit high levels of amenity; and
- Ensuring public open space design demonstrates environmental sustainability.

Policy Response:

The Structure Plan responds to LPP 32 – Public Open Space by providing an appropriate balance of recreational, environmental conservation and informal sporting spaces to meet future community needs. Conservation Areas will protect significant flora and vegetation in line with the CAMP. Circuits of green corridors that promote walking and cycling will link public open spaces with future residential neighbourhoods. The Structure Plan will also deliver high levels of amenity, reinforcing the local landscape character. It also integrates water sensitive urban design principles with respect to waterwise species planting, urban drainage and management of nutrient loading.

4.7 Local Planning Strategies

4.7.1 City of Kalamunda Local Planning Strategy

The City of Kalamunda's Local Planning Strategy was endorsed by the WAPC in February 2013. It provides a vision and strategic planning direction for the municipality over 20 years, in accordance with Growth Scenario 3 – Additional 25,000 Population.

The subject site is identified in the Strategy as an 'Investigation Area' which envisages:

Growth by 25,000 people accommodated as in scenarios 1 and 2 plus Residential Bushland development R5 (R2.5) of Special Rural land to the east of Hawtin Road/Lewis Road (R5) and Wattle Grove south of Welshpool Road to a range of densities (R2.5, R5, R20 and R30 in centre) and including a Neighbourhood Centre in Wattle Grove. At current development rates the final part of this scenario (Special Rural land to Urban) would be required by 2025.

Strategy Response:

The Structure Plan follows the MRS and LPS 3 'Urban Development' rezoning which seek to realise the aspirations of the City's Local Planning Strategy. The Structure Plan will facilitate new urban, primarily residential development in the future Crystal Brook/ Wattle Grove South expansion area south-east of Welshpool Road East and south of Crystal Brook Road. The Structure Plan balances future urban development outcomes with the protection of environmental values.

4.7.2 City of Kalamunda Local Housing Strategy

The City adopted the Local Housing Strategy in July 2021. The strategic vision is:

The City of Kalamunda will have a range of attractive and functional housing types in close proximity to activity centres and high frequency transport nodes to cater for a diverse and changing population, whilst retaining or improving the character, amenity and safety of existing urban areas.

The strategy outlines the future housing needs and seeks to ensure new development and infill development meets diverse needs and complements the amenity of the local region. Population growth is expected to occur primarily on the Swan Coastal Plain with Forrestfield, Wattle Grove, High Wycombe and Maida Vale expected to account for 85% of the City's increased population over the next 18 years. Forrestfield, Wattle Grove, Maida Vale and High Wycombe are anticipated to experience the largest increase in the number of new dwellings, as a result of new developments and urban renewal. Investigation areas such as Wattle Grove South may grow from a small population into larger district localities.

Objective 5 and Strategy 5 of the Local Housing Strategy seek to:

Ensure housing supply and diversity aligns with expected population growth and, in accommodating that growth, has due regard for the City's strategic environmental framework.

Facilitate more housing choice for residents and increase dwelling diversity.

The Structure Plan area is identified as the Crystal Brook Expansion Area under the Perth and Peel @3.5 Million and North East Sub-Regional Planning Framework and Wattle Grove South Investigation Area under the City's Housing Strategy. Action 14 'Investigation Areas' of the Housing Strategy makes reference to Wattle Grove South (Crystal Brook). It aims to progress studies for investigation areas as part of the new Local Planning Strategy and Local Planning Scheme No. 4 and has a short to medium term priority depending on individual investigation area with implementation to be in partnership with the State Government. The broad objectives for this area include:

- Retain landscape characteristics and vistas;
- Retain ecological linkages;
- Manage bushfire risk; and
- Investigate service requirements.

Between 510-2,725 dwellings are anticipated for the Wattle Grove South Investigation Area by 2050, dependent on community engagement and the progression of detailed planning and statutory approval processes for the project area.

Strategy Response:

The Structure Plan supports the realisation of future residential development. The Structure Plan demonstrates due regard for significant remnant environmental values through the respectful configuration and alignment of the road network, servicing infrastructure and street blocks. The design will protect identified significant flora and vegetation values in conservation reserves managed by a CAMP. The Structure Plan is informed by bushfire management requirements and underpinned by a Landscape Masterplan which includes a Tree Retention and Canopy Strategy. The Structure Plan will link residential neighbourhoods to open spaces via new planted green corridors, that consolidate the coverage of the urban tree canopy.

4.7.3 City of Kalamunda Urban Forest Strategy (2023–2043)

The strategy seeks to retain at least 20% canopy cover in areas identified for, but yet to undergo, urban development. The document identifies that the subject site has a mixture of very low (under 20%) and high (above 20%) canopy cover.

Strategy Response:

The Structure Plan, through the Landscape Masterplan and Tree Retention and Canopy Strategy, facilitates urban development in a manner that protects and supports the growth of existing trees. It prioritises the retention of trees identified as having a high worthiness of retention within the public realm; open spaces and streetscape. It also supports the planting of appropriately selected new tree species in the public realm and will consolidate the long term urban canopy coverage of 20%.

4.7.4 Environmental Land Use Planning Strategy

The Environmental Land Use Planning Strategy (ELUPS) was adopted by Council in 2019. It provides a comprehensive report on the status of current natural environmental factors and influences in the City. It also outlines the strategies and actions needed to enhance and improve biodiversity and promotes sustainable planning practices which are sensitive and complimentary to the existing natural ecosystem.

Strategy Response:

The Structure Plan is informed by detailed environmental studies that identify environmental values to be protected as part of the future urban development. The Structure Plan provides for the conservation and management of land with significant flora and vegetation values, and prioritises the retention of existing trees with high retention values and planting of new appropriate tree species in Public Open Spaces and in the street network.

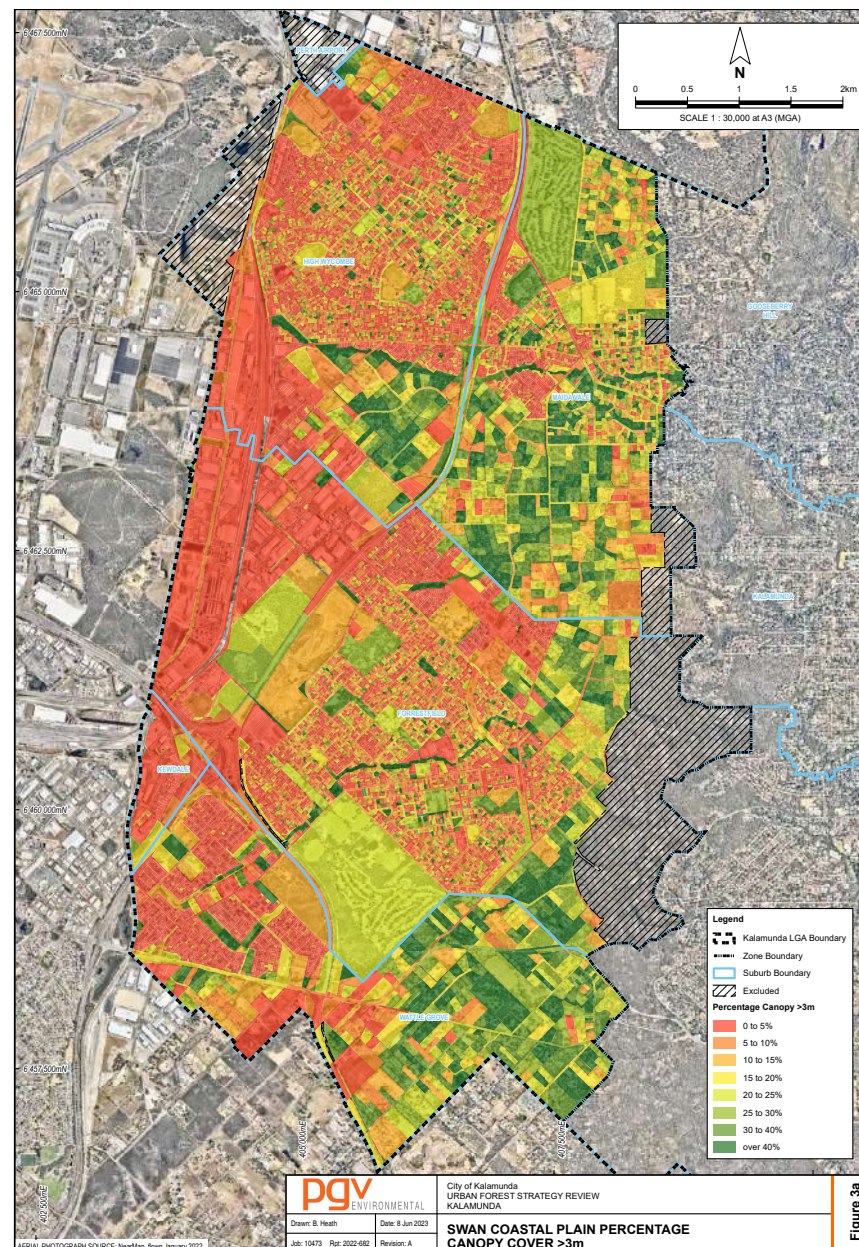


Figure 12. City of Kalamunda Urban Forest Strategy – Percentage of Canopy Cover >3m

4.7.5 City of Kalamunda Local Biodiversity Strategy (2008) and Draft Local Biodiversity Strategy (2020)

The City of Kalamunda's Local Biodiversity Strategies aim to protect the natural environment in urban areas. The existing 2008 Strategy aims to protect existing natural areas in new urban areas by for example conducting a full ecological assessment/s prior to structure planning of new developments to protect natural areas in public open space contributions. The draft 2020 Strategy has been advertised and is pending finalisation. It includes the following objectives:

- To increase the protection status of priority natural areas in the City, including on local government managed or owned lands, and on private land.
- To appropriately manage local natural areas to reduce threats, considering the identified local biodiversity conservation priorities.
- To increase the viability and resilience of natural areas by establishing buffers and ecological linkages; considering the impacts of climate change.

Whilst the majority of the subject site is not identified in the draft strategy as having a high Natural Area Prioritisation rating, there are two discrete pockets of land which are identified as having a 20–23.5 and 24–27.5 rating (the higher the number of characteristics known within an area, the higher its relative conservation priority – potentially up to the range of 38–42.5).

Strategy Response:

Although the Structure Plan does not generally have a high Natural Area Prioritisation rating, the Environmental Assessment Report identifies two discrete pockets of land with a 20–23.5 and 24–27.5 rating (the higher the number of characteristics known within an area, the higher its relative conservation priority – potentially up to the range of 38–42.5). While this rating reflects a medium biodiversity value rating, it still highlights vegetation with local biodiversity value.

Although largely cleared land, the Structure Plan recognises the remaining remnant environmental values. It seeks to facilitate future urban development in a manner that supports and enhances environmental values within and surrounding the subject site.

4.7.6 Crystal Brook Concept Plan

Strategic planning for the Crystal Brook area responded to the designation of the area as an Urban Investigation area under the City’s Local Planning Strategy 2010 and an expansion area under the WAPC North–East Sub–Regional Planning Framework plan introduced in March 2018.

In 2017 Burgess Design Group undertook the Wattle Grove South feasibility study. The study considered the development opportunities and constraints of the area, identified the key considerations for future planning and recommended the most appropriate land uses and planning process.

In July 2018, the City of Kalamunda continued planning for the area, undertaking community consultation on land use options which were to precede the preparation of a draft District Structure Plan. The consultation was designed to inform the community’s expectations in relation to land use options and the future planning for Wattle Grove South.

In 2019 Roberts Day was appointed to undertake the Wattle Grove South concept planning and Community Engagement project. Engagement occurred in late 2019 and 2020 on the Crystal Brook Concept Plan, including a survey, round table sessions, vision workshops and co–design workshops. The draft concept plan and report was advertised in mid 2020.

In November 2020 Council considered the draft Crystal Brook Concept Plan but resolved to note the strategic outcomes of the concept plan, the report on community engagement results and the outcomes of an ecological report and cease further planning on the project.

Refer to Figure 13. Crystal Brook Concept Plan

Policy Response:

The Structure Plan facilitates future urban (residential) development that is consistent with the strategic intent and vision for ‘Urban Landscape’ area under the Crystal Brook Concept Plan. The Urban Landscape area represents land affected environmental and servicing constraints which, at a high level assessment, do not impede development so long as the strategic objectives of the concept plan are met and sensitive interface treatments are provided between land use typologies. The Crystal Brook Concept Plan provided broad overarching development principles and implementation strategies similar to a DSP and therefore acts as a guide for the Structure Plan.

4.7.7 Activity Centres Strategy – City of Kalamunda

The City of Kalamunda’s Activity Centres Strategy (March, 2021) identifies the potential for future commercial land in Wattle Grove South, subject to detailed planning to determine whether there will be any future commercial demand, and whether an activity centre is required. The Wattle Grove Structure Plan recognises there is an opportunity for a Neighbourhood Activity Centre in Precinct A, as noted on Plan 1 – Structure Plan. The location of Precinct A, being in close proximity to the road network Welshpool Road East and Crystal Brook Road, is deemed a logical spatial placement for commercial operations. This could potentially include land uses such as Shop, Restaurant/ Café, and consulting rooms. The extent of a commercial centre would need to be further considered by the landowners in Precinct A during their subsequent investigations.

Refer to Figure 14. City of Kalamunda Activity Centres Strategy



CONCEPT PLAN MAP

- Concept Plan Boundary
- Rural Landscape
- Urban Landscape
- High Retention Value Vegetation*
- Moderate Retention Value Vegetation*
- Cockatoo Habitat Trees*
- Crystal Brook Alignment
- Major Service Easements
- LPS3 AMD 57 Area
- Existing Public Road

This map is an indicative concept plan only and has no statutory weight. Any development will be required to follow normal statutory planning processes supported by relevant technical investigations and community consultation.

*Data from Wattle Grove South Ecological Surveys (AECOM, 2020) which surveyed 94 of approximately 262 properties, where access permission was granted by the landowner. It is possible that properties that were not surveyed also have environmental values. It is also possible that properties (or portions of properties) that were not surveyed do not have environmental values commensurate to medium and high value vegetation. Some assumptions were made when identifying areas of medium and high retention value vegetation on properties which were not physically surveyed.

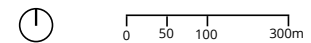
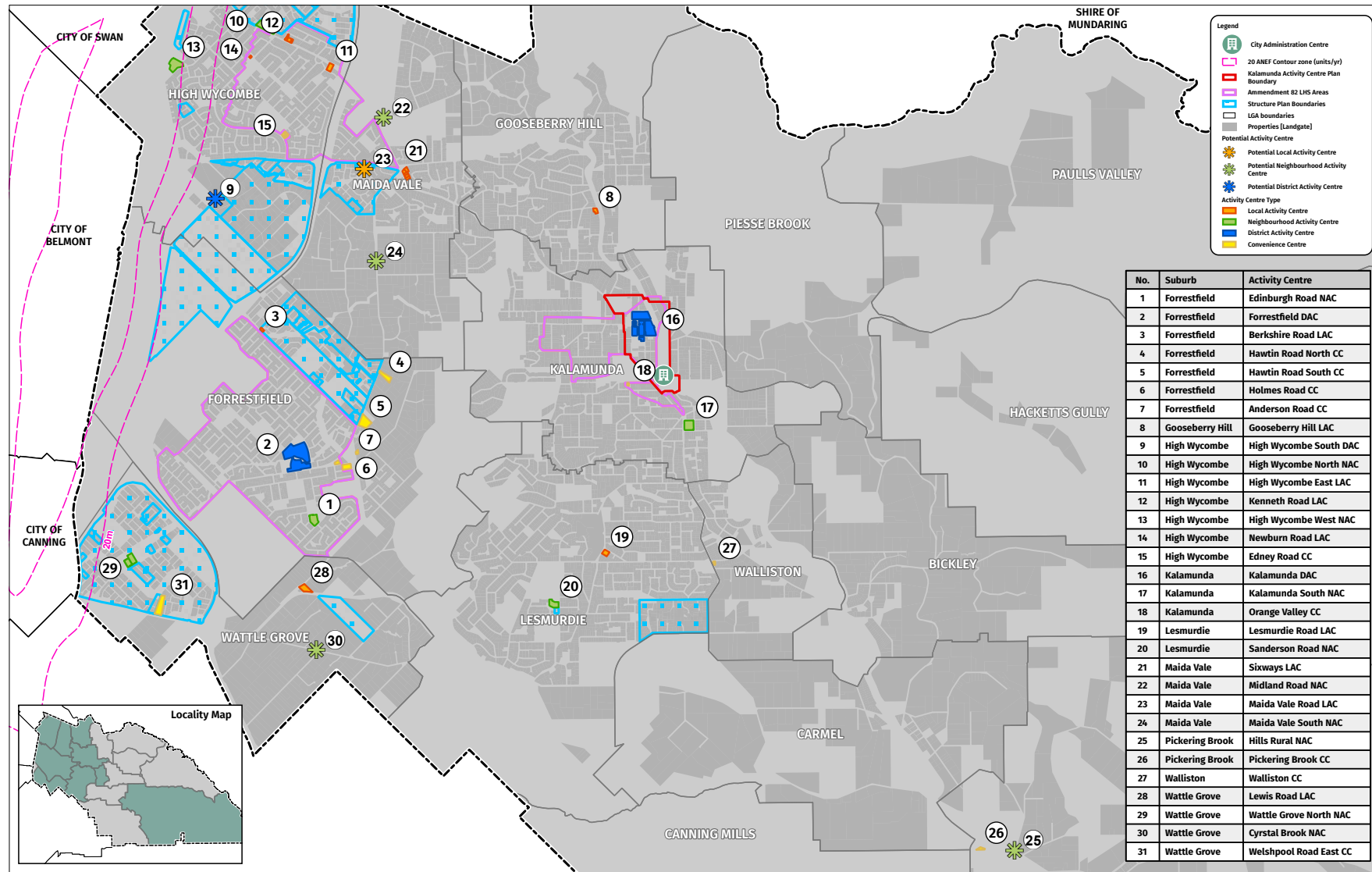


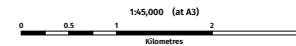
Figure 13. Crystal Brook Concept Plan



Activity Centres - Overview

Project Name: STP_201801_005 [Activity Centres - Overview] Created by: GIS Support Analyst Date Saved: 04-Nov-20 8:14 AM

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Horizontal Datum: Geocentric Datum of Australia (GDA94)
Map Grid: Map Grid of Australia, Zone 50 (MGA)



Figure 14. City of Kalamunda Activity Centres Strategy

4.8 Opportunities and Constraints Analysis

The Structure Plan design has been informed by a detailed site analysis undertaken by the project team (engineers, environmental, traffic and landscape consultants). The following items have been identified in the preparation of this Structure Plan:

4.8.1 Opportunities

- The Wattle Grove South Structure Plan provides the opportunity for landowners to divest or develop their land. Landowners are under no obligation to develop their land if they do not wish to, however it provides them with an opportunity to unlock the value of their land, whilst providing for future housing, for the growth of the City of Kalamunda.
- Development within the Structure Plan area is recognised as an opportunity to counteract potential effects of climate change and future rainfall decline on the Greater Brixton Street Wetlands located to the west of Tonkin Highway. The LWMS provides an opportunity to significantly reduce nutrient application from the project area and the export of nutrients towards the Greater Brixton Street Wetlands.
- Foster an urban form and open space that creates a unique sense of place which integrates natural features within the project area. Create linkages, recreational nodes and landscaped green circuits promoting walkable connections within the area and to the surrounding landscape to maximise accessibility to public open space. Provide a centralised location for a new primary school which is integrated and functions as the heart of Wattle Grove South community. New local parks will provide opportunity for tree retention in the public realm and further diversify the outdoor experiences and activity choices for local residents.
- Foster a healthy and prosperous community, in accordance with the principles of the City of Kalamunda’s Urban Forest Strategy (2023–2043). Retention of existing mature vegetation/trees along existing and planned road reserves, new local parks, conservation areas, and integrated as part of larger lots and within built form street setbacks. Protect and integrate the environmentally significant vegetation and fauna habitat as part of proposed Conservation Reserves.

- Adopting a mix of residential densities to facilitate a choice of lot product for future home owners. Provide a range of residential lot typologies to cater to the wider socio–demographic, responding to the WAPC and City of Kalamunda objectives to deliver housing supply for the region.
- Proposed Primary School will function as a destination point for the community. Designed right, a well–designed school site can create a sense of belonging and identity for the surrounding community, integrating seamlessly with the urban fabric.
- All required utilities are available and can be extended to service the proposed development. There are no engineering or servicing constraints to the development of the site that cannot be resolved through orderly standard engineering design and construction.
- The project area has excellent vehicular accessibility to regional road networks, being located adjacent to Tonkin Highway and Welshpool Road East. Crystal Brook Road and Welshpool Road East both provide eastward connectivity to Lesmurdie and Kalamunda.

4.8.2 Considerations

- The DBNGP corridor runs along the south–western boundary of the Structure Plan. Residential land uses may be permitted to the boundary of the DBNGP easement corridor, a 90 metre buffer applies to sensitive land uses such as a primary school. No sensitive uses are proposed within 90 metre of the DBNGP, with the primary school being located to the north–east of the Structure Plan area. The easement corridor is proposed as linear recreational parkland and is largely separated from future residential development by the local road network.
- Limited existing public transport network provided to the Wattle Grove area by the PTA. However, with an establishing community there is an opportunity to improve upon the existing services with the growing population and potential usage. This includes the benefit of connecting the proposed Primary School to the broader community.
- Consideration of natural hazards including bushfire, which are consistent consideration across all existing communities in Western Australia.

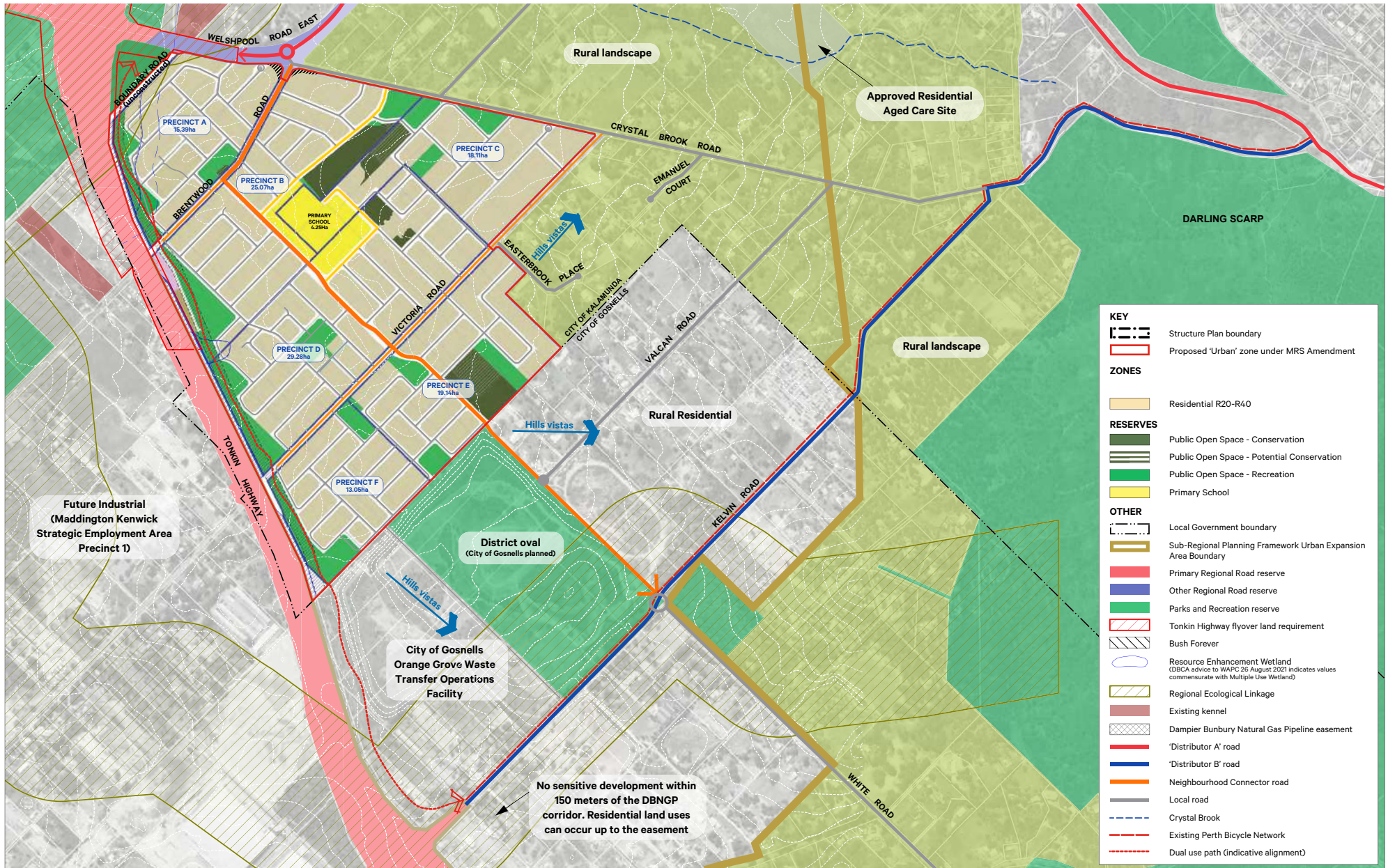


Figure 15. Structure Plan Design Context

5. Stakeholder Engagement

5.1 Pre-Lodgement Engagement

In the preparation of this Structure Plan and the preceding Metropolitan Region Scheme amendment 1388/57, extensive consultation has been undertaken with the Department of Planning, Lands and Heritage, the City of Kalamunda and other key government agencies as identified below.

In addition, there has been ongoing contact with the various landowners in the project area by Hesperia.

Date	Agency	Summary
8 November 2023	Environmental Protection Authority Services	Briefing to EPA Services providing an update on the progress and outcome of hydrological studies undertaken to date.
26 March 2024	Environmental Protection Authority Services, Department of Water and Environmental Regulation, Department of Planning, Lands and Heritage	Briefing to EPA Services and DWER (water section) providing an update on the progress of the MRS Amendment Environmental Review Document, including outcomes of hydrological and biological studies.
18 June 2024	Environmental Protection Authority Services and Department of Planning, Lands and Heritage	Meeting with EPA Services to discuss agency comments on MRS Amendment Environmental Review Document.

Date	Agency	Summary
4 July 2024	Environmental Protection Authority Services, Department of Water and Environmental Regulation, Department of Planning, Lands and Heritage and Department of Biodiversity, Conservation and Attractions	Meeting with EPA Services, DWER and DBCA to discuss agency comments on Inland Waters section of MRS Amendment Environmental Review Document.
5 March 2025	Environmental Protection Authority Services and Department of Planning, Lands and Heritage	Meeting with EPA Services to discuss outcomes of Peer Review and next steps of EPA assessment of MRS Amendment

Date	Agency	Summary
17 March 2025	Environmental Protection Authority Board, Environmental Protection Authority Services, and Department of Planning, Lands and Heritage	EPA Board members and EPA Services site visit. Purpose of visit was to brief board members (Karen Caple and Anthony Sutton), view the site’s ground conditions and visit the Greater Brixton Street Wetland.
10 April 2025	Environmental Protection Authority Board, Environmental Protection Authority Services, and Department of Planning, Lands and Heritage	Briefing to the EPA Board on key issues of environmental concern, which are hydrology, Greater Brixton Street Wetlands, and ecological values within the site.

Date	Agency	Summary
Ongoing up to July 2025	City of Kalamunda and Department of Planning Lands and Heritage	Meeting to discuss the Structure Plan approach with planning precincts. Initial feedback by City of Kalamunda ‘Pulse Check’ which sought preliminary community feedback on the future development of Wattle Grove South. The outcomes of the meetings helped inform the Structure Plan’s urban design. Other matters discussed: <ul style="list-style-type: none"> – School site location and provision. – Infrastructure arrangements. – Structure Plan reporting and lodgement and assessment process. – Ensure Planning Precincts and design framework do not prejudice future planning.

In June 2025, the City of Kalamunda undertook an online and postal survey of residents regarding the future vision for Wattle Grove South. A summary of these results is expected to be shared by the City as part of these next stages of planning.

Date	Agency	Summary
June 2025	Department of Education	<p>Debrief of the draft Structure Plan and proposed Primary School site location, centrally placed.</p> <p>DoE requested a minimum area of 4.25ha to be accommodated to allow for co-located childhood services.</p> <p>DoE has requested the site to be bounded by four street frontages, with 17.9m width to accommodate street parking embayments. The proposed Structure Plan has since been adjusted to incorporate a Access Road (18m wide) along the majority of the north-eastern boundary. This is connected through to the proposed north-south Access Road via an integrated internal road and school carpark next to the proposed oval.</p> <p>This will also incorporate a dual use path along the edge providing good connectivity for pedestrians and cyclists accessing the school. This layout will provide the necessary separation from bushfire risk areas, as demonstrated in the Bushfire Management Plan, whilst providing logical movement connections for the community accessing the school site.</p>

Date	Agency	Summary
April 2022	Dampier to Bunbury Natural Gas Pipeline – DPLH and the pipeline operators Australian Gas Infrastructure Group (AGIG)	<p>The proposed plan incorporates the retention of existing trees within the corridor, AGIG may request that any trees that are directly on top of the pipeline to be removed. Tree roots are a concern to the pipeline and the pipeline coating. The removal of such trees prior to the POS being established would be the ideal timing.</p> <p>Shallow rooted species are to be planted in the corridor.</p> <p>No new trees to be planted in the corridor. AGIG have no objections to the meandering footpath in the corridor.</p>





LEGEND

- Subject Site
- Dampier to Bunbury Natural Gas Pipeline
- Existing Trees to be retained
- Existing trees to be removed
- Street Trees 45L
- Swale Trees 100L
- Proposed Trees in POS
- Lot Trees 45L
- Internal Paths
- POS area
- Conservation Areas
- Turf
- Shrub Planting
- Tubestock Planting
- Littoral Planting

6. Design Response



The Wattle Grove South project aims to create a community, where the new built form is integrated into the existing landscape, replacing former turf farms, rural land uses, and rural industrial areas. In its place, new homes, parklands and conservation areas shall be interconnected with tree lined avenues, local amenities and a new primary school forming the heart of the community.

The design and implementation approach of the Structure Plan is led heavily by the Landscape Master Plan. The Master Plan is predicated around retaining as much 'landscape-led' ecological benefit within the site as possible, referencing previous land use, its foothills location and creating a new sense of place. The landscape structure behind the Master Plan reflects the importance of the existing site's natural character and conceives of a series of spaces with retained vegetation augmented by movement networks designed as green corridors and connected in with the wider, surrounding movement systems.

The key design drivers of the Structure Plan are:

- **Sense of Place:** Foster an urban form and open space that creates a unique sense of place which integrates natural features within the project area. Create linkages, recreational nodes and landscaped green circuits promoting walkable connections within the area and to the surrounding landscape to maximise accessibility to public open space. Provide a centralised location for a new primary school which is integrated and functions as the heart of Wattle Grove South community.
- **Canopy Creation:** Emphasise tree retention and tree planting as a valued intrinsic feature of the Wattle Grove South urban landscape, to foster a

healthy and prosperous community, in accordance with the principles of the City of Kalamunda's Urban Forest Strategy (2023–2043). Retention of existing mature vegetation/trees along existing and planned road reserves, new local parks, conservation areas, and integrated as part of larger lots and within built form street setbacks.

- **Environmental Protection and Celebration:** Protect and integrate the environmentally significant vegetation and fauna habitat as part of proposed Conservation Reserves.
- **Sustainable Principles:** Incorporate sustainable urban water management strategies to improve water quality and reduce nutrient levels exports by adopting best practice urban water management as the minimum standard. Design to maximise north-south orientation of street blocks to promote energy efficiency in building design.
- **Housing Choice:** Adopting a mix of residential densities to facilitate a choice of lot product for new home owners. Provide a range of residential lot typologies to cater to the wider socio-demographic, responding to the WAPC and City of Kalamunda objectives to deliver housing supply for the region.
- **Compliance:** Provide appropriate separation between residential areas and sensitive environmental areas and minimise the potential impacts of bushfire.
- **Logical and Efficient Movement:** Create an efficient and safe movement network for vehicles and cyclists on residential streets within the Structure Plan area, connecting into adjoining residential areas.



6.1 Landscape Design

The Landscape Master Plan is strongly influenced by the setting and semi-rural characteristics of small towns in Western Australia and reference the established surrounding hills, communities and suburbs. Retention of existing vegetation, use of local materials and public artwork throughout the development will reinforce the vision of a settled, connected and inclusive community which is reflective of its environment.

This locality has the potential to create a high quality and distinctive community that has, as its foundations, the qualities of the semi-rural, foothills character that has been created by its mature vegetation. The development of a new urban landscape that reflects the landscape qualities and characteristics of this area requires a planning and design approach that focuses on tree retention wherever practical within the public realm and public open spaces at every stage of the development process.

The Landscape Master Plan recognises that sustainable communities are places that people like living in and want to stay in, neighbourhoods with real character and sense of place. These successful places should have well-designed green spaces that people will want to use and respect. To design around developing a community feel the Master Plan has considered the following seven principles;

1. **Sustainability** – design for best practice maintenance and materiality use through the development.
2. **Biodiversity** – respect, reflect and build upon the diversity of the semi-rural mix of native and exotic vegetation through the site ensuring environments remain and develop to the benefit of humans, animals, birds and insects.
3. **Character and Distinctiveness** – develop places with signage or art works that prompt people to learn about the site’s past semi-rural uses, its current fauna and what actions residents can undertake to improve the biodiversity so they build a better connection with their environment and community.
4. **Definition and Enclosure** – use retained and proposed vegetation to create spatial definition to both the streets and open spaces that respond to the human psychological desire for prospect or refuge and develop or enhance habitat and landscape permeability for fauna.

5. **Connectivity and Accessibility** – encourage people to walk by making streets, paths and trails of good quality and the streets shady, interesting and fun and creating a Green Travel Plan for the development.
6. **Adaptability and Robustness** – develop open spaces that are multi-use with an ability to adapt to changing community needs, that build upon existing character and site heritage, while developing a design language reminiscent of the hills and Wattle Grove area.
7. **Inclusiveness** – provide places for activity for people of all ages and abilities.



Figure 16. Neighbourhood pedestrian and cycling route plan (Source – EPCAD)



Tree retention and canopy tree planting is an ongoing commitment that shall occur between a proponent and the City of Kalamunda during each stage of development of the relevant Planning Precinct. Proactive preparation during the detailed design of subdivision layouts for each of the Planning Precincts is necessary to achieve the best practice outcomes sought by the City of Kalamunda's Urban Forest Strategy.

6.1.1 Tree Retention and Canopy Strategy

Tree retention and canopy tree planting is guided by the City of Kalamunda’s Urban Forest Strategy (2023–2043), in association with the parameters set out in the Environmental Conditions set under the Ministerial Statement for MRS Amendment 1388/57. The landscape approach for Wattle Grove South is therefore informed by the retention of existing canopy trees and new canopy tree planting to reach the objectives of the Strategy.

Total tree retention in transition to being an urban area is not practical, however strategies are being adopted to optimise the retention of trees of habitat value in conservation based public open space. Individual habitat trees retained where practical within road reserves, and public open space and large trees with aesthetic value also identified for retention (where possible). As well as tree retention, new street tree and street group planting of diverse ‘water-wise’ species reflecting the existing native species, will reinforce the character while attaining urban tree canopy across the neighbourhoods.

Tree retention and canopy cover across the Structure Plan area can be accomplished through a variety of design and implementation solutions:

- **Conservation and Avoidance Principles:** the allocation of Conservation Areas to retain areas of remnant vegetation containing threatened ecological communities, threatened/priority flora and black cockatoo habitat, in accordance with Environmental Conditions set under the Ministerial Statement.
- **Placement of Public Open Space Pockets:** Clusters of foraging trees can be retained within new public open space areas. Placement of recreation and informal active public open spaces can protect and enhance significant flora and vegetation.
- **Canopy Corridors:** Street designs and street blocks can be configured, sited and aligned to allow for the retention of existing canopy trees within the public realm, employing wide verges and adapting the road alignment to accommodate canopy trees.

- **Lot Design and Development Provisions:** to facilitate future tree planting within front setbacks of private lots.
- **Reduced Earthworks:** Carefully considered earthworks design shall facilitate the area of remnant scattered trees being retained.

Tree retention and canopy tree planting is an ongoing commitment that shall occur between a proponent and the City of Kalamunda during each stage of development of the relevant Planning Precinct. Proactive preparation during the detailed design of subdivision layouts for each of the Planning Precincts is necessary to achieve the best practice outcomes sought by the City of Kalamunda’s Urban Forest Strategy.

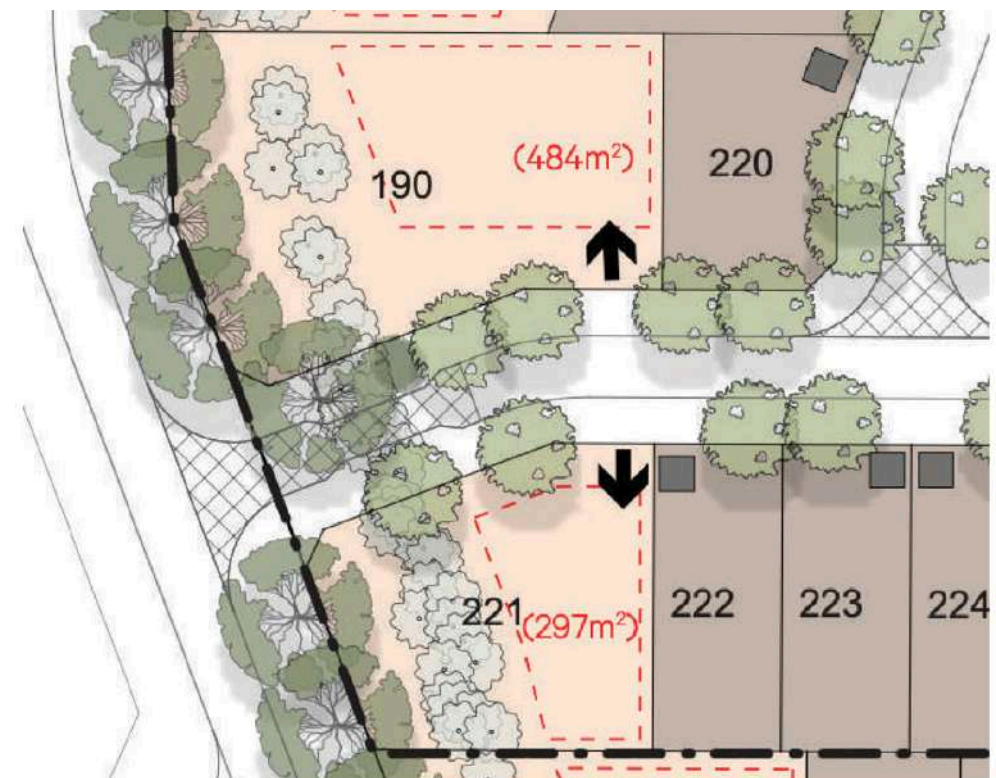


Figure 17. Example of tree retention in meandering road reserves and within lots

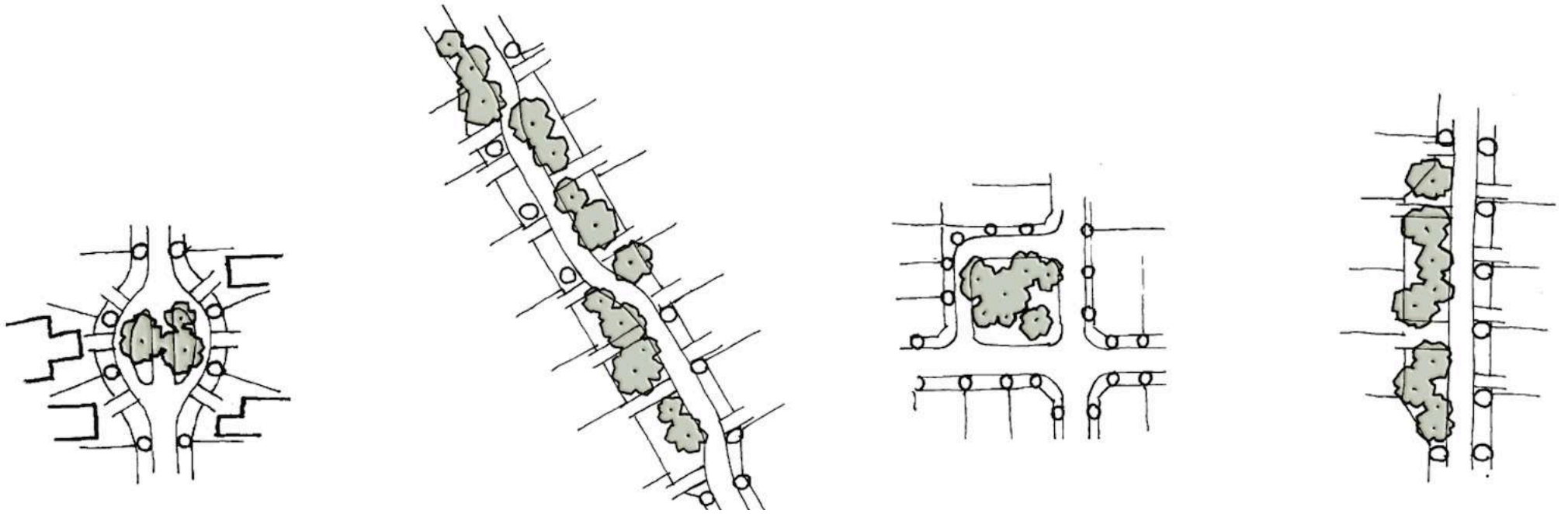


Figure 18. Public realm tree retention strategies

6.1.1.1 Tree Retention and Canopy Strategy Requirements

To ensure best practice outcomes are achieved for the community, a Tree Canopy Retention and Landscaping Management Plan shall be required for each of the Planning Precincts as part of the subdivision application to the WAPC and the City of Kalamunda. This shall be prepared in accordance with the Environmental Conditions set under the Ministerial Statement for MRS Amendment 1388/57. The key requirements applied in the preparation of a Tree Canopy Retention and Landscaping Management Plan are:

- Preparation of a tree canopy analysis to identify existing canopy values, and include a survey of all existing trees on the relevant lot(s). Identify the location, species, size and structural health of any trees to be retained.
- Identify which trees will be retained and removed as a result of the subdivision or development proposal, prioritising the retention and revegetation of Black cockatoo habitat trees.
- Demonstrate how development design has avoided impacts on trees suitable for retention (through the location of public open space, road reserves, pedestrian access ways and drainage design) to ensure their viability within an urban landscape.
- Demonstrate how the impact of any required clearing will be mitigated based on pre and post development canopy values.
- Identify measures that will be used to protect trees identified for retention during development and subdivision works (i.e. tree protection zones, tree labelling, physical barriers being erected and maintained through construction, etc).
- Demonstrate how the minimum tree canopy coverage post subdivision or development will be achieved.
- Wherever possible, potential nesting trees are to be retained as part of the subdivision design, to facilitate the retention of trees with a DBH of >500 mm and/or that are foraging species for black cockatoos. Where it is not possible to retain such trees, they will be replaced with suitable potential black cockatoo nesting tree species.

- Identify the location, species, number, planting size, mature height and spread of trees to be planted.
- Identify the planting schedule for the trees to be planted.
- Estimate the percentage of canopy coverage expected to be achieved through implementation of the plan. Achieve a minimum canopy target of 20% per Planning Precinct in accordance with the City of Kalamunda (2023) Urban Forest Strategy, which will be contingent on:
 - water availability;
 - bushfire management;
 - local government support and incentives;
 - land developer incentives (garden packages including trees); and
 - resident engagement and education.
- Provide tree and landscape maintenance requirements post planting.



6.1.2 Public Open Space Framework

Public open space has been provided in the Structure Plan in accordance with the WAPC's Liveable Neighbourhoods requirements which stipulates a minimum of 10% of the Net Subdivisible Area be provided. Two percent of the 10% public open space provision may comprise restricted use public open space, such as drainage reserves and natural wetlands.

Equitable Public Open Space: It is expected that 10% Public Open Space can be delivered per Planning Precinct in accordance with the Western Australian Planning Commission's Liveable Neighbourhoods and the City of Kalamunda local planning policy (LPP32) requirements. In circumstances where 10% Public Open Space is not being provided, cash-in-lieu payments may be considered by the City of Kalamunda and the Western Australian Planning Commission, being provided to the City and redistributed.

This Structure Plan accommodates approximately 10.2% Public Open Space across all Planning Precincts (excluding the Conservation Areas). When included in the overall open space calculations, the Conservation Areas and Potential Conservation Areas account for an additional 6.01 hectares of land towards open space (approximately 5% of the overall project area).

The hierarchy and location of public open space has been designed to ensure that the community users have accessibility to a range of local and neighbourhood parks, interconnected by the green corridor along the western edge of the subject site.

Refer to Figure 19. Public Open Space Network

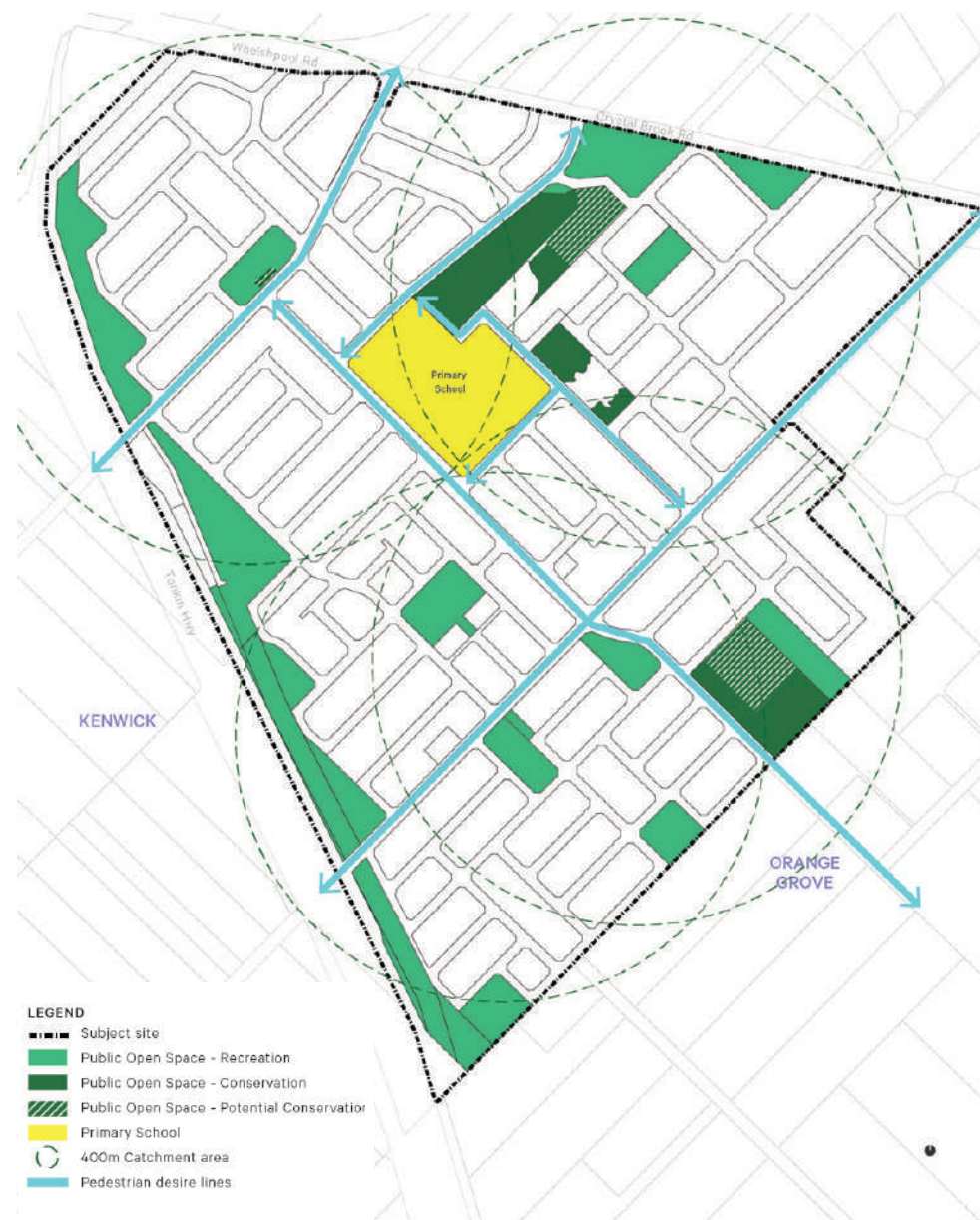


Figure 19. Public Open Space Network

A series of open space areas are integrated throughout the Structure Plan. The purpose and function of each open space typology is summarised as follows:

- **Local Parks:** The Structure Plan features a series of local parks which provide further opportunity for tree retention in the public realm and further diversify the outdoor experiences and activity choices for local residents. Some parks will provide important drainage functions and these will incorporate appropriate plant species dependant on the level of inundation. Other proposed plant species will be largely chosen for their low watering requirements assisting in minimising water and maintenance requirements. Vegetation species will also contribute to increased opportunities for integrated bee and insect foraging. Local park infrastructure will include items such as play spaces entry features and/or art works, shelters, BBQs, seating and community gathering spaces, all connected via green street networks or Dual Use Path systems.
- **Conservation Areas:** Four (4) sites have been identified as Conservation Areas to preserve remnant environmentally significant flora and vegetation. These spaces support vegetation retention and will reinforce the local urban ecology and aesthetic that is a continuing characteristic of the local area. Areas for supporting revegetation programming will be identified to augment existing high ecological or habitat canopy retention. The conservation focus will include the identification of individual trees worthy of retention in line with the Tree Retention and Canopy Strategy.

Habitat development will continue the conservation strategy by utilising appropriate native species to develop edging buffers to Conservation Areas as well as within adaptive streetscape designs (wide verges, median creation, altered lot shapes). The Conservation Areas will be managed in accordance with the CAMP.

- **Linear Parklands With Recreational Nodes:** The DBNGP pipeline has been reimagined as a linear parkland connecting the Wattle Grove South area through to the adjoining suburb of Orange Grove. The linear parkland provides an opportunity for integrated WSUD features including detention basins, retention of existing trees, and planting and vegetative screening to Tonkin Highway. Tree retention of major specimens outside of the pipeline alignment will structure spaces that accommodate integrated drainage and amenity uses. It is also a destination point with all streets terminating at the western parkland. It connects the residential neighbourhoods and provides an activity circuit and point for community interaction and socialisation. Walking routes have the potential to be educational through exploration. New planting of trees will be selected to provide a distinctive element aligned with routes to emphasise and make legible a hierarchy of paths. Shared use pedestrian/bicycles paths may have a specific species of tree associated with them to further delineate their type and purpose. These are likely to be in groups at strategic locations that announce the path entries.
- **Streetscapes:** Along with the areas of public open space, streetscapes will contain native species similar to those found in the conservation bushland or that already exist on site, helping to blend and integrate the proposals with the contextual landscape and provide habitat corridors for wildlife.



View of DBNGP corridor looking north-west – proposed linear parkland

The Landscape Masterplan addresses the City of Kalamunda Local Planning Policy 33 – Public Open Space as follows:

- Wattle Grove South contains an appropriate balance of recreational, environmental conservation and sports spaces. The provision of limited formal sporting spaces, as informal kick-about spaces and co-located open space with the centrally placed primary school, are balanced by environmental constraints and the Structure Plan commitment to:
 - Preserve significant remnant vegetation in Conservation Areas;
 - Repurposing the DBNGP pipeline as a linear recreational open space; and
 - Facilitating extensive canopy tree retention and canopy planting in streetscapes and open spaces wherever possible.
- The co-located primary school open space, indicatively at the northern end of the school site, is a sustainable outcome. It optimises joint use and management, rationalises water use and will provide an opportunity to establish a community hub. The co-located space will help meet with community’s needs for formal active open space together with the 28 hectare planned public open space in the neighbouring City of Gosnells site, to the south-east of Wattle Grove South. The Structure Plan has been designed to allow for multi-mode connections to this large area of open space to the immediate south east of the municipal boundary.
- Public open spaces will reference the Wattle Grove South’s former rural uses and its bushland heritage through careful plant species selection, material, colours, finishes and a balance between man-made and natural form. A high level of visual permeability will be preserved where properties abut public open space for security and desirable views while balancing the private / public interfaces.
- Proposed recreational nodes within the public open space aim to provide BBQs, picnic facilities, shade structures, fitness equipment and play equipment. These elements will capture the spirit and feel of the bushland setting encouraging a healthy lifestyle, education through nature play and conservation awareness.

- The open spaces are linked by a network of green corridors that will be designed to integrate with existing trees worthy of retention and support new tree planting, facilitating multimodal accessible circuits throughout the Structure Plan area.

Table 9. Public Open Space Schedule By Planning Precinct

PRECINCT A	Total POS Less Drainage (Ha)
Linear Open Space (Unrestricted, non easement)	0.1029
Local Parks	1.0471
Restricted Use Open Space (DBNGP)	0.2854
Total POS Contribution	1.4334
Total POS Contribution (% of Precinct A)	10%
Plus Conservation Area – Open Space	0.0454

PRECINCT B	Total POS Less Drainage (Ha)
Linear Open Space (Unrestricted, non easement)	1.95
Local Parks	0.7693
Restricted Use Open Space (DBNGP)	0.1100
Total POS Contribution	2.1247
Total POS Contribution (% of Precinct B)	10.1%
Plus Conservation Area – Open Space	1.823
Plus Potential Conservation Area – Open Space	0.0514

PRECINCT C	Total POS Less Drainage (Ha)
Local Parks	1.1571
Restricted Use Open Space 2% (Drainage)	0.2946
Total POS Contribution	1.4517
Total POS Contribution (% of Precinct C)	10%
Plus Conservation Area – Open Space	0.2516
Plus Potential Conservation Area – Open Space	0.6309

PRECINCT D	Total POS Less Drainage (Ha)
Linear Open Space (Unrestricted, non easement)	0.5852
Local Park	0.7903
Restricted Use Open Space (DBNGP)	0.5527
Total POS Contribution	1.9282
Total POS Contribution (% of Precinct D)	7.0%
Plus Conservation Area – Open Space	0.4488
Plus Conservation Area – Open Space	0.1586

PRECINCT E	Total POS Less Drainage (Ha)
Local Parks	1.3793
Restricted Use Open Space 2% (Drainage)	0.3347
Total POS Contribution	1.7140
Total POS Contribution (% of Precinct E)	10.2%
Plus Conservation Area – Open Space	1.1774
Plus Potential Conservation Area – Open Space	1.0176

PRECINCT F	Total POS Less Drainage (Ha)
Linear Open Space (Unrestricted, non easement)	0.9129
Local Park	0.5697
Restricted Use Open Space (DBNGP)	0.2457
Total POS Contribution	1.7283
Total POS Contribution (% of Precinct F)	14.1%

6.2 Land Use and Density

The Structure Plan Map (Plan 1) outlines the land uses, zones and reserves applicable to the Structure Plan area. Land use permissibility within the Structure Plan area shall be in accordance with the corresponding zone or reserve under the City of Kalamunda Planning Scheme No. 3.

The Structure Plan contemplates a general residential density range of R20 to R40 across the subject site, with single dwellings and R30 lots forming the predominant form of housing. Generally, higher density lots are anticipated adjacent to the primary school and parks. Density is to be distributed across the Structure Plan in accordance with the following locational principles:

- a) R30 shall generally be applied as the base density code throughout the Structure Plan area, noting that in certain circumstances a lesser density code may be permitted (refer to clauses 4.2.2 (d) and (e).
- b) R40 applies to single house and grouped dwelling lots that comply with the following criteria:
 - Located within proximity (approximately 250m) of public open space; or
 - Abutting or directly opposite the primary school; or
 - Located at the end of street blocks to create a unique streetscape and built form character.
- c) R80 for planned survey strata lot product overlooking public open space, located in Precinct B.
- d) In order to provide for a diverse range of lot sizes to cater to a wider socio-demographic market, it is anticipated some larger lot product (R20) may be provided across the Structure Plan area.

- e) In the interest of retaining trees and associated Asset Protection Zones on private lots, detailed subdivision design will require a nuanced approach to lot size and dimensions. This is expected to result in some larger lot product being designed into some street blocks for the benefit of tree retention. The refined boundaries prepared and submitted with a subdivision application (accompanied by a tailored Residential Density Code Plan) shall provide the necessary detail to define final density boundaries, with the intention of prohibiting future landowners from further subdividing lots, and thereby avoiding tree removal as a result of subsequent subdivision.

The final lot yield and design will be determined as part of detailed subdivision when an Residential Density Code Plan will be submitted, specifying the residential density for proposed lots prior to subdivision approval. In the interim, the proposed density range provides the flexibility to explore optimal densities for proposed lots at the detailed subdivision design stage.

Development standards are expected to align to the Residential Medium Density Codes, as outlined in Part 1 of this Structure Plan. Where variations are required to facilitate particular development outcomes, Local Development Plan(s) may be implemented to guide built-form outcomes.

A Light Industry zone area is designated along a portion of the southern boundary of Precinct B for the purposes of continuing existing business operations for the incumbent landowner on Lot 303 (69) Brentwood Avenue. The uses allowed within a Light Industry zone, under the City of Kalamunda's Local Planning Scheme No. 3, will cover the operations required.

6.3 Primary School Site – Heart of The Community

School sites can and often do serve as a vital heart of a community. Schools are more than just educational institutions; they are often central hubs for community activities and can play a significant role in fostering social interaction and community cohesion.

Placed centrally within the Structure Plan area, the school will function as destination point for the community. Designed right, a well-designed school site can create a sense of belonging and identity for the surrounding community, integrating seamlessly with the urban fabric. The Department of Education is therefore encouraged to collaborate with the developers and the City of Kalamunda to achieve best-practice design solutions for the school's design layout, built form, tree retention and shared spaces.

Refer to Figure 20. Conceptual Primary School Layout



Figure 20. Conceptual Primary School Layout

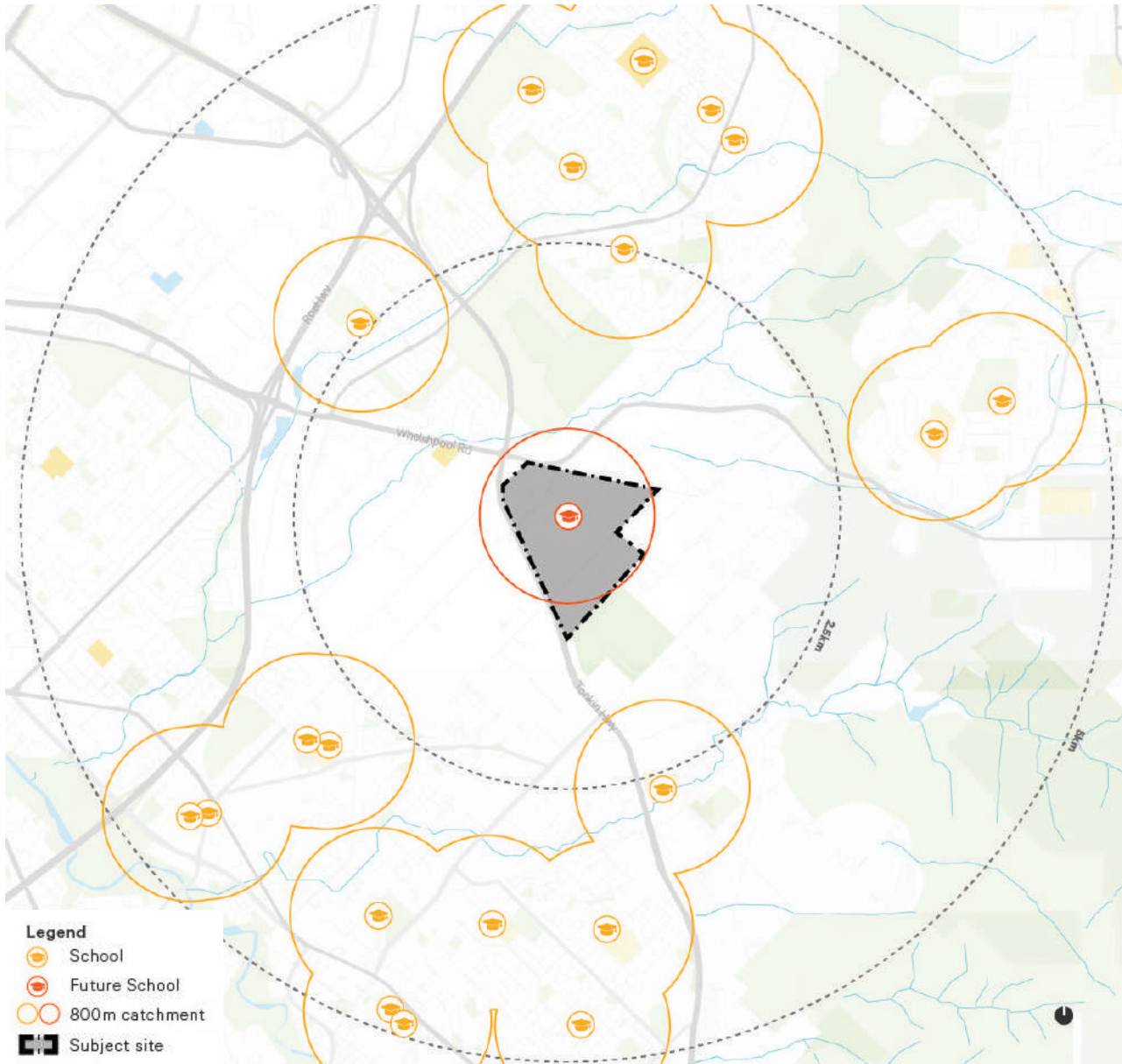


Figure 21. Existing School Site Catchments



An indicative layout of school buildings and recreational facilities on the proposed Primary School site is provided in Figure 19. The conceptual layout shows the recreational/oval facilities and associated car parking area in the northern portion of the Primary School site. This is deliberately placed to minimise any potential bushfire impact from the adjacent Conservation Area Reserve on Lot 210. A strip of public open space is located between the Conservation Area and the Primary School site to provide desirable east-west dual use path connectivity for the community, whilst also providing separation to the bushland.

The proposed Wattle Grove Primary School is intended to function as a:

- **Community Gathering Space:** providing spaces for various community events, such as meetings, festivals, and recreational activities, making it a focal point for social interaction.
- **Shared Facilities Location:** It shall offer shared facilities including the sports grounds, function spaces, benefiting both students and the wider community.

The school site will be connected by 'Green Streets' which are designed to accommodate additional trees. 'Green Streets' are designed to provide key east-west vegetation linkages through the Precincts, providing a desirable shady pedestrian and cycling focussed environment, connecting the community to the primary school site and the network of public open spaces. Spatially positioned to maximise a walkable catchment (800m) to the majority of the Structure Plan area, the school will encourage pedestrian traffic and promote a sense of community connectedness.

6.4 Movement Network

A Traffic Impact Assessment (TIA) has been prepared by PTG Consulting which outlines the transport aspects considered for the MRS amendment area. Refer to Appendix H – Traffic Impact Statement.

6.4.1 Proposed Road Network

The proposed internal road hierarchy and indicative access points to the external network of the Structure Plan area are shown in Figure 22 and described below:

- Connection via existing Victoria Road to Crystal Brook Road.
- Three new priority control intersections on Crystal Brook Road.
- • four-way roundabout at Welshpool Road East/Crystal Brook Road/Brentwood Road intersection to replace the existing staggered T-intersections.
- A Left-In-Left-Out intersection on Welshpool Road East, between Crystal Brook Road and Boundary Road, to replace an existing full movement crossover into Lot 2 (No. 731) Welshpool Road East.

No connections are proposed to Boundary Road which will be closed to traffic once the adjacent land has been developed as part of this Structure Plan.

Existing roads within the Structure Plan area are generally constructed as 'rural' type roads with unsealed shoulders, no kerbing, and open drains adjacent to the carriageway. Crystal Brook Road and Welshpool Road East, along the northern boundary of the Structure Plan area are kerbed with some underground drainage.

6.4.2 Road Reservation Widths and Cross Sections

The proposed road network within the Structure Plan has been developed to generally align with the provisions of Liveable Neighbourhoods (2009) with some modifications to reflect existing road reserve widths and greening strategy outcomes.

Table 10. Proposed Road Reserve Widths (Source: PTG Consulting)

Road	Traffic Volumes (vpd)	LN Road Reserve	Proposed Road Reserve	Comments on proposed modifications from Liveable Neighbourhoods
Internal Roads				
Brentwood Road NE (Neighbourhood Connector A)	<7,000	24.4m	22m	Existing road reserve is 20m Widening of 1.0m on each side is proposed Cycle lanes shown in LN cross-section proposed to be omitted and replaced by a wider shared path on one verge
Brentwood Road SW (Neighbourhood Connector B)	<3,000vpd	19.4m	20m	Existing road reserve is 20m
Victoria Road (Neighbourhood Connector B)	<3,000vpd	19.4m	20m	Existing road reserve is 20m

Road	Traffic Volumes (vpd)	LN Road Reserve	Proposed Road Reserve	Comments on proposed modifications from Liveable Neighbourhoods
Proposed north- south Neighbourhood Connector A (Brentwood Road to Victoria Road)	<7,000vpd	24.4m	22m	Modified cross-section proposed with wider shared path and no cycle lanes Unprotected cycle lanes are not suitable for students riding to primary school so proposed cross-section will better serve anticipated users
Proposed north- south Neighbourhood Connector B (Victoria Road to southeastern boundary)	<3,000vpd	19.4m	20m	Provision for increased traffic volumes resulting from future extension to Kelvin Road/White Road intersection (by others)

Road	Traffic Volumes (vpd)	LN Road Reserve	Proposed Road Reserve	Comments on proposed modifications from Liveable Neighbourhoods
Access Streets	<3,000vpd	14.2m–24.0m	12m–18m	Various modified cross-sections are proposed to achieve objectives of greening strategy
External Roads				
Crystal Brook Road (between Brentwood Road and Kelvin Road)	<7,000 vpd	24.4m	20.5m	Existing road reserve with large trees and open drainage Median and on-street parking to be omitted from standard cross-section to retain existing layout and trees

Refer to Figure 22. Indicative Internal Road Hierarchy Map

6.5 Traffic Analysis Conclusions

The following conclusions are reached by the TIA report:

- Analysis of expected daily traffic volumes on the internal road network indicates that all internal roads are projected to carry traffic volumes within the thresholds specified in Liveable Neighbourhoods.
- Analysis of expected daily traffic volumes on the external road network indicates that:
 - Welshpool Road East, between Tonkin Highway and Crystal Brook Road will increase to approximately 26,400 vehicles per day. This can be accommodated within the existing road layout.
 - Traffic volumes on Crystal Brook Road will increase to between 5,000 and 7,000 vehicles per day, which is within the threshold of a Neighbourhood Connector A in Liveable Neighbourhoods. It is considered that the existing cross-section is capable of accommodating these volumes, enabling the retention of the large trees and rural feel.
- Analysis of the key intersections on the external road network has been undertaken with the following conclusions:
 - Tonkin Highway / Welshpool Road East and Tonkin Highway / Kelvin Road intersections are expected to be able to cater for the proposed traffic generated as part of the Structure Plan.
 - The Welshpool Road East/Crystal Brook Road/Brentwood Road intersection would need upgrades to cater for the traffic generated by the Structure Plan. A four-way roundabout layout with free-flow slip lane for eastbound traffic on Welshpool Road East is recommended as the preferred layout for the upgraded intersection.
- The Welshpool Road East/Crystal Brook Road (east) intersection is projected to operate close to practical capacity in 2040 as a result of background traffic growth and traffic generated by the Structure Plan. Due to the location of the intersection, it may not be practical to install either a roundabout or traffic signals, therefore no upgrades are recommended. As delays for the critical right turn from Crystal Brook Road increase, it is likely that background and Structure Plan traffic will divert to alternative routes which are available to reach Welshpool Road East.
- The Welshpool Road East/Lewis Road intersection is projected to exceed practical capacity as a result of background traffic growth and traffic generated by the Structure Plan. Traffic signals and roundabout layouts have been tested, and a roundabout layout is likely to be the preferred option for this intersection in the future.
- Other key intersections can accommodate the additional traffic generated by the Structure Plan with no need for upgrades.
- At the request of MRWA, a sensitivity analysis was undertaken to determine the impact of potential future development of the wider Planning Investigation Area on Welshpool Road East, between Tonkin Highway and Crystal Brook Road. This sensitivity analysis concluded that the intersection layouts assessed for the Structure Plan are also capable of accommodating the additional traffic generated by the wider area.



Please Note: This Structure Plan does not prevent landowners from continuing to use their land for existing approved land uses. Landowners and businesses can remain on their land, and will be able to continue to operate in accordance with existing approvals.

Legend

- Local Structure Plan & MRS Amendment Boundary
- Precinct Boundaries
- High Pressure Gas Pipeline Easement
- Water Corporation Land
- Resource Enhancement Wetland (DBCA advice to WAPC 20 August 2021 indicates value commensurate with Multiple Use Wetland; UFI 15207 and portion of UFI 15257 subject to reclassification with DBCA)
- Residential R20 - R40
- Residential R80
- Light Industry
- Public Purpose - Primary School
- Public Open Space - Conservation (As per EPA Assessment Report T188)
- Public Open Space - Potential Conservation (As per EPA Assessment Report T188 - See Note D)
- Public Open Space - Recreation
- Existing Road
- Neighbourhood Connector A (22m)
- Neighbourhood Connector B (20m)
- Access Road (18m)
- Access Road (15m)
- Access Road (12m)
- Lane (6m)
- Potential Neighbourhood Activity Centre
- Intersection: Full Movement
- Intersection: Left In/Left Out

- Notes**
- 1 Conservation and Potential Conservation areas to be investigated further and determined by proponents as part of Local Structure Plan Amendments.
 - 2 Landowners are not forced to redevelop their land. It is their individual choice whether they wish to proceed to develop or remain as-is.
 - 3 The location of Public Open Space can potentially be modified by a proponent as part of their final design solution, subject to justification being provided through a Structure Plan amendment and/or subdivision application.
 - 4 Upgrades to Welshpool Road intersection will be required in the future in accordance with the Transport Impact Assessment (PTG 2025) - proposed roundabout, subject to detailed design with City of Kalamunda and Main Roads WA.
 - 5 Opportunity for Neighbourhood Activity Centre in Precinct A - subject to further investigations undertaken by Precinct A landowners.
 - 6 Land proposed to be used for Open Air Display, subject to development approval.

Figure 22. Indicative Internal Road Hierarchy Map

6.5.1 Public Transport Services

There is an opportunity to provide for Route 283, or a new route, to operate through the site. Roads likely to form part of future bus routes should be constructed with a minimum pavement width of 7.0m for a single carriageway and 3.5m for a divided carriageway. Provision has been made in the Structure Plan layout for a central Neighbourhood Connector, extending from Brentwood Road to the south eastern boundary of the site. This Neighbourhood Connector would be designed to accommodate buses, with bus stop locations developed in consultation with the PTA. No direct connection between this Structure Plan and Kelvin Road is proposed, however this connection could be developed by others in the future. In the meantime, buses could divert via Victoria Road and Crystal Brook Road to reach Kelvin Road, should it be desired.

Ongoing liaison will be carried out with the Public Transport Authority (PTA) to identify and formalise potential bus route alignments.



6.5.2 Pedestrian and Cycling Network

The pedestrian and cycle path network has been considered across the whole Structure Plan area to ensure the proposed network is well integrated with the existing path network. The design of the road and pathway networks seek to promote an environment for safe, efficient and attractive walking, cycling and driving with the future development of a Green Travel Plan to encourage the use of more sustainable modes of transport.

Refer to Figure 23. *Proposed Precinct Circulation, Pedestrian and Cycling*

Internally, the community will be linked to a series of paths. The linked open space form a corridor conducive to pedestrian and cyclist traffic between key residential precincts and recreational nodes. The pathway network is designed to provide continuous circulation around neighbourhoods, enabling circuit-style recreational walks and rides. The school site is well connected to this network, and open spaces are linked via streets designed to deliver a shaded and comfortable user experience.

Footpaths should be provided on at least one side of the road. Higher order roads such as Brentwood Road, the new east-west Neighbourhood Connector, and Victoria Road should be provided with paths on both sides, with at least one being a shared path. Roads abutting the primary school site should also be provided with shared paths. Connection between the future Tonkin Highway shared paths and the local path network should also be provided.

The proposed pedestrian and cyclist networks shall connect with existing and planned routes outside of the Structure Plan area, including the Main Roads WA Tonkin Highway Corridor Project (proposes to construct a new Principal Shared Path (PSP) on the east side of Tonkin Highway for cyclists and pedestrians).

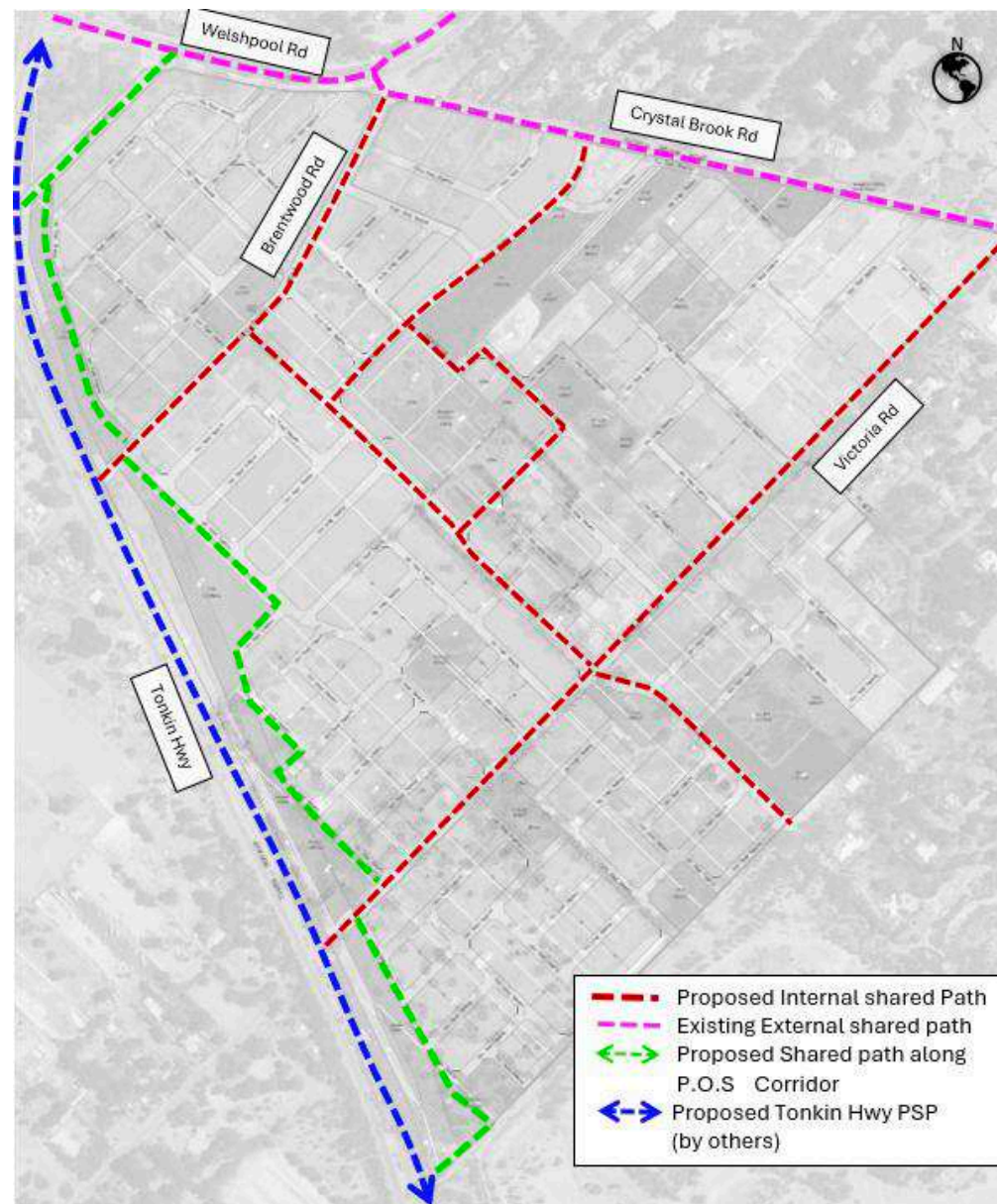


Figure 23. Proposed Precinct Circulation, Pedestrian and Cycling



6.6 Bushfire Management

The subject site is designated as bushfire prone on the Map of Bush Fire Prone Areas (DFES, 2023) which triggers bushfire planning requirements in accordance with *State Planning Policy 3.7 – Bushfire* (SPP 3.7) and the associated *Planning for Bushfire Guidelines* (the Guidelines). The Structure Plan design responds to the bushfire risk presented by the surrounding landscape, particularly along interfaces against bushfire hazards.

A Bushfire Management Plan (BMP) has been prepared to accompany the Structure Plan and demonstrates that future development will meet the acceptable solutions under the Guidelines, as follows:

- Post development, onsite bushfire hazards associated with retained vegetation and areas identified for revegetation will be limited to the Public Open Space and Environmental Conservation reserves. All other areas of vegetation will be cleared or modified to a low threat state as part of the subdivisional works for each stage of subdivision.
- Public Open Space reserves have been designed to enable greater retention of trees in accordance with the conditions of the environmental approval and the Proponent’s sustainability objectives. The increased bushfire risk as a result of increased canopy cover has been considered in the bushfire assessment and managed through POS landscape designed.
- Future development within the subject site will be subject to a radiant heat impact not exceeding 29kW/m² (BAL-29). This has been achieved by separating future development sites from permanent bushfire hazards through the use of public roads, low threat landscaping and Asset Protection Zones (APZs).
- The proposed public road network will provide for efficient and effective evacuation of the subject site to multiple suitable destinations. The public road network also addresses access and egress constraints associated with Brentwood Road and Victoria Road, existing no-through roads limiting egress to a single direction.

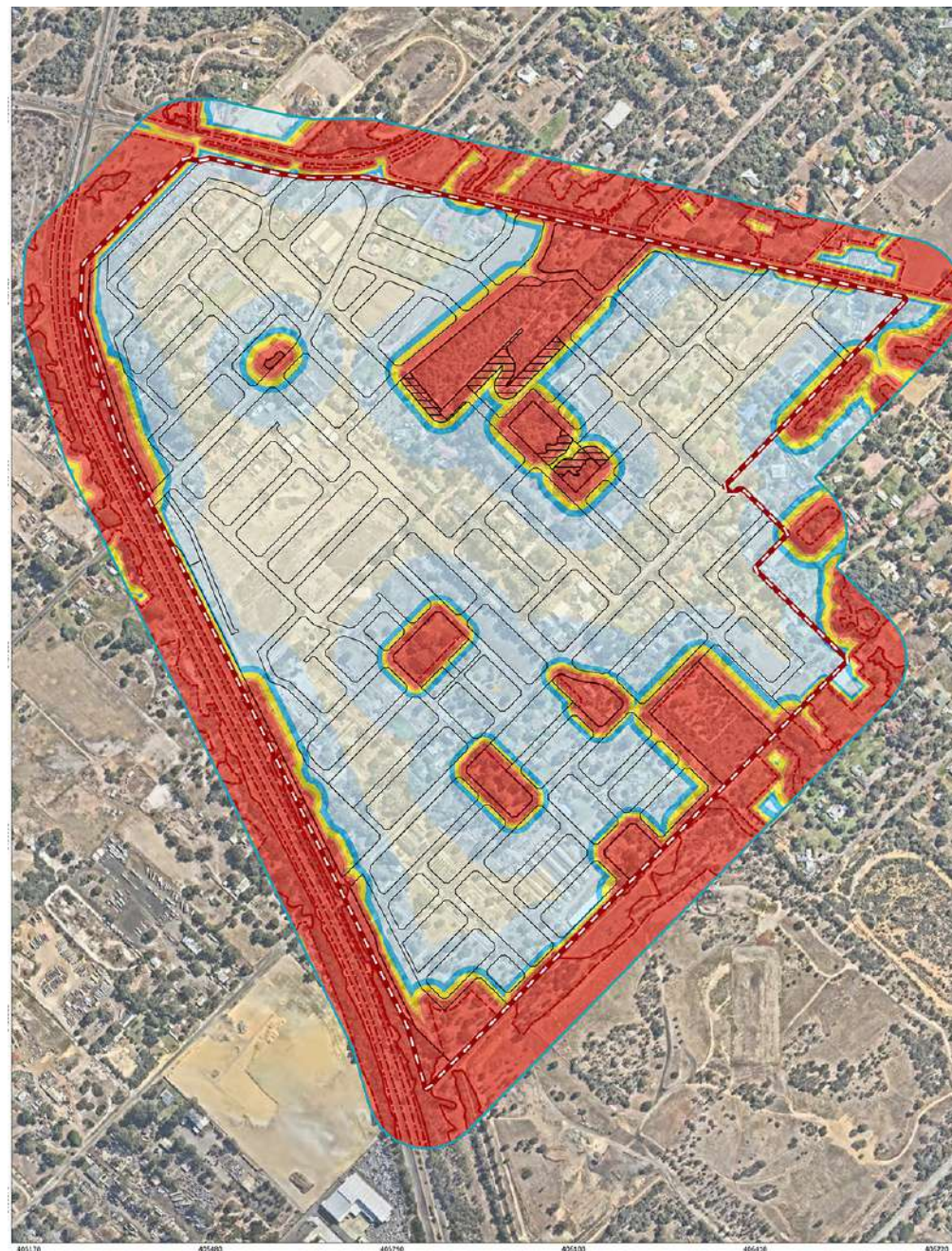


Figure 24. Bushfire Attack Level (Source: Western Environmental)



- There will be sufficient water available for firefighting purposes with the existing reticulated water infrastructure extended to service future development, including the provision of additional hydrant connections.

The Structure Plan satisfies the intent, aim and objectives of SPP 3.7 and the Guidelines with the BMP demonstrating that compliance can be achieved through the acceptable solutions. Additional BMPs will be prepared to accompany future subdivision applications and will refine the assessment and assumptions, taking into account the subdivision design of individual precincts.

Refer to Figure 24. Bushfire Attack Level (Source: Western Environmental)

6.7 Water Management

6.7.1 District Water Management Strategy

The District Water Management Strategy (DWMS) has been prepared for the Wattle Grove South precinct as part of the Metropolitan Region Scheme (MRS) Amendment 1388/57. The strategy outlines how water resources will be managed in the area, particularly in relation to urban development. The strategy was a key component of the environmental review process for the MRS amendment, which proposes rezoning the land from Rural to Urban. The DWMS (Hyd2o 2024) promotes an adaptive management approach for the site which is underpinned by the continued implementation of the current groundwater and surface water monitoring program.

The document has been prepared to specifically satisfy the requirements of Better Urban Water Management (Western Australian Planning Commission, 2008), and the Inland Waters scope of the Environmental Protection Authority's, Metropolitan Region Scheme Amendment 1388/57 Wattle Grove South, Instructions for Environmental Review (EPA, 2022). The DWMS recognises the EPA's overarching objective "to maintain the hydrological regime and quality of groundwater and surface water so that environmental values are protected". It specifically addresses the potential impacts and risks identified in the Instructions for Environmental Review. To this extent the DWMS also addresses

the potential impact of development of land in proximity to the Amendment Area identified as Urban Expansion and Urban Investigation areas in the North-East Sub-Regional Planning Framework (DPLH, 2018).

Development within the Structure Plan area is recognised as an opportunity to counteract potential effects of climate change and future rainfall decline on the Greater Brixton Street Wetlands located to the west of Tonkin Highway. Use of an adaptive management approach with flexibility built into the stormwater system and its infrastructure, coupled with decision making informed by a monitoring outcome loop will enable changes in stormwater management to be implemented over time to best suit downstream environmental needs.

6.7.2 Local Water Management Strategy

The Local Water Management Strategy (LWMS) prepared by Hyd2o aims to maintain the hydrological regimes and provides an opportunity to significantly reduce nutrient application from the project area and the export of nutrients towards the Greater Brixton Street Wetlands (west of Tonkin Highway). Given the hydrological complexities of the site, the Strategy also promotes an adaptive management approach for the site which is underpinned by the continued implementation of the current water monitoring program. The monitoring program and reporting framework encapsulates monitoring of the Superficial Aquifer groundwater levels and quality (near the turf farm and the GBSW), which will enable ongoing review of seasonal groundwater contours and flow direction pre- and post- development, the influence of the groundwater mound post development, and review of groundwater quality. Urban Water Management Plans, following the Local Water Management Strategy, will be prepared to support future subdivisions.

Refer to Appendix G – Local Water Management Strategy

The LWMS demonstrates that the site has the capacity to support residential development with best practice water management outcomes in terms of water supply, stormwater, surface water and groundwater management. The LWMS sets out requirements for Urban Water Management Plans as a condition of subdivision approval, to include the following design measures in more detail:

- Detailed stormwater drainage design including final levels and dimensions for bioretention and flood storage areas.
- Specific detailed information on structural and non-structural Best Management Practices to be implemented within each subdivision.
- Final subdivision layout including final cut and fill levels, minor and major drainage layout, and overland flow paths.
- Management of subdivision works including details of licence application for dewatering or dust suppression if required.
- Updated Public Open Space landscaping design drawings which will include design contours, crosssections, storage areas, plant species, fertiliser regimes and irrigation scheduling.
- Detailed monitoring program for both groundwater and surface water monitoring including sampling locations.
- Finalised implementation plan including roles and responsibilities of all parties involved.
- Compliance with this LWMS criteria and objectives to the satisfaction of the City of Kalamunda and DWER.

6.8 Infrastructure Coordination, Servicing and Staging

An Engineering Servicing Report has been prepared by TABEC Consulting Engineers in support of the Structure Plan. Refer to Appendix I.

6.8.1 Bulk Earthworks

The Structure Plan area is physically capable of development to acceptable urban standards with a geotechnical investigation that existing levels can achieve a 'Class S' site classification with minimal importation of fill. Alternatively, a 'Class A' site classification may be achieved by importing additional sand fill to increase ground levels further.

It is generally intended to grade the development to create level lots, while maintaining the general landform of the site. Earthwork levels will need to match as close as practicable to the surrounding interface whilst there is also an intent to retain and incorporate existing trees and vegetation where possible within road reserves and public open space areas.

The Structure Plan has been designed to follow the natural topography, minimising the need for imported fill and retaining, ensuring that natural drainage lines are retained and areas of public open space carefully located to maximise the retention of mature vegetation.

6.8.2 Staging

Development is anticipated to commence in the southern half of the Structure Plan, north of Victoria Road at a rate of approximately 100–150 lots per year (subject to market demand) and be developed in 40–60 lots per stage, subject to market demand.

Technical Studies Appendices

Appendix A – Environmental Assessment Report

Appendix B – Conservation Area Management Plan

Appendix C – Bushfire Management Plan

Appendix D – Transportation Noise Assessment

Appendix E – Landscape Masterplan

Appendix F – Tree Canopy Retention and
Landscaping Management Strategy

Appendix G – Local Water Management Strategy

Appendix H – Transport Impact Assessment

Appendix I – Engineering Services Report

Appendix J – Aboriginal and Heritage Cultural
Evaluation

Wattle Grove South, Local Structure Plan
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