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ROBB JETTY LOCAL STRUCTURE PLAN

Prepared for LandCorp
January 2015

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Cockburn Local Planning Scheme No. 3.

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

14 April 2015

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Date of Expiry:

19 October 2035

TABLE OF VARIATION(S) TO STRUCTURE PLAN

Variation No.	Description of Variation	Date Adopted by Council	Date Endorsed by the WAPC (if required)
01	Public purposes - civic reserve and minor updates	11 December 2014	

Note: to be read in conjunction with SPN/0477M-2, which includes the final approved structure plan.

Version Control

Version Number	Date Published	Checked By	Authorised	Notes
1	July 2013	Gary McCullough	Chris Melsom	
2	01 April 2014	Scott Davies	Robina Crook	Incorporate WAPC comments and revised Cockburn Coast Foreshore Management Plan (March 2014) and Coastal Vulnerability Study (14 March 2014)
3	04 April 2014	April Davies	Robina Crook	Incorporate WAPC changes
4	09 April 2014	April Davies	Robina Crook	Incorporate further WAPC changes
5	05 June 2014	Ishta Kristal	Robina Crook	Incorporate City of Cockburn changes
6	16 July 2014	Scott Davies	Chris Melsom	Incorporate City of Cockburn and LWMS changes. Note: internal document only. Not published.
7	20 August 2014	Scott Davies	Chris Melsom	Updates to incorporate modifications noted in schedule dated 08.08.14: \\per.work.hassell.info\sites\Projects\001592\Reports\Planning
8	09 October 2014	Scott Davies	Chris Melsom	Modifications to POS schedule and Public Purposes Civic reserve and resultant text changes.
9	07 January 2015	Scott Davies	Scott Davies	Mapping error update based on City of Cockburn approval resolution.

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00 Executive Summary

In Robb Jetty the beach comes to the main street, and the stories of the past and its people are part of everyday life. A variety of small but connected public places offer a range of experiences from the quiet to the communal, the sheltered to the open, the organic to the formal.

It has long been acknowledged that Cockburn Coast presents a unique opportunity to create an exciting mixed use community that celebrates the best of the West Australian coastal lifestyle. Following the endorsement of the District Structure Plan (DSP) 2009 by the Western Australian Planning Commission and later the adoption of the District Structure Plan 2 (DSP2) 2012 by the City of Cockburn, the Robb Jetty Local Structure Plan (henceforth referred to as the 'Local Structure Plan') provides the next step in bringing to fruition this unique project.

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The Local Structure Plan sets out to establish a sustainable community that celebrates the area's past as well as promoting creative ideas, innovation and development. By embracing the targets founded by the DSP and DSP2 the contemporary urban Local Structure Plan will provide a guiding framework for subdivision and development through the coordination of land use, community facilities, services and infrastructure. Given the fragmented nature of land ownership within the structure plan area it is important to ascertain a common development objective to ensure a cohesive and fluent development outcome. The local structure plan has been subject to full landowner consultation to ensure this occurs.

The Robb Street Jetty Local Structure Plan forms one of three Local Structure Plans for the larger Cockburn Coast Project area, being the largest in area and containing the greatest land use mix. Specifically, the Structure Plan is 46.67 hectares in area, and is located approximately 18km southwest of the Perth CBD and 4km south of Fremantle between the recent developments of Port Coogee and South Beach. The Structure Plan area is generally bound by Cockburn Road to the east, Rollinson Road to the North, the South Fremantle Power Station and Switchyard to the South, and the Indian Ocean to the West.

The City of Cockburn Town Planning Scheme No. 3 sets out that the provisions, standards and requirements specified under Part 1 of this Local Structure Plan shall have the same force and effect as if it were a provision, standard or requirement of Town Planning Scheme Provisions. The Local Structure Plan will apply to the subdivision and development of all land located within its boundaries.

The history of Robb Jetty is characterised by industrial development including the once pulsating Robb Jetty, Cockburn Coast cattle industry and South Fremantle Power Station. By recognising and learning from the past, the Robb Jetty Structure Plan lays the foundations for an exciting future, transcending from under utilised industrial land to an active residential community. The future for the Robb Jetty Structure Plan area is one to be formed around a diverse mix of people and land uses. These land uses include:

- _A dense activity centre forming the core of the structure plan area;
- _Residential zones with densities ranging from R40 to R160;
- _A mixed business centre allowing for the transition of existing industrial uses to an Integration with residential uses;
- _Mixed use zoning allowing for an interface between Residential Zones and areas of dense activity or traffic flow; and
- _A public purpose site to allow for the development of the Primary school.

00 Executive Summary

vi Through the creation of a vibrant activity core, a sound public transport system and mix of land uses, Robb Jetty will achieve the stated vision and objectives established by the DSP and DSP2.

Total Area Covered by Structure Plan	46.67 hectares
Area of Specific Land Use	
Mixed Use	1.60 hectares
Activity Centre	2.79 hectares
Mixed Business	2.45 hectares
Residential	15.10 hectares
Public Purpose	3.18 hectares
Estimated Lot Yield	98 lots
Estimated Number of Dwellings	2,321 dwellings
Estimated Population	4,247 people
Number of High Schools	Zero (0) high schools
Number of Primary Schools	One (1) primary school
Estimated Retail Floor Space	10,800 square metres
Estimated Employment Provided	780 jobs
Area of Public Open Space	
_District Open Space	0.2712 hectares
_Neighbourhood Parks	1.3039 hectares
_Local Parks	1.5573 hectares

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PART ONE - STATUTORY

1.0 Structure Plan Area

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1.1 Structure Plan Area

The Local Structure Plan applies to the land contained within the inner edge of the broken line shown on the Local Structure Plan Map and specifically comprises of the lots identified in Table 01 below.

1.2 Existing Lots

Lot	Area (ha)	Lot	Area (ha)
Lot 70 Bennett Av	1.500ha	Lot 20 Darkan Av	0.001ha
Lot 126 Bennett Av	0.003ha	Lot 45959R (2121) Rollinson Rd	0.174ha
Lot 4569R (2120) Bennett Av	0.243ha	Lot 65 Rollinson Rd	1.731ha
Lot 125 Bennett Av	0.004ha	Lot 69 Rollinson Rd	1.500ha
Lot 111 Bennett Av	1.757ha	Lot 2107 Cockburn Rd	0.077ha
Lot 110 Bennett Av	1.002ha	Lot 38992R Cockburn Rd	0.658ha
Lot 124 Bennett Av	0.003ha	Lot 38993R (2103) Cockburn Rd	14.055ha
Lot 109 Bennett Av	1.631ha	Lot 2109 McTaggart Cove Road	0.231ha
Lot 108 Bennett Av	0.100ha	Lot 4 Darkan Av	0.637ha
Lot 102 Bennett Av	0.655ha	Lot 2110 (Railway reserve)	11.990ha
Lot 101 Bennett Av	0.490ha		
Lot 100 Bennett Av	0.402ha		
Lot 99 Bennett Av	0.263ha		
Lot 65 Bennett Av	0.261ha		
Lot 64 Bennett Av	0.202ha		
Lot 63 Bennett Av	0.243ha		
Lot 62 Bennett Av	0.410ha		
Lot 61 Bennett Av	0.465ha		
Lot 2082 Bennett Av	0.097ha		
Lot 1 Bennett Av	2.104ha		
Lot 2108 Bennett Av	4.284ha		
Lot 2012 Garston Way	0.140ha		
Lot 18 Garston Way	0.120ha		
Lot 17 Garston Way	0.100ha		
Lot 16 Garston Way	0.100ha		
Lot 12 Garston Way	0.100ha		
Lot 11 Garston Way	0.100ha		
Lot 10 Garston Way	0.100ha		
Lot 9 Garston Way	0.166ha		
Lot 8 Garston Way	1.196ha		
Lot 303 Garston Way	0.621ha		
Lot 67 Garston Way	0.150ha		
Lot 68 Garston Way	0.150ha		
Lot 66 Garston Way	1.731ha		

Table 01_Existing Lots within Robb Jetty Local Structure Plan

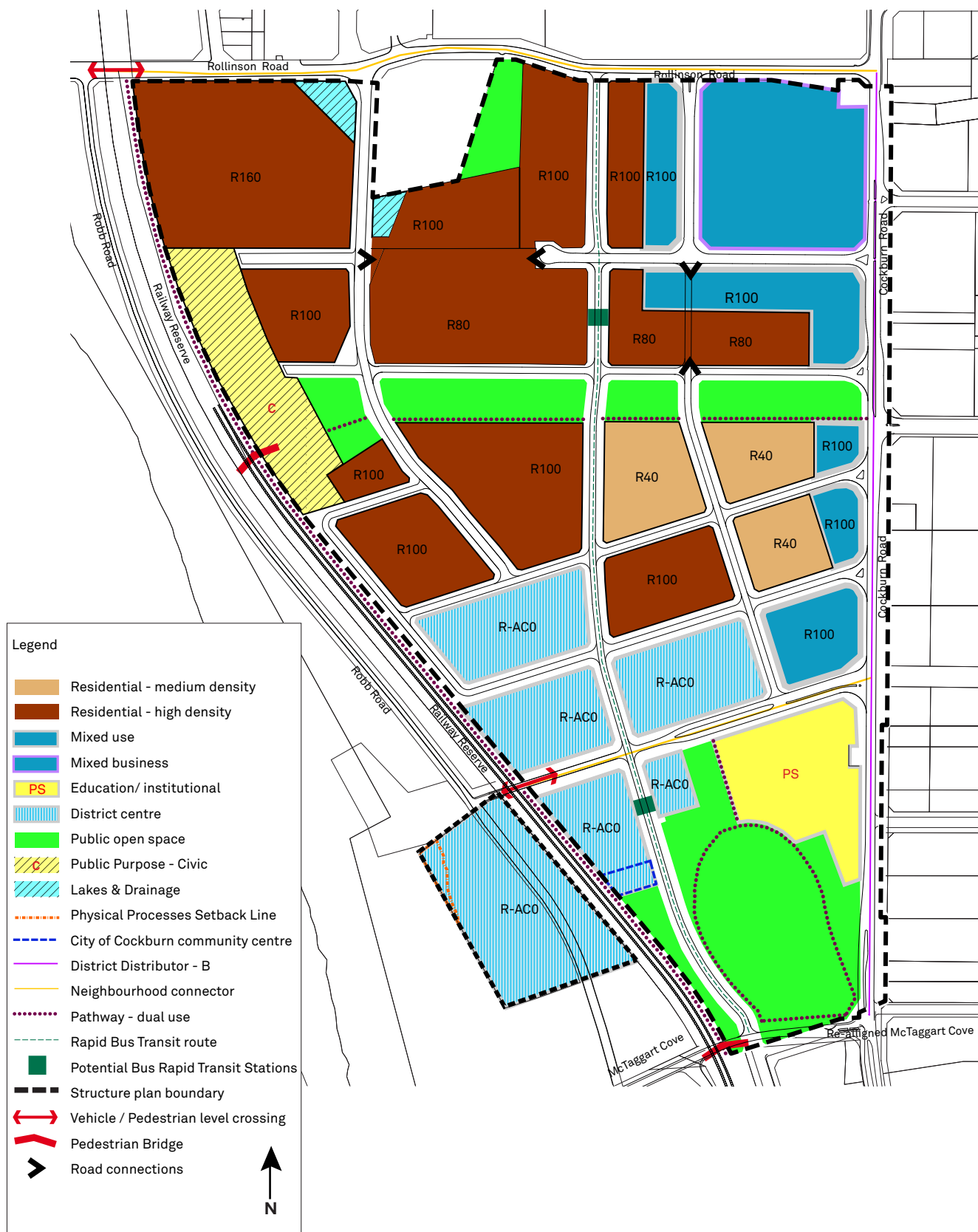


Figure 01_Local Structure Plan Map

4 1.3 Document Outline

The Local Structure Plan has been prepared in accordance with the requirements of Clause 6.2.6 of the City of Cockburn Town Planning Scheme No. 3 (Town Planning Scheme No. 3) and the Draft Structure Plan Preparation Guidelines (WAPC, August 2011).

This document comprises;

- _Part One - Includes only the Local Structure Plan Map and those provision standards and requirements that require statutory effect.
- _Part Two - Justifies and clarifies the provision standards and requirements within Part One and is used as a reference guide to interpret and implement Part One.
- _Appendices - Contains all relevant technical reports.

2.0 Interpretations

2.1 Definitions

Unless the context requires otherwise, the words and expressions used within the Local Structure Plan have the same definition as given within the City of Cockburn Town Planning Scheme No. 3. Where not defined by the Town Planning Scheme No. 3 the definition of words and expressions used are as set out by the Local Structure Plan within the context in which they are applied.

For the purposes of this Local Structure Plan, 'affordable housing' refers to either of the following:

- _Dwellings that are sold to Eligible Households at or below the benchmark price outlined in Table 4; or
- _Dwellings that are sold or transferred to a recognised affordable housing provider, which in turn leases or sells the properties to Eligible Households (under an approved affordable housing program); or
- _Private Provider selling to Eligible Households; or
- _Commonwealth or State endorsed affordability program'.

'Eligible Household' is defined as:

Eligible Households: are households that meet the eligibility criteria for the affordable housing program (e.g. Keystart shared equity loans, National Rental Affordability Scheme) that affordable housing dwellings are delivered through. Criteria are determined by the government organisation responsible for each program and may change from time to time.

Dwellings sold at or below the benchmark price in Table 4 do not have any eligibility criteria for purchasing households'.

'Recognised Affordable Housing Provider' is defined as:

'Recognised Affordable Housing Provider': are those providers considered under the Department of Housing's Affordable Housing Strategy to be a Growth Provider, Not for Profit Housing, Public Housing or Social Housing.'

2.2 Use Class Permissibility

The use class permissibility for each zone is as set out in Table 02 of this Local Structure Plan.

The permissibility of any uses is determined by cross reference between the list of use classes on the left hand side of the Zoning Table and the list of zones at the top of the Zoning Table.

The symbols used in the cross reference in the Zoning Table have the following meanings;

- _ 'P' means that the use is permitted by the Local Structure Plan providing the use complies with the relevant development standards and requirements of Town Planning Scheme No. 3.
- _ 'D' means that the use is not permitted unless the local government has exercised its discretion by granting planning approval
- _ 'A' means that the use is not permitted unless the local government has exercised its discretion and has granted planning approval after giving special notice in accordance with clause 9.4 of Town Planning Scheme No. 3
- _ 'X' means a use that is not permitted by the Local Structure Plan

Single Detached house ('Single House') are included in the dwelling mix of Cockburn Coast, but it should be noted that this typology is only considered appropriate as forming a small portion of dwellings. As a result, Single Detached house ('Single House') are to be approved at the discretion of Council and will be considered only when:

- _ Development is located within Residential zones coded R40; and
- _ Development achieves a minimum height of three storeys; and
- _ The lot size is not greater than 230m²; and
- _ Vehicle access to the lot is via a rear laneway and all parking areas (garages and carports) are located at the rear of the lot

Development seeking large amounts of Single Detached house ('Single House') is inappropriate in achieving the aims and objectives of the Local Structure Plan.

Use Class Permissibility

		Residential	Mixed Use	District Centre	Mixed Business
Residential Uses					
Ancillary Accommodation		P	D	X	X
Bed and Breakfast		A	D	X	X
Child Care Premises		A	D	P	X
Civic Use		D	P	P	P
Dwelling	Aged or Dependant Persons	P	P	P	X
	Caretaker's	P	P	P	X
	Grouped	P	P	P	X
	Multiple	P	P	P	X
Educational Establishment		D	D	D	X
Home Business		A	P	P	X
Home Occupation		D	P	P	X
Home Office		P	P	P	X
House	Lodging	A	D	D	X
	Single	D	X	X	X
Place of Worship		D	D	D	P
Residential Building		D	D	D	X
Tourist Accommodation		D	D	D	X
Commercial Uses					
Commercial	Bank	A	P	P	P
	Garden Centre	X	X	X	P
	Market	X	A	A	P
	Nursery	X	X	X	P
	Office	X	P	P	P
	Showroom	D	D	X	D
	Veterinary Consulting Room	X	D	D	P
	Veterinary Hospital	D	D	X	D
Entertainment Uses	Amusement Parlour	X	D	D	X
	Betting Agency	X	P	P	P
	Club Premises	A	D	D	P
	Fast Food Outlet	X	P	P	P
	Hotel/Tavern	D	P	P	A

Use Class Permissibility

		Residential	Mixed Use	District Centre	Mixed Business
	Motel	A	P	D	A
	Public Amusement	A	D	D	D
	Reception Centre	A	X	A	D
	Recreation-Private	X	P	P	D
	Restaurant	A	P	P	P
Health Services	Consulting Rooms	D	A	P	D
	Health Studio	A	D	P	D
	Medical Centre	D	X	P	D
	Hospital	A	X	A	X
Shop	Convenience Store	A	P	P	P
	Lunch Bar	A	P	P	P
	Shop	X	P	P	D
	Home Store	A	A	A	X
Transport	Commercial Vehicle Parking	D	X	X	P
	Motor Vehicle, Boat and Caravan Sales	X	X	X	P
	Motor Vehicle Hire Premises	X	X	X	P
	Motor Vehicle Wash	X	X	X	D
	Petrol Filling Station	X	A	X	A
	Service Station	X	A	X	A
Animal Establishment		X	X	X	X
Cinema/Theatre		X	X	A	X
Funeral Parlour		X	X	X	D
Hardware Store		X	X	D	P
Night Club		X	X	A	X
Restricted Premises		X	X	A	A
Trade Display		X	X	X	D
Veterinary Centre		X	X	A	D
Vehicle-Disused		X	X	X	D
Industrial Uses					
Industry	Cottage	A	A	A	D
	Extractive	X	X	X	X
	General	X	X	X	X
	General (Licensed)	X	X	X	X
	Light	X	X	X	A
	Noxious	X	X	X	X
	Service	X	X	X	X

Use Class Permissibility

		Residential	Mixed Use	District Centre	Mixed Business
Storage	Fuel Depot	X	X	X	X
	Storage Yard	X	X	X	X
	Warehouse	X	X	X	X
Transport	Motor Vehicle Repair	X	X	X	D
	Motor Vehicle	X	X	X	X
Wrecking					
	Transport Depot	X	X	X	X
Marine Engineering		X	X	X	X
Rural Uses					
Agriculture Extensive		X	X	X	X
Agriculture Intensive		X	X	X	X
Agroforestry		X	X	X	X
Animal Husbandry - Intensive		X	X	X	X
Farm Supply Centre		X	X	X	X
Hobby Farm		X	X	X	X
Rural	Industry	X	X	X	X
	Pursuit	X	X	X	X
Uses Not Listed					
Uses not Listed		In accordance with Clause 4.4.2 of the City of Cockburn Town Planning Scheme No. 3			

Table 02_Use Class Table

3.0 Operation Date

In accordance with Clause 6.2.12.1 of Town Planning Scheme No. 3 this Local Structure Plan shall come into effect once endorsed by the Western Australian Planning Commission.

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The Local Structure Plan will be reviewed by the City of Cockburn in five years from its date of endorsement by the Western Australian Planning Commission. The review of the Local Structure Plan will relate only to affordable housing provision for Cockburn Coast and parking standards in relation to the Integrated Transport Plan. The review will consider the progress made towards the achievement of the 20% affordable housing targets and parking standards for Cockburn Coast as prescribed by the District Structure Plan (DSP) 2009 and DSP2 2012.

The review may make recommendations in respect of variations to provisions, standards and requirements to facilitate affordable housing outcomes and targets.

4.0 Relationship to the Scheme

The provisions, standards and requirements specified under Part 1 of this Local Structure Plan shall have the same force and effect as if it were a provision, standard or requirement of Town Planning Scheme No. 3. In the event of there being any inconsistencies or conflict between the provisions, standards or requirements of Town Planning Scheme No. 3 and the provisions, standards or requirements of this Local Structure Plan, then the provisions, standards or requirements of Town Planning Scheme No. 3 shall prevail with the exception of the Use Class Permissibility for which the Local Structure Plan shall prevail.

5.0 Public Open Space Provision

The following Table lists public open spaces shown on the Local Structure Plan.

5.1 Schedule of Public Open Space

Public Open Space	Approx. Size
Local Park	1.5573 ha
Neighbourhood Park	1.3039 ha
District Park	0.2712 ha

Table 03_Public Open Space

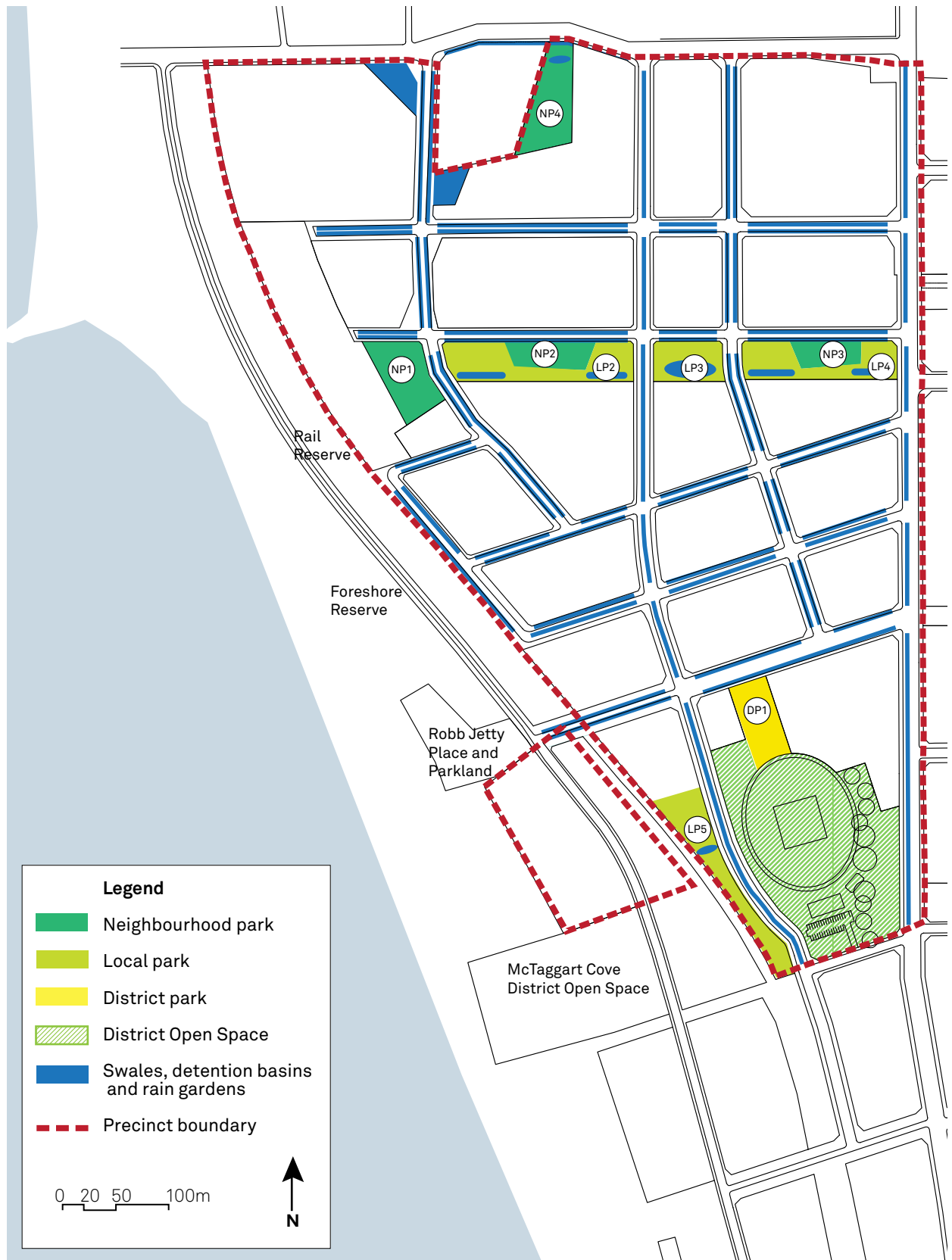


Figure 02_Open Space Plan

6.0 Residential

6.1 Proposed Residential Density

The residential density of a lot shall be in accordance with the Residential Design Code shown on the Local Structure Plan Map.

Development within a Mixed Use or District Centre zones (Figure 1) is to be in accordance with the Residential Design Code as designated below:

- _Mixed Use: Residential R100
- _District Centre: R-AC 0

The development standard for each are specified in the Cockburn Coast Design Guidelines for Robb Jetty and Emplacement (June 2013), as amended.

Calculation Methodology to ascertain achievement of residential density targets is prescribed in Town Planning Scheme No. 3 for the Cockburn Coast Development Area (DA33).

7.0 Affordable Housing

In calculating low income households Table 4 shall be used as a guide and is based on the percentiles of income distribution as set out in section 2.1. of the Cockburn Coast Affordable Housing Strategy 2012. Within the Local Structure Plan affordable housing will target the low to moderate income household.

Median Household Income	\$79,861	
Moderate Income Bracket	80% Median	120% Median
Annual Income	\$63,889	\$95,833
Weekly Income	\$1,229	\$1,843
Affordable Weekly Rental Benchmark (30%)	\$369	\$553
Affordable Purchase Benchmark	\$264,057	\$396,085

Table 04_Affordable Housing Benchmarks for Perth Statistical Division
Source: Department of Planning

Table 04 is to be applied consistent with any necessary updates.

	Calculation	Sources
Median Household Income	Median Weekly Household income for Perth, multiplied by 52, then indexed by Wage Price Index for WA (with Sept 2011 as baseline)	ABS Census 2011, Basic Community Profile, Greater Perth GCCSA, table B02, "Median Total Household Income". ABS Cat 6345.0 Wage Price Index, Table 2B, Total Hourly Rates of Pay Excluding Bonuses; WA; Private and Public; All Industries.
Affordable Purchase Benchmark	Present Value of a 25 year loan, with monthly repayments at 30% of Household Income, an interest rate of 6.45%p.a, plus a 10% deposit.	Reserve Bank of Australia, Indicator Lending Rates, Table F5, Housing Loans, Banks, Variable, Standard.

7.1 Affordable Housing Target

The DSP sets an aspirational target of 20% Affordable Housing product. The tenure, type and manner of affordable housing shall be guided by the Affordable Housing Strategy.

7.2 Floorspace Bonus

The local government may grant a floorspace bonus in the event that a development includes the provision of affordable housing at the following ratio:

- _Affordable yield 10% = 30% floorspace bonus
- _Affordable yield 20% = 40% floorspace bonus
- _Affordable yield 25% = 45% floorspace bonus

All floorspace bonuses will be based on the maximum floorspace allowable for the site as per the Cockburn Coast Design Guidelines for Robb Jetty and Emplacement (June 2013), as amended. Where deemed appropriate the local government may allow for the transfer of a floor space bonus within Cockburn Coast development area, as defined by the Cockburn Coast District Structure Plan (Part 2 - 2012).

Where dwellings with two bedrooms are provided a further floorspace bonus at the following ratio may be granted:

- _ Affordable yield 10% = 15% floorspace bonus

This bonus is to be applied only to the provided affordable dwellings.

Where family housing (i.e dwellings with three or more bedrooms) is provided, a further floorspace bonus may be granted at the following ratio:

- _Affordable yield 10% = 30% floorspace bonus

This bonus is to be applied only to the provided affordable dwellings.

8.0 Subdivision and Development Requirements

8.1 Affordable Housing Development Application Information

Where an application proposes to use the floorspace bonus as outlined by Section 7.2 of this Local Structure Plan the application for Planning Approval shall include an Affordable Housing Report. This report shall include, but not be limited to, the following information:

- _Evidence of an agreement between the developer and a recognised affordable housing provider to manage housing and tenants
- _Target eligible households for affordable housing product (as defined by the most up to date ABS data)
- _Demonstration of ongoing tenure arrangement for affordable housing product

8.2 Finished Floor Levels

8.2.1 Coastal Process Impacts

All development is to achieve a minimum finished floor level of +3.5 Australian Height Datum (AHD) to ensure development takes into account coastal erosion and accretion patterns. Non habitable rooms and the provision of basement parking are exempt from the finished floor level stated above.

8.2.2 Finished Floor Levels Adjacent Drainage Reserves

Habitable floors will be set at least 500 mm above the 100-year ARI flood level at any basin location and 300 mm above road level.

8.3 Lot Design Guidance

Lot size within areas coded R80 and above shall be of a minimum area of 800m² with a minimum depth of 20 metres and a minimum width of 40 metres. Should an alternative lot size be proposed it will be considered on its planning merits having regard to the aims and objectives of this Local Structure Plan.

8.4 Noise and Vibration Attenuation

Where it is deemed necessary, development applications shall address the issue of noise and vibration attenuation.

To ensure sustainable development occurs, the local authority will require that certain development be accompanied by a report prepared by a qualified acoustic consultant, certifying that the design features of the development will achieve a satisfactory level of noise and vibration attenuation.

Where residential development may be exposed to noise and vibration impacts from existing non-residential uses and activities, the onus will be on the designers and developers of the new residential development to demonstrate to the satisfaction of the local authority that impacts have been assessed and addressed. This includes, but is not limited to, development abutting the freight rail line and Cockburn Road.

8.4.1 Cockburn Road

For developments located adjacent to Cockburn Road, as part of the design process, an acoustic assessment shall be undertaken and included as part of the development application with the aim being to demonstrate the construction method will adequately reduce internal noise levels to meet the standards stated in SPP5.4. Given the proposed layout, the first row of buildings along Cockburn Road will act as an acoustic barrier to developments located behind. Hence improvement constructions are required for the first row of buildings only.

The following source noise levels should be used for development located adjacent to Cockburn Road;

- _ Facing Cockburn Road – 62dB (A)
- _ Perpendicular to Cockburn Road – 59dB (A)

SPP5.4 requires a notification be placed on the Certificate of Title for lots where residences are exposed to transport noise and that noise received exceeds the SPP 5.4 outdoor 'Noise Target'.

8.4.2 Freight Rail

Train Noise Level

A noise study shall be undertaken for any subdivision or development application on land located within 150 metres of the centre line of the nearest railway track.

To provide “future proofing” of the railway and the Fremantle Port, studies should use the following noise levels from a single train movement of two minutes’ duration as the bases of acoustical assessments:

Northern Residential -	LA _{eq, 2min} of 65 dB(A) at 25 metres from centre of nearest track.
District Centre -	LA _{eq, 2min} of 68 dB(A) at 25 metres from centre of nearest track.

For noise study purposes, the District Centre area comprises land shown in the key as “District centre” in Figure 01_ Local Structure Plan Map, and the Northern Residential area comprises all remaining residential-zoned land.

Internal Noise Criteria

Where a noise study must be undertaken, internal noise levels received from a single train movement shall comply with the following criteria:

LA_{eq, 2min} of 45 dB(A) in utility areas (laundries and bathrooms);

LA_{eq, 2min} of 40 dB(A) in living and work areas; and

LA_{eq, 2min} of 35 dB(A) in bedrooms.

Additional to the above, where it is not practicable for noise received at all residential outdoor living areas within a development to achieve compliance with an LA_{eq, 2min} of 50 dB(A), then a common outdoor area that is protected from rail transport noise shall be included in the development’s design.

Vibration

A ground vibration assessment and report is to be provided for any development application on land located within 80 metres of the centre line of the nearest railway track. Vibration assessors should seek advice from the Public Transport Authority on identifying a representative train pass.

Habitable areas of buildings within these developments shall comply with the maximum vibration criterion of 1.4 x base curve, based on Curve 4a of AS 2670.2-1990 “Evaluation of human exposure to whole-body vibration; Part 2: Continuous and shock-induced vibration in buildings (1 to 80 Hz)”.

Where ground vibration levels exceed 1.4 x base curve, the vibration report shall contain an outline of proposed mitigation measures to reduce ground vibration within the development’s buildings to below the above criterion.

Development Applications must demonstrate to the local authority’s satisfaction that the design features and/or construction methods to be adopted will meet the vibration criterion.

Notifications on Titles

Any lot within 150 metres of the centre line of the nearest railway track shall have the following notification placed on its title:

This lot is situated in the vicinity of a major freight railway line serving the Port of Fremantle and is currently affected, or may in the future be affected, by noise and vibration from 24-hour freight operations. Further information on any noise and vibration assessments or plans is available on request from the relevant local government offices.

8.4.3 BRT/LRT

To accommodate the future Bus Rapid Transit/Light Rail Transit public transit alignment similar measures as stated to accommodate development adjoining Cockburn Road may be required by the local authority.

8.5 Existing Industrial Buffer Zones

Where residential, or other sensitive land use is proposed, within an existing industrial land use buffer, applicants shall provide a technical analysis to seek to reduce or mitigate that buffer. Such analysis must be in accordance with the requirements of the relevant State Planning Policy relating to industrial buffers.

There shall not be any residential/habitable building within 25 metres of the boundary of the lot containing the waste water pump station.

8.6 Traffic/Management Assessment

As required by Western Australian Planning Commission's Liveable Neighbourhoods, an assessment of the impacts on current and future traffic movements is to be provided with all subdivision and development proposals, where development exceeds the development identified within the Integrated Transport Plan.

8.7 Bushfire Hazard and Risk Assessment

All land within the Local Structure Plan which is located within 100 metres of moderate or extreme bushfire hazard areas (as shown in the Bushfire Management Plan September 2012, or as amended) shall be deemed to be a Bushfire Prone Area.

All subdivision and development proposals within this Bushfire Prone Area shall provide a statement or report that demonstrates all relevant bushfire protection acceptable solutions, or alternatively all relevant performance criteria, contained in Western Australian Planning Commission's Planning for Bushfire Protection Guidelines (Edition 2) 2010 (as amended) have been considered and compiled with, and effectively address the level of bushfire hazard applying to the land.

The Bushfire Attack Levels (BAL) to be used are included in Table 1 of the Bushfire Management Plan September 2012 (or as updated).

Notifications on Titles

There is a requirement for a notification on title of any lot within 100 metres of moderate or extreme bushfire hazard and the requirement to implement the Bushfire Management Plan (Figure 3).



Figure 03_Bushfire hazard ratings based on Western Australian Planning Commission's Planning for Bushfire Protection Guidelines (Edition 2) 2010 (as amended)

8.8 Drainage Contributions

Development, including subdivision, adjacent and proposing to utilise existing drainage basins for drainage purposes shall be required to contribute proportionally to the upgrading of the relevant basin based on best practice water management principles. The apportionment of cost will be determined on the proportional use of the drainage basin.

9.0 Building Heights & Landmark Development

9.1 Building Heights

Development within the Local Structure Plan shall generally be in accordance with the Building Height Plan (Figure 4). The local government will consider variations to the Building Height Plan. Variations must accord with the aims and objectives of the local Structure Plan and the Cockburn Coast Design Guideline for Robb Jetty and Emplacement (June 2013).

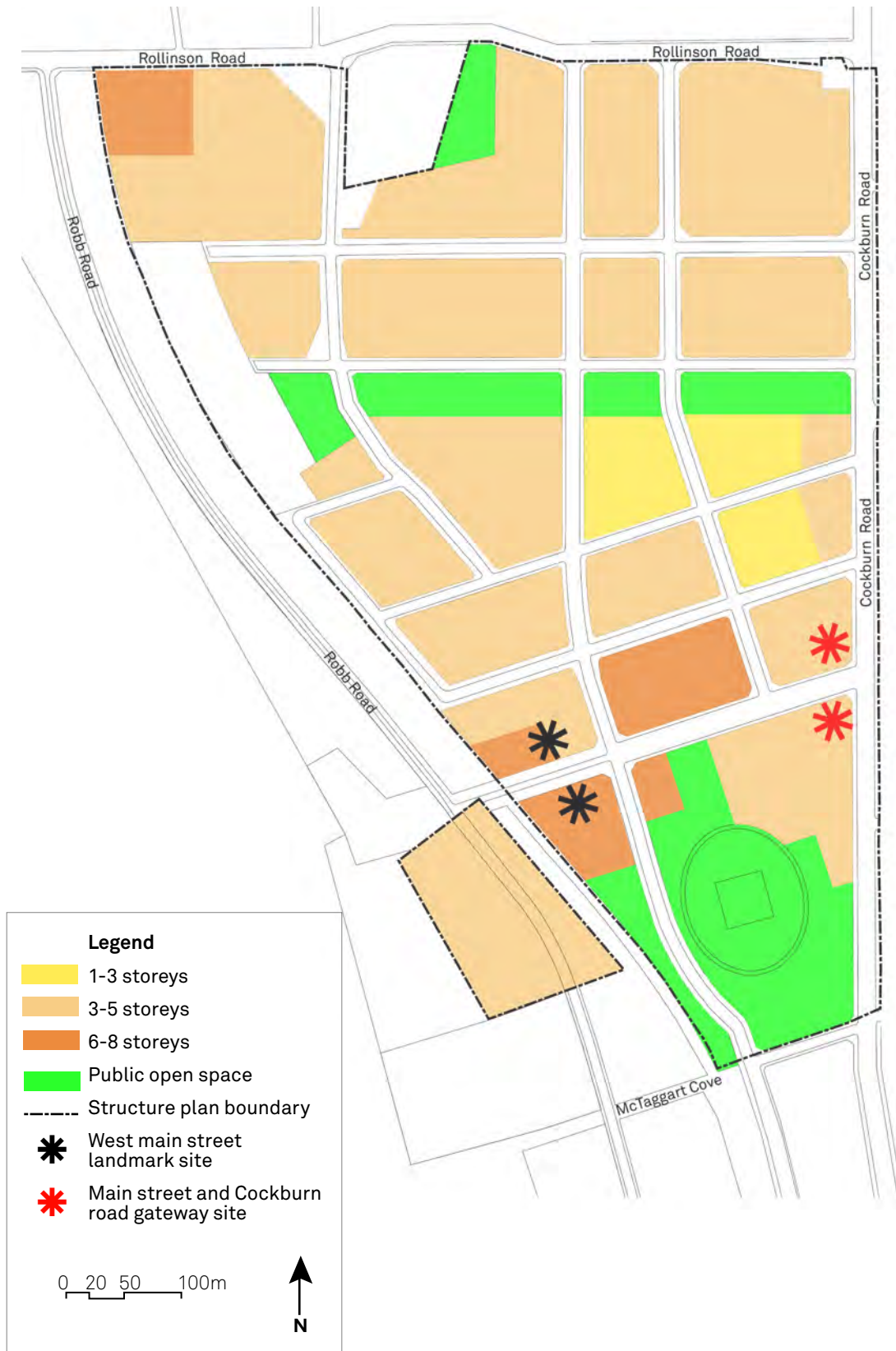


Figure 04_Building Height Plan

9.2 Landmark and Gateway Sites

The Building Height Plan (Figure 4) identifies a number of landmark or gateway sites. These sites are to be developed in a manner as per the Local Structure Plan. Within the Robb Jetty Local Structure Plan two sites are identified being:

_ West Main Street

West Main Street shall be developed with a diverse and interactive facade as well as weather protection at a scale suitable for a local community retail centre. This section of the main street should be a casual and relaxed experience that supports pedestrians and provides strong delineation between the carriage way and kerb side activity.

_Main Street and Cockburn Road

A multi storey development at this junction should provide a gateway to the Main Street identifying it as a community hub and local centre.

All development within these sites shall be in accordance with the Cockburn Coast Design Guidelines for Robb Jetty and Emplacement (June 2013), as amended.

10.0 Detailed Area Plan Requirements

10.1 Application of Detailed Area Plans

Detailed Area Plans are required prior to development within the Local Structure Plan Main Street located within the following zones:

- _District Centre
- _Primary School
- _Mixed Use

Detailed Areas Plans are to be applied to the street block to ensure the coordination of development.

10.2 Detailed Area Plan Principles

Detailed Area Plans are required to specifically address (but not limited to) the following design elements and variations at a street block level to coordinate development:

- _Identify variations to Cockburn Coast Design Guidelines for Robb Jetty and Emplacement, as required
- _Coordinate access to car parking to and from the Robby Jetty Main Street, with a preference for access via other local streets
- _Identify and coordinate the location, access and use of shared end of trip facilities
- _Provide a continuous and consistent approach to landscaping within each street block
- _Coordinate the location and access to pedestrian access ways where in fragmented land ownership
- _Coordinate the location and form of landmark development
- _Require the primary school to provide three storey activated built form addressing the Robb Jetty Main Street for the length of the area zoned 'Education/Institutional', as a minimum
- _Identify preferred land uses within each street block
- _Provide guidance on staging of development
- _Provide guidance in relation to buffering or attenuating noise and vibration impacts, as required

11.0 Operation and Implementation

11.1 Variations to the Residential Design Codes

Unless otherwise specified in the Cockburn Coast Design Guidelines for Robb Jetty and Emplacement (June 2013), as amended or an adopted detailed area plan the Residential Design Codes shall apply.

PART TWO - EXPLANATORY

1.0 Planning Background

20

In Robb Jetty the beach comes to the main street, and the stories of the past and its people are part of everyday life. A variety of small but connected public places offer a range of experiences from the quiet to the communal, the sheltered to the open, the organic to the formal.

1.1 Introduction and Purpose

Following the adoption of the DSP2, the Robb Jetty Local Structure Plan (LSP) provides the next step in bringing to fruition this unique opportunity. By embracing the targets founded by the DSP and DSP2 the LSP will provide a guiding framework for subdivision and development through the coordination of land use, community facilities, services and infrastructure. Given the fragmented nature of land ownership within the LSP area it is important to ascertain a common development objective to ensure a cohesive and fluent development outcome.



Figure 05_Cockburn Coast Regional Location Map



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Future transit route and connection to South Fremantle 2. Community facility 3. Primary north-south local and distributor road 4. Landscape corridor 5. Cockburn Road landscape boulevard 6. Future Cockburn Coast Drive Reserve 7. Robb Jetty 'main street' local centre 8. Robb Jetty beach front urban plaza | <ol style="list-style-type: none"> 9. Future 'urban' primary school and playing field 10. Parkland Corridor 11. Ridgeline development 12. Beeliar Regional Park bushland 13. Power station commercial, hospitality and tourism centre 14. Gateway development sites |
|---|---|

Figure 06_Cockburn Coast Master Plan (District Structure Plan Part 2)

1.2 Land Description

1.2.1 Location

The Robb Street Jetty LSP area, being 45.67 hectares in size, is located approximately 18km southwest of the Perth CBD and 4km south of Fremantle between the recent developments of Port Coogee and South Beach. The LSP area is generally bound by Cockburn Road to the east, Rollinson Road to the North, the South Fremantle Power Station and Switchyard to the South, and the Indian Ocean to the West.

The Robb Jetty LSP forms one of three Local Structure Plans to be prepared within the Cockburn Coast area. These areas are as set out by DSP2 and are identified by Figure 08 of this report.

1.2.2 Area and Land Use

Historically, the LSP area has accommodated a range of industrial uses, some of which remain in operation today. The following list outlines some of the current land uses within the LSP area.

- _Fremantle City Coldstores
- _Ricciardi Seafood Cold Stores
- _Mt Barker Free Range Chicken
- _Robb Jetty Freight Terminal

As identified, the eastern most border of the LSP area is provided by Cockburn Road. This road currently functions as the primary north-south route for road freight and regional traffic. The existing freight rail line is a significant barrier to east-west connectivity between the high amenity of the regional park and coastline.

1.2.3 Legal Description and Ownership

The legal description and ownership of all lots within the LSP area are as shown in the “Table 05_Legal Description and Ownership”.



Figure 07_Cockburn Coast looking north



Figure 08_Three Local Structure Plan Areas

1.2.4 Legal Description and Ownership

The legal description and ownership of all lots within the Robb Jetty LSP area are as shown below.

Lot	Volume + Folio Number	Area	Ownership
Lot 69 Rollinson Road	Vol: 2689 Fol: 286	1.500ha	Private ownership
Lot 70 Bennet Avenue	Vol: 2689 Fol: 287	1.500ha	Private ownership
Lot 126 Bennett Av	Vol: 2125 Fol: 993	0.003ha	Western Power
Lot R45964(2120) Bennet Av	Vol: lr3112 Fol: 771	0.243ha	State of WA
Lot 125 Bennett Av	Vol: 2125 Fol: 980	0.004ha	Western Power
Lot 111 Bennett Av	Vol: 2125 Fol: 978	1.757ha	WA Land Authority
Lot 110 Bennett Av	Vol: 2125 Fol: 977	1.002ha	LandCorp
Lot 124 Bennett Av	Vol: 2125 Fol: 979	0.003ha	Western Power
Lot 109 Bennett Av	Vol: 2125 Fol: 976	1.631ha	LandCorp
Lot 108 Bennett Av	Vol: 2125 Fol: 982	0.100ha	WA Land Authority
Lot 2109 McTaggart Cove	Vol: 2108 Fol: 146	0.231ha	WA Land Authority
Lot R38993 Cockburn Rd	Vol: lr3146 Fol: 795	0.077ha	State of WA
Lot 2103 Cockburn Rd	Vol: 2691 Fol: 399	14.055ha	LandCorp
Lot 102 Bennett Av	Vol: 2125 Fol: 975	0.655ha	LandCorp
Lot 101 Bennett Av	Vol: 2125 Fol: 974	0.490ha	WA Land Authority
Lot 100 Bennett Av	Vol: 2125 Fol: 973	0.402ha	WA Land Authority
Lot 99 Bennett Av	Vol: 2125 Fol: 972	0.263ha	LandCorp
Lot 65 Bennett Av	Vol: 2125 Fol: 971	0.261ha	WA Land Authority
Lot 64 Bennett Av	Vol: 2125 Fol: 970	0.202ha	Private ownership
Lot 63 Bennett Av	Vol: 2125 Fol: 969	0.243ha	Private ownership
Lot 62 Bennett Av	Vol: 2125 Fol: 968	0.410ha	LandCorp
Lot 61 Bennett Av	Vol: 2125 Fol: 967	0.465ha	WA Land Authority
Lot R42489 Bennett Av	Vol: lr3100 Fol: 667	0.097ha	State of WA
Lot 1 Bennett Av	Vol: 2059 Fol: 330	2.104ha	Private ownership
Lot R45009 Garston Way	Vol: lr3098 Fol: 736	0.140ha	State of WA
Lot 18 Garston Way	Vol: 2049 Fol: 139	0.120ha	LandCorp
Lot 17 Garston Way	Vol: 2049 Fol: 138	0.100ha	Private ownership
Lot 16 Garston Way	Vol: 2049 Fol: 137	0.100ha	Private ownership
Lot 12 Garston Way	Vol: 2049 Fol: 133	0.100ha	Private ownership
Lot 11 Garston Way	Vol: 2049 Fol: 132	0.100ha	Private ownership
Lot 10 Garston Way	Vol: 2049 Fol: 131	0.100ha	Private ownership
Lot 9 Garston Way	Vol: 2052 Fol: 865	0.166ha	Private ownership
Lot 8 Garston Way	Vol: 2052 Fol: 864	1.196ha	Private ownership
Lot 4 Darkan Av	Vol: 2175 Fol: 172	0.637ha	Private ownership
Lot 303 Garston Way	Vol: 2186 Fol: 665	0.621ha	Private ownership
Lot R38992(2016) Cockburn Rd	Vol: lr3146 Fol: 794	0.066ha	State of WA
Lot 20 Darkan Av	Vol: 2049 Fol: 423	0.001ha	Western power
Lot 66 Garston Way	Vol: 2689 Fol: 289	1.731ha	Private ownership
Lot 65 Rollinson Rd	Vol: 2689 Fol: 288	1.731ha	Private ownership
Lot 67 Garston Way	Vol: 2689 Fol: 290	0.150ha	Private ownership
Lot 68 Garston Way	Vol: 2689 Fol: 291	0.150ha	Private ownership
Lot R45959(2121) Rollinson Rd	Vol: lr3112 Fol: 772	0.174ha	State of WA
Lot 2108 Bennett Av	Vol: 2124 Fol: 082	4.284ha	Minister for Works
Lot 2110 (Railway reserve)	Vol: 2124 Fol: 083	11.990ha	Crown land

Table 05_Legal Description and Ownership



Figure 10_Existing foreshore amenities within Cockburn Coast

2.0 Planning Framework

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2.1 Regional Planning

2.1.1 Metropolitan Region Scheme

In August 2009, the Metropolitan Region Planning Committee (MRPC) acting under delegated authority from the Western Australian Planning Commission (WAPC) resolved to proceed with Amendment 1180/41 to the Metropolitan Region Scheme. The amendment rezones the North Coogee industrial area to an Urban Zone, and to rationalise and realign the Parks and Recreation and Primary Regional proposes roads reservations to reflect the strategic planning intent and land use planning proposals within Cockburn Coast District Structure Plan.

The amendment proposed the following changes to the MRS:

- _Rezone approximately 91.55ha of Industrial zone land to the Urban zone.
- _Minor rationalisation of Parks and Recreation reservation to the west of the Primary Regional Roads reservation and within the coastal Parks and Recreation reserve to the Urban Deferred zone, totalling 5.15ha.
- _Realignment and rationalisation of Primary Regional Road reservations between Rockingham Road and the Fremantle Port freight rail line; and
- _Rezoning of part of the South Fremantle Power Station Site to 'Urban Deferred'.

As a result, the LSP area which was once primarily zoned 'Industry' has now been rezoned to 'Urban'.

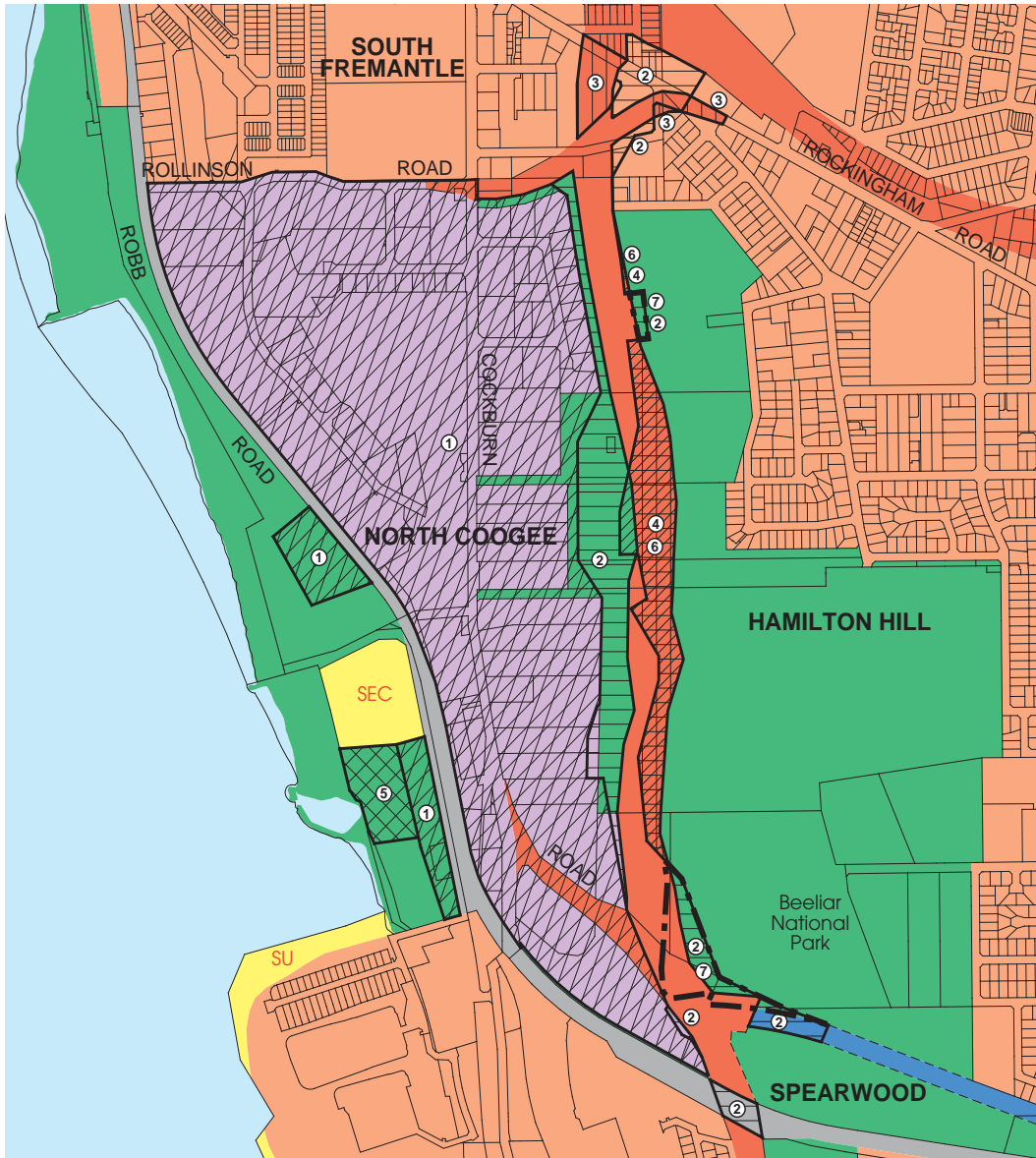
2.1.2 Town Planning Scheme

The land was recently rezoned via Amendment No. 89 to the City's Town Planning Scheme No. 3 to 'Development Zone'. The land is part of Development Area No. 33 as shown on the Scheme map and there are specific provisions for this area contained within Schedule 11 of Town Planning Scheme No. 3. One of these provisions includes the need for structure planning to occur to enable subdivision and development in a coordinated manner.

2.1.3 Directions 2031 and Beyond and The Outer Metropolitan Sub Regional Strategy

As identified by Directions 2031 and Beyond, the south west subregion encompasses the Cities of Cockburn, Kwinana and Rockingham. These areas have experienced considerable economic and population growth with Directions 2031 identifying and capitalising on this trend. As a planned urban growth area the Cockburn Coast is recognised by these documents as new ocean side community with an estimated population of 10,800.

The redevelopment of Cockburn Coast as a unique coastal urban development is underpinned by the five strategic themes that drive Directions 2031: Liveability; Prosperity; Accessibility; Sustainability; and Environmental responsibility.



Cockburn Coast Precinct - proposed major amendment 1180/41

as advertised

Figure 1

11 August 2009

Proposed:

- urban deferred zone
- primary regional roads reservation
- urban zone
- parks and recreation reservation
- public purposes (SU) reservation

Notice of delegation Legend

- Bush Forever area
- Bush Forever removal

Existing:

- urban zone
- industrial zone
- waterways reservation

- railways reservation
- public purposes (SEC & SU) reservation
- parks and recreation reservation
- other regional roads reservation
- primary regional roads reservation

1592bw1.fig
19 Sep 2009
Produced by Mapping & GeoSpatial Data Branch, Department of Planning, Perth WA
On behalf of the Western Australian Planning Commission.
Base information supplied by Western Australian Land Information Authority LI 430-2009-2

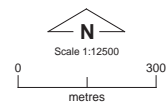


Figure 11_Proposed Major Amendment 1180/41 for the Cockburn Coast Precinct

2.2 District Structure Plan

2.2.1 Cockburn Coast District Structure Plan

The Cockburn Coast District Structure Plan (DSP) was endorsed in September 2009 and sets out to provide a statutory and land use framework intended to inform future detailed planning and the preparation of local structure plans. The Cockburn Coast District Structure Plan 2 further builds upon this with greater detail and refinement.

2.2.2 Cockburn Coast District Structure Plan 2

The Cockburn Coast District Structure Plan 2 (DSP2) serves as a key guiding document, which builds upon the core principles of the 2009 District Structure Plan and enables greater certainty going forward into the local planning phase.

The DSP2 identifies a number of key drivers and opportunities that underpin its vision and intent, in turn forming the foundation of the Robb Jetty LSP.

These include

- _Create a sub regional economy
- _Develop and integrated transport plan
- _Embed green infrastructure into the development
- _Create key physical links which bring people to the coast and
- _Maximise the coastal, cultural and regional amenity.

The CCDSP2 identifies three logical, distinct and separate local structure plan areas within the larger DSP2 area. These are

- _Robb Jetty Precinct
- _Emplacement Precinct
- _Power Station Precinct

The Robb Jetty precinct is identified as providing one of two Activity Centres within the project area. It is envisaged that Robb Jetty will focus on the provision of daily shopping needs for residents, including the opportunity for a supermarket site, but also accommodating restaurants, cafes and small scale office opportunities that will have a wider catchment.

The DSP2 sets density and yield targets, height projections, as well as identifying the provision and location of key public open space areas. These have been addressed by the Robb Jetty LSP.



Figure 12_Master Plan as proposed by District Structure Plan 2

2.3 Policies

2.3.1 State Planning Policy No. 1 - State Planning Framework

This policy sets out the key principals relating to environment, economy, community, infrastructure and regional development to guide the way future development and decisions occur. The Cockburn Coast project specifically addresses all criteria listed above and the relevant State Planning Policies listed below, creating the potential for a sustainable urban development in this unique metropolitan location.

2.3.2 State Planning Policy 2.6 - Coastal Planning Policy

State Planning Policy 2.6 (SPP2.6) is particularly relevant to the Cockburn Coast project, in that it:

- _Sets requirements for calculating coastal physical process setbacks to project development and land use from physical coastal processes and the effects of climate change
- _Provides guidance relating to development and land use along the beach

The LSP has examined the coastal physical setbacks as set by SPP2.6 and provides response in the form of an updated setback line. The coastal physical setback line has previously been defined in a study prepared by Oceania in 2007 to inform the preparation of the DSP. In July 2013, the State Coastal Planning Policy was revised. LandCorp engaged coastal engineers to undertake an assessment to the requirements of this new policy in order to confirm that the proposed development would be safe from potential coastal erosion. All plans within the LSP are compliant with the proposed Physical Setback line to the SPP2.6 (2013).

2.3.3 State Planning Policy No. 3 Urban Growth and Settlement

This policy sets out the principles and considerations which apply to planning for urban growth and settlement in Western Australia. It is a broad sector policy under *Statement of Planning Policy No.1: State Planning Framework* and is implemented by more detailed policies on particular matters relating to planning for urban settlements that require additional guidance. The policies detailed within this section of the report provide a summary and brief response to the items recognised by this policy as being integral to the successful development of Western Australia.

2.3.4 State Planning Policy 3.6 Development Contributions for Infrastructure

This policy sets out development contribution provisions for standard infrastructure items applied by the Western Australian Planning Commission (WAPC) on the subdivision, strata subdivision, or development of land; and provides a consistent, accountable and transparent system for local governments to plan and charge for community infrastructure items which are not included in the standard provisions through development contribution plans. The LSP is accompanied by a Development Contribution Plan which will play an integral role in achieving the visions set out within this document in an equitable manner.

2.3.5 State Planning Policy 4.2 Activity Centres for Peel and Perth

The Structure Plan area contains a Neighbourhood Centre in the form of the Main Street Plaza. The development of this centre has been guided by the requirements of State Planning Policy 4.2. The main purpose of this policy is to specify broad planning requirements for the planning and development of new activity centres and the redevelopment and renewal of existing centres in Perth and Peel. It is mainly concerned with the distribution, function, broad land use and urban design criteria of activity centres, and with coordinating their land use and infrastructure planning. Other purposes of the policy include the integration of activity centres with public transport; ensuring they contain a range of activities to promote community benefits through infrastructure efficiency and economic benefits of business clusters; and lower transport energy use and associated carbon emissions. The policy also reflects the WAPC's intention to encourage and consolidate residential and commercial development in activity centres so that they contribute to a balanced network.

2.3.6 State Planning Policy 5.4 Road and Rail Transport Noise and Freight considerations in Land Use Planning

Given the location of major road infrastructure and the existence of a freight rail line within the Structure Plan Area the provisions contained within State Planning Policy 5.4 are particularly relevant in the development of the LSP. This policy aims to promote a system in which sustainable land use and transport are mutually compatible. Through specifically addressing noise attenuation matters in design and the interface between land uses the plan provides a manner of development in keeping with the requirements and principles of SPP5.4.

2.3.7 Draft State Industrial Buffer Policy and EPA Guidance

The structure plan area includes a number of existing industrial uses. These industrial land uses are likely to continue to operate for many years to come and have existing land use buffers in place. This LSP identifies appropriate buffer and interface requirements in accordance with the requirements of the Draft State Industrial Buffer Policy and Environmental Protection Agency (EPA) guidance.

2.3.8 Liveable Neighbourhoods

Structure plans are to be prepared based on the framework provided under Liveable Neighbourhoods. The primary measure of achievement for structure plans is compliance with the objective and requirements of Element 1 - Community Design.

This LSP has been prepared in accordance with the requirements of Liveable Neighbourhoods in a number of ways. Firstly, Liveable Neighbourhoods promotes mixed land use planning and design, which plays a key role in characterising the proposed Robb Jetty LSP. Liveable Neighbourhoods also outlines that achievement of sustainable urban outcomes will require higher residential densities in many areas. The Cockburn Coast provides an intensity of residential density suitable to allow for a sound and sustainable urban outcome ranging from Residential R40 to Residential R160. Furthermore, densities and land uses have been provided in a manner that is supportive of public transport, specifically the proposed Bus Rapid Transit (BRT) system. This is again in keeping with the principles of Liveable Neighbourhoods.

32 Liveable Neighbourhoods identifies the need for key walkable activity centres with the LSP providing the Robb Jetty Main Street as a very walkable employment and activity centre and also containing the areas primary school. In sum, all elements of the LSP are in support of Liveable Neighbourhoods.

2.4 Other Approvals and Decisions

2.4.1 Improvement Plan 33

Improvement Plan 33 (IP33) was prepared for the Cockburn Coast project area under the provisions of Part 8 of the Planning and Development Act 2005.

The purpose of IP33 was to prevent inappropriate development within Cockburn Coast whilst the District Structure Plan was being prepared and subject to additional appropriate statutory and governance arrangements being put in place.

IP33 recognises that Cockburn Coast has been identified for future urban development, moving away from its historical industrial use, and also recognises that Cockburn Coast is subject to intense development pressure. Therefore, IP33 provides the mechanism to 'halt' inappropriate development until such time that a robust statutory and governance framework has been implemented to guide future development. IP33 also enables the WAPC to acquire land by agreement or compulsorily for future redevelopment, if necessary.

3.0 Site Conditions and Environment

3.1 Environmental Assets and Constraints

33

Given Cockburn Coast's long history of disturbances, including clearing and infrastructure developments, the vegetation of the study site is completely modified from its original state and is significantly degraded.

A field survey of this site noted that vegetation present was dominated by introduced species with only a small number of native species recorded. Due to disturbance and modification there is no intact remnant vegetation community on site.

The field survey found that fauna habitat value of the LSP area is limited due to its highly modified and degraded condition. The site would provide habitat for assembles of small reptiles, some bird species and small ground mammals, though the mammals are likely to be introduced taxa (such as house mice, rats and cats). No conservation significant fauna species were recorded during the field survey.

3.1.1 Assessment of Ecological Risk

Clearing and development of the Robb Jetty site would have no risk to flora and fauna that is listed as threatened by the Environmental Protection and Biodiversity Conservation Act; there are no ecological aspects to the study site that require further investigation or trigger referral to the Department of Sustainability, Environment, Water, People and Community (DSEWPaC). The presence of four trees that are potentially habitat for the Black Cockatoo will not create a risk for this species as the project does not trigger referral to DSEWPaC.

The three Declared Weeds, Paterson's curse (*Echium plantagineum*), Tamarix trees (*Tamarix philoxeroides*) and Bridal Creeper (*Asparagus asparagoides*), should be managed during construction phase to prevent the spread of these plants.

The full report can be found as an appendix to this report.

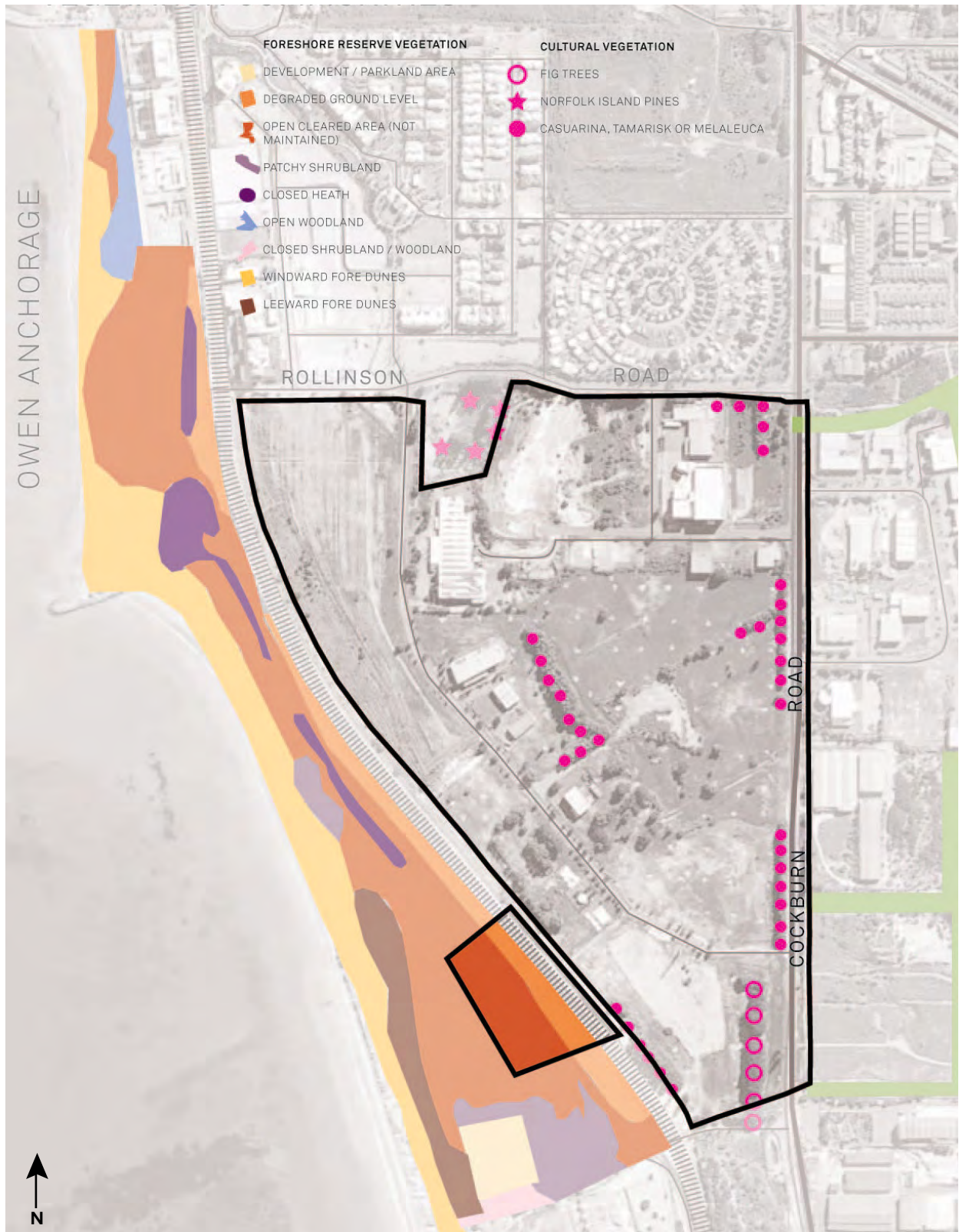


Figure 13_Vegetation Community Analysis

3.2 Land Form and Soils

The project area consists largely of Safety Bay Sands which has a high rate of hydraulic conductivity, meaning that there is limited surface water runoff as the sandy soil is very porous. Tamala limestone follows the ridge line in a north-south direction along the Safety Bay Sands adjacent to the coastline. Refer Figure 14.

The site ranges from being relatively flat between the rail reserve and Cockburn Road and gently rises up to a ridge line that runs north-south through the eastern section of the project area. This ridge line is steep in parts and also consists of some east-west valley formation. The ridge line reaches heights of 50m AHD in parts.

The site is relatively flat between the coast and Cockburn Road. Overall the site is suitable for urban development.

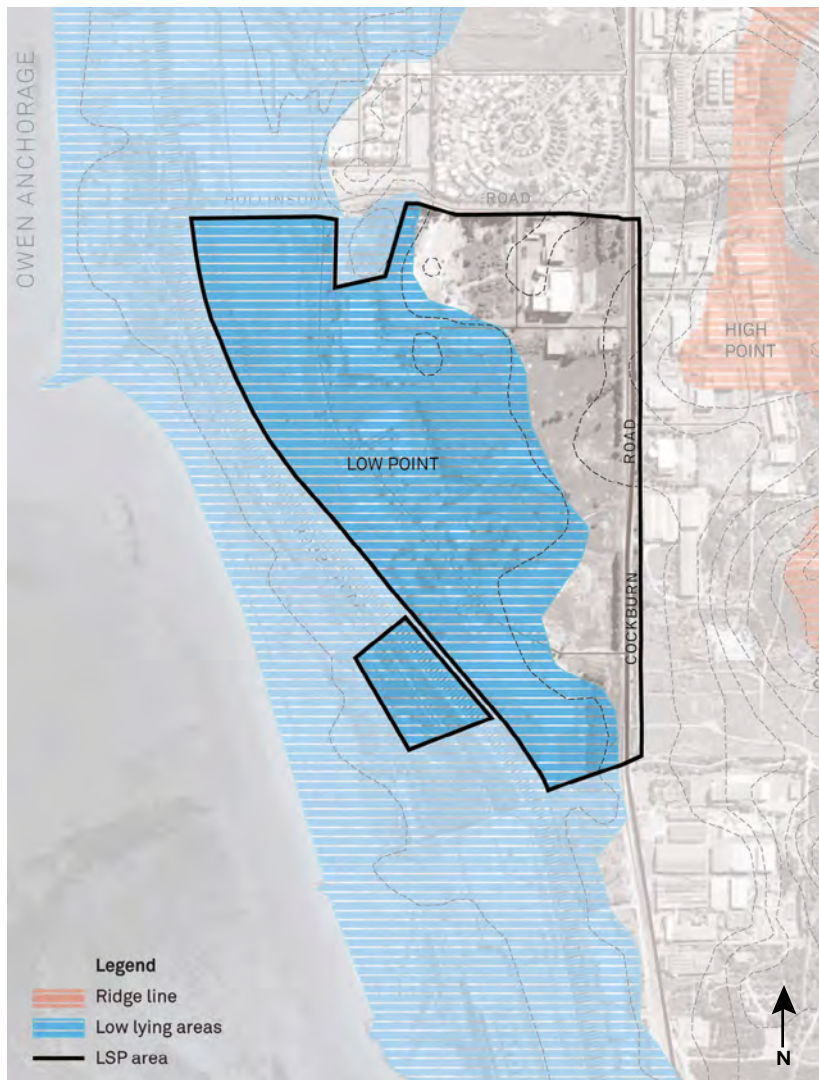


Figure 14_Landform Analysis

3.3 Ground Water and Surface Water

3.3.1 Surface Water

The nearest surface water body is the Indian Ocean, which is located along the western boundary of the LSP area. Surface water is expected to infiltrate through sand with some possible minor surface water run-off following the topography of the LSP area towards the Indian Ocean.

Surface water flow is influenced by the ridgeline running north-south through LSP area approximately 1.5 kilometres east of the coastline which divides the site into two catchments, east and west, drainage valleys running east-west and the high infiltration of sandy soils.

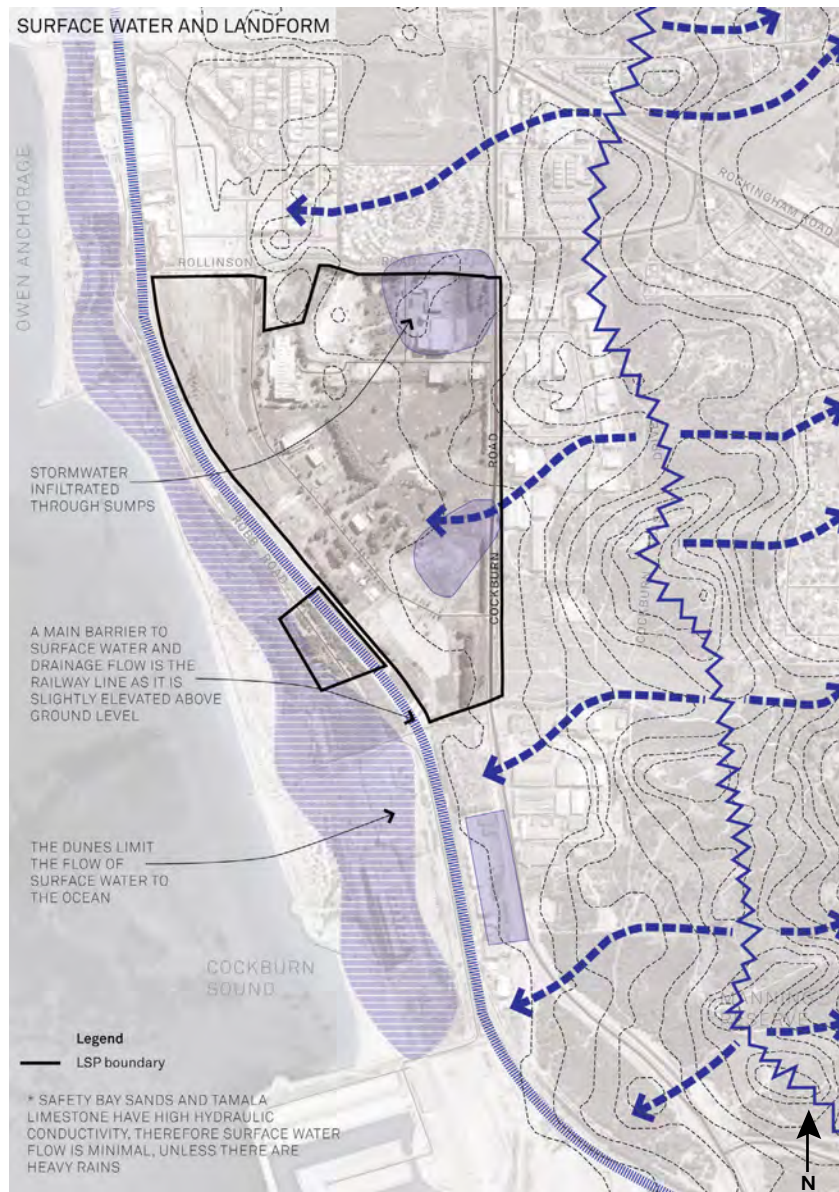


Figure 15_Surface water analysis

3.3.2 Ground Water

The Perth Groundwater Atlas indicates that the LSP area is located above the Superficial (Unconfined) Aquifer. The depth to the superficial aquifer varies across the Robb Jetty site between 3m below ground level and 15m below ground level. Groundwater on the site is therefore generally deep and as a result not a constraint to development.

Groundwater beneath the LSP area will flow in a westerly direction towards the Indian Ocean, which is considered to be the discharge location. Given the proximity to the Indian Ocean it is considered likely that groundwater beneath the LSP area will be subject to tidal influences and saline intrusion. As such, the use of groundwater risks the incursion of salt water and the historical contamination that has occurred from previous land uses such as landfills and industrial sites.

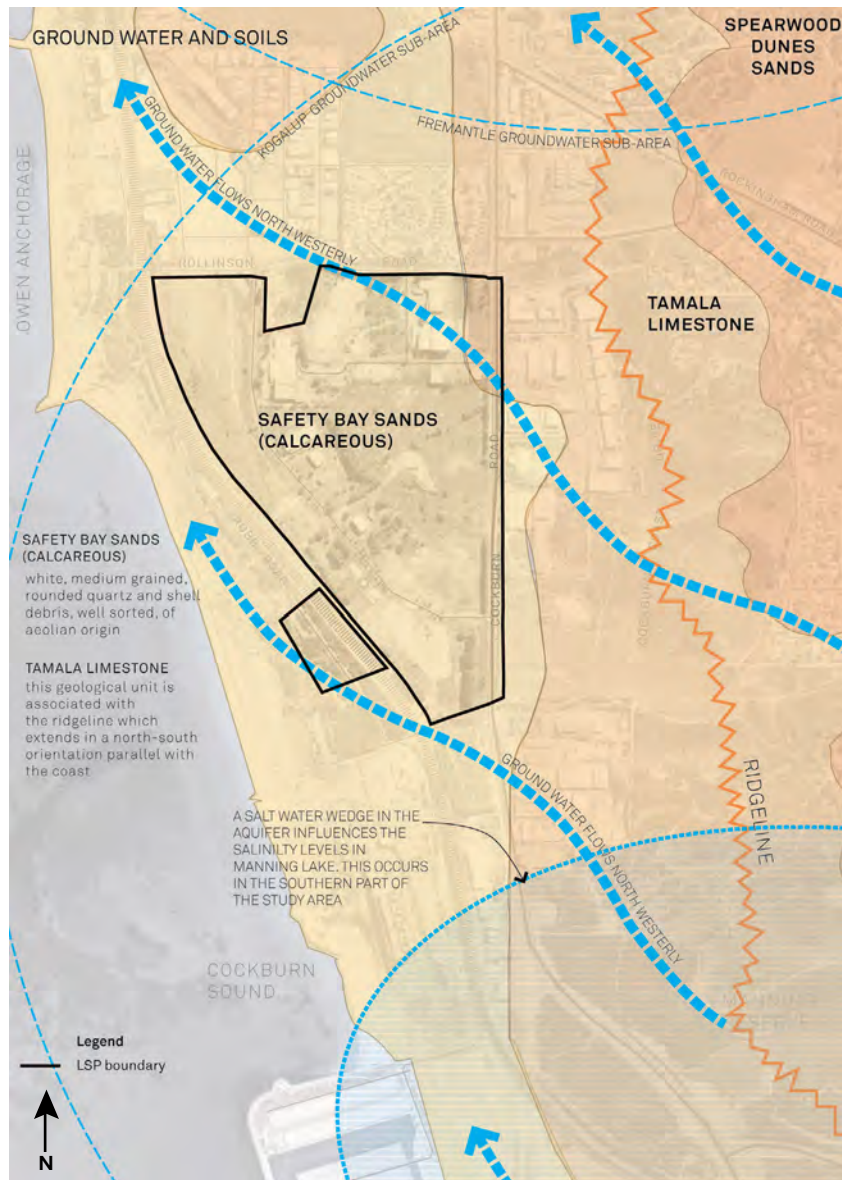


Figure 16_Ground water analysis

3.4 Bushfire Hazard

The majority of the LSP area is a low bushfire hazard (Bushfire Attack Level [BAL] classification of LOW), meaning that no special house construction standards are required (based on Australian Standard 3959 'Construction of Buildings in Bushfire-prone Areas' [AS3959]). However, bushfire hazards are present on the western sides of the LSP area.

On the far western edge of the site, the Cockburn Foreshore Reserve is classified as bushfire prone with some vegetation communities classified as an 'extreme' bushfire hazard (Figure 17, Eco Logical Australia 2012) following the methodology of 'Planning for Bushfire Protection Guidelines' WAPC/ FESA 2010 (PBP). This area is to be retained as a foreshore reserve, for which a Bushfire Management Plan has been developed to reduce the potential for fire to impact on the reserve and surrounding land use (Eco Logical Australia 2012). The railway immediately east of the foreshore reserve provides a 17 metre fuel-free buffer. Any development proposed in proximity to the retained vegetation communities within the foreshore reserve must consider constructing to Building Code of Australia standards according to the BAL rating and reference to AS3959.

The implementation of the concept design outlined within the Foreshore Management Plan will alter the existing vegetation and the fire hazard and risk in the reserve. This may include reductions in the fire hazard in the vicinity of proposed precincts; Catherine Point, Green Corridor Connection, Robb Jetty and McTaggart Cove. Detailed bushfire risk measures should be considered as part of the detailed design development for the foreshore reserve. It is probable that this will result in a reduction in the fire hazard ratings of the foreshore. Development proposals and building construction standards will need to reflect the final bushfire hazard and risk.



Under the requirements of PBP bushfire risk must be reduced to an acceptable level through measures such as Building Protection Zones (BPZs), Hazard Separation Zones (HSZs) and construction to an appropriate standard as specified under Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas (Standards Australia 2009). It is possible that development proposed in close proximity to foreshore reserve will have difficulty accommodating BFZ and HSZ's within their lot boundaries. In these situations it is important a combination of foreshore reserve management and building design be used to minimise bushfire risk. While the Bushfire management Plan has indicated how the bushfire risk could be reduced within the foreshore are, developers should not rely on this hazard reduction occurring given the land is outside of their control.

Strategies for reducing bushfire hazard could consist of a combination of:

- _Restructuring of vegetation (if necessary, this may include removal of more fire-prone species)
- _Non-combustible pathways
- _Low, non-combustible retaining walls that reduce radiant heat load
- _Mounded earth or rock (e.g. berms) in a manner in keeping with the aesthetics of the foreshore
- _Access roads and/or car parks

The use of the above treatments will reduce the bushfire risk and allow an appropriate mix of building design and 'landscaping' within the reserve so that compliance with the performance criteria within PBP are achieved. In the absence of these 'performance solutions' the minimum setback between bushfire hazard (vegetation) and a building is 15m, based on calculations for BAL-29 (Eco Logical Australia 2012).



-  Subject Land
-  Extreme
-  Moderate
-  Low

0 70 140 280
Meters

Datum/Projection:
WGS84

Data Sources:
Bing Aerials



Figure 17_Foreshore Bushfire Hazard Ratings (Eco Logical 20120)

3.5 Heritage

A Cultural Heritage Strategy has been prepared to inform the development of the Cockburn Coast District Structure Plan Part 2 and associated Local Structure Plans. It provides the basis for the identification, ongoing management, care and interpretation of the indigenous, historic and maritime heritage sites located within in the project area.

The Cultural Heritage Strategy identifies that the Cockburn coastline and the limestone ridge behind it contains a number of significant indigenous, historic and maritime sites with the most visually prominent being the South Fremantle Power Station and the Robb Jetty Abattoir Chimney. The area also includes landscape plantings, sculptures, shipwrecks, the South Beach Horse Exercise Area and the Robb Jetty Camp a site of importance and significance to Aboriginal people.

The Robb Jetty Precinct contains a significant number of places of historical importance and heritage value as explored in Table 07 - Places of Historical Significance. Key themes and stories associated with these places, and the Robb Jetty Precinct generally, were identified in the Cultural Heritage Strategy to inform place making opportunities and include:

Survival of Indigenous People in the postcolonial economy

Prior to settlement the coastal dunes are thought to have been used for burial purposes, the last finding being recorded in 1885; from about 1910 until about 1985, an Aboriginal camp was located near Robb Jetty.

Shipping

Owen Anchorage was used as an early mooring/anchorage area for ships arriving at the newly settled colony.

Horse Racing

South Beach was the site of the first official horse race in Western Australia in October 1833 and the beach has also been used for exercising racing horses from that time to the present.

Feeding the State

The area was an integral part of the agricultural industry of the State, particularly through the development of Robb Jetty, the abattoir and associated industries from the mid-1850s through to the early 1990s.

Place	Type	Heritage List	Status/Category
South Beach Horse Exercise Area, inclusive of the following elements: Human Race Artwork (interpretive element)		State Register of Heritage Places City of Cockburn Heritage List - Referred to as South Beach	Permanent Listed Category A
Robb Jetty	Historic	Not individually listed. However it is included within the State Register of Heritage Places curtilage for the South Beach Horse Exercise Area	N/A
Wyola and barge (remains)		Not individually listed. However it is included within the State Register of Heritage Places curtilage for the South Beach Horse Exercise Area	NA
Robb Jetty Camp (part of)	Indigenous	Register of Aboriginal Sites	Registered Site Open No Restriction
Moreton Bay Fig Trees	Historic	City of Cockburn – Local Government Inventory	Trees
CY O’Connor Statue (Interpretive element)	Historic	City of Cockburn - Local Government Inventory	Category C

Table 07_Places of Historical Significance



The Cattle Industry of Robb Jetty (State Library of WA)



Remnants of the cattle industry remain today



The South Fremantle Power Station in operation (State Library of WA)



Remnants of the Robb Jetty Chimney are still in place today



The Cockburn Coast was used for military training during WWII (State Library of WA)



Wyola Remains showing Robb Jetty in the background

3.5.1 Heritage Management

The recognition and incorporation of the distinctive heritage of the area is a significant component of the urban renaissance of Cockburn Coast and is integral to creating a distinct and meaningful place. To guide the Local Structure Plans, the Cultural Heritage Strategy includes strategies and actions setting out how to protect and transmit the heritage values of each place, in accordance with relevant legislative requirements.

A summary of these heritage management strategies relevant to the places in the Robb Jetty Precinct is provided below. Please refer to the Cultural Heritage Strategy, for detailed actions for each management strategy:

- _Any future conservation, management and/ or adaptation works to these important places are to be undertaken in accordance with State and local policies and procedures.
- _Integrate interpretation of the sites in the Cockburn Coast project to communicate the tangible and intangible values and history of the place to the community.
- _Acknowledge that skeletal material has previously been unearthed in the general vicinity of the Robb Jetty Camp
- _South Beach should continue to be used for horse training, a use with which it has had a long association.
- _Consideration should be given to providing historic statutory heritage protection to Robb Jetty in its own right.
- _Remnants of Robb Jetty should be retained undisturbed.
- _Retain and conserve the Robb Jetty Chimney.
- _Any new development adjacent to the Chimney should ensure it retains its landmark qualities.
- _Investigate the heritage value of the Wyola and barge (remains).
- _Retain and conserve the Moreton Bay Figs.
- _Encourage new forms of Public Art in the project area that interprets the cultural heritage of Cockburn Coast.



Figure 18_Places of Heritage Significance (TPG)

3.6 Coast

Consideration of coastal erosion and accretion patterns for the future of the Robb Jetty foreshore have informed the development decisions of this LSP. In 2010, LandCorp engaged MP Rogers and Associates to complete coastal / maritime engineering investigations to support the preparation of the DSP2. This included a coastal vulnerability assessment based on the State Planning Policy 2.6 - State Coastal Planning Policy (SPP2.6) (WAPC 2003). That assessment utilised the results of Oceanic's 2007 assessment of coastal processes. In July 2013, The SPP2.6 was revised. LandCorp has since re-engaged MP Rogers to complete an assessment of the requirements of the new policy and calculate a revised coastal setback allowance (Figure 19) in order to confirm the proposed development would not be impacted by potential coastal erosion. The full 0.9m rise in mean sea level by 2110 was used in this assessment.

The following findings and recommendations have been made as part of the coastal investigations to inform the Robb Jetty LSP:

- _In general there has been net accretion due to the onshore feed of sand from Success Bank and the trapping action of the various groynes and breakwaters.
- _All proposed freehold land (except one lot) is located behind the freight rail corridor or the Physical Processes Setback line calculated to the SPP2.6 (2013). Consequently, freehold development east of the freight rail line would not be under threat from future coastal erosion.
- _Development within the one freehold lot west of the freight rail line will be setback in accordance with the Physical Processes Setback Line in accordance with the SPP2.6 (2013).
- _All freehold properties will be founded above the minimum finished floor level +3.5 mAHD and avoid inundation from ocean storm surge as required by the SPP2.6 (2013).

In conjunction with the Foreshore Management Plan, MP Rogers modelled a range of coastal protection scenarios and their impact on beach geometry. The Foreshore Management Plan presents and summarises three (3) of the most viable scenarios and examines the implications on the foreshore infrastructure for each (seawall, groyne and nourishment and headland and nourishment option). The Foreshore Management Plan and Coastal Vulnerability Report is an appendix to this report.



Figure 19_Coastal Setback Line - Physical Processes Setback Line to 2013 State Planning Policy 2.6, as determined by MP Rogers

4.0 Context and Constraint Analysis

4.1 Existing Road Network

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4.1.1 Existing Transport

The Cockburn Coast development site is a former industrial area. A small number of industrial uses are still in operation; however the majority of the land is suitable for redevelopment. The area to be covered by the proposed Robb Jetty precinct is currently used for industrial purposes. The existing road network is illustrated in Figure 20. Cockburn Road (State Route 12) is a strategic road running north-south along the eastern boundary of the Robb Jetty precinct carrying approximately 17,000 vehicles throughout the day. This route connects destinations in the south such as Coogee, the Australian Marine Complex at Henderson, the Kwinana Industrial area and Rockingham with Fremantle to the north. The route functions as the primary north – south route for freight and regional traffic. It has a speed limit of 60kph at the northern end and 70kph at the southern end with the transition point located south of the intersection with Emplacement Crescent. Robb Road provides an additional north-south link along the coast. The existing road network has developed to support the existing industrial uses. Currently the industrial uses on the proposed Robb Jetty precinct connect to Cockburn Road via Rollinson Road, Garston Way, and Bennett Avenue.

There are already a number of pedestrian and cycle facilities within and surrounding the proposed Robb Jetty precinct. There is a sealed shoulder on both sides of Cockburn Road to the south whilst a shared pedestrian / cycle path runs from the south east along the coast to the northwest. Route SW10 which forms part of the Perth Bicycle Network enters the study area at Rockingham Road, north of the proposed Robb Jetty precinct.

Although there are a number of pedestrian routes in the area, there are currently limited opportunities for pedestrians to cross Cockburn Road. Pedestrian stages are included in the signals at the intersections of Cockburn Road with Spearwood Avenue, Rockingham Road and Douro Road providing crossing points at these locations.

Only one bus service (service 825) runs north – south along the extent of the Cockburn Coast study area operating between Fremantle Station and Rockingham Station. The frequency of this service is limited with a maximum of two services operating in the peak hours. Further north there are a number of bus services operating in the north – south corridor towards Fremantle and several services operating along Rockingham Road. ‘

An active freight railway line runs through the Robb Jetty precinct, this line runs from East Perth to Cockburn North and forms Line 11 within a State Transport Corridor which services the Fremantle Port Authority and it's customers.

The railway line is not used for passenger travel and is used solely for the movement of freight and has no time restrictions on its operation.



Figure 20_Existing Road Network

4.1.2 Freight Railway Line

A freight railway line runs north to south through the study area operating between Cockburn and Fremantle. This line is not used for passenger travel; it is solely used for the movement of freight.

The State Government recently reaffirmed its long term commitment to the Port of Fremantle that freight rail is as an essential part of managing freight in Western Australia. As such, the existing freight line will play a critical role in the expansion of freight movements to and from the Port. With the port's volume of shipping expected to double within 10 years, the Port have indicated that they will not support any activity along the freight line that interferes with this current or forecast demand. At present there are typically 8 train movements per day. It is envisaged that in order to attain the desired overall volume and percentage shipped by rail, a fourfold increase in train movements is potentially required.

There are currently two locations where it is possible to cross the rail line. These are Rollinson Road and McTaggart Cove. Rollinson Road is a local road with a 50kph speed limit running east-west between Cockburn Road and Robb Road. It provides the only existing east-west access to the north of the development site. McTaggart Cove provides an east-west connection in the south.

In considering the impact of the freight railway line for the LSP, noise and vibration management implications, and limitations imposed on east to west connectivity and level crossings will need to be taken into account.



Figure 21_Freight rail passing through South Beach

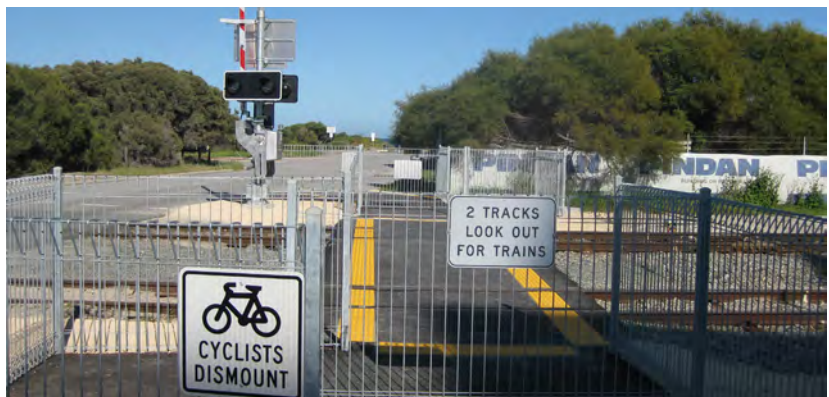


Figure 22_Freight rail in the Cockburn Coast & South Beach

4.2 Major Services and Infrastructure

As part of the DSP2 an Infrastructure Master Plan was established to ensure a coordinated approach to the delivery of service infrastructure across the project area and to guide the preparation of Local Structure Plans and subsequent subdivision.

4.2.1 Sewer

The development area currently has a number of lots which are served by a reticulated gravity sewer system. The existing system consists of the following:

- _ Gravity sewer lines serving all existing lots in the area. Typically pipe sizes are 225mm.
- _ Sewer pumping station – pipework gravitates to this pump station which exists near the corner of Rollinson Road and Bennett Avenue. The pumping station is a major installation and accepts flows from other pumping stations in the Fremantle area. It pumps flows ultimately to the Woodman Point Wastewater Treatment Plant.
- _ Sewer pressure main – the pump station pumps flows in a 500mm steel pressure main to the wastewater treatment plant. The route follows major roads as much as possible and Cockburn Road to the south of the development area
- _ Emergency Ocean Outfall – The pumping station would be designed to retain sewer flows on site for a certain time (typically 3 hours) in case of station failure. Further to this, in an emergency it is required to discharge flows safely. As such a gravity ocean outfall main of 610mm should be in place
- _ The RC discharge line would only operate in an emergency situation.

All sewerage infrastructure is owned and operated by the Water Corporation.

4.2.2 Water Supply

All lots within the development area are served with reticulated potable water supply delivered by a piped system which exists within existing road reserves accordance with minimum Water Corporation criteria regarding quality and pressure. Water supply is served from the Hamilton Hill high level tank and supply area. All water supply assets are owned and operated by the Water Corporation of WA.

4.2.3 Roadworks

Existing lots within this development area are fronted by a sealed and kerbed roads system. The main through road is Cockburn Road which carries traffic into and out of the area. Cockburn Road is the main freight route for existing commercial business in the area. All major services at one point or another exist within the Cockburn Road reserve.

4.2.4 Drainage

All rain that falls within the Cockburn Coast development area is infiltrated on site. The DSP2 identifies that this will continue upon development of the area, with all new lots required to infiltrate their own rainfall on site. The DSP2 also recognises the need for a number of existing draining sumps to be phased out and more aesthetically pleasing infiltration areas incorporated within public open space. Detailed landscaping and engineering designs will ensure that the required infiltration volumes can be accommodated.

4.2.5 Power

Western Power has carried out a feasibility study looking at how the development may be served with power supply staged through to the ultimate development from a distribution point of view. A number of existing sub feeders were examined as possible options to the supply of the development, with none being considered appropriate due to relocations, reliability, established development increases in areas such as Port Coogee, and limited capacity. Whilst some existing feeders have been identified as being able to supply the initial load of development ultimately a new feeder will be required. It is also likely that major reinforcement will be required for both transmission and distribution assets to increase capacity. Ultimately a new feeder is likely to be required to be installed from the Amherst sub-station to the development area. It is also likely that major reinforcement will be required for both transmission and distribution assets to increase capacity.

Western Power through a feasibility study has indicated that a sub-station may be required within the Cockburn Coast area. A sub-station typically requires a land area of 1 hectare. Western Power is addressing this possible requirement in conjunction with the Terminal Substation relocation.

Installation of a new feeder is proposed to occur by direct horizontal drilling within existing road reserves. Hence, future road reserves need to take into account the installation of HV infrastructure. Existing power supply infrastructure in Cockburn road indicates that underground power cables adjacent to Cockburn Road are within private property. As such, the planning of the revised Cockburn Road reserve needs to accommodate these cables so that expensive relocations do not occur.

4.2.6 Telecommunications

Telstra landline telecoms system exists to a reasonable level in the area. The National Broadband Network (NBN) would be involved in the provision of telecommunications for the development area. Current policy is that for developments greater than 100 dwellings the NBN will provide optic fibre cabling to each dwelling. The developer will be required to provide pipe and pit for each stage of development in accordance with NBN specifications.



Figure 23_Existing Infrastructure on the Cockburn Coast

4.3 Existing and Regionally Planned Employment Nodes

The Cockburn Coast is well located between economically significant centres in the southern metropolitan area of Western Australia, namely Fremantle, Rockingham, Kwinana and Henderson. It is also well connected to other major employment areas at Cockburn Central and Spearwood industrial area. However, given the LSP areas historical industrial use and zoning, its immediate surrounds are existing residential suburbs.

It is important when considering the existing and planned employment nodes within the Robb Jetty LSP area to consider the project as part of its larger purpose. This being the creation of the Cockburn Coast as envisioned by the District Structure Plan 2.

According to the employment targets set within Directions 2031, the South West subregion is expected to increase its employment self-sufficiency rate to 70% by 2031, requiring the creation of 41,000 new jobs, an increase from the already existing 52,000 in 2008. This allows the Cockburn Coast a unique opportunity to assist in the maturation of the employment economy within these targets. Specifically, the District Structure Plan 2 identifies the opportunity to provide between 2,310 and 3,125 jobs towards the Directions 2031 employment target. Whilst Cockburn Coast will not become as economically productive as the identified strategic industrial centres it will play a valuable role in providing high quality employment within the subregion. The DSP2 notes the importance of the Cockburn Coast's role in competing with, but not cannibalising the existing and future economies within the subregion.

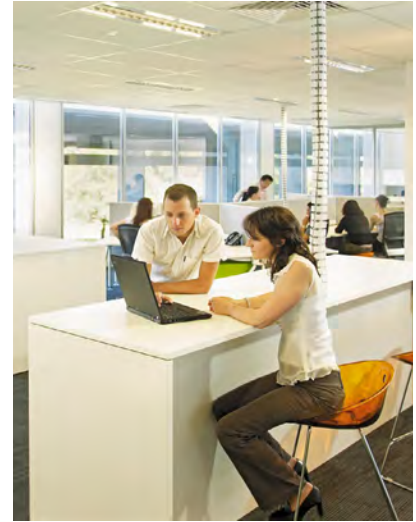


Figure 24_The Cockburn Coast redevelopment will contribute to the maturation of the employment economy in the region

4.4 Reserves, Open Space and Community Facilities

The existing recreational infrastructure and activities that are significant to Cockburn Coast have been identified and where possible integrated into the proposed Cockburn Coast development. These elements include parks, beaches, significant trees, heritage and art elements, sandy tracks and pathways. Refer to figure 25.

It is important to preserve these existing elements where we can as they play a vital role in defining the character of Cockburn Coast and provide rich historical memories which remain in the landscape.

4.4.1 Beaches

The beaches of Cockburn Coast have a unique character and function which should be preserved. Catherine Point Reserve and C.Y O'Connor Beach are currently the most utilised swimming beaches in the Robb Jetty Precinct. At present the beaches of South Beach all the way south to South Fremantle Power Station are currently being used as a recreational beach for horses, dogs and people. There are very few beaches in the Perth metropolitan area that allow these kinds of activities to occur together. Although the beaches will become considerably busier with the increased population in the area, it is crucial that the existing function of the beach be preserved. The aim is for horse facilities to remain at McTaggart Cove to provide facilities for horses with a horse float car park, where the dunes are lower and there will be less disturbance to future residential uses, thus minimising potential land use impacts.

Sandy beach tracks which are currently used by people and horses provide a network of movement to and from the beach and through the dunes. With careful measures these tracks can be enhanced whilst ensuring the protection of the coastal dunal system.

4.4.2 Parks

McTaggart Cove Reserve is a key beach side picnic spot with toilet facilities, shelters, bbq and seating opportunities. The Robb Jetty structure plan ensures that its function remains and is enhanced with additional facilities to cater for the new residents and visitors to Cockburn Coast.

4.4.3 Heritage

Heritage elements such as the ship wrecks, remnants of the Robb Jetty, Robb Jetty Chimney, South Beach Battery and significant Moreton Bay Fig Trees trees should be preserved and made a feature in the landscape, as these heritage elements play a crucial role in the history and story telling of the place.

4.4.4 Artwork

The "Human Race" art installation designed by artist Tony Jones follows the original line of the cattle race that ran from the jetty.

The Bronze Statue of C.Y O'Connor riding his horse is also designed by artist Tony Jones. It is located about 30 metres off the beach at the spot where it is said that the engineer took his own life in 1902.

These artworks should be preserved as they are valued by the community and reveal historical stories and mysteries of the past.

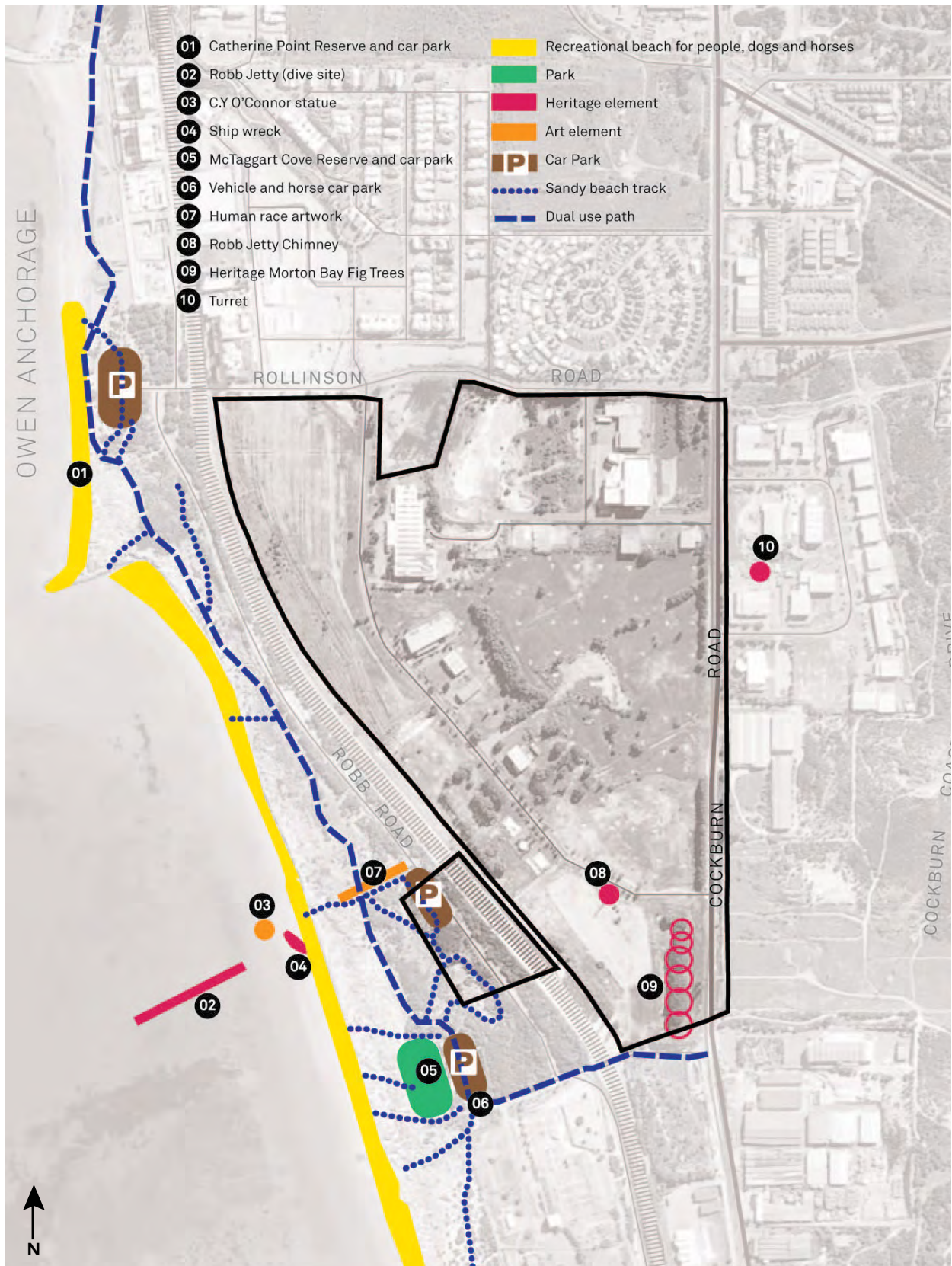


Figure 25_Existing Recreational Facilities

4.5 Industrial Activities and Land Use Buffers

Historically there have been a number of businesses located within the Cockburn Coast area. A small number of these existing land uses generate an offsite impact (see Figure 26) and therefore some adjacent land uses (such as residential) need more detailed consideration. The information found in this figure will be updated from time to time as these land uses cease, or where the buffer has been reduced via technical analysis. To view the most updated version of these buffers, see the City's online mapping system (constraints module) available via the City of Cockburn website.

Proposals for sensitive land uses (detailed in the relevant State Planning Policy) are required to provide a technical analysis to seek to reduce or mitigate that buffer. Depending on the nature of the buffer, the local government may seek advice from relevant government agencies. The technical analysis is required to be prepared in accordance with the requirements of the relevant State Planning Policy relating to industrial buffers.

4.5.1 Waste Water Pump Station

A Water Corporation Wastewater Pump Station is located on the south-eastern corner of Rollinson Road and Bennett Avenue intersection. The facility has existed since 1909 and services a wide catchment including Fremantle and south to Port Coogee. The pump station currently accommodates up to 190 litres per second, but has been modelled by the Water Corporation to require a further upgrade within the next 30 years to accommodate a capacity of up to 350 litres per second. This has been approved by the Department of Environment and Conservation.

State Planning Policy 4.1 State Industrial Buffer ("SPP4.1") and the Environmental Protection Authority's Guidance Statement No. 3 Separation Distances between Industrial and Sensitive Land Uses ("GS No.3") indicate a generic buffer of 50 metres. GS No. 3 notes the following impacts apply: Odour, Noise, Gas and Risk and the key agency for advice or approvals is the local government.

Submitted with this LSP is a technical analysis which seeks to further assess and refine the buffer. This analysis was not deemed sufficient by the City to refine the buffer, however on advice from Water Corporation (owner of the infrastructure) under Ministerial instruction, a 25 metre buffer measured the property boundary may be applied. This is reflected on Figure 26: Existing Buffer Zones within Robb Jetty Area.

Landowners have the opportunity to submit an updated technical analysis which considers all the above impacts sufficiently, should they choose to apply for subdivision or development approval. In the interim though, no sensitive land uses will be deemed acceptable in this area.

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Figure 26_Existing Buffer Zones within Robb Jetty LSP area



Figure 27_The past and present of the Cockburn Coast is rich with industrial uses

4.6 Contaminated Sites

Contamination is an important issue for Cockburn Coast, particularly as development may introduce generally more sensitive land uses than currently exist in the Local Structure Plan areas. Contaminated sites have been addressed within the Robb Jetty LSP in accordance with the Contaminated Sites Act 2003 (CS Act) (and relevant regulations and guidelines) as summarised in the Preliminary Assessment undertaken as part of Local Structure Plan consideration or are to be addressed using a staged approach to investigation and management. Further details of these are provided below.

As required by DSP2 and as recommended in relevant guidelines, a preliminary assessment of all lots within the LSP area to identify known and suspected contaminated sites that have been reported to the DEC in accordance with the CS Act has been undertaken. This Preliminary Assessment comprised a review of the Basic Summary of Records (BSR) information provided by the Department of Environment and Conservation (DEC) to determine if a site had been reported to DEC as a known or suspected contaminated site, review of previous investigations undertaken by GHD and, where no investigations have been undertaken, a review of available historical aerial photographs to determine if there are any further indications of potentially contaminating land uses/activities at lots within the LSP area.

It is expected that development proposals respond to contamination issues. Further work is expected to be in accordance with the CS Act and relevant guidelines.

4.6.1 Staged Approach to Contaminated Site Investigations and Management

Relevant guidelines including those published by the DEC recommend a staged approach be adopted for investigation and management of potential or known contamination issues which provides for the following:

- _ Preliminary Site Investigation (e.g. collecting background knowledge, such as historical, geographical, geological and hydrogeological information to determine if past or present land uses have or have potential to have caused contamination);
- _ Detailed Site Investigation (e.g. investigation to collect soil, groundwater, gas/vapour samples at a site to determine if contamination is present, substance types, concentrations, extent and assessment of risks posed to human health and the environment);
- _ Site Management Plan (development of an effective and practical management strategy to address the risks posed by contamination); and
- _ Remediation, validation, ongoing management (e.g. remediation by methods such as on site or off site treatment of contamination, off-site disposal and subsequent testing to demonstrate the remediation has been effective, or other management measures such as modification of proposed land uses or controls on access via management plans or Memorial On Title).

This staged approach ensures that each stage of work is appropriately informed, provides greater opportunity to characterise sites in sufficient detail and allows appropriate action to be taken (where necessary) to address identified contamination issues in accordance with the CS Act.

4.6.2 Land Use Response to Contamination

The Robb Jetty LSP responds to issues of contamination across the LSP area according to knowledge gained from a staged approach to investigation and management that has already been implemented for a number of key land holdings throughout the area. In the staged approach to assessment, consideration of known and potential contamination issues has been undertaken for these land holdings and their surroundings with respect to proposed forms of development and potential or actual risks these may pose for such development.

From current information, contamination issues have not however been identified to impose constraints requiring widespread land use responses across the LSP area. Where contamination issues have been identified at particular land holdings, consideration has been given to the severity, extent and possible management options to address them where deemed necessary in accordance with a risk based approach. Consideration of land use has been part of this process where locating forms of land use at/near known contamination which are suitable from a risk perspective can offer a more sustainable management option than undertaking remediation work. For example, in a location where a historic bunker oil leak has resulted in contamination at depth below ground level, the land use plan has been revised to ensure that no buildings are located over the known impacted area.

It is expected that development proposals will respond to contamination issues by informed stakeholders (including landowners). This will either be as part of work already being undertaken, consideration in the LSP process and future work to be undertaken to bring sites forward for development in accordance with a staged approach to investigation and management of contaminated sites.

4.6.3 Contaminated Sites List

GHD has undertaken a Preliminary Assessment of all lots within the LSP areas to identify known and suspected contaminated sites that have been reported to DEC in accordance with the CS Act. This Preliminary Assessment comprised a review of the Basic Summary of Records (BSR) information provided by the DEC to determine if a site had been reported to DEC as a known or suspected contaminated site, review of previous investigations undertaken by GHD and, where no investigations have been undertaken, a review of available historical aerial photographs to determine if there are any further indications of potentially contaminating land uses/activities at lots within the LSP area.

GHD has prepared tables for Robb Jetty which summarise the current status of contaminated sites investigations, known to GHD, at each of the lots contained within the LSP areas. These tables are presented Appendices of this report.

4.7 Transport Noise and Vibration

A Traffic Noise Assessment and Freight Rail Noise and Vibration Assessment have been carried out by Herring Storer (Appendix C) to assess the noise and vibration received in accordance with State Planning Policy 5.4 'Road and Rail Transport Noise and Freight Considerations in Land Use Planning'.

4.7.1 Cockburn Road

Based on the acoustic assessment and modelling of current noise emissions from Cockburn Road, the following noise level should be used for development located adjacent to Cockburn Road;

- _ Facing Cockburn Road – 62dB (A)
- _ Perpendicular to Cockburn Road – 59dB (A)

For developments located adjacent to Cockburn Road, as part of the design process, an acoustic assessment shall be undertaken and included as part of the development application with the aim being to demonstrate the construction method will adequately reduce internal noise levels to meet the standards stated in SPP5.4. Given the proposed layout, the first row of buildings along Cockburn Road will act as an acoustic barrier to developments located behind. Hence improvement constructions are required for the first row of buildings only.

SPP5.4 requires a notification be placed on the Certificate of Title for lots where residences are exposed to transport noise and that noise received exceeds the SPP 5.4 outdoor 'Noise Target'.

4.7.2 Freight Rail

Noise levels recorded on site indicate that noise emissions from passing trains varies slightly across the site and also with direction. The measurements and noise modelling indicate that compliance with SPP 5.4's external criteria would occur at a distance of approximately 50 metres from the railway line. However, to maintain the amenity of future residences and to "future proof" against any restrictions to the number of train movements, the noise level of a single train pass is used as the basis for any improved construction. To this end, it is required that any subdivision or development located within 150 metres of the railway line have an acoustic assessment, based on the train noise levels in Part One's Section 8.4.2. It must be demonstrated that developments are designed to meet the internal noise level criteria set out in Section 8.4.2, with an acoustic assessment submitted with the development application.

Part One's Section 8.4.2 also requires that notifications of freight rail noise and vibration be automatically placed on titles.

The measurements of ground vibration indicate that the propagation of ground vibration varies across the development area. It is thought that at the southern end of the development site, due to the previous usage as a rail marshalling yard, that the ground has been compacted and the propagation of ground vibration is greater than for the northern end.

60 Based on the ground vibration measurements recorded, the distance from the railway line to achieve compliance with the 1.4 times the base curve criteria is as per the table below.

Location	Criteria / Distance (m)
	1.4 x Base Curve
Northern End (Marshalling Yard)	80
Remainder of Development	50

Note: The above distances are approximate and variations will occur due to differences in geology.

Under Part One's Section 8.4.2, Ground Vibration Assessments will be required on all lots within 80 metres of the railway line. The distances stated above do not exclude development within those distances, however, depending on the relative levels of the railway line and premises, the proposed distance barrier (if any) may be reduced or, alternatively, additional amelioration may be required.

5.0 Local Structure Plan

5.1 Concept Approach to the Plan

The Robb Street Jetty LSP is guided by the DSP1 and DSP2. In preparing the LSP, the key drivers and structural elements behind the DSP1 & 2 were drawn upon to create the cohesive plan presented in this report. These drivers include:

- _Sustainability and Green Infrastructure
- _Integrated transport planning process
- _A hierarchy of coastal activity nodes
- _Development oriented transit system
- _A vibrant and robust economy
- _Bring the 'coastal experience' into the site
- _Physical links to the coast
- _New east-west linkages to the coast

In general, the Cockburn Coast will build upon the existing infrastructure to create a new benchmark for mixed use and coastal neighbourhoods. It will become a major new attraction for the south-western metropolitan area of Perth.



Figure 28_Cockburn Coast will provide a new benchmark for mixed use and coastal neighbourhoods

5.2 Land Use

5.2.1 Proposed Land Uses and Integration

In accordance with the principles as set out for Land Use within the DSP2 the rationale distribution is based on the following;

- _ Focusing intensity and diversity of land use along the rapid transit alignment and specifically at proposed transit stations
- _ Locating a secondary activity centre along a more localised main street to service day to day needs of local residents
- _ Focusing recreational and entertainment opportunities at specific beach nodes such as Robb Jetty
- _ Providing for a range of residential opportunities, with height and density of residential buildings general responding to topography, green linkages and proximity to the coast and activity centres.

The rationale and land use classifications as illustrated on the LSP are discussed in further detailed below;

5.2.2 Activity Centre

One Activity Centre has been identified within the LSP area containing a mix of land uses. This centre has been strategically located on the rapid transit line at the proposed transit station location ensuring that all residents and workers are within easy walking distance of their transit and daily/weekly shopping needs.

The Robb Jetty Activity Centre forms one of two activity centres within the larger Cockburn Coast area, with the primary focus of this centre being the provision of daily shopping needs for residents, including an opportunity for a supermarket site, but also having the capacity to accommodate restaurants, cafes and small scale office opportunities that will not only service local residents, but will have a wider catchment.

In accordance with the DSP2 the Robb Jetty Activity Centre will be bookended by an urban plaza on the beach side of the railway line, which will provide a further incentive for people to travel through Main Street, past the shops and cafes, to the beach.

5.2.3 Urban Corridors

In accordance with the 'Connected City' scenario as outlined by Directions 2031, the plan optimises the key transport linkages by enabling mixed use and high density residential development along high frequency public transport routes. These corridors provide the opportunity and potential to accommodate increased medium rise – high density residential development.

5.2.4 Mixed Use

A Mixed Use zone is proposed to provide flexibility and a transition between land uses at strategic locations. The mixed use zone will promote sustainable and affordable living opportunities by allowing people to pursue a lifestyle that integrates living, working and leisure in one location.

Within the Robb Jetty Precinct, the mixed use zone is located along Cockburn Road to provide for flexibility in the type of land uses that may benefit from its prominence and accessibility. This being said, the mixed use classification needs to be carefully managed so that it does not detract or disperse activity from the two centralised activity centres. In accordance with the DSP2 the prescribed definition of a Mixed Use is not overly prescriptive and is guided by a number of objectives. Objectives include promoting a vibrant mixed use environment, providing a continuous active frontage in the public realm, encouraging pedestrian use of Cockburn Road through the provision of awnings/canopies and active frontages and promoting and supporting rather than detracting from the two primary activity centres.

5.2.5 Mixed Business Zone

The Mixed Business Zone within the Local Structure Area Plan has been nominated to facilitate the transition from the existing industrial businesses, to lighter industry and commercial uses that do not have a detrimental impact on the future amenity of the surrounding residential uses. The mixed use classification is not consistent with the existing heavy industrial uses but they will be able to continue to operate in accordance with their non-conforming use rights, whilst allowing a range of other more appropriate businesses from service industrial through to office and other commercial opportunities to establish.

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Figure 30_Mixed Use streets create an active streetscape (Place Partners 2012)

5.2.6 Residential Zone

Residential zones represent the predominant use within the Robb Jetty LSP. It is anticipated that a range of residential development typologies will be achieved, generally in accordance with those set out by DSP2:

- _Single detached housing and terrace housing
- _Low rise apartment (3-5 storeys)
- _Medium rise apartments (6-8 storeys)
- _High rise apartments (above 8 storeys)

The location of residential densities is based on transit oriented design principles, optimising available ocean views, and new urbanist principles. The densities achieve the designed dwelling yield and mix as required by DSP2 (refer 5.2)

Whilst Single Detached house (“Single House”) are to be included in the dwelling mix of Cockburn Coast it should be noted that this typology is only considered appropriate as forming a small portion of dwellings. As a result, Single Detached house (“Single House”) are to be approved at the discretion of Council and will be considered only when:

- _Development is located within Residential zones coded R40; and
- _Where development achieves a minimum height of three storeys; and
- _Where the lot size is not greater than 230m² ; and
- _Vehicle access to the lot is via a rear laneway and all parking areas (garages and carports) are located at the rear of the lot

Development seeking large amounts of Single Detached house (“Single House”) would be considered inappropriate in achieving the objectives of the LSP.

A concept plan is proposed taking into account existing cadastre boundaries and the desire to maintain ‘super lots’ for optimal development. Whilst the concept plan is in no way mandatory it provides a clear direction for the subdivision of land and ensures a dwelling mix in keeping with DSP and DSP2.



Figure 31_Built form examples

5.3 Residential

5.3.1 Densities

Table 9 compares a breakdown of the dwelling mix proposed by the LSP in comparison to the yield targets set by the DSP2. Whilst the LSP does not match the targets of the DSP2, it should be noted that the DSP2 is set over the entire Cockburn Coast project area, comprising of all three Local Structure Plans (Robb Jetty, Emplacement, and Power Station) . Each precinct contains a distinct character of density and within Robb Jetty there is a focus on medium and lower rise development.

Building Typology

Building Typology	Indicative Density	DSP2 Target (% Component)	Robb Jetty LSP Yield (% Component)	Robb Jetty LSP Dwelling Yield
	R160	25%	17.62%	409
High Density	R100	11.6%	25.03%	581
	R80	31.6%	9.43%	219
Medium Density	R40	1.1%	3.53%	82
Mixed Use	R100	11.3%	9.78%	227
District Centre	R-AC 0	19.4%	34.60%	803

Table 9_Target Yield (minimum) based on Town Planning Scheme 3 at 85%



Figure 32_Residential buildings within Robb Jetty will be distinct and responsive to their surrounds

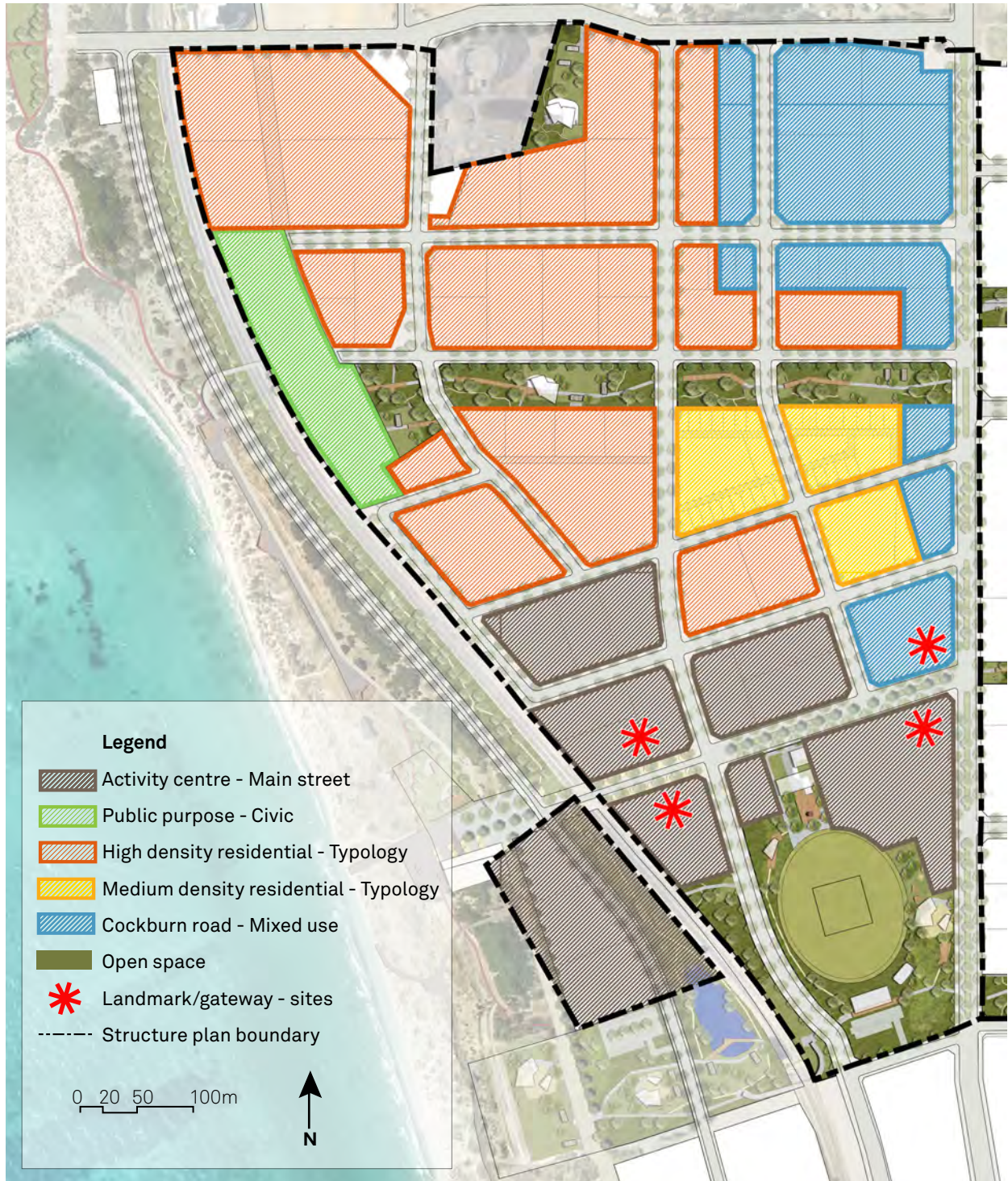


Figure 33_Indicative Concept Plan showing development typologies

5.3.2 Housing Diversity and Lot Sizes

Cockburn Coast will provide a diversity of housing types and urban form through a mix of green title (lower density) and strata title developments. While the size of lots or land areas (through lot amalgamation) is not restricted, it is important that any development be undertaken to add to the quality and experience of the surrounding streets. Guiding principles will be used to assess subdivision and development proposals to ensure that the quality of the public realm is not compromised and that no single form or style of development is allowed to dominate over large areas or street elevations.

An active and interesting street is usually one where a number of buildings have been developed by separate owners, on separate lots and at different times. Development proposals in Cockburn Coast will be required to address these qualities through careful design and articulation of built form, building orientation and facade treatment. To that end, proposals will be assessed to ensure that a range of lot size and type is provided and that the character objectives of each precinct are addressed. The following principles will be considered:

- _Lots created through subdivision (and amalgamation) should provide for development in accordance with the objectives and requirements stated for each precinct.
- _Amalgamation will generally not be supported where contiguous land occupies an entire street block unless it can be clearly demonstrated that precinct objectives, character statements and development requirements are addressed. Specifically, development on large areas must:
 - _Provide a range of lot sizes in each built form typology (i.e. mixed use, high and medium density residential) whilst still meeting the density criteria, character and general height limits as prescribed by the LSP.
 - _Provide a mix of densities and housing types in each street block. It is not considered acceptable for a single street block to be provided in a homogenous manner resulting in only one lot / dwelling size.
 - _In the event of amalgamation or development on two or more street frontages, the Design Guideline criteria for each frontage will need to be addressed.
 - _Where subdivision or amalgamation is proposed on a lot with a designated density of Residential R80 or greater, lot size should generally be less than 1ha unless it can be clearly demonstrated that precinct objectives, character statements and development requirements are addressed.
 - _Where a number of parcels are in single ownership or are to be amalgamated, lot sizes should facilitate and coincide with a logical and effective staging of development on the subject land.
 - _Where an application seeks to create or development on a lot greater than 1ha a Detailed Area Plan shall be provided and approved by the City of Cockburn prior to issuing any development or subdivision approval.

To encourage innovation in the development of housing typologies, the minimum design standards and density requirements as set by the Design Guidelines Local Planning Policy shall be flexibly applied. Each application will be approved on its individual merit based upon innovative response to the assigned density, exceptional urban design and amenity outcomes, and the provision of housing diversity. In particular, innovative solutions for small residential lot solutions will be considered for medium density land areas where all other design requirements have been met.

5.3.3 Lot Orientation and Outlook

As a result of the coastal location, lot density and layout has been formed to capitalise on the available views to the Indian Ocean. Green corridors are a prominent feature of the LSP, with lots being oriented to take advantage of this visual link between Beeliar Park and the coast. Through the appropriate application of building heights and visual lineal links, the LSP proposes to provide the best possible outlook for the site. This will be further enhanced and enforced through the Design Guidelines Local Planning Policy.

Given the nature of the LSP it will be possible for subdivision plans, allowing the creation of superlots to take into account climate responsive and solar orientated design principles, during the design phase. It should be ensured that all developments takes climate responsive elements into account in its design during subdivision and building design processes.

5.3.4 Affordable Housing

The DSP1 and DSP2 adopted a 'stretch' target of 20% (or approximately 970 units) proviso of 'affordable' product for all development within Cockburn Coast. As the progressed into Local Structure Planning, it is necessary to ensure that the various objectives and targets of the CCDSP Pt 1 & 2 are carried through, where possible to implementation. This includes trying to achieve the 20% stretch target for the provision of affordable housing and resulted in the preparation of this Affordable Housing Strategy.

In order to understand how to implement affordable 'product' across the Cockburn Coast project, it is important to first understand what constitutes 'Affordable Housing'. The definition of 'Affordable Housing' is set out in Section 2.1 of Part 1 of this LSP.

As this definition is formulaic, it is necessary to determine the benchmark of a low income household. This is as set out in Table 10. It is noted that very low income households will be catered for through the social housing sector. Low to moderate income households will be the target market for affordable housing delivered by the private sector.

Median Household Income	\$79,861	
Moderate Income Bracket	80% Median	120% Median
Annual Income	\$63,889	\$95,833
Weekly Income	\$1,229	\$1,843
Affordable Weekly Rental Benchmark (30%)	\$369	\$553
Affordable Purchase Benchmark	\$264,057	\$396,085

Table 10_Affordable Housing Benchmarks for Perth Statistical Division

Source: Department of Planning

The research, literature review and scenario modelling undertaken as part of the Affordable Housing Strategy identified a number of key elements which have guided and shaped the recommendations made. These key elements include;

- _The Judith Stubbs and Associates recommendation of a minimum 15% affordable rental and purchase accommodation in all new release and redevelopment areas is warranted, with 20% being considered as a reasonable 'stretch' target.
- _State government policy does not support the mandatory provision of affordable housing.
- _As a result inclusionary zoning is not considered as an appropriate mechanism of implementation. In addition to Dwelling Density based initiatives are not considered relevant given the Residential Design Codes applied to the area.
- _Plot Ratio Bonuses are considered to be most applicable and attractive as a mechanism for achieving affordable housing. In the case of this LSP, these are referred to as 'floor space bonuses' given there is no plot ratio applicable
- _The most successful methodology of achieving affordable housing will utilise a factor of mechanisms such as those listed by this report.
- _Factors affecting the apartment market have directly impacted the viability of development sites and placed downward pressure on land values. The sustained withdrawal of credit availability for this sector and weak consumer demand has placed continued pressure on land values over the last 30 months. This in turn affects the attractiveness of affordable housing provision by the private sector.
- _In considering the feasibility of plot ratio bonuses as a mechanism for achieving affordable product within the typologies proposed by the Cockburn Coast District Structure Plan Part 2, sites characterised by heights of 3 to 5 stories with a density coding of Residential R80 are considered the most feasible in today's market conditions.
- _The study has demonstrated that the adoption of a mix of mechanisms could deliver 15% affordable housing, with the 20% target set by DSP and DSP2 remaining as a stretch target.

The below table outlines the potential for the provision of affordable housing across the DSP area (including Robb Jetty, Emplacement and the Power Station precincts). This table is provided as guidance only to demonstrate the potential provision of affordable housing within the Cockburn Coast as it meets the vision and objectives of DSP and DSP2.

	Percentage of Total Dwellings 5193 (Source DSP 2)
Development of State Land (based on delivery of 15% Affordable Housing)	3.1%
Private Development Incentives	11.88%
Total	15%
Social Housing Investment above what will be provided on State Land (based on take up of 5% of total housing stock)	5%
Total	20%

Table 11: Potential affordable housing yield

An important element of the provision of affordable housing, is the provision of affordable housing product in perpetuity. The aspiration for the provision of affordable housing is for majority of product to be provided in perpetuity.

In addition to the above, development should deliver an appropriate mix of affordable product, including product that is suitable for families. Additional incentives are offered for the provision of this type of housing.

5.3.5 Mechanisms for Implementation

While a number of mechanisms are explored in the Affordable Housing Strategy, the mechanism which is promoted by incentives contained in this LSP is the notion of a plot ratio bonus.

The Affordable Housing Strategy further detailed the Plot Ratio Bonus which has been translated to a floorspace bonus as a mechanism suggesting the following as a reasonable sliding ratio of bonus.

- _Affordable yield 10% = 30% bonus
- _Affordable yield 20% = 40% bonus
- _Affordable yield 25% = 50% bonus

The City of Cockburn may further examine the potential to transfer the floor space bonus but this should be contained within Cockburn Coast.

5.3.6 Location of Affordable Housing

Given the dense and walkable nature of the LSP affordable housing is considered appropriate within any area of the LSP. It is however especially encouraged within the Activity Centre and Mixed Use zones as well as along the BRT alignment. This will allow for residents to benefit from collocation with amenities and therefore encourage affordable living in addition to provision of affordable housing.

5.3.7 Review of Affordable Housing Provisions

The LSP will be reviewed by the City of Cockburn in 5 years from its date of endorsement by the Western Australian Planning Commission to examine the progress made towards the achievement of the 20% affordable housing targets for Cockburn Coast as prescribed in the DSP.

The review will focus on the success of the various incentive mechanisms to encourage the development of affordable housing by the private sector. Should the review determine that the incentives are not working effectively the review may recommend an alternative approach to planning for affordable housing.

5.4 Visual Landscape Assessment

5.4.1 Landmarks and Heights

Building heights are generally in keeping with the range expressed by the DSP2. In accordance with DSP2, the majority of development across the Robb Jetty LSP area will be a minimum of 3 storeys in height, and will most likely be town houses, row houses, or apartments. Generally, heights are limited to 5 storeys. Multi-storey development along the Main Street and surrounding the plaza will be permitted to a maximum height of 8 storeys with minimum heights of 5 stories being implemented. Residential development will be encouraged on the upper levels of commercial/retail multi-storey buildings, to facilitate all hours activation of activity centres and provide building surveillance of the streets below.

Building heights respond to the topography, maximising the views to the ocean, particularly for residential development across the site. Within the LSP area taller buildings are reserved for activity nodes. Contextually, the height of existing adjacent development is well considered, with proposed building heights allowing for mediation between existing and new development. This is particularly relevant for development in the north of the structure plan area.



Figure 34_Views to the Indian Ocean are available from the Local Structure Plan area

5.5 Movement Network

5.5.1 Movement Network

The volumes on routes through the Robb Jetty LSP area have been measured and are included as an Appendices to this report. The flows are recorded in passenger car units (PCUs). The PCU estimates the relative impact that different types of vehicles have on the highway network compared to a single car.

The flow on Cockburn Road will more than double in 2031, with Cockburn Coast in place. Although there are a number of routes into and out of the development area, the majority of trips will use Rollinson Road, Main Street and McTaggart Cove to access Cockburn Coast as these will be signalised.

Robb Jetty will be connected to Cockburn Road in a number of locations. Vehicles will only be able to turn left into and out of the majority of these streets due to the existence of a proposed median on Cockburn Road. Trips wishing to turn right into and out of Robb Jetty will be required to use the Rollinson Road and Main Street intersections.

5.5.2 Indicative Road Cross Sections

Rollinson Road and the eastern section of Main Street will be classed as main streets providing access into and out of the Robb Jetty precinct from Cockburn Road. The western section of Main Street will have a shared zone giving greater priority to pedestrians and cyclists.

Figure 36 and Figure 39 show possible road cross sections for Main Street for the sections with and without shared surfaces. The same cross section would be expected for Rollinson Road. It should be noted the dimensions referred to for the project area do not supersede the development standards and requirements for the South Beach Development.

As Main Street is one of the key routes into the Robb Jetty precinct, the road will need to accommodate slightly higher traffic volumes than other internal roads. The road cross section therefore needs to be designed in a different way to the local streets within the development.

The remainder of the streets within Robb Jetty are local streets. Figure 38, Figure 39 and Figure 40 show possible cross sections for a local street within the development. Some local streets will have shared zones for cars and bicycles, whilst others will need to be able to accommodate the BRT.

There are a number of shared zones within the Robb Jetty precinct. These form east-west greenways connecting the coast to Manning Reserve. These shared streets form part of the pedestrian priority network proposed in the Integrated Transport Plan.

Cockburn Road will perform both a local and regional traffic function and therefore will be widened to include two lanes in each direction from Rockingham Road through to Spearwood Avenue. A median will be introduced along Cockburn Road. A possible cross section for Cockburn Road is illustrated on Figure 41. Although Cockburn Road will continue to perform a local and regional traffic function, the speed limit will be reduced to 50kph providing a route that is also suitable for cycling and walking.

Along Cockburn Road, the Rollinson Road intersection will be upgraded to a signalised intersection and signals will also be introduced at the Main Street / Cockburn Road intersections within the Robb Jetty precinct.

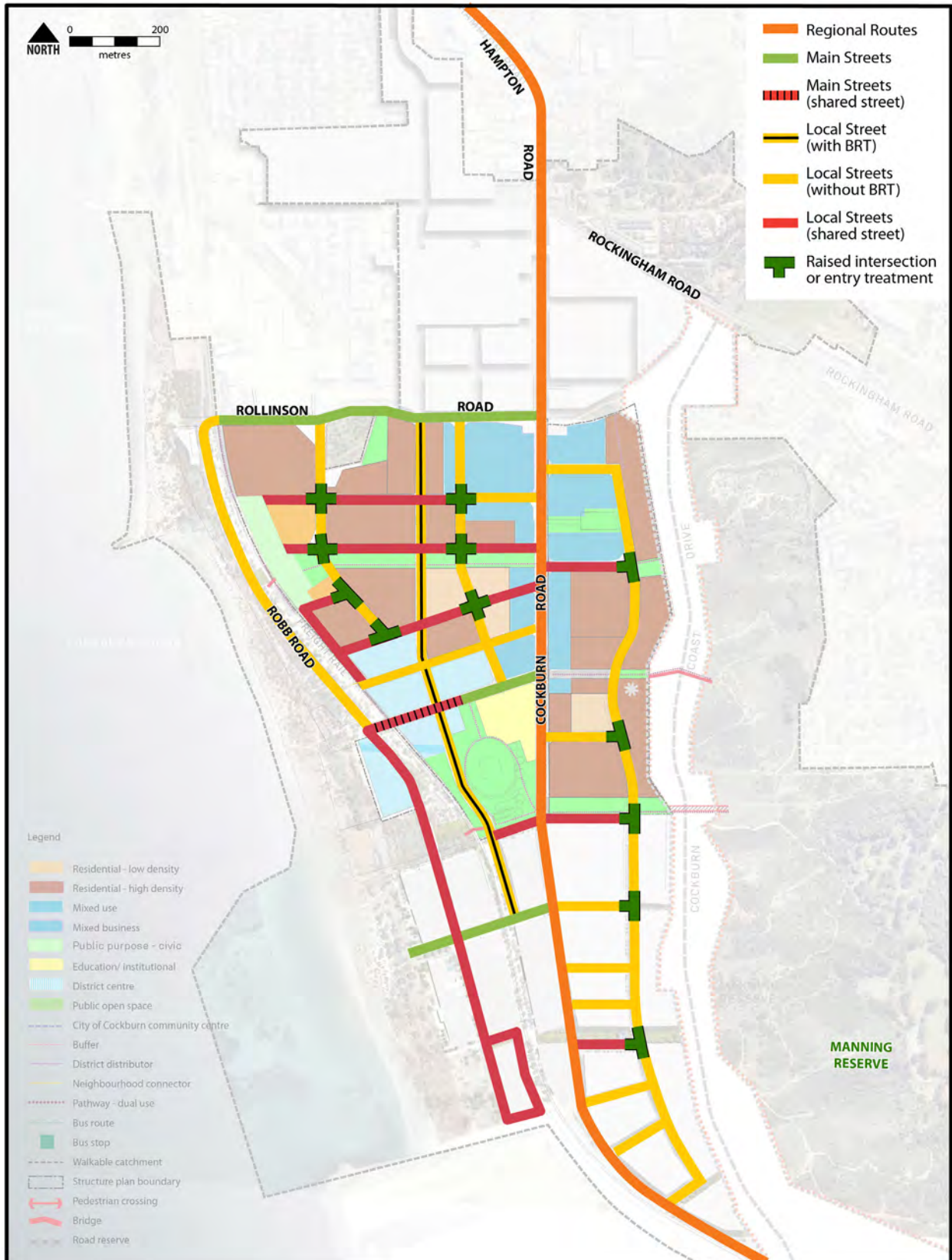


Figure 35_Road Hierarchy for all precincts

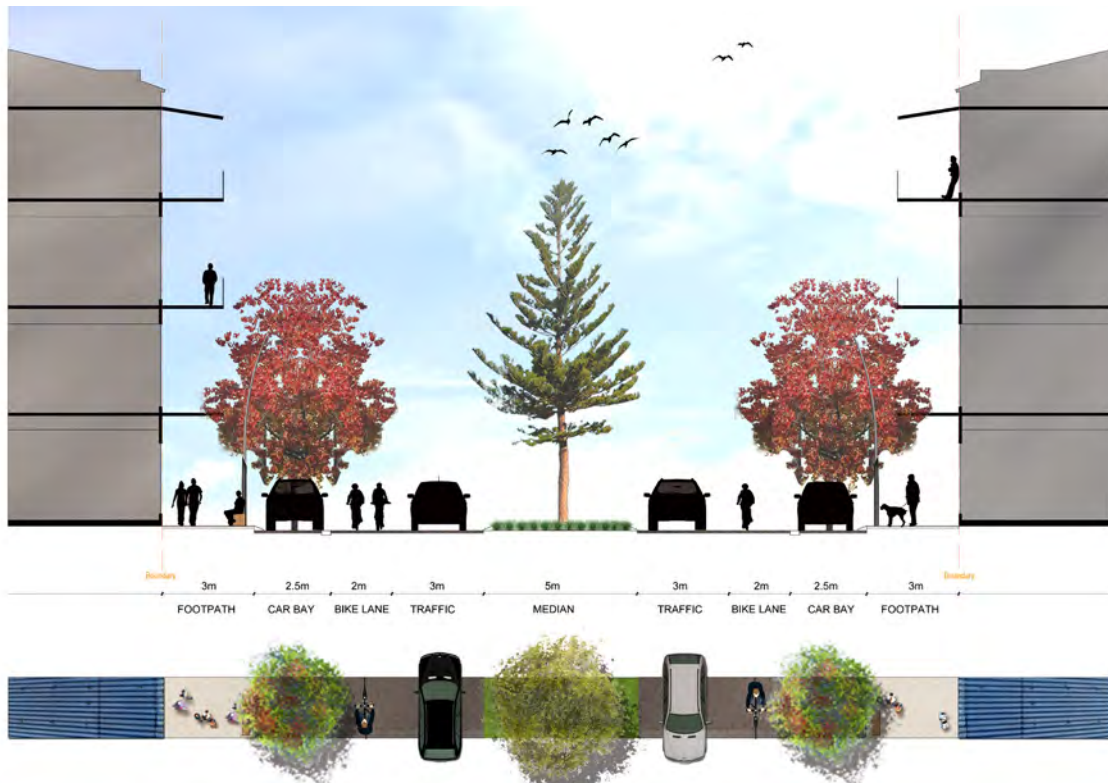


Figure 36_Possible Cross Section through Main Street with median

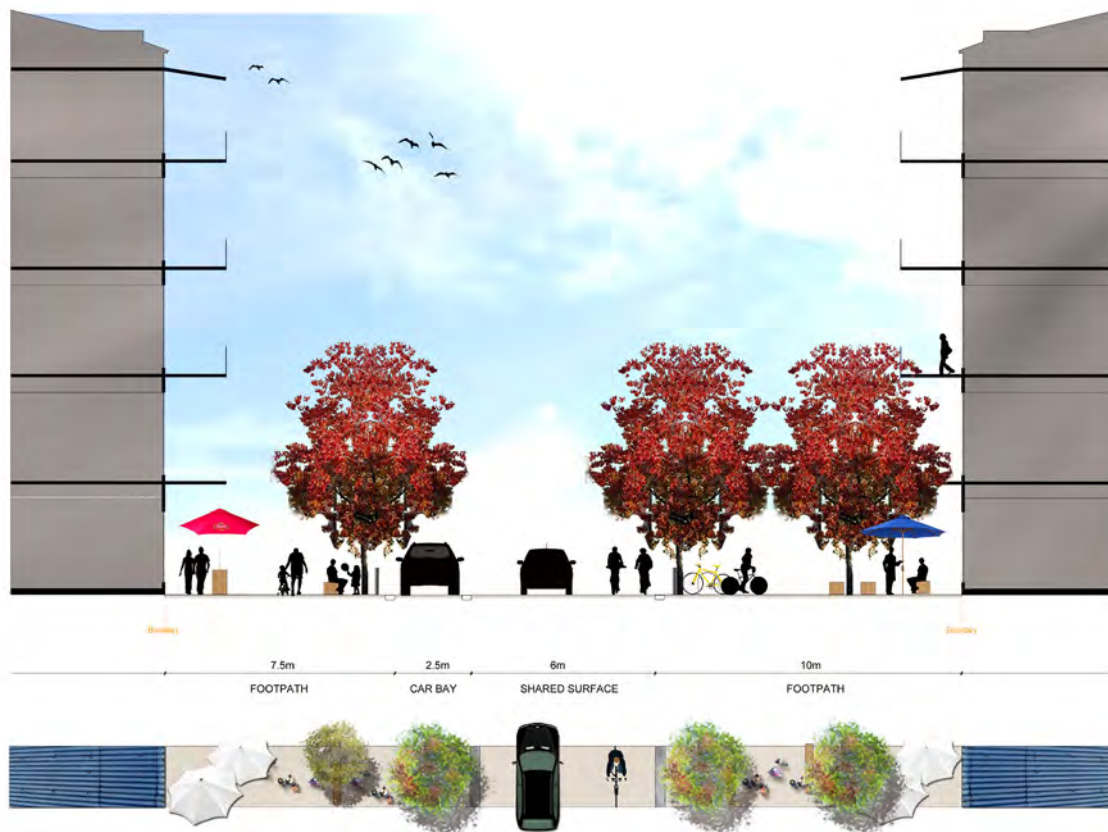


Figure 37_Possible Cross Section through Main Street with shared surface

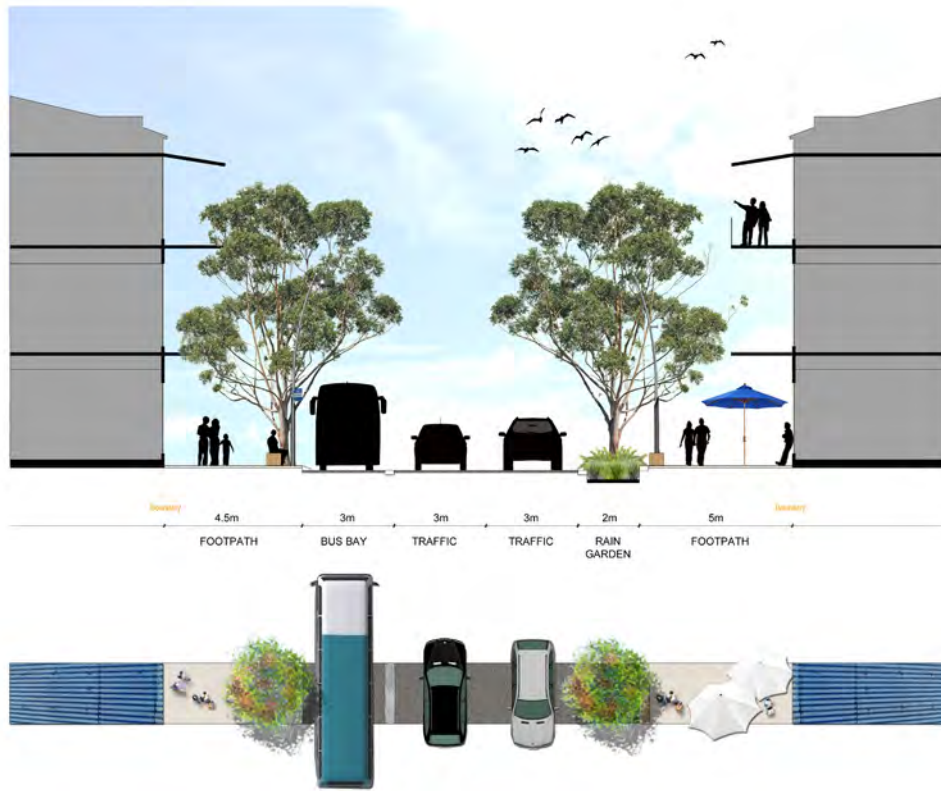


Figure 38_Possible Cross Section through a Local Street (with the BRT)



Figure 39_Possible Cross Section through a Local Street (without the BRT)



Figure 40_Possible Cross Section through Local Street with a shared surface



Figure 41_Possible Cross Section through Cockburn Road

5.5.3 Permeability and Accessibility

The Robb Jetty LSP area will be designed to provide a permeable walking and cycling network, with visual and physical connectivity to other streets and places. There will be clear visual links between streets and places with adequate lighting provision along the routes. The design of the streets within the Cockburn Coast development has been carefully linked with the design of the bus rapid transit system (BRT). The BRT corridor will be created along Cockburn Road and through the development connecting Fremantle to Rockingham. BRT stops are located approximately every 400-600 metres. The proposed BRT coupled with the stop locations for existing services in the area, means that all of the residential dwellings in Robb Jetty are within 500m walk of bus stops.

The existing transport network allows for east-west movements on the road network to the north of the Robb Jetty precinct via Rockingham Road and to the south of the precinct via Spearwood Avenue. Off road routes are currently provided for pedestrians and cyclists from Cockburn Road eastwards through the Manning Reserve to the developments in the east. There are currently only a small number of crossing points on Cockburn Road.

As part of the Cockburn Coast development, signalised intersections are proposed at Rollinson Road, McTaggart Cove and Main Street. These will provide potential crossing points for pedestrians and cyclists, improving the connections between the Robb Jetty precinct and the existing routes to the east. Two pedestrian crossing points will also be provided along Cockburn Road, further enhancing the connectivity of the development and adequately matching the desire lines. The location of the crossings will allow for more direct access for pedestrians and cyclists.

With regards to the existing north-south transport network, there are currently no cycle facilities along Cockburn Road between Rockingham Road and just south of Boyd Crescent. The road safety audit identified that there is an undesignated narrow hard shoulder that is being used by cyclists south of Boyd Crescent to Old Cockburn Road. Ultimately, Cockburn Coast will create a number of potential north-south routes. These will provide high quality routes for pedestrians and cyclists through the development, also connecting the development to the areas in the north and south. These routes will be in the form of shared paths providing an attractive route for non-motorised modes of travel. The BRT will provide an additional north-south connection through the area.

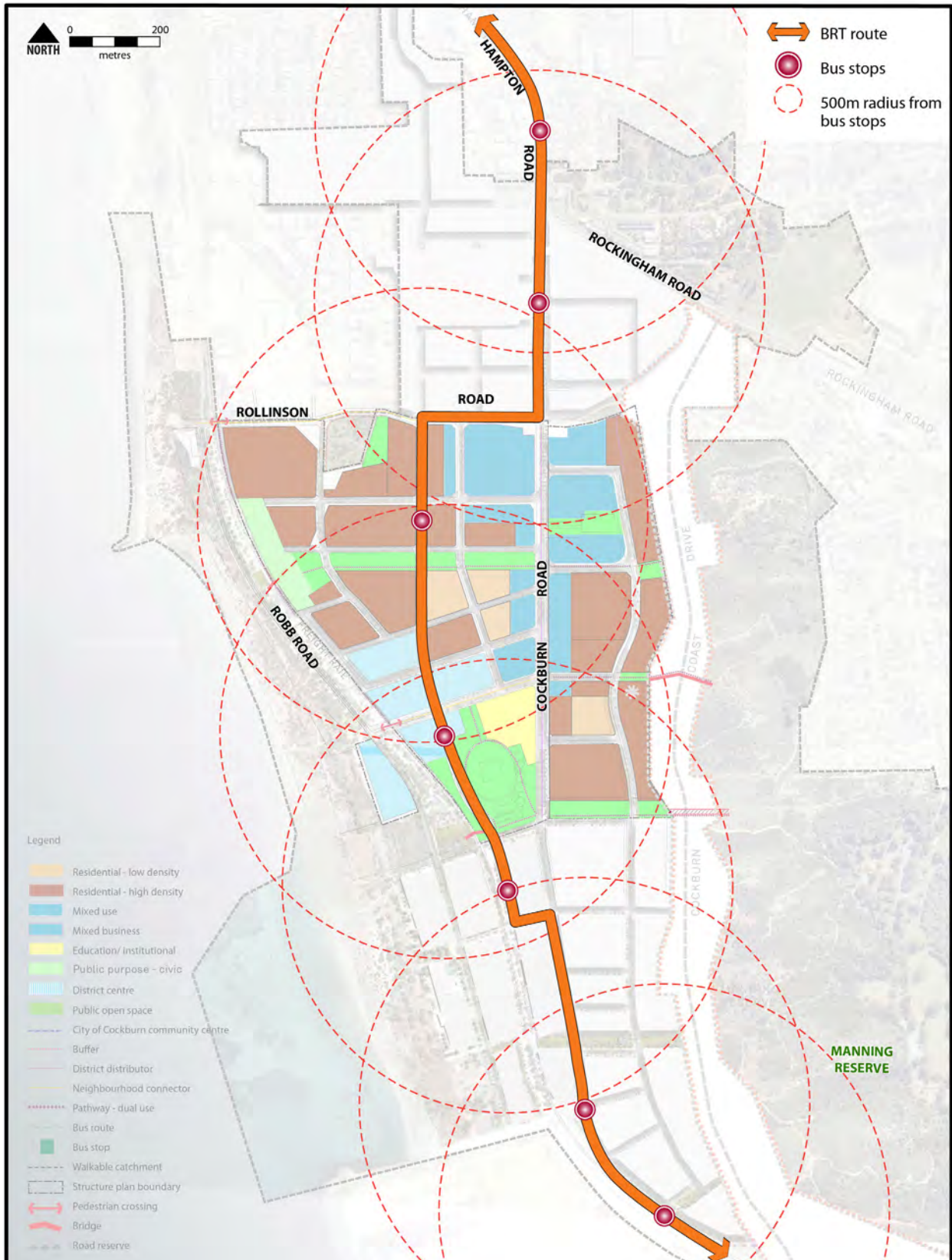


Figure 42_Proposed BRT Route

5.5.4 Traffic Management

Assessment of the Rollinson Road intersection within Robb Jetty indicates that delay starts to become apparent at the intersection with the Cockburn Coast development in place. The delay on the main line is not significant however and vehicles in the queue will clear the stop line in one cycle of the lights. The operation of the main line traffic is therefore considered to be acceptable. The most delay is experienced by vehicles on the side roads with considerable queuing evident on Rollinson Road East in particular in the Emplacement LSP area. This level of congestion may be beneficial in the study area as this could encourage greater uptake of the BRT which would in turn reduce the demand on the intersections.

An assessment of the Main Street/Cockburn Road intersection indicates that the intersection operates satisfactorily with the Cockburn Coast development. Although the queuing is reasonably high on Cockburn Road, the delay is such that the vehicles are clearing the stop line within the cycle of the lights.

5.5.5 Proposed Public Transport Network

A Bus Rapid Transit (BRT) corridor will be created along Cockburn Road and through the development, connecting Fremantle to Rockingham. The BRT will help to encourage public transport use within Cockburn Coast and will reduce the reliance on private car travel. The BRT will travel through the Robb Jetty precinct along Rollinson Road, and will then follow the north-south link through the precinct, connecting with the Power Station LSP area to the south as illustrated on Figure 42. The proposed BRT bus stops are located within 500m of dwellings in the Robb Jetty precinct.

The local, district and regional services that currently operate in the study area will remain and will benefit from being able to use the dedicated facilities on the BRT route.

5.5.6 Proposed Pedestrian and Cyclist Network

There will be a number of controlled crossing points throughout the development as detailed on Figure 43. Signalised intersections on Rollinson Road, Main Street, McTaggart Cove, and to the south of the study area will provide crossing points for pedestrians and cyclists. Pedestrian movements will be accommodated in the proposed signal timings. Two pedestrian activated crossings will also be provided in the southern part of the study area. These crossing points will allow access between Robb Jetty and Emplacement LSP area on the opposite side of Cockburn Road.

Off road shared paths will be provided on the east-west link through the Robb Jetty to the north of Main Street. This will form an east-west greenway linking the coast and Manning Reserve. Off road shared paths will also be provided on a number of north-south links through the Robb Jetty precinct including Robb Road. These links will form part of the coastal greenway connecting the existing Principal Shared Pathway network to the north and south of Cockburn Coast.

Zebra crossings are to be used throughout the residential streets within the Robb Jetty for streets crossing the east west greenways. These will be combined with raised intersections and entry treatments in strategic locations for additional traffic calming. Modelling shows that the traffic volumes on these routes will not exceed the specified traffic volumes for a 2 lane undivided road.



Figure 43_Proposed pedestrian and cycle networks within the Robb Jetty precinct

Secure and convenient cycle parking will be provided within the Robb Jetty precinct. This will be located within or adjacent to buildings with fully secure cycle lock-up facilities in overlooked locations. This will provide added security and user safety.

Pedestrian crossings across the railway line will be provided in a number of locations. There will be at-grade crossing facilities for both pedestrians and vehicles on Rollinson Road and Main Street within the Robb Jetty precinct and a further crossing point on McTaggart Cove within the Power Station precinct. In keeping with the philosophy of the Integrated Transport Plan, shared streets are proposed throughout the Robb Jetty precinct as previously discussed. These streets have been designed with slow speeds in mind with the aim of encouraging walking and cycling within the development.

5.5.7 Safe Walk to School

A school is proposed within Robb Jetty LSP area on the corner of Main Street and Cockburn Road. This will be a primary school and will serve the development itself. There are no other schools within 800m of the boundary of the structure plan area.

The majority of trips to and from the school will travel within Cockburn Coast. The routes through the development will be designed to give priority to pedestrians and cyclists. It is recognised that school children, particularly primary school children may experience difficulties at lower traffic levels. The traffic volumes on the internal routes through the development are sufficiently low to allow for the safe movement of children to and from the school. The presence of zebra crossings throughout the residential streets will also provide safe crossing points.

In the immediate vicinity of the school where the walk / cycle trips converge, there is an off-road shared path. This is immediately adjacent to the school and will provide safe access to the school site. An on-road cycle track runs north-south on the internal streets through the development. This will connect to the off-road shared path. An on-road cycle track will also run north-south along Cockburn Road.

A signalised intersection is proposed at the Main Street / Cockburn Road intersection. This intersection will have pedestrian activated signals. This intersection is directly adjacent to the proposed school site and will provide a crossing point for those travelling to and from the school from the east of the development. There is also a pedestrian refuge to the south of the Main Street / Cockburn Road intersection. This will provide an additional crossing point to the south of the school.

The section of Main Street directly outside the school is not proposed to be a shared street. It is recommended that a dedicated crossing point be introduced on Main Street outside the school to provide a safe crossing location. This could be in the form of a supervised children's crossing. This would ensure there is a safe, controlled environment in the area closest to the school.

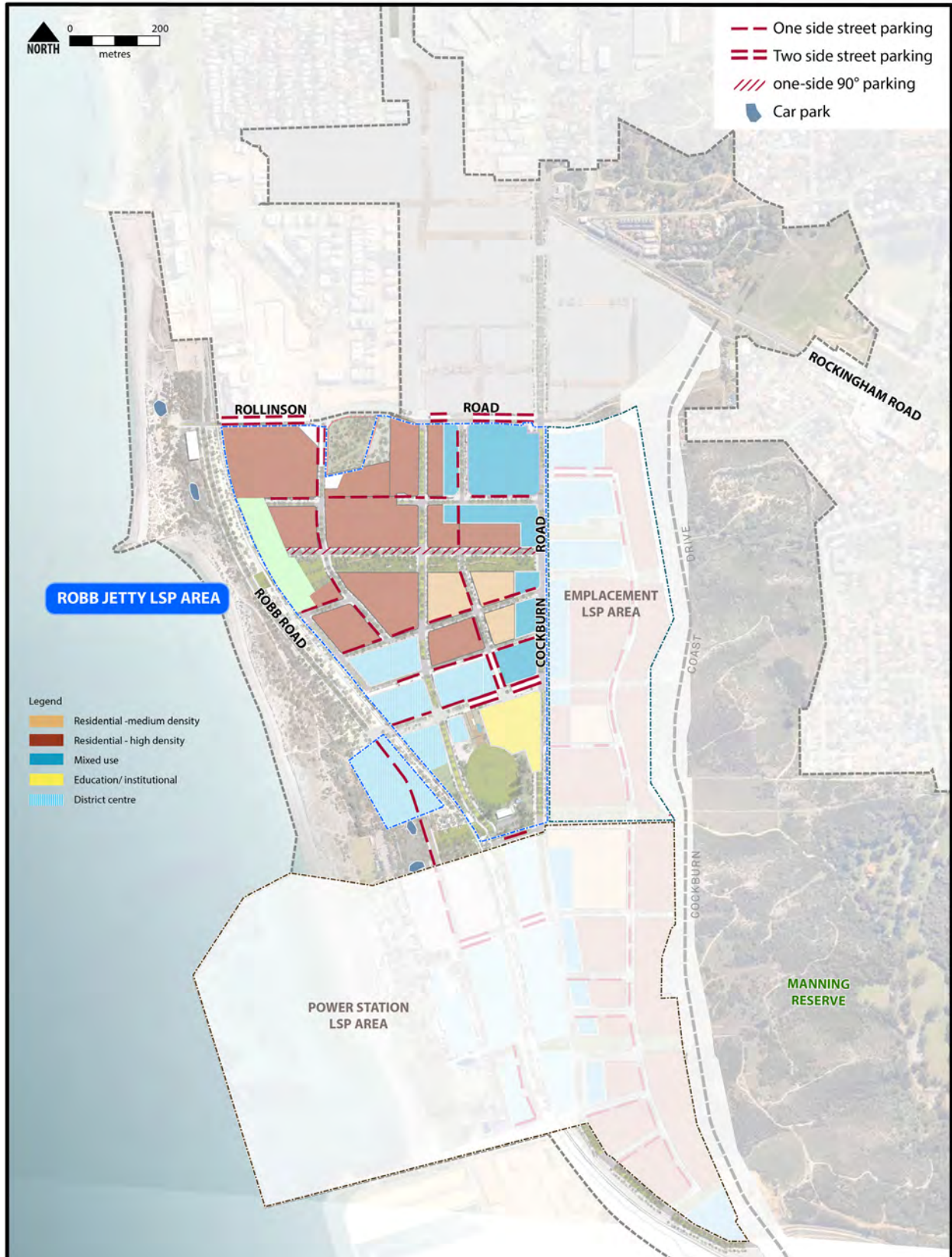


Figure 44_Proposed parking provision in the Robb Jetty precinct

5.5.8 Proposed Parking Strategy

The ITP recommends the minimisation of the amount of private car parking to promote active and public transport; to reduce greenhouse gas emissions, reduce the amount of time spent travelling in private motor vehicles and to increase household affordability. The standards set forth for parking are generally more restrictive than conventional standards and market expectations for parking in the metropolitan region. The aim is to take advantage of the presence of the BRT and the diverse mix of uses in a compact area, to diminish the demand for private and visitor parking.

The ITP sets out the proposed parking rates recommended as maximum for off-street parking. The rates detailed in the ITP are as follows:

Residential

1 per dwelling (regardless of size), including visitor bays, within 400m of quality public transport

1 per dwelling (regardless of size), plus 1 visitor bay per 4 units, greater than 400m from quality public transport

Retail / Commerce / Office

1 per 75m² GFA, within 400m of quality public transport

1 per 50m² GFA, greater than 400m from quality public transport

In order to reduce the number of trips and achieve the trip rates proposed for Cockburn Coast, the development should aspire to the rates detailed in the ITP. It is however recognised that whilst construction occurs there will need to be a period of transition. Initially there will be an increased dependency on private motor vehicles whilst the BRT is constructed, however once both the BRT is complete or has tangible commitment from the related authorities, the parking rates may be reduced.

During the period of transition, parking standards are to be in accordance with Town Planning Scheme No. 3. The LSP will be reviewed by the City of Cockburn in five years from its date of endorsement by the WAPC to examine the progress made towards the achievement of the parking rates as set out by the ITP and listed above. The review will focus on the ability to implement the ITP parking rates based on the availability of the Bus Rapid Transit System as well other integral elements of the overall ITP system as set out by DSP and DSP2.

The reviewed LSP should be endorsed by the WAPC within the sixth year of the original structure plans being endorsed by the WAPC.

The proposed parking areas in the Robb Jetty precinct are illustrated in Figure 44.

Within the Robb Jetty precinct, the parking spaces will be provided in conjunction with development with a requirement for the spaces to be efficiently shared between the uses. Shared public parking facilities are proposed to the north of Main Street in the form of a multi-storey car park. Parking will also be located on-street on the local roads within the precinct.

86 On street parking will be short term during daylight hours to discourage use by employees within the development. Short-term parking will also help to improve the activity and vitality of the area. Parking will be priced appropriately to promote sustainable travel behaviour. Rather than relying on the car, people working at the development site will be encouraged to use the BRT and non-motorised modes.

A Green Travel Plan will be required for commercial and retail space within the Robb Jetty precinct to promote non-motorised modes of travel, use of the BRT and car sharing. Through this, employers will be able to influence the travel behaviour of their employees.

It is the intent of the LSP to provide no additional parking at the beach which is consistent with the approach in the ITP. No additional parking will be provided at the beach for a number of reasons.

- _The rail line provides a constraint in the area. Parking on the beach side of the rail line will put greater pressure on the rail crossing.
 - _ Walking and cycling will be encouraged in the area in addition to operating the BRT through the Cockburn Coast development.
 - _Encouraging these modes of travel will reduce the number of trips by the private car and thus additional parking spaces will not be required.
- Some additional parking spaces will however be provided on the green strip on the eastern side of the rail line available for use by those visiting the beach.

5.5.9 Parking Management

In the short term it could be possible to use vacant land for free long-stay parking, however longer term free long stay parking is not compatible with encouraging sustainable travel to the site. Free and unlimited parking may result in vehicles parking all day which will result in minimal turnover of spaces in the area. Due to the mixed use nature of the development ie commercial mixed in with retail, it would be very difficult to segregate the parking for commercial uses. Short stay parking is therefore considered more appropriate in the Cockburn Coast.

5.6 Open Space

The Robb Jetty LSP area is proposed to be a unique coastal urban environment, with a high proportion of apartments it is therefore appropriate to provide additional public open space opportunities. These additional open spaces will replace the traditional backyard and allow residents to pursue a wide range of recreational opportunities that would otherwise have been pursued in the traditional backyard. In accordance with the DSP, the LSP provides a functional and well distributed public open space schedule. The land to the north and south of the Neighbourhood Park NPI 'Public Purposes: Civic' (refer to Figure 09) is intended to be used for local recreation purposes to be determined by Council and has been excluded from Developer Contribution requirements.

The open spaces have been zoned into the following categories as indicated on the plan below

- Local Park
- Neighbourhood Park
- District Open Space



Figure 45_Proposed Open Space

5.6.1 Public Open Space Schedule

Site Area	46.6053ha
Deductions	
_Primary School	1.4997ha
_Mixed Business	2.45ha
_Activity Centre	2.7926ha
_Mixed Use	1.6ha
_Existing Roads	4.445ha
_District Open Space (Sports Oval/clubroom site)	2.8178ha
_Drainage reserve	
_R38992 (Lot 2016)	0.0658ha
_R45959	0.1739ha
_R42489	0.0969
_Drainage adjacent Primary School	0.0306ha
_Within Lot 2108 adjacent to Bennett Avenue	0.029ha
_Part Lot 1 adjacent Bennett Avenue	0.0227ha
_Other Approved Contingencies	
_Part Lot 2108 for civic purposes	1.6177ha
_Surplus Restricted Open Space	0ha
Gross subdivisible area	28.9636ha
Public Open Space @10 per cent	2.894ha
Public open space contribution	
May Comprises	
_80 percent unrestricted public open space	2.3171ha
_20 percent restricted public open space	0.5793ha
Unrestricted public open space sites	
_Neighbourhood Park 1	0.4168ha
_Neighbourhood Park 2	0 ha
_Neighbourhood Park 3	0.1540ha
_Neighbourhood Park 4	0.3881ha
_Local Park 2	0.5173ha
_Local Park 3	0.2749ha
_Local Park 4	0.4518ha
_Local Park 5	0.2423ha
_District Park 1	0.2712ha
_Sub Total	2.7164ha
Restricted Public Open Space Sites	
_Neighbourhood Park 2	0.2880ha
_Neighbourhood Park 4	0.0570ha
_Local Park 5	0.0710ha
_Sub Total	0.4160ha
Total Public Open Space Provision	3.1324ha

Table 12_Public Open Space Schedule

This table has been calculated as per the Liveable Neighbourhoods guidelines, it follows the public open space as provided and approved in the DSP2. DSP2 ensures that the provision of POS in the Cockburn Coast area is sufficient to promote the vision of the plan, and that the overall percentage of POS provided is compliant with the requirements of Liveable Neighbourhoods.

5.6.2 Railway Reserve Interface

The LSP seeks to utilise the open space between Robb Road and the fenced rail reserve to provide amenity and some screening of the unplanted reserve area. This area is currently densely planted with trees and its is the intention that most of these tree will be retained and the understorey enhanced with low planting. The railway tracks will be fenced off to prevent people crossing or walking along the railway tracks, while the open space to the west becomes an active corridor with joggers and cyclists using the pathway network running north - south along the railway line and providing exercise equipment dotting along the railway reserve and seating opportunities for people to use. Pockets of low planting areas will provide a softness to the industrial aesthetic of the railway. Whether it be a place to train spot or a place for a morning jog, the railway reserve can potentially become an interesting space that provides a unique identity to the Cockburn Coast development.



Figure 46_Concept Plan for the Railway Reserve



Figure 47_Port Coogee, Perth

5.6.3 Foreshore Reserves

The Foreshore Reserve is to be enhanced with additional facilities improving the experience, quality and safety of the area. The existing dunes vegetation in currently in a degraded condition and will require clearing of weeds and rehabilitation of endemic dunal species to improve the quality of the dunal system. The circulation to and from the beach and movement north - south will be improved with an enhanced dual use path, decked boardwalks and lookouts for views out to the ocean. Outdoor showers, seating and shelter facilities will be provided at key points along the foreshore reserve.

A thorough analysis of the coastal processes allowing for extreme storm sequence events, chronic erosion and sea level rise has been completed for the foreshore and reported in the Coastal Vulnerability Assessment Report (included as an appendix). Potential approaches to minimising the shoreline erosion, including a sea wall, sea groyne or artificial headland have been investigated as part of this process. The Foreshore Management Plan provides conceptual designs that consider the range of coastal protection options.



Figure 48_Concept Plan for the Foreshore Reserve



Figure 49_An example of a healthy dunal system

The District Open Spaces adjacent to the Robb Jetty LSP but external to the LSP include:

Robb Jetty Place and Parkland:

This is a high quality flexible urban space catering for large community events such as outdoor performances and markets. Interpretation of historical elements of the area and the Jetty in particular are a focus and include the retention of the human race art work. Information regarding the history of the site could be incorporated within both furniture and shade structures.

McTaggart Cove:

McTaggart Cove builds on the existing recreational facilities to provide a key location for those wanting 'green space' facilities such as 'kick about' areas, bbq, picnic areas, car parking and playgrounds.



Figure 50_Concept Plan for Robb Jetty Plaza



Figure 51_Concept Plan for McTaggart Cove Parkland

5.6.4 Neighbourhood Parks

The Robb Jetty LSP has been allocated five neighbourhood parks which have been strategically located so that residents are within close walking distance to a neighbourhood park. The neighbourhood park is to act as a “backyard” for families to enjoy and to promote interaction with the local community. Neighbourhood parks are designed to promote an active lifestyle with play equipment for youth and children, sporting facilities, general open kick around areas and bbq facilities. Plentiful shade and seating should be provided to create comfortable enjoyable places for people to rest. Neighbourhood parks should be designed to allow passive surveillance through CEPTED principles to provide a safe space for people to enjoy day and night. Neighbourhood parks should be predominantly lawn and garden bed areas to provide a tranquil place of refuge with pockets of paved areas at seating nodes.

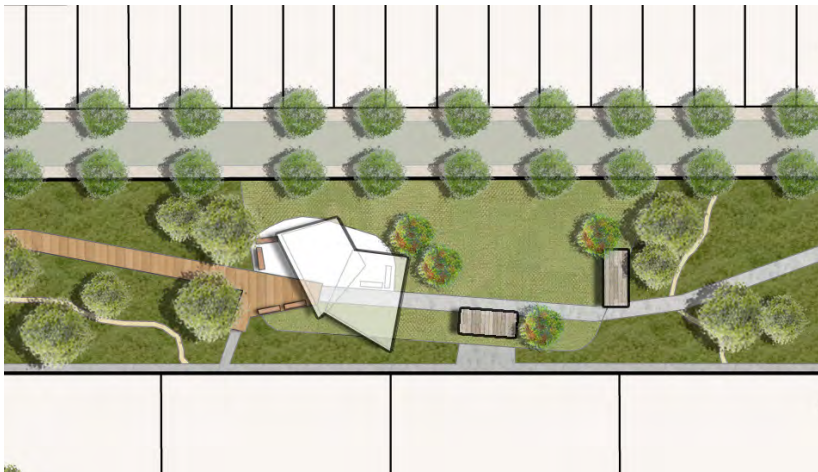


Figure 52_Concept Plan for a Neighbourhood park



Figure 53_Example, Rooke Reserve, Victoria

5.6.5 Local Parks

Local parks are less intensively developed park areas for the local community to enjoy. They are predominantly planted areas with pockets of lawn areas, seating nodes and winding pathways. Planted garden beds are predominantly endemic species to attract native wildlife. Adequate shade should be provided through structures and trees to provide comfortable resting spaces for people to enjoy. Local parks provide a variety of spaces whether it be an open space to kick a football or a place to relax away from the hustle and bustle. The parks have been integrated into the development to allow passive surveillance from the neighbouring residents and passersby. Clear visibility with non-obstructive structures, low planting and adequate lighting will ensure that parks be a safe environment for the users and local residents.



Figure 54_Concept Plan for Local Park



Figure 55_Example, Port Coogee (Perth)

5.6.6 District Open Space (within the LSP boundary)

The District Open Spaces are substantial open spaces servicing the community. They provide a variety of functions such as formal and informal sports and play areas, picnic, plaza, memorial and recreational spaces.

The District Open Spaces within the Robb Jetty LSP include:

Heritage Plaza (DP1)

Heritage Plaza is a high quality urban space with the focus on the heritage Robb Chimney element. A potential interactive water feature can provide playfulness whilst reflecting the chimney, emphasising its scale. Resting opportunities with shade and seating will make this space a tranquil escape from the proposed vibrant development.

Sports Oval

The 2.8178 hectares of sports oval and club houses are strategically located adjacent to the school allowing close interaction, promoting an active way of life. Sports facilities such as goals and goal posts allow for a variety of sports to be played on the oval. With its central location within Cockburn Coast it allows all residents to utilise and access the oval easily. The oval has a greater catchment than simply Robb Jetty LSP and therefore it does not form part of the 10% public open space calculation for the LSP.



Figure 56 _Concept Plan for Sports Oval

5.7 Planting Palettes

5.7.1 Understorey Planting Palettes

The planting palettes for the open spaces will help create an identity that is unique to Cockburn Coast. Using a variety of species that are endemic to the area, native to WA and even exotics that thrive in coastal sandy soils will help create a colourful, softness to the urban setting. Refer to the Cockburn Coast District Structure Plan for plant species guide. Approval of Council needs to be sought for particular planting programme/s prior to implementation.

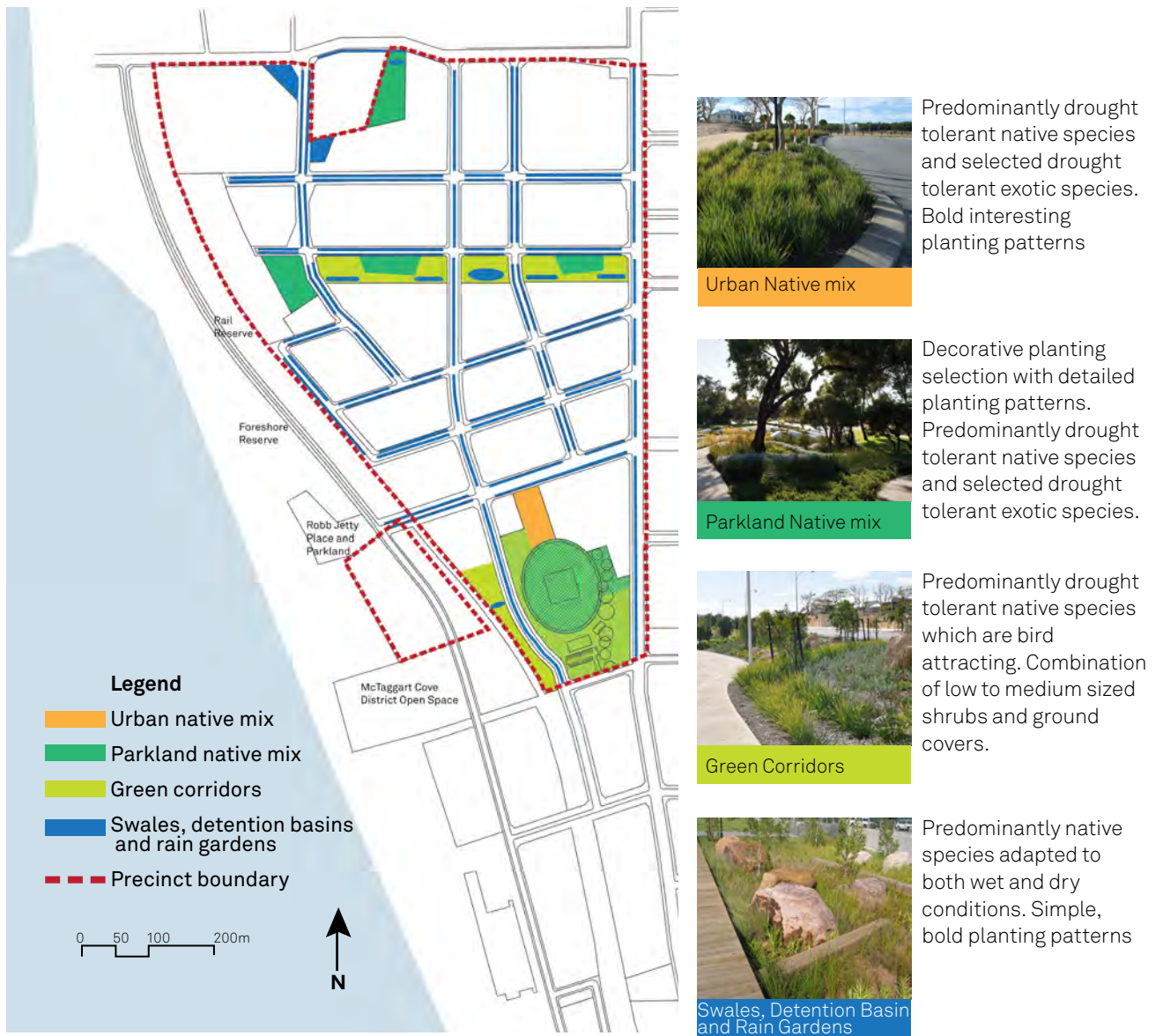


Figure 57_Planting palettes

5.7.2 Streetscape Tree Palette

In order to create variety and assist legibility and wayfinding within the development a street tree scheme has been developed utilising a mixture of local native species and robust exotics. Figure 58 indicates the species selection for each road or road type.



Figure 58_Street Tree Plan

5.8 Public Art Strategy

The Public Art Strategy is an integrated part of the Place Making Strategy and has been developed principally through adoption of the four Place Drivers, Intensity, Honesty, Legacy and Duality as well as the Cultural Place Making Principles and described Future Place Character of Cockburn Coast. Artworks within the Robb Jetty precinct can enhance both the journey and destination experience and help to build a sense of connectivity between and within places. They can express local stories of place, utilising local materials and a design vernacular.

Within the Robb Jetty LSP area this precinct emphasis will be placed on nature as a force of change. Artworks can be made up of a series of elements which together create a recreational journey, scheme or story thread. Artworks may be open ended, even seemingly unfinished and incomplete, evocative of other times and place stories, and revealing of the processes of their making.

The strategy recommends three key opportunities for artworks in the Robb Jetty Precinct

1. Adaptations – Integrated artworks within the streetscape
2. Cast Away – Robb Jetty interpretation and landmark works
3. On the Wild Side – Art and heritage coastal trail



Figure 59_Public Art Opportunity Locations

5.8.1 Opportunity 1: Adaptations

The Robb Jetty Main Street and its link to the foreshore is a focal experience for local visitor communities and is an active commercial hub. As the heart of the walkable village this is a pedestrian friendly environment containing a diverse range of informal gathering spaces within a high quality public realm. There is opportunity for the integration of artwork within the streetscape to further enhance and express qualities of intimacy shelter and seamlessness. Artworks can explore a dialogue between internal and external, city and sea and may be integrated within awnings and shade shelters, seating and planter beds, paving, drinking fountains and lighting schemes.

5.8.2 Opportunity 2: Cast Away

As a gesture of tribute to the former Robb Jetty, it is proposed to construct a bold and iconic work of contemporary art within the ocean coastal waters. A precinct landmark, this work will act as a destination attractor for the commercial centre.

Rather than a literal interpretation of the former jetty and past site significance, the artwork should seek to transcend historical allusion and offer a contemporary and open ended expression. The concept of Cast Away speaks of the jetty’s absence rather than the Jetty itself.

5.8.3 Opportunity 3: On the Wild Side

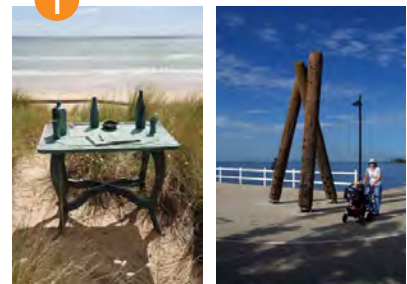
As part of the park construction and improvement works to Catherine Point, artwork can be commissioned which reflects upon the practices of horse racing and training which has occurred at Cockburn Coast since the early stages of settlement and continues to the present day. It is envisaged that the artwork can be integrated with a new pathway design and act as a longer term project for an art and heritage coastal trail which commences at Catherine Point, workings its way through the coastal parklands and eventually reaching the artworks at the southern end of the CY O’Connor Reserve.

Drawing upon local historic research the art and heritage coastal trail will consist of a number of individual works. Each artwork along the trail can reference a significant coastal story including:

- _Geological history and ancient Aboriginal creation stories
- _Robb Jetty Camp Sites and their significance for the Aboriginal Community
- _European exploration and industry
- _Military uses including the 10th Light Horse Regiment during WW1
- _Environmental stories of the dunal health and coastal landscape.



1



2



3

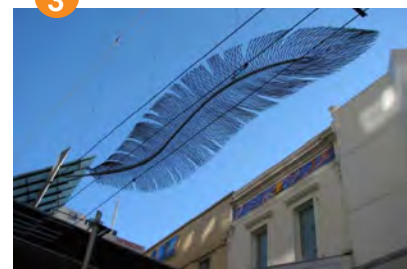


Figure 60_Public Art Examples

5.9 Water Management

Local water management is a key component to water cycle management and should consider the integration of water supply, sewerage and storm water while considering water-sensitive urban design principles. A Local Water Management Strategy has been prepared for this Local Structure Plan in accordance with the responsibilities for State Planning Policy 2.9: Water Resources (WAPC, 2006) and Better Urban Water Management. The strategies presented in the local water management strategy are consistent with the following documents:

- _City of Cockburn Town Planning Scheme No. 3;
- _City of Cockburn Local Planning Strategy;
- _City of Cockburn guideline and standards for the design, construction and handover of subdivision within the municipality.

5.9.1 Water Use

To reduce the annual water consumption in the development, in particular potable scheme water consumption, it will be necessary to be efficient in the use of water, and to use water that is fit-for purpose and appropriately sourced. Efficient water use will be encouraged by following recommendations outlined in the water sustainability principle and Cockburn Sound Green Infrastructure recommendations. Fit-for-purpose water sources to be adopted will be scheme water, groundwater, and wastewater reuse.

5.9.2 Storm Water Management

In accordance with the principals and objectives of this LWMS, the proposed development will need to maintain the pre-development storm water discharge rates, and be protected from flooding in the 100-year ARI event. To this extent, the following storm water management strategy is proposed:

1 year ARI event

- _Runoff will be retained as close to source as possible within rain gardens and bioretention areas;
- _Runoff will be capture within rainwater tanks where possible, excess will be disposed of on site via soak wells or other infiltration facilities;
- _The use of permeable paving will be maximised to provide opportunities for infiltration at source.

5 year ARI event

- _Runoff will be conveyed in underground pipe system designed to maximise infiltration
- _Utilising bottomless pits and permeable joints to low point infiltration areas.
- _Runoff will be conveyed in underground pipe system designed to maximise infiltration utilising bottomless pits and permeable joints to low point infiltration areas.

100 year ARI event

- _Roads and public open spaces will be designed to cater for surface overflow. Habitable floors will be set at least 500 millimetres above 100 year ARI flood levels at any basin location and 300mm above road level.

5.9.3 Groundwater Management

Groundwater level is not considered a risk to property or infrastructure within the development. Groundwater quality will be maintained at a minimum and improved where possible for the entire Robb Jetty LSP area. To meet this requirement, the following groundwater strategy is proposed:

- _Soil amendment (where the tested phosphorous retention index is less than 10) within all storm water infiltration areas and public open space;
- _Infiltration will not be promoted in areas of known soil contamination
- _Xeriscaping to avoid the use of fertilisers; and
- _Recommending a maintenance plan for the upkeep of the storm water management system.

5.9.4 Next Stage

The next phase of planning is the development of the Urban Water Management Plan that will address the following at subdivision stages of development

- _Additional information about irrigation, landscaping and public open space, including water requirements, water sources, soil amendments;
- _Additional information about geotechnical aspects of the site;
- _Flow rates and water levels at critical locations for the 100-year ARI event;
- _Location, level and dimensions of drainage structures such as underground pipe system, low points for infiltration and soak wells ;
- _Imported wastewater program and necessary infrastructure upgrades;
- _Management of subdivision works;
- _Post-development monitoring program and a contingency action plan;
- _Implementation plan, including roles and responsibilities;
- _Guidelines for the irrigation and soil improvement for public open space are to be included within the urban water management plan.

The local water management strategy is included as an appendix to this report.

5.10 Education Facilities

5.10.1 Proposed Education Facilities

Thorough investigation and consultation with the Department of Education and Training as part of the District Structure Planning Process identified that only one primary school is required within both the Robb Jetty Precinct and district structure plan area as a whole. This is due in part to the existing capacity of nearby primary schools and also in anticipation that the socio economic mix is likely to consist of a lower percentage of families than the Perth Metropolitan Average.

The LSP has identified the primary school site to be co-located with the district playing fields, with the intention of creating a multi- level 'urban' school on a 1.5ha property adjacent to the playing fields. The District Playing Fields have been designed so to accommodate a 135 metre by 110 metre oval and that has an ability to accommodate a wide range of sport activities.

The proposed primary school is centrally located within the LSP area to maximise its catchment opportunities whilst also being able to capitalise on its location at the eastern end of Main Street. It is anticipated that the school will be able to integrate with its urban environment and facilitate access to shopping facilities for parents dropping off and picking up their children. Additionally, the primary school has been located in close proximity to a transit station, at the western end of Main Street, to ensure a safe walking environment for children commuting to and from school.

It is considered that by locating the primary school in such a manner it will form a complementary role to the Main Street. With a consistent number of people accessing the site on a regular basis, their associated usage of Main Street will ensure the active character of this neighbourhood centre.

Although more sustainable modes of travel will be encouraged to access the school site, it is recognised that traffic congestion and parking can be an issue around schools as children are dropped off and collected in private vehicles. A drop off and collection point will therefore need to be considered as part of the 'urban' school site to ensure that vehicles are not blocking Main Street or any of the other internal streets and most importantly not waiting on Cockburn Road.

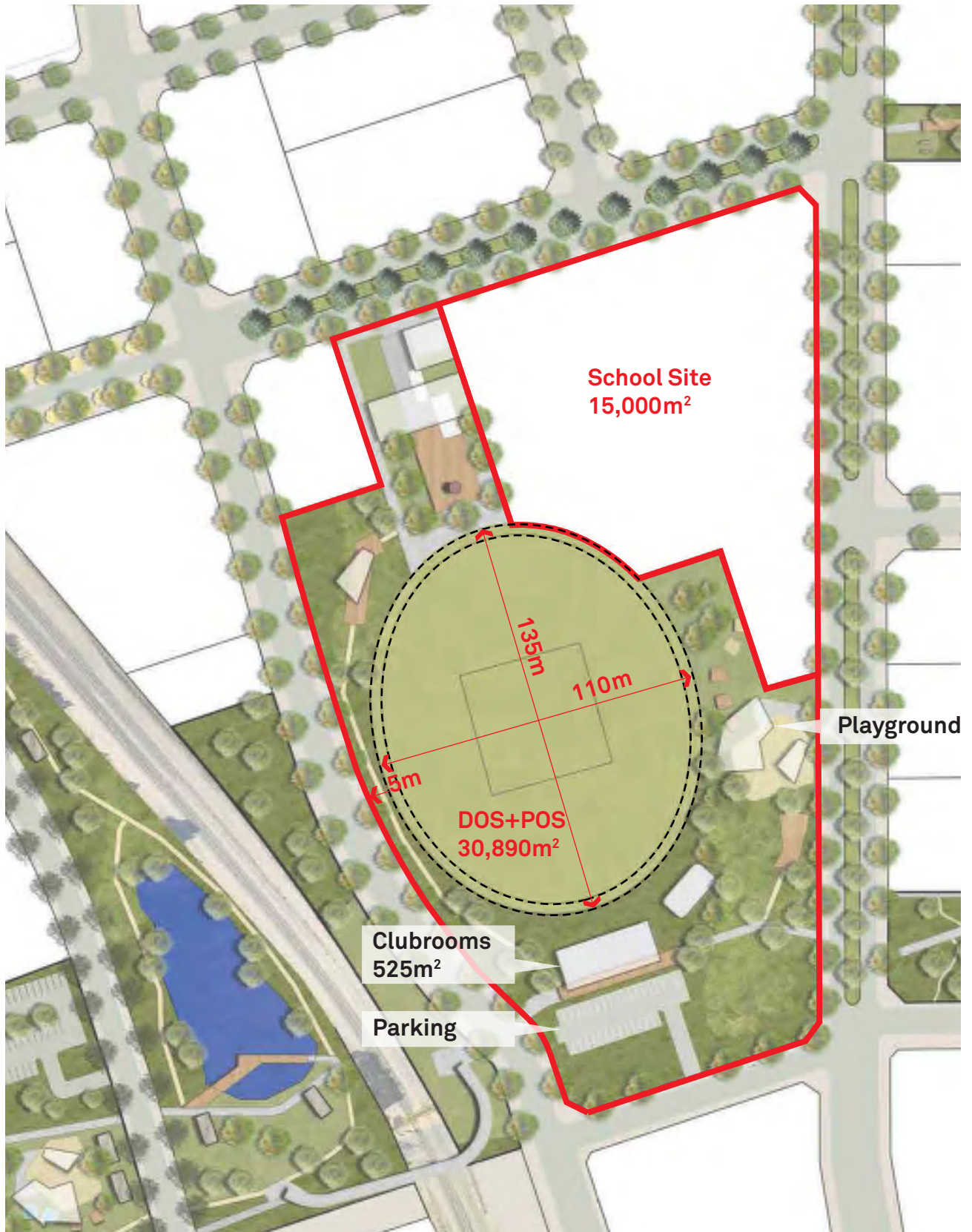


Figure 61_Primary School Site

5.11 Activity Centres and Employment

5.11.1 Land Use

It is expected that the Robb Jetty precinct will support 10,800 m² of retail floorspace and 3,700 m² of commercial floorspace. Although these revised floorspace figures are scaled down from previous estimates it is proposed that a modest under supply of retail floorspace is preferable to an oversupply as it will provide the tenancies with the opportunity to achieve higher floorspace productivities and improve the overall vitality of the centre.

To assist planning in the Robb Jetty area the following floor plates have been suggested to guide the configuration of potential land uses. The floor plates, shown as orange blocks, represent different land uses as segments of floorspace which may be located within the highlighted sites if the vision established for Robb Jetty is to be achieved. These floor plates can be arranged in a variety of ways however the configuration must be consistent with economic activation, urban design, and traffic management principles. The floor plates have been developed utilising benchmark floorspace requirements for various retail and commercial land uses across Western Australia. The floor plates include such uses as supermarkets, specialities, entertainment/ tavern, offices, medical, and restaurant/café. There is also a 2000sqm (over multiple storey) Community Centre included in the Activity Centre.

The floor plates depicted for the Robb Jetty precinct suggest a mix of primarily retail land uses (e.g. supermarket and specialities) integrated with a diverse range of non-retail uses (e.g. gym, restaurant, medical centre and bank) focused on serving the needs of the immediate catchment.

An assessment of the economic activation matters for the Robb Jetty precinct identified several key issues. These were the integration of the school into the site, achieving activation across 18 hours of the day, promoting pedestrian movement between the centre and the coast, reinforcing the complimentary roles of the centre and the coast, and the integration of a proposed rapid transit route into the main street.

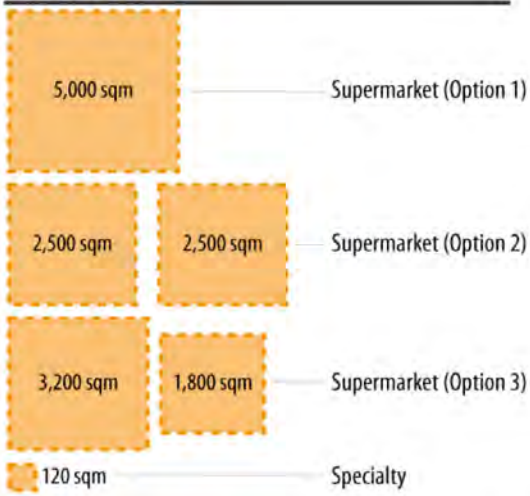
5.11.2 Employment

The Cockburn Coast District Structure Plan (DSP) established an employment target 4,080 jobs, with DSP2 having a target of 2,750 jobs. The Cockburn Coast Economic Development Strategy recognises the ranges in these targets, with the DSP being considered an optimal employment outcome, and the DSP2 target being considered a minimal achievement. As such the employment analysis for the three LSP areas of Robb Jetty, Emplacement and Power Station is seeking to achieve total employment outcomes of at least 2,750 jobs in Cockburn Coast.

The analysis indicates that Robb Jetty will likely contribute 780 jobs (28%) toward the Cockburn Coast total. Of these jobs, around 97% will be in population-driven activities with the remaining 3% consisting of strategic jobs. The majority of these jobs (62%) will be centralised along the main street with the rest (38%) distributed throughout the LSP area. This is seen as appropriate for a centre that will serve a primarily population-driven function for the residential catchment of Cockburn Coast.



Retail Land Use



Commercial Land Use



*Floorplates shown as Net Lettable Area and Robb Jetty sites shown as Gross Area.

Figure 62_Retail and Commercial Floorplates for the Robb Jetty Master Plan

5.12 Infrastructure Coordination, Servicing and Staging

As part of the Local Structure Planning process an engineering servicing and infrastructure strategy has been prepared to provide information on the service infrastructure for the area. It examines the existing infrastructure in the area, upgrades, relocations, changes required and likely timing of infrastructure upgrades and requirements.

5.12.1 Water Supply

Water Supply Planning

The Water Corporation has completed a comprehensive review of water infrastructure planning for the Hamilton Hill Gravity Supply Scheme. This planning review has incorporated the anticipated dwelling/service yields from the full development of the Cockburn Coast land. The main recommendations and projects relevant to future servicing of the Cockburn Coast development include:

- _ Approximately 800m of DN375 water main from Bellion Drive intersection heading southwards along Cockburn Road (this could be done in stages depending on demand, spatial staging of land development). It is estimated that this main will be required around 2014. The final pipe route and sizing will be refined based on the spatial pattern of the development in Cockburn Coast. It may be possible for equivalent pipe volumes to be constructed as two separate feeds in other roads through the development area parallel to Cockburn Road.
- _ Approximately 1,430m of DN500 distribution main from the end of the existing Forrest Road DN610 (coming out of the Hamilton Hill Reservoir) heading westwards join up with the Cockburn Road DN300-375 at Bellion Drive (see point (i) above). It is estimated that this main will be required around 2016 depending on the pattern and rate of development of the Cockburn Coast land.

Water Supply Reticulation

Where possible, that is where water mains exist in future road reserves, these mains will be maintained. Where existing mains do not match future road reserves, then new mains will be reconstructed within the new reserve areas.

5.12.2 Roadworks

Major roadworks infrastructure consists of two main elements for the Cockburn Coast area, namely:

- _ Cockburn Coast Drive; This main road may be constructed outside of the 10 year horizon and would likely be decided by State Government and/or Main Roads WA as to the need and timing.
- _ Cockburn Road; This road is the current north-south artery through the development area. It will remain as an important transportation link and is likely that Cockburn Road will be upgraded as part of the development process. The exact form of the upgrading works will depend on the final configuration of the integrated transportation plan, existing road user requirements and City of Cockburn requirements and may also include the relocation of existing services within the existing and/or future reserve boundaries. Currently many services exist within the Cockburn Road verges. The road reserve will be required to accommodate service infrastructure and as such the design should ensure a minimum disruption of servicing infrastructure

106 The aim of Cockburn Road's design should be to ensure a minimum of existing services are disturbed or require relocation. Due to the nature of services along Cockburn Road, any servicing relocations would be relatively costly to implement.

The Public Transit Alignment route will also be subject to sufficient engineering detail to accommodate the proposed vehicles, and staged appropriately to facilitate the development.

5.12.3 Drainage

As part of the Urban Water Management Plan, GHD have analysed flows within the development area and calculated the volume of storage/infiltration areas required in the various locations. These volumes may be accommodated by a variety of means and will be incorporated as part of the engineering and POS landscaping detailed designs.

5.12.4 Power Supply

A sub-station may be required within the Cockburn Coast area as a result of the relocation of the existing sub-station near the South Fremantle Power Station. A sub-station typically requires a land area of 1 hectare and has been indicatively accommodated within the Emplacement Local Structure Plan area.

Power infrastructure is to be provided in accordance with Western Power criteria which is typically this is designed for the peak load. However, "Green initiatives" will be encouraged and included in the design of buildings at built form stage.

5.12.5 Transmissions Lines

Within the Structure Plan area exists a section of aerial power transmission lines running from the Terminal Sub-Station area to the South Beach area and heading northward. A portion of these lines run within the Bennett Avenue road reserve. Whilst it is likely not to be a condition of subdivision, it would be aesthetically pleasing and aid the subdivision to underground at least a portion of these transmission lines. Should transmission lines remain aerial the setback to development will be greater than if they are underground. Set back in this situation need to be in accordance with Western Power criteria.

5.12.6 Telecommunications

In examining the existing telecommunications infrastructure there is a need to acknowledge that where cadastral boundaries change, some of this infrastructure will be redundant and possibly require relocation. This would require early liaison with Telstra to minimise cost and timing of these service relocations.

5.12.7 Gas Supply

Subdivision of the southern end of the Robb Jetty precinct would require the cutting and capping of redundant portions of the gas main. New mains connected to the existing supply mains would be constructed as part of the subdivision process.

5.12.8 Waste Water and Effluent Disposal

1. Pump Station

It is proposed to do an initial upgrade to the Bennett Avenue WWPS to increase the pumping rate to 260l/s. This is provisionally planned to occur in the 2012/13 financial year. Further pump rate upgrades are not expected to be needed until after 2030. The Bennett Avenue WWPS is a permanent Water Corporation asset. It fully owns and operates this facility. At the subdivision stage the developer will liaise with the Water Corporation to advise them of likely development timings and take-up rates. Having this information, Water Corporation in accordance with their policies will upgrade their pumping station at the time of their choosing to match demand

2. Rising Main

The existing pressure main from the Bennett Avenue pumping station heads to the south and east to discharge into the Spearwood main sewer. The existing DN500 pressure main is provisionally indicated for replacement with a DN700 (or possibly duplication) around 2040 which would coincide with the Bennett Avenue pumping station being upgraded. The rising main route would need to be within road reserves and a majority of the route would need to be accommodated within Cockburn Road. It will be required as part of the development of the areas affected by the location of the rising main to relocate the rising main into new road reserves to ensure they are protected and can be maintained by the Water Corporation.

3. Emergency Pump Station Ocean Outfall

As a fail-safe measure, the Bennett Avenue WWPS has an existing emergency DN600mm RC pipe which connects from the pump station to the ocean. Currently the LSP indicates that the emergency pipeline cuts through development areas. The alignments of structure plan boundaries have been chosen to minimise the effect on development areas by truncating development sites to accommodate the pipeline and include parts of it in the POS. Where development cannot or does not want to accommodate the pipeline by way of easement (for example) then the pipeline would need to be relocated to within a road reserve area. The timing of these works would be required upon sub divisional development of the affected areas.

4. Gravity Sewer Reticulation

As per the rising main, a part of the gravity network goes diagonally through the LSP development area. Development of these sites would require the gravity main to be rebuilt and reconnected within the future road reserves. An existing network of gravity sewer mains exists on site running from the pumping station heading southward with the initial part of the main existing within the current road reserve. This initial portion will remain as is and the sewer main can remain in this reserve as is. Further south, where cadastral boundaries are proposed to change as part of the LSP the gravity system does not currently have any active flows connected. As such, it will be possible to abandon these existing mains and reconstruct the gravity sewer system within the new road reserve system in accordance with normal sub divisional development. These works will be timed to match into construction of the particular sub divisional area.

5.13 Development Contribution Arrangements

The LSP proposes key infrastructure for which there is associated costs. A Development Contribution Plan (DCP) is required to coordinate the delivery of key enabling infrastructure for the Cockburn Coast Project in an equitable way. This includes hard infrastructure such as delivery of key roads and development of high amenity public open spaces that will provide for the needs of the dense population planned for the area. There are two Development Contribution Plans relevant to the project:

_Cockburn Coast (Project) DCP

_City of Cockburn Community DCP - DCA 13

5.13.1 Cockburn Coast DCP

The DCP for the Cockburn Coast will ensure that cost contributions towards infrastructure are shared equitably amongst landowners in a manner that is commensurate to the development potential of individual land holdings. The infrastructure items which are anticipated to be incorporated within the DCP are provided below:

Transport and Infrastructure

1. Cockburn Road upgrade (including land acquisition for road widening)
2. Proportionable contribution to other key local roads (e.g. Main Street and Spine Road (BRT))
3. Public Realm and Environment Improvements
4. Pedestrian network (shared paths not provided under items 1-3), including coastal link and level crossings over rail reserve)
5. Public Open Space and all open space enhancements
6. Management treatments for foreshore reserves
7. Administration of the DCP by the City of Cockburn (including annual review)
8. DCP preparation costs and general administration costs.
9. Main Street Community Building

5.13.2 City of Cockburn DCA 13: Community Infrastructure (DCA 13)

Given its coastal location, mixture of uses and scale of redevelopment proposals, the Cockburn Coast project area will attract visitors from outside of the project area. The Community Development Plan prepared by Place Partners acknowledges this regional function and identifies that other additional community infrastructure is necessary to support the future Cockburn Coast population and wider community. Based on discussions to date, the following community infrastructure items will be included within the City of Cockburn's existing Development Contribution Plan 13:

1. Dual Use Sport Oval and Club Room
2. Additional Foreshore Enhancement and Coastal Protection
3. Community/Beach Parking

The DCP for Robb Jetty and Emplacement Precincts is being prepared in collaboration with the City of Cockburn and will be submitted part way through the approval process for this LSP.

6.0 Next Steps

6.1 Next Steps

To deliver the Robb Jetty LSP as a vibrant coastal community in an area previously known for its industrial capacity it will be necessary for a number of further actions to occur:

- _The Development Contribution Plan to be submitted to and approved by the City of Cockburn
- _Design Guidelines Local Planning Policy to be submitted to and approved by the City of Cockburn
- _Where necessary Detailed Area Plans are to be submitted to and approved by the City of Cockburn; and
- _Subdivision and Development approvals are to be issued.

To ensure the LSP area achieves its full potential it will also be necessary for local structure planning to occur over both the Emplacement and Power Station Precincts. The Robb Jetty LSP forms part of a larger plan and would be less successful if structure planning does not occur over these other precincts. This process has begun in both precincts.



Figure 63_The future of Robb Jetty

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COCKBURN COAST AFFORDABLE HOUSING STRATEGY

Prepared for LandCorp
September 2012

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Executive Summary

The aim of this document is to identify strategies to guide the provision of affordable housing within the Cockburn Coast project in the City of Cockburn, through the Local Structure Planning process and other relevant mechanisms. The intention is to establish a project strategy that will assist to deliver a range of tenure types, where possible in perpetuity, and guide the location of potential sites for affordable housing.

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A District Structure Plan (CCDSP Pt 1) for Cockburn Coast was endorsed by the Western Australian Planning Commission in September 2009. The CCDSP Pt 1 anticipated a residential population of approximately 10,000, and a dwelling yield of 4,850 across the whole Cockburn Coast project area, with a 'stretch' target of 20% (or approximately 970 units) being 'affordable'. This District Structure Plan was further refined by the District Structure Plan 2 (CCDSP Pt2) which sets new density targets resulting in an increased dwelling yield of 5193 dwellings but still seeks to achieve the stretch target of 20% affordable housing. As the planning for the area moves into greater levels of detail, it is necessary to ensure that the various objectives and targets of the CCDSP Pt 1 & 2 are carried through, where possible to implementation. This includes trying to achieve the 20% target for the provision of affordable housing and resulted in the preparation of this Affordable Housing Strategy.

In order to understand how to implement affordable 'product' across the Cockburn Coast project, it is important to first understand what constitutes 'Affordable Housing'. The definition of 'Affordable Housing' adopted by the Western Australian Planning Commission in the Cockburn Coast District Structure Plan 2009 and utilised by this strategy is:

"That which is accessible to low income households (the bottom 40% of income distribution) without spending more than 30% of the gross household income on housing costs."

As this definition is formulaic, it is necessary to determine the benchmark of a low income household. This is as set out in Table 1. It is noted that very low income households will be catered for through the social housing sector. Low to moderate income households will be the target market for affordable housing delivered by the private sector.

Table 1: Affordable Housing Benchmarks for Perth Statistical Division

	Very low- income householdw	Low-income household	Moderate-income household
Income Benchmark	<\$655-\$736 per week	<\$984 per week	\$984-\$1,467 per week
Affordable Rental Benchmarks	<\$197-\$221 per week	<\$296 per week	\$296-\$440 per week
Affordable Purchase Benchmarks	<\$153,000 - \$174,000	<\$230,000 total	\$230,000 - \$345,000 total

Source: Judith Stubbs and Associates December 2010

Note: This table is updated in conjunction with the release of new ABS data.

The basis, scope and methodology of this Affordable Housing Strategy has been developed following direct consultation with the City of Cockburn, the Department of Housing and the Department of Planning. The methodology includes in summary; a literature review, desktop research to identify relevant benchmarks, liaison with key government and private sector stakeholders, local market research, model development scenarios, and feasibility testing.

The research, literature review and scenario modelling undertaken identified a number of key elements which have guided and shaped the recommendations made as part of this strategy. These key outtakes include;

- _The Judith Stubbs and Associates recommendation of a minimum 15% affordable rental and purchase accommodation in all new release and redevelopment areas is warranted, with 20% being considered as a reasonable 'stretch' target.
- _State government policy does not support the mandatory provision of affordable housing.

Executive Summary

- iv
- _Resultantly inclusionary zoning is not considered as an appropriate mechanism of implementation. In addition to Dwelling Density based initiatives are not considered relevant given the Residential Design Codes applied to the area.
 - _Plot Ratio Bonuses are considered to be most applicable and attractive as a mechanism for achieving affordable housing.
 - _The most successful methodology of achieving affordable housing will utilise a factor of mechanisms such as those listed by this report.
 - _Factors affecting the apartment market have directly impacted the viability of development sites and placed downward pressure on land values. The sustained withdrawal of credit availability for this sector and weak consumer demand has placed continued pressure on land values over the last 30 months. This in turn affects the attractiveness of affordable housing provision by the private sector.
 - _In considering the feasibility of plot ratio bonuses as a mechanism for achieving affordable product within the typologies proposed by the Cockburn Coast District Structure Plan Part 2, sites characterised by heights of 3 to 5 stories with a density coding of Residential R80 are considered the most feasible in today's market conditions.
 - _As a result of the study it is reasonable to make recommendations for mechanisms to achieve a 15% target for the provision of affordable housing (with 20% as a stretch target) utilising a number of the mechanisms outlined.

State Government can assist in the provision of affordable housing through public private partnerships, the provision of social housing, and utilising mechanisms such as plot ratio bonuses when developing state owned land. In considering that, it is likely government owned land may be sold prior to development occurring, there is an opportunity to ensure affordable product delivery by guaranteeing the provision of 15% affordable housing product by requiring its delivery as a condition of sale.

The private sector could assist in the provision of affordable product by utilising all mechanisms outlined. A combination of mechanisms is most likely to be successful and would require the commitment of the developer, local government and state government alike. It is likely that a sliding scale of plot ratio bonuses may provide the most attractive mechanisms in incentivising the private sector. Additionally, the strategy identifies fast tracked approvals, development conditions and development standard concessions as appropriate mechanisms for achieving affordable product.

The strategy also examines the role of statutory planning documents in providing the ability to implement the desired mechanisms for achieving affordable housing. As a result, local structure plans, detailed area plans and design guidelines will play a role in the provision of affordable product.

In summary, the targets as set by the CCDSP Pt 1 & 2 for the delivery of 20% affordable housing product may be reasonable and indeed an achievable stretch target over the full life span of this project. Realistically, it could be expected that with the appropriate framework and guidance, 15% affordable housing product could be delivered through the Cockburn Coast project. It is perhaps obvious, but achieving this target will require the commitment of all stakeholders in the development industry, being the government and private sector alike. The delivery of affordable housing in the Cockburn Coast provides an opportunity to set a precedent in Western Australia, and for both the government and private sector to contribute to the creation of a diverse and vibrant coastal community.



Cockburn Coast WA_Imagery by HASSELL



Catherine Point Perspective, Cockburn Coast WA_Imagery by HASSELL

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1.0 Introduction

The strategy will assist in the delivery of a range of tenure types in perpetuity, and investigate the location of potential sites for affordable housing.

1.1 Aim

The aim of this document is to identify a strategy to guide provision of affordable housing within the Cockburn Coast project area within the City of Cockburn, through the Local Structure Planning process and other relevant mechanisms.

The intention is to establish a project strategy that will assist to deliver a range of tenure types, where possible in perpetuity and guide the location of potential sites for affordable housing.

1.2 Background

The former industrial area south of Fremantle now known as Cockburn Coast has been identified for urban renewal. Most of the former industrial activities have long since ceased, leaving approximately 330 hectares of underutilised land in close proximity to the infrastructure, amenities and services of the surrounding urban area. The creation of a high quality mixed use urban development within close proximity to Fremantle and a beautiful stretch of metropolitan coast would accommodate housing, employment and recreation opportunities for a significant number of people and contribute towards achieving population and employment targets identified in *Directions 2031 and Beyond*.

A District Structure Plan (DSP) for Cockburn Coast was endorsed by the Western Australian Planning Commission in September 2009. The DSP anticipated a residential population of approximately 10,000, and a dwelling yield of 4,850 across the whole Cockburn Coast project area, 20% (or approximately 970 units) of which should be 'affordable'.

As the biggest single landowner within the project area, LandCorp led the preparation of the Cockburn Coast master plan in consultation with landowners and key government agencies and stakeholders for the land south of Rollinson Road that resulted in some refinements to the detail of the 2009 DSP (refer to Figure 1). This master plan was subsequently advertised and its status as the prevailing guiding document for the land within the City of Cockburn was confirmed through adoption of Amendment 89 to City of Cockburn Town Planning Scheme No. 3. As a result, the master plan is now referred to as District Structure Plan Part 2. Because it identified the potential for a higher dwelling yield than anticipated by the DSP, with the possibility of 5,200 dwellings south of Rollinson Road, the resultant targets for affordable housing subsequently increased up to 1,040 units within the City of Cockburn alone. No adjustment was made to population targets although clearly the potential exists for a larger total population if more dwellings can be achieved.

As planning moves into greater levels of detail, it is necessary to ensure that the various objectives and targets of the District Structure Plan are carried through to implementation. This includes targets for the provision of affordable housing. It is therefore important to understand the means by which the targets can most successfully be achieved within Cockburn Coast.

This strategy will assist LandCorp and other agencies including Verve Energy, Western Power and the Western Australian Planning Commission to identify those aspects of affordable housing provision that it can directly influence, and those that will require interventions or other forms of control that are outside government agency jurisdiction.

1.0 Introduction

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1.3 Methodology

The basis, scope and methodology of this Affordable Housing Strategy has been developed following direct consultation with the City of Cockburn, the Department of Housing and the Department of Planning. As a result, it was developed that to identify suitable mechanisms and locations for delivering affordable housing targets within Cockburn Coast, the following methodology was followed:

- _ Literature review of key documents discussing housing affordability issues relevant to Cockburn Coast
- _ Desktop research to identify relevant benchmarks for possible applicability to Cockburn Coast

- through a review of relevant affordable housing case studies
- _ Liaison with key Government and private sector stakeholders to determine drivers and aspirations
- _ Local market research to determine local land valuations and construction costs
- _ Model development scenarios to determine likely development costs and developer margins for housing provision within Cockburn Coast
- _ Test development feasibility on a mixture of notional LandCorp owned and privately owned sites
- _ Based on this information, make recommendations as to appropriate strategies for application within the Cockburn Coast project area.

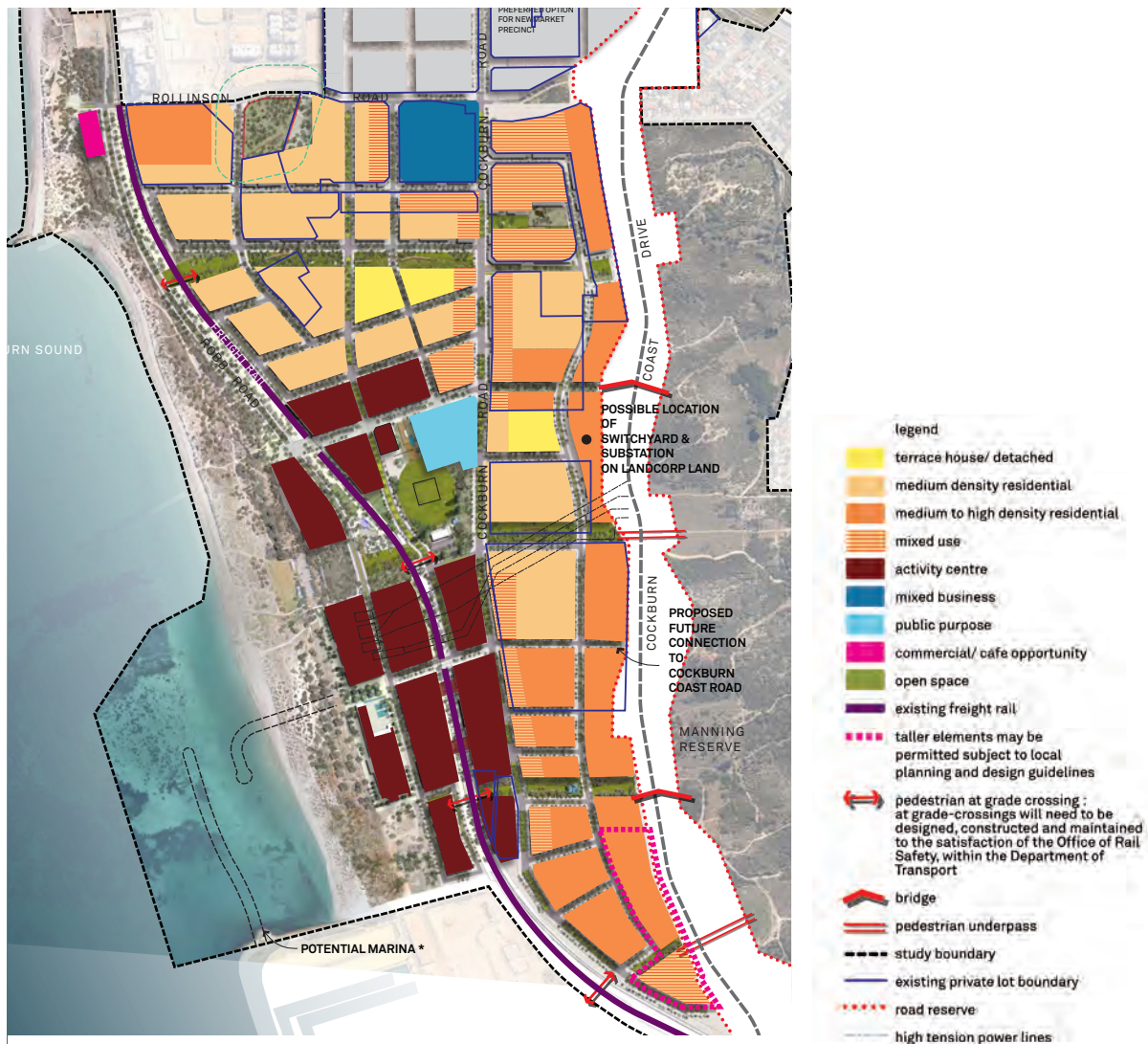


Figure 1_District Structure Plan Part 2

2.0 Affordable Housing

2.1 What is Affordable Housing?

3

There have been many attempts to define what is meant by the term 'affordable housing'. The definition adopted by LandCorp in its *Affordable Communities Policy* is:

"_ 75 percent of the median value for a property of that type in that area, or affordable by a household on a moderate income (80% to 120% of median income)."

The definition that has been adopted by the Western Australian Government in its *Affordable Housing Strategy 2010 – 2020: Opening Doors to Affordable Housing* is:

"...dwellings which households on low-to-moderate incomes can afford, while meeting other essential living costs. It includes public housing, not-for-profit housing, other subsidised housing under the National Rental Affordability Scheme together with private rental and home ownership options for those immediately outside the subsidised social housing system."

The definition adopted by the Western Australian Planning Commission in the *Cockburn Coast District Structure Plan 2009* is:

"that which is accessible to low income households (the bottom 40% of income distribution) without spending more than 30% of the gross household income on housing costs."

It is important that a definition is agreed that can be formula-based so it can be measured. As affordable housing targets for Cockburn Coast arise from the Structure Plan, it is this last definition that has been adopted for the purposes of this strategy.

For the definition to be useful, it is necessary to benchmark both household income levels and the cost of both rental and purchase housing. This has been done for the Perth Statistical Division, within which Cockburn Coast is located, based on 2006 ABS Census data indexed to 2010 dollars, in the following table.

	Very low- income household	Low-income household	Moderate-income household
Income Benchmark	<\$655-\$736 per week	<\$984 per week	\$984-\$1,467 per week
Affordable Rental Benchmarks	<\$197-\$221 per week	<\$296 per week	\$296-\$440 per week
Affordable Purchase Benchmarks	<\$153,000 - \$174,000	<\$230,000 total	\$230,000 - \$345,000 total

Source: Judith Stubbs and Associates December 2010

Note: This table is to updated in conjunction with the release of new ABS data.

Table 2: Affordable Housing Benchmarks for Perth Statistical Division

2.0 Affordable Housing

4

Project objectives relating to diverse social mix are unlikely to be delivered if no effort is taken to influence normal market forces.

Very low income households will be catered for through the social housing sector. Low to moderate income households will be the target market for affordable housing delivered by the private sector.

2.2 Types of Affordable Housing

Judith Stubbs and Associates (2010) identified and defined types of affordable housing most relevant to the Western Australian market in the following broad categories:

Affordable Rental Accommodation	Affordable Purchase Accommodation
Public Housing	Rent-to-Buy
Community Housing	Shared-Equity
Co-operative Housing	Property Covenants
Discount Market Rental Housing	Land Trusts
Time Limited Affordable Rental	Assisted Purchase

Low cost housing - housing that is available through the market but is cheaper due to cheaper construction materials or methods, or smaller size or amenity standards - might in some circumstances also be considered 'affordable' if it meets the income and price benchmarks identified in Table 1. However it is not the prime focus of this strategy.

2.3 Why Affordable Housing is Important

Households are generally considered to be in 'housing stress' when more than 30% of gross household income is spent on housing costs. If more than 50% is spent on housing, the household is considered to be in 'severe housing stress'. Without access to affordable housing that is suited to their needs, individuals and families are more likely to suffer increased levels of financial and personal stress and find it difficult to access other opportunities in life. Ultimately, society as a whole will feel the affect of this through increased levels of social dysfunction and economic under-achievement. (Stubbs, 2010)

In Western Australia, housing affordability has been steadily declining. The *Affordable Housing Strategy 2010 – 2020* notes that in May 2000 a Perth household on the median income of \$40,700 pa could buy a home for 3.9 times their annual income, but by September 2010 a household on the median income of \$73,300 pa needed 6.5 times their annual income to purchase a similar home. This ability to pay relates to the cost of finance; a further issue is the ability to save for the necessary deposit to qualify for a loan.

The evidence that housing – both rental and purchase - is less affordable than ever has been well documented elsewhere, and is not repeated in this report. For example, refer to the *Affordable Housing Strategy 2010 – 2020*, and the National Housing Supply Council's *State of Supply Report 2011*.

The implications of the lack of affordable housing are already being felt in some sectors of the economy, with some employers unable to attract or retain staff because there is no suitable and affordable accommodation within close proximity to the workplace. This is particularly the case for

2.0 Affordable Housing

so-called 'key workers', who are generally modestly paid but provide basic and essential services required for thriving communities (eg: police, teachers, nurses, fire fighters, ambulance officers, hospitality workers).

Based on the price of land and housing realised in other comparable redevelopment projects, new dwellings within Cockburn Coast, with its prime coastal location, are unlikely to be affordable to those in low to moderate income brackets. **Project objectives relating to achieving a diverse social mix are therefore unlikely to be delivered if no effort is taken to influence normal market forces.**

2.4 Affordable Living

Related to and expanding upon the concept of affordable housing is that of affordable living. Affordable living is a term used to describe the factors in addition to the cost of renting or purchasing housing, that affect household expenditure.

In addition to the direct cost of housing (rent or mortgage repayments), factors such as the cost of transport and access to employment, education, health, shopping, recreation and other opportunities are closely linked to the location of housing. For this reason, cheap housing on the urban fringes will not necessarily help a household's financial position if, for example, it requires them to bear the expense of owning and running multiple private vehicles in order for its members to get to work and thus maintain their income. Thus the most socially disadvantaged households may be even worse off financially and socially if their housing is poorly located.

LandCorp has recognised this in their 'Affordable Communities' policy (undated). in relation to affordable living considers the wider issues of affordable housing particularly access to services, transport and employment, which includes amenity quality, economic opportunities and transport equity.

Where appropriate, LandCorp will make provision to develop affordable living by facilitating the development of affordable housing located close to, or within easy access to shopping centres, public open space, employment, transport and government and community services.



01_

01_ Residential_3 stories
02_ Residential_2 stories



02_

3.0 Literature Review

6 3.1 Overview

There is a growing body of literature relating to the subject of affordable housing. The intention here is not to attempt a comprehensive review of the subject, but rather to acknowledge the key documents of relevance to the consideration of affordable housing in the Cockburn Coast project area.

The documents outlined in this section are:

- _Cockburn Coast District Structure Plan, Parts 1 and 2
- _City of Cockburn Town Planning Scheme No. 3
- _Achieving Affordable and Diverse Housing in Regeneration Areas in Western Australia
- _State Affordable Housing Strategy

3.2 Cockburn Coast District Structure Plan Parts 1 and 2

The *Cockburn Coast District Structure Plan* (CCDSP) consists of the plan adopted by the Western Australian Planning Commission in September 2009 for the whole project area, and a second report, known as the *Cockburn Coast District Structure Plan Part 2* (CCDSP Pt 2), which was commissioned by LandCorp for the part of the project area within the City of Cockburn, which was formerly zoned 'Industrial' in the Metropolitan Region Scheme and the City of Cockburn Town Planning Scheme No. 3.

CCDPS Pt 2 is a refinement of the earlier report, responding to a more detailed examination of various elements of the plan. It does not supersede the objectives or targets outlined in the earlier document. However, because of some adjustments to the design it does identify an opportunity to achieve a higher dwelling yield than anticipated by the September 2009 report.

Housing Targets

The CCDSP seeks a community with a diversity of demographics, income and household types. This diversity will contribute to the sustainability of the community and the vibrancy, energy and activity of the place. To achieve this, the CCDSP aims to achieve:

- _a range of sustainable housing types that match Perth's changing demographics and provide alternatives to the majority of existing single dwelling housing stock available in the broader area
- _a diversity of built form, dwelling types and sizes, attracting a mix of demographics and lifestyles
- _increased densities focussed on the bus rapid transit system, improving accessibility for a wide range of new residents
- _an affordable housing target to enable representation of people in lower income brackets

On this basis, the CCDSP set the following targets relating to housing, based on yield estimates:

- _Minimum 3% separate houses (single dwellings)
- _Minimum 22% terrace or row houses
- _Minimum 33% low-rise apartments (3 to 5 storeys)



01_



02_

01_ District Structure Plan September 2009
02_ District Structure Plan Part 2

3.0 Literature Review

- _Minimum 31% medium to high-rise apartments (6 to 8 storeys and over 8 storeys respectively)
- _Minimum 20% affordable housing
- _Minimum 20% adaptable buildings (dwellings that are adaptable to changing demographics with the ability to transition over time)
- _15% of homes need to be 'family homes' (suitable for accommodating families - assume 3 or more bedrooms)

Social housing is low income rental housing provided by Department of Housing or another community housing provider at a subsidy so that not more than 30% of household income is spent on rent. Social Housing is a sub-set of affordable housing, ie: part of the 20% affordable housing target. The actual proportion of housing that will be social housing is likely to be negotiated depending upon the partners involved (eg: Department of Housing, community housing provider, private developer) but could be in the order of a third of the affordable housing component, or up to 6% of all housing. This compares with approximately 10% of all housing that would typically be targetted in a standard (low density) residential subdivision.

'Adaptable Housing' is that which accommodates lifestyle changes without the need to demolish or substantially modify the existing structure and services. It is an extension of the concept of 'Universal Housing', being easily adapted to become 'universally accessible' when required.

With sufficient foresight at the design stage, multiple storey houses and apartments can all be suitable for adaptation.

This strategy is concerned with affordable housing, however in implementing the strategy, regard will have to be given not just to achieving affordable housing product, but to achieving it across a range of housing types in order to ensure that the product available suits a range of lifestyles and household types.

It should be noted, that the 20% affordable housing target as set by the District Structure Plan Part 2 was based on little rigor or justification and was set as an ambitious target. It was anticipated by DSP2, that as the project progressed a more detailed examination would be undertaken into the rationale for affordable housing for the Cockburn Coast, including such targets, culminating in the commissioning of the Judith Stubbs report on Affordable Housing (as examined in section 3.4 of this report) and this Affordable Housing Strategy.

Table 2 shows the target number of dwellings in each of the categories above if an exact mirror of the overall housing mix target were to be applied to the affordable housing product target using the CCDSP dwelling yield estimates. Note that totals in the table are greater than the estimated total number of dwellings, because the dwelling types are not mutually exclusive (for example, a dwelling might be a detached, adaptable family home, or an adaptable, affordable apartment in a low rise building).

3.0 Literature Review

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Dwelling Type	CCDSP	
	No. Dwellings	No. Affordable Dwellings
All Dwellings	4,850	970
Detached single dwellings (3%)	146	29
Terrace or row house (22%)	1,067	213
Low-rise apartments (33%)	1,601	320
Medium to high-rise apartments (31%)	1,504	301
Adaptable housing (20%)	970	194
Family homes (15%)	728	146
Social Housing (6%)	291	291

Table 3: Indicative Dwelling Mix based on CCDSP

CCDSP Pt 2 subsequently revised the target dwelling mix, aiming to maximise yield, breaking housing down as follows:

- _ High rise 25%
- _ Medium rise 11.6%
- _ Low rise 31.6%
- _ Terraces 1.1%
- _ Mixed use 11.3%
- _ Activity centre 19.4%

Mixed Use and Activity Centre housing refers to housing that will be developed within these use areas, as defined in Figure 1. They will almost certainly take the form of apartments.

Detached single dwellings were removed as a housing typology, because there is a significant amount of this typology available in the immediate vicinity of Cockburn Coast, and it is very difficult to maximise yield using this form.

Because CCDSP Pt 2 is silent on adaptable and 'family' housing, the targets from the original CCDSP remain.

On the same basis as for Table 2, Table 3 estimates the number of dwellings that could be expected if affordable housing were to be equally apportioned across all housing types.

3.0 Literature Review

Dwelling Type	CCDSP Pt 2	
	No. Dwellings	No. Affordable Dwellings
All Dwellings	5,200	1,040
Terrace or row house (1.1%)	57	11
Low-rise apartments (31.6%)	1,643	329
Medium to high-rise apartments (11.6%)	603	121
Adaptable housing (20%)	1,040	208
Family homes (15%)	780	156
Social Housing (5%)	260	260

Table 4: Indicative Dwelling Mix based on CCDSP Pt 2

It is noted that there has been a context shift in the dwelling mix from CCDSP Pt 1 to CCDSP Pt 2. This is a reflection of the refinement of detailed planning in keeping with principles of Directions 2031 and Beyond (WAPC, 2010) and the updated assessment of the opportunity presented by the Cockburn Coast.

In reality, the demand for affordable housing in Cockburn Coast is likely to require a different mix from that indicated above; for example it is unlikely that there would be many, if any 'affordable' terrace or row houses, because these will be very high value product and relatively scarce in this location.

The demographic profile of population qualifying for 'affordable' housing product in this location is likely to vary according to economic conditions, so it would be desirable if this could be monitored by the State Government in order that affordable housing developments can appropriately respond to demand. In the meantime, the targets indicated above can be used as a guide.

3.3 City of Cockburn Town Planning Scheme No. 3

Zoning

Amendment No. 89 to City of Cockburn Town Planning Scheme No. 3 (TPS 3) rezoned the Cockburn Coast project area from 'Industry' and 'Light Industry' to 'Development', and included it within a new 'Development Area No. 33'.

The Development Area provisions set out the requirements for future Local Structure Plans and urban development in the area. The requirements seek to ensure the targets and objectives for the area are achieved. Provisions outline the considerable amount of detail that is expected to be resolved prior to subdivision and development being permitted, including matters such as building design, transport, sustainability, and affordable housing.

Subdivision and development within Cockburn Coast will be subject to the approval of Local Structure Plan/s, Design Guidelines and Detailed Area Plans. These are to be prepared having regard to District Structure Plan and District Structure Plan Part 2, noting that in the event of any discrepancy between the two, the requirements of the District Structure Plan Part 2 will prevail.

3.0 Literature Review

10 This strategy is in response to the requirement of TPS 3 to describe how affordable housing can be addressed in the Local Structure Plans.

Affordable Housing

With reference to Affordable Housing, the provisions of the Scheme relating to Development Area 33:

_include an objective “to encourage a diverse population that contributes to the interest and vitality of the Development Area by providing a genuine mix of dwelling types to cater for a range of living options”

_require subdivision and development applications to achieve at least 85% of the potential number of dwellings under the applicable R-Code as defined by an adopted Local Structure Plan, using the following per-dwelling site areas:

_R30 = 300sqm

_R40 = 220 sqm

_R50 = 180 sqm

_R60 = 180sqm

_R80 = 125 sqm

_R160 = 62.5 sqm

Note: These provisions were endorsed prior to the Multi Unit Housing Codes (Residential Design Codes Part 7 (Design elements for multiple dwellings in areas with a coding of R30 or greater and within mixed use development and activity centres)). As a result, the Local Structure Plan details that minimum and maximum yields should be calculated based on the Plot Ratios established by the relevant Local Structure Plan.

_require Local Structure Plans to address (inter alia) ‘housing product and mix’, how affordable housing targets set out in the CCDSP will be achieved, and how minimum dwelling targets will be met

This affordable housing strategy does not directly address the wider issue of overall housing mix and minimum dwelling targets. The District Structure Plan already provides high level targets for housing type mix, which will need to be translated into detailed planning of individual precincts. Affordable housing is inevitably a sub-set of all housing.

3.0 Literature Review

3.4 Achieving Affordable and Diverse Housing in Regeneration Areas in Western Australia

Overview

The Western Australian Planning Commission engaged Judith Stubbs and Associates (JSA) to examine what planning mechanisms and strategies may feasibly be used to achieve affordable and diverse housing within three case study areas, one of which was Cockburn Coast. The study, *Achieving Affordable and Diverse Housing in Regeneration Areas in Western Australia*, is an unpublished draft in two parts (December 2010 and April 2011), but provides important context and input to this strategy. This strategy does not attempt to replicate the investigations undertaken by JSA but rather uses them as a basis from which to evaluate the viability of options considered.

The JSA study was undertaken in three stages:

1. Profile of each redevelopment area, focussing on the question: *"If affordable housing were to be provided within, or associated with, the three redevelopment areas, for whom should it be provided and what are their housing needs in terms of price, tenure, type, size and any particular locational requirements?"*
2. Planning mechanisms and strategies for selected redevelopment areas, identifying *"feasible, legal, reasonable and equitable mechanisms for achieving affordable housing within or associated with each redevelopment area"*.
3. Overview and recommendations.

Cockburn Coast Affordable Housing Market

The JSA research indicated a range of groups likely to be excluded from affordable rental and purchase in Cockburn Coast if active steps are not taken to create such housing through appropriate mechanisms or strategies *either within the area or in association with it* (emphasis added).

Within the City of Cockburn (ie: that part of the Cockburn Coast project area that is the subject of this strategy), JSA notes that, based on data derived from the 2006 Census (the latest available):

- _Low income households in purchasing stress are either families with children or single person households
- _Moderate income households in purchasing stress are most likely to be couple households with children
- _Low income households in rental stress are either families with children or single person households
- _Moderate income households in rental stress are most likely to be working households with children and less likely to be single person households

3.0 Literature Review

12 The study states that the degree to which low and moderate income households will be excluded from Cockburn Coast will depend on:

1. whether the development has a similar amenity to South Fremantle
2. the type of stock provided

JSA consider that depending on the degree to which smaller medium density dwellings are provided in relatively low amenity areas in the eastern parts of the project area, Cockburn Coast is likely to provide access to a range of low and moderate income households, with the possible exception of families with children, noting that detached houses (most suitable and sought after by families with children) are available nearby in Hamilton Hill.

Except to the extent that social rental housing is provided, social housing tenants will be excluded from the development. The involvement of social housing providers in the project will therefore be important if this group is to be included.

Recommendations

JSA use the proportion of people currently experiencing housing stress in the Perth market as the basis for a recommendation that a minimum 15% affordable rental and purchase accommodation in all new release and redevelopment areas is warranted, and 20% as a stretch target.

Principally, three approaches are contemplated:

1. Raising of Funds via Development Scheme Contributions for Community Infrastructure
2. Market based mechanisms where developers are required to provide a proportion of dwellings as a prescribed type or tenure in the anticipation that, within that market, such low-cost dwellings would also be affordable. The proposal contemplates developers delivering up increased levels of profit due to rezoning or density bonuses or where profits are lower, compensation being paid to developers where mandatory mechanisms result in a loss of profits.
3. A mixture of 1 and 2 above through incentivisation of planning schemes enabling density bonuses supplemented by compensation, grants, tax abatements, partnering and joint ventures with both state and local governments and not-for-profit organisations.

To inform the development of this strategy, Colliers International prepared a synthesis of the ideas and measures in the JSA work and prepared a commentary on the principles concluded therein as they apply to medium and high density property development in the current market. Their report is included in Appendix A.

As will be discussed in section 8.2, some of the assumptions made by JSA, and hence the validity of some of the recommended mechanisms, are called into question when the reality of the Western Australian development industry is considered.

Notwithstanding these reservations, the work is a good overview of the issues and challenges of providing affordable housing.



01_

01_ Opening Doors report

3.0 Literature Review

3.5 Affordable Housing Strategy 2010-2020: Opening Doors to Affordable Housing

The State Government's affordable housing strategy (Opening Doors) was released in December 2010 via the Department of Housing. This is a landmark strategy that marks a repositioning of Government effort compared with past practice to:

- _Work with markets and market mechanisms to help address the social and affordable housing needs of lower income households

- _Share provision with the not-for-profit community sector

- _Re-establish social housing as a *pathway rather than a destination* (emphasis added) by providing housing assistance to capable tenants for the duration of their need

- _Create more support and options to help both tenants and applicants to move into mainstream housing

The stated goal is to increase the range of housing opportunities for those on low to moderate incomes, summarised as 'AAA':

- _Available as and when needed

- _Affordable for low to moderate income households

- _Appropriate to the needs of individual circumstances

The strategy has an objective to achieve at least 20,000 additional affordable homes across the State by 2020.

Importantly, the strategy is a 'whole of government' one that seeks to engage more actively with the private and not-for-profit sectors to achieve greater access to appropriate housing for more people. It recognises that there is no single cause of and no single solution to 'the affordable housing crisis'.

Open Doors canvasses a range of strategies that combined would result in a significant shift in the way affordable housing is provided in WA.

In the context of providing a strategy for Cockburn Coast that can be applied through the planning process, the recommendations of Opening Doors relating to improving the supply of affordable dwellings outside the social housing system are particularly relevant. The first of these recommendations is the implementation of key planning system reforms. Significantly, the strategy notes that "*formal inclusionary zoning will not be supported*". In other words, the strategy does not support the imposition of mandatory affordable housing provision on developers, instead preferring voluntary incentives.

The second set of strategies aimed at increasing affordable housing supply relate to leveraging the private sector, recognising that traditional solutions and an over-reliance on limited government funding will not be enough to deliver the diversity or the volume of affordable housing required.

Thirdly, the State Government will leverage its own development activities to improve the supply and diversity of housing options. Government land and housing development agencies will dedicate a minimum of 15% of project yields to affordable price points. LandCorp's involvement in Cockburn Coast is a specific example of this. The Department of Housing will also pursue partnership opportunities with the private sector and local governments.

Finally, the strategy seeks to develop alternative tenures, such as 'land rent', community land trusts, leasehold strata, and perpetual shared equity schemes.



4.0 Potential Mechanisms

Research did not find a single example of affordable housing delivery that did not rely on a Public Private Partnership.

4.1 Overview

The issue of affordable housing is topical throughout the developed world, and jurisdictions everywhere are seeking ways to encourage its provision. Some mechanisms that have been adopted relate to the land use/planning regulatory system, and others have a broader basis. However it is by no means the case that mechanisms that have been adopted elsewhere are automatically transferrable into the Western Australian context.

Mechanisms can be broadly categorised as market based or off-market (JSA 2010). Market based mechanisms require a developer to provide dwellings of a prescribed type or tenure without requiring any further subsidy and on a cost-neutral basis for the developer. Off-market mechanisms include various types of inclusionary zoning, in which the developer is required to provide a proportion of the profit arising from the planning approvals process for affordable housing, with or without some form of off-set or compensation.

Research undertaken by Colliers (2012) failed to find a single example of private sector delivery of 'affordable' dwellings without some form of community or statutory support in the funding and delivery model. As prime coastal land it is unlikely that Cockburn Coast will be an exception.

This section provides a broad overview of the most widely applied mechanisms for encouraging affordable housing provision, and notes whether, on face value at least, they have possible application in Cockburn Coast, and under what circumstances.

4.2 Public Private Partnerships

The State Government's Affordable Housing Strategy identifies the private sector as having a key role in increasing the supply of affordable housing product. One way of doing this is through Public Private Partnerships (PPPs), which involve a contract between a public sector authority and a private party, in which the private party provides a project and assumes substantial financial, technical and operational risk in the project.

PPPs are increasingly being used to construct public facilities and infrastructure because they reduce the risk to Government and provide economic opportunities to the private sector. The private sector partner provides services such as design, construction and maintenance.

The effectiveness of PPPs for the provision of new affordable housing has not been extensively tested in Australia, although it has been used in the redevelopment or refurbishment of areas formerly dominated by public housing (eg: the Department of Housing 'New Living, programme).

It is noted that research undertaken by Austin 2008 (refer to Colliers 2012) did not find a single example of affordable housing delivery that did **not** rely on a PPP.

Key points to note:

- _ The effectiveness of PPPs for providing affordable housing in Western Australia has not been extensively tested
- _ Some form of PPP is likely to be required for any private sector involvement in affordable housing provision in Cockburn Coast

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4.3 Shared equity schemes

Shared equity schemes allow consumers to obtain part equity in a home by sharing the overall cost with an equity partner - either a financial institution or a government backed provider (eg: Department of Housing through First Start).

The involvement of an equity partner helps to reduce the overall costs involved in a mortgage, and thus improves housing affordability. Two different models are:

_Individual equity model. This allows a household to enter into arrangements with an equity partner so as to reduce mortgage repayments and the size of the required deposit. At the time of resale, the partner recoups their equity loan plus a proportion of the capital gain. In some variants of this model household may have the opportunity to eventually gain full ownership by progressively buying out the equity partner.

_Community equity or subsidy retention model, which preserves ongoing affordability by limiting the resale value of properties through the use of a predetermined formula. This may require registration of a restrictive covenant on the property (refer to 4.4).

The Department of Housing operates shared equity schemes (First Start), where the government combines with a private lender and first-time home buyers to co-fund the home. This scheme has been very successful and has been used for both conventional detached housing and apartment housing.

The Department of Housing has indicated that it is likely to seek opportunities to be involved in Cockburn Coast, including possibly

10% (to be confirmed) shared equity schemes.

Key points to note:

_If there is no restriction applied, the first shared equity buyer has the capacity to eventually own 100% of the equity in the property and thereafter be able to sell it on the open market for market prices. This would effectively result in removing the property from the affordable 'pool' and potentially result in an increased profit margin.

_Shared equity schemes have so far been very popular when offered in Western Australia.

4.4 Planning System Controls

Planning controls are planning scheme provisions and policies that can be applied to proposed developments to require or encourage the provision of certain types of development.

Planning controls can only apply within the allowable jurisdiction of the planning authority, as defined by the Planning and Development Act (applicable in the case of Cockburn Coast). The responsible planning authority for Cockburn Coast is the City of Cockburn, along with the WAPC for certain classes of development and subdivision.

State Planning Policy 1 was prepared under the Planning and Development Act and through the *State Planning Framework (Variation 2)*, setting out the key principles to guide the way in which planning decisions are made. In effect it defines the scope of planning in Western Australia, identifying the various aims of planning, in pursuit of which planning controls can be formulated. The provision of affordable housing is not explicitly identified as one of the aims of planning, although it might be implied by extrapolating some of the other aims.

The absence of specific reference to the provision of affordable housing in SPP 1 has resulted in some ambiguity around the extent to which planning schemes and policies can incorporate controls relating to affordable housing. This has potentially guided the WAPC and State Affordable Housing Strategy away from the use of mandatory requirements for affordable housing. The matter of ambiguity is highlighted by Judith Stubbs and Associates (see 3.4) as being a likely impediment to the introduction of mandatory requirements for the provision of affordable housing into planning schemes in Western Australia.

Examples of planning controls that could be applied to affordable housing include:

- _Inclusionary zoning
- _Development standards
- _Dwelling density
- _Dwelling mix
- _Plot ratio
- _Design guidelines
- _Developer contributions

These are discussed in the following paragraphs.

Key points to note:

_Overly onerous planning requirements can have the effect of limiting development by making it unviable or otherwise unattractive for a developer to proceed. Therefore, care must be exercised in formulating inflexible mandatory requirements in particular.

4.4.1 Inclusionary Zoning

Inclusionary zoning requires a certain percentage of dwellings in a development to be set aside as affordable product on either a compulsory or voluntary basis. For

4.0 Potential Mechanisms

voluntary provision, bonus density or floor area is offered as an incentive.

Affordable housing generated in this way may be required through a condition of approval to be permanently affordable, which can be achieved through a deed restriction such as a restrictive covenant (see 4.4).

As an alternative to the provision of on-site affordable units, the opportunity may be provided for a developer to build affordable units elsewhere in the community, or contribute to a fund used to build affordable housing (cash-in-lieu or developer contributions). Such alternatives would require a governance structure to guide administration.

An example of inclusionary policy is the Metropolitan Redevelopment Authority's (MRA's) Affordable and Diverse Housing Policy for the East Perth Redevelopment Area, which requires any development incorporating 10 or more dwellings to provide a minimum of 12% of dwellings as affordable housing for disposal as either social housing or affordable owner occupier housing. A 1:1 offset of floor space can be granted for every square metre of affordable floorspace provided within the development.

The affordable product is required to be sold to a nominated housing provider at cost upon completion of the development.

The MRA also administers a fund into which cash-in-lieu of the provision of affordable dwellings can be paid, for use by the Authority or a nominated housing provider for the purchase, provision or development of affordable housing elsewhere within the Redevelopment Area.

However it should be noted that the MRA operates under its own legislation, not the Planning and Development Act. Therefore it is not limited by perceived ambiguities or absence of reference to affordable housing in the Act and supporting policies such as SPP 1.

Key points to note:

- _ There is ambiguity about the ability to have mandatory inclusionary zoning provisions in planning schemes made under the Planning and Development Act, as it currently stands
- _ If mandatory, may affect development feasibility
- _ Developments under the nominated size threshold would not provide affordable units
- _ Incentives are typically only attractive to developers in 'up' market cycles
- _ Cash-in-lieu requires an equitable formula for calculating the amount owing
- _ Cash-in-lieu requires a special fund to be administered by the planning authority, and a governance structure around how and where the funds can be expended
- _ Cash-in-lieu schemes (traditionally most often used for car parking) require a strategy for how and where funds will be applied, in order to justify the requirement (ie: there is a nexus between the development and the demand created)
- _ Can only be applied within the area to which the planning instrument applies (ie: there would be limitations to where the funds could be expended)
- _ Ability to expend cash-in-lieu funds outside the Scheme Area would require some form of legislative amendment and accompanying governance structure

4.4.2 Development Standards

Development elements commonly dictated by the *Residential Design Codes* (State Planning Policy 3.1), planning schemes and/or design guidelines include building height, the amount of landscaping required, the amount of parking, site coverage, unit size, boundary setbacks, etc. Such standards are aimed to ensuring a minimum quality of development for the benefit of the whole community, however they can add to the cost of development and may adversely impact on the affordability of housing (and other land uses).

Concessions on development standards might be offered for affordable housing. The most common concession granted is the number parking bays required, on the assumed basis that affordable housing occupants have lower rates of car ownership, and/or that the development is located with excellent access to high frequency public transport. These assumptions should be scrutinised for accuracy rather than taken as truth, otherwise the concession may negatively impact on the surrounding area.

If a concession is given and the reason for the concession (affordable housing product) is not guaranteed, in future the development may revert to another use for which the concession no longer applies.

Key points to note:

- _ Development concessions can reduce the construction and/or maintenance cost of a development, making it more affordable
- _ If a development standard concession is granted for affordable housing product, consideration should be given to

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ways of ensuring the product is actually provided

- _ Consideration should be given to the impact of granting a concession on development standards if the development later reverts from affordable housing
- _ Care must be exercised to ensure that reduced standards do not result in sub-standard housing; just because it is 'affordable' does not mean its occupants should be subjected to poor quality accommodation (eg: balconies that are too small to use, inadequate storage)

4.4.3 Dwelling Density

Related to the concept of inclusionary zoning (see 4.4.1), density bonuses may be used as an incentive to provide affordable housing and enable increased return to developers.

The Residential Design Codes already allow for a 50 percent density bonus for the provision of housing for people over 55, single bedroom apartments of minimum 60sqm gross area, and dependent persons' housing - all of which are likely to be represented in a mix of affordable housing product. The codes also require a diversity of dwelling types (eg: number of bedrooms) and sizes within a multiple unit development in areas coded R30 and above, or in mixed-use development or activity centres.

The extent of density bonus and/or the type of housing that can earn a density bonus could be extended beyond that which is currently available in the R-Codes. Acceptable design solutions to achieve additional density for affordable housing should be identified.

Key points to note:

- _ Dwelling density per se is not the prime determinant of dwelling yield in areas coded R30 and above - like

Cockburn Coast. Plot ratio and dwelling size will dictate yield in such areas.

- _ Density bonuses will only be effective if the market conditions make it worthwhile (profitable)
- _ Cockburn Coast proposed densities are already much higher than those prevailing in surrounding suburbs, so density bonuses may not provide much incentive in early stages of the development
- _ Early yield estimates for Cockburn Coast used the now superseded R-Codes site-area-per-dwelling method rather than the plot ratio method that now applies for multi-unit housing in areas coded R30 and above.

4.4.4 Plot Ratio

Plot ratio or floor space bonuses are frequently used as an incentive to encourage provision of desired uses or facilities with a public benefit. This can be effective as an incentive for the provision of affordable housing in circumstances where other uses are a more attractive (profitable) than affordable housing product. In these cases, an additional amount of floor space is offered in exchange for provision of affordable dwelling units.

There are two ways in which this mechanism can be applied to encourage affordable housing. One is as a percentage bonus over and above the maximum usual permitted plot ratio on a site, for the provision of affordable housing.

It would be important to have a policy that guides the circumstance under which bonus plot ratio will be granted. Acceptable design solutions to achieve additional plot ratio for affordable housing should be identified.

The second way in which plot ratio can be used as an incentive for

affordable housing provision is to allocate a base plot ratio and an upper level that can be achieved if a minimum amount of the additional plot ratio is used to provide affordable housing. For example, a base plot ratio of 2.0:1 for 'standard' development and up to 3.0:1 if a minimum of 0.5:1 of the total development is for affordable dwellings. This could be an 'as of right' provision embodied in the planning scheme.

The actual amount of bonus offered should be determined after examination of both market (to determine what would be attractive) and the likely built form outcomes (to ensure that application of bonuses will not result in unintended negative impacts).

The Cockburn Coast District Structure Plan (Part 2) is characterised by medium to high density residential development featuring relatively high plot ratio bonuses. This form of development would generally preclude the desire for a plot ratio bonus (refer to 5.2 for a discussion on the drivers for private development). However, given the flexible building height requirements and tendency towards medium density development there is potential for the encouragement of affordable housing using a plot ratio bonus.

There is potential to allow for the transfer of plot ratio bonuses to allow for flexibility in their application. It should be noted however, that this would only be considered appropriate where the provision of affordable product as a result of the bonus is provided within the Cockburn Coast project area.

The City of Perth have similarly implemented a transfer of plot ratio mechanism. This is done via a clause in their Town Planning Scheme and

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then further dealt with by way of a policy adopted under the scheme provisions. The City of Cockburn would need to implement a similar policy to establish criteria for both the donor site and the site being awarded the Plot ratio by transfer. Additionally, a register of the transferred plot ratio need to be generally maintained.

The potential for plot ratio bonuses to act as an incentive for affordable housing delivery in Cockburn Coast was tested in feasibility analysis undertaken for this strategy (refer to 8.2 and Appendix A).

Key points to note:

- _Plot ratio bonuses may not prove attractive for developers considering high density sites. The Cockburn Coast District Structure Plan (Part 2) features both high to medium density development with a tendency for medium density.
- _City of Cockburn needs to be comfortable that bonuses offered can be satisfactorily accommodated in acceptable built form
- _Bonuses offered have to be sufficient to make the additional cost of providing the extra floor space commercially viable for the developer.

4.4.5 Design Guidelines

Design guidelines are a requirement of the City of Cockburn planning scheme, in association with local structure plans. For Cockburn Coast, the design guidelines will essentially replace development standards set out elsewhere in the planning scheme.

As well as addressing the usual built form and public realm interface elements of development, the City requires the design guidelines for Cockburn Coast to address affordable housing and diversity.

Design guidelines can be very detailed and include requirements for the design and layout of dwellings, including finishes and materials.

Whilst design guidelines can ensure a minimum standard of design they are sometimes criticised for stifling innovative design, techniques, technologies and materials, or alternative solutions. Design guidelines may also (inadvertently) preclude forms of development and thereby restrict diversity in the community. They can add to the cost of development, affecting affordability.

Alternatively, design guidelines can be used to ensure that a diversity of dwellings and facilities is provided.

It is important that design guidelines contain only elements that contribute towards the desired outcome, leaving room for choice and flexibility in other elements. Performance-based approaches are more likely to promote affordable housing than overly prescriptive requirements.

In terms of affordable housing, the design guidelines could specify development standards such as the amount of car parking required, the size of private open space, and other relevant design considerations. In terms of housing diversity, they could specify the proportion of particular dwelling types required in a certain class of development.

Because they are required to be adopted by the City prior to or in conjunction with the relevant local structure plan (ie: prior to definition of final lot layout), the design guidelines can not be targeted at specific sites, which is the role of detailed area plans.

Detailed Area Plans

Detailed area plans as required by the City of Cockburn for Cockburn Coast, are essentially a further refinement of the design guidelines applied to a specific site or sites, once defined by subdivision.

Key points to note:

- _If overly prescriptive, design guidelines can stifle the potential for innovative design solutions (eg: materials, construction techniques, responses to energy and water conservation) and add to development costs

4.4.6 Developer Contributions

Developers can be required to contribute towards the cost of infrastructure and community facilities if a clear need and nexus can be established between the proposed development and the infrastructure or community facilities.

State Planning Policy 3.6 *Development Contributions for Infrastructure* (SPP 3.6) sets out the manner in which developer contributions can be requested, and seeks to provide consistency and transparency in the manner and purposes for which contributions are sought and calculated. Development contributions will be calculated and applied as:

- _standard conditions of subdivision
- _conditions of development
- _legal/voluntary agreements

As defined by SPP 3.6, standard development contribution requirements are:

- _land for public open space, foreshore reserves, primary schools and roads
- _Infrastructure works for public utilities (water, sewerage, drainage, etc) and roads

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_monetary contributions for standard headworks charges, off-site major infrastructure works, and in-lieu of other contributions

A development contribution scheme is being developed for Cockburn Coast.

Developer contributions can also be requested for the capital cost of community infrastructure if it can be demonstrated that the development generates a need for that infrastructure.

It is necessary to prepare a community infrastructure plan for the area and supporting documentation, before developer contributions for community infrastructure can be requested.

JSA suggests that affordable housing could be interpreted as 'community infrastructure' and hence that developer contributions could be requested for the provision of affordable housing.

Contributions would be paid into a dedicated fund that could be used to directly build affordable housing, or provide funds for its purchase or construction by an affordable housing provider.

Key points to note:

_A case would have to be made to the Western Australian Planning Commission under SPP 3.6 to support affordable housing being included in the definition of community infrastructure, because it is by no means explicit in the current definition. The Department of Planning is unlikely to support this initiative.

_The development industry is likely to resist inclusion of affordable housing as another form of developer contribution, and already argues that contribution requirements are adding to the cost of delivering land and consequently

adding to the cost of housing (see Colliers 2012).

4.5 Other Mechanisms and Incentives

4.5.1 Subsidies

Some form of subsidy will typically be required to ensure the provision of affordable housing product.

A typical subsidy will target one or more of the factors influencing the cost of providing housing, for example:

- _ Land costs
- _ Construction costs
- _ Fees - include planning, engineering and design costs
- _ Service connection costs
- _ Infrastructure charges including water and sewerage headworks and developer contributions
- _ Cost of approvals and compliance fees
- _ Local Government rates
- _ State Government taxes and charges such as stamp duty, Land Tax, water rates
- _ Federal Government taxes and charges - includes Goods and Services Tax
- _ Marketing costs
- _ Management costs (rental)
- _ Cost of finance, including holding costs
- _ Profit expectations of the owner/seller
- _ Market conditions

Subsidies may include:

- _ Taxation relief, rent assistance and home purchase assistance
- _ Direct discount on the price charged for housing
- _ Discounted land price and/or construction costs for the developer, enabling a lower selling price without affecting development viability

_Grants for provision of affordable housing

_Grants for ongoing operation of affordable housing

_Concessions and development incentives

4.5.2 Discounts

Discounts on various planning authority imposed costs for new developments could be offered as an additional incentive to developers who comply with the affordable housing provisions. This could include development assessment fees and developer contributions. The City of Brisbane, for example, offers such financial incentives when 100% affordable housing is provided in a development. For proposals including a proportion of affordable and market housing, financial incentives are calculated on a pro-rata basis. Funding is not provided unless a covenant and management plan or other acceptable arrangement, has been established, and developments will be subject to a requirement that the affordable housing component remain affordable for the long term use (minimum 10 years).

4.5.3 Fast Tracked Approvals

Time taken to obtain planning and other development approvals can add a significant cost to developments (holding costs), and are often unpredictable, notwithstanding statutory time limits that may apply. Guaranteed speedy approvals for affordable housing developments could therefore be an incentive.

Notwithstanding that all applications should be processed in the most efficient manner possible, developments incorporating a minimum affordable housing component could be exempt from certain referral or assessment processes and/or have 'as of right' status that makes approval quicker.

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4.5.4 Restrictive Covenants

Not an incentive for provision but a way of protecting affordability in perpetuity or for a specified minimum period is for a restrictive covenant to be registered on a property, setting the conditions for resale.

A restrictive covenant may last indefinitely or for a specified period of time. A covenant could require the owner-occupant to resell the property to someone from a specified pool of income eligible buyers for a specified, formula-determined price. The covenant could also contain an option that gives a not-for-profit developer, public agency, or some other party, the first right to repurchase the homeowner's property at the formula-determined price.

This could be particularly relevant in a shared equity scheme.

Restrictive covenants may be established by a developer or required as a condition of planning approval for subdivision or development. They should not however be contrary to the provisions of the local planning scheme or other statute.

The WAPC advises that restrictive covenants should be used sparingly, and only in situations where a more transparent mechanism, such as planning scheme provision, is not available.

Key points to note:

- _ Some form of governance would be needed to monitor compliance with a restrictive covenant, and to identify potential purchasers.
- _ The City of Cockburn is unlikely to be able to resource the policing and implementation of restrictive covenants.

4.5.5 Non-Planning Building Controls and Requirements

A review of building related controls and standards administered by State and local government could identify requirements that deter building owners and developers from providing affordable housing. For example, health and building requirements for such housing forms as lodging houses may be very prescriptive and costly to implement. Risk based or performance criteria would allow flexibility, particularly for the conversion of existing buildings.

4.5.6 Facilitation and Demonstration

Facilitation would involve bringing together parties with different resources (skills, land, capital, clients, etc) with the aim of delivering projects. LandCorp and/or the City of Cockburn could fill the facilitation role.

Demonstration would involve the public sector (LandCorp, the City of Cockburn, and/or the Department of Housing) carrying out a new form of development - for example using

innovative construction materials or techniques to deliver cheaper and more affordable housing product. By being 'first' to 'risk' something unfamiliar to the development or construction industries or the consumer market, demonstration projects show what is possible and help stimulate different approaches in the market.

For example, when the East Perth Redevelopment first created small housing lots, no housing firms had small house products. The Redevelopment Authority commissioned the design and construction of houses, showing what was possible on small lots and helping both builders and consumers to envisage a type of housing product that did not previously exist in Perth. Now most home builders offer small lot product within their standard ranges.



Three to five storey housing development_Photo taken by HASSELL

4.0 Potential Mechanisms

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4.6 Summary

Table 5 represents a summary of the mechanisms available to promote affordable housing that have the most potential for application to Cockburn Coast.

Mechanism	Applicability to Cockburn Coast	Comment
PPP	Yes	Government Agencies such as Landcorp and the Department of Housing could determine that parts of the development be subject to a PPP, with provision of affordable housing product a required outcome. Some form of PPP has been a factor in all examples of affordable housing provision by the private sector identified in preparing this strategy.
Shared Equity	Yes	Department of Housing could identify product in Cockburn Coast for which shared equity loans would be available.
Inclusionary zoning	No	There is legal ambiguity for local government if mandatory requirements to provide an affordable housing component in developments are applied. A clear statement at State Planning Policy level that such requirements can be imposed is highly desirable. Policies that have been adopted by Redevelopment Authorities have been adopted outside the Planning and Development Act.
Development standards	Yes	For Cockburn Coast, development standards will be contained within Design Guidelines, so any concessions for affordable housing will be outlined in those documents.
Dwelling density	No	Dwelling density is not an applicable control on land coded R30 and above - which applies to all of the Cockburn Coast project area.
Plot Ratio	Yes	Plot ratio bonuses can be offered for the provision of affordable housing. Bonuses will provide a greater or lesser incentive to developers to provide affordable product depending on the state of the market at the time the development is proposed. In the current market,
Design Guidelines	Yes	Development concessions should be granted on appropriate elements of affordable housing product if it is guaranteed to remain 'affordable' in perpetuity or an agreed period. Design guidelines can also nominate specific requirements for affordable product, such as size or number of bedrooms.
Developer Contributions	No	There is no established governance framework for the administration of a developer contribution scheme or cash-in-lieu payments for affordable housing.

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Mechanism	Applicability to Cockburn Coast	Comment
Subsidies	Yes	Research has shown that some form of subsidy is involved in all successful affordable housing projects. It may be discounted land, purchase of affordable units by a housing provider, or some other direct or indirect subsidy or combination thereof.
Restrictive Covenants	Yes	In appropriate situations, a restrictive covenant or similar mechanism can be required as a condition of development approval to ensure affordable housing product remains 'affordable' for a specified period or in perpetuity. The period of time applied would need to be assessed in light of prevailing circumstances at the time of the development.
Discounts	Yes	The City of Cockburn could offer discounts on application fees and rates for bona fide affordable housing development.
Fast Tracked Approvals	Yes	The City of Cockburn could establish a procedure to guarantee fast tracking of affordable housing projects, to ensure that holding costs to the developer are minimised.
Facilitation and Demonstration	Yes	LandCorp and the Department of Housing have already expressed a willingness to participate in facilitation and demonstration affordable housing projects. The City of Cockburn has expressed a willingness to facilitate affordable housing development through the means available to it.

Table 5: Summary of Potential Mechanisms

5.0 Drivers of Housing Development

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5.1 Public Sector

State and local government departments and agencies have differing motivations for being involved in affordable housing development.

At a high level, a healthy housing development sector is good for the economy.

Ensuring that the population is adequately housed is an important Government objective.

5.1.1 Department of Planning

The Department of Planning supports the Western Australian Planning Commission. It initiated the planning process that led to the Cockburn Coast District Structure Plan and the identification of a target of 20% affordable housing for Cockburn Coast. The urban renewal of Cockburn Coast is an important component of metropolitan urban development to achieve the objectives of *Directions 2031 and Beyond*.

The Department therefore has an interest in ensuring that the objectives of the CCDP, including targets, are achieved.

The State Planning Strategy, currently being drafted, is expected to include direction on affordable housing. The State Planning Strategy will have flow-on consequences for the content of planning statutes and policies.

It is anticipated that if the statutory framework changes to become supportive, mandatory requirements can be introduced. Should the Department of Planning choose to introduce mandatory requirements for affordable housing this would need to be instituted as an industry wide requirement, rather than on a case by case basis as this could distort the property market and create disincentives for development. Until such time that a planning policy is introduced, the Department of Planning does not support mandatory requirements for affordable housing.

5.1.2 City of Cockburn

The City of Cockburn is seeking to fulfil its responsibilities as the primary planning authority and the local government responsible for Cockburn Coast by introducing objectives and provisions into its town planning scheme that relate to population and housing diversity and affordable housing in the project area.

As the level of government closest to the local community, the City is aware of groups who could be in the market for affordable housing in the Cockburn Coast area, such as housing co-operatives, at-risk students and the homeless.

The City is interested in the mix of income ranges for affordable housing (very low income, low income, moderate income) and how housing appropriate to the needs and limitations of this mix can be delivered.

The City is concerned that affordable housing remain available in perpetuity, being aware of the risk that the first purchasers of affordable housing (whether shared equity or discounted sale price) could essentially receive a 'free kick' or windfall profit by later selling their dwelling at market price.

The City has expressed a preference for mandatory rather than incentive-based mechanisms for the provision of affordable housing, citing concerns that incentives are hard to pitch at the right level to motivate developers to take advantage of them.



Subi Centro, WA_Photo taken by HASSELL

5.0 Drivers of Housing Development

In consultation for this strategy, the City expressed doubt about whether the target densities envisaged in the District Structure Plan can be achieved for housing generally, and hence that offering bonus plot ratio and height could be an effective incentive. However it should be noted that TPS 3 includes a requirement that a minimum of 85% of nominated density be achieved.

Although preferring a mandatory approach, the City acknowledges that methods such as a developer contribution scheme requiring contribution to the purchase of land by the City for affordable housing would be difficult without supportive State level legislation and policy.

The City sees potential in a policy similar to the Affordable and Diverse Housing Policy that applies in the East Perth and Subiaco Redevelopment Areas, noting however this policy applies only to larger developments (10 dwellings and above), meaning that smaller developments would not contribute to the delivery of affordable housing. As noted in 4.4.1, however, these policies were introduced under different legislation from that which applies to Cockburn Coast. Additionally, these policies have experienced limited success due to their interventionist nature and developer aversion to this approach.

Finally, the City considers it has a role as a facilitator for affordable housing development.

5.1.3 Department of Housing

As the Government's deliverer of social and affordable housing Department of Housing (DOH) is able to bring together a range of housing options and programs that cumulatively facilitate a diversity of housing products. DOH is able to deliver social housing programs to low to moderate income earners,

specific target groups such as people with disabilities etc, new affordable housing rental initiatives, shared equity home ownership products, low deposit full home ownership and normal market sales.

The Department's current focus is on supply.

DOH is increasingly endeavouring to work cooperatively with the private sector to deliver affordable housing outcomes rather than simply apply the traditional 100% government capital investment ownership model. This is seeing the Department apply a number of different development/acquisition/investment models. These include:

_Joint Venture (JV) developments where DOH may contribute land or cash in partnership with the private sector. Ideally DOH makes a site available to the private sector partner to undertake the development as JV partner. This helps the private sector by removing the requirement for land and holding costs and also provides equity into the transaction and an asset that can be mortgaged. Projects of this nature are underway in Pier Street East Perth and Campbell Street West Perth.

_Equity Contribution – DOH may become an equity partner in a particular built form development. This enables DOH to deliver affordable housing outcomes by influencing the shape and form of the development and taking its return in dwellings, cash or a combination of both. This helps unblock the private sector challenges around project finance and derisks the development.

_Presales – DOH may be able to facilitate development by pre-purchasing units in specific developments thereby enabling developers to meet presales

commitment and enabling capital funding to be obtained.

_Underwriting sales – through home ownership schemes such as SharedStart DOH may be able to provide developers with a commitment to deliver end user sales to particular target groups; this can facilitate presales and capital funding.

_Procurement – DOH's Expression of Interest process provides an opportunity for developers to put development proposals to the Department and for DOH to purchase in full all units in the development, purchase some units, or any other arrangement that would help the development proceed while enabling the Department to deliver affordable housing outcomes.

_Integrated Housing Developments – DOH has developed and continues to develop fully integrated housing developments that bring a range of housing tenures and client groups together to deliver financially viable and socially sustainable housing developments. Ideally, these would see social, affordable and full market rental, shared equity and full market ownership and possibly commercial units in the same complex. This brings together a range of different funding sources and funding/investment opportunities together to help projects stand up financially.

_Linkage with other affordable housing investors and providers – DOH is also able to facilitate linkages with other affordable housing providers such as Community Housing Organisations who undertake social and affordable housing developments in partnership with or independent of Government. Similarly, DOH involvement in facilitating and supporting other Government affordable housing initiatives such as the joint state/commonwealth

5.0 Drivers of Housing Development

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initiative National Rental Affordability Scheme (NRAS) can provide further linkages with investment opportunities for affordable housing. (NRAS provides cash and tax benefits for investors who are prepared to rent their new investment properties at less than 80% of market rent).

The traditional model of DOH acquiring, funding and developing a site itself also remains an option that can be pursued in the right circumstances.

When all of these activities are layered across the new delivery models DOHs brings a breadth of opportunity and market outcomes that make the delivery of affordable housing outcomes in all market settings a realistic option.

Public housing provision is more expensive than assisting someone to buy a house (KeyStart) which can actually be income positive. Consider KeyStart to be filling a gap while banks aren't lending but will retract when banks start lending again.

DOH hope to influence affordability through the use of different materials and construction techniques and will be open to opportunities to participate in developments that exhibit innovation in these ways.

DOH is aware of a current need to keep up activity in the housing construction industry to keep workers employed, or risk losing them to the resources industry.

DoH is willing to be involved in governance arrangements and may even take a leadership role if required.

The Department also recognises a need to educate the market as to difference between affordable

housing and social housing, as there remain some negative perceptions about affordable housing and the people who occupy it, which are influenced by negative perceptions of social housing tenants.

5.2 Private Developers

It will be self evident that private developers need to be reasonably confident of achieving an adequate profit margin before they are likely to proceed with any development. This is especially so since the GFC has tightened developer margins, generally as a requirement for 'pre-sales' in order to secure financing for construction.

Analysis of a wide range of medium density property development sites (Colliers 2012, see Appendix A) shows that target profit margins after finance provisioning, typically range from 15% – 30% with a central tendency of 17.5% to 25%. The margins are dependent on location, product, capital at risk and market conditions and can be highly volatile given the lengthy duration of planning, sales and delivery.

This strongly suggests that the JSA assumption that 10% profit would be considered sufficient for a developer to proceed with a development, and that any profit about 10% could be considered to be 'super profit' from which affordable housing could be provided is not valid in the current Perth market.

Developer decisions vary from location to location and are often a function of market depth and demand for the particular product type. In recent times in metropolitan Perth, the majority of medium to high density development activity has centred on the Perth CBD and fringe. Suburban apartment market activity fundamentally remains in the low to mid rise format due to the limited

price variance between competing dwelling types and existing market preferences.

The critical observation made in the reviewing of JSA 2011 report is the presumption that higher density equates to higher profitability and accordingly higher residual value to land. This paradigm generally no longer applies to medium to high density residential/mixed use development market in Metropolitan Perth.

The principal driver for this paradigm shift is construction cost, which for this class of development sits almost a third higher in WA than in east coast markets. In addition, more recently capital rationing of debt markets has further affected viability in this market sector.

As a result, in recent times the development market has focussed on lower yield, lower capital, medium density development, typically from two to five levels in height.

Developer Survey

A survey of residential developers was conducted by Colliers to establish an industry perspective regarding housing affordability, and views on the measures to enable private sector delivery of affordable dwellings advocated by JSA 2011.

Sixteen developers active in the medium to high density residential development market in Western Australia were invited to participate in a survey by questionnaire; eight agreed. A copy of the questionnaire and a summary of the responses to each question can be found in Colliers 2012, in Appendix A.

The intent of the questionnaire was to gauge the attitude of developers towards the proposed Cockburn Coast development, and to test the

5.0 Drivers of Housing Development

attitudes of private sector developers on:

- _private sector delivery of affordable dwellings
- _the observations and conclusions of JSA 2011 report with respect to:
 - _private sector financial capacity to absorb the mandating of affordable dwellings in medium to high density development
 - _observations as to super profits
 - _private sector financial capacity for to provide affordable dwellings in a medium to high density format through incentives on height and dwelling yield

Broadly the developer interviews established:

- _Support for the housing typology and densities proposed for Cockburn Coast
- _Indicated the proportion of 'low' density dwellings (terraces/town houses and cottage lot residential) as too low
- _Considered early infrastructure delivery to engage the market in the location and product typology to be critical and cited as important:
 - _Transport
 - _Retail and convenience amenity
 - _Community/civic services
 - _Schools
 - _Recreational amenity
 - _Employment
- _Acknowledged the need for the delivery of affordable dwellings but several questioned the appropriateness of product typology and location
- _All accepted but questioned the delivery of affordable dwellings at the price points of JSA 2010 in view of current price points for land, product typology, demand, current apartment price points and cost of construction

_All interviewed considered that the supply of affordable dwellings should be a role of governments but accepted the need for private sector engagement

_Delivery and/or funding of affordable dwellings through developer scheme contributions were often described as 'another tax' and clear resistance to this approach emerged. All acknowledged an acceptance of simplified developer scheme contributions linked to gross realisation and on completion market values (or similar) with deferred payment citing the need for clarity and minimising the impost on development feasibility and price setting for land

_All indicated the inclusion of affordable dwellings either via developer scheme contributions or mandating of delivery will affect the attitudes of developers to the precinct when making development site selection decisions, and confirmed a general view it will have a negative impact on the residual value of land

_All developers indicated a positive interest in partnering and joint venture opportunities with local and state government, and not-for-profit organisations in developing and delivering affordable dwellings

_The developers acknowledged and accepted incentive schemes providing height and density bonuses but in view of the already high (relative to broader market) densities established in the CCSP2, questioned the inference (JSA 2010) that sufficient additional profit could be realised to offset the cost of affordable dwelling supply

_A key concern raised by developers is the risk of stigma arising at market with the knowledge that affordable dwellings will be offered in a proposed development or precinct at such high proportions (20%); particularly if it was known

(and it would require disclosure) that Department of Housing had acquired the stock. A clear risk mitigation strategy would be required by way of public education and branding (the difference between social housing and affordable housing) together with site selection and application. This is premised on the CCDSP aspirational target of 20% affordable dwellings

_Finally, the issue of governance was raised. Developers want to know who will coordinate, administer and manage the affordable dwellings such that they are retained as 'affordable dwellings' in perpetuity?

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The Questions

The questions answered by developers who took part in the survey are summarised below:

1. What are your preliminary thoughts on the form of development contemplated for the Cockburn Coast?
2. What market based hurdles or opportunities can you envisage for the Cockburn Coast?
3. Are there specific infrastructure deliverables at state and local government level which may stimulate the contemplated form of development?
4. Are there initiatives at state and local government level which may be implemented to stimulate the contemplated form of development?
5. Have you any thoughts on initiatives that place a greater focus on increasing supply (such as NRAS) as opposed to subsidising demand?
6. What is your view of the contemplated accommodation mix in the context of the WA market?
7. In terms of the medium high density development contemplated for Cockburn Coast, what are your initial thoughts of enabling affordability measures such as those described in JSA 2010 (*these were summarised*)?
8. In the context of the contemplated built form, is a proposal to include affordable housing as 'special infrastructure' under State Planning Policy 3.6: Development Contributions for Infrastructure feasible? Are there alternative performance based measures that can be reasonably applied? Should such measures be incentivised? If yes, what forms of incentivisation will likely support built form supply as contemplated and meet the measures of affordability outlined above?
9. Do you see planning bonuses (examples cited) as a feasible mechanism in the context of:
 - a) the density and heights already contemplated for Cockburn Coast
 - b) a nil or low parking ratio for affordable housing supply
 - c) proposed 'affordable' (Stubbs 2011) pricing regime?
10. What are the principal constraints to delivering 'affordable' dwelling product in a medium/high density format and meeting the implied diversity and pricing requirements?
11. What product typologies are more likely to achieve the implied diversity and pricing requirements? Are there low cost options such as pods and lightweight demountable structures that can be applied in part or in whole?
12. In the context of Cockburn Coast, what locational and infrastructure needs will better promote or support the supply of diversity in dwelling modes and pricing need?
13. What incentivisation based variation to planning provisions are likely to best generate sufficient funds/super profits to offset delivery of affordable housing?
14. How in your view, would the market likely respond to the mandatory provision of affordable housing in Cockburn Coast and what are the likely implications to market input?
15. Assuming an equitable and feasible solution, should there be a 'blanket' cap or ratio approach to the volume and type of affordable housing on:
 - a) whole of Scheme area basis
 - b) a project by project basis
 - c) defined in designated precincts?
16. Initiatives already implemented in several redevelopment areas (SRA – EPRA) have met with some success (examples listed): What are your thoughts on applicability and feasibility of these schemes in Cockburn Coast? Are there alternative mechanisms that you could propose or are aware of that may prove feasible?
17. Is the provision of affordable dwellings a state responsibility? Is market intervention warranted through a mandatory planning regime or should it be focused on state/local government controlled land?
18. Would greater direction, clarity and simplicity be preferred, such as a blanket 'cash-in-lieu' mechanism applied on GFA and paid on completion of sales into a pooled fund to support delivery of affordable dwellings by the State? Could this be expanded to stimulate density and delivery by utilising mechanisms such as decreasing scales of 'cash-in-lieu' for greater diversity, set product modules and GFA?
19. Are there other alternatives worth considering such as profit sharing, that is, an agreed proportion of additional profits earned on the delivery of affordable density bonuses?
20. Do you consider there is joint venture or partnering opportunities between state and private developers that will facilitate the vision for Cockburn Coast as well as delivery of affordable dwellings? If so, can you provide some insight to JV or partnering structures and models that you would consider reasonable and functional?

6.0 Market Characteristics

Current residential market conditions will not necessarily carry forward, however they are the necessary starting point for considering the likely situation for housing in Cockburn Coast once development commences. They also aid feasibility assessments (refer to 8.2).

The residential market is of course impacted by global economic conditions, as well as national and local political and economic fluctuations.

Colliers research (see Appendix A for more detail) indicates that the deterioration of global economic conditions over 2008 and into 2009 had a dampening effect on Western Australia's residential property market. Despite an improvement in the residential market in early 2010, demand for residential real estate has continued to weaken on the back of declining consumer confidence.

Real Estate Institute of Western Australia (REIWA) statistics indicate the median house price increased by 0.4% during both the December 2011 and March 2012 quarters. The increase in the December 2011 median house price was the first since March 2010, potentially suggesting that the residential market may have bottomed out and is now showing early signs of improvement. Preliminary REIWA March 2012 quarter statistics signal a general softening from the previous year but stabilisation from the previous quarter.

Factors affecting the apartment market (refer to Appendix A) have directly impacted the viability of development sites and placed downward pressure on land values. The sustained withdrawal of credit availability for this sector and weak consumer demand has placed continued pressure on land values over the last 30 months.

The economic and market conditions of late 2007 and 2008 resulted in a retraction of development site activity and limited new development. As a result of the economic downturn, there was a general lack of prominent apartment/mixed-use development site sales over late 2008 and 2009, however this began to turn in 2010 with mid-tier developers returning to market taking advantage of discounted land pricing.

It is anticipated market (consumer) sentiment in this sector may improve into 2012, and with the limited production/initiation of new apartment stock since 2009, a scarcity of stock may emerge in 2013, enabling achievement of presale/pre-lease requirements to obtain development funding, suggesting a recovery in demand for sites and values may occur from 2013.

The withdrawal from the market by developers was a direct function of the uncertain times experienced over the period 2008 - 2010. Although demand for large built form development sites with high capital requirements remains relatively subdued and has resulted in a softening of those values, the general consensus is that enquiry has increased. Of the limited transactions that have occurred, values appear to have stabilised and typically reflect discounts in the vicinity of 20% to 50% off the top of the market.



7.0 Case Studies

The research failed to identify examples of where the private sector delivered 'affordable' dwellings without some form of community or statutory support in the funding and delivery model.

In addition to reviewing the work by Judith Stubbs and Associates, Colliers undertook further investigations to establish whether there are examples of private sector delivery of affordable dwellings in Australia and internationally.

The full text of the Colliers report can be found in Appendix A.

The research failed to identify examples of where the private sector delivered 'affordable' dwellings without some form of community or statutory support in the funding and delivery model.

7.1 International

In summarising her international research for Waitakere City Council, Patricia M Austin (2008) identified the following essential factors or key components for affordable housing partnerships to achieve desirable affordability outcomes:

- _ Access to land or property at reduced cost – including discount market price, leasehold, deferred payments and the effect of planning policy
- _ Access to finance such as grants, deferred loans or loans at below market interest rates
- _ The incorporation of debt finance based on a net income stream
- _ Management expertise, particularly the capacity to manage development risk and ongoing management risk
- _ Non-profit, charitable or community trust status of housing organisations, enabling profits to be foregone; accessing finance in more favourable terms; and maximising tax exempt status
- _ A broader range of household incomes for the household group being targeted including moderate income households

- _ Opportunities for cross subsidisation within and between development(s)
- _ Good quality design that is highly energy and water efficient to minimise residents' outgoings
- _ Local Government support through the planning process and through contributions for the partnership of resources and/or implicit subsidies
- _ The support of the local community
- _ Mechanisms that retain the housing as affordable into the future.

She also noted that all of the case study partnerships researched make use of one or more of three key components:

- _ Either land (or property) being available at below market rates, or deferred payments or leasehold
- _ Finance being available in the form of grants, loans at below market rates or deferred interest on loans
- _ Incorporation of debt finance based on net income stream.

Where only one of these three key components is used, the schemes rely upon some form of cross-subsidisation from market rate Development or provide affordable housing or shared ownership for moderate-income households.

In every case study considered by Austin 2008 the affordable housing delivery mechanism relied on a public private partnership, which in nearly all cases constituted either the local authority, not for profit organisations, state and federal governments.

There is not one example where the private sector has outwardly established a role in delivering affordable dwellings where all inputs to the model are kept at the market level. Each case study involved the

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contribution of land at discounted market rates.

7.2 Australia

7.2.1 Inkerman Oasis, Port Phillip, Victoria

This case study is sourced from <http://www.housing.nsw.gov.au/Centre+For+Affordable+Housing/Developing+Affordable+Housing/Case+Studies/Inkerman+Oasis+Port+Phillip+Victoria.htm>

Inkerman Oasis is a 242-unit project in the City of Port Phillip, Victoria. It is a joint venture between the City of Port Phillip Council and Inkerman Developments Pty Ltd. The Council contributed land and added value through masterplanning, which included paying for the remediation of the site. Inkerman developed the site, and repaid council for the remediation on settlement.

In exchange for the land, the developer provided 28 units of affordable housing. The State Housing Authority and another housing agency have purchased an additional four units.

The council benefits by having affordable housing developed with no additional resource commitments.

The developer benefits by having land provided for its development yielding 210 units for private housing.

The community benefits by having access to affordable housing which was developed only after community input and support were sought

Port Phillip Housing Association, an organisation with considerable experience, is managing the affordable housing units. The Association is responsible for all operating, property and tenancy management costs, and maintains

detailed financial records for each managed property. It must comply with accountability requirements, which include six monthly auditing inspections and production of an annual report for public release.

7.2.2 City Edge, ACT

This case study is sourced from <http://www.housing.nsw.gov.au/Centre+For+Affordable+Housing/Developing+Affordable+Housing/Case+Studies/City+Edge+ACT.htm>

City Edge is a housing development of 40 townhouses and 86 apartments in O'Connor ACT. ACT Housing entered into a joint venture with a private developer to create a mixed affordable and private housing site.

City Edge, which opened in December 2001, represents \$6.5 million worth of housing available to people on low-to-moderate incomes through Community Housing Canberra and ACT Housing.

Each agency owns 15 apartments. In addition, the private developer retained 40 townhouses and 56 apartments for private sale.

7.2.3 Forest Glade, Parklea, NSW

This case study is sourced from <http://www.housing.nsw.gov.au/Centre+For+Affordable+Housing/Affordable+Home+Purchase/Forest+Glade+Parklea.htm>

The Forest Glade Smart Housing project at Parklea, Sydney, was developed collaboratively by Landcom and developers, Cosmopolitan Developments, and targeted 20% of its properties for sale to those on moderate-incomes.

The project comprised 64 detached homes with a mix of two, three and four bedroom houses. Thirteen were targeted to moderate-income households, through a balloting process to eligible purchasers.

(Landcom defines moderate household incomes as being between \$48,000 and \$69,000).

Pricing for the 13 designated homes ranged from \$156,000 to \$220,000 (2002 prices), while the asking prices of those aimed at the broader market were between \$270,000 and \$415,000. Apart from income, assets and property eligibility (purchasers had to be first time buyers), there were also re-sale restrictions placed on the moderate-income homes.

These homes were distributed throughout the site and are indistinguishable from the other 50 in the project. The project went on sale in June 2002 and the moderate-income homes were oversubscribed by eligible purchasers by a ratio of 25 to one.

The provision of affordable housing at this site was a condition stipulated by the local council in return for a more flexible approach to planning, design and construction.

Smart design, regulatory provisions and the use of efficient construction and materials planning delivered increased project value, which was then transferred to make the moderate-income homes affordable. While providing moderate-income housing, the developers were nonetheless required by council to guarantee high standards of amenity and design.

7.2.4 Waverley Council, NSW

This case study is sourced from <http://www.housing.nsw.gov.au/Centre+For+Affordable+Housing/Developing+Affordable+Housing/Case+Studies/Waverley+Council+NSW.htm>

Waverley Council's Affordable Housing Program offers a density bonus to developers who provide affordable housing as part of their residential development. A bonus is

7.0 Case Studies

offered only to projects where the increased density can be accommodated within a building in a manner that will not compromise the environmental amenity of the surrounding area.

The affordable housing units can be provided in perpetuity (that is permanently) or for a specified time, with rent capped at well below market rent. The council owns units that are provided in perpetuity. Rent-capped units are owned by the private developer, or private owner, and leased to council for a capped rent lower than market rent for a specified time.

Waverley Council provided a density bonus to the Orion Group, a private developer operating in the eastern suburbs of Sydney, in exchange for providing some of their developments as affordable housing.

A registered social housing provider manages the affordable housing properties under a headlease agreement between the provider and the council.

A standard Residential Tenancy Agreement is then executed between the provider and the affordable housing tenants.

The density bonus increased the commercial attractions of the development while still providing environmental amenity and affordable housing at no cost to council.

It was therefore mutually beneficial for the council, the developer and the community.

7.3 Western Australia

7.3.1 Department of Housing

The Department of Housing (DoH) is increasingly endeavouring to work cooperatively with the private sector

to deliver affordable housing outcomes rather than simply apply the traditional 100% government capital investment ownership model. This is seeing the DoH apply a number of different development, acquisition, investment models.

These include joint venture developments, equity contribution, presales, underwriting sales, procurement, integrated housing developments, and linkage with other affordable housing sector investors and providers.

The traditional model of the DoH acquiring, funding and developing sites itself also remains an option that could be pursued in the right circumstances. DoH accesses and enables a breadth of opportunity and market outcomes that make the delivery of affordable housing outcomes in all market settings a realistic option.

7.3.2 Department of Housing Developer Engagement

Enquiries to a range of Western Australian and national developers identified several instances where developers had engaged with the Department of Housing in the delivery of affordable dwellings in a medium to high density product form. In each instance, the Department of Housing effectively secured a proportion of available product at full market price and then allocated the product to a mix of

- _Social housing
- _Shared Equity purchase
- _Affordable rental

The most recent example is OneAberdeen, located at the juncture of Pier Street and Aberdeen Street, Perth. This project is a partnership between Diploma Properties Pty Ltd and Department of Housing (DoH). The Department of Housing owns the land and Diploma is engaged in a joint venture. In effect

DoH applies the land and warrants the acquisition of some 30% of the apartment stock. It is understood, DoH insisted on maximising the yield outcome in order to optimise the volume of affordable housing stock it could secure whilst enabling the developer as joint venture partner sufficient scope to earn a reasonable profit. To this end, the trade off in market value of land was close to a discount of 40%. DoH has applied similar methods to secure affordable dwellings across several notable medium to high density projects including;

- _Fort Knox, Fremantle – Match Projects
- _Stella Apartments, Cockburn Central - Goodland Properties.

7.3.3 Foundation Housing

Foundation Housing's is a 'not for profit' affordable housing provider whose core objective is founded on its aim to increase the supply of secure, affordable good quality rental housing and to undertake effective tenancy and property management that achieves sustainable housing outcomes. Foundation Housing is one of the largest affordable housing providers in Western Australia with over 1,300 households currently in management and development, and some 1,700 tenants across Perth and regional Western Australia.

- Foundation Housing provides a range of housing services with expertise in
- _Property management
 - _Public and private sector partnership
 - _A commitment to providing sustainable and affordable housing
 - _A sound financial base

Simplistically, the financial model enabling growth and further delivery of affordable accommodation is one that leverages off the capital base and net cash flow from operation of

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its property portfolio. Foundation Housing makes a long term investment in its growing portfolio. This enables capital leverage to develop new accommodation independently or in a range of joint venture, alliance and partnership models with both private and public sector participants, that is further supplemented through;

Foundation Housing makes a long term investment in its growing portfolio. This enables capital leverage to develop new accommodation independently or in a range of joint venture, alliance and partnership models with both private and public sector participants, that is further supplemented by

- _wider access to the National Rental Affordability Scheme
- _strategic asset management
- _innovative management services
- _discounts and concessions on
 - _the Goods and Services Tax
 - _stamp duty
 - _ water and council rates to name a few

Department of Housing additionally offer via Tender the transfer of social housing rental stock (to a range of affordable housing providers.

7.3.4 Access Housing

Access Housing is similar in nature to Foundation Housing and was established in 2006, providing accommodation solutions across the spectrum of social housing to affordable home ownership founded on a property model of;

- _Property and Tenancy Management Services (1,400 social and affordable rental properties), and
- _Affordable Housing Property Development.

Similar to Foundation Housing, the capital base and rental stock was initially 'gifted' via the State to facilitate a capital and net cash flow base from which to leverage and grow the portfolio. This is additionally supplemented through property and tenancy management services whilst taking a more commercial approach in the property development arena to generate greater margins for reinvestment and growth of the portfolio. This latter approach is the principal difference to Foundation Housing and to this end Access Housing has developed a wider range of financial models for funding and development with institutional partners and developers. As an example, Access Housing has entered into Alliance Agreements with private companies in the building, development and finance industries in order to share expertise and de-risk the delivery of affordable housing options.

Access Housing additionally partners with the Department of Housing to provide affordable and sustainable housing solutions in the community and as for Foundation Housing, competes for State Government programs and capital grants for the supply of affordable housing.

8.0 Development Feasibility

8.1 Development Scenarios

To aid understanding of the likely viability of different forms of housing development in Cockburn Coast, development concepts were modelled on sites likely to be suitable locations for affordable housing. The selection criteria for the sites, which are identified in Figure 2, were:

- _Represent a range of building typologies, but not terrace housing as this is considered to be premium product
- _Represent a range of building heights
- _Mixture of 100% residential and mixed use buildings
- _Mixture of LandCorp and privately owned sites
- _All precincts represented
- _Sites close to, but not immediately adjacent to or facing high amenity locations such as, ocean views, and 'main street'
- _Easy walking distance to the proposed bus rapid transit route

At this stage, the structure plan only identifies indicative street blocks. Individual lots will only be designed at subdivision stage, based on any criteria specified in the Local Structure Plan and/or design guidelines.

For this exercise, it was necessary to nominate conceptual lot boundaries within each street block. The lots created are of a size and dimension

that would be suitable for the building typology used in each case.

The four conceptual development scenarios were based on a typical product mix based on market activity, and established a number of apartments (yield) and parking provision for each development based on assumptions documented in Appendix A.

For each site a 'complying' development was derived (Base Case), and one each assuming a 30% plot ratio bonus and a 40% plot ratio bonus (Scenarios 1 and 2, respectively).

The Base Case developments are briefly described below, and the Base Case and Scenario 1 and Scenario 2 conceptually illustrated in Figure 3, Figure 4, Figure 5, and Figure 6.

Site Option 1A

- _Site area 3,500 sqm
- _R100 Activity Centre
- _Plot Ratio 1.25:1
- _3 - 5 levels
- _Retail commercial 1,375sqm
- _13 apartments per level
- _Ownership:

Site Option 1B

- _Site area 4,050 sqm
- _R160
- _Plot Ratio 2.5:1
- _6 - 9 levels
- _17 apartments per level

_Ownership:

Site Option 2

- _Site area 4,435 sqm
- _R160
- _Plot Ratio 1.25:1
- _6 - 9 levels
- _Retail commercial 1,800 sqm, 4 apartments
- _18 apartments per level
- Ownership:

Site Option 3A

- _Site area 4,330 sqm
- _R100 Activity Centre
- _Plot Ratio 1.25:1
- _3 - 5 levels
- _20 apartments per level
- _Ownership:

Site Option 3B

- _Site area 3,603 sqm
- _R100 Mixed Use
- _Plot Ratio 1.5:1
- _3 - 5 levels
- _Retail commercial 1,455 sqm
- _13 apartments per upper level
- _Ownership:

Site Option 4A

- _Site area 2,760 sqm
- _R100
- _Plot Ratio 1.25:1
- _3 - 5 levels
- _12 apartments per level (10 for lifted)
- _Ownership:



01_



02_

01_ Medium Density Residential Housing
02_ Medium Density Residential Housing

8.0 Development Feasibility

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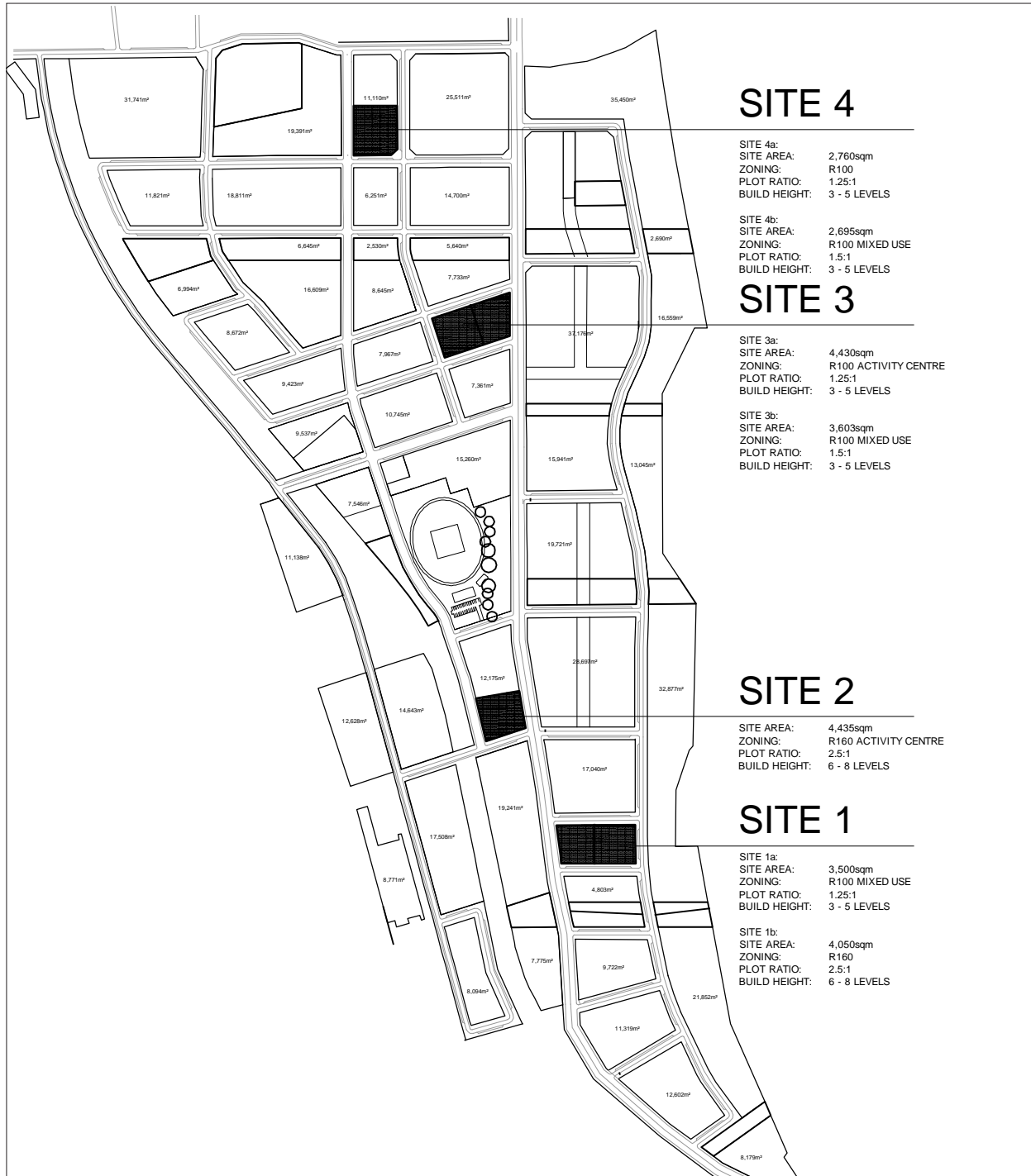
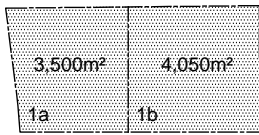


Figure 2_Development Scenario Sites

SITE 1

SITE 1a:
 SITE AREA: 3,500sqm
 ZONING: R100
 PLOT RATIO: 1.25:1
 BUILD HEIGHT: 3 - 5 LEVELS

SITE 1b:
 SITE AREA: 4,050sqm
 ZONING: R160
 PLOT RATIO: 2.5:1
 BUILD HEIGHT: 6 - 9 LEVELS



COMBINED AREA:
 7,550m²

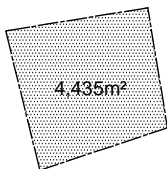
COCKBURN COAST -AFFORDABLE HOUSING DEVELOPMENT STUDY

Site 1a	3,500sqm	Site 1b	4,050sqm
R100 PR=1.25:1 4,375sqm		R160 2.5:1 10,125sqm	
Complying Development: 32 Apart@95sqm + 1,375sqm Retail/Comm		Complying Development: 107 Apart@95sqm	
+ 30 % = 5,687sqm 45 apart + 1,375sqm Retail/Comm		+ 30 % = 13,162sqm 138 apart	
+ 40 % = 6,125sqm 50 apart + 1,375sqm Retail/Comm		+ 40 % = 14,175sqm 149 apart	
13 apart/level		17 apart/level	
4 levels = 52 apart 5 levels = 65 apart 3 levels = 39 apart		6 levels = 102 apart 7 levels = 119 apart 8 levels = 136 apart	

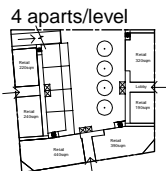
Figure 3_Site Options 1A and 1B

SITE 2

SITE AREA: 4,435sqm
 ZONING: R160 ACTIVITY CENTRE
 PLOT RATIO: 2.5:1
 BUILD HEIGHT: 6 - 9 LEVELS



SITE AREA:
 4,435m²



2 Lifted Option

COCKBURN COAST -AFFORDABLE HOUSING DEVELOPMENT STUDY

Site 2	4,435sqm	
R160 PR=2.5:1 11,087sqm		
Complying Development: 98 Apart@95sqm + 1,800sqm Retail/Comm		
+ 30 % = 14,413sqm 133 apart@95sqm + 1,800sqm Retail/Comm		
+ 40 % = 15,522sqm 144 apart@95sqm + 1,800sqm Retail/Comm		
18 apart/level		10 apart/level
8 levels = 98 apart 8 full levels = 130 apart 9 full levels = 148 apart		Complying 8 Level Option Upper Level Plan

Figure 4_Site Option 2

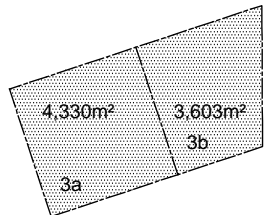
8.0 Development Feasibility

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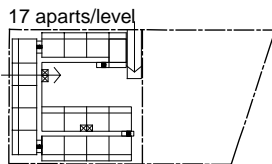
SITE 3

SITE 3a:
 SITE AREA: 4,430sqm
 ZONING: R100 ACTIVITY CENTRE
 PLOT RATIO: 1.25:1
 BUILD HEIGHT: 3 - 5 LEVELS

SITE 3b:
 SITE AREA: 3,603sqm
 ZONING: R100 MIXED USE
 PLOT RATIO: 1.5:1
 BUILD HEIGHT: 3 - 5 LEVELS



Combined Site Area:
 7,933m²



3a Lifted Option

COCKBURN COAST -AFFORDABLE HOUSING DEVELOPMENT STUDY

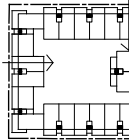
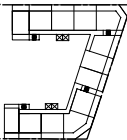
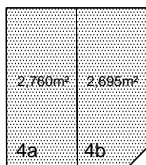
Site 3a	4,330sqm	Site 3b	3,603sqm
R100 PR=1.25:1 5,412sqm		R100 1.5:1 5,405sqm	
Complying Development: 57 Apartments@95sqm (3 levels walkup)		Complying Development: 42 Apartments@95sqm + 1,455sqm Retail/Comm	
+ 30 % = 7,036sqm 74 apartments (4.5 levels lifted)		+ 30 % = 7,026sqm 59 apartments@95sqm + 1,455sqm Retail/Comm	
+ 40 % = 7,577sqm 80 apartments@95sqm (5 levels lifted)		+ 40 % = 7,567sqm 64 apartments@95sqm + 1,455sqm Retail/Comm	
20 apartments/level		13 apartments/level	
			
3 levels = 57 apartments (walkup) 4.5 levels = 74 apartments (lifted) 5 levels = 80 apartments (lifted)		4.5 levels = 42 apartments 5.5 levels = 59 apartments 6 levels = 64 apartments	

Figure 5_Site Options 3A and 3B

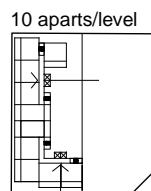
SITE 4

SITE 4a:
 SITE AREA: 2,760sqm
 ZONING: R100
 PLOT RATIO: 1.25:1
 BUILD HEIGHT: 3 - 5 LEVELS

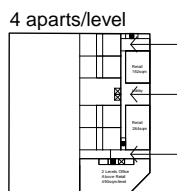
SITE 4b:
 SITE AREA: 2,695sqm
 ZONING: R100 MIXED USE
 PLOT RATIO: 1.5:1
 BUILD HEIGHT: 3 - 5 LEVELS



COMBINED AREA:
 5,455m²



4a Lifted Option



4b Ground Floor

COCKBURN COAST -AFFORDABLE HOUSING DEVELOPMENT STUDY

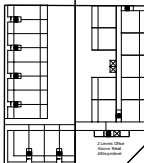

Site 4a	2,760sqm	Site 4b	2,695sqm
R100 PR=1.25:1 3,450sqm		R100 1.5:1 4,042sqm	
Complying Development: 36 Apartments@95sqm (3 - 4 levels walkup/lifted)		Complying Development: 22 Apartments@95sqm + 1926sqm Retail/Comm	
+ 30 % = 4,485sqm 47 apartments (5 levels lifted)		+ 30 % = 13,162sqm 35 apartments (4.5 levels) + 1926sqm Retail/Comm	
+ 40 % = 4,830sqm 51 apartments (5.5 levels lifted)		+ 40 % = 14,175sqm 39 apartments (5 levels) + 1926sqm Retail/Comm	
12 apartments/level (10 apartments/level lifted development)		9 apartments/level	
			
3 levels = 36 apartments		3 levels = 22 apartments 4 levels = 31 apartments 5 levels = 40 apartments	

Figure 6_Site Options 4A and 4B

8.0 Development Feasibility

Site Option 4B

_Site area 2,695sqm

_R100 Mixed Use

_Plot Ratio 1.5:1

_3 - 5 levels

_Retail commercial 1,926 sqm

_9 apartments per level

_Ownership:

In effect the four conceptual developments resulted in seven individual sites. It should be noted that the configuration of the lots affects the ability to design an efficient building. For example, Site 4, which CCDSP Pt 2 shows as being partly Mixed Use and partly Residential resulted in two long, narrow development sites corresponding with each land use type, which are difficult to efficiently develop.

8.2 Scenario Feasibility Assessment

The development scenarios described in 8.1 were then used to test development feasibility.

The intent of the feasibility assessment was to establish whether there is an incentive structure related to density and height bonuses that will enable private sector delivery of affordable dwellings as defined by the thesis of JSA 2011.

The two principal factors that measure feasibility for the private sector will be the level of profitability and residual value to land.

'Base Case' development feasibilities were established for each 'complying' site concept option outlined in 8.1, and the residual value of land and developer profit margin measured.

The viability of increasing plot ratio/ height (bonus) and delivering a quantum of affordable dwellings could then be measured by change in residual value of land or change in profitability. In view of the attitudes expressed in the developer survey (refer to 5.2), the developer margin or profitability ratio was 'fixed' as this would be a very sensitive factor at market, impacting the desire of developers to participate.

Ultimately, nine sets of feasibility calculations were prepared for each development site.

For each plot ratio scenario, a residual value analysis was done based on 20% provision of affordable housing, and 10% provision. For each of these, two Sub Sets with differing sales prices for the affordable product were analysed.

Sub Set A assumed that the sale price of affordable stock is set at the 'actual delivery cost'. Sub Set 1B assumed the sale price is set at the price range established by JSA 2011.

In each case, the balance increase in dwelling yield is provided to the developer as an offset and incentive, for sale.

Interpreting the Results

The results of the analysis are shown in Table 5.

If the percentage change from the Base Case is negative, it implies that the addition of plot ratio/height and requiring delivery of affordable dwellings is not feasible.

A 'no change' (0%) outcome in the residual land value means the 'bonus' yield has traded off the delivery of 'affordable' stock and not disadvantaged the developer profit margin or the notional market value of land.

An increase in the residual land value outcome demonstrates the 'bonus' yield has provided a benefit to the developer in the delivery of 'affordable' stock, in that the increase in land value will in reality translate to improved profit, however over time economic principles of demand and supply will see this benefit transfer to improved site values.

8.0 Development Feasibility

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Table 6: Residual Value Output Analysis

Site	Base Case	Scenario 1 Subset 1A	Scenario 2 Subset 1A	Scenario 1 Subset 1B	Scenario 2 Subset 1B	Scenario 1 Subset 2A	Scenario 2 Subset 2A	Scenario 1 Subset 2B	Scenario 2 Subset 2B
Affordable dwelling yield = Base Case + 20%					Affordable dwelling yield = Base Case + 10%				
Balance of Yield Increase to Developer for sale									
	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer	Sale Price of Affordable dw = cost to developer
	Residual value to land	Change from BC value to land	Residual value to land	Change from BC value to land	Residual value to land	Change from BC value to land	Residual value to land	Change from BC value to land	Residual value to land
1A	\$1,074	\$246 (77%)	\$200 (81%)	\$46 (96%)	\$0 (100%)	\$280 (74%)	\$234 (78%)	\$183 (83%)	\$137 (87%)
1B	\$1,094	\$857 (21.7%)	\$877 (19.9%)	\$220 (79.9%)	\$240 (78.1%)	\$965 (11.7%)	\$985 (9.9%)	\$642 (41%)	\$662 (40%)
2	\$1,026	\$1,057 3%	\$1,103 7%	\$462 (55%)	\$510 (50%)	\$1,026 0%	\$1,204 17%	\$722 (30%)	\$909 (11%)
3A	\$1,169	\$217 (81%)	\$217 (81%)	NA	Not Feasible	NA	Not Feasible	\$275 (76%)	\$275 (76%)
3B	\$1,010	\$1,243 23%	\$1,299 29%	\$944 (7%)	\$1,002 (1%)	\$1,288 27%	\$1,346 33%	\$1,124 11%	\$1,182 17%
4A	\$1,130	\$109 (90%)	\$109 (90%)	NA	Not Feasible	NA	Not Feasible	\$167 (85%)	\$156 (86%)
4B	\$1,577	\$942 (40%)	\$1,058 (33%)	\$764 (52%)	\$876 (44%)	\$1,032 (35%)	\$1,076 (32%)	\$942 (40%)	\$987 (37%)

Source: Colliers 2012

Conclusions on Feasibility

Site 3B proved to be the most workable configuration. The feasibility analysis concluded that one form of proposed development can reasonably be expected to yield affordable housing by the private sector through application of the incentive of a 40% plot ratio bonus: 3 - 5 storey development in the R80 coded areas shown on Figure 1.

If all private land were to be developed to take advantage of a 40% plot ratio bonus and related height concessions where required, 5% affordable housing would result.

In higher density, higher-rise locations, the 40% plot ratio bonus for the provision of affordable product would not be feasible in the current development climate.

9.0 Recommended Strategies

9.1 Overview

Recommended strategies to promote the provision of affordable housing in the Cockburn Coast project area are summarised by sector below, and in Table 5.

Statutory planning provisions are primarily the responsibility of the City of Cockburn to introduce and enforce, and will influence the potential yields and financial viability of development provided by all sectors. Through the Department of Planning, the State Government can also influence planning policy throughout Western Australia.

Non-statutory strategies to encourage affordable housing provision are possible from all sectors.

The strategies recommended below should be utilised to achieve a diversity of affordable housing product (i.e mix of single, double, three bedroom dwellings). Both private and state government developers alike should ensure that the strategies adopted by their development should ensure this diversity is achieved.

9.2 State Government

9.2.1 Provision of Affordable Housing on State Land

All State Government land and housing development agencies are required to contribute a minimum of 15% of project yields to affordable price points. In order to ensure the provision of the 15% requirement, all state agencies will develop their own strategy for the delivery of affordable housing within the Cockburn Coast.

Within the Cockburn Coast project area, approximately 34.5 hectares of development land is owned by State Government agencies. Based on the land use and density proposals in CCDSP Pt 2, this would equate to approximately 504 affordable dwellings.

State Government agencies should approach the delivery of affordable housing at a rate of 15% by drawing upon all options available. This would include plot ratio bonuses, Public Private Partnerships and other strategies outlined in this strategy. In reference to State owned land, it is likely that some of this land will ultimately be offered for sale to the private sector. There is an opportunity here to make it a condition of sale that a minimum of 15% of the resultant development dwelling yield must be 'affordable' product. It must be noted that such a requirement will affect the value of the land, which will be a factor in the relevant business case.

In addition, all residential development would be eligible for a plot ratio bonus for the provision of affordable product, meaning that further affordable product on top of the required 15% could potentially be achieved on State Government land.

9.2.2 Social Housing

The Department of Housing has a mandate to provide social housing. It is envisaged that up 5% of housing stock will be provided as Social Rental Housing. This would equate to around 260 dwellings based on an estimated 5,200 dwellings overall.

9.0 Recommended Strategies

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9.2.3 Public Private Partnerships

The various options for public private partnerships should be pursued to achieve affordable housing outcomes in Cockburn Coast, including:

- _ Discounted land
- _ Purchase of dwellings
- _ Equity contribution
- _ Underwriting sales

9.2.4 Perpetuity

All development providing affordable housing should aim to provide a minimum of 50% of affordable product in perpetuity.

9.3 Private Sector

The feasibility analysis demonstrates that if a plot ratio bonus of 40% is offered for the provision of 20% above the base development dwelling yield as affordable housing, there is every possibility that private sector developers of land within the R80/3 - 5 storey land use areas depicted in Figure 1 will deliver affordable housing product, even under current conditions.

A bonus should be offered across all parts of the project area, as in the future conditions may well change such that the availability of this incentive will also be viable in higher density/higher rise configurations.

It is recommended that a sliding scale of plot ratio bonus be made available for the provision of affordable housing, as follows:

- _ 10% Affordable yield: 30% plot ratio bonus
- _ 20% Affordable yield: 40% plot ratio bonus
- _ 25% Affordable yield: 50% plot ratio bonus

Other forms of incentive can and should be available to the private sector for the provision of affordable product, however on their own, these are unlikely to have much impact on yields but may influence developer decisions and feasibilities.

It is likely that to ensure the success of this strategy a committee will be formulated to guide and assist private land developers in the delivery of affordable housing to be covered on an 'as-needs' basis. This should assist in the fostering of relationships between private land owners and the key stakeholders in the provision of affordable housing.

All development providing affordable housing should aim to provide a minimum of 50% of affordable product in perpetuity.

9.0 Recommended Strategies

Table 7: Affordable Housing Mechanisms for Cockburn Coast

Mechanism	Responsibility
Plot ratio bonus	City of Cockburn
Development standards concessions	City of Cockburn
Development conditions	City of Cockburn, WAPC as appropriate
Fast tracked approvals	City of Cockburn, WAPC as appropriate

9.4 Statutory Planning Provisions

9.4.1 Overview

The District Structure Plans (Parts 1 and 2) have no statutory weight in their own right, as they have not been adopted under City of Cockburn Town Planning Scheme No. 3. Accordingly, a local structure plan must be prepared for each local structure plan area defined in the District Structure Plan Part 2, for adoption under the scheme.

It is important to reiterate the statement in the 2009 District Structure Plan that, "Precise lot and dwelling yields will only be known as detailed subdivision design progresses. The design phase of works will occur as part of the implementation of the structure plan, thus ensuring that each stage is carefully planned for site responsiveness." In other words, preliminary estimates of yield are just that - estimates, not guarantees.

It would not be reasonable to expect final yields to match early estimates exactly. What would be reasonable is for detailed design to be undertaken with the aim of getting as close to the original estimates as possible.

The Local Structure Plans will be the primary source of development guidance for subdivision and development, along with associated design guidelines and detailed area plans, where applicable.

This section identifies elements for inclusion in the structure plans and supporting statutory instruments that will be relevant to ensuring that the aspirations for provision of affordable housing are carried through to implementation. The scope of content for these documents can only encompass matters that can be directly implemented through the planning system. Other mechanisms for encouraging affordable housing provision (eg: tax incentives) will be at least as important as planning mechanisms, but are necessarily beyond the capacity of the planning system to enforce.

9.4.2 Local Structure Plans

The City of Cockburn requires the Local Structure Plans for Cockburn Coast to include discussion of how affordable housing provision targets from the District Structure Plans will be achieved. In particular, they are required to identify specific measures to achieve the targets, to the satisfaction of the City of Cockburn and the WAPC.

Residential Density

TPS 3 requires achievement of at least 85% of dwelling yield possible under the R-Codes allocated within each Local Structure Plan. The challenge with

9.0 Recommended Strategies

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this measure is the in areas coded higher than R30, site area can not be used as a simple measure of a site's potential yield. Instead, plot ratio dictates the amount of development in terms of floor area. However initial yield estimates for Cockburn Coast were based on site area and R-Codes, the method that was current at the time.

Feasibility analysis undertaken for this strategy indicates that in current circumstances, the areas identified as R80 with a height between 3 and 5 storeys is likely to be the most attractive to developers wishing to take advantage of a bonus plot ratio in return for providing affordable housing. However the bonus opportunity should be available throughout the project area, as market conditions will change and with them, the feasibility of different development types.

Final allocation of R-Codes within the Local Structure Plans must be carefully considered in relation to the potential for subdivision to accommodate the desired building types. Subsequently, subdivision of land must ensure that the lots created are capable of accommodating at least 85% of the dwelling yield in the buildings that can be constructed upon them.

Table 7 summarises the recommended ways in which the Local Structure Plans should respond to affordable housing targets.

Table 8: Recommended Content for Local Structure Plans

Element	Pre-Requirement	Comment
Specify that site yield is calculated based on site area, for the purposes of assessing minimum 85% yield	NA	This is necessary to avoid confusion between the provisions of the Planning Scheme and the way in which the R-Codes apply to land coded above R30.
Plot Ratio bonus for the provision of affordable housing, as follows: Affordable yield 10% = 30% bonus Affordable yield 20% = 40% bonus Affordable yield 25% = 50% bonus		Feasibility analysis for this strategy has indicated that a plot ratio bonus could provide an incentive for provision of affordable housing, particularly in 'low rise' R80 areas.
Guidance for future subdivision on optimal lot dimensions to accommodate the different building typologies intended for the each precinct.	Clear understanding of the optimal lot dimensions for different building typologies.	Inadequate lot dimensions can limit the design and hence yield options. Not directly related to provision of affordable housing but relevant to maximising overall dwelling yield.
Target affordable housing yield for each precinct,	Identification of the likely nature of affordable housing demand in Cockburn Coast (eg: singles, families, aged, etc).	Simply aiming to provide 20% of each housing typology may not meet the true affordable needs profile of Cockburn Coast.
Preferred locations and indicative site areas for affordable housing product according to intended development typology.	Locational criteria for affordable housing applied to each precinct but should be flexible in its implementation.	Necessary if there specific sites are going to be required to provide affordable housing as a condition of sale.
Define what is meant by the different target dwelling types (ie: ie: detached single dwellings, terrace or row houses, low-rise apartments, medium to high-rise apartments, adaptable buildings, family homes, affordable housing, social housing).	Agreement with stakeholders on what these should be.	The definition should be consistent between precincts. Not necessarily affordable but needs to be understood for all housing or achievement of targets can not be measured.

9.0 Recommended Strategies

9.4.3 Design Guidelines

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The City of Cockburn requires the preparation of design guidelines for each local structure plan area, to address amongst other things affordable housing and housing diversity. Affordable housing is a sub-set of all housing and hence housing diversity general will reflect in affordable housing provision.

Table 9: Recommended Content for Design Guidelines

Element	Pre-Requisite	Comment
Minimum and maximum dwelling size for 'affordable' product according to dwelling type (eg: studio apartment, 1 and 2 bedroom apartments, 3 or more bedroom apartments)	Agreement with stakeholders on what these should be.	Should be consistent between precincts. May be decided that there should be no size difference.
Required design elements for each housing type (eg: required storage area size and location for family housing compared with other dwelling types)	Agreement as to whether and what these design elements would be.	Needs to be based on reasonable expectation of user needs.
Design elements to distinguish between the different dwelling types (family housing, adaptable housing, etc)	Agreement as to whether and what these design elements would be.	Not specific to affordable housing so not defined in this strategy but will affect all housing.
Any specific variation to development or design standards applicable to affordable housing product - eg: car parking provision, balcony size	Determine whether variations are necessary or desirable as incentives	These are likely to be both precinct specific where appropriate and applied across all precincts where appropriate.
Required dwelling mix within each development. eg: proportion of adaptable dwellings, family dwellings, 1 and 2 bedrooms, etc.	Agreement with stakeholders on what these should be.	Not necessarily specific to affordable housing. Current R-Codes requirements may be adequate to cover some types.

9.0 Recommended Strategies

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9.4.4 Detailed Area Plans

Sites requiring detailed area plans will be identified in the Local Structure Plans. The City of Cockburn requires detailed area plans for activity centres, which means that both the Robb Jetty Precinct and the Power Station Precinct Local Structure Plans will include reference to detailed area plans.

With regard to affordable housing, detailed area plans should identify:

- _Any sites that will be required to accommodate affordable housing product
- _The target and minimum affordable housing yield for each development site required to accommodate affordable housing product
- _The target and minimum dwelling type mix for each development site

9.4.5 Development Control and Conditions of Approval

To the extent necessary, conditions will be put on development and subdivision approvals by the relevant planning authority (City of Cockburn, Western Australian Planning Commission, Development Assessment Panel) to ensure that affordable housing is actually delivered and managed as expected. This will be particularly important where bonuses or incentives have been taken. Conditions may cover such things as:

- _Evidence that the affordable product will be managed as such by a recognised affordable housing provider
- _Minimum period of time for which product will remain 'affordable'
- _Requirement for restrictive covenants to prevent sale or occupation of dwelling approved as affordable to non-eligible buyers or occupants to ensure 'affordability in perpetuity' (however note that monitoring of restrictive covenant compliance would have administrative implications)