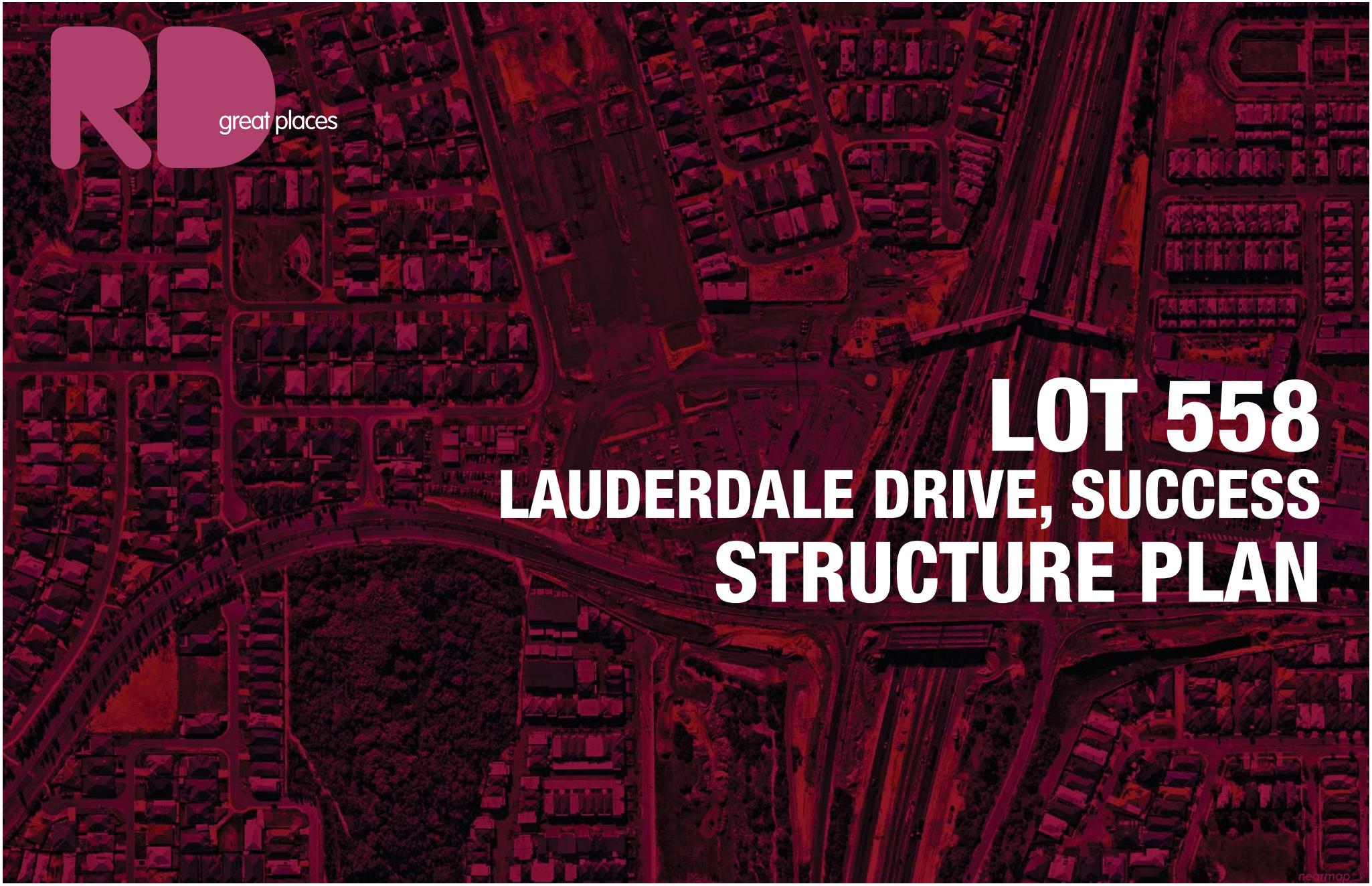
great places



LOT 558
LAUDERDALE DRIVE, SUCCESS
STRUCTURE PLAN

SPN/2100
SEPTEMBER 2017

RobertsDay
planning·design·place

Project:	Lot 558 Lauderdale Drive, Success Structure Plan – September 2017
Prepared for:	Richard Noble Pty Ltd
Reference:	RIC 558
Date of Release:	September 2017
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Graphic Design:	R. Huynh
Project Manager:	E. Denholm
Approved by:	E. Roberts

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ABN 53 667 373 703, ACN 008 892 135

www.robertsday.com.au

Contents

Part One – Implementation

Part Two – Explanatory

Appendicies

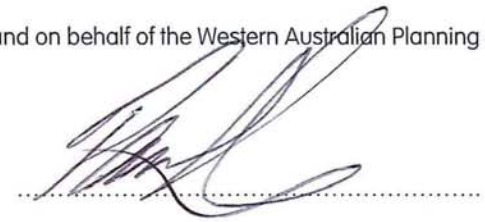
Approval Page

This Structure Plan is prepared under the provisions of the City of Cockburn Town Planning Scheme No. 3.

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

7 September 2017 ..... 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

7 September 2017 ..... Date

7 September 2027 ..... Date of Expiry

Table of Amendments

Amendment no.	Summary of amendment	Amendment Type	Date endorsed by WAPC
1			
2			

Table of Density Plans

Density Plan no.	Area of density plan application	Date endorsed by WAPC
1		
2		

Document Status

Revision	Comment	Author	Approved by	Issue Date
A	Draft	Kevin Vizzutti	Erwin Roberts	1 / 9 / 2016
B	Issued to client for comment	Kevin Vizzutti	Eric Denholm	14 / 9 / 2016
C	Issued to City for pre-lodgement assessment	Kevin Vizzutti	Eric Denholm	6 / 10 / 2016
D	Issued to City for lodgement	Eric Denholm	Lucian Iacob	24 / 10 / 2016
E	Issued to City for advertising	Eric Denholm	Eric Denholm	24 / 11 / 2016
F	Issued for Final WAPC Approval	Eric Denholm	Eric Denholm	16 / 8 / 2017

Executive Summary

This Structure Plan has been prepared to guide the development of Lot 558 Lauderdale Drive, Success, a 0.6294 hectare site located within the City of Cockburn.

The Lot 558 Lauderdale Drive Structure Plan (SP558) provides an overarching planning framework for the subject site, which is one of two undeveloped land parcels within the Magnolia Gardens locality. Implementation of a separate Structure Plan over the site will ensure compliance with the current statutory framework established by the *Planning and Development (Local Planning Schemes) Regulations 2015* and allow for the provision of additional guidance which will ensure that future development is of a high quality and appropriately responds to surrounding development.

SP558 supersedes the approved Magnolia Gardens Phases Two and Three Structure Plan as it applies to the subject site. Which otherwise remains in effect over the balance of Magnolia Gardens, and has now been developed.

SP558 has been prepared in support of the rezoning of the subject site to Mixed Use at a residential density of R100. This rezoning will enable multiple dwelling development, facilitating the development of additional dwellings in close proximity to the Aubin Grove Train Station. This outcome supports state and local strategic planning objectives which seek to improve dwelling diversity and increase the number of dwellings in close proximity to public transportation.

A public open space contribution will need to be provided for the amount of land formerly zoned Local Centre under the previous Magnolia Gardens Phase Two & Three Structure Plan.

It is anticipated that the Structure Plan area will accommodate approximately 80-160 people in 40-80 dwellings. An overview of the Structure Plan and its key elements is provided in Table 1.

Item	Data	Structure Plan Reference
Total Area	0.6294 ha	
Area of each land use proposed: Mixed Use	0.6294 ha	
Estimated Number of Dwellings	40-80	
Estimated Residential Site Density	62-128 dwellings/ha	
Estimated Population	80-160 people	
Estimated commercial floor space	Est. 50-200sqm*	

*Subject to market demand

Table 1: Structure Plan Summary

Executive Summary

Site

This Structure Plan applies to Lot 558 Lauderdale Drive, a 6,294sqm property adjoining Russell Avenue within the suburb of Success. It is approximately 3 kilometres south of the Cockburn Central Activity Centre. The site has remained vacant since its creation as part of the Magnolia Gardens Structure Plan area, which originally designated the site as Medium Density (R40) Residential and Local Centre.

Opportunity

Lot 558 is located just 250 metres east of the Aubin Grove Train Station, which is a major transport node within the south-west corridor. As one of only two major undeveloped sites in close proximity to the Station, Lot 558 presents a major opportunity to deliver transit-oriented development that leverages public investment in transit infrastructure and contributes to the creation of a cohesive, walkable neighbourhood.

Land Use

This Structure Plan provides for the rezoning of Lot 558 to R100 Mixed Use, which will allow for the development of a number of potential uses which will be of benefit to the local community. This includes Multiple Dwellings which provide homeownership opportunities for a wide variety of household types as well as potential non-residential uses such as shops, cafes and professional offices which provide services and employment opportunities for the local community.

Density

A density of R100 will allow for development with a Plot Ratio of 1.25, providing for a contextually appropriate development outcome which fully leverages the benefits of transit-oriented development by maximising the number and diversity of people living in close proximity to public transport and services. This level of density will also serve to balance density within the surrounding locality, with many properties surrounding the Train Station developed at R25 despite being coded as R40.

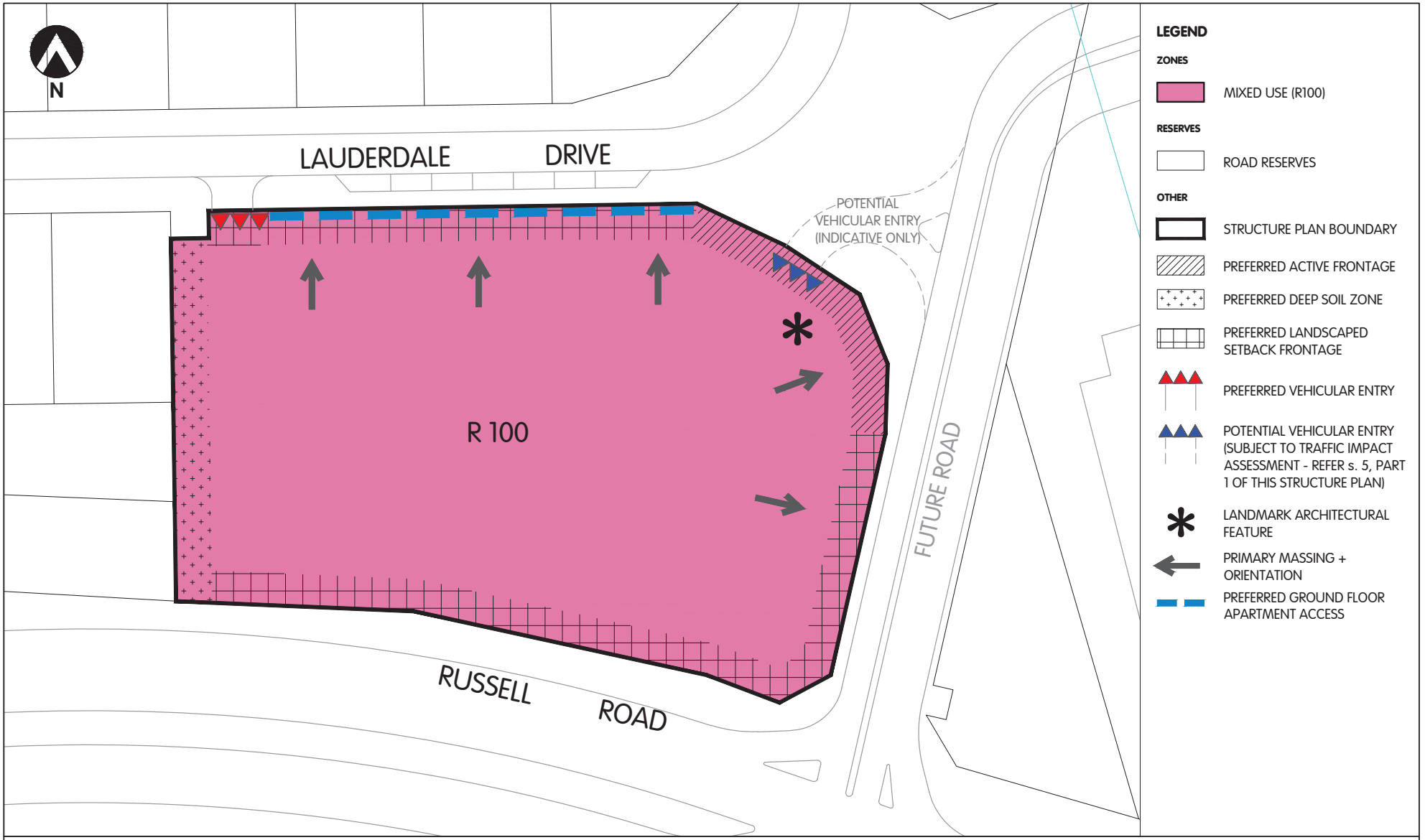
Built Form

This Structure Plan allows for the development of buildings set within open space to a maximum height of four storeys, ensuring that the provision of transit-oriented development respects local character or amenity. The Structure Plan contains Urban Design Guidelines which will ensure that future development is set back from adjoining development, provides extensive landscaping and buffering, minimises traffic impacts and provides a high quality design outcome.

Planning Context

The Mixed Use development outcome established by the Structure Plan directly addresses a broad range of State and Local Government planning objectives, including the provision of infill development in urban areas, catering for expected population growth within the south-west corridor, providing affordable and diverse housing choices and utilising under-developed land proximate to transport infrastructure to deliver transit-oriented development.

PART 1
IMPLEMENTATION



great places_

Plan 1: Structure Plan Map

CADASTRAL INFORMATION
SOURCE: WATERCORP
YYMMDD: 160421
DWG REF: 801801_20160421121426
PROJECTION: MGA94

SIZE A4

1:1000

0 metres 10 20 30 40 50

REV	DESCRIPTION	YYMMDD	DRAWN	APPR'D
F	VEHICLE ACCESS	170623	ED	ER
E	ENTRY & LANDSCAPING AMENDED	161123	SB	ED
D	POTENTIAL VEHICLE ACCESS	160914	HH	KV
C	MINOR EDITS	160913	HH	KV
B	MINOR EDITS	160905	HH	KV
A	BASE PLAN	160831	HH	KV

STRUCTURE PLAN

Lot 558 Lauderdale Drive, Success

City of Cockburn

REF NO.	DRAW NO.	REV.
RIC 558	**RD1 200**	**F**

1.0 STRUCTURE PLAN AREA

The provisions of the Structure Plan apply to Lot 558 Lauderdale Drive, Success, being the land wholly contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (Plan 1).

2.0 STRUCTURE PLAN CONTENT

The Structure Plan comprises three parts:

a. Part 1 – Implementation;
b. Part 2 – Explanatory; and
c. Appendices – Technical reports and supporting materials.

3.0 OPERATION

The date the Structure Plan comes into effect is the date the Structure Plan is approved by the Western Australian Planning Commission.

4.0 LAND USE AND DEVELOPMENT REQUIREMENTS

4.1 Land Use Zones and Reserves

The Structure Plan map outlines land use zones applicable within the Structure Plan area in accordance with the Zones listed in the Scheme.

4.2 Residential Density

Residential densities shall be generally in accordance with the residential densities shown on the Structure Plan Map.

4.3 Public Open Space

Public Open Space will need to be provided on the basis of 10% applicable to the Residential proportion of the previously classified 'Local Centre' portion of the site under the Phase 2 & 3 Magnolia Gardens Structure Plan, whether physically or as cash-in-lieu.

4.4 Notifications on Title

In respect of an application to develop or subdivide the land, a condition shall be imposed or recommended to be imposed on the grant of approval advising that a notification is to be placed on the Certificate(s) of Title(s) to advise of the increased risk of mosquito borne diseases due to the proximity of Thomson's Lake.

4.5 Noise

Applications for Development Approval shall be accompanied by an Acoustic Assessment outlining measures for mitigation against road noise from Russell Road.

4.6 Bushfire

Applications for Development Approval shall be accompanied by a Bushfire Attack Level Assessment outlining any specific construction methods necessary to respond to the bushfire hazard from Baler Reserve to the south.

4.7 Development

Development within the Structure Plan area is to generally accord with the Urban Design Principles detailed in this Section.

The following Urban Design Principles are intended to guide future planning and development of the Structure Plan area. In accordance Section 5.1, the preparation of a Local Development Plan and subsequent development within the Structure Plan Area is to generally accord with the following objectives and design guidance.

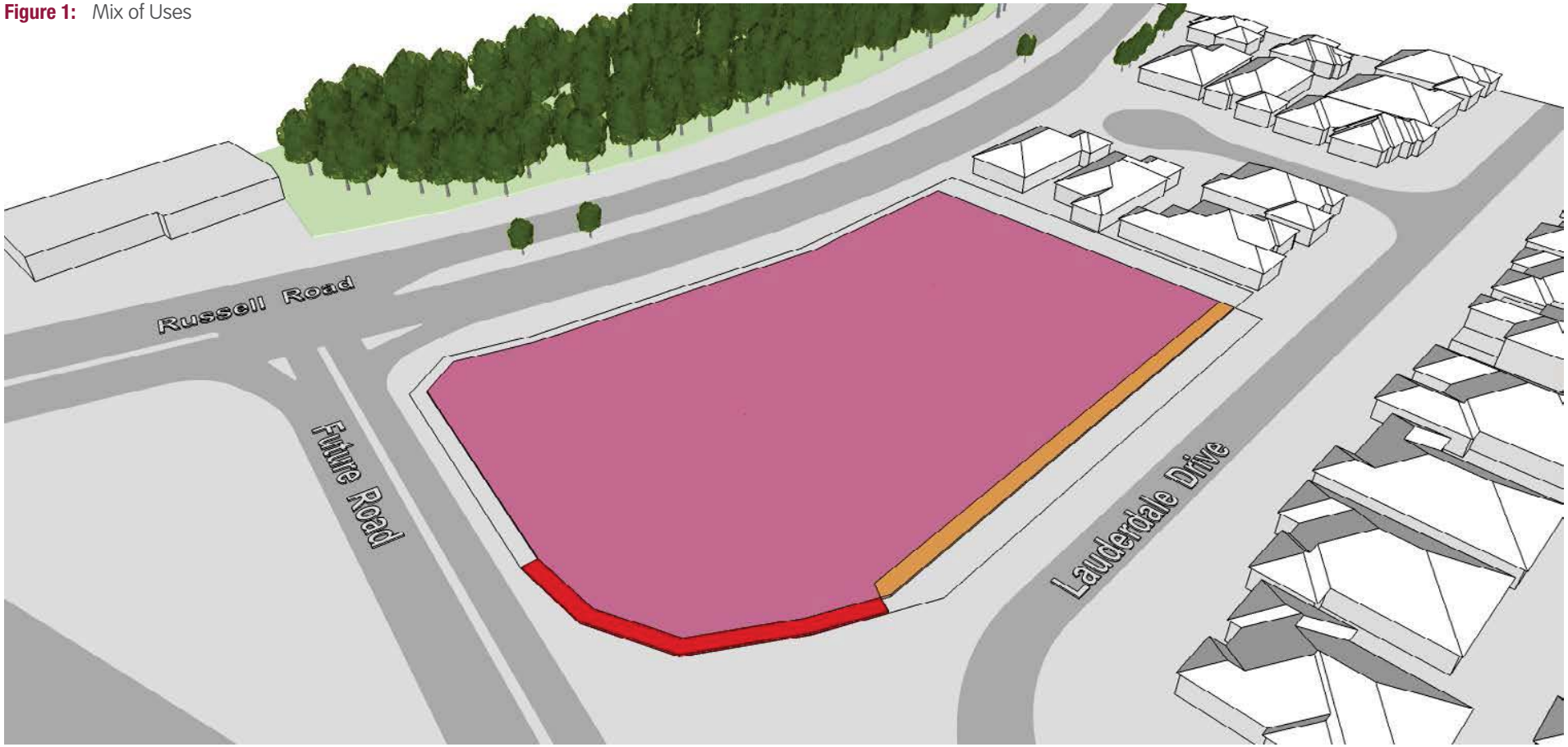
The Urban Design Principles establish a vision for the development of the structure plan area that is structured around 7 key components:

- Mix of Uses;
- Setbacks;
- Open Space;
- Height;
- Orientation;
- Vehicle Access and Parking; and
- Public Domain Interface.

The Urban Design Principles are represented by individual Objectives, which represent qualitative criteria against which a development is to be designed and assessed. Each Objective is complemented by Design Guidance notes which are intended to guide their implementation.

Each Objective and Design Guidance note is numbered to allow for direct reference to be made. Applicants are encouraged to refer to and provide commentary on relevant Objectives and Design Guidance notes as part of any Development Application.

Figure 1: Mix of Uses



Potential Active Frontage Mixed Use & Residential Use Residential Interface Only

4.7.1 Mix of Uses

Mixed use buildings include multiple uses within one building. In apartment buildings this is commonly achieved vertically with residential uses above ground level non-residential uses. Where the location is not suited to retail uses, the building should be designed to accommodate other uses such as commercial offices or live/work units.

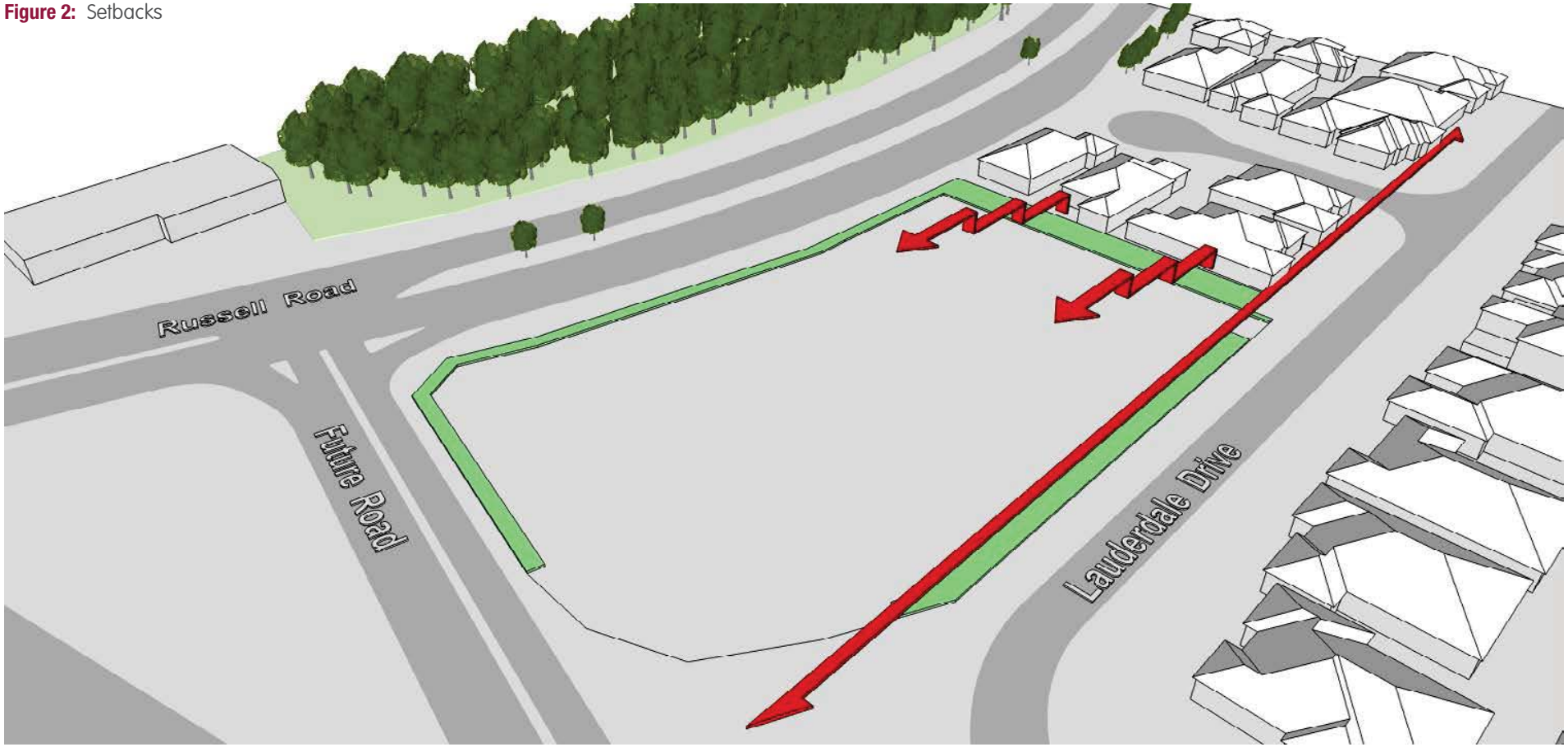
Refer Figure 1 - Mix of Uses.

Objective	Design Guidance
4.7.1.1 Non-residential uses are permitted in active frontage areas to encourage pedestrian activity.	a. Non-residential uses should be limited and concentrated around the north-east corner of the site. b. Consider live/work apartments on the ground level if retail/ commercial office uses are not viable. c. Non-residential uses (excluding live/ work units) require minimal street setbacks to support active frontages. d. Increased floor to ceiling heights are required for ground floor non-residential uses (including live/work units) e. Awnings provide protection from the sun and rain and should be located along frontages with commercial ground floor uses.

4.7.1.1 a

4.7.1.1 b

Figure 2: Setbacks



Consistent Street Setback Setback Area

4.7.2 Setbacks

Setbacks establish how buildings relate to neighbouring properties and define how a street looks and feels. Given the suburban context of the site, it is important that setbacks maintain consistency with surrounding development, ensuring that adjoining properties are not adversely impacted by overlooking or overshadowing and that adequate room is provided for communal open space, landscaping and tree planting.

Refer Figure 2 - Setbacks.

Objective	Design Guidance
4.7.2.1 Determine street setbacks with reference to the setbacks of adjoining development. Street setbacks should also align to building use, with lesser or nil setbacks preferred for active frontages.	a. Where applicable, align street setbacks to the primary dwelling alignment of adjoining and adjacent dwellings. b. lesser or nil setbacks may generally accord with the active frontages shown in Figure 1.
4.7.2.2 Side setback controls shall be determined considering impact on adjoining properties.	a. Provide upper level setbacks to minimise overshadowing and reinforce a transitional development height to existing residential properties.

Figure 3: Open Space

Communal Open Space Landscaped Setbacks Deep Soil Zone

4.7.3 Open Space

Communal and private open spaces provide outdoor recreation opportunities for residents, enhance the natural environment and create valuable "breathing space" between buildings. Some communal open space may be accessible and useable by the general public.

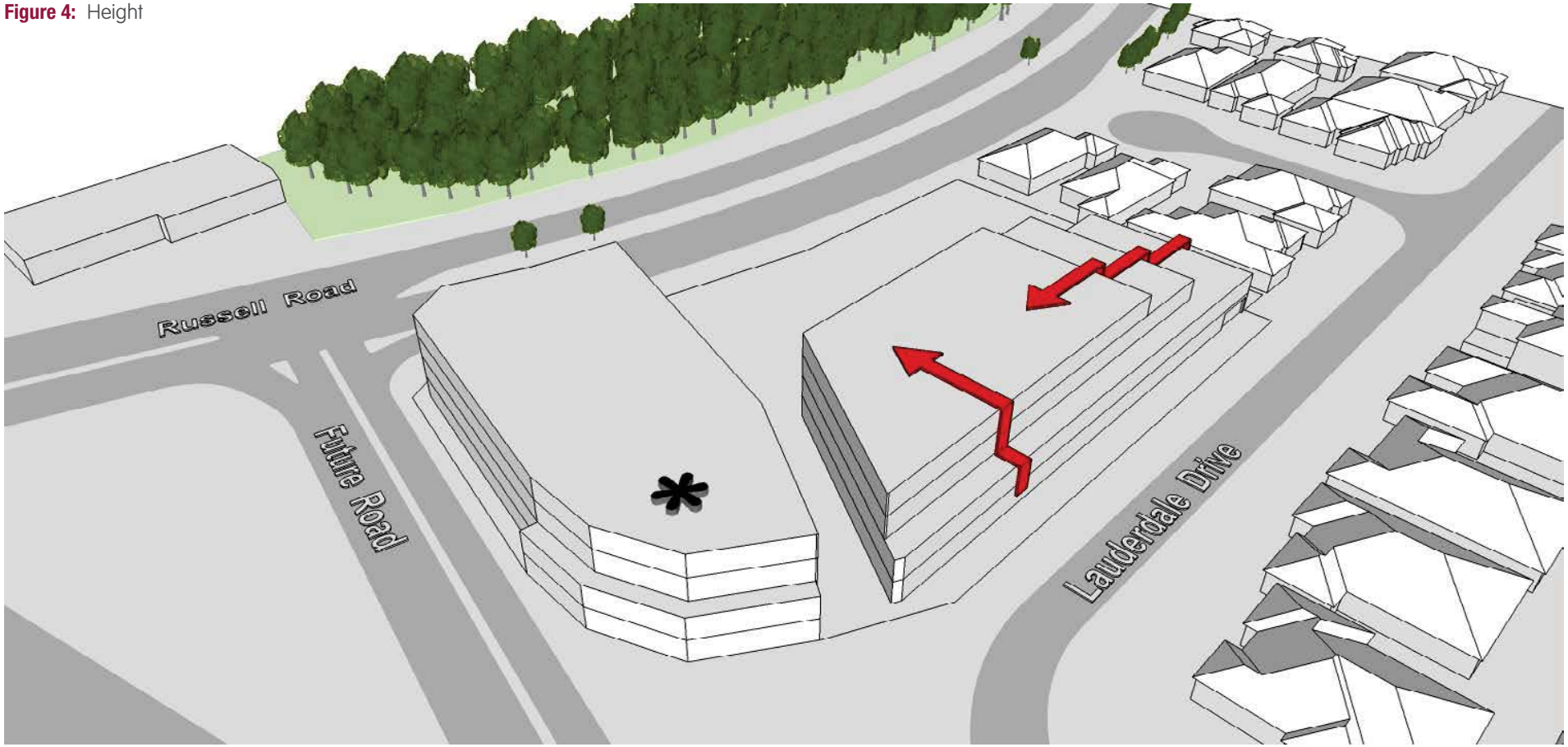
Refer Figure 3 - Open Space.

Objective	Design Guidance
4.7.3.1 An adequate area of communal open space shall be provided to enhance residential amenity and to provide opportunities for landscaping.	a. Communal open space has a minimum area equal to 25% of the site. b. Direct access should be provided to communal open space areas from common circulation areas, entries, lobbies and public streets. c. Planting within private terraces and front setbacks should be included to soften the street edges and delineate between private and public space.
4.7.3.2 Communal open space shall be designed to maximise safety	a. Communal open space and the public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy. b. Communal open space should be well lit.
4.7.3.3 Deep soil planting zones should be provided to facilitate large tree growth and enhance water and air quality.	a. Deep soil planting zones shall be unpaved areas with a relatively natural soil profile which are not used for car parking. b. Deep soil planting zones shall have a minimum dimension of 6m c. Deep soil planting zones shall be planted with regularly spaced trees at a rate of 1 tree for every 10 metres d. Deep soil planting zones should be located along the western interface.

4.7.3.1 a

4.7.3.3 a

Figure 4: Height



Moderated Height Impact Landmark Architectural Feature

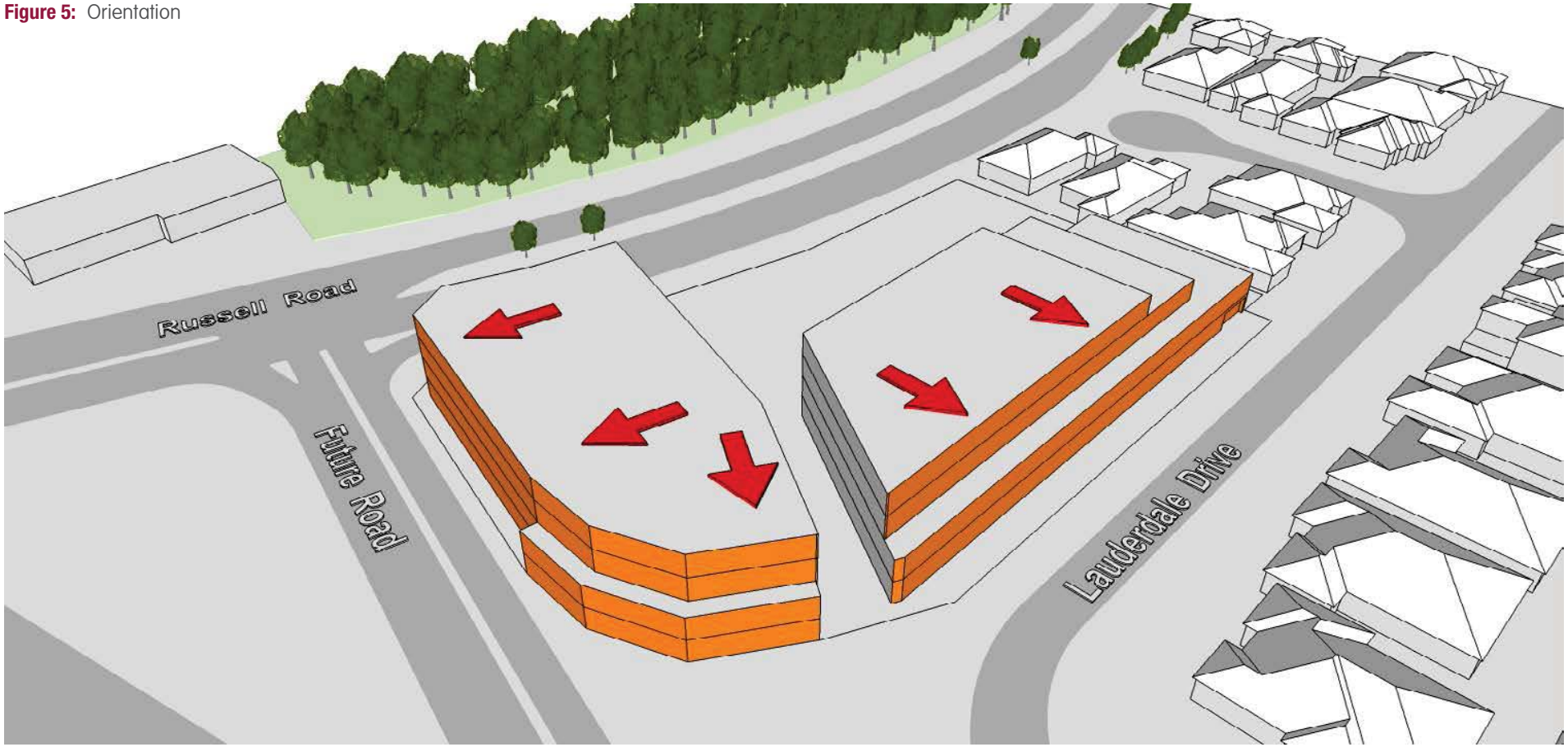
4.7.4 Height

Building height helps shape the character of a place relative to its setting. It defines the proportion and scale of streets and has a relationship to the physical and visual amenity of both the public and private realms.

Refer Figure 4 - Height.

Objective	Design Guidance
4.7.4.1 Height controls should be informed by decisions about solar access, residential amenity, streetscape character and in response to existing development.	a. Apply a varied height zone strategy that progressively transitions from 2 storeys in height along the western boundary and Lauderdale Drive to a maximum of 4 storeys along the eastern and south/eastern interface, as generally depicted in Figure 4. b. Explore opportunity for most prominent architectural feature to address the north-east corner of the site.

Figure 5: Orientation



Building Massing Orientation Habitable Room Aspects

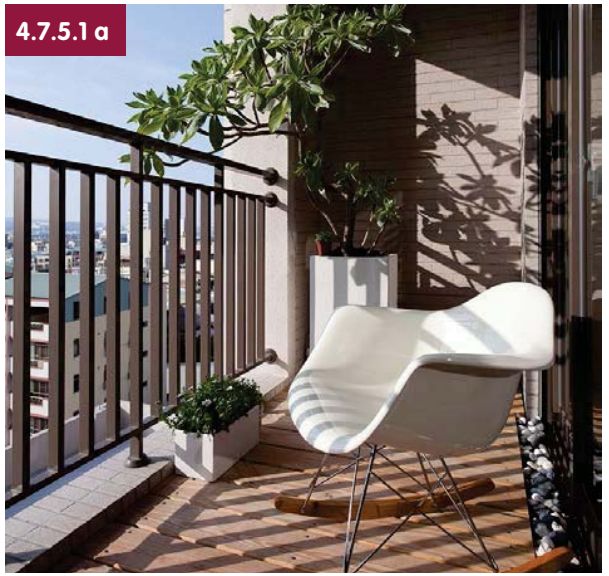
4.7.5 Orientation

Building orientation is the position of a building and its internal spaces in relation to its site, the street and neighbouring buildings. Building orientation directly affects residential amenity including solar access and influences other matters including visual privacy to neighbouring residential areas.

Refer Figure 5 - Orientation.

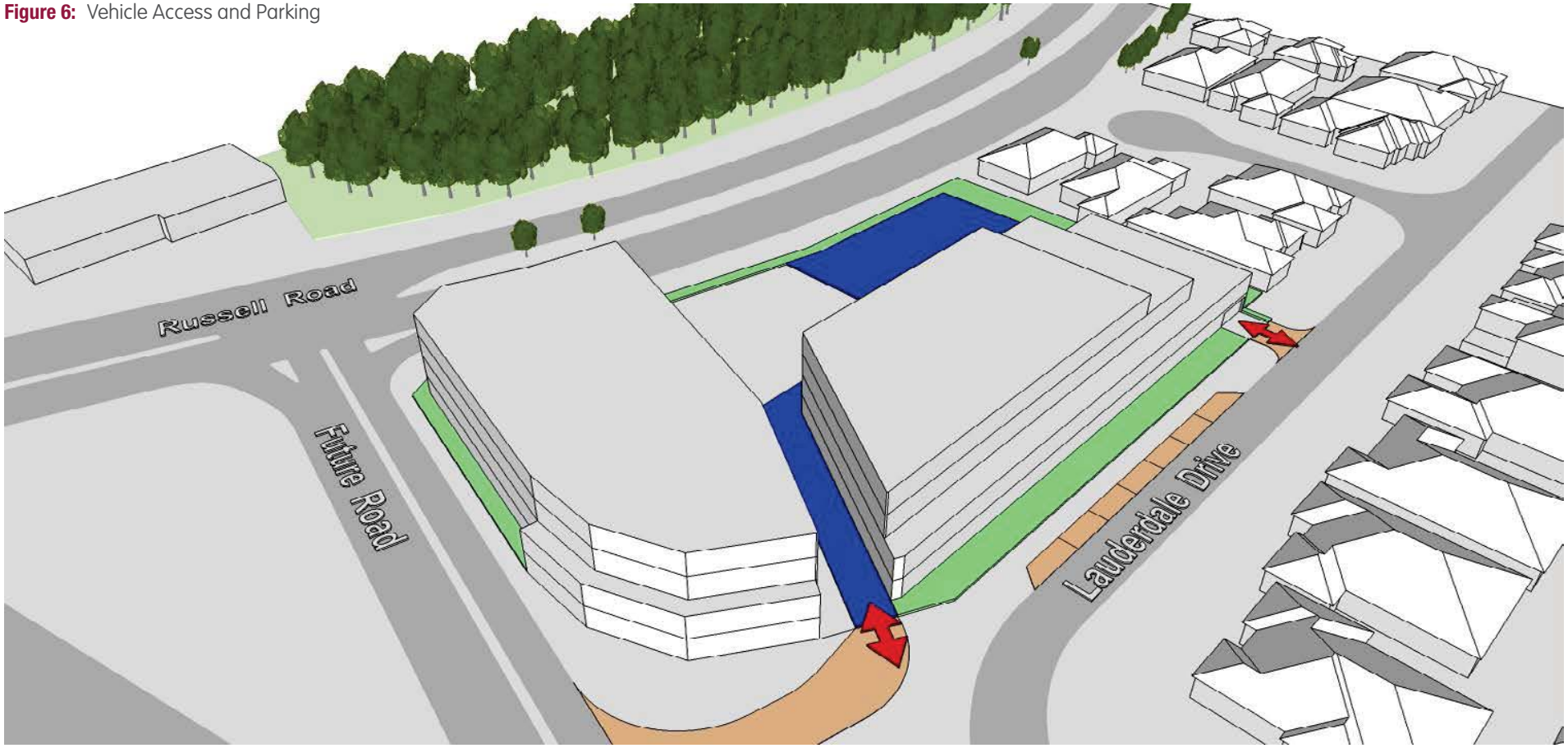
Objective	Design Guidance
4.7.5.1 Building types and layouts respond to the east-west orientation and northern aspect of the subject site.	a. Building design should maximise north aspect dwellings and minimise the number of single aspect south facing apartments. b. While external street orientation is the priority, double loaded apartments provide an opportunity for internal site orientation and massing.
4.7.5.2 Building massing is oriented towards and responds to Lauderdale Drive and the eastern boundary interface.	a. Buildings along Lauderdale Drive and the eastern road should define the street, by facing the street and incorporating direct access from the street.

4.7.5.1 a



4.7.5.2 a

Figure 6: Vehicle Access and Parking



4.7.6 Vehicle Access and Parking

The location of parking areas and the design of vehicle access points have significant impacts on site layout, building façade design and streetscape quality. It is important that parking and vehicle access is integrated with the site planning from an early stage to balance any potential conflicts with traffic patterns, streetscape elements and safe pedestrian access.

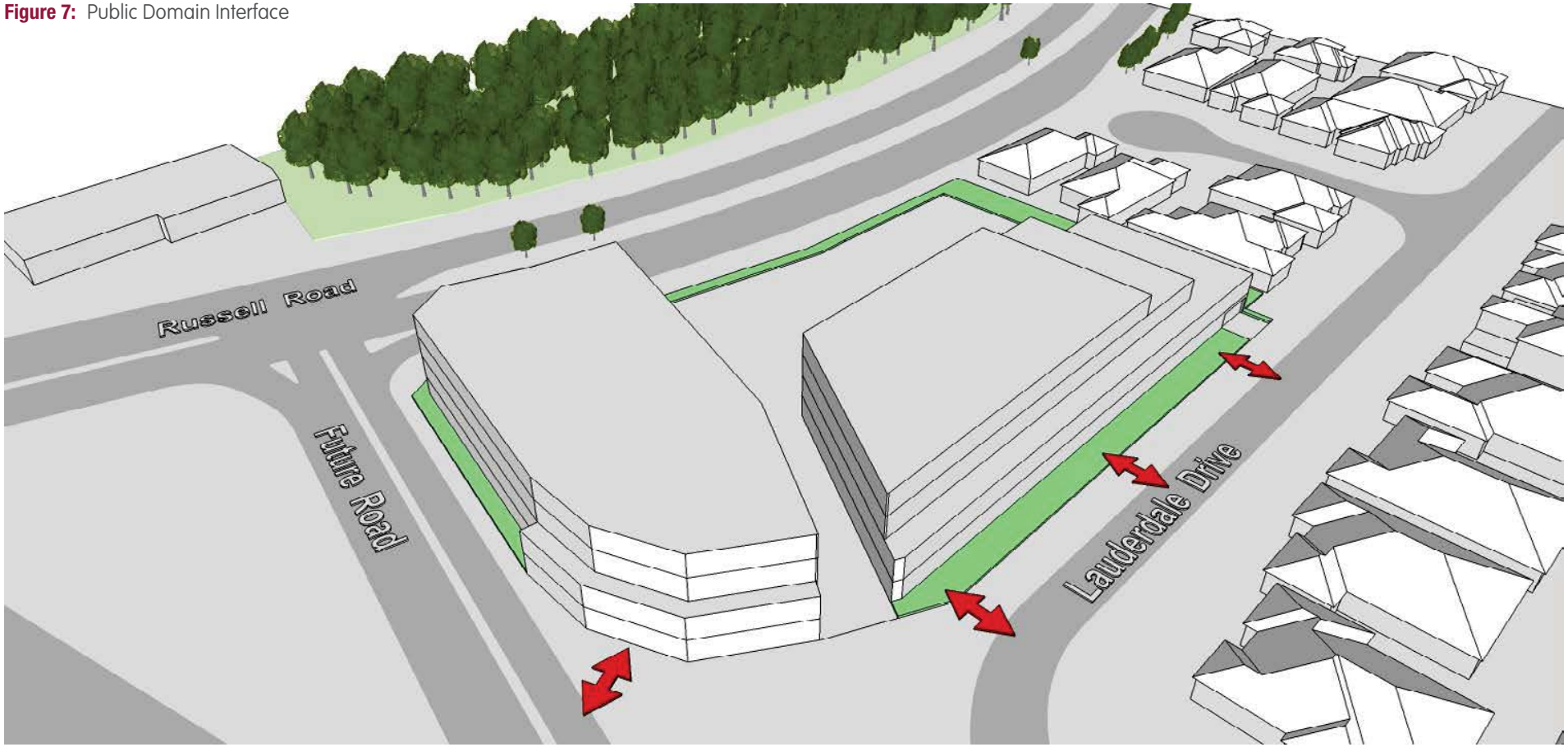
Refer Figure 6 - Vehicle Access and Parking.

Objective	Design Guidance
4.7.6.1 Vehicle access points shall be designed and located to achieve safety, and encourage motorists to navigate safely to avoid conflicts with pedestrians & cyclists, while not detracting from the quality of the streetscape.	a. A maximum of two vehicular access points may be provided in the locations generally shown in Figure 6. b. Car park entries should be located behind the building line. c. Where possible, built form should be located above vehicular access points to reduce their impact on the streetscape. d. Garbage collection, loading and servicing areas shall be screened. e. Alternative surface treatments, as opposed to bitumen, and level changes are encouraged, to prompt motorists to navigate vehicular access points at a safe speed. f. Landscaping is encouraged to soften environments immediately surrounding vehicular access points, without compromising sight lines.
4.7.6.2 On-site parking areas should be located and designed to minimise adverse impacts on streetscape character.	a. On-site parking areas should be located behind or below the building frontage and be screened with built form along all street frontages (excluding Russell Road). b. Where it is not possible to locate on-site parking areas behind built form, parking areas are to be entirely screened from view along Lauderdale Drive and the eastern road through the use of screening and landscaping.

4.7.6.1 a

4.7.6.1 e

Figure 7: Public Domain Interface



Landscaped Interface Street Level Dwelling Access

4.7.7 Public Domain Interface

The public domain interface is the transition area between a development area and the street. The interface of the development can contribute to the quality and character of the street. Key components to consider when designing the interface include entries, private terraces or balconies, fences and walls, changes in level, service locations and landscaping.

Refer Figure 7 - Public Domain Interface.

Objective	Design Guidance
4.7.7.1 Direct access from the street to ground floor apartments and windows overlooking the street should be provided to improve safety and social interaction.	a. Dwellings along Lauderdale Drive shall have direct street entry. b. Changes in level between private terraces, front gardens and dwelling entries and the street level are encouraged to provide for surveillance and improve visual privacy for ground level dwellings. c. Front fences and walls along the street shall be visually permeable above 1m.

4.7.7.1 a

4.7.7.1 b

5.0 LOCAL DEVELOPMENT PLAN

Development Application/s for the land is to be informed by a Local Development Plan which shall address, at a minimum, the following:

1. Building form in respect of bulk, scale, height, visual permeability and architectural expression.
2. Building setbacks.
3. Reference the relevant design principles from draft State Planning Policy 7 Design for the Built Environment that the built form is required to address to provide site and locational responsive design.
4. Access arrangements to support the proposed development.
5. Articulate how the impacts of non-residential land uses will be mitigated and managed within the subject land and abutting (or nearby) residential areas.
6. The efficient and safe accommodation of (Council) rubbish disposal vehicles.
7. How stormwater will be managed within the layout of the built form and open space.
8. In the event that vehicular access utilising Ricci Way is proposed, the following is to be demonstrated:
    a. The need for and the purpose of access to and from Ricci Way to support the proposed development.
    b. Provide adequate evidence that Lauderdale Drive by itself is incapable of providing all necessary access.
    c. A Traffic Impact Assessment prepared in accordance with the Commission's Transport Impact Assessment Guidelines (August 2016). This assessment shall demonstrate that vehicular access utilising Ricci Way;
        i. Will not compromise efficient and safe access or movement to and from Aubin Grove Train Station for public transport vehicles, motorists, pedestrians and cyclists; and
        ii. The requirements of the Public Transport Authority are satisfied for access to and from Ricci Way (inclusive of a road safety audit).

6.0 OTHER REQUIREMENTS

6.1 Developer Contributions

The Structure Plan is subject to the requirements of Development Contribution Area 2 (already satisfied by Gold Estates Holdings Pty Ltd as part of previous subdivision works) and Development Contribution Area 13 for Community Infrastructure, as detailed in the Development Contribution Plan table within the City of Cockburn Town Planning Scheme No. 3.

7.0 ADDITIONAL INFORMATION

Additional Documentation is to be provided in accordance with Table 2 below:

Additional Information	Approval Stage	Approving Authority
Local Development Plan	Prior to Development Application	City of Cockburn
Acoustic Assessment	Prior to Development Application	City of Cockburn
Bushfire Attack Level Assessment	At Building Permit Stage	City of Cockburn
Waste Management Plan	As a Condition of Development Approval	City of Cockburn

Table 1: Additional Information

PART 2
EXPLANATORY

1.0 PLANNING BACKGROUND

1.1 Introduction

1.1.1 Purpose

SP558 has been prepared on behalf of Richard Noble, representing Gold Estates Holdings, in order to facilitate development of Lot 558 Lauderdale Drive, Success, an undeveloped site within the Magnolia Gardens Stages 2 and 3 Structure Plan area. The Structure Plan has been prepared in accordance with the *Planning and Development (Local Planning Schemes) Regulations 2015* and the associated *Structure Plan Framework (2015)*.

The purpose of the Structure Plan is to realise Mixed Use development of Lot 558 at a residential density of R100, thereby capitalising upon the adjacent Aubin Grove Train Station by increasing the supply and diversity of residential dwellings within the locality. In applying only to Lot 558, the Structure Plan provides for detailed control of future development of the subject site.

As development of the Magnolia Gardens Structure Plan area is largely complete and the site is zoned Development under the Scheme, a new Structure Plan applying only to Lot 558 is considered to be the most suitable means of controlling development of the subject site.

1.1.2 Background

The land subject to this Structure Plan was originally established by the Success Lakes Structure Plan (2001), which was later superseded by the Magnolia Gardens Structure Stages Two and Three Structure Plan (2004). Under the Magnolia Gardens Phases 2 and 3 Structure Plan (SP8A), the westernmost two thirds of the site are designated R40 Grouped Housing and the easternmost third is designated as Local Centre.

Previous planning and Structure Plans were progressed without the certainty that the Aubin Grove Rail Station would be delivered by the State Government. Now that construction has commenced, and the market has matured over the past 10-15 years, this Structure Plan represents an opportunity to increase housing choice in the locality, responding to the State Government's articulated objectives of increasing densities in proximity to high frequency rail transport.

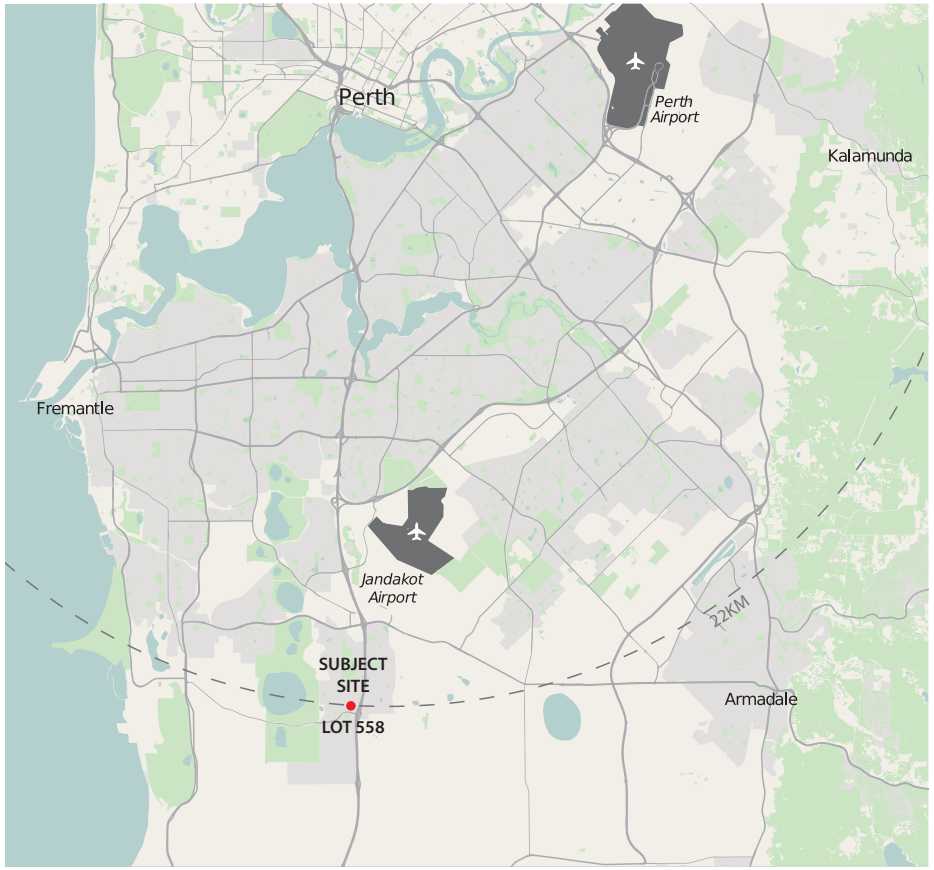
1.2 Land Description

1.2.1 Regional Context

The subject site is located wholly within the City of Cockburn, approximately 21.5 kilometres south of the Perth Central Business District and 3.1 kilometres south of the Cockburn Central Activity Centre.

Refer Figure 1, Regional Context Plan.

Figure 1: Regional Context Plan



1.2.2 Local Context

The SP area is located in close proximity to transport infrastructure, being approximately 250 metres west of the Russell Road Kwinana Freeway interchange and a similar distance to the Aubin Grove Train Station. The site is also located in close proximity to Public Open Space, with Baler Reserve located 40 metres to the south, Milkwort Park 130 metres to the north-west and the Success Regional Sporting Facility 600 metres to the north-west. The site is well-serviced by commercial facilities, being located approximately 700m west of Harvest Lakes Shopping Centre and 800m east of Park Hive Shopping Centre.

Refer Figure 2, Local Context Plan.

Figure 2: Local Context Plan

1.2.3 Area and land use

The Magnolia Gardens locality is typically characterised by low-density single detached residential dwellings constructed within the last two decades. Some examples of grouped dwelling developments, including duplexes and villas, are distributed throughout the locality. However, dwellings within the locality are largely detached dwellings with an applicable residential density of R20/R25, in spite of the designation of many sites as R40 under the Magnolia Gardens Structure Plan. Little commercial floorspace has been developed within the locality to date, which may be redressed through the provision of commercial space within the subject site.

The SP area comprises a single vacant lot with a total area of 6,294sqm, currently being utilised as a staging area for works associated with the Aubin Grove Train Station (refer Figure 3). The site is bounded by Lamar Court to the west, Lauderdale Drive to the north, a planned road connection to Aubin Grove Train Station to the east and Russell Road to the south.

Refer Figure 3, Aerial Photograph.

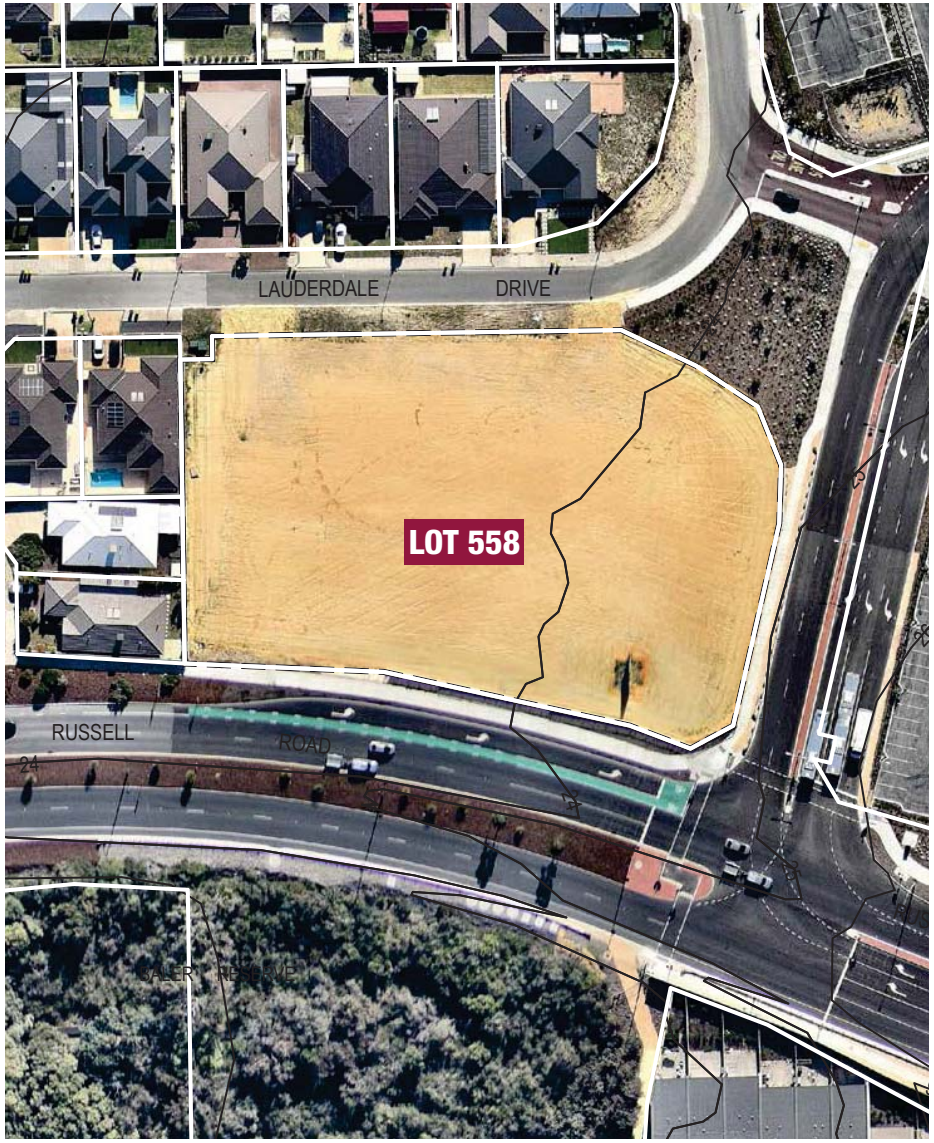
1.2.4 Legal description and ownership

As summarised in Table 2 below, the subject land is legally described as Lot 558 on Plan 69757. The registered proprietor of the site is Gold Estates Holdings Pty Ltd.

Lot No.	Street Address	Volume/ Folio	Plan	Area	Registered Proprietor
558	19 Lauderdale Drive, Success	2762/138	69757	0.6294 ha	Gold Estates Holdings Pty Ltd

Table 1: Property Details

Figure 3: Site Plan



1.3 Planning Framework

1.3.1 Zoning and Reservations

The SP area is currently zoned 'Urban' under the Metropolitan Region Scheme (MRS) and 'Development' under the City of Cockburn Local Planning Scheme No. 3 (LSP3).

Clause 4.2.1 of LSP3 provides the following objective for the 'Development' zone:

i. Development Zone

To provide for future residential, industrial or commercial development in accordance with a comprehensive Structure Plan prepared under the Scheme.

Refer Figure 4, Metropolitan Region Scheme Zoning.

Refer Figure 5, Town Planning Scheme No.3 Zoning.

Figure 4: Metropolitan Region Scheme Zoning

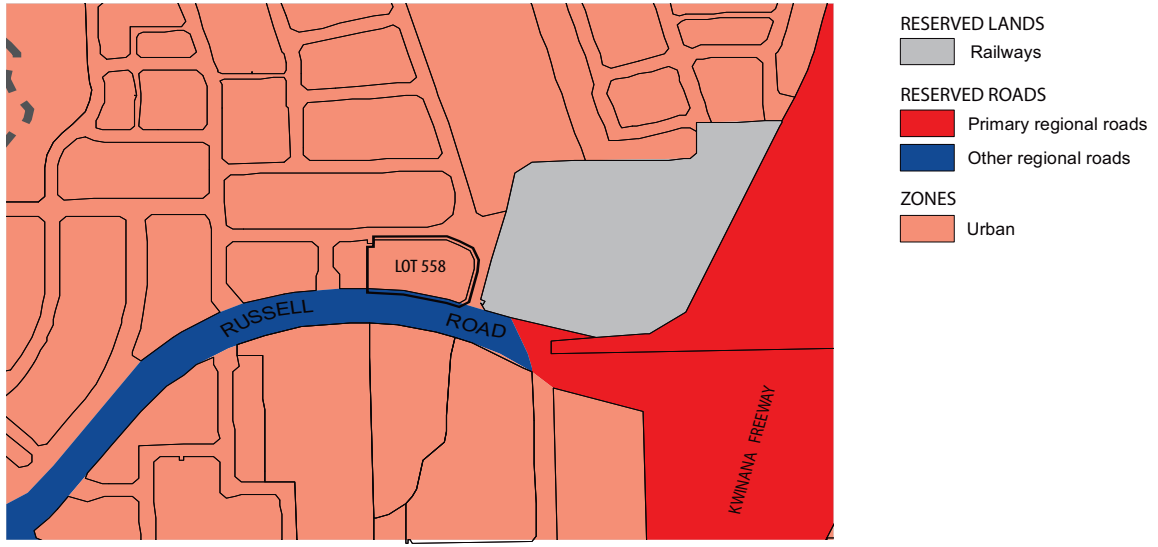
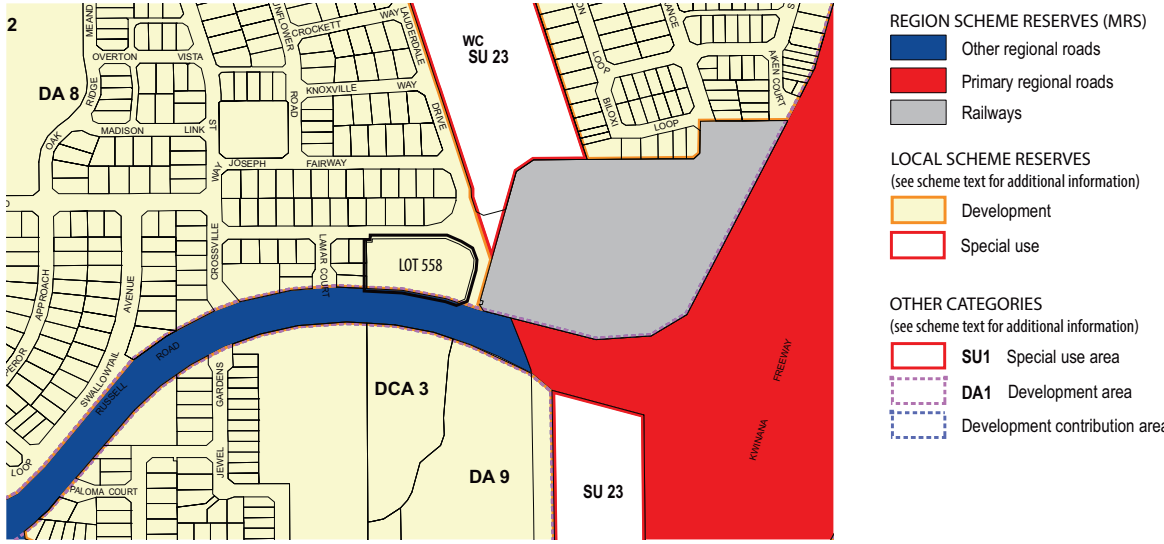


Figure 5: Town Planning Scheme No.3 Zoning



1.3.2 Applicable Structure Plans

1.3.2.1 District Structure Plan

The SP area is subject to the provisions of the Southern Suburbs District Structure Plan (1999), prepared by the City of Cockburn. The District Structure Plan designates the subject site as Medium Density Residential.

Refer Figure 6, Southern Suburbs District Structure Plan.

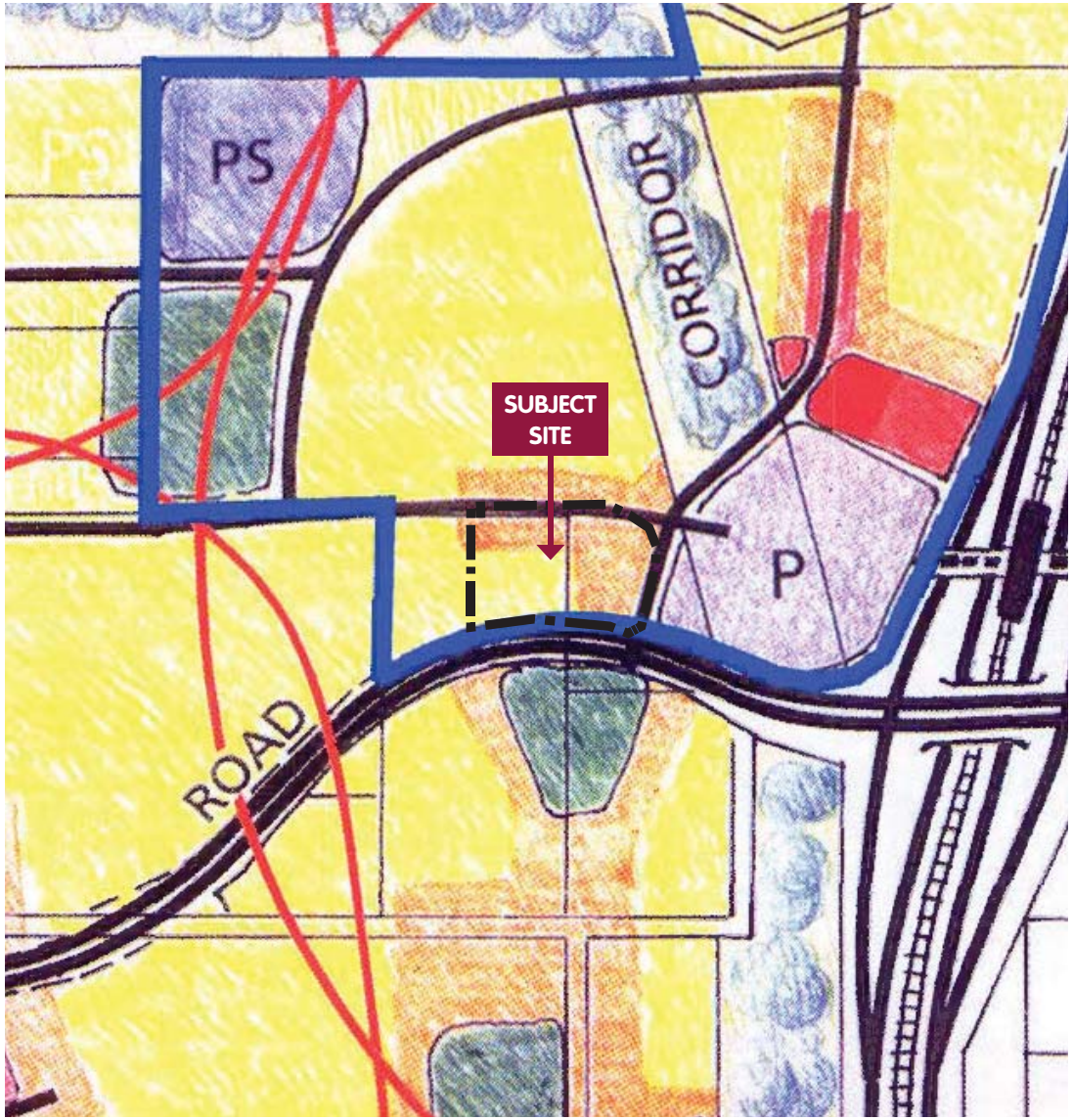
1.3.2.2 Local Structure Plans

The SP area is addressed by the Magnolia Gardens Phase 2 and 3 Structure Plan (SP8A), which was endorsed by the City of Cockburn on 17 January 2004. SP8A identifies the SP area for Residential R40 Grouped Housing and Local Centre use. Prior to the endorsement of the Magnolia Gardens Structure Plan, the site was subject to the Success Lakes Structure Plan, prepared in August 2001.

This Structure Plan has to be prepared to supersede current structure planning, as it applies to the subject site, and enable development at a scale which is appropriate for a transit-oriented location.

As assessment of density delivery under the Magnolia Gardens Structure Plans is provided in Section 3.1.

Figure 6: Southern Suburbs District Structure Plan



1.3.3 Planning Strategies

1.3.3.1 Directions 2031 and Beyond Draft Outer Metropolitan Perth and Peel Sub-Regional Strategy

Directions 2031 and Beyond is the high level spatial framework and strategic plan for the Metropolitan Perth and Peel regions. Directions 2031 provides a framework for the detailed planning and delivery of housing, infrastructure and services necessary for a variety of growth scenarios and is supported by a series of Sub-Regional Strategies.

The SP area is included within the South-West Sub-Region identified within the Draft Outer Metropolitan Sub-Regional Strategy for Perth and Peel (Draft OMPPSS). The South-West Sub Region is expected to supply 119,760 additional dwellings under the preferred growth scenario, 18,280 of which are expected to come from sites within the City of Cockburn.

The high density, mixed use development outcome established by this SP is consistent with the broader objectives of Directions 2031 and the Draft Outer Metropolitan Perth and Peel Sub-Regional Strategy.

1.3.3.2 Draft Perth and Peel at 3.5 Million South Metropolitan Peel Sub-Regional Planning Framework

The draft Perth and Peel at 3.5 Million suite of strategic land use planning documents intend to facilitate planning and development which appropriately responds to the requirements of Perth's growing population, which is predicted to reach a population of 3.5 million people by the year 2050.

The SP area is included within the South Metropolitan Peel Sub-Region, for which a draft planning framework has been prepared. The draft Framework focuses on achieving increased infill and higher density residential and commercial development within the existing built environment through more efficient use of established economic, social, transport and utility infrastructure.

The Framework advocates for consolidation of urban form and emphasises the need to limit greenfield development and provide higher density infill development in order to cater for expected population growth and demographic change. In support of this objective, the Framework establishes an infill development target for the City of Cockburn of 14,678 dwellings by 2050.

The high density, mixed use development outcome established by this SP directly addresses the objectives of Perth and Peel at 3.5 Million, in particular the objective of utilising vacant and under-developed urban located within activity centres, transit corridors or areas of high amenity for development at increased residential densities.

1.3.3.3 City of Cockburn Planning Strategy

The City of Cockburn Planning Strategy establishes a long-term planning direction for the municipality and provides the strategic rationale for the land use zones and provisions contained within TPS3. The Strategy establishes a series of objectives and implementation actions for future planning and development within Cockburn which are directly applicable to the SP, including:

- Promoting higher density and mixed use developments to reduce car use and promote, walking and public transport;
- Ensuring an appropriate housing and density mix to fulfil existing and potential demand from various groups;
- Promoting medium and high density housing in and near regional and district centres and near public transport facilities;
- Providing a range of housing opportunities;
- Promoting mixed land uses in communities, especially through the location of housing in commercial centres;
- Ensuring that there is an appropriate housing and density mix to fulfil existing and potential demand from aged people, non-traditional families and different ethnic groups; and
- Encouraging the provision of a range of lots in smaller redevelopments which reflect the diverse needs of the community.

The high density, mixed use development outcome established by this SP directly addresses the objectives of the City of Cockburn Planning Strategy in enabling the development of commercial uses and high-density residential dwellings in close proximity to Aubin Grove Train Station.

1.3.3.4 City of Cockburn Housing Affordability and Diversity Strategy

The City of Cockburn Housing Affordability and Diversity Strategy establishes a series of planning objectives and implementation actions which respond to an identified lack of housing diversity and affordability within the municipality. The strategy specifically identifies the localities of Aubin Grove and Hammond Park, which the subject site directly abuts, as representative of this issue in lacking suitable opportunities for 'downsizers' and others who require smaller dwellings.

The strategy identifies that facilitating a compact urban form is central to delivering greater housing Affordability and diversity and emphasises the importance of delivering higher density housing within close proximity to public transport.

The Key objectives of the Housing Affordability and Diversity Strategy are:

- To provide households with access to housing that is appropriate to their needs in terms of size, attributes and location;
- To provide housing that is affordable to households of varying financial capacity;
- To provide a variety of housing types in locations that have good accessibility to public transport and essential services; and
- To promote affordable living, taking into consideration the total cost of living in a dwelling, including energy and water consumption, the costs of transport to access employment and essential services, and other daily needs impacted by location.

The Strategy identifies a range of actions in order to achieve these objectives, including:

- Encourage other housing types, including dwellings in mixed use environments, such as 'shop-top' housing to increase the number and diversity of smaller dwellings in the City, particularly in areas with good accessibility to services and public transport.

The high density residential land use proposed within this SP will achieve all of the objectives detailed within the Policy and directly responds to identified action whilst also according with the broader objectives of the Strategy.

The high density, mixed use development outcome established by this SP directly addresses the objectives of the City of Cockburn Planning Strategy in enabling the development of commercial uses and high-density residential dwellings in close proximity to Aubin Grove Train Station.

1.3.4 Planning Policies

1.3.4.1 State Planning Policy 3.0: Urban Growth and Settlement

State Planning Policy 3.0: Urban Growth and Settlement (SPP3) applies to the whole of the State in promoting sustainable and well planned settlement patterns that have regard to community needs and are responsive to environmental conditions.

SPP3 recognises that a majority of new development in metropolitan Perth has been in the form of low-density suburban growth. This form of development intensifies pressure on valuable land and water resources; imposes costs in the provision of infrastructure and services; increases the dependence on private cars; and creates potential inequalities for those living in the outer suburbs where job opportunities and services are limited.

SPP3 contains a number of policy measures that are particularly relevant to this SP, including:

- Supporting higher residential densities around high frequency public transport nodes and interchanges;
- Clustering retail, employment, recreational and other activities around public transport nodes so as to reduce the need to travel, encourage non-car transit and create attractive, high-amenity mixed use urban areas; and
- Providing access for all to employment, health, education, shops, leisure and community facilities by locating new development so as to be accessible by foot, bicycle or public transport rather than having to depend on access by car.

The high density, mixed use development outcome established by this SP will achieve the objectives of SPP3 by facilitating residential development with a high degree of access to public transport and creating a cohesive, walkable neighbourhood through the potential provision of mixed uses.

1.3.4.2 State Planning Policy 3.1: Residential Design Codes

The Residential Design Codes (R-Codes) provide a comprehensive basis for the control of residential development, providing a range of design principles and compliance criteria which ensure that development is of a high design quality and provides an appropriate response to local amenity and place. The SP will provide for multiple dwelling development with an applicable residential density code of R100, which provides a range of development parameters to which development within the SP area will generally accord, unless modified by a subsequent LDP. These parameters are detailed in Table 3 below.

Parameter	Provision
Maximum Plot Ratio	1.25:1
Minimum Open Space	To be established by a Local Development Plan
Minimum Primary Street Boundary Setback	2 metres
Secondary Street Setback (m)	2 metres
Maximum height to:	
Top of external wall	12 metres
Top of external wall (concealed roof)	13 metres
Top of pitched roof	15 metres
Height of walls built up to boundary:	
Maximum Height	7 metres
Average Height	6 metres

Table 2: R100 Residential Design Codes Provisions

1.3.4.3 Development Control Policy 1.6: Planning to Support Transit Use and Transit Oriented Development

Development Control Policy 1.6 (DC1.6) seeks to maximise the benefits to the community of an effective and well used public transit system by promoting planning and development outcomes that will support and sustain public transport use.

The policy identifies a need to intensify activity and promote new uses that make better use of current transit facilities and services and, where new additions and expansions to the transit system are made, facilitate new development which maximises the benefits derived from public investment.

Being located within 800 metres of Aubin Grove Train Station, the SP area meets the Policy definition of a transit-oriented site. The Policy establishes a range of objectives for the development of such sites, including:

Encouraging residential development close to transit facilities;

Providing higher density residential development to place greater numbers of residents close to transit services;

Allowing for intensive development in suburban areas that are well-serviced by public transport but where higher densities are not practical at initial stages of subdivision;

Providing a mix of uses that are likely to be significant generators of transit trips close to transit facilities wherever possible; and

Encouraging land uses that promote interest, interaction and activity within building frontages along principal pedestrian routes leading to transit facilities;

The high density, mixed use development outcome established by this SP will achieve the objectives of DC1.6 by facilitating high density mixed use development encompassing residential dwellings and potential commercial uses in close proximity to Aubin Grove Train Station.

1.3.5 Pre-Lodgement Consultation

The nature and extent to which pre-lodgement consultation was undertaken is summarised in Table 4 below.

Agency	Date of Consultation	Method of Consultation	Summary of Outcome
Public Transport Authority	2 November 2015	Letter from Minister for Transport (Refer Appendix B)	Access arrangements from site to future Aubin Grove Station access road confirmed by Minister.
City of Cockburn	16 March 2016	Meeting with Andrew Trosic (Manager Strategic Planning)	RobertsDay & Richard Noble put forward desire for land and Andrew Lefort (Manager Statutory Planning) to be rezoned, and sought the City's advice on method (Scheme Amendment, modification to existing structure plans, or separate structure plan). As development is largely built out in Magnolia Gardens and the site is zoned Development under the Scheme, a separate structure plan was considered best.
City of Cockburn	31 May 2016	Meeting with Andrew Trosic (Manager Strategic Planning), Andrew Lefort (Manager Statutory Planning), Carol Catherwood (Coordinator Strategic Planning), Georgia Lilley (Planning Officer) and Tiffany van der Linde (Planning Officer).	Concept and built form imagery presented by RobertsDay. Confirmed suitability of R100 zoning and agreed to Structure Plan as appropriate implementation tool, subject to inclusion of suitable built form controls.
City of Cockburn	5 October 2016	Meeting with Andrew Trosic (Manager Strategic Planning), Georgia Lilley (Planning Officer) and Tiffany van der Linde (Planning Officer).	Draft Structure Plan documents presented along with Transcore traffic report. City agreed to a pre-lodgement assessment of documents.
City of Cockburn	16 November 2016	Meeting with Andrew Trosic (Manager Strategic Planning), Georgia Lilley (Planning Officer) and John McDonald (City Traffic Engineer).	Review and feedback of pre-lodgement document, and agreement to support two access points to service the site.

Table 3: Pre-Lodgement Consultation

2.0 SITE CONDITIONS AND CONSTRAINTS

2.1 Biodiversity and Natural Area Assets

As the subject site is cleared and located within an established urban environment, the SP area offers no significant biodiversity or natural area assets and is not affected by any statutory environmental listings of significance. As a consequence of this, environmental assessment specific to the subject site is deemed to not be required.

The SP area was subject to environmental assessment as part of the broader Success Lakes Estate Structure Plan (SP8A). SP8A identified that the site had been cleared to facilitate historic land uses such as cattle grazing and market gardens and confirmed the suitability of the area for urban development.

The SP area is located 100 metres north of Baler Reserve, an actively managed conservation reserve. As Baler Reserve is separated from the subject site by Russell Road and is outside of SP8A site area, it is not considered to materially impact upon SP558.

2.2 Landform and Soils

2.2.1 Landform

The subject site is generally flat, with a gentle downslope from approximately 25m AHD at the eastern boundary to 24m where the site interfaces with existing residential properties to the west. The site was subject to bulk earthworks as part of residential development in the surrounding area under SP8A.

As geotechnical assessment carried out as part of SP8A confirmed that the landform is conducive to residential development, no further analysis is deemed to be required.

2.2.2 Soils

SP8A indicates that the majority of soils within the broader locality are highly leached, deep grey sands of the Bassendean Dune landform system. This soil type is identified as having excellent drainage qualities and being well-suited to urban development.

The Department of Environment Regulation's Swan Coastal Plain Acid Sulfate Soil Risk Map indicates that the subject site is generally Class 2, with a moderate to low risk of acid sulfate soils occurring within 3 metres of the natural soil surface. The easternmost portion of the site, which adjoins existing residential development, is classified as Class 1, with a high to moderate risk of ASS occurring within 3m of natural soil surface.

As this classification did not preclude development of the surrounding urban area it is not considered to materially impact upon the Structure Plan.

2.3 Site Hydrology and Water Management

No surface water features exist within the LSP area.

2.4 Bushfire Hazard

The majority of the subject site is identified by the Department of Fire and Emergency Services (DFES) as a designated as a Bush Fire Prone Area, in accordance with State Planning Policy 3.7 Planning in Bushfire Prone Areas.

The subject site is cleared and adjoins existing developed areas to the west, north and east. To the south, the site is separated from remnant vegetation within Baler Reserve by Russell Road, a 40 metre road reserve.

A Bushfire Management Plan has been prepared which generally requires BAL 12.5 Construction Standards to be achieved, and up to BAL 19 toward the south, to mitigate risk from Baler Reserve identified as a hazard area.

A Bushfire Attack Level (BAL) certificate should be provided prior to building permit stage.

Refer to Appendix C, Bushfire Management Plan.

2.5 Noise

The site is affected by road noise from Russell Road. Noise for ground floor dwellings can be addressed by constructing a 2.4m high wall along Russell Road capable of deflecting road noise from reaching the site. Upper level apartments may need to incorporate Quiet House Design construction standards. Any detailed design should be informed by an Acoustic Assessment advising of any construction standards that may be necessary.

Refer Appendix D, Acoustic Assessment.

3.0 LAND USE AND DEVELOPMENT REQUIREMENTS

3.1 Land Use

As depicted by the Structure Plan Map, it is proposed that the subject site be zoned to accommodate Mixed Use development which appropriately capitalises on the proximity of the site to Aubin Grove Train Station, in accordance with State and Local planning policy relating to transit-oriented and infill development and the provision of diverse and affordable housing. The proposed Structure Plan is consistent with the existing State and Local Government planning framework applicable to the subject site and will contribute to accommodating forecast population growth within the City of Cockburn.

3.1.1 Residential

The Structure Plan area is to have an applicable residential density of R100, in accordance with the Residential Design Codes. This density coding reflects the underlying philosophy of the Structure Plan, which is to ensure that the transit-oriented nature of the subject site is taken advantage of whilst ensuring that development does not adversely impact upon existing residential properties.

The SP area is considered to be an appropriate location for R100 development, given:

- The proximity of the site to Aubin Grove Train Station (approximately 250 metres to the east) and the opportunities this presents for the provision of high quality, transit-oriented, mixed-use development;
- The position of State and Local Planning in support of transit-oriented development, as established by density targets within Perth and Peel @ 3.5 Million and the City of Cockburn Housing Affordability and Diversity Strategy;
- The proximity of the site to existing grouped dwelling development south of Russell Road;
- The undercapitalisation of permitted densities within the surrounding locality, with R40 zoned areas generally developed to a density of R20/25, as detailed in section 3.2; and
- The limited impact on surrounding properties by virtue of the site's location adjacent to the Aubin Grove Train Station car park and Russel Road.

3.1.2 Non-Residential

In addition to Residential development, non-residential uses may also be provided in accordance with land use permissibility within the Mixed Use zone, as established by LPS3. Establishment of non-residential uses is to have regard to the locational criteria contained within Part 1, Section 4.5 - Development.

3.2 Surrounding Residential Density

A substantial portion of the residential area to the north of the Aubin Grove Train Station, situated to the east of the subject site, is zoned to a residential density of R40 in accordance with the Magnolia Gardens Structure Plan. However, a considerable disconnect exists between allowed and actual density, as summarised in Table 4 below.

	Actual Development	Allowable Single/ Grouped Dwelling Development	Allowed Multiple Dwelling Development
Residential Density Code		R40	
Residential Area		4.0496 ha	
Average Lot size	378sqm	220sqm	0.6 Plot Ratio
Number of Lots	109	184	-
Number of Dwellings	115	184	273
Total Population	287 people	460 people	682 people

Table 4: Surrounding Residential Density Analysis

As detailed in the above table, the Residential Design Codes permit minimum lot size require an average lot size of 220 square metres for R40 single and grouped dwelling development, which would permit a total of 184 lots containing approximately 460 people, at 2.5 people per dwelling.

The existing R40 coding also permits multiple dwelling development, for which the Residential Design Codes grant an allowable plot ratio of 0.6, or 60% of the total site area. For the subject area, this would equate to a total area of approximately

27,298sqm. Assuming that 10% of this area is to be used for non-residential purposes such as circulation, and assuming an average apartment size of 80 square metres, this area would theoretically accommodate 273 dwellings and approximately 682 residents.

However, analysis of this area indicates that it has been developed at a significantly lower density than the above scenarios. A total of 109 lots are contained within the area, comprising 107 single residential dwellings, 1 duplex lot and 1 multiple dwelling lot containing 6 units. These lots have an average size of 378sqm, equating to an actual residential density of R25, which has a permitted average lot size of 350sqm, significantly below the allowed density of R40. These 109 lots contain 115 dwellings and approximately 287 people, representing a shortfall of between 173-395 people, based on the above R40 single and grouped dwelling development scenarios.

This considerable disconnect between permitted and actual density represents an undercapitalisation of this transit-oriented location, highlighting the need to provide a suitable level of density through development of Lot 558. As the estimated population of 80-160 people provided for by SP558 will partly reconcile this demonstrated population shortfall, a density coding of R100 is considered to accord with planned density for the locality.

Refer Figure 7 – Existing Residential Density Plan

3.3 Open Space

Public Open Space for the area was delivered under the guidance of the former planning framework for the locality, the Phase 2 & 3 Magnolia Gardens Structure Plan. The area previously allocated for Local Centre under the former planning framework was designated as a deduction for the purposes of calculating Public Open Space. As such, Public Open Space will need to be provided on the basis of 10% applicable to the Residential proportion of the previously classified `Local Centre' portion of the site under the Phase 2 & 3 Magnolia Gardens Structure Plan, whether physically or as cash-in-lieu.

Figure 7: Existing Residential Density Plan

Structure Plan Area

R40 Zone Area

Existing Lot Boundary

LOTS TYPES	LOTS	DW	TOTAL LOT m²	LOTS %
151-180m²	2	2	321.6	1.83%
181-220m²	3	3	629.9	2.75%
221-260m²	3	3	717.8	2.75%
261-300m²	9	9	2598.9	8.26%
301-350m²	20	20	6801.4	18.35%
351-450m²	55	55	21947.7	50.46%
451-571m²	14	14	6803.5	12.84%
667-800m²	1	1	675.2	0.92%
Duplex	1	2	587.4	0.92%
Multiple	1	6	771.4	0.92%
	109	**115**	**41854.8**	100.00%

3.4 Movement Network

This section has been informed by a Transport Impact Assessment undertaken by Transcore, appended as Appendix 2.

3.4.1 Movement Hierarchy

The Structure Plan does not provide for the creation of any additional public road reserves. The SP area integrates with the existing local street network, which is described in Table 5 below.

Street	Classification	Reserve width	Pedestrian Path
Russell Road	District Distributor	40 metres	Northern side only – 2.5 metres
Lamar Court	Local Access Street	15 metres	Western side only – 2.0 metres
Lauderdale Drive	Local Access Street	15 metres	Northern side only – 2.0 metres*
Aubin Grove Station Entry Road (Future)	PTA Access Way	15 metres	Western side only - 2.0 metres

* Lauderdale Drive - it is recommended that any subsequent development extents the path on the southern side of the road reserve which currently stops immediately west of the site.

Table 5: Local Movement Hierarchy

3.4.2 Pedestrian Movement

The surrounding pedestrian network provides a high level of accessibility and connectivity between the SP area and the surrounding locality, with all abutting roads containing dedicated pedestrian paths which provide for safe and easily navigable pedestrian movement.

3.4.3 Cycling

The SP area adjoins dedicated on-street cycling lanes within the Russell Road carriageway, facilitating safe cycling activity within a high-traffic environment. Russell Road directly connects to the Kwinana Freeway Pedestrian Shared Path, providing cyclists with dedicated connection to the wider metropolitan region. Due to low levels of traffic on other adjoining roads, on street cycling may be safely accommodated.

3.4.4 Public Transportation

The SP area is well-serviced by public transportation, with the Aubin Grove Train Station less than a 5 minute walk (250 metres) from the site.

A number of connecting bus services are available at the Aubin Grove Train Station, including Transperth Routes 525, 526, 527, 534, 535, 536 and 537. These bus services connect residents of the site to the broader locality and essential services available at Cockburn District Centre and beyond.

3.4.5 Private Vehicle Access and Parking

Private vehicle access and parking has been planned for in consideration of potential impacts upon the existing street network. All car parking associated with residential development within the SP area will be accommodated on site, in accordance with Part 1, section 4.5 - Development.

3.5 Traffic

Utilising the highest yield threshold within the ranges provided in this Structure Plan (ie. 80 dwellings and 200sqm commercial floorspace), traffic analysis conducted by Transcore indicates that any proposal is likely to generate less than 500 vehicle movements per day. With reference to the WAPC's TIA Guidelines, peak hour traffic generation is typically around 10% of daily traffic generation.

The WAPC TIA Guidelines state that "As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road.. ..For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent capacity." Given the overall daily traffic movements generated, the peak hour maximum vehicle movements per hour will be significantly less than 100 vehicles per hour, and the impact on the surrounding road network is considered to be insignificant.

On 3 November 2015, the Minister for Transport provided a letter stating that any vehicular access onto Ricci Way is subject to further consideration at the detailed design stage. This Structure Plan requires access onto Ricci Way to be addressed through the preparation of a Local Development Plan, that would require consultation with the Public Transport Authority prior to Approval, and would need to be supported by a Traffic Impact Assessment.

The preparation of a Traffic Impact Asessment shall include existing and future traffic using Aubin Grove Train Station, via Ricci Way and the bus only interchange.

Any proposal that contemplates vehicular access onto Ricci Way shall be supported by a Traffic Impact Assessment in accordance with the LDP requirements listed in Part 1 of this Structure Plan.

Refer Appendix A - Traffic Impact Statement and Appendix B - Letter from the Minister for Transport.

3.6 Infrastructure Coordination, Servicing and Staging

The Structure Plan area is capable of being fully serviced by all sewerage, water, power, gas and telecommunications services, which have been extended to the surrounding locality in accordance with the Success Lakes Estate Structure plan and Magnolia Gardens Phases 2 and 3 Structure Plan.

4.0 CONCLUSION

This Structure Plan will enable the development of Lot 558 Lauderdale Drive, Success as a Mixed Use site with an applicable residential density of R100. The provisions of SP558 will ensure that future development is of a high quality and appropriately responds to surrounding development. SP558 supersedes the approved Magnolia Gardens Phases 2 and 3 Structure Plan as it applies to the subject site, which otherwise coordinates development of the broader locality.

It is expected that the Structure Plan will accommodate approximately 40-80 multiple dwellings, accommodating approximately 80-160 people.

The subject site is ideally positioned to take advantage of the future Aubin Grove Train Station, approximately 250 metres due east of the subject site. Future residents will also be well serviced by vehicular, cyclist and pedestrian networks, public open spaces and retail, employment and education facilities within the surrounding locality.

The Structure Plan responds to State-directed density targets outlined in the Perth and Peel @ 3.5 Million Draft South Metropolitan Peel Sub-Regional Strategy by contributing density at a level appropriate for a transit-oriented location. Additionally, the Structure Plan accords with the higher level objectives of City of Cockburn's Strategic planning framework in providing transit-oriented, mixed-use development which will increase the number and diversity of smaller dwellings within the Success locality.

APPENDIX A
TRAFFIC IMPACT STATEMENT

Proposed Structure Plan
Lot 558 Lauderdale Drive, Success
Transport Impact Statement

PREPARED FOR:
Gold Estate Holdings Pty Ltd

November 2016

Document history and status

Author	Revision	Approved by	Date approved	Revision type
R White	r01	B Bordbar	21/09/2016	
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Author: Robin White

Project manager: Behnam Bordbar

Client: Gold Estate Holdings Pty Ltd

Project: Lots 558 & 559 - Aubin Grove

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Project number: t16.165

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REPORT FIGURES

REPORT TABLES

1.0 Introduction

This Transport Impact Statement has been prepared by Transcore on behalf of Gold Estates Holdings Pty Ltd with regard to the proposed Structure Plan for Lot 558 Lauderdale Drive, Success, in the City of Cockburn.

The location of the subject site is shown on Figure 1 in the context of existing structure plan and Town Planning Scheme online mapping information from the City of Cockburn website.

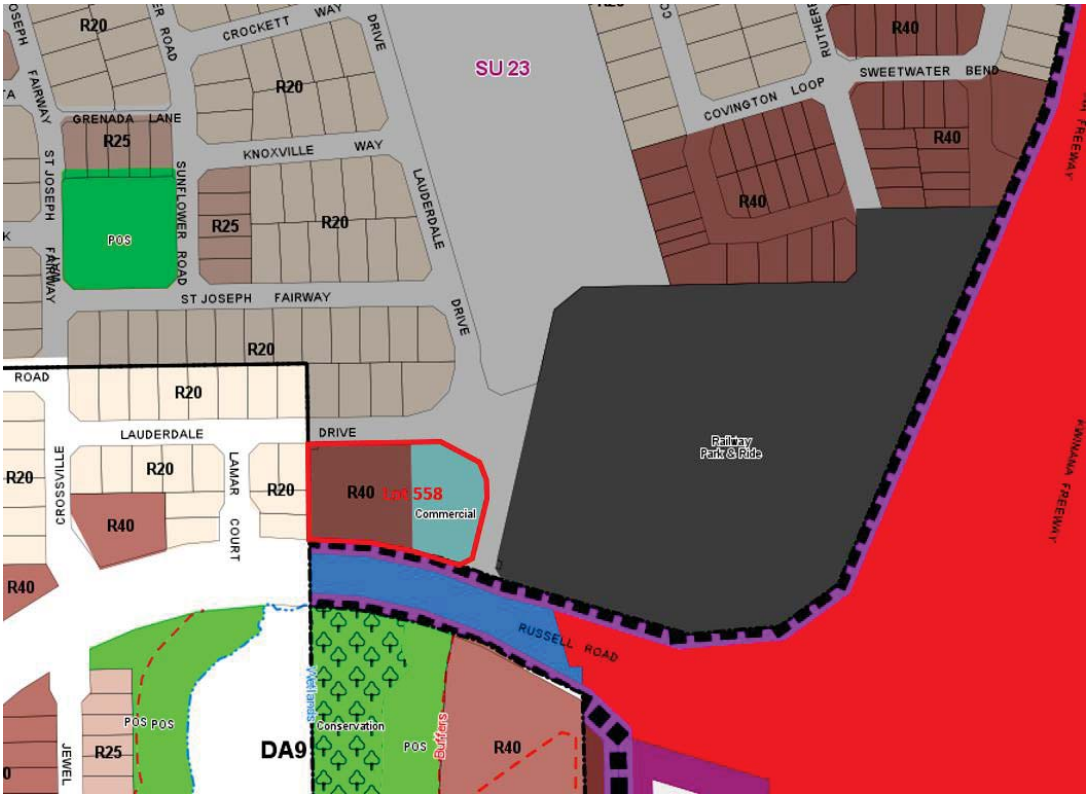


Figure 1: Location of the subject site

The site is currently zoned for R40 residential development on the western portion and for commercial development on the eastern portion as shown in Figure 1. The current proposal is to change this to a Mixed Use (R100) zoning across the subject site instead.

The WAPC *Transport Impact Assessment Guidelines* (August 2016) indicate a Transport Impact Statement (TIS) is required for proposals that have moderate impact (10-100 vehicle trips in the peak hour) or a more detailed Transport Impact Assessment (TIA) for proposals that have high impact (>100 vehicle trips in the proposal's peak hour). Section 6.0 of Transcore's report provides details of the estimated trip generation for the proposed land uses on the subject site. The total

peak hour vehicular trips are estimated to be less than 100 trips so a Transport Impact Statement is deemed appropriate for this proposal. The guidelines do not appear to have anticipated structure plan or rezoning applications that generate less than 100 vehicle trips per hour and do not provide guidance for TIS for such moderate impact structure plan or rezoning applications, so the guidelines for a subdivision TIS have been drawn upon to guide the preparation of this report.

2.0 Proposed Land Use

2.1 Land Use under Current Framework

The site is currently zoned for R40 residential development on the western portion and for commercial development on the eastern portion as shown in Figure 1. Original planning for the site is understood to have assumed an IGA supermarket or similar land use of approximately 1,000m^2 floor area and 15 to 20 grouped dwellings.

It should be recognised that the built form outcome of the current planning controls would have likely catered for a substantial amount of at-grade surface parking on this site to cater for the Local Centre retail component.

However, the currently approved framework does not respond to the significant investment made by the State Government on the Aubin Grove Train Station and is now being reviewed to accommodate a form of apartment-style development in accordance with the City and State's objectives of increased densities accessible to high quality public transport.

2.2 Proposed Land Use

The current proposal is to change the zoning of the subject site to a Mixed Use (R100) zoning. The subject site has an area of 0.6294ha and the anticipated dwelling and commercial yield is approximately 50m^2 to 200m^2 of commercial floor space and 40 to 80 residential units.

Although the proposed Mixed Use (R100) zoning is still technically capable of accommodating a Local Centre with at-grade parking (in accordance with the current structure plan approved for the site), it is considered far more likely that apartment style development will prevail, with a smaller commercial offering, simply by virtue of increased development capability created by the R100 'highest and best use' density. In any case, it should be noted that built form controls introduced as part of the new Structure Plan will ensure that any surface parking is not visible from the streetscape.

The proposed structure plan for Lot 558 is attached at Appendix A and in context in relation to existing land uses in Figure 2. This shows the Aubin Grove station car parks currently under construction east and northeast of the subject site and the railway station located in the freeway median north of Russell Road.

Figure 2: Surrounding land uses

The planned configuration of the Aubin Grove station, carparks and access arrangements are illustrated in Figure 3.

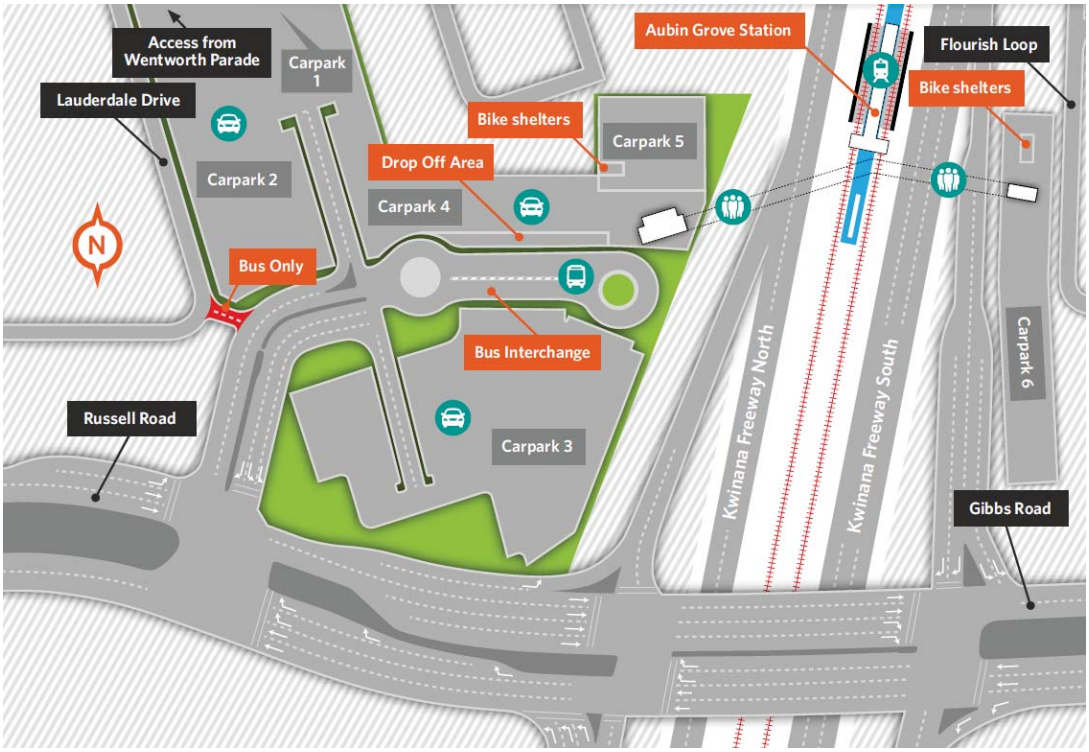


Figure 3: Aubin Grove station concept plan

3.0 Vehicle Access and Parking

Vehicular access to the subject site is proposed at two points as shown on the structure plan at Appendix A:

- At the northeast corner via a driveway connection to the future access road into the adjacent Aubin Grove station car park; and
- At the northwest corner via a driveway connection to Lauderdale Drive.

The proposed access driveway connection at the northeast corner of the site has previously been drawn up by AECOM (see Figure 4) on behalf of the PTA to confirm it is geometrically feasible and would operate on a left in / right out basis to provide access between the subject site and Russell Road.

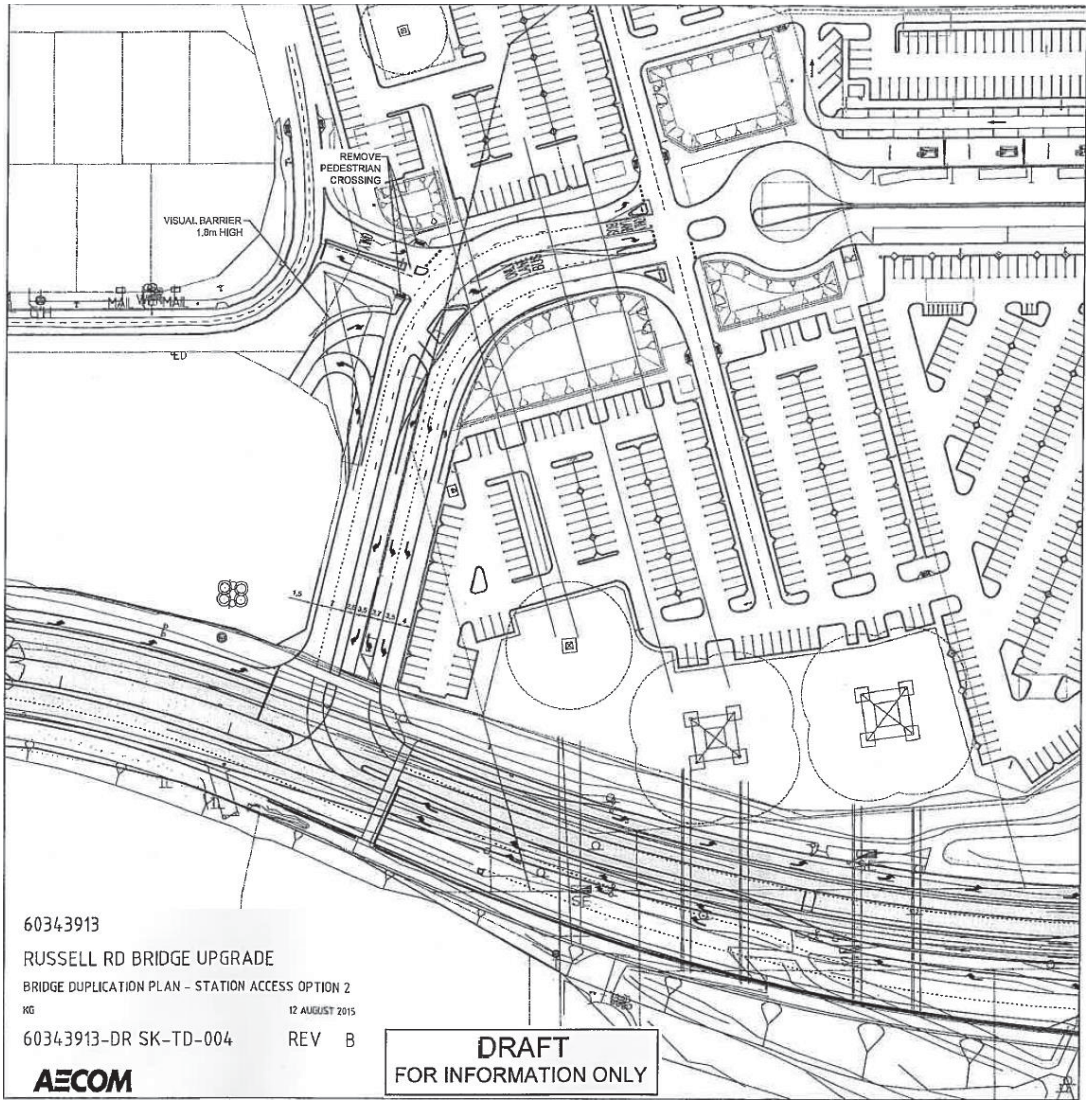


Figure 4: Proposed northeast driveway connection

It is anticipated that future development of the site would involve a substantial carpark at ground and/or basement level which would allow vehicles associated with this site to access both driveway connections but would not allow a through traffic route through the site.

Parking provision would be in accordance with Town Planning Scheme requirements and will be determined at development application stage.

The City of Cockburn has suggested that on-street parallel parking could be provided on Lauderdale Drive adjacent to the subject site as visitor parking for development of this site. It should be noted that such on-street visitor parking bays would need to have short term parking restrictions applied (eg. one hour parking limit) with enforcement by the City to ensure it is not simply used as free parking by train station patrons.

4.0 Provision for Service Vehicles

Waste collection, delivery and other service vehicle activity would be accommodated within the site, so the design of service areas and parking areas will need to take this requirement into consideration. This will be addressed at the development application stage when details of the future development are known.

5.0 Hours of Operation

The proposed development will be mainly residential in nature with a smaller commercial development component and will generate heaviest traffic movements during weekday morning and afternoon peaks. Therefore the combined peak period of site traffic and road network traffic is expected to be during the weekday AM and PM peak hours typically between 8-9am and 5-6pm.

6.0 Daily Traffic Volumes and Vehicle Types

6.1 Traffic Generation

The traffic volumes likely to be generated by the proposed commercial development have been estimated based on information sourced from the WAPC *Transport Impact Assessment Guidelines* (August 2016), the NSW *Guide to Traffic Generating Developments* (October 2002) and the NSW *Guide to Traffic Generating Developments Updated traffic surveys* (TDT 2013/ 04a, August 2013), which provide daily and/or peak hour trip rates for relevant land uses.

The WAPC TIA Guidelines (Volume 3, Table 2) provides traffic generation rates for several types of commercial development that could potentially apply on this proposed mixed use site including food retail, non-food retail and commercial (office) land uses. The highest traffic generation rate is associated with food retail, so that trip rate has been used in this transport impact statement. The trip rates are 2.5vph/100m^2 GFA (2.0 in / 0.5 out) during the AM peak hour and 10.0vph/100m^2 GFA (5.0 in / 5.0 out) during the PM peak hour.

The NSW Guide's updated traffic surveys provides guidance on trip rates for high density residential developments. For surveys in Sydney it reported average AM peak hour traffic generation of 0.19vph/unit and PM peak hour 0.15vph/unit. For surveys in regional locations it reported average AM peak hour traffic generation of 0.53vph/unit and PM peak hour 0.32vph/unit. The higher (regional) rates have been used in this transport impact statement. Guidance on residential traffic directional split has been sourced from WAPC TIA Guidelines (Volume 5, page 20).

Applying these traffic generation rates and the largest land use values in the ranges indicated in section 2.0 of this report results in the upper estimate of traffic generation shown in Table 1.

Table 1: Maximum peak hour trips for the proposed development

Land Use	Quantity	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Commercial	200m^2	4	1	5	10	10	20
Residential	80 units	10	32	42	17	9	26
Total		**14**	**33**	**47**	**27**	**19**	**46**

Peak hour traffic generation is typically around 10% of daily traffic generation for this type of development, so daily traffic generation is anticipated to be less than 500 vehicles per day (vpd).

It is anticipated that there would be very few delivery vehicles involved for the small commercial component of future development of the subject site, so the traffic generated by the subject site would be predominantly light vehicles only (cars, four-wheel drives, etc.).

For comparison, the current planning framework for this site is understood to have assumed an IGA supermarket or similar land use of approximately 1,000m^2 floor area and 15 to 20 grouped dwellings. Applying typical traffic generation rates from the WAPC TIA Guidelines (Volume 3, Table 2) would indicate traffic generation of 25vph (AM peak) to 100vph (PM peak) for the retail component and 16vph (both peaks) for 20 houses, which is a total of 41vph in the AM peak and 116vph in the PM peak period. Therefore development in accordance with the current planning framework would generate similar traffic flows in the AM peak but more than double the traffic flows in the PM peak compared to the traffic generation under the current proposal.

6.2 Trip Distribution

For residential subdivisions the NSW *Guide to Traffic Generating Developments* advises, "as a guide, about 25% of trips are internal to the subdivision, involving local shopping, schools and local social visits." Based on this guidance it is anticipated that approximately 25% of the traffic to and from the subject site would use the proposed Lauderdale Drive access point for local trips and the remaining 75% would use the proposed connection to the planned signalised intersection on Russell Road.

The proposed two-driveway access strategy for the subject site is designed to respond directly to this anticipated distribution of trips to and from this site. The Lauderdale Drive driveway will provide convenient access for local trips within Success while the proposed connection to the planned signalised intersection on Russell Road allows access to Russell Road for trips to and from the broader region via Russell Road and the freeway without funnelling that additional traffic component back through the surrounding local road network in Success.

Therefore it is anticipated that the subject site would generate traffic flows of approximately 12vph on Lauderdale Drive and 34 to 35vph on Russell Road.

6.3 Impact on Surrounding Roads

The WAPC TIA Guidelines (Volume 4, Part C, section 4) provides guidance on the extent of assessment required:

"As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore any section of road where the structure plan traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

The subject site will not increase traffic flows anywhere near the quoted WAPC threshold to warrant further analysis. As detailed in Section 6.2, the traffic generation

of the subject site on any lanes on the surrounding road network will be significantly less than 100vph, therefore the impact on the surrounding road network is considered to be insignificant.

7.0 Traffic Management on the Frontage Streets

Russell Road in the vicinity of the subject site is constructed as a dual carriageway road (two lanes in each direction) with a 6m central median. It also has 1.5m cycle lanes in each direction of traffic flow. It has a posted speed limit of 70km/h in this vicinity.

There is a 2m shared path on the north side of Russell Road adjacent to the subject site. Pedestrian crossing facilities including drop kerbs and median refuges are currently provided on Russell Rd approximately 150m east and west of the subject site. Pedestrian crossing movements are also facilitated at the northbound freeway ramps intersection on Russell Road approximately 250m east of the subject site.

Russell Road is classified as a *District Distributor A* road in the Main Roads WA *Functional Road Hierarchy* and is covered by an Other Regional Roads (ORR) reservation in the Metropolitan Region Scheme (MRS).

No on-street parking and no driveway accesses are permitted on this section of Russell Road.

A traffic count by the City of Cockburn (survey date 2 August 2016) recorded average weekday traffic flows of 18,865 vehicles per day (vpd) at the count location 600m west of the freeway (about 200m west of the subject site), with heavy vehicles making up 9.3% of that traffic flow.

Figure 5: Surrounding road network

Lamar Court is a short, north-south, access road between Russell Road and Lauderdale Drive, located about 40m west of the subject site. There is a 2m path on the eastern verge between Russell Road and Lauderdale Drive.

Lamar Road used to provide a left in / left out connection to Russell Road but this access was closed on 26 August 2016 at the request of the City of Cockburn and it is now a short cul-de-sac road with access only from Lauderdale Drive.

A traffic count by the City of Cockburn (survey date 5 August 2016) recorded average weekday traffic flows of 4,235vpd on Lamar Court, with heavy vehicles making up 6.7% of that traffic flow, prior to the recent road closure.

Lauderdale Drive is constructed to two different standards. The east-west section adjacent to the subject site is a 6m-wide, single carriageway, two-lane urban road with direct driveway access to adjacent residential properties. The north-south section connecting to Wentworth Parade in the north is approximately 7.2m wide. The default built up area speed limit of 50km/h applies.

There is a 2m path on the northern verge opposite the subject site and also a short section of 2m path on the southern verge extending from the Lamar Court path to the western boundary of the subject site.

A traffic count by the City of Cockburn (survey date 2 August 2016) recorded average weekday traffic flows of 3,290vpd (2.9% heavy vehicles) on Lauderdale Drive 180m south of Wentworth Parade (about 170m north of the subject site), prior to the recent closure of Lamar Court. Traffic volumes would now be greatly reduced since the closure of Lamar Court on 26 August 2016.

All intersections along Lauderdale Drive are simple T-intersections operating under give-way rules.

Aubin Grove Station Access: The future Aubin Grove Station access road is currently under construction immediately to the east of the subject site. The design concept is illustrated at Figure 3 and Figure 4 in this report. It will connect to Russell Road at a new signalised intersection, as shown. There will also be a 'bus only' road link to Lauderdale Drive, which is also shown on those figures.

8.0 Public Transport Access

The subject site is currently served by existing bus route 526, which passes within 350m north of the site on Wentworth Parade. Route 526 connects to the Mandurah railway line at Cockburn Central Station as shown in Figure 6.

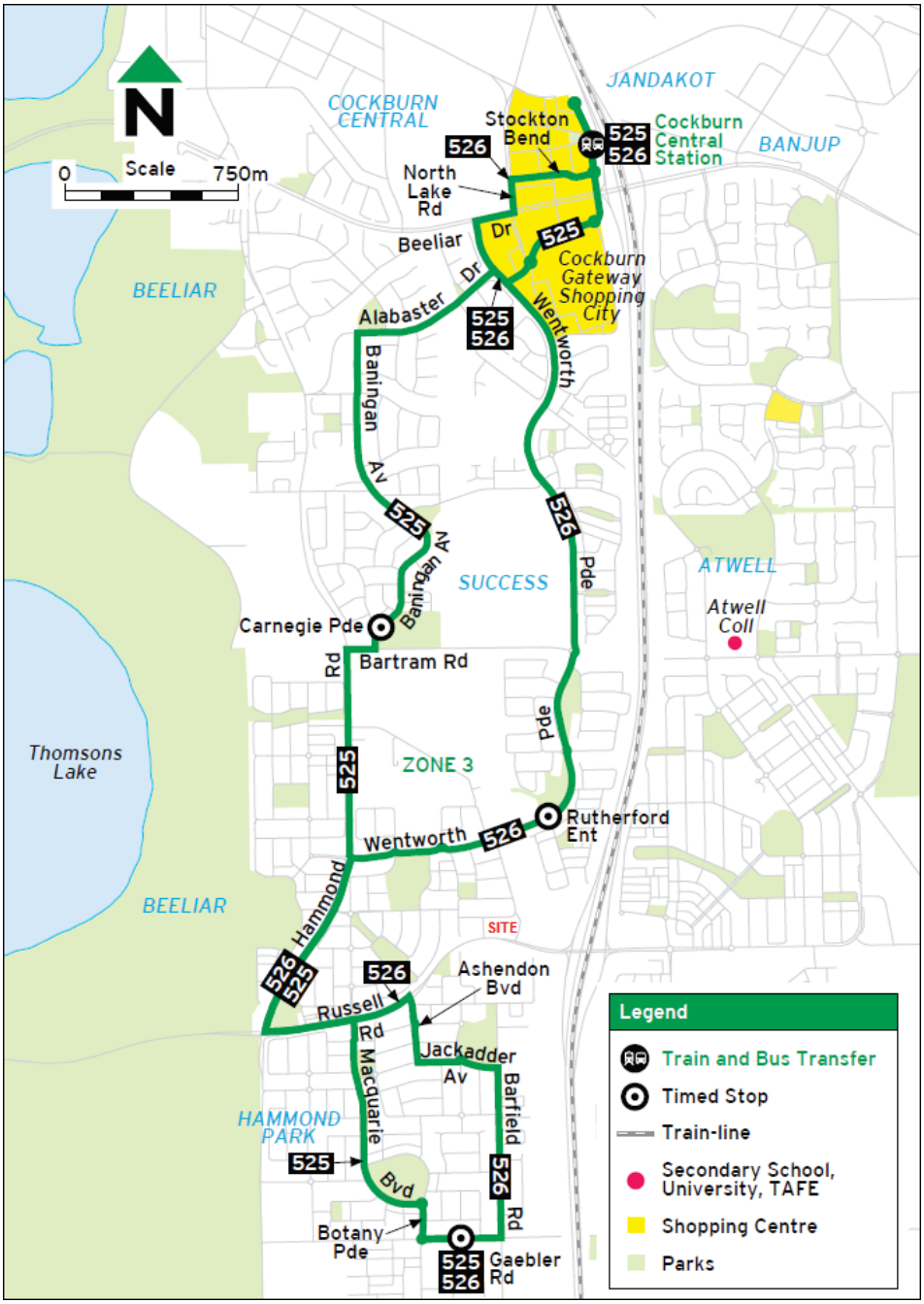


Figure 6: Existing bus routes

The future Aubin Grove Station on the Mandurah railway line is currently under construction immediately to the east of the subject site and will be within 400m (5-minute) walking distance from the subject site. The Aubin Grove Station concept plan is illustrated at Figure 3 in this report.

Existing bus services in this area will be significantly enhanced when this station is completed in 2017. Information on the Public Transport Authority website indicates there will be six feeder bus services into Cockburn and Aubin Grove stations.

9.0 Pedestrian Access

Pedestrians will access the site from the external footpath network abutting the site, with primary pedestrian entry provided along the Lauderdale Drive frontage of the site and strong pedestrian connections to Aubin Grove station.

It is therefore recommended that development of the subject site should include a 2m-wide path on the southern verge of Lauderdale Drive to complete the footpath link from Lamar Court to the station precinct adjacent to this site.

Existing pedestrian facilities on the surrounding road network are discussed in section 7.0 of this report.

The new signalised intersection to be constructed on Russell Road for car and bus access to the Aubin Grove station will also facilitate pedestrian and cyclist movements across Russell Road and the station access road.

10.0 Cycle Access

The relevant section of the Perth Bike Map produced by the Department of Transport is shown at Figure 7.

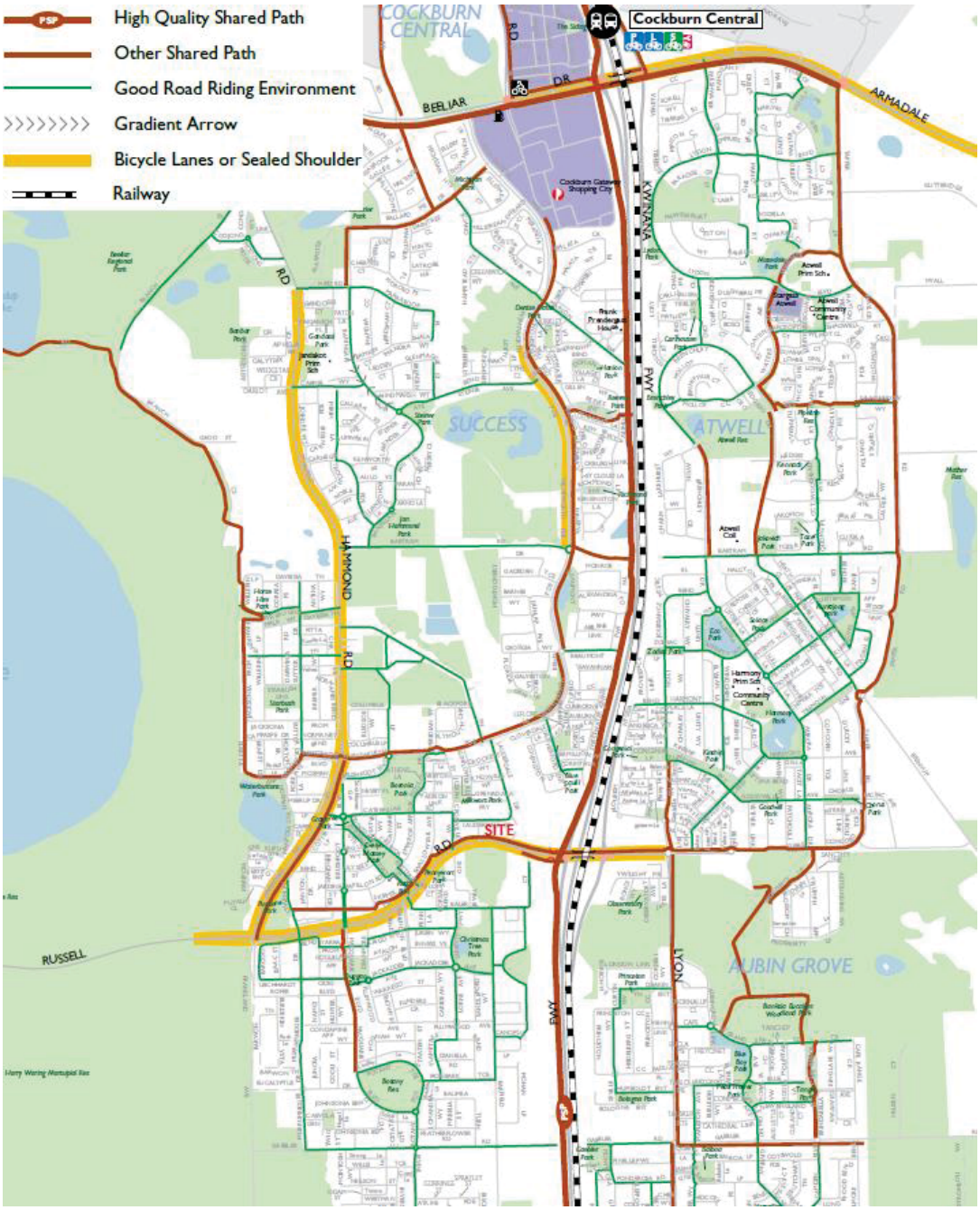


Figure 7: Existing bicycle facilities

The bike map indicates good pedestrian and cyclist connectivity to the subject site. A shared path and on-road cycle lanes are provided on Russell Road adjacent to the subject site and connects to the Principal Shared Path adjacent to the freeway.

Lauderdale Drive is identified as a good road riding environment for cycle access to the north and west within the adjacent residential area of Success.

11.0 Site Specific Issues

The subject site is located approximately 400m (a 5-minute walk) from the new Aubin Grove station that is currently under construction to the east of this site.

The proposed high density (R100) mixed used zoning for this site is consistent with the transit-oriented development principles of WAPC Development Control Policy 1.6: *Planning to Support Transit Use and Transit Oriented Development*. In particular, DC 1.6 encourages "Building robustness into the planning of transit oriented precincts ... including more compact mixed use developments and higher density residential uses."

Although the proposed Mixed Use (R100) zoning is still technically capable of accommodating a Local Centre with at-grade parking (similar to what may have occurred under the current structure plan approved for the site), it is considered far more likely that apartment-style development will prevail, with a smaller commercial offering, simply by virtue of increased development capability created by the R100 'highest and best use' density. In any case, it should be noted that urban design controls introduced as part of the new Structure Plan require that any surface parking is not visible from the streetscape and screened by built form.

The railway station is proposed to provide park'n'ride car parking for approximately 2000 vehicles. The majority of these parking spaces will be accessed from the new signalised intersection to be constructed on Russell Road immediately to the east of the subject site. Therefore the additional traffic flows of 34 to 35vph generated by the subject site (see sections 6.1 and 6.2 of this report) will represent a tiny proportion of the peak hour traffic flows entering and exiting through this signalised intersection, so the impact of this small amount of additional traffic will be negligible and does not require further analysis.

Provision of a 2m-wide footpath along the southern verge of Lauderdale Drive adjacent to the subject site to connect the existing path west of the site through to the railway station precinct should be a requirement for the future development of this site.

As part of the Urban Design Principles addressed as part of the Structure Plan, the design guidance encourages the use of alternative surface treatments for the access ways and crossovers, conducive to pedestrians, consistent with the built form objectives for the site.

12.0 Safety Issues

No safety issues were identified within the scope of this assessment.

13.0 Conclusions

This Transport Impact Statement has been prepared by Transcore on behalf of Gold Estates Holdings Pty Ltd with regard to the proposed Structure Plan for Lot 558 Lauderdale Drive, Success, in the City of Cockburn.

The subject site is located within 400m (a 5-minute walk) of the new Aubin Grove station currently under construction and the proposed high density (R100) mixed used zoning for this site is consistent with the transit-oriented development principles of WAPC Development Control Policy 1.6: *Planning to Support Transit Use and Transit Oriented Development*.

Proposed vehicular access to the subject site is as follows:

- At the northeast corner via a driveway connection to the future access road into the adjacent Aubin Grove station car park; and
- At the northwest corner via a driveway connection to Lauderdale Drive.

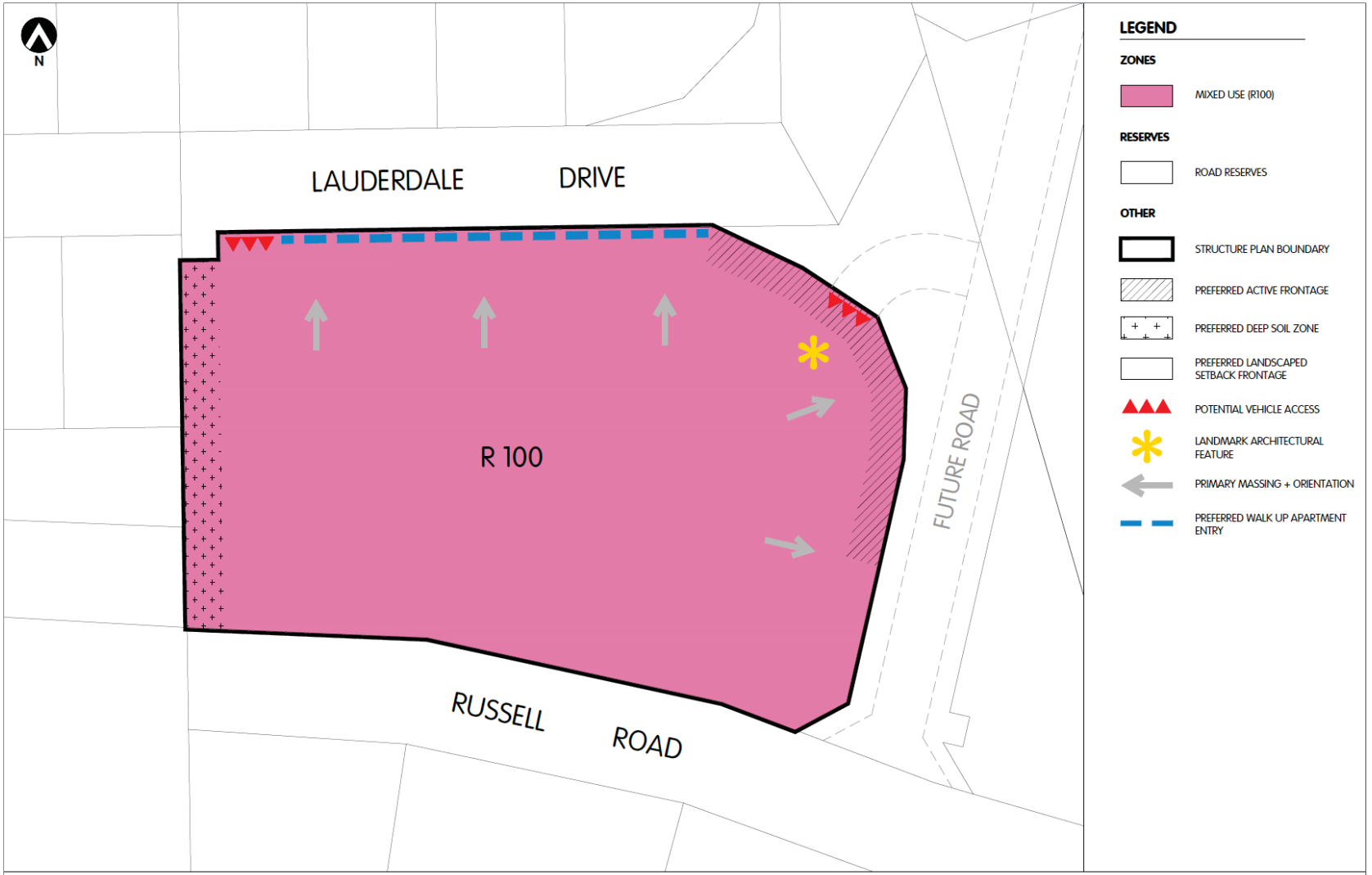
The proposed access driveway connection at the northeast corner of the site has previously been drawn up by the Public Transport Authority's engineering consultants to confirm it is geometrically feasible.

The upper estimate of potential future traffic generation of the subject site is less than 50 vehicles per hour and would not have any significant impact on the surrounding road network, including the new signalised intersection to be constructed on Russell Road immediately to the east of the subject site as part of the Aubin Grove station project.

Provision of a 2m-wide footpath along the southern verge of Lauderdale Drive adjacent to the subject site would connect the existing path west of the site through to the railway station precinct and is recommended as a requirement for the future development of this site.

Appendix A

PROPOSED STRUCTURE PLAN


N
LAUDERDALE DRIVE
R 100
FUTURE ROAD
RUSSELL ROAD
LEGEND
ZONES
MIXED USE (R100)
RESERVES
ROAD RESERVES
OTHER
STRUCTURE PLAN BOUNDARY
PREFERRED ACTIVE FRONTAGE
PREFERRED DEEP SOIL ZONE
PREFERRED LANDSCAPED SETBACK FRONTAGE
POTENTIAL VEHICLE ACCESS
LANDMARK ARCHITECTURAL FEATURE
PRIMARY MASSING + ORIENTATION
PREFERRED WALK UP APARTMENT ENTRY
CADASTRAL INFORMATION
SOURCE:
YYMMDD:
DWG REF:
PROJECTION:
AERIAL PHOTOGRAPHY
SOURCE:
YYMMDD:
DRAFT
SIZE A3
1:500
0 metres
D POTENTIAL VEHICLE ACCESS 160914 HH KV
C MINOR EDITS 160913 HH KV
B MINOR EDITS 160905 HH KV
A BASE PLAN 160831 HH KV
REV DESCRIPTION YYMMDD DRAWN APPR'D
STRUCTURE PLAN
Lot 558 Lauderdale Drive, Success
City of Cockburn
REF NO. RIC 558
DRAW NO. RD1 200
REV. D

APPENDIX B
LETTER FROM MINISTER FOR TRANSPORT

Minister for Transport

Our Reference: 53-09445

Joey Armenti
Ethical Government and Public Relations
Gold Estates Pty Ltd
PO Box 8210
Subiaco WA 6008

Dear ~~Mr Armenti~~ Joey

I refer to your letter dated 28 July 2015 regarding access to Lot 558, a parcel of land located opposite the future Aubin Grove train station.

I have been advised that further to receiving your letter, a meeting was held in my office on September 10, 2015 where Gold Estates Holdings Pty Ltd concerns in respect to access to Lot 558 were discussed.

I understand my office was represented by Mr Michael Buba (Chief of Staff), Mr Samuel Calabrese (Principal Policy Adviser) and Mr Leigh Boucher (Policy Adviser). The Public Transport Authority (PTA) was represented by Mr Ross Hamilton (Executive Director Major Projects) and Mr Ben Amrom (Project Director). Gold Estates Holdings Pty Ltd was represented by Mr Alex Gregg (Non-Executive Director Gold Estates) and Mr Behnam Bordbar (Managing Director Transcore) and yourself.

The meeting provided an opportunity for Gold Estates Holdings Pty Ltd to identify concerns with the project and the PTA were invited to clarify the status of the project and the engineering rational behind the proposed design. The discussion also identified possible access alternatives that could be considered when a known land use is established by Gold Estates Holdings Pty Ltd via the Development Approval process.

PTA has advised that subsequent to the meeting variations on the possible access alternatives were actioned by both parties and that although it did not change the proposed design it did confirm that an alternative access arrangement would be possible in the future under certain conditions pending the proposed land use. PTA met with the City of Cockburn (the City) and the Department of Planning after the meeting and confirmed with both parties that whilst access remains to Lot 558 from Lauderdale Drive, alternative access could be developed to provide access to Russel Road.

Level 7, Dumas House, 2 Havelock Street, West Perth, Western Australia, 6005
Telephone: +61 8 6552 6400 Facsimile: +61 8 6552 6401 Email: minister.nalder@dpc.wa.gov.au

The PTA station development proposal was subsequently formally assessed and determined at the Joint Development Assessment Panel (JDAP) meeting held in Perth on 15 October 2015 (Metro South-West JDAP No. 81). The meeting provided an opportunity for presentations by the City, Gold Estates Holdings Pty Ltd, the Department of Planning and a response from the PTA.

During its presentation the City raised no concerns or objection in respect to PTA's proposal as far as it relates to access to Lot 558. Gold Estates Holdings Pty Ltd raised its concerns with the development proposal and put forward its position in relation to the existing Structure Plan and proposed changes to access. The Department of Planning noted that the Structure Plan does not prescribe access arrangements. They also noted that in the absence of access requirements of an adjoining landowner that have not been crystallised in the form of a development application, consideration must be given to safe and efficient traffic movement to the station bus transfer and parking area.

In response PTA advised that:

- Discussions had occurred with Gold Estates and information shared;
- PTA and Main Roads Western Australia (MRWA) have undertaken extensive traffic impact studies to establish the most suitable design and adequate information articulating PTA's basis of design was contained in PTA's submission;
- Adopting any sort of roundabout design would significantly impact the railway station operation to an unacceptable level as this option would place significant operational constraints for exiting and entering traffic and bus journey times and minimise the benefits of the Russell Road Bridge duplication; and
- PTA has developed a suitable access alternative which provides reasonable access without compromising access to the station for the anticipated 4,000 passengers that will use the station every day.

The JDAP members considered the submissions and information provided by all parties including Gold Estates Holdings Pty Ltd's request for the JDAP to defer its determination. This was not successful and the JDAP advised Gold Estates Holdings Pty Ltd that any changes to the approved scheme would need to be considered as part of any future development approval process for the site.

I am satisfied that due process has been followed and that, subject to the submission of a development application for Lot 558, amendments to the station access road can be considered as part of that development approval process in the future.

Thank you for writing to me on these matters.

Yours sincerely

Dean Nalder MLA
MINISTER FOR TRANSPORT

03 NOV 2015

APPENDIX C
BUSHFIRE MANAGEMENT PLAN

FPA AUSTRALIA | Fire Protection Association Australia | Life. Property. Environment.

BPAD Bushfire Planning & Design

Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Bushfire Management Plan and Site Details

Site Address / Plan Reference: Lot 558 Lauderdale Drive

Suburb: Success **State:** WA **P/code:** 6164

Local government area: City of Cockburn

Description of the planning proposal: Structure Plan and rezoning application

BMP Plan / Reference Number: RNO16640.01 **Version:** Rev 0 **Date of Issue:** 23/12/2016

Client / Business Name: Richard Noble

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	☐	☒
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?	☐	☒
Is the proposal any of the following special development types (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)	☐	☒
Strategic planning proposal (including rezoning applications)	☒	☐
Minor development (in BAL-40 or BAL-FZ)	☐	☒
High risk land-use	☐	☒
Vulnerable land-use	☐	☒

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The proposal is a strategic planning proposal (Structure Plan and rezoning application).

Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

BPAD Accredited Practitioner Details and Declaration

Name	Accreditation Level	Accreditation No.	Accreditation Expiry
Zac Cockerill	Level 2	BPAD37803	31/08/2017
Company		**Contact No.**	
Strategen Environmental		9792 4797	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner  **Date** 23/12/2016

Bushfire Management Plan

Lot 558 Lauderdale Drive, Success

Prepared for
Richard Noble
by Strategen

December 2016

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

strategen ENVIRONMENTAL

Bushfire Management Plan

Lot 558 Lauderdale Drive, Success

Strategen is a trading name of
Strategen Environmental Consultants Pty Ltd
Level 1, 50 Subiaco Square Road Subiaco WA 6008
ACN: 056 190 419

December 2016

Limitations

Scope of services

This report ("the report") has been prepared by Strategen Environmental Consultants Pty Ltd (Strategen) in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, Strategen has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, Strategen has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen has also not attempted to determine whether any material matter has been omitted from the data. Strategen will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Strategen. The making of any assumption does not imply that Strategen has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. Strategen disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

Client: Richard Noble

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
Draft Report	Rev A	For review by client	Z Cockerill (BPAD37803) / R Banks (BPAD36857)	Electronic (email)	22/12/2016
Final Report	**Rev 0**	**Issued for use: to accompany Structure Plan and rezoning submission**	**Z Cockerill (BPAD37803)**	**Electronic (email)**	**23/12/2016**

Filename: RNO16640_01 R001 Rev 0 - 23 December 2016

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1. Introduction

1.1 Background

Richard Noble has lodged a Structure Plan amendment to rezone Lot 558 Lauderdale Drive, Success (hereon referred to as the project area) to 'Mixed Use (R100)', as depicted in Figure 1. Proposed rezoning of the project area aims to facilitate development of multi-storey apartments and some associated ground level landscaping.

The vast majority of the project area is designated as bushfire prone on the WA *Map of Bush Fire Prone Areas* (DFES 2016) due to vegetation retained within Baler Reserve (R 48716) opposite Russell Road to the south. As a result, Strategen has prepared this Bushfire Management Plan (BMP) to inform strategic planning and fulfil the following key objective:

1. Accompany the proposed Structure Plan and rezoning submission made to Western Australian Planning Commission (WAPC) in order to meet planning requirements triggered under *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015a).

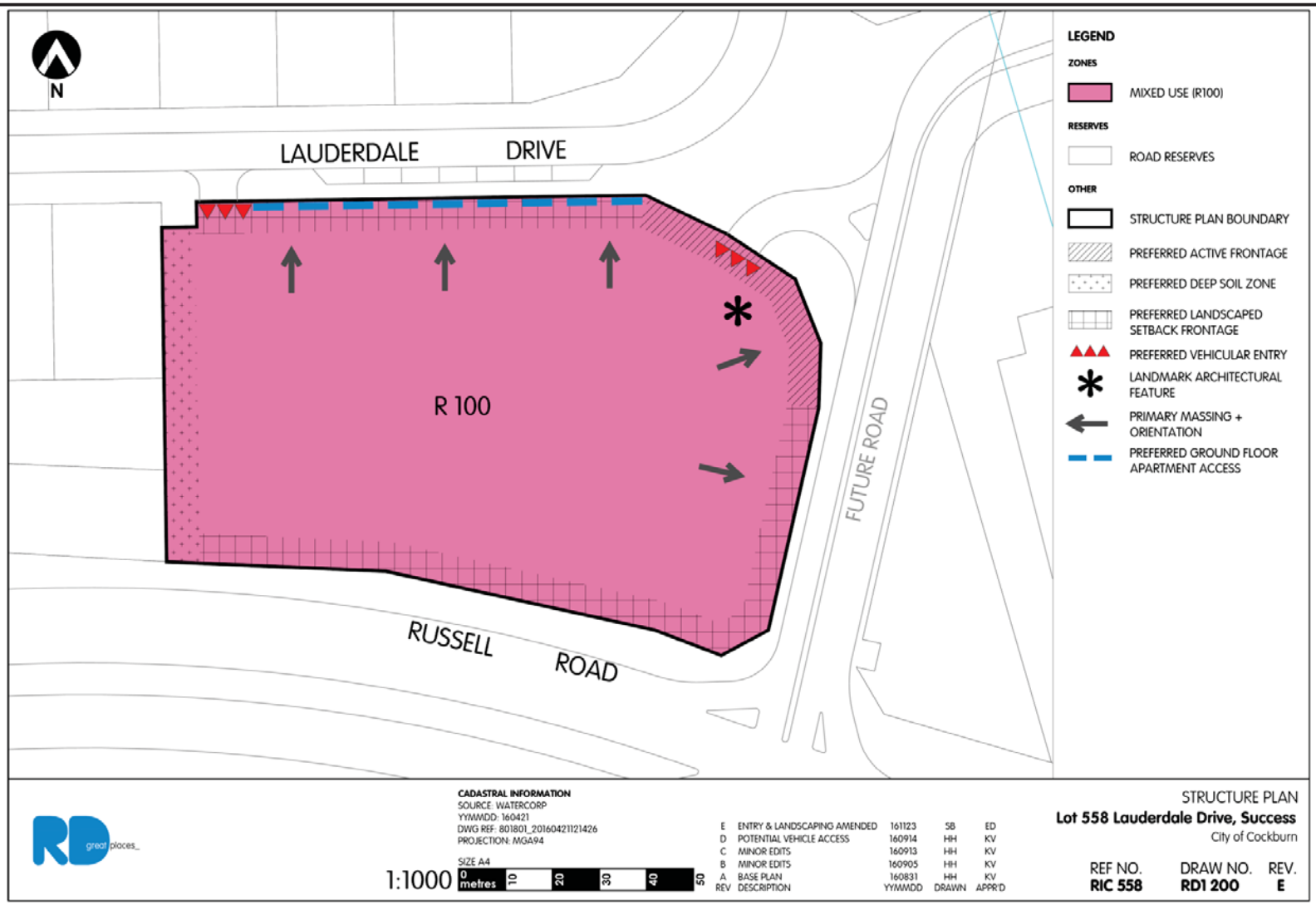
The following information is required as part of this BMP to accompany the proposed Structure Plan and rezoning submission to address SPP 3.7 Policy Measure 6.3:

- since lot layout of the proposal is known, results of a Bushfire Attack Level (BAL) contour map to determine the indicative acceptable BAL ratings across the subject site in accordance with *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2015b) – refer to Section 2.3 and Figure 4
- identification of any bushfire hazard issues arising from the BAL contour assessment – refer to Section 2.4
- clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages – refer to Section 4 and Table 2.

This BMP has been prepared in accordance with the Guidelines and addresses all of the above information requirements to satisfy SPP 3.7 specific to the strategic planning stage for this project.

1.2 Purpose and application of the plan

The purpose of this BMP is to provide guidance on how to plan for and manage the bushfire risk to future life and property assets of the project area through incorporation of a range of bushfire management measures into early stage planning and building design. The BMP outlines how future on-site assets can be protected during the summer months when the threat from bushfire is at its peak. This is particularly relevant when existing fire appliances in the area may be unable to offer an immediate emergency suppression response; therefore, development planning and design should aim to provide mitigation strategies that protect future life and property from bushfire as a priority.



Source: Roberts Day 2016

Figure 1: Structure Plan

2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area comprises Lot 558 Lauderdale Drive, Success in the City of Cockburn, which currently occupies approximately 0.63 ha of cleared land (Figure 2). The project area is bound by:

- Russell Road and vegetated Baler Reserve (R 48716) to the south
- Ricci Way and Lot 645 to the east, which consists of the Aubin Grove train station and car park
- high density urban residential development to the west
- Lauderdale Drive and high density urban residential development to the north.

2.1.2 Zoning and land use

The project area is currently zoned 'Urban' under provisions of the Metropolitan Region Scheme and 'Development' under provisions of the City of Cockburn Local Planning Scheme (LPS) No. 3. The proposed Structure Plan and rezoning aims to modify the current LPS zoning classification to 'Mixed Use (R100)'. The project area does not contain any vegetation and is currently cleared and undergoing earthworks.

Adjacent land is similarly zoned, with the predominant use to the north and west being high density urban residential development and the predominant use to the east being the Aubin Grove train station and car park. Baler Reserve (R 48716) is situated opposite Russell Road to the south of the project area and consists of a fully vegetated conservation reserve, actively managed by City of Cockburn (the City) under the City's Natural Area Management Strategy.

2.1.3 Assets

The project area is in a cleared, undeveloped state and does not contain any life, property or environmental assets. Life and property assets are contained to the north, east and west of the project area in the form of developed urban land. Environmental assets are contained to the south of the project area within Baler Reserve (R 48716).

2.1.4 Access

The public road network around the project area has already been constructed and consists of Lauderdale Drive to the north, Ricci Way to the east, Russell Road to the south and Lamar Court to the west. Kwinana Freeway is also located within 500 m to the east of the project area.

2.1.5 Water and power supply

Reticulated mains water and underground power supplies are available to the project area.

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strategen ENVIRONMENTAL	Bushfire Management Plan Lot 558 Lauderdale Drive, Success Site Overview	Figure 2

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2.2 Existing fire environment

2.2.1 Vegetation class

Pre-development vegetation class has been assessed for this site in accordance with methodology contained within *AS 3959–2009 Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2009). Strategen assessed vegetation class within the project area and adjacent 100 m through on-ground site investigation on 14 December 2016. A summary of results is provided below and depicted in Figure 3:

1. Class A forest occurs throughout a large proportion of Baler Reserve to the south in association with wetland vegetation and a three tiered fuel profile dominated by *Eucalyptus rudis* (Flooded gum) in the overstorey, *Melaleuca spp* (Paperbark) in the midstorey and understorey scrub species.
2. Class B woodland occurs throughout pockets of Baler Reserve to the south in association with wetland vegetation dominated by Paperbark in a single, midstorey fuel profile.
3. Non-vegetated areas where vegetation has been removed for the construction of roads, tracks, boardwalks, firebreaks and buildings are excluded from classification under Clause 2.2.3.2 (e) of AS 3959.
4. Areas where the vegetation is managed in a low threat, minimal fuel condition such as road verges and managed landscaping are excluded from classification under Clause 2.2.3.2 (f) of AS 3959.

Strategen has compiled a comprehensive array of georeferenced photographs taken during on-ground site investigation, which are contained in Appendix 1 and demonstrate the location, direction and class of vegetation observed.

2.2.2 Effective slope

Effective slope has been assessed for this site in accordance with methodology contained within AS 3959. Strategen assessed effective slope within 100 m of the project area through on-ground site investigation on 14 December 2016 and this information is depicted in Figure 3.

No discernible slope was identified under vegetation during the site investigation; therefore, effective slope has been assessed as being 0 degrees. These results are supported by topographic contours and elevation depicted in Figure 3, which indicate that vegetation within Baler Reserve to the south is situated on predominantly flat ground ranging from 23–24 mAHD (Australian Height Datum).

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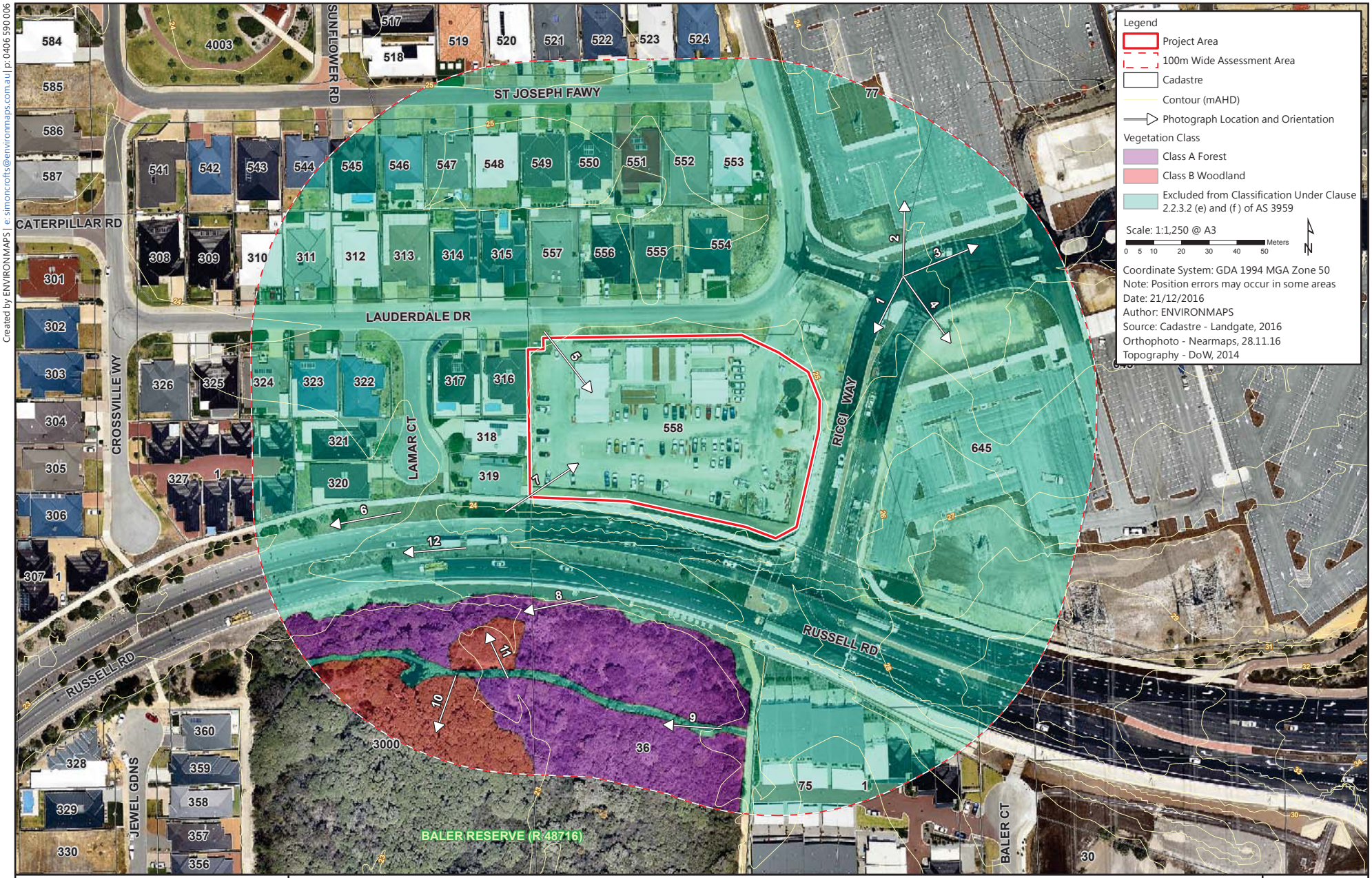

Bushfire Management Plan Lot 558 Lauderdale Drive, Success

Vegetation Class and Effective Slope

Figure 3

2.3 Bushfire Attack Level (BAL) contour assessment

Since classified vegetation has been identified within 100 m of the project area, BAL assessment and application of AS 3959 is required to inform future building location, design and construction requirements. This has been undertaken in the form of a BAL contour map, which specifies the indicative acceptable BAL ratings across the project area in accordance with post development conditions.

The Method 1 procedure for calculating the BAL (as outlined in AS 3959) incorporates the following factors:

- state-adopted Fire Danger Index (FDI) rating
- vegetation class
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

A Method 1 BAL calculation for proposed development is outlined in the following subsections. This assessment is considered suitable for the purposes of informing future planning/building stages; however, acceptance of the BAL contour map at future planning/building stages is at the discretion of the City and reassessment of the BAL may be required should there be any significant changes in proposed development design/layout or vegetation class extent.

2.3.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in AS 3959 and endorsed by Australasian Fire and Emergency Service Authorities Council.

2.3.2 Vegetation class

Vegetation class is described in Section 2.2.1 (Figure 3). The worst case vegetation affecting the project area is Class A forest located within Baler Reserve to the south.

2.3.3 Effective slope

Effective slope is described in Section 2.2.2 (Figure 3) and consists of flat land (0 degrees).

2.3.4 Distance between proposed development areas and the classified vegetation

The minimum separation distance between proposed development areas and the classified vegetation is approximately 40 m, consisting of Russel Road reserve and internal development setback areas, both of which will be maintained in a non-vegetated/low threat managed state.

2.3.5 Method 1 BAL calculation

A Method 1 BAL calculation has been completed for the project area in accordance with AS 3959 methodology (Table 1). The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed development areas and subsequently informs the standard of building construction required for proposed development to potentially withstand such impacts.

The assessed BAL contours are depicted in Figure 4 and represent post-development conditions. Land within the project area that is unaffected by a BAL rating on the BAL contour map is considered to be BAL–Low, where there is insufficient risk to warrant specific building construction requirements.

Table 1: Method 1 BAL calculation

Vegetation class	Effective slope	BAL contour width (m)	BAL rating	Comment
Class A forest within Baler Reserve to the south	Flat land (0 degrees)	<16	BAL–FZ	No development is proposed in this area
		16–<21	BAL–40	No development is proposed in this area
		21–<31	BAL–29	No development is proposed in this area
		31–<42	BAL–19	Development may occur in this area
		42–<100	BAL–12.5	Development is likely to occur in this area

2.4 Identification of bushfire hazard issues

There is no significant landscape scale bushfire risk to the project area due to the significant extent of cleared, developed land throughout the locality. The only patch of remnant vegetation in proximity to the project area is Baler Reserve (R 48716), situated approximately 40 m to the south opposite Russell Road. Future life and property assets could potentially receive bushfire impacts from this vegetation, particularly under predominant afternoon weather conditions in summer and associated prevailing winds from the south and southwest. A bushfire approaching the site under these conditions may exhibit increased levels of radiant heat and ember attack; however, due to the relatively short fire run (around 250 m), bushfire behaviour is unlikely to reach full escalation and the period of exposure to bushfire impacts is likely to be reduced. In addition, Baler Reserve is bound by a combination of public roads, firebreaks and access trails, including the 40 m wide Russell Road reserve and these provide significant levels of hazard separation, defendable space and emergency access at the bushland interface should a bushfire occur in this area.

On the basis of the above information, Strategen considers that the bushfire risk to this site is readily manageable through standard management responses and compliance with acceptable solutions outlined in the Guidelines and AS 3959. These management measures are documented in this BMP (Section 3) and will be factored in to future development stages to ensure a suitable, compliant and effective bushfire management outcome is achieved for the protection of future life and property assets.

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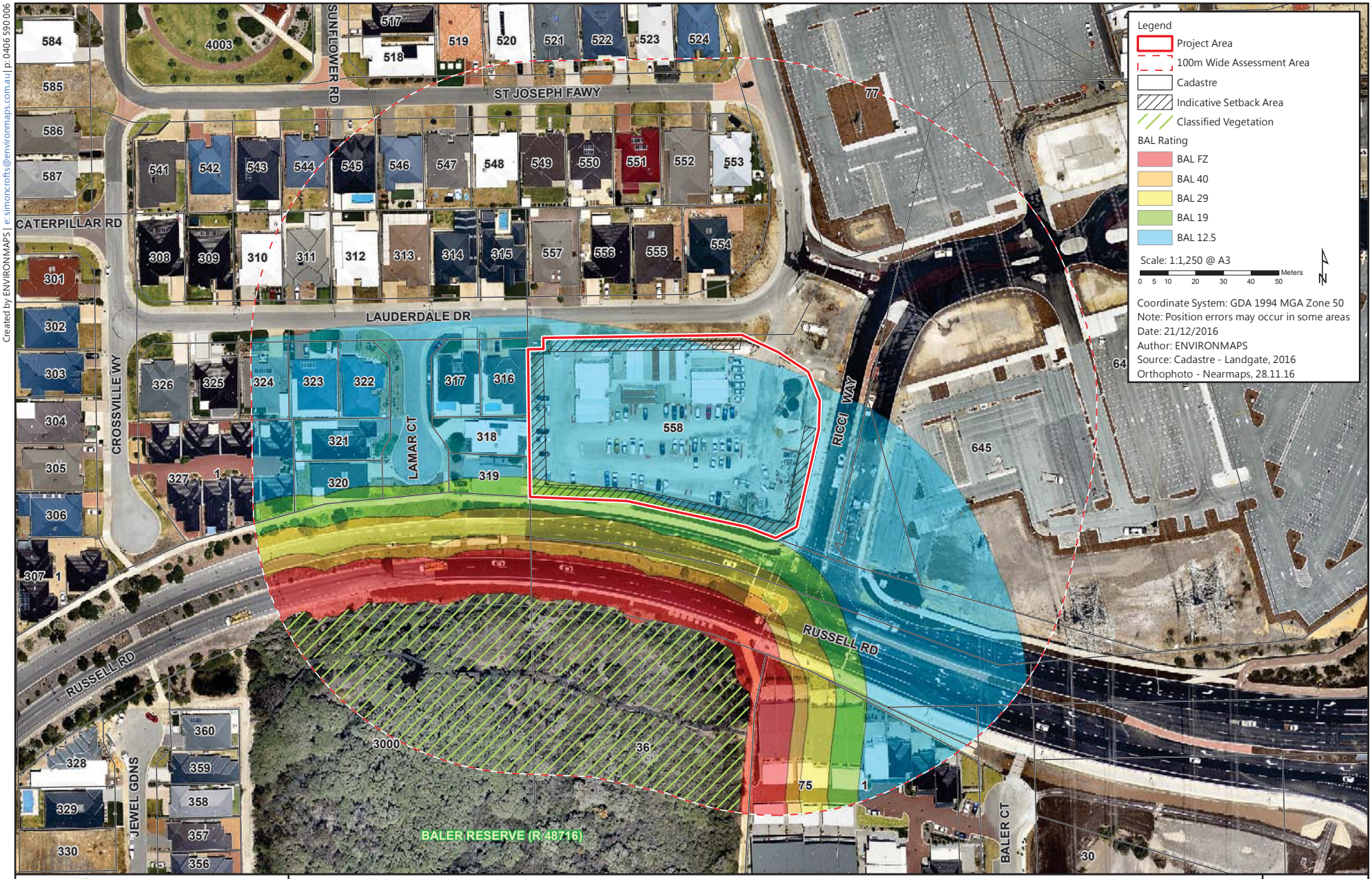


Bushfire Management Plan Lot 558 Lauderdale Drive, Success

BAL Contour Map: Lot 558 Lauderdale Drive, Success

Figure 4

3. Bushfire management measures

Strategen has identified a range of bushfire management measures that on implementation will enable the project area to be developed with a manageable level of bushfire risk and full compliance with the Guidelines and AS 3959. The bushfire management measures are discussed in the following subsections.

3.1 Separation distances and fuel management

A significant separation distance is already in-situ at the bushland interface in the form of Russell Road, which consists of non-vegetated sealed areas and low threat managed road verges. In addition, proposed development setback areas will be implemented around the internal perimeter of the site consisting of proposed landscape and deep soil zones, which will be maintained in a low threat managed state. The combination of these areas will result in a minimum setback of approximately 40 m from the adjacent bushland, which exceeds minimum APZ requirements in accordance with acceptable solution A2.1 of the Guidelines and will ensure proposed development achieves a rating of BAL–29 or lower in accordance with acceptable solution A1.1 of the Guidelines.

Proposed landscaped areas within the site and adjacent road verge areas within Russell Road reserve to the south will be managed in a low threat state to ensure the abovementioned separation distance is maintained on an ongoing basis. This will be achieved via ongoing slashing, mulching and/or spraying for weeds as required.

Formal HSZs in accordance with acceptable solution A 2.2 of the Guidelines will not be required for this site since the separation distance will be sufficient enough for proposed development to achieve a rating of BAL–29 or lower and building construction will meet the standard appropriate to the BAL for that location (WAPC 2015b).

3.2 BAL assessment and increased building construction standards

Strategen has undertaken BAL contour assessment across the project area and determined that the majority of the site will need to be constructed to a BAL–12.5 standard in accordance with building construction provisions of the National Construction Code and AS 3959. A very small portion of the south-western corner of the site is affected by a BAL–19 rating; however, Strategen considers that this rating can be avoided through strategic building location, which is to be confirmed at future development stages once detailed building design and location has been determined.

As previously discussed, the BAL contour map outlined in Figure 4 is considered suitable for the purposes of informing future planning/building stages; however, acceptance of the BAL contour map at future planning/building stages is at the discretion of the City and reassessment of the BAL may be required should there be any significant changes in proposed development design/layout or vegetation class extent.

The BAL contour map clearly indicates that no development will occur within areas of BAL–FZ or BAL–40, meaning that all proposed development within the project area can achieve a rating of BAL–29 or lower in accordance with Guideline acceptable solution A 1.1. Land within the project area that is unaffected by a BAL rating on the BAL contour map is considered to be BAL–Low, where there is insufficient risk to warrant specific building construction requirements.

3.3 Vehicular access

The public road network around the project area has already been constructed and consists of Lauderdale Drive to the north, Ricci Way to the east, Russell Road to the south and Lamar Court to the west. Two vehicle entry points will be provided as part of proposed development, one with Lauderdale Drive to the north and one with Ricci Way to the east. Kwinana Freeway is also located within 500 m to the east of the project area, which provides a major transport connector north and south of the site.

The above road network will ensure a minimum of two different vehicular access routes are provided to the site, both of which connect to the surrounding public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions in accordance with acceptable solution A3.1. No new vehicular access roads are being constructed as part of proposed development; therefore, compliance with acceptable solutions A3.2, A3.3, A3.4, A3.5, A3.6 and A3.7 are not applicable to this development. Compliance with acceptable solution A3.8 and the City of Cockburn annual firebreak notice will be achieved automatically by virtue of the type of development and adjacent land consisting of either buildings, managed landscaping and surrounding roads.

3.4 Reticulated water supply

Reticulated water supply and a network of hydrants have already been constructed as part of existing development within the project area and adjacent road network. This will ensure an all year round supply of water is provided for proposed development to meet minimum domestic and emergency water supply requirements. This will therefore meet the intent of Element 4 of the Guidelines through compliance with acceptable solution A4.1.

3.5 Additional measures

Strategen makes the following additional recommendations to inform ongoing development stages:

1. Notification on Title: should subdivision application be lodged as part of ongoing planning for this site, then notification is to be placed on the Title of all proposed lots (either through condition of subdivision or other head of power) to ensure all landowners/proponents and prospective purchasers are aware that the proposed development is currently situated in a designated bushfire prone area and that increased building construction standards may apply to future buildings as determined by this BMP or future BAL assessment. The notification on title is also to include that the site is subject to a Bushfire Management Plan.
2. BMP addendum or future BAL assessment: should there be any significant change in development design or vegetation class extent, then an addendum to this BMP or reassessment of the BAL may be required to support future planning/building stages to ensure bushfire management responses for proposed development are consistent with on-ground conditions.

4. Proposal compliance and justification

Proposed development within the project area is required to comply with SPP 3.7 under the following policy measures:

6.2 Strategic planning proposals, subdivision and development applications

a) Strategic planning proposals, subdivision and development applications within designated bushfire prone areas relating to land that has or will have a Bushfire Hazard Level (BHL) above low and/or where a Bushfire Attack Level (BAL) rating above BAL-LOW apply, are to comply with these policy measures.

b) Any strategic planning proposal, subdivision or development application in an area to which policy measure 6.2 a) applies, that has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval where it can be undertaken in accordance with policy measures 6.3, 6.4 or 6.5.

c) This policy also applies where an area is not yet designated as a bushfire prone area but is proposed to be developed in a way that introduces a bushfire hazard, as outlined in the Guidelines.

6.3 Information to accompany strategic planning proposals

Any strategic planning proposal to which policy measure 6.2 applies is to be accompanied by the following information prepared in accordance with the Guidelines:

a) (i) the results of a BHL assessment determining the applicable hazard level(s) across the subject land, in accordance with the methodology set out in the Guidelines. BHL assessments should be prepared by an accredited Bushfire Planning Practitioner; or

a) (ii) where the lot layout of the proposal is known, a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. The BAL Contour Map should be prepared by an accredited Bushfire Planning Practitioner; and

b) the identification of any bushfire hazard issues arising from the relevant assessment; and

c) clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages.

This information can be provided in the form of a Bushfire Management Plan or an amended Bushfire Management Plan where one has been previously endorsed.

Implementation of this BMP is expected to meet the following objectives of SPP 3.7:

5.1 Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount.

5.2 Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.

5.3 Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures.

5.4 Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.

In response to the above requirements of SPP 3.7, the bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with acceptable solutions of the Guidelines to meet compliance with bushfire protection criteria. An ‘acceptable solutions’ assessment is provided in Table 2 to assess the proposed bushfire management measures against each bushfire protection criteria in accordance with the Guidelines and demonstrate that the measures proposed meet the intent of each element of the bushfire protection criteria.

Table 2: Acceptable solutions assessment against bushfire protection criteria

Bushfire protection criteria	Intent	Acceptable solutions	Proposed bushfire management measures	Compliance statement
Element 1: Location	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure	A1.1 Development location The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL–29 or below.	Refer to Section 3.1 and 3.2, which demonstrate that development will only occur in areas of BAL–29 or lower. No development will occur in areas of BAL–FZ or BAL–40.	The measures proposed are considered to comply and meet the intent of Element 1 Location.
Element 2: Siting and design of development	To ensure that the siting and design of development minimises the level of bushfire impact	A2.1 Asset Protection Zone Every building is surrounded by an APZ, depicted on submitted plans, which meets detailed requirements (refer to the Guidelines for detailed APZ requirements).	Refer to Section 3.1, which demonstrates that a minimum separation distance of approximately 40 m will be achieved at the bushland interface, which exceeds minimum APZ requirements.	The measures proposed are considered to comply and meet the intent of Element 2 Siting and design of development
		A2.2 Hazard Separation Zone Every building and its contiguous APZ is surrounded by an HSZ, depicted on submitted plans, that meets detailed requirements (refer to the Guidelines for detailed HSZ requirements). An HSZ may not be required if the proposed construction meets the standard appropriate to the BAL for that location, and does not exceed BAL–29.	HSZs are not required for this development since individual building construction will meet the standard appropriate to the BAL for that location (i.e. BAL–29 or lower).	
Element 3: Vehicular access	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event	A3.1 Two access routes Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.	Refer to Section 3.3, which demonstrates that a minimum of two different vehicular access routes will be provided for the proposed development at all times via the existing external road network.	The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access
		A3.2 Public road A public road is to meet the requirements in Table 4 Column 1 of the Guidelines.	N/A No public roads are proposed as part of development.	
		A3.3 Cul-de-sac (including a dead-end-road) A cul-de-sac and/or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), detailed requirements will need to be achieved as per Table 4 Column 2 of the Guidelines.	N/A No cul-de-sacs are proposed as part of development.	
		A3.4 Battle-axe Battle-axe access legs should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) detailed requirements will need to be achieved as per Table 4 Column 3 of the Guidelines.	N/A No battle-axe lots are proposed as part of development.	

		A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements as per Table 4 Column 3 of the Guidelines.	N/A No private driveways longer than 50 m are proposed as part of development.	
		A3.6 Emergency access way An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements as per Table 4 Column 4 of the Guidelines.	N/A No emergency access ways are required as part of development.	
		A3.7 Fire service access routes (perimeter roads) Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for fire fighting purposes. Fire service access routes are to meet detailed requirements as per Table 4 Column 5 of the Guidelines.	N/A No fire service access routes are required as part of development.	
		A3.8 Firebreak width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government	N/A No firebreaks are required as part of development.	
Element 4: Water	To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.	A4.1 Reticulated areas The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.	Refer to Section 3.4, which demonstrates that proposed development will be provided a reticulated water supply and network of hydrants to meet minimum domestic and emergency water supply requirements.	The measures proposed are considered to comply and meet the intent of Element 4 Water
		A4.2 Non-reticulated areas Water tanks for fire fighting purposes with a hydrant or standpipe are provided and meet detailed requirements (refer to the Guidelines for detailed requirements for non-reticulated areas)	N/A The proposed development will not occur within a non-reticulated area.	
		A4.3 Individual lots within non-reticulated areas (only for use if creating 1 additional lot and cannot be applied cumulatively) Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10 000 litres.	N/A The proposed development will not occur within a non-reticulated area.	

5. Implementation, enforcement and review

Implementation of the BMP applies to the developer, prospective landowners and the City to ensure bushfire management measures are adopted and implemented on an ongoing basis. A works program and summary of bushfire management measures is provided in Table 3. These measures will be implemented to ensure the ongoing protection of proposed life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 3: Proposed works program

Bushfire management measure	Timing for application	Responsibility
Fuel management throughout landscaped areas of the site and adjacent road verges to maintain the separation distance between classified vegetation and proposed development areas	As required via slashing, mulching and/or spraying to keep these areas in a low threat minimal fuel condition on an ongoing basis	Relevant land manager
Implementation of increased building construction standards as per the BAL contour assessment or future BAL assessment	As required during construction of buildings in accordance with AS 3959	Builder, prospective landowners
Notification on Title	Following subdivision approval (if required)	Developer
Preparation of BMP addendum or individual lot BAL assessment	As required at the discretion of the City or following any significant change in development design or vegetation class extent	Developer and/or prospective landowners

This BMP will be updated as required in response to any significant changes in development design and/or the classified vegetation extent to ensure bushfire management responses for proposed development are consistent with on-ground conditions. The developer will be responsible for updating and revising the BMP until such time that the development is complete.

6. References

Department of Fire and Emergency Services (DFES) 2016, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: *http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx*, [13/12/2016].

Roberts Day 2016, *Structure Plan Lot 558 Lauderdale Drive, Success*, plan prepared for Richard Noble, November 2016.

Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

Western Australian Planning Commission (WAPC) 2015a, *State Planning Policy 3.7 Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.

Western Australian Planning Commission (WAPC) 2015b, *Guidelines for Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.

Appendix 1
Site photographs

Photo Point 1: Non-vegetated areas and low threat managed vegetation excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959, northeast of project area

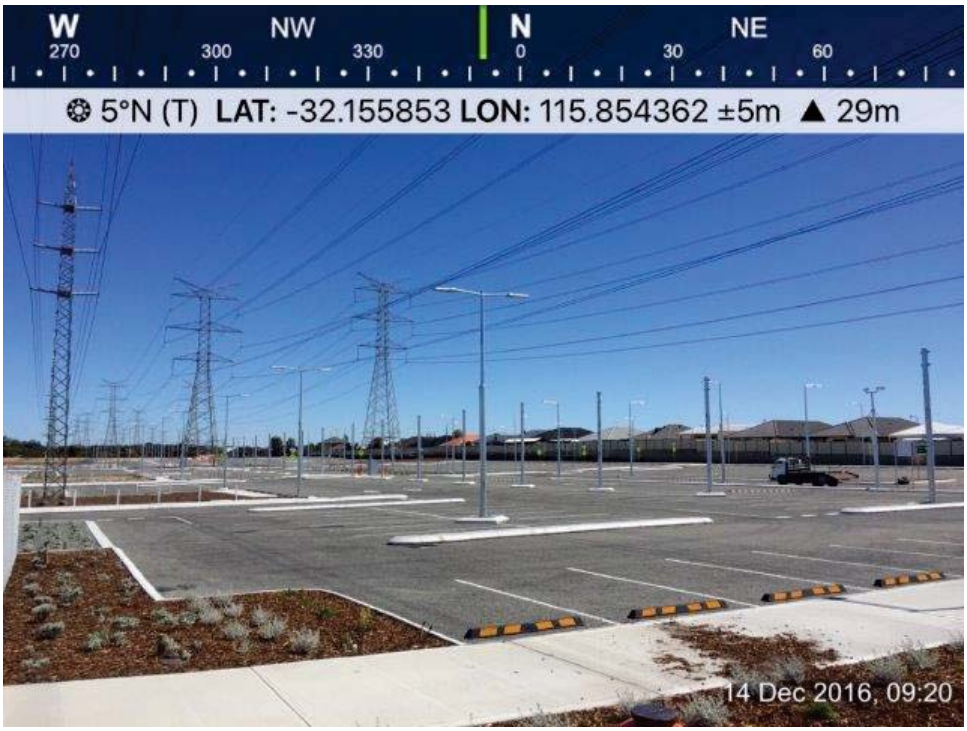


Photo Point 2: Non-vegetated areas and low threat managed vegetation excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959, northeast of project area

Photo Point 3: Non-vegetated areas and low threat managed vegetation excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959, northeast of project area

Photo Point 4: Non-vegetated areas and low threat managed vegetation excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959, northeast of project area

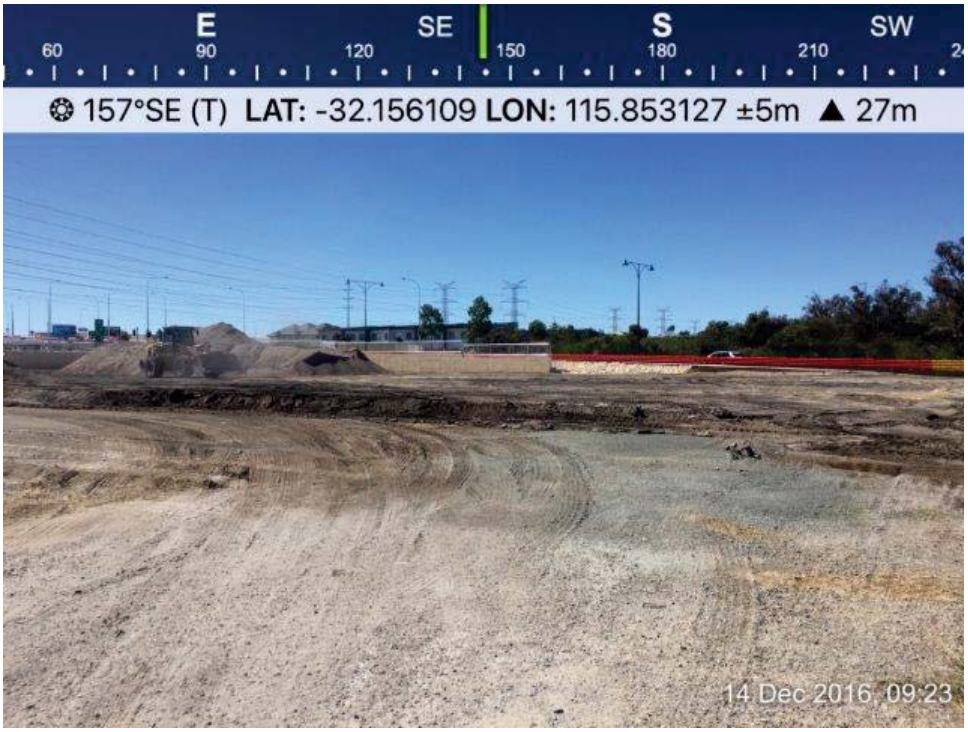


Photo Point 5: Non-vegetated areas excluded from classification under Clause 2.2.3.2 (e) of AS 3959, within project area

Photo Point 6: Non-vegetated areas and low threat managed vegetation excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959, within Russell Road reserve

Photo Point 7: Non-vegetated areas excluded from classification under Clause 2.2.3.2 (e) of AS 3959, within project area

Photo Point 8: Class A forest, south of project area

Photo Point 9: Class A forest, south of project area

Photo Point 10: Class B woodland, south of project area

Photo Point 11: Class B woodland, south of project area

Photo Point 12: Low threat managed vegetation excluded from classification under Clause 2.2.3.2 (f) of AS 3959, within Russell Road reserve

APPENDIX D
ACOUSTIC ASSESSMENT

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
Suite 34, 11 Preston Street, Como, W.A. 6152
P.O. Box 219, Como, W.A. 6952
Telephone: (08) 9367 6200
Facsimile: (08) 9474 2579
Email: hsa@hsacoustics.com.au

EMAIL TRANSMITTAL

REF:	20711-2-16169
TO	Richard Noble
ATTENTION:	Alex Gregg
ADDRESS:	agregg@rnoble.com.au
FROM:	Paul Daly
DATE:	21 July 2016
SUBJECT:	**ACOUSTIC ASSESSMENT – LOT 558 LAUDERDALE DRIVE, SUCCESS**

Alex,

As per your request in regards to the above propose residential development, we have conducted a preliminary noise screening assessment, based on the information available.

Based on the information provided, we understand that the current zoning for the Lot is R40 /Commercial, with a proposed amendment to R100. The proposed residential development is to be high density, multi storey apartments. Russell road is currently undergoing a major upgrade to facilitate the neighbouring train station.

The purpose of this study was to provide a preliminary assessment of noise received at the proposed development from vehicles travelling along Russell Road for future traffic volumes. Comment has been provided on the noise that would be received at the premise with respect to the WAPC State Planning Policy 5.4 *"Road and Rail Transportation Noise and Freight Consideration in Land Use Planning"* (SPP 5.4).

To provide a comparison of noise levels to aid in assessing noise control requirements, the following scenarios have been assessed:

- Future Noise Levels without noise control; and
- Future Noise levels with a solid 2.4 metre wall.

CRITERIA

Under the Western Australian Planning Commission (WAPC) Planning Policy 5.4 *"Road and Rail Transport Noise and Freight Considerations in Land Use Planning"* (SPP5.4), the appropriate criteria for assessment for this development are as listed below for "Noise Limits".

EXTERNAL

$L_{Aeq(Day)}$ of 60 dB(A); and
$L_{Aeq(Night)}$ of 55 dB(A).

MODELLING

To determine the noise received at the façades of the proposed residences, noise modelling was carried out using SoundPlan, using the calculation of Road Traffic Noise (CoRTN) algorithms. Noise modelling was undertaken in accordance with the "Implementation Guidelines" for the State Planning Policy 5.4.

Noise modelling was based on the current road traffic volumes as per the MRWA Metropolitan Traffic Digest 2014/15. As this is a screening assessment noise monitoring at the site was not undertaken. Generally, noise monitoring is used to calibrate the noise model to exiting noise level although for this simplified assessment it was not deemed necessary. The input data used in the noise model were:

Traffic Volume	-	15,300 vpd (Current 2016 Traffic Volume) 20,590 vpd (Future 2031 Traffic Volume)
Annual Increase in Traffic	-	2%
Speed	-	60 km/hr
Percentage heavy Vehicle	-	14 %

A vehicle traffic count was performed in 2014/15 and at that time the traffic volume was 15,000 vpd. An increase in annual traffic by 2.0% has been assumed to calculate the current (2016) and future (2031) traffic volumes.

RESULTS

The calculated day period noise levels for the scenarios are contained in Table 1. Noise contour plots for the two scenarios are attached for reference.

TABLE 1 – CALCULATED NOISE LEVEL dB(A)

Location	Scenario	$L_{Aeq(day)}$
Lot 558 Lauderdale Drive	Future Noise Levels without noise control	68.7
	Future Noise levels with a solid 2.4 metre wall	59.7

CONCLUSION

Based on the screening assessment results, the future noise level at Lot 558 Lauderdale Drive is likely to be 69 dB(A) with no noise control implemented.

With the inclusion of a 2.4 metre solid wall the resultant noise level for future traffic flows would be 60 dB(A).

The above noise levels represent the noise received at ground level locations.

The noise levels for the future traffic volumes exceed the noise "Limit" criteria contained in SPP 5.4. When considering the practical application of the policy, it is recommended that noise control in the form of a solid barrier is implemented to reduce noise level as far as practical.

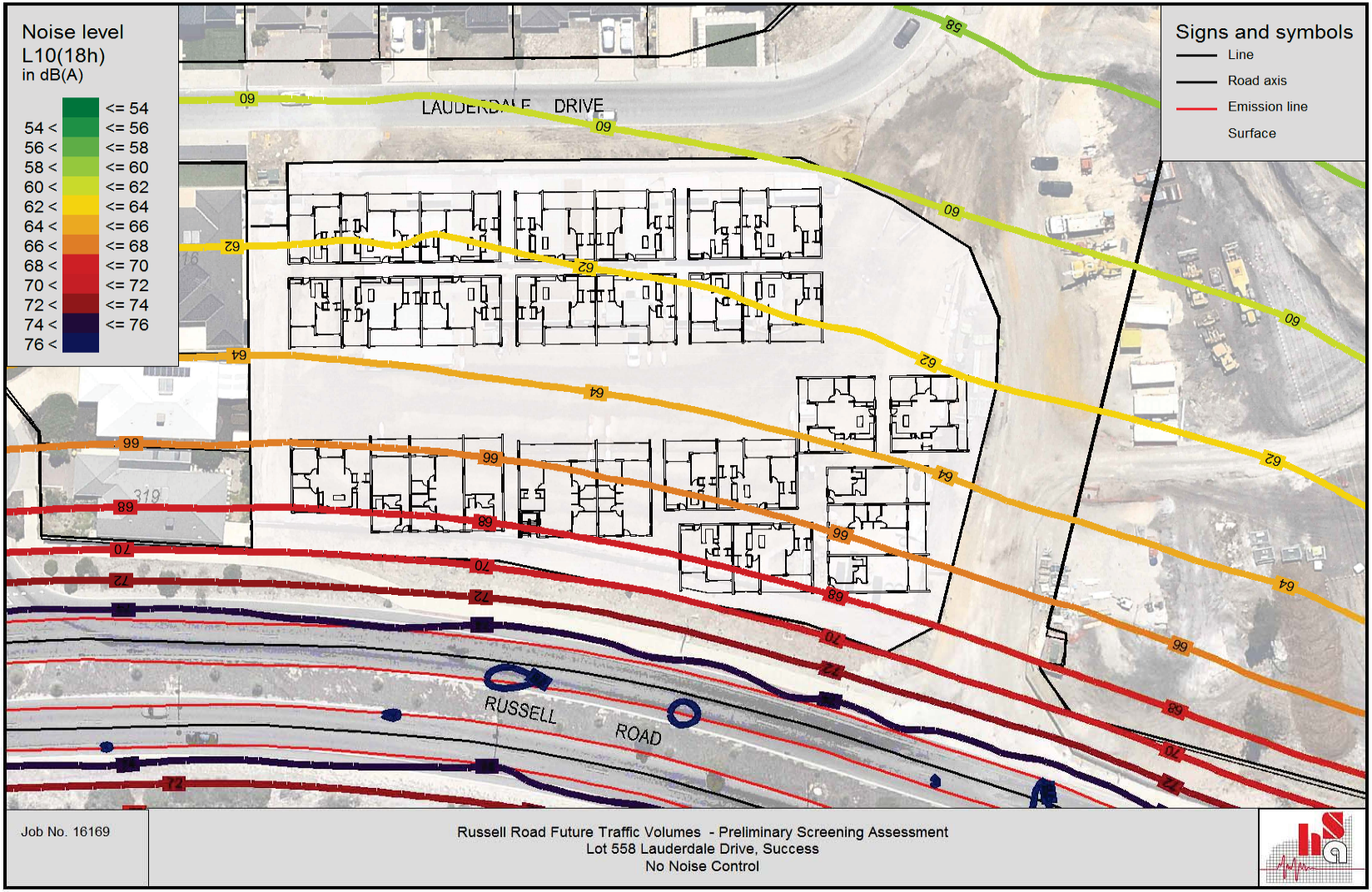
Hence, in this situation, if an assessment was undertaken in accordance with SPP 5.4 to comply with the policy, we believe that a wall in the order of 2.4 metres would be required.

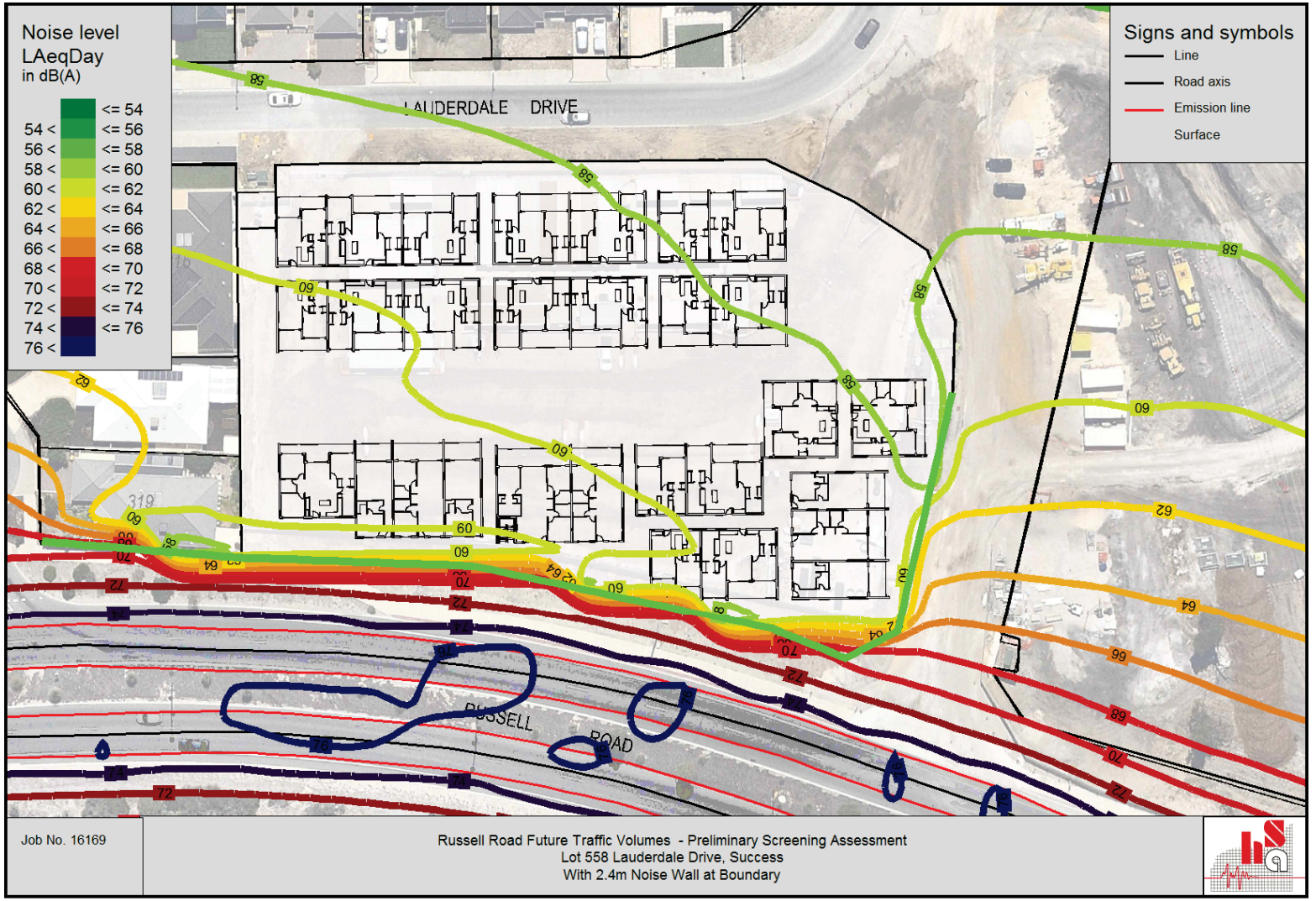
I trust this answers any queries raised in the preliminary determination of the appropriateness of the wall height, but if you require any further information please do not hesitate to contact the undersigned.

Yours faithfully,
for **HERRING STORER ACOUSTICS**

Paul Daly

Att.


Noise level
L10(18h)
in dB(A)
<= 54
54 < <= 56
56 < <= 58
58 < <= 60
60 < <= 62
62 < <= 64
64 < <= 66
66 < <= 68
68 < <= 70
70 < <= 72
72 < <= 74
74 < <= 76
76 <
Signs and symbols
Line
Road axis
Emission line
Surface
LAUDERDALE DRIVE
RUSSELL ROAD
Job No. 16169
Russell Road Future Traffic Volumes - Preliminary Screening Assessment
Lot 558 Lauderdale Drive, Success
No Noise Control


Noise level
LAeqDay
in dB(A)
<= 54
54 < <= 56
56 < <= 58
58 < <= 60
60 < <= 62
62 < <= 64
64 < <= 66
66 < <= 68
68 < <= 70
70 < <= 72
72 < <= 74
74 < <= 76
Signs and symbols
Line
Road axis
Emission line
Surface
LAUDERDALE DRIVE
RUSSELL ROAD
Job No. 16169
Russell Road Future Traffic Volumes - Preliminary Screening Assessment
Lot 558 Lauderdale Drive, Success
With 2.4m Noise Wall at Boundary

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