

# GOLDEN BAY STRUCTURE PLAN (AS AMENDED)

## PART TWO - EXPLANATORY

(Includes Amendment 2 Addendum)

OCTOBER 2020



Government of **Western Australia**  
Department of **Communities**

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GOLDEN BAY STRUCTURE PLAN (AS AMENDED)  
PART TWO - EXPLANATORY

(INCLUDES AMENDMENT 2 ADDENDUM)



Town Planning & Urban Design

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Project No. 2187Rep54F  
October 2020

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PROJECT TEAM

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Civil Engineers	Cossill & Webley
Environmental Consultant	Coffey Environments
Traffic Engineers	Transcore
Environmental Hydrologist	Emerson Stewart
Landscape Architects	EPCAD
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## EXECUTIVE SUMMARY

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The Golden Bay Structure Plan allows for the creation of a diverse and vibrant coastal community of approximately 2200 dwellings over approximately 155ha located between Secret Harbour and the existing Golden Bay community. The project area covers Lots 2 and 3 Warnbro Sound Avenue, owned by the Department of Housing.

The site is zoned for development, with valid environmental approvals in place.

This report is an update to the approved 1994 Comprehensive Development Plan (CDP) to reflect contemporary planning principles. The community is focussed around a centrally located main street based neighbourhood centre and coastal node. The Plan draws on the unique elements of this site, capitalising on its proximity to the coast, existing infrastructure and public transport.

The Golden Bay development will meet social diversity objectives, through housing choice and a variety of lot product. Higher density residential is focussed around the neighbourhood centre, coastal node and key areas of public open space, with lower transitional densities adjoining the existing communities of Secret Harbour and Golden Bay.

The Golden Bay development will deliver new community and service infrastructure, as well as enhancing existing infrastructure. Local employment opportunities will be generated by the neighbourhood centre and home based business, and strengthened linkages to other nearby employment centres. As an infill project the site will be exceptionally well serviced by public transport facilities. Discussions with the Public Transport Authority (PTA) have confirmed that there will be three bus routes running north south through the project area, connecting the site to district and regional facilities, including the future Karnup Train Station. The Structure Plan is an environmentally responsive plan that acknowledges the sites environmental features and works to existing environmental approvals.

Golden Bay is a priority State Government project. Construction of Stage 1 is underway, with subdivision approval issued on 19 April 2010 and first stage titles expected in early 2011. Funding has been secured as part of the Federal Government Stimulus Package. Stage 1 incorporates 150 residential lots, public open space and a Primary School site. The immediate creation of the school site was a DoE request to alleviate pressure on the existing Comet Bay School, north-east of the site. Stage 1 provides a range of lot sizes to support a diversity of housing product, delivers areas of public open space conveniently accessible to all lots and a primary school site, facilitating the development of critical community infrastructure for Golden Bay and the surrounding area.

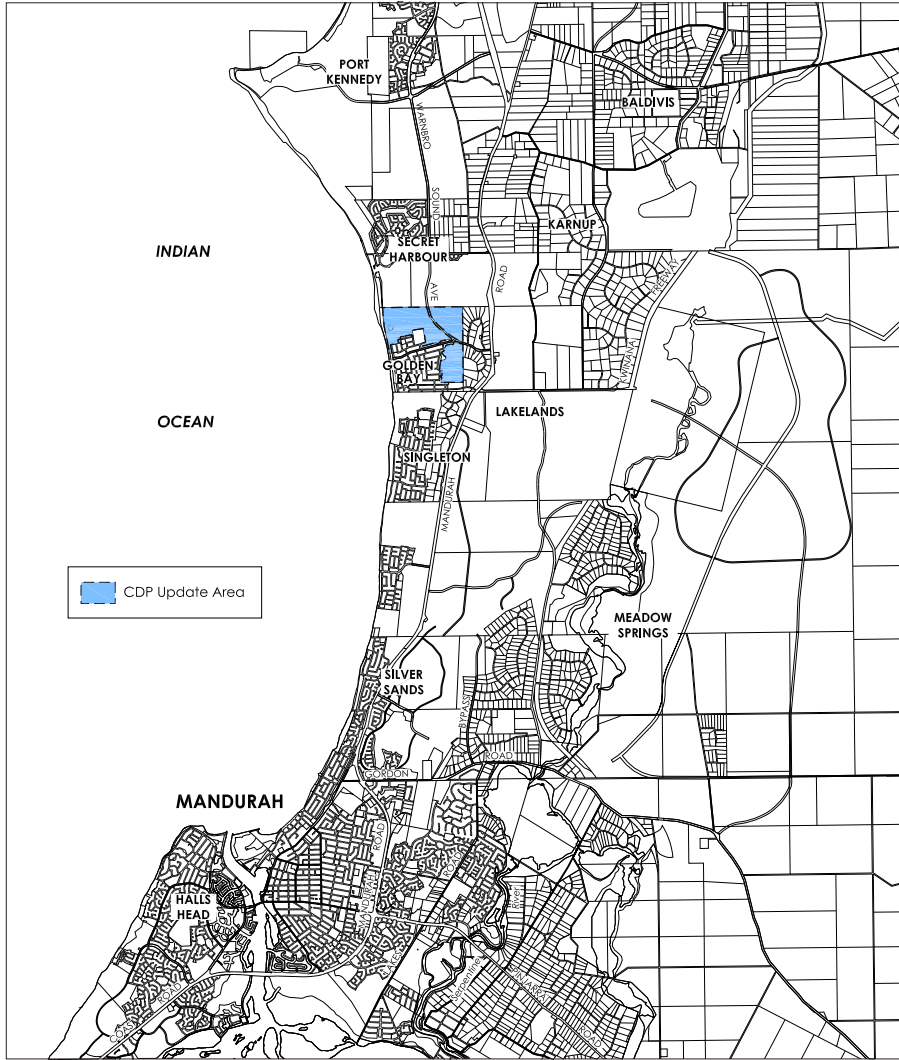


Figure 1: Location Plan

Plan No. 2187-99-01



Figure 2: Site Plan

Plan No.: 2187-01d

**PART ONE – BACKGROUND, CONTEXT & SITE OVERVIEW**

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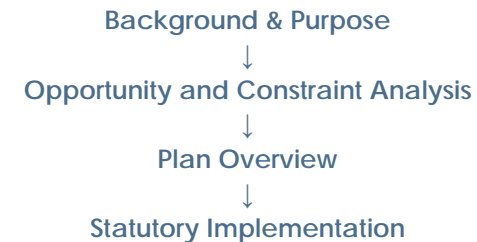
**1.0 BACKGROUND & PURPOSE**

This Report is prepared on behalf of the landowner, Department of Housing and constitutes an update to the endorsed 1994 Golden Bay Comprehensive Development Plan as it relates to Lots 2 & 3 Golden Bay.

The endorsed Golden Bay Comprehensive Development Plan (1994 CDP) covering Lot 12 Golden Bay (the original parent lot) was approved by the City of Rockingham on 25 August 1994 and the State Planning Commission on 29 September 1994. Pursuant to clause 4.2.11 of the City of Rockingham Town Planning Scheme No. 2 (the Scheme), the 1994 CDP constitutes a valid structure plan. There are a number of valid environmental and planning approvals in place, discussed further in Section 2.0.

This document provides the background for the Golden Bay Structure Plan and is prepared as a refinement of the endorsed 1994 CDP. The Structure Plan draws on the key elements of the endorsed 1994 CDP, whilst ensuring that the plan meets contemporary design principles.

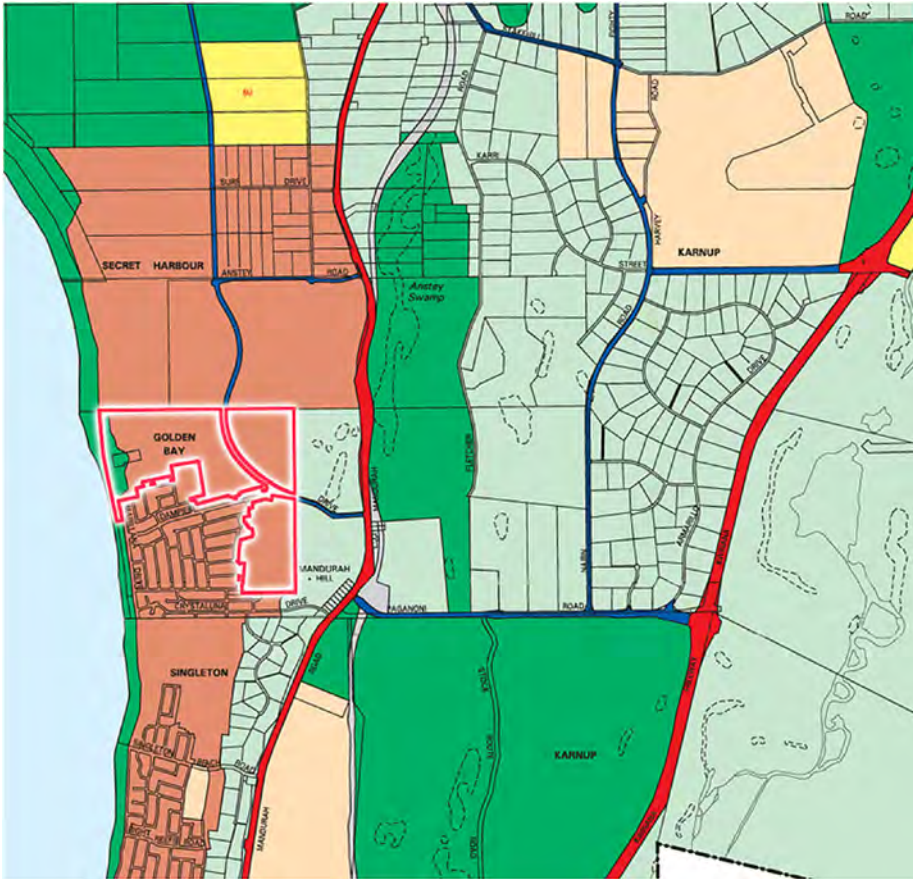
The following summarises the report structure:



The Structure Plan has been assessed against the following state and local policy checklists: Liveable Neighbourhoods, Department of Planning Local Structure Plan Checklist and the City of Rockingham Structure Plan Policy Checklist.

**1.1 Site Description and Land Use Context**

The Golden Bay project area, comprising Lots 2 and 3 Warnbro Sound Avenue (the subject site), is located in the City of Rockingham and covers approximately 155 hectares (ha), refer Figure 2. The site is located approximately 50 kilometres south of the Perth CBD and 14 kilometres north of the Mandurah Town Centre, refer Figure 1. The site is bound by the Secret Harbour Estate to the north, the existing Golden Bay community to the south, with its eastern boundary separated from Mandurah Road by rural residential landholdings. The western boundary of the site enjoys approximately 800 metres of frontage to the Indian Ocean.



Structure Plan Area

Figure 3: Metropolitan Region Scheme

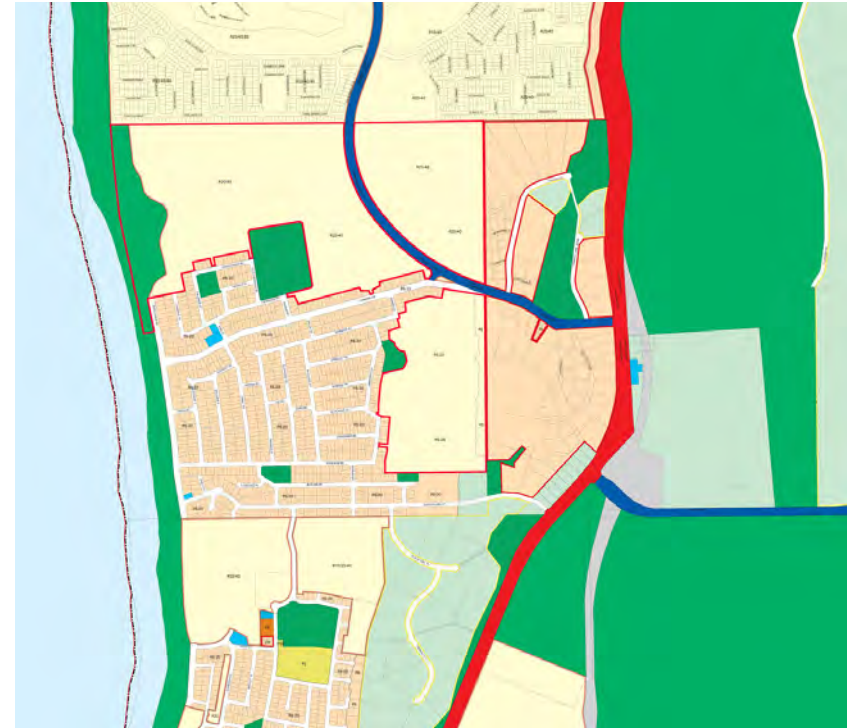


Figure 4: City of Rockingham Town Planning Scheme

The Golden Bay project represents a logical progression and infill of development that has always been envisaged and as such has ready access to all required services and existing infrastructure. The site is well serviced by an established road hierarchy, with road frontage and access to the existing Warnbro Sound Avenue and Dampier Drive. The future Karnup Station on the Perth to Mandurah rail line is located approximately 800 metres from the eastern edge of Lot 3 and coupled with existing bus services, the subject site has good access to existing and future public transport. Sewer, water and electricity can all be easily extended to the service the site.

The site is well served by existing and planned community infrastructure within Golden Bay and the immediate surrounding areas. This site includes: the Coastal Community Centre (Rhonda Scarrott Reserve), the Secret Harbour Community Library (Secret Harbour Town Centre) and the Secret Harbour Surf Lifesaving Club (Secret Harbour Foreshore).

The subject site also represents a key opportunity for managed access to the foreshore for the Golden Bay community and the broader catchments including Keralup. The Golden Bay foreshore, in accordance with valid environmental approvals, will provide community infrastructure such as a surf club, barbeque facilities, grassed areas and pedestrian paths.

TABLE 1: SUMMARY OF ENVIRONMENTAL AND PLANNING APPROVALS

	DATE	APPROVAL	KEY OUTCOMES	CONSULTATION	STATUS
ENVIRONMENTAL	January 1993	<b>MINISTER FOR THE ENVIRONMENT APPROVAL (STATE)</b> Minister for the Environment issues 'Statement that Proposal may be Implemented'	Provides an environmental framework for future development. Resolves: <ul style="list-style-type: none"> <li>• Foreshore Reserve</li> <li>• Landscape Protection</li> <li>• Southern Brown Bandicoot</li> <li>• Aboriginal Heritage</li> <li>• Fire Management</li> </ul>	PER publicly advertised	Valid Minister for Environment confirmed project substantially commenced October 1997
	November 1993	<b>LANDSCAPE PROTECTION AREA - LOT 3</b> Minister for the Environment approved 'Area of Agreement' for landscape protection pursuant to Minister for the Environment Approval	Landscape Protection Area agreed and Ministerially endorsed	Committee established to make recommendation to Minister included; DPUD, City of Rockingham, EPA & Golden Bay Progress Association Special meeting of Electors held at Golden Bay August 1993, to consider development of parabolic dunes	Valid
	April 2008	<b>DEWHA ENVIRONMENTAL APPROVAL (FEDERAL)</b> Federal Department for the Environment, Water, Heritage and the Arts confirmed site exempt from Part 9 EPBC Act requirements	No further assessment required pursuant to EPBC Act		Valid, no further assessment required where in accordance with Ministerial approval

	DATE	APPROVAL	KEY OUTCOMES	CONSULTATION	STATUS
PLANNING	August 1994	<b>TOWN PLANNING SCHEME ZONING</b> City of Rockingham formally endorse Amdt. 248 rezoning subject land to Development Zone with Residential Densities R5/R20/R40.	Zoning allows for development in accordance with a Comprehensive Development Plan	Public consultation pursuant to TP and D Act	Amendment gazetted
	August/September 1994	<b>COMPREHENSIVE DEVELOPMENT PLAN</b> City of Rockingham and State Planning Commission endorse Comprehensive Development Plan dated 3 May 1994. Subject to Management Plan for the Landscape Protection Area and Foreshore Reserve	<ul style="list-style-type: none"> <li>• Identifies area of environmental significance consistent with approvals</li> <li>• R20 &amp; R40 residential with R5 adjoining Lot 3 eastern boundary</li> <li>• High school and one primary school</li> <li>• Commercial on Warnbro Sound Avenue</li> <li>• Community site (0.25ha)</li> </ul>	Public consultation pursuant to TPS No.1	Approved City of Rockingham and State Planning Commission
	December 1994	<b>LANDSCAPE PROTECTION AREA MANAGEMENT PLAN</b> City of Rockingham endorse 'Golden Bay Landscape Protection Management Plan'	Sets out landscape treatments, access and levels/interface		Approved City of Rockingham
	October 1997	<b>SUBDIVISION APPROVAL - LOT 3</b> Approval for 310 residential lots over Lot 3 consistent with environmental approvals	Confirms validity/status of landscape protection area requirements	Referral to relevant government agencies	Expired October 2000
	May 2006	<b>SUBDIVISION APPROVAL - PT LOT 2</b> Approval for 163 residential lots over a portion of Lot 2 adjoining the foreshore	Resolution of TEC issue raised by CALM. Confirmed no further survey work required and development consistent with Urban Zoned boundary	Referral to relevant government agencies	Valid to March 2014

## 2.0 ENVIRONMENTAL & PLANNING APPROVALS – IMPLICATIONS FOR DEVELOPMENT

The Golden Bay landholding is covered by a number of existing valid environmental and planning approvals that have been subject to extensive community, agency review and engagement, providing a framework for the Structure Plan.

### 2.1 Planning Context

The subject site is zoned 'Urban' under the Metropolitan Region Scheme and is similarly zoned 'Development Area' and coded Residential R5 / R20 / R40 under the Scheme, refer Figures 3 & 4. In accordance with the Scheme, a structure plan is required prior to development within the 'Development Zone'.

The subject site is covered by a valid structure plan, which received endorsement by both the City of Rockingham and Western Australian Planning Commission in 1994, with the detail set out in Section 2.3.

### 2.2 Environmental Approvals & Key Outcomes

The landholding has been subject to a Public Environmental Review (PER), with the Minister for the Environment issuing a Statement that the Proposal May be Implemented on 12 January 1993. The Minister for the Environment confirmed on 30 July 1997 that the project had been substantially commenced, and as a result the environmental approval remains valid and operative. A copy of the Department of

Environment Audit Table is provided in Appendix 1 (Attachment 2). A modified version of the audit table, identifying the cleared conditions and actions taken as part of the structure plan preparation process, is provided in Table 2.

The following summarises the key issues addressed by the PER, outcomes and status:

#### FORESHORE RESERVE

**Condition:** *The proponent shall provide a Foreshore Reserve for conservation and recreation which:*

- 1) *protects the Peelhurst wetlands and the Southern Brown Bandicoot population.*
- 2) *includes landscape and recreation values at least equivalent to the area affected by this proposal which is within System 6 Recommendation M107 Area.*

**Status:** This condition has been cleared.

**Implications:** The Golden Bay Structure Plan reflects the agreed Foreshore Reserve boundary as well as the agreed use of the Foreshore Reserve for 'the provision of a Surf Life-Savers Club Hall, carparks, footpaths and other beach access facilities' (p 24, Tingay, Golden Bay PER).

Pursuant to the PER a Foreshore Management Plan has been submitted to the EPA for approval, on advice of the Department of Planning, City of Rockingham and Department of Environmental and Conservation.



Figure 5: Endorsed Landscape Plan - Lot 3  
Source: Martin Goff & Associates

LANDSCAPE PROTECTION

<b>Condition:</b>	<i>The landscape value of the parabolic dune ridge on the eastern edge of Golden Bay should be recognised.</i>
<b>Status:</b>	This condition has been cleared with 'Area of Agreement' for landscape protection approved (November, 1993). A Landscape Protection Management Plan was prepared and endorsed as a condition of the City of Rockingham approval of the 1994 CDP, refer Figure 6. The endorsed Landscape Protection Management Plan sets the landscape treatments, access and levels / interface between the Landscape Protection Areas and residential land.
<b>Implications:</b>	The Structure Plan works to the Areas of Agreement and Landscape Protection Management Plan and does not propose any variations to these approved documents. Any conditions required by the Landscape Protection Management Plan should be met during subdivision design and are expected as a precursor to subdivision works. The Public Open Space Concepts refer Section 5, incorporate the management and implementation guidelines of the endorsed Landscape Protection Management Plan.

SOUTHERN BROWN BANDICOOT

<b>Condition:</b>	<i>The population of the Southern Brown Bandicoot at Golden Bay requires special consideration.</i>
<b>Status:</b>	DEC has confirmed that the population of Southern Brown Bandicoots located within the Foreshore Reserve can be retained and managed for long term conservation and that a translocation program for Southern Brown Bandicoots located the development area would be feasible, refer attached correspondence at Appendix 4. A Foreshore Management Plan detailing bandicoot management within the Foreshore Reserve has been lodged with the City of Rockingham, DEC and EPA for approval as required by the PER, Condition 297:P2.
<b>Implications:</b>	DEC has confirmed that a translocation program will be required for each subdivision stage prior to commencement of works. This has occurred prior to Stage 1 works commencing.

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HERITAGE	
<b>Condition:</b>	<i>Include the historic aboriginal camping site within the proposed Public Open Space for the development.</i>
<b>Status:</b>	This condition has been cleared.
<b>Implications:</b>	The historic aboriginal camping site forms part of the Foreshore Reserve and is recognised in the submitted Foreshore Management Plan

FIRE MANAGEMENT	
<b>Condition:</b>	<i>The proponent will continue to maintain a network of firebreaks and access tracks to protect against bushfire until the Local Authority takes on this responsibility.</i>
<b>Status:</b>	The DOH has commissioned Fire Plan WA to prepare a Fire Management Plan for subject site. This plan formalises the management of the existing networks and has been submitted to the City of Rockingham.
<b>Implications:</b>	Fire Management Plan to be implemented on a stage by stage basis with development works.

The Federal Department of Environment, Water, Heritage and the Arts (DEWHA) also confirmed in April 2008 that the proposed development does not require approval under Part 9 of the Environmental Protection and Biodiversity Act 1999 and therefore no further assessment of the subject site is required pursuant to the Act, refer Appendix 1 (Attachment 16).

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TABLE 2: AUDIT TABLE – SUMMARY OF RESPONSE TO ENVIRONMENTAL CONDITIONS PURSUANT TO MINISTERIAL STATEMENT 297

Commitment Number	Environmental Condition / Commitment	Structure Plan Response
297:M5.1:2	Initiate management of bandicoot population of the Southern Brown Bandicoot.	Management of Southern Brown Bandicoot population has been discussed and agreed with DEC. Management of population outside of Foreshore Reserve is detailed in the Environmental Assessment Report, refer Appendix 4, and ongoing management of the population with the Foreshore Reserve is detailed in the Foreshore Management Plan, lodged with the City of Rockingham, DEC & EPA.
297:M8	Prepare periodic 'Progress & Compliance Reports' to help verify the environmental performance of this project.	A Progress & Compliance letter detailing the status of the Golden Bay proposal implementation has been provided to the office of the Environmental Protection Authority, refer Appendix 5.
297:P2	Prepare a Management Plan for the coastal reserve at Golden Bay.	A Foreshore Management Plan detailing recommended activity and management has been prepared and has been lodged with the City of Rockingham, DEC & EPA.
297:P4	Protects against bushfire by providing a network of fire breaks and access tracks until the Local Authority takes on this responsibility.	A Fire Management Plan has been prepared for the Golden Bay Structure Plan area and lodged with the City of Rockingham. Compliance with this condition will be demonstrated in Progress and Compliance Report (M8).
297:P5	Provide reticulated sewerage and stormwater drainage designed to infiltrate stormwater into the soil within the development site.	To be implemented as per Local Water Management Strategy as per civil/subdivision designs. Compliance with this condition will be demonstrated in Progress and Compliance Report (M8).



### 2.3 Planning Approvals & Key Outcomes

The City of Rockingham formally endorsed Amendment 248 which rezoned the Golden Bay project area to 'Development Area' with residential densities of R5 / R20 / R40 in August 1994, following the Minister for Environment's approval in 1993. The zoning allows for development in accordance with a structure plan. Pursuant to this amendment, in August / September 1994, the City of Rockingham and State Planning Commission endorsed the CDP dated 3 May 1994. The key outcomes established by the 1994 CDP are as follows:

- Foreshore Reserve on Lot 2 and Landscape Protection Area on Lot 3 identified consistent with the PER.
- Provision of additional active open space adjoining High School, as agreed between Department of Education (DoE) and DoH. In accordance with the attached correspondence, refer Appendix 1 (Attachment 12) the ceding of an additional 2 ha of open space was subject to the DoE undertaking all works and payment of costs associated with ceding the land to the City of Rockingham and the DoE entering into direct negotiations with the City of Rockingham, with a formal agreement outlining the role and responsibilities of each party.
- A Primary School site adjoining Rhonda Scarrott (formerly Tangadee) Reserve.
- A commercial node on Warnbro Sound Avenue.
- A community site of 0.25 ha.
- Provision of a total of 25.49 ha of open space within Lots 2 and 3, with the open space calculation undertaken across the Parent Lot 12 area.
- Connection to existing roads from the adjoining Golden Bay and Secret Harbour communities.
- Generally Residential R20 at the interface to Secret Harbour and Golden Bay.
- The principal structure of the Lot 3 layout, including a north south spine road, road connections to the existing Golden Bay community, generally Residential R20 subdivision pattern, recognising that the landform retention and existing levels are fundamental considerations impacting on the design.

The endorsed 1994 CDP is included as Figure 6 and Appendix 1 (Attachment 4).

Pursuant to the endorsed CDP, four subdivision applications have been endorsed over the subject area, refer Appendix 1 (Attachments 14 and 15) and Appendix 2 for approved subdivision plans:

- Lot 3 - In October 1997 a subdivision approval was issued for 310 residential lots, consistent with the environmental approvals and endorsed CDP.



Figure 7: Approved Stage 1 Subdivision Plan (WAPC Ref. 141268 - Approved 19th April 2010 & WAPC Ref. 142741 - Approved 6th January 2011)

Plan No.: 2187-118A-01

- Lot 2 Adjoining the Coast - In May 2006 subdivision approval was issued over a portion of Lot 2 adjoining the foreshore. This subdivision approval confirmed that no further environmental survey work was required, the PER conditions remain valid and sufficient for the management of environmental matters and that the development is consistent with the Urban Zone boundary. This subdivision application has recently been the subject of re-approval dated 16 March 2010 (WAPC Ref 141149), remaining valid until March 2014.
- Stage 1- Subdivision approval was granted on 19 April 2010 (WAPC Ref 141268) for 151 lots directly east of Rhonda Scarrott Reserve and west of Warnbro Sound Avenue and includes the creation of 3.5 hectare Primary School site, refer Figure 7.
- Stage 1C – Subdivision approval was granted on 6 January 2011 (WAPC Ref 142741) creating the balance of the lots in Stage 1, comprising of 14 lots, as well as creating the first portion of the neighbourhood connector road of Warnbro Sound Avenue, allowing for improved vehicle movement associated with the primary school, refer Figure 7.

#### 2.4 Community & Agency Consultation

The existing planning and environmental approvals and agreements have been informed by extensive community and agency consultation since 1993. This community consultation is summarised in Table 1 and is as follows –

- State Minister for the Environment Approval (January 1993) – PER Publicly Advertised

- Lot 3 Landscape Protection Area (November 1993) – Committee established to make recommendation to Minister. The committee included DPUD, City of Rockingham, EPA & Golden Bay Progress Association. Also a Special Meeting of Electors was held at Golden Bay in August 1993 to consider the development of parabolic dunes.
- Town Planning Scheme Amendment 248 (August 1994) – Public consultation undertaken pursuant to the Town Planning and Development Act.
- Comprehensive Development Plan (September 1994) – Public consultation undertaken pursuant to TPS No. 1.
- Subdivision Approvals (1997, 2006, 2010) – Referral to relevant government agencies.

While we recognise that some of these consultation exercises date back a number of years, the approvals and the outcomes of these remain valid and need to be recognised in future planning. The Department of Housing are committed to keeping the community and agencies informed on the project and provide input as part of the relevant processes, including the public advertising period for the Golden Bay Structure Plan.

There has been significant agency consultation in the preparation of the Structure Plan and project implementation, including service utility, transport, planning and environmental agencies. In addition two community information sessions have been held, July 2010 and December 2010, at the Coastal Community Centre. These events were attended by Golden Bay, Secret Harbour and Singleton residents.

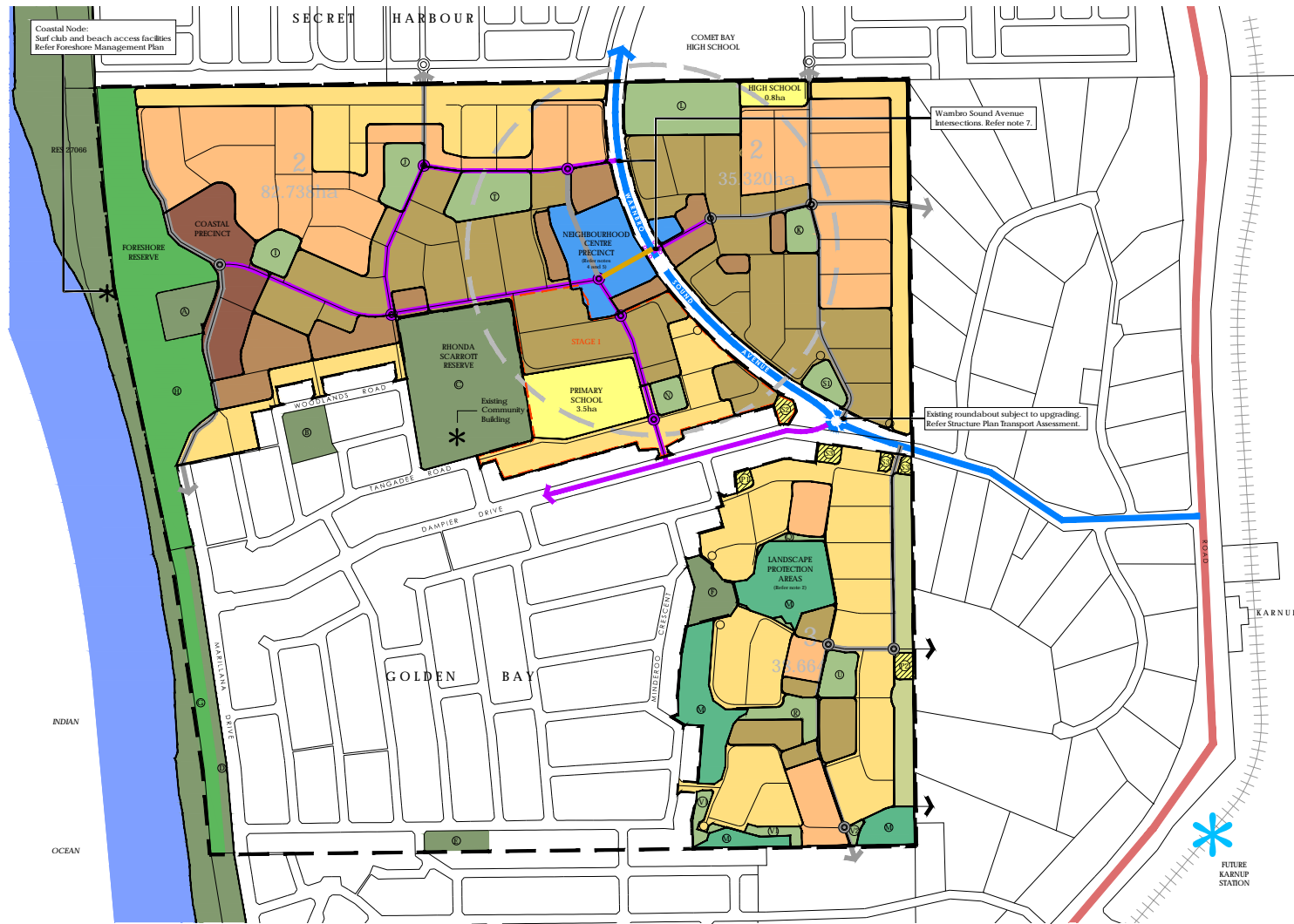


Figure 8: Golden Bay Structure Plan - Update to Endorsed CDP 1994

Plan No.: 2187-29x-01

## PART TWO – GOLDEN BAY STRUCTURE PLAN

### 3.0 GOLDEN BAY STRUCTURE PLAN

The Golden Bay Structure Plan recognises the key elements of the endorsed 1994 CDP, with refinements reflecting current planning best practice principles and standards. The following provides an overview of the Structure Plan.

#### 3.1 Design Principles

The Golden Bay project will:

- Create a sustainable and vibrant community, capitalising on the uniqueness of the site in relation to the coast, existing infrastructure and public transport
- Integrate and respond appropriately to existing, adjoining development.
- Provide for social diversity through housing choice.
- Deliver densities commensurate with the site’s strategic context.
- Create opportunities for innovative housing forms.
- Deliver new community infrastructure and enhance existing facilities.
- Improve public transport facilities, connecting to district and regional facilities and the Karnup Station.

- Respond to the coastal context in design, land use densities, access and facilities, recognising the validity of existing approvals.
- Provide local employment opportunities through the neighbourhood centre and home based business, as well as linkages to other nearby strategic employment generators.
- Provide an environmentally responsive plan that acknowledges the value of existing approvals and recognised environmental features.

#### 3.2 Plan Overview

##### **Provision for social diversity through housing choice and variety of lot product.**

The Structure Plan provides for approximately 1700 lots and 2200 dwelling units. The residential density coding ranges from R5 to R80, providing the opportunity for a range of lot product and diversity in housing, responsive to a site’s location. Higher densities are allocated adjoining the neighbourhood centre, the coastal node and key areas of public open space.

The endorsed 1994 CDP applied density codings of R5, R20 and R40 across the plan. While consistent with the principles of the endorsed CDP, the higher densities applied to the Structure Plan reflect contemporary planning policy consistent with Liveable Neighbourhoods, which promote higher densities in key locations and require structure plans to achieve specific dwelling unit yield targets.



Figure 9: Lot 2 - Golden Bay Master Plan Concept

Indicative concept only, subject to review and refinement at subdivision stage - Plan No.: 2187-186A-01

**Responsive transition of lot sizes to the existing adjoining development areas through appropriate application of density codes**

The R Codings directly adjoining the existing Golden Bay and Secret Harbour are the same as the 1994 CDP. A predominately R20 density coding (average lot size 500 m<sup>2</sup>) has been applied at the transition to Golden Bay and Secret Harbour, reflective of the existing lot sizes in the adjoining communities. A strip of R5 (minimum 2000 m<sup>2</sup>) has been applied along the eastern boundary of Lot 3.

**Provision of a main street based neighbourhood centre that will service the future Golden Bay community and complement the existing District Centre at Secret Harbour**

The inclusion of a neighbourhood centre central to the future Golden Bay community on Warnbro Sound Avenue reflects the outcomes of the updated retail assessment for the subject site and surrounds. The retail floor space prescribed by the updated assessment is approximately 3500m<sup>2</sup>.

The updated retail assessment also recognises a potential commercial node in close proximity to the Foreshore Reserve and leading off the central east-west coastal drive. This is consistent with the endorsed CDP, which identifies a Tourist / Leisure Commercial opportunity at the western edge of the site in close proximity to the Foreshore Reserve and a commercial node on Warnbro Sound Avenue is also identified. The provision of this will be determined as part of future subdivision planning.

The Structure Plan includes an updated assessment of the size and location of these commercial areas in accordance with current forecast population growth and existing and future surrounding centres, consistent with the City's Local Commercial Strategy.

**Provision of a unique foreshore area**

The Structure Plan provides managed access to the unique foreshore area that abuts the western edge of the development site. The Foreshore Reserve will include a surf life saving club, grassed areas, barbeque facilities and paths.

The use of the Foreshore Reserve is consistent with the PER and is described in more detail in the Foreshore Management Plan, which has been lodged with the EPA, DoP and the City of Rockingham. A road interface is provided between the residential development and the Foreshore Reserve, which is consistent with the endorsed 1994 CDP.

**Provision of a Coastal Boulevard linking east and west of Warnbro Sound Avenue, the neighbourhood centre and coastal note**

This key road link provides direct access from Warnbro Sound Avenue to the beach and will be a focus for medium to high density built form, the neighbourhood centre, community facilities, pedestrian and cyclist routes. This road links the community to key facilities and infrastructure.

The provision of a direct east-west connector directly off Warnbro Sound Avenue is consistent with the endorsed 1994 CDP.



**Figure 10: Lot 3 - Golden Bay Master Plan Concept**  
*Indicative concept only, subject to review and refinement at subdivision stage*

**Provision of a Primary School site of 3.5 hectares co-located with existing POS of 8.1 hectares (Rhonda Scarrott Reserve)**

The provision of this school site has been bought forward through the Stage 1 subdivision works, as requested by DoE, to alleviate pressure of the Comet Bay Primary School located within Secret Harbour. The subdivision application for creation of the school site also included 150 residential lots and public open space, which are currently under construction.

The location of the school site, co-located with the existing Rhonda Scarrott Reserve, is consistent with the endorsed 1994 CDP.

**Opportunity for the expansion of the Comet Bay High School with the provision of 2.6 ha open space adjoining the southern end of the existing School and 0.8 hectares of Public Purpose Site for buildings to meet the requirements of the DoE**

The provision of additional open space adjoining the High School Site is consistent with existing agreements between the DoE and the DoH to cede an additional area of active open space adjoining the High School site, refer Appendix 1 (Attachment 12) for correspondence.

The inclusion of an additional 0.8 ha of Public Purpose High School site is the outcome of recent liaison between DoH and DoE to facilitate an additional area for school buildings.

The POS will be ceded free of cost to the City of Rockingham City and form part of the POS contribution and the Public Purpose Site will be purchased by DoE.

**A robust plan that retains road connections to Secret Harbour and the existing Golden Bay area as per the 1994 CDP, and facilitates opportunity for future connections to land to the east of the site**

In addition to the road connection to the north, via Warnbro Sound Avenue, the key local road connections to Secret Harbour and the existing Golden Bay area are retained. Additional connections are proposed to the land to the east, anticipating the possible future development and connections to Karnup Station.



Lot 2



Lot 3

#### 4.0 PRECINCT CHARACTER DESCRIPTIONS

There are four key precincts, relating to their land use and character. The precinct character is described below, with further technical detail provided in the subsequent sections on housing, public open space, traffic, water management and retail.

The four key precincts are:

- ① Neighbourhood Centre
- ② Education & Community
- ③ Coastal
- ④ Residential



Precinct 1 - Neighbourhood Centre

4.1 NEIGHBOURHOOD CENTRE

<p><b>CHARACTER</b></p>	<ul style="list-style-type: none"> <li>Local main street based neighbourhood centre with shops opening directly onto the street, alfresco dining, continuous awnings and on street parking.</li> <li>The north-south road leading from the Coastal Boulevard roundabout provides the opportunity for a main street neighbourhood centre, away from the engineer constraints relating to the Warnbro Sound Avenue and Coastal Boulevard traffic signals.</li> <li>Comprising approximately 3500 m<sup>2</sup> of retail, supported by community uses, such as child care centre, gym, church and includes a residential component.</li> <li>The centre is likely to comprise a medium sized supermarket (~1800 m<sup>2</sup> to 2000 m<sup>2</sup>) GLA plus special shops (~1100 m<sup>2</sup> to 1300 m<sup>2</sup>).</li> <li>Retail component likely to be focussed on western side of Warnbro Sound Avenue and with local convenience on the eastern side.</li> <li>Warnbro Sound Avenue and Coastal Boulevard intersection signalised to allow for pedestrian movements.</li> <li>Coastal Boulevard road reserve at 25 m wide including embayed parking, adequate median width for street tree planting, pedestrian refuge and cycle lanes.</li> <li>The surrounding path network to support walking and cycling to the neighbourhood centre.</li> <li>The built form design will reflect the centres' coastal location.</li> </ul>
<p><b>STRATEGIC LAND USE CONTEXT</b></p>	<ul style="list-style-type: none"> <li>Central to Golden Bay community and easily accessible from Warnbro Sound Avenue via lights.</li> <li>Serves a local / neighbourhood function, complementing the district function of the Secret Harbour Centre to the north.</li> </ul>
<p><b>HOUSING TYPOLOGIES</b></p>	<ul style="list-style-type: none"> <li>The centre is likely to include single, grouped and multiple dwellings at the edge as a transition to surrounding residential and providing a high density catchment.</li> <li>Housing may include opportunities for small office/home office as a local business incubator.</li> </ul>
<p><b>RESIDENTIAL DENSITY CODE</b></p>	<p>R60</p>



Precinct 2 - Education & Community

4.2 EDUCATION & COMMUNITY

**CHARACTER**

The education and community precinct is focussed on the provision of community buildings and facilities for the existing and new Golden Bay community. The Precinct includes:

- A Primary School site central to the catchment of 3.5 ha, co-located with the existing active recreation space and road frontage on three sides. The new Golden Bay community represents one Primary School catchment.
- A 2.6 ha open space adjoining the existing Comet Bay College, allowing for expansion of the existing playing fields.
- A 0.8 ha Public Purpose Site (High School) adjoining the existing Comet Bay College, allowing for expansion of the school buildings, as requested by DoE.
- Planning for the Primary School and High School site will involve ongoing liaison with DoE.
- The opportunity for community facilities at the surf club, located within the Foreshore Reserve, provided in accordance with State Planning Policy 3.6 and complementing the existing facilities in the area, refer Section 1.1. This facility could provide a multipurpose meeting space, purpose built accommodation for key community organisations as well as supporting amenities.
- There will be the opportunity for community uses such as a church and/or child care facility as part of the neighbourhood centre.

**STRATEGIC LAND USE CONTEXT**

- Key community infrastructure is generally located along the Coastal Boulevard, ensuring it is a focus for and accessible to the whole community.
- The siting of the community building in the Foreshore Reserve, at the end of the Coastal Boulevard, provides appropriate distribution relative to existing community facilities, given the community building already in the Rhonda Scarrott Reserve, which is in close proximity to the neighbourhood centre.



Precinct 3 - Coastal Precinct

4.3 COASTAL PRECINCT

<p><b>CHARACTER</b></p>	<ul style="list-style-type: none"> <li>• The land use, density and character of the coastal precinct reflects the proximity and connection to the beach. The coastal precinct includes the Foreshore Reserve and adjoining urban area.</li> <li>• Within the Foreshore Reserve, comprising 10ha, there will be access roads, car parks, dual use paths with seating resting points, beach access tracks and lookouts, education signage, a cafe/kiosk, a surf life saving club, 4000-5000 m<sup>2</sup> of public open space and rehabilitated shrub planting and weed management pursuant to the PER and submitted Foreshore Management Plan.</li> <li>• The coastal precinct could include a small node comprising a deli, cafe, restaurant or fish and chip shop, which could be in the urban zone area or part of the surf club building in the Foreshore Reserve.</li> <li>• Open space is located on the Coastal Boulevard, providing a passive, grassed area as an extension to the Foreshore Reserve.</li> <li>• Housing densities reflect the precinct's desirability as a coastal node.</li> <li>• Building height may be between 2 - 4 storeys with views to the coast, there may be strategic locations where the building height exceeds this. Development in this location will be subject to future subdivision and detailed area planning in liaison with the City.</li> </ul>
<p><b>STRATEGIC LAND USE CONTEXT</b></p>	<ul style="list-style-type: none"> <li>• Located adjoining the beach; however, the urban zoned area is approximately 400m from the water line and is not likely to be visible from within the precinct at ground level. With this in mind it will be important for the detailed subdivision design to facilitate pedestrian and vehicular connections to the coast, with the coastal theme recognised through the character of the built form and landscaping.</li> </ul>
<p><b>HOUSING TYPOLOGIES</b></p>	<ul style="list-style-type: none"> <li>• Medium density lots</li> <li>• Town houses, constructed boundary to boundary or with a boundary to one side</li> <li>• Apartments (multiple dwellings) of one, two and three bedroom.</li> </ul>
<p><b>TYPICAL SINGLE LOT SIZES</b></p>	<p>240 m<sup>2</sup> (8 x 30 m) – 300 m<sup>2</sup> (10 m x 30 m) &amp; density sites 2,000 m<sup>2</sup> +</p>
<p><b>RESIDENTIAL DENSITY CODE</b></p>	<p>R40, R60, R80</p>



Precinct 4 - Residential - Lot 2



Precinct 4 - Residential - Lot 3



4.4 RESIDENTIAL

<b>CHARACTER</b>	<ul style="list-style-type: none"> <li>• A range of housing types and tenures with medium to high density focused around the Coastal Boulevard, open space, neighbourhood centre and Primary School, and transitional traditional home sites adjoining the existing residential.</li> <li>• There is the opportunity for innovative housing forms, such as alternative construction materials and light weight construction, where steeper grades exist, particularly on Lot 3.</li> <li>• Apartments adjacent to parkland.</li> <li>• Gridded north-south / east-west road network providing opportunities to maximise solar responsive housing construction.</li> <li>• No direct lot access to Warnbro Sound Avenue</li> </ul>
<b>STRATEGIC LAND USE CONTEXT</b>	<ul style="list-style-type: none"> <li>• Medium density located adjoining key amenities with transitional densities at the interface to Golden Bay and Secret Harbour.</li> </ul>
<b>HOUSING TYPOLOGIES</b>	<ul style="list-style-type: none"> <li>• Traditional home sites</li> <li>• Townhouses, constructed boundary to boundary or with a boundary wall to one side.</li> <li>• Apartments (multiple dwellings) of one, two and three bedrooms.</li> </ul>
<b>TYPICAL SINGLE LOT SIZES</b>	240 m <sup>2</sup> (8 m x 30 m) – 600 m <sup>2</sup> (20 m x 30 m)
<b>RESIDENTIAL DENSITY CODE</b>	R20 to R60. Refer Appendix 14 for examples of indicative housing types under each R Code.





## 5.0 HOUSING STRATEGY

The following outlines the estimated lot and dwelling yield, housing types and built form controls. Importantly the focus is on high amenity streetscapes that deliver a coastal character. In addition to Detailed Area Plans implemented by the City, the proponent is also implementing Design Guidelines that ensure a coastal character and built form that delivers a high amenity streetscape.

### 5.1 Dwelling Unit Yield Estimates

The Golden Bay project will deliver a range of densities, housing types and tenures to facilitate residential yields commensurate with the site's strategic location, as well as meeting housing affordability objectives and creating a diverse and vibrant community.

The project area has the potential to realise approximately 1 700 – 1 800 lots or 2 200 dwelling units at densities of between R5 and R80. The future development area could accommodate an ultimate population of approximately 5 700 people, based on the long term average occupancy ratio of 2.6 persons per household. The Structure Plan achieves 15 dwellings per gross urban zoned hectare, exactly meeting the Directions 2031 target of 15.

The plan delivers approximately 25 dwelling units per site hectare across the structure plan area. This meets the Liveable Neighbourhoods minimum requirement of 20 dwelling units per site hectare (site hectare is the pure residential area, excluding open space, roads and non-residential uses).

*Note: Lot yield estimates are preliminary and will be refined at detailed subdivision design stage.*

A yield of approximately 33 dwelling units per site hectare is achieved within a 400m catchment of the neighbourhood centre, achieving the Liveable Neighbourhoods minimum of 20 to 30 dwelling units.

The endorsed Stage 1 subdivision achieves 29 dwelling units per site hectare, demonstrating the Department of Housing's commitment to deliver medium to high density housing.

Figure 20 and Appendix 4 include a more detailed indicative streetblock and lot type layout showing the possible location of cottage lots, with a laneway at the rear, and traditional front loaded lots. It is important to note that this is indicative and subject to review and refinement at subdivision stage, but will remain consistent with the R-Codes designated on the Golden Bay Structure Plan.





## 5.2 Housing Typologies

A diverse mix of lot and housing typologies will be achieved, delivered via a combination of land sales as well as build out and sale of house and land packages. The following provides a brief description of the housing typologies that could be delivered within Golden Bay:

SINGLE FRONT LOADED LOTS	
Typical Width	12.5m , 15m and 17.5m wide
Typical Depth	<ul style="list-style-type: none"> <li>• 30m</li> <li>• 22 - 25m</li> </ul>
Area	375m <sup>2</sup> to 525m <sup>2</sup>
Residential Density Code	Residential R20, R30 and R40
Built Form Control	<ul style="list-style-type: none"> <li>• Residential Design Codes</li> <li>• Design Guidelines</li> </ul>
Estimated yield	1040 dwelling units
Estimated proportion of total dwelling unit yield	50%
Built Form Delivery	<ul style="list-style-type: none"> <li>• Single dwellings</li> <li>• Typically sold as land only</li> <li>• Opportunities for light weight construction to retain some slope on lots, particularly on Lot 3.</li> <li>• Typically single storey</li> </ul>



COTTAGE LOT HOUSING

Typical Width	<ul style="list-style-type: none"> <li>• 10m and 7.5m wide</li> <li>• Opportunities to explore 5m wide</li> </ul>
Typical Depth	28m to 30m
Area	210m <sup>2</sup> to 300m <sup>2</sup>
Lane access	Rear laneway provided for vehicular access
Residential Density Code	<ul style="list-style-type: none"> <li>• Residential R30, R40 and R60</li> <li>• Opportunities for corner duplex lots at R40 and R60 to improve surveillance of laneways and secondary streets</li> </ul>
Built Form Control	<ul style="list-style-type: none"> <li>• Residential Design Codes</li> <li>• Detailed Area Plans</li> <li>• Design Guidelines</li> </ul>
Estimated yield	730 dwelling units
Estimated proportion of total dwelling unit yield	30%
Built Form Character and Delivery	<ul style="list-style-type: none"> <li>• Single and grouped dwellings</li> <li>• Potential for studios over garages</li> <li>• Lots less than 10m wide typically built out and sold as a house and land package</li> <li>• Opportunities for innovative delivery of housing on narrow lots</li> <li>• There is the opportunity for home based business to be encouraged on rear loaded lots adjoining the neighbourhood centre, with a separate business entrance from the rear of the dwelling</li> </ul>



APARTMENTS AND WALK UPS

Typical Width	Ranges
Typical Depth	Ranges
Area	Typically over 2 000m <sup>2</sup>
Residential Density Code	Residential R60 and R80
Built Form Control	<ul style="list-style-type: none"> <li>• Residential Design Codes</li> <li>• Detailed Area Plans</li> <li>• Potential for developer implemented design guidelines and design review process</li> </ul>
Estimated yield	420 dwelling units
Estimated proportion of total dwelling unit yield	20%
Built Form Delivery	<ul style="list-style-type: none"> <li>• Multiple dwellings</li> <li>• Could include maisonette style housing</li> <li>• Potential for two to three storey walk ups adjoining the neighbourhood centre, key areas of open space and within the coastal precinct</li> <li>• Typically two to four storey in the coastal precinct, with the potential for increased height on strategic sites.</li> </ul>



### 5.3 Residential Density Codes

The allocation of residential density codes across the structure plan area establishes a flexible framework for a diversity of housing typologies, avoiding spot codings by establishing broad residential code areas that allow for refinement of the design at subdivision stage.

The Golden Bay Structure Plan allocates residential density code boundaries based on the following criteria:

- The interface to the existing Secret Harbour and Golden Bay communities is R20, consistent with the 1994 CDP.
- A coding of R30 and R40 allowing for both traditional and cottage lots. R40 is appropriately located closest to the neighbourhood centre, Coastal Boulevard, open space and bus routes.  
R30 allows for traditional lots of up to 600m<sup>2</sup>, as well as 10m and 12m wide cottage lots. R40 facilitates traditional lots front loaded of up to 440m<sup>2</sup> and front loaded cottage lots.
- R20 across the bulk of Lot 3, recognising that the landform retention requirements limit the ability for small lot housing. There are several pockets of R30 and R40 allowing for rear load cottage lots in locations where laneways can be constructed and accessed by adjoining lots.
- The eastern boundary to Lot 3 is R5, consistent with the zoning under the Scheme. Although, it is acknowledged that this area could be rezoned under the Scheme to a higher coding consistent with the balance of the area, increasing the residential catchment to the Karnup station.
- R40 sites within Lot 3 allowing for some slope to be retained on these lots, reducing the requirement for retaining walls.

- R60 adjoining and within the neighbourhood centre providing opportunity for single, grouped and multiple dwellings, as well as in pockets adjoining key areas of open space allowing for grouped or multiple dwellings to be developed.
- The R80 density coding is located in the coastal precinct adjoining the Foreshore Reserve reflecting the significant opportunity and importance of achieving optimum built form outcomes.

Appendix 14 demonstrate indicative housing types that could be expected for each R Code. This demonstrates that despite the predominantly medium density base code a largely simple residential and traditional streetscape will be maintained.

#### 5.3.1 Laneway Surveillance

With the demand for affordable, higher density and innovative housing rear laneways, which allow for vehicle access and garages to be situated at the rear of a dwelling, are now a standard form of residential development. Liveable Neighbourhoods promotes the use of these laneways on the basis that they facilitate housing diversity, help increase residential density and provide maximum surveillance and visual amenity to the primary street.

Liveable Neighbourhoods indicates that laneways may be used:

- To provide rear access for small or narrow lots;
- In areas of medium density housing;
- For retail and/or commercial areas;
- To provide rear access along busy streets;



- For development fronting public open space or any other spaces where maximum surveillance is desirable; or
- To provide the opportunity to improve the visual amenity of a street.

The benefits of laneways are broadly acknowledged; however, there are concerns that the use of the H-laneway configuration does give rise to the potential to lack surveillance over the central leg, which is generally not visible from the surrounding street.

While it is acknowledged that H-laneways should not be extensively used, they can provide for an optimum planning outcome in certain circumstances where surveillance, amenity and presentation to the street is required at each end block, with examples being:

- To maximise the surveillance opportunities for public spaces that are situated at either end of a street block by removing the undesirable outcome of properties siding onto these spaces. These public spaces may include parkland and recreation areas, school sites and commercial and retail buildings;
- To allow for an improvement to the visual amenity of a streetscape through not having a strong presence of garage doors and vehicle crossovers along key streets, such as the Coastal Boulevard; or
- To limit the number of vehicle access points along busy streets and/or avoid the creation of any undesirable road network configuration.

H-laneways are also included in Stage 1 of Golden Bay to allow for an increase in the residential density to be located around the neighbourhood centre and primary school site, while also providing improved surveillance to Rhonda Scarrott Reserve and the future

primary school and avoiding additional crossovers adjoining the neighbourhood centre. These Stage 1 H-laneways will also facilitate a superior built form outcome along the Coastal Boulevard, as the lots fronting on this section of the Boulevard will not present any garage doors or vehicle crossovers to this important entry statement of Golden Bay.

There are circumstances where H-laneways are appropriate in subdivision design and surveillance concerns can be addressed through other planning mechanisms.

Liveable Neighbourhoods acknowledges that strategic design and siting of buildings along any laneway is an important consideration in providing surveillance to the laneway and that selected lots, by way of a Detailed Area Plan, should be appropriately developed in order to provide surveillance to the laneway. There are a number of requirements that can be incorporated into a Detailed Area Plan to facilitate additional laneway surveillance:

- The inclusion of an habitable studio space locate above the dwelling's garage that has adequate window(s) that directly overlook the central leg of the H laneway;
- A second storey window to a habitable room within the dwelling that can overlook the laneway; and/or
- Visually permeable fencing for a portion of the boundary to adjacent to the laneway, this is particularly suitable for density sites.



As part of Golden Bay where a H-laneway is proposed, a Detailed Area Plan will be prepared at the time of subdivision which will demonstrate how the surveillance of the laneway will be maximised, similar to Golden Bay Stage 1 subdivision.

#### 5.4 Residential Built Form Controls

In addition to developer implemented Design Guidelines to address building style, Detailed Area Plans (DAPs) will be prepared as condition of subdivision approval to ensure the delivery of quality built form and allow variations to the Residential Design Codes to facilitate medium density housing. DAPs will be prepared for:

- Residential R60 and R80 density sites
- Cottage Lots
- Lots directly abutting public open space

A series of R Code variations have been developed to support the delivery of the standard small cottage lot housing typologies outlined above. These provisions have been developed in liaison with local authorities and workshoped with a number of builders, and have become accepted provisions in a number of major estates including: Brighton, Banksia Grove, Jindowie, Austin Cove and Vale. The provisions have already been applied in Golden Bay Stage 1 via DAPs and will be applied for similar housing types in the balance of the project area. The following outlines the key provisions and provides a brief explanation as to their application and benefit.

**Setbacks** - *Reduced setbacks to the primary street for lots with vehicular access to a public laneway (2m minimum and 4m maximum);*

At present the R Codes require an average 4m setback from the primary street with a minimum of 2m to the dwelling in areas coded R40 and R60.

The variations propose a minor relaxation to the front setback requirements with the 4m setback a maximum rather than average to facilitate flexibility in building design, as well as reinforcing engagement with the public realm. In particular, the setback variation will:

- bring the dwellings forward to address and engage with the street in a more interactive manner than a traditional street setback
- allow 'tight' urban streetscapes, consistent with the urban context for laneway lots
- allow efficient siting and sizing of the private open space/outdoor living areas at the rear of the dwelling, maximising the use of land, and reducing unusable open space.

**Boundary Walls** - *Permitted boundary walls on both side boundaries (with the exception of laneway and street boundaries) in accordance with the following table:*



**BOUNDARY WALLS**

Description	Max. Height	Max Length
Dwelling – Single Storey	3.5 m	No Limit
Dwelling – Two Storey	6.5 m	5 m
Garage – Single Storey	3.5 m	7 m
Garage – Two Storey (with portion of dwelling above)	6.5 m	7 m

The R Codes currently allow as of right a single storey boundary wall for up to two thirds of the length of one boundary within R40 and R60 coded areas, with no second storey boundary walls. This precludes terrace style development, restricts design options on smaller lots where efficient use of space is critical, and discourages two storey development. Greater flexibility is needed if housing forms are to respond to density and solar imperatives.

Allowance for walls on both side boundaries for the length of the boundary is proposed, with a restricted length of 5m for the second storey, or 7m where the garage is incorporated as part of the two storey development. This allowance provides sufficient flexibility to encourage two storey built form, while achieving a reasonable level of amenity protection for adjoining properties.

**Private Open Space** - Minimum open space provided reduced to a minimum of 30% of the site area.

The R Codes currently require 45% of the site to be retained as open space at R40 and R60 densities, which severely limits single storey dwelling design on smaller lots, undermining affordability imperatives.

A variation in the minimum open space provision to 30% is necessary to successfully achieve an implement terrace housing, facilitating the delivery of affordable and diverse dwellings.

**Design for Climate** - The overshadowing provisions shall not apply.

Greater flexibility in regards to overshadowing requirements has been incorporated as a necessary prerequisite to achieving the densities and housing diversity outlined in this report.

The standards for overshadowing applicable to lower density areas cannot reasonably be applied in the same way in higher density precincts without severely impacting on the quality of dwellings. For example, the overshadowing provisions would limit, or in some situations preclude the majority of single storey development on the 7.5m and 10m wide cottage lots, and would preclude almost all two storey development. As such, the overshadowing standards do not apply.



**Privacy** – *The setback to major openings and unenclosed outdoor active habitable spaces (balconies, verandahs, terraces or other outdoor living areas) that have a floor level more than 0.5m above natural ground level and overlook any part of any other residential property behind its street setback line, shall be setback in direct line of sight with a cone of vision from a boundary to a minimum of 4.5m for all laneway lots.*

Like overshadowing, the standards for privacy applicable to lower density areas cannot be applied in the same way in higher density precincts without severely impacting on the quality of dwellings. For example, the 7.5m balcony privacy setback would preclude provision of balconies on almost all of the R40 and R60 lots due to the narrowness of lots.

Again, greater flexibility in regards to these requirements has been incorporated as a necessary prerequisite to achieving the densities and housing diversity. As such, the standard privacy provisions do not apply to the R40 and R60 areas, with a reduced privacy setback of 4.5m applying to major openings to all habitable spaces, including bedrooms and balconies. This approach has been successfully implemented in the Stage 1 DAP, and is widely accepted by the building industry, local authorities and WAPC.

**Public Open Space** – *Dwellings and major structures on lots adjoining public open space to be setback between 2 and 3m, dwellings designed to address the open space and outbuildings abutting open space of materials that complement the dwelling.*

Typically the interface to public open space will be via roads; however in some instances direct lot frontage can provide increased surveillance, activity and diversity to the public spaces. Lots adjoining open space will be provided in accordance with Liveable Neighbourhoods principles.

Where lots do interface with open space it is critical to ensure the adjoining housing addresses and adds value to the open space. This includes appropriate setbacks and major openings addressing the space, rather than nil setbacks and blank walls. It is also important to ensure outbuildings do not undermine the amenity of the interface.

TABLE 3: GOLDEN BAY STRUCTURE PLAN - LAND USE SUMMARY (Based on Plan 2187-29x-01)

<b>Gross Area - Golden Bay Original Lot 12 (Total Golden Bay Area)</b>	<b>274.541</b>
<b>Gross Area (Lots 2 &amp; 3 excluding existing GB area)</b>	<b>156.722</b>
<b>Non Residential Land Uses (Original Lot 12)<sup>1</sup></b>	
G - Foreshore Reserve 27066 (Lot 2031) <sup>2</sup>	2.000
Existing Local Centre	0.485
Other Regional Roads (WSA - Now resumed)	4.883
H - Foreshore Reserve within Lot 2	10.689
High School	0.800
Primary School	3.500
Village Centre Commercial	2.600
<b>Deductions</b>	
Drainage Areas - POS P1, P2, S2, S3, V2	1.080
<b>Gross Subdivisible Area</b>	<b>249.305</b>
Gross Subdivisible Area (Lots 2 & 3 only)	138.053
<b>Public Open Space Required @ 10%</b>	<b>24.930</b>
POS required @ 10% (Lots 2 & 3 only)	13.805
<b>Existing Public Open Space Provided</b>	
A - Reserve 34664 (Lot 2486)	1.276
B - Reserve 35364 (Lot 2533)	1.032
C - Reserve 32492 (Lot 2264)	8.109
D - Reserve 27066 (Local Open Space adj. Marillana Drive) <sup>4</sup>	1.369
E - Reserve 29466 (Lot 2134)	0.593
F - Reserve (Lot 4205)	1.158
Cash in Lieu provided (1972 Plan of Survey 10399)	0.507
<b>Total Existing POS Provided</b>	<b>14.045</b>

<b>Public Open Space Proposed under Structure Plan Lots 2 &amp; 3</b>	
POS I	0.610
POS J	0.755
POS K	0.477
L - POS co-located with High School (Lot 2) <sup>5</sup>	2.640
M - Landscape Protection (Lot 3) <sup>6</sup>	6.580
POS N	0.460
POS Q	0.244
POS R	0.655
POS S1	0.564
POS T	1.351
POS U	0.617
POS V1	0.667
<b>Total Open Space Proposed to be Provided</b>	<b>15.619</b>
<b>Total Existing Dedicated and Proposed POS (Ha)</b>	<b>29.663</b>
<b>Total Existing Dedicated and Proposed POS (%)</b>	<b>11.90%</b>

Notes:

- The schedule has been prepared for the purpose of reviewing the approved 1994 Golden Bay CDP. All existing NRLU's and credited open space areas are based on the approved CDP.
- Balance of Reserve 27066 not credited as Public Open Space as per Town Planning Department's letter of 1961.
- POS P & S has been included as a deduction as these areas are provided to serve a drainage function.
- Portion of Reserve 27066 credited as Public Open Space as Town Planning Department's letter of 1961.
- CoR has confirmed that the open space ceded to Council adjacent to the Comet Bay High School (POS L) site forms part of the 10% open space contribution.
- Lot 3 Landscape Protection POS (No. M) assumes agreement for 100% credit, consistent with 1994 CDP. These locations area set under existing environmental approvals.
- This Open Space Schedule has been prepared based on the approved CDP and associated form Policy DC2.2, not Liveable Neighbourhoods
- The existing reserve F has been subtracted from the Landscape Protection Area, 6.43 ha less 1.1583 ha for Reserve F.

## 6.0 PUBLIC OPEN SPACE

The 1994 CDP made provision for public open space in accordance with the policy framework at the time of approval, as well as the conditions of the environmental approval under the PER process. The Golden Bay Structure Plan provides a contemporary approach to Public Open Space (POS) provision and distribution drawing on current policy, whilst still reflecting the conditions of environmental approval under the PER process.

The Structure Plan provides a total 15.62 ha of additional gross open space, 10.6 ha of Foreshore Reserve area and 1.08ha of open space for drainage reserves.

The key elements of POS distribution are:

- Even distribution across the site, providing access to POS for all residents. All lots are within 400m of POS in accordance with Liveable Neighbourhoods.
- Local passive open space that provide opportunities for kick-about, children's play, drainage, local amenity and a community meeting place.
- Provision of open space for active recreation and playing fields adjoining the Comet Bay High School and Primary School.
- Retention of dunal landform on Lot 3, in accordance with the Landscape Protection Management Plan.
- Maximise accessibility and use of the Foreshore Reserve as a passive open space, recognising that despite it not forming part of the open space credit, the beach provides a valuable open space area that will be a recreation focus for the whole community.

- Balancing drainage and recreation priorities, incorporating water sensitive urban design principles to maximise the useability of drainage spaces. Detailed water modelling has been undertaken as outlined in the Local Water Management Strategy (LWMS).

The open space calculation must recognise the endorsed POS schedule as part of the 1994 CDP, which includes all existing and proposed POS in the parent Lot 12 area. Accordingly an update to the 1994 CDP POS schedule has been prepared refer Table 3. In addition to this a Liveable Neighbourhoods calculation has also been undertaken, based on assumptions provided by the City of Rockingham, to demonstrate compliance with contemporary planning principles, refer Table 4.

It is important to note that the open space shown on the Structure Plan is indicative and will be refined as part of subdivision design, consistent with the principles of the Structure Plan.

### 6.1 1994 Approved CDP Public Open Space Schedule incorporating the Golden Bay Structure Plan

The approved 1994 Golden Bay CDP calculates open space across the original development area, Lot 12. On this basis Table 3 provides a POS and land use summary for the 1994 CDP area being the developed and undeveloped area of Golden Bay, Parent Lot 12. All existing non-residential land uses and credited open space are based on the 1994 CDP, with proposed areas updated to reflect the current plan. Incorporating the proposed POS within Lots 2 & 3 into this calculation results in a total area of existing and proposed POS within the Golden Bay area of 29.663 ha, which constitutes a 11.9% POS contribution, exceeding the 10% requirement.

TABLE 4: GOLDEN BAY STRUCTURE PLAN - PUBLIC OPEN SPACE SCHEDULE BASED ON LIVEABLE NEIGHBOURHOODS EDT 4 (Based on Plan 2187-29x-01)

Site Area			156.722
Less			
H - Foreshore Reserve within Lot 2	10.690		
High School	0.800		
Primary School	3.500		
Village Centre Non-Residential Area <sup>5</sup>	2.600		
<b>Total</b>		<b>17.590</b>	
<b>Net Site Area</b>			<b>139.132</b>
<b>Deductions</b>			
POS P1, P2, S2, S3, V2	1.080		
<b>Total</b>		<b>1.08</b>	
<b>Gross Subdivisible Area</b>			<b>138.052</b>
<b>POS @ 10%</b>			<b>13.8052</b>

Assumptions made, as provided by City of Rockingham: -

- (i) Rainfall events greater than a 1:1yr event treated as restricted open space. This is based on the following:
  - Planning Policy 3.4.1, clause 4.7.5, requires the design of swales to demonstrate the usability of POS for recreation purposes.
  - Element 4 R43 of Liveable Neighbourhoods only refers to deductions to dedicated drainage reserves, not the base of drainage swales in restricted use open space.
- (ii) Restricted Open Space is calculated between a 1:1yr event - 1:5yr event in accordance with Liveable Neighbourhoods Element 4 R25 & R26.
- (iii) Drainage swales designed to accommodate a 1:10yr rainfall event can not comprise an area greater than 25% of any given POS Reserve. Alternate mechanisms to deal with drainage to be considered at UWMP stage.

<b>Unrestricted Open Space(min)</b>		<b>11.044</b>	
POS I	0.508		
POS J	0.408		
POS K	0.477		
POS L	1.796		
POS M	6.580		
POS N	0.397		
POS Q	0.244		
POS R	0.537		
POS T	0.932		
POS U	0.453		
POS S1	0.344		
POS V1	0.613		
<b>Total Unrestricted Use</b>		<b>13.289</b>	
<b>Restricted Open Space</b>			
<b>Restricted (min)</b>		<b>2.761</b>	
POS I	0.102		
POS J	0.347		
POS L	0.844		
POS N	0.063		
POS R	0.118		
POS T	0.418		
POS U	0.164		
POS SI	0.220		
POS V1	0.055		
<b>Total</b>		<b>2.331</b>	
<b>Total Area Provided</b>			<b>15.62</b>
<b>POS %</b>			<b>11.31</b>

## 6.2 Liveable Neighbourhoods Public Open Space Calculation

While the Structure Plan meets the requirements for open space provision as calculated under the endorsed CDP, the proponent recognises the current policy requirements and the open space calculation methods under Liveable Neighbourhoods, refer Table 4. On this basis POS provision has also been calculated based on the Liveable Neighbourhoods model for Lots 2 and 3 Warnbro Sound Avenue only, to ensure open space provision is balanced between drainage and recreation requirements.

The subject site provides an open space area of 15.2 ha, plus 1.08 ha of drainage reserve. Once open space credits are applied the total unrestricted public open space provision is 13.28 ha and restricted use open space of 2.33 ha.

Table 5 specifies the drainage requirements for each open space area.

Five open space areas (P1, P2, S2, S3, V2) totalling approximately 1ha, are being treated as a pure deduction from the net site area. Following discussion with the City it was determined that given their location, configuration and function for a predominantly drainage purpose that this most adequately reflects the provision of useable open space. Accordingly these spaces are shown as Local Reserve - Public Purposes Drainage on the Structure Plan.

Drainage is factored into the calculation for the balance of the open space areas as follows, following a review of Liveable Neighbourhoods and discussions with the City of Rockingham:

### 1 Year Drainage Event

Areas subject to inundation more frequently than a one year average recurrence interval rainfall event are treated as restricted use open space, as confirmed by City of Rockingham.

The total 1:1 year drainage event area is 0.63 ha for credited open space areas.

### Drainage for storm events greater than one year up to five years

Areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval are treated as restricted open space up to 2% of the 10% requirement, any area greater than 2% is a deduction (LN R26 & LN Table 11);

In this case the 1:5 year drainage area comprises less than the 2% restricted open space maximum, therefore receiving a full credit as restricted use open space.

### Drainage for storm events greater than five years

Areas for the detention of stormwater for a greater than five year average recurrence interval are within unrestricted open space and receive a full public open space credit (LN R25).

The total open space area receiving in storms greater than the 5 year event is 13.28ha. This area is treated as unrestricted use open space and receives a full credit.

Table 5 also includes the area of the 10 year drainage event. Liveable Neighbourhoods does not restrict open space credits for these areas and this information is included for the City's purposes.

**TABLE 5: GOLDEN BAY STRUCTURE PLAN - DETAILED OPEN SPACE BREAKDOWN AND DRAINAGE AREA SPECIFICATION**

Based on plan 2187-29x and drainage volumes provided by EPCAD Rev C & LWMS Rev G

Local Open Space Area	Gross Area	Restricted Use POS			Unrestricted Open Space
		1:1 yr Drainage Area <sup>1</sup>	1:5 yr Drainage Area <sup>1</sup>	1:1 to 1:10 yr Drainage Area	Area not receiving drainage for < 5 yr event
POS I	0.610	0.045	0.102	0.000	0.508
POS J	0.755	0.055	0.347	0.379	0.408
POS T	1.351	0.066	0.418	0.440	0.932
POS K	0.477	0.000	0.000	0.000	0.477
POS L	2.640	0.209	0.844	0.844	1.796
POS M	6.580	0.000	0.000	0.000	6.580
POS N	0.460	0.063	0.063	0.085	0.397
POS Q	0.244	0.000	0.000	0.000	0.244
POS R	0.655	0.078	0.118	0.118	0.537
POS S1	0.564	0.045	0.220	0.220	0.344
POS U	0.617	0.050	0.164	0.204	0.453
POS V1	0.667	0.023	0.055	0.055	0.613
<b>Sub Total</b>	<b>15.619</b>	<b>0.634</b>	<b>2.331</b>	<b>2.345</b>	<b>13.288</b>
<b>Open Space Agreed to be Treated as Pure Deduction from Net Site Area<sup>3</sup></b>					
POS P1	0.150	0.039	0.039	0.039	0.120
POS P2	0.201	0.119	0.119	0.119	0.090
POS S2	0.221	0.039	0.102	0.124	0.120
POS S3	0.407	0.035	0.082	0.082	0.330
POS V2	0.101	0.000	0.046	0.046	0.060
<b>Sub Total</b>	<b>1.080</b>	<b>0.231</b>	<b>0.387</b>	<b>2.754</b>	<b>0.720</b>
<b>Total</b>	<b>16.70</b>	<b>0.87</b>	<b>2.72</b>		<b>13.99</b>

Notes:

1. The 1:5 year drainage area includes the 1:1 year area. The 1:1 and 1:5 drainage volumes have been sourced from the Emerson Stewart LWMS Rev G, with the drainage areas confirmed as part of open space concept planning by EPCAD. Drainage into open space will be refined as part of UWMP planning, and other options such as underground storage tanks, soak wells, verge and median swales will also be considered.

2. The drainage areas are based on the following maximum battered swale / walled basin depths: 1:5 year events range in depth from about 450mm to 650mm, 1:10 year events are generally 1000mm deep, and the 1:100 year events are a maximum of 1200mm deep.

3. Drainage areas treated as a deduction are shown as Local Reserve Public Purposes Drainage on the Structure Plan, with the exception of V2 which forms part of the Landscape Protection Plan.

The treatment of drainage and frequency of storm events is not considered to impact on open space use, as per Liveable Neighbourhoods.

#### Drainage design in open space

All open space areas will be designed using water sensitive urban design practices. The useability of drainage areas over the 1 year event will be maximised through a combination of shallow swales and walled basins. Basin depths for the 5 year event range between 450mm and 650mm, 1:10 year events are 1000mm deep and 100 year events and a maximum of 1200mm deep. Refer the adjoining indicative images and those overleaf showing how useability of these open space areas will be maintained.

Where possible, verge and median swales will be used to infiltrate drainage as close to source as possible.

The drainage areas shown in Table 5 do not take this into account and assume (worst case) that all drainage is directed to open space. Detailed drainage design will be confirmed at UWMP and subdivision stage, and options such as verge and median swales, underground storage and soakwells.

The LWMS shows gross drainage areas based on 1:6 side slope batters. However, the gross LWMS figures have been reviewed in preparing the landscape concept plans and table 5. Basins for the 1:5 and 1:10 year storm events are calculated with no or minimal side slopes, or alternatively are walled basins. The 1:100 year events are calculated with the inclusion of the 1:5 and 1:10 events and are generally planted or grassed basins with side slopes. As a result the final drainage areas

in the POS are less than what they appear in the LWMS. This typical design approach maximises useable POS area.

#### Water efficiency in design

Landscape design will minimise water use. Shrub planting is native, or a native derivative species, with a combination of native and Mediterranean tree species. Where possible hard surfaces or low water alternatives will be used instead of turf, with grassed areas limited to key activity spaces. Water will be harvested where possible for passive irrigation purposes using swales, weirs and drainage channels. Organic mulches and soil amendment (including wetting agent) will assist in reducing irrigation requirements.



*Indicative images of shallow battered and walled basins in open space creating useable areas.*



### **6.3 Description of POS Areas**

The Structure Plan Landscape Concept Plan, prepared by EPCAD, is set out in Appendix 6 and Figure 11, and is summarised below. The concept plan is indicative, outlining the principles for open space development and will be subject to refinement following detailed design and further drainage modelling in liaison with the City of Rockingham at subdivision stage.



Figure 11: Landscape Concept Plan - Lot 2  
Note: Refer Appendix 6 for A3 version of plans  
Source: EPCAD

A description of the function of each POS, both existing and proposed, is provided on the following pages as well as the concept drawings for each POS area.

### 6.3.1 Existing Public Open Space

#### Rhonda Scarrott Reserve (formerly Tangadee Reserve) 'C'

The Rhonda Scarrott Reserve, shown as Reserve 'C' on the Structure Plan, has an existing area of 8.1 ha. Currently providing an oval, cricket pitch, minor play equipment, community building and fire sheds, this POS serves a key recreation function for both the existing Golden Bay as well as surrounding community. The location of this POS area at the edge of the existing Golden Bay area, presents an opportunity for integration for future stages of development within Lots 2 and 3.

A Stage 1 subdivision application for approximately 150 lots has been recently approved by the WAPC and includes a Primary School site directly adjoining Rhonda Scarrott Reserve to the east (consistent with the endorsed CDP). The Primary School site provides opportunity for integration of sporting ovals and its co-location complements this open space, drawing the maximum benefit from this open space area. The subdivision also creates a number of east-west oriented cottage lots to the north of the Primary School and to the east of Rhonda Scarrott Reserve, providing both POS amenity to the residents of these lots and additional surveillance to the open space.

In the context of the Structure Plan, Rhonda Scarrott Reserve is located adjoining the Coastal Boulevard and in close proximity to the neighbourhood centre, making it accessible to the whole community and providing opportunity for integration with the future centre.

The Department of Housing are working with the City of Rockingham in progressing with landscape upgrades to Rhonda Scarrott Reserve to provide further active recreation facilities and community facilities, refer Figure 12.

The additional facilities proposed are as follows:

- The potential for a junior soccer oval to service the Primary School and the District Open Space.
- A pedestrian and cycle footpath network that circulates the open space and is linked with surrounding dual use footpaths and bike lanes. This encourages walking, jogging and cycle routes.
- Shade structure and seating to encourage people to watch sporting events and also assists with visual surveillance.
- In addition to the above facilities, drainage basins will be required to hold localised storm water runoff and are incorporated within the design. Pockets of existing vegetation will be retained to assist with habitat preservation, and existing degraded areas will be rehabilitated with native species.
- A possible upgrade to the existing car park and expansion of the fire brigade shed (as shown) may be required and shall be considered in consultation with the City of Rockingham.

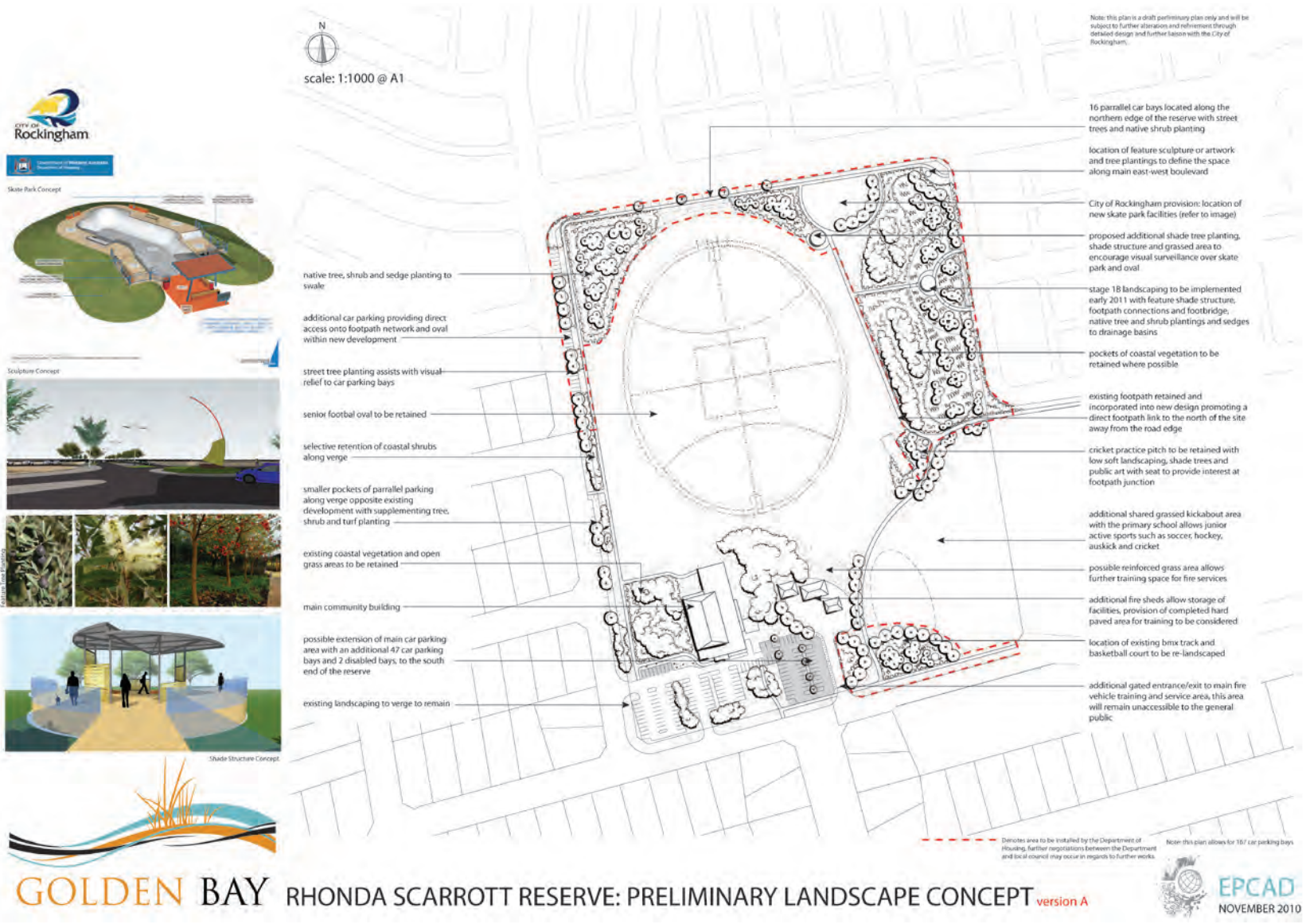


Figure 12: Indicative Concept Rhonda Scarrott Reserve  
Note: Refer Appendix 6 for A3 version of plans

### Linear Public Open Space 'D'

This linear public open space will provide a pedestrian connection between the existing Golden Bay foreshore node and the future Golden Bay development covered by the Structure Plan. Upgrade works are proposed as part of the project. Dual use footpaths with connections to beach access points will feature, with seated resting points and coastal rehabilitation planting.

### Conservation Reserve 'F'

Adjoining the Landscape Protection Area 'M' and the existing residential subdivision, this conservation reserve retains significant natural dunal features.

Minor landscape works are proposed with formalised footpaths installed and rehabilitation works to degraded areas, in accordance with the endorsed Landscape Protection Management Plan. Fire management will be an important component of the design and ongoing maintenance of this conservation reserve and will be addressed as part of the Fire Management Plan prepared pursuant to the PER.

### 6.3.2 Proposed Public Open Space – Lot 2

#### 6.3.2.1 POS West of Warnbro Sound Avenue

### Neighbourhood Park 'I'

Located in close proximity to the coast with possible views to the ocean, this neighbourhood park will compliment the coastal environment, and form a central POS area for the coastal precinct, with a focus on passive recreation. The park will be integrated with the coastal pedestrian network, complimenting the proposed medium to high density development.

As this POS is elevated, only small localised areas within the park may take road runoff in the form of natural look swales, however this POS will not store drainage for large storm events. This park provides opportunities for pedestrian walkways linked to the coastal dual use footpath network to meander through pockets of existing vegetation with strategically placed viewing platforms and decks to maximise views of the ocean. Small feature landscaped nodes will be created to accommodate interpretive signage, artwork and seating.

POS 'I' is 0.61 ha and performs only a minor 1 year and 5 year drainage function, refer Table 5.



### Neighbourhood Parks 'J' & 'T'

POS 'J', centrally located within the northern portion of the development provides low key active and passive recreation facilities over approximately 7,500m<sup>2</sup>. A swale planted drainage basin is proposed that allows water to overtop onto a grassed kick-about area in large storm events, maximising the usability of the open space. Native tree and shrub planting compliments the park providing a visually pleasing outlook for surrounding lots. This neighbourhood park is located on the extension of Kingscliff Drive from Secret Harbour, and as such could also be used by Secret Harbour residents.

POS 'T' comprising approximately 1.3 ha provides active and passive recreation facilities on the east west neighbourhood connector road linking to Warnbro Sound Avenue, a key entry point to the project. This park could include a larger play area that provides active recreation facilities for older children, a grassed kick-about area and multiple shade structures and seating areas. Drainage is an important element in this POS, and a circular planted basin holds water in frequent events. Water then overtops into a secondary planted basin and in larger storm events into the grassed kick-about area. Shade planting accentuates this POS, and native groundcovers will allow views into the POS from the surrounding lots and footpath connections.

POS 'J' and 'T' comprise a portion of restricted use open space due to their drainage function in accordance with Liveable Neighbourhoods, refer Tables 4 and 5.

The use of these POS areas for drainage does not compromise their ability to serve as useable active areas, the depth of swales and basins will be kept to a maximum of 650mm for the 5 year event and 1000mm for the 10 year event.

The use of verge and median swales will also be investigated as part of the Urban Water Management Plan to infiltrate at source and reduce drainage within open space. The areas reflected in Table 5 are therefore "worst case" drainage requirements.

Detailed drainage design will be considered as part of the Urban Water Management Planning to address the requirements of the City's Policy, in consultation with and to the satisfaction of the City, and this may include the use of underground storage cells, verge and median swales, open bottom soak wells and minor reconfigurations or increased area to open space.

### Local Pocket Park 'N'

POS 'N' is located within the Stage 1 subdivision area, which consists of approximately 150 lots, of which POS 'N' forms a centrally accessible POS area. POS 'N' is being constructed as part of the Stage 1 works ensuring immediate provision of landscaped passive open space for Stage 1 and existing Golden Bay residents, refer Figure 13.

This pocket park is located opposite the future Primary School and focuses on providing a space for active recreation for school children after school hours. A large shade structure with seating is provided with shade trees featured throughout and the presence of a play area and grassed kick-about area to encourage active play.

Drainage will be stored in a semi circular walled basin planted with swale species and storm water will overflow into the grassed kick about area in large storm events.



Figure 13: Indicative Concept Stage 1 Local Pocket Park 'N'

Note: Refer Appendix 6 for A3 version of plans

Source: EPCAD



Indicative images Local Urban Space 'K' and Local Active Open Space 'L'

Source: EPCAD

POS 'N' totals 0.46 ha and predominantly serves a recreation function, constituting approximately 0.4 ha unrestricted open space, refer Table 4.

#### 6.3.2.2 POS East of Warnbro Sound Avenue

##### Local Urban Open Space 'K'

POS 'K' is located near the neighbourhood centre, providing an urban space suitable for community gatherings or exhibitions, serving a formal passive function complementing the active open space next to the High School. Large shade trees, an architecturally designed shade structure and public art are proposed to enhance this urban space, with the main radial design allowing free flowing pedestrian movement.

POS 'K' is a total of 0.48 ha and constitutes unrestricted POS in accordance with Liveable Neighbourhoods, refer Table 4.

##### Local Active Open Space 'L'

POS 'L' is 2.64 ha located adjoining the existing Comet Bay High School Site, consistent with an agreement between the DoE and the DoH in 2004 to cede an additional area of active open space adjoining the High School site.

The inclusion of an additional 0.8 ha of Public Purpose High School site is the outcome of recent liaison between DoH and DoE to facilitate an additional area for school buildings.

The total POS to be ceded free of cost to the City and forming part of the 10% contribution is 2.64 ha and the Public Purpose (High School) site is 0.8 ha. The Public Purpose Site will be purchased by DoE following its creation as part of an approved subdivision application.

POS 'L' plays a critical role in meeting the broader community objective of ensuring adequate school facilities. A multipurpose grassed oval will be provided serving both the school activities as well as future residents. A hockey pitch, as requested by the DoE, is located on a north-south orientation on the eastern side, is elevated above the active grassed area. The hockey pitch provides amenity for the school and community, with additional surveillance to the school after hours. The grassed oval will also act as a drainage basin for larger storm events, with water overtopping from a walled drainage basin that is planted with appropriate swale species.

Pedestrian walkways circulate the grassed oval areas with shade tree planting and native ground covers. The footpaths provide clear connections to both the High School and the surrounding footpath network.

POS 'L' is 2.64 ha and serving both a recreation and drainage function and is credited accordingly, refer Table 4.

The use of underground storage cells may be investigated as part of the Urban Water Management Planning to reduce drainage requirements within the open space.



Indicative images - Lot 3 open space

Source: EPCAD

Figure 14: Landscape Concept Plan - Lot 3  
Note: Refer Appendix 6 for A3 version of plans  
Source: EPCAD

### 6.3.3 Proposed Public Open Space – Lot 3

#### Landscape Protection Areas 'M'

A Landscape Protection Management Plan was endorsed by the City of Rockingham in 1994, refer Appendix 1 (Attachment 7). This Plan sets the landscape treatments, access and levels / interface that are permitted within the POS 'M' to ensure appropriate retention and management of the dunal landscape.

The Golden Bay Landscape Protection Management Plan (1994, Mitchell Goff & associates) specifically states:

1. *Conserve the landscape character of the area and specifically the height of certain dune formations.*
2. *The incorporation of substantial landforms and their associated vegetation into the development requires two main issues to be addressed:
 
  - i). *the physical retention.*
  - ii). *The management of access and use.**

The following sets out in further detail the key elements of the endorsed Landscape Protection Management Plan:

#### **Physical Retention**

- Appropriate modification to the lower slopes to ensure appropriate integration with lots, roads and landform, reducing need for retaining structures and allowing controlled and limited access for passive recreational purposes where required.

- Positioning of retaining structures away from the road edge to ensure appropriate integration with neighbouring areas.
- This modification of the lower slopes allows for the physical retention of the dunal peaks.

#### **Management of Access & Use**

- Lower slopes modified to allow public access encouraging creation of small parks at lower slopes.
- Well identified and marked routes for walkers and small viewing decks at the peak of the dunes.
- Pathways to incorporate log steps and kick rails to encourage users to stay on tracks.
- Further definition of routes through additional planting.

All works proposed to be undertaken within the POS 'M' areas are consistent with the endorsed Landscape Protection Management Plan. The following outlines the compliance with the approved Landscape Protection Management Plan:

- The designs for the interface areas within the Landscape Protection Area boundaries do not encroach any further into the dunes than what is shown on the 1994 plan, refer Fig 14.
- The designs allow for manipulation of the lower slopes with earth working and retaining walls to assist in dealing with the level change between the development and the dunal formations in accordance with the 1994 document.

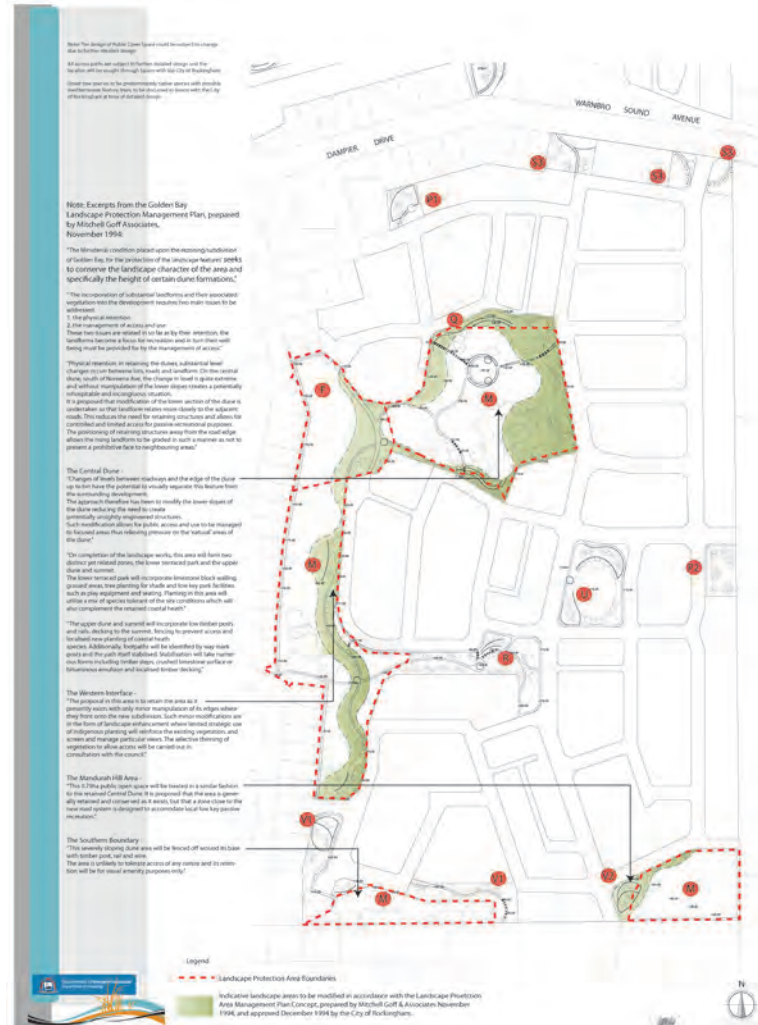


Figure 15: Landscape Protection Area Management Plan

Note: Refer Appendix 6 for A3 version of plans

Source: EPCAD

- Specified access routes are proposed to ensure use of the dunes is managed correctly and allows safe use for the community, and ongoing management of the dunes.
- Facilities including open areas, play, pathways and vantage points have been rationalised to suit current best practice, and are proposed in the same Landscape Protection Areas as detailed in the 1994 document.
- Rehabilitation of degraded areas of the dunes is essential and proposed on the current plans. This is particularly important to ensure sand movement and further degrading of the dunes is minimised.

The four separate sites have been recognised as significant natural features and the landscape design is heavily focused around the retention of the dunal formation, refer Figure 15. With the integration of interpretive signage, viewing decks and platforms, pedestrian walkways, stand alone exercise equipment and strategically placed shade elements, the Landscape Protection Areas will provide active and passive recreation to both future and existing residents.

The focus on retaining as many proposed footpaths along existing tracks is imperative and by providing trails and circular routes, walking, jogging and cycling is encouraged.

Degraded areas will be rehabilitated or landscaped appropriately to suit the existing features. Clearing along the lot boundaries and road edges is required, as per the approved Landscape Protection Management Plan, with proposed tiered walls where steep level change occurs.

Fire management will be an important component of the design and ongoing maintenance of this public open space and consistent with the PER shall be implemented at each stage of development.

The current designs of the lower slopes of the landscape protection areas have taken into consideration the required fire protection zone with a minimum distance of 20m between retained vegetation and dwelling construction. This remains in accordance with the 1994 LPMP and no additional encroachment has occurred within the Landscape Protection Areas to meet this requirement.

Therefore, the lower slopes will be treated with irrigated native shrubs, trees or turf where possible. Additional low fuel treatments including clear stemmed tree plantings, low groundcovers and use of hardscape treatments further assists in minimising fire intensity.

This is detailed further in section 6.4 and Appendix 12.

#### Landscaped Drainage Spaces 'P'

The public open space areas allocated as P1 and P2 are landscaped drainage basins located to serve a drainage function. Footpaths, seating, viewing decks and signage feature ensure that these POS areas are useable and enhance the estate from a visual perspective. Where the drainage basins abut lots, screen trees and shrub planting is proposed to respect privacy and prevent access.

P1 and P2 are 0.15 ha and 0.2 ha respectively and given their primary drainage function are treated as a deduction, refer Tables 4 and 5.



### Public Open Space 'Q'

POS 'Q' is not part of the Landscape Protection Area, however, is located abutting POS 'M' at the base of a large dune to absorb some of the level change between the proposed road level and the Landscape Protection Area and provide opportunity for additional works.

POS 'Q' consists of a sloping turfed and planted bank, with retaining walls and formalised tree plantings. Due to the levels sloping up towards the dune, this POS area will hold minimal storm water drainage in the form of direct road runoff. This landscaped interface provides a visually aesthetic outlook from proposed lots with a formal landscaped area and a backdrop of the large retained dune.

POS 'Q' is 0.244 ha, refer Table 4.

### Neighbourhood Parks 'R' and 'U'

POS areas 'R' and 'U' provide an opportunity for a formalised open space central to Lot 3 where dunal landform retention is not required.

Landscape Protection Areas form a significant component of the POS in Lot 3 and these open space areas ensure useable open space is provided in Lot 3.

POS 'R' adjoins the westernmost Landscape Protection Area 'M', and as such acts as a transition between active formalised open space and the retained and protected dunal landform.

These areas are the main active recreation spaces within Lot 3 and feature open grassed kick-about areas, circular footpath walks, a shade structure with seating and formalised tree and shrub planting. Retaining walls are required to absorb level change, but can also act as seat walls and areas for artwork.

These areas are also landscaped greenway spine along the key north-south connector in Lot 3.

POS 'R' is a total of 0.655 ha and POS 'U' is 0.617 ha and both predominately serve a recreation function, whilst taking drainage in contained areas and therefore are credited accordingly, refer Tables 4 and 5. POS will be predominantly turfed to maximise active recreation and play opportunities on Lot 3.

### Landscaped Drainage Space 'S'

The open spaces 'S1', 'S2' and 'S3' will be landscaped swales of a high aesthetic nature.

Open space areas 'S' straddle the intersection of Warnbro Sound Avenue and Dampier Drive and proposed connections to Lots 2 and 3, providing a landscaped entry to the Golden Bay community.

Planted with water wise species of shrubs, littoral plants and trees, the vegetation will assist with nutrient stripping, water absorption, midge and mosquito control.

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'S1' is the primary open space area of 0.564ha, serving both a recreation and drainage function. Drainage basins in the 5 year event will be no deeper than 650mm and 1000mm for the 10 year event.

S2 and S3 are primarily for drainage, being 0.221 ha and 0.4 ha respectively. Accordingly these spaces have been treated as a deduction from the net site area.

#### 6.3.4 Foreshore Reserve

##### Foreshore Reserve 'G' and 'H'

Highlighted for retention, the Foreshore Reserve boundary has been set under the PER. These areas will remain protected, with formalised beach access points installed. The Foreshore Reserve is covered separately by a Foreshore Management Plan, required as a condition of the PER and recently lodged with the EPA, DEC and City of Rockingham for endorsement, refer Appendix 7 and Figure 16. To cater for future use as a local and district beach destination the following is proposed within the Foreshore Reserve:

- Low key access roads;
- Carparks;
- Dual use paths with seated resting points, beach access tracks and lookouts;
- Educational signage;
- A surf life saving club and associated cafe/kiosk;
- 4000-5000 m<sup>2</sup> of POS;

- Rehabilitation; and
- Weed management.

There is a level difference between the proposed subdivision and existing Foreshore Reserve levels. The levels of the Foreshore Reserve will not be altered at the interface and the transition will be carefully managed, with any changes to the ground level being kept to the eastern side of the Foreshore Reserve boundary.

To ensure that the natural state of the Foreshore Reserve is maintained, the Foreshore Management Plan identifies a set of design criteria that will be applied to development along the interface between the Foreshore Reserve and the development. The key design criteria are as follows:

- All infrastructure associated with the interface will be contained to within the Structure Plan urban zone area and not encroach into the Foreshore Reserve (bubble up pits excepted)
- Bubble up pits that take the overflow from greater than 1 in 5 year ARI events may be located in the foreshore reserve:
  - when they are consistent with the approved Urban Water Management Plan;
  - situated away from areas of TEC
  - stabilised to prevent erosion
  - located, where possible, in existing cleared areas
  - rehabilitated with native species
  - located adjacent to an emergency access track to provide easy access for future maintenance.



*Indicative images - Streetscape Drainage*

*Source: EPCAD*

- Retaining walls, where possible, will not exceed 1500mm in height in order to assist with fire fighting access. If a retaining wall needs to exceed 1500mm in height, the wall will be designed in 'stages', with swale or native coastal planting separating the walls.
- No construction and infrastructure can impact upon the TEC areas in the Foreshore Reserve
- Any batters that may be required will comprise of limestone pitching and vegetated slopes, with any planting to be with local native species.
- A minimum of five emergency access points will be provided for along the length of the foreshore interface.
- A dual use path will be provided for the length of the interfacing, connecting into the pathway networks of the existing Golden Bay community to the south and Secret Harbour to the north.

For development along the interface of the Foreshore Reserve, the Department of Housing will continue to work with the City of Rockingham throughout the design process.

The complete detailing of this criteria relating to the design of the Foreshore Reserve and Structure Plan development interface is included in the Foreshore Management Plan.

The full Foreshore Management Plan is subject to a separate approval process pursuant to the PER and is included as Appendix 7.

#### Conservation Reserve 'A'

Set aside for retention, this open space has been identified under the PER. POS 'A' will remain a protected area with no landscape works.

#### Streetscape Links

All streetscape treatments provide a high level of public amenity through the use of water wise or Mediterranean tree and shrub species, aesthetically pleasing hardscape finishes with dual use footpaths and bio-retention swales to verges and medians where possible.

There is opportunity for landscape verge swales in front of cottage lots between POS 'J' & 'T' incorporating water sensitive urban design principles, which shall be explored following more detailed drainage modeling as part of the preparation of Urban Water Management Plans at each stage of subdivision.

#### **6.4 Fire Management Plan**

Fireplan WA have prepared two Fire Management Plans for Lots 2 and 3 respectively, as part of the Structure Plan, assessing the risk of fire at the site and to detail fire management methods and requirements that are to be implemented within the Golden Bay development.

The aim of the Fire Management Plans are to reduce the threat to residents and fire fighters in the event of a fire within or near the development and to conserve the 'Foreshore Reserve' and 'Landscape Protection Areas.'

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The Fire Management Plans have been prepared in conjunction with the Foreshore Management Plan, the Landscape Protection Management Plan, the Local Water Management Strategy and the Public Open Space Strategy, in accordance with the Western Australian Planning Commission's *Planning for Bush Fire Protection Guidelines 2010*. The Fire Management Plans are attached as Appendix 11.

The Fire Management Plan recommends that a number of fire management methods be undertaken for Golden Bay, with the key recommendations being:

- The road network of Golden Bay is, where possible, utilised to separate the housing development from the Foreshore Reserve and Landscape Protection Area;
  - A minimum 20m building protection zone, being an area of low fuel, is established between dwellings and the vegetation within the Foreshore Reserve and Landscape Protection Area. This building protection zone may include areas of road reserve, access ways, building setback areas and open space designed to meet low fuel specifications.
  - The implementation of the Landscape Protection Management Plan for the Landscape Protection Areas and the Foreshore Management Plan for the foreshore reserve, with these plans outlining the control of the fire fuel loads levels within these areas as well as identify the locations of strategic firebreaks. The Landscape Protection Management Plan has already been endorsed by the City of Rockingham, as a condition of the 1994 CDP approval while the Foreshore Management Plan has been prepared in conjunction the Golden Bay Structure Plan and is attached as Appendix 7.
- That all residential dwellings are within 100m of the foreshore reserve or the Landscape Protection Area shall conform to Australian Standard (AS3559 Bushfire Attach Level 12.5) in terms of fire protection construction standards; and
  - That the Golden Bay development is to have mains water and fire hydrants installed at 200 metre intervals.

At the time of subdivision, when any residential lots are created that abut either the Foreshore Reserve or the Landscape Protection Area, the building protection zone will be established by the developer. This will entail the appropriate dwelling setbacks, landscaping, treatment and management of the land interface between the dwelling and foreshore reserve or the Landscape Protection Area in accordance with the Foreshore Management Plan and the Landscape Protection Management Plan respectively, ensuring that the building protection zones remains effective in terms of fire protection.

Plans will also be prepared at the time of subdivision identifying all properties that will need to adhere to Australian Standard (AS3559 Bushfire Attach Level) with a notification being lodged on their certificate of titles, ensuring that all future landowners are informed of the construction standards that will apply to these properties.

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## 7.0 WATER MANAGEMENT

The PER includes a drainage condition (297.P5) requiring that stormwater drainage be designed to infiltrate stormwater on site.

The PER does not require any further reporting, although in recognition of the contemporary reporting requirements of WAPC's Better Urban Water Management Guidelines, a Local Water Management Strategy (LWMS) has been prepared by Emerson Stewart as part of the Structure Plan for the site, consistent with, but over and above the statutory requirements of the PER. The LWMS provides a framework for the preparation of Urban Water Management Plans at subdivision stage.

### 7.1 Local Water Management Strategy

The Golden Bay Structure Plan adopts water sensitive design principles, with rainfall being collected and disposed of into the natural sands of the area, mimicking the natural recharge of aquifers prior to the development, consistent with the 1994 PER.

The undulating nature of the site, highly permeable sand sub grade and separation to ground water of over 4m means that the site is highly suitable to urban development and on site infiltration of groundwater.

The LWMS disperses stormwater disposal and maximises groundwater recharge through the following strategies:

- Standard soak wells on all residential lots.

- Gullies and underground pipe work will be installed within the road layout. The piped system will be designed to cater for urban road run-off from a 5 year recurrence frequency storm.
- There are opportunities to use verge and median swales.
- Flushed kerbing will be installed on roads abutting POS to facilitate stormwater infiltration within the open space.
- Run-off from less frequent major events, up to 100 year recurrence intervals, will be catered for in an overland flow system in roadways, foreshore areas and POS.
- Best management practices will be used in stormwater recharge to the shallow aquifer through the diversion of runoff into road medians and road-side swales, drainage soakwells to infiltrate runoff from building roofs and private open space areas, and the disposal of road runoff into infiltration basins within POS areas.

Water quality will be achieved through:

- Structural controls: vegetated swales and basins, detention storages and gross pollutant traps.
- Non-structural source controls: urban design, street sweeping, community education and low fertiliser landscaping regimes.

The LWMS, refer Appendix 8, sets out detailed storage volume calculations for each catchment and public open space areas for 1:1, 1:5, 1:10 and 1:100 storm events. The storage volumes have been used by EPCAD to calculate detailed drainage area requirements and are reflected in the open space calculations (section 6.0) and the landscape concept plan.



## 8.0 RETAIL ASSESSMENT

The 1994 CDP identified two potential commercial nodes within Golden Bay:

- 0.308 ha for beach related “tourist / leisure”, which could be restaurant, cafe, sports equipment / clothes and the sale of cool drink, ice creams and take away food stuffs.
- 0.59ha for “commercial / service station” at the junction of Warnbro Sound Avenue and Dampier Drive.

While the approved CDP does show these two areas for local services and retail activities, their location, design and integration with the surrounding urban fabric is not consistent with Liveable Neighbourhoods.

The Golden Bay Structure Plan proposes a centrally located main street based neighbourhood centre providing facilities for the local community on the Coastal Boulevard.

### 8.1 Golden Bay Structure Plan – Retail Assessment

Shrapnel Urban Planning have prepared a “Neighbourhood Centre Potential Assessment” as part of the Structure Plan to review and update the retail planning for the project area, refer Appendix 9. The following provides a summary of the key implications of this assessment for the Structure Plan.

The Centre Assessment considers the retail potential of Golden Bay based on the proposed dwelling unit yield projections in the context of the existing District Centre at Secret Harbour and local centre in Golden Bay.

The City of Rockingham Local Commercial Strategy currently allows for a future neighbourhood centre of 2 800m<sup>2</sup>, to be located as part of future structure planning of Lots 2 and 3. This neighbourhood centre is in addition to the existing local centre on Dampier Drive, which has a retail floorspace potential of 1 220m<sup>2</sup>. The City’s Commercial Strategy assumptions are based on lower dwelling unit and population forecasts that what will actually eventuate under the Structure Plan. The Commercial Strategy is based on a total Golden Bay population (existing residents plus forecast future residents) of 6,041 people; however, the Structure Plan allows for a total future population (existing residents plus future residents under the Structure Plan) of 8,174 people. The Shrapnel Centre Assessment has been based on the total population forecast under the Structure Plan of 8,174 people.

Based on these revised higher population forecasts there is the potential for the Golden Bay neighbourhood centre to have an optimum retail floorspace of approximately 3 500m<sup>2</sup>, comprising:

- Medium size supermarket: 1 800 – 2 000m<sup>2</sup>
- Specialty shops: 1 330 – 1 130m<sup>2</sup>
- Small retail showrooms: 370m<sup>2</sup>

With non retail uses including: local offices, medical centre, childcare, community services / facilities and the potential for live work

- ① The 'main street' retail core is located on a north-south road parallel to Wambro Sound Avenue to enable a higher level of pedestrian amenity in the street, and to provide a high degree of certainty of being able to deliver the necessary on-street parking.
- ② The supermarket component (assumed to be an 2000sqm max IGA) is adjacent to the main street (sleeved from the street by specialty tenancies), and glazed to the north for a strong relationship to the car park and to provide an opportunity for passive solar control. The supermarket's entry is to be located at the north-western corner, encouraging maximum pedestrian exposure to the nearby retail and specialty shops along the main street.
- ③ The supermarket and associated car park has exposure to passing trade on Wambro Sound Avenue. Vehicle parking showing on this Concept Plan is indicative only and will be subject to detailed assessment at the time of the preparation of a Detailed Area Plan and Development Application.
- ④ The route for trucks servicing the supermarket is separated from the car parking area for improved customer safety.
- ⑤ The main loading dock is hidden from view from the street by the adjacent mixed use development on the East-West street.
- ⑥ Car-parking areas are located behind buildings to minimise visual impact and loss of continuity of built form in the centre and adjacent residential streets (except for Wambro Sound Avenue, which performs a different role).
- ⑦ A landscaped 'entry statement' has been provided on the western side of the main intersection. Open space to be retained in the ownership and maintenance of the Department of Housing while sales continue on Lot 2 west of Wambro Sound Avenue. The timeframe for handover to Council will be discussed at the time of subdivision.
- ⑧ The on-street parking on the East-West street to the west of the main intersection is highly desirable, but not critical to the success of the centre as the adjacent land uses are not envisaged to be retail.
- ⑨ A church would suite the southern portion of the site - providing the opportunity for a dramatic architectural statement and a 'piazza' forecourt that could double as a community space at the end of the main street.
- ⑩ The south-western site in the centre would suite a Child Care Centre given proximity to both the primary school just to the south and the centre immediately to the north.
- ⑪ The relatively deep superlots created for the centre provide an opportunity to 'sleeve' in the back of any lots along the East-West street and maintain a residential-to-residential interface with the adjacent residential area.



- ⑫ The main street and associated car-parking areas are accessible from two intersections along Wambro Sound Avenue.
- ⑬ The main street is to be a tight 'urban' street with a strong pedestrian focus, having a road reserve not exceeding 20 metres in width. Pedestrian crossing points are to be located so as to balance the need to facilitate direct and convenient access from the car park across the street and to encourage customers to walk the ends of the retail core and support the outmost tenancies. Technical details are to be provided at Detailed Area Plan stage regarding pedestrian and cycle movements, access and egress for delivery vehicles, public transport proposals and the final configuration of the cross section of the main street of the Neighbourhood Centre.
- ⑭ The retail core is 'book-ended' with mixed-use development to allow for some incremental growth of the retail component over time.
- ⑮ The lots on the western edge of the centre are suited to the 'Delrin' model of home-office accommodation with the office component addressing the centre car park to the rear of the lot and a residential-to-residential interface at the front of the lot.
- ⑯ Within the centre, all residential lots on the remainder of the main street, the East-West street, and facing centre car parks have the capacity to support home-based business and, ultimately, mixed-use development.
- ⑰ A small convenience retail tenancy is suggested as part of a mixed-use development on the eastern side of the main intersection, and located on the 'drive-home' side of the East-West street to give it a small but important advantage over the main-street to the west of Wambro Sound Avenue.
- ⑱ The main intersection is shown as a signalled intersection to encourage walkability to the centre from the relatively dense, walkable, residential catchment to the east as well as to the high school from the large catchment to the west.
- ⑲ A grouped housing site is suggested to the north of the centre adjacent to Wambro Sound Avenue because limited vehicle access makes small lot subdivision difficult to achieve. The residential component also offers some passive surveillance of the supermarket car park after hours.

The mixed-use opportunities identified could be a range of uses that include offices, small showrooms, medical uses, with or without a residential component above.

The retail core (in red) is shown with a floor area of 3500sqm and 193 car bays (not including on-street bays or bays on adjacent mixed-use sites). This equates to a rate of just over 5.5 bays/100sqm of retail floorspace.

Figure 17: Neighbourhood Concept Plan

Plan No.: 2187-184A-01

accommodation.

The neighbourhood centre is main street based, central to the proposed development area. This central location is highly accessible to the surrounding community, encouraging walking and cycling to the centre. The traffic signals are critical to the integration of the east and west sides of the centre and pedestrian connectivity to the centre.

The majority of the centre is likely to be located on the western side, closest to the bulk of the catchment and capturing passing traffic heading to the beach. The eastern side may accommodate approximately 200 – 250m<sup>2</sup> of retail floorspace, serving a convenience function for the local residents east of Warnbro Sound Avenue within a walkable catchment. The eastern side also provides opportunity for a medical centre, gym, church and other non retail community services that captures passing trade on Warnbro Sound Avenue as well as residential use.

The Centre Assessment also identifies the potential for a commercial node within the coastal precinct, similar to what is shown under the approved CDP. This commercial activity could be located within the urban zoned portion, or within the Foreshore Reserve as part of the surf club facility. This node is likely to be relatively low key based on the seasonal nature of beach goers, but could include a small deli, kiosk, cafe, restaurant or fish and chips. The location, role and size of this node will evolve as the project progresses and will reflect ultimate demand.

The neighbourhood centre could employ up to 200 people, thus providing net employment opportunities for a little over 5 per cent of the local workforce. The centre would be the largest employer in Golden Bay apart from home-based employment which, if in line with ABS survey averages, will account for 8 percent of the local workforce.

## 8.2 Centre Design and Built Form

The design of the built form and public realm in the neighbourhood centre will be based on the following principles:

- Main street based, with built form fronting an opening onto the north-south road leading from the Coastal Boulevard roundabout and surrounding streets
- Continuous awnings to the front of buildings, encouraging pedestrian activity
- Nil setbacks to built form fronting the main street with a paved verge of 3 – 4m allowing for pedestrians, as well as trade displays and alfresco dining
- On street parking where possible to assist in slowing traffic
- Large areas of car parking located behind the buildings fronting onto the main street
- The main entrance for buildings will be from the street rather than from the parking at the rear
- The intersection of Warnbro Sound Avenue and the Coastal Boulevard is to incorporate landmark features to create a sense

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of place and arrival

- Central median on the Coastal Boulevard providing a pedestrian crossing refuge
- Approximately 4 hectares has been set aside for the neighbourhood centre allowing for retail, commercial, community and residential (grouped/multiple) uses. A design concept for the centre will be prepared in conjunction with the City, reflecting the principles above and proposed land use mix. This concept will then inform the preparation of a Detailed Area Plan as a condition of subdivision approval.

These principles will be implemented via a Detailed Area Plan, required as a condition of subdivision approval.

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## 9.0 MOVEMENT NETWORK

The endorsed CDP established the road hierarchy for Golden Bay with the primary roads identified as Warnbro Sound Avenue, Dampier Drive and Mandurah Road. Transcore has prepared an updated transport assessment with consideration given to the current and forecast population figures and updated road network. The updated transport assessment is based on Liveable Neighbourhoods objectives, with the primary aim of achieving a safe, efficient and attractive street network. This report is attached as Appendix 10.

The key elements of the Golden Bay Structure Plan movement network are to:

- Maintain connections to Golden Bay and Secret Harbour in accordance with the endorsed 1994 CDP, recognising that adjoining subdivisions were designed with road reserves abutting the infill development area allowing for future connection.
- Provide opportunity for future connections to the east from Lot 3, recognising the potential for possible development around the Karnup Station transit oriented development precinct.
- Provide for a signalised intersection at Warnbro Sound Avenue. The traffic lights are critical in ensuring the neighbourhood centre is connected and pedestrian crossing is encouraged between the east and west sides of Warnbro Sound Avenue to access local retail services, community buildings, primary and High Schools and other key facilities. The lights received in principle approval from Main Roads on 9 December 2010.

- Provide for an east-west neighbourhood connector referred to as the Coastal Boulevard, linking from the residential area east of Warnbro Sound Avenue to the beach.
- Provide for three north – south bus routes through the development area along Warnbro Sound Avenue and internal to the Structure Plan area, both east and west of Warnbro Sound Avenue (as confirmed by PTA).
- Facilitate the construction of an additional leg, off the existing roundabout at the intersection of Warnbro Sound Avenue and Dampier Drive to the north.
- Provide a road network that provides a grid road pattern and an interconnected design that disperses and slows traffic and satisfies car parking, pedestrian, cyclist and public transport objectives.

## 9.1 Existing Transport Network

The characteristics of the existing transport network are as follows:

- Warnbro Sound Avenue, identified as an 'Other Regional Roads Reservation' under the Metropolitan Region Scheme traverses Lot 2 heading south from Secret Harbour and connecting to Dampier Drive and Mandurah Road ('Primary Regional Road Reservation') to the east.
- Warnbro Sound Avenue is constructed to dual carriageway standard, two lanes in each direction, with the southern section of Warnbro Sound Avenue and the eastern section of Dampier Drive (within the Structure Plan area) constructed to two-lane, single-

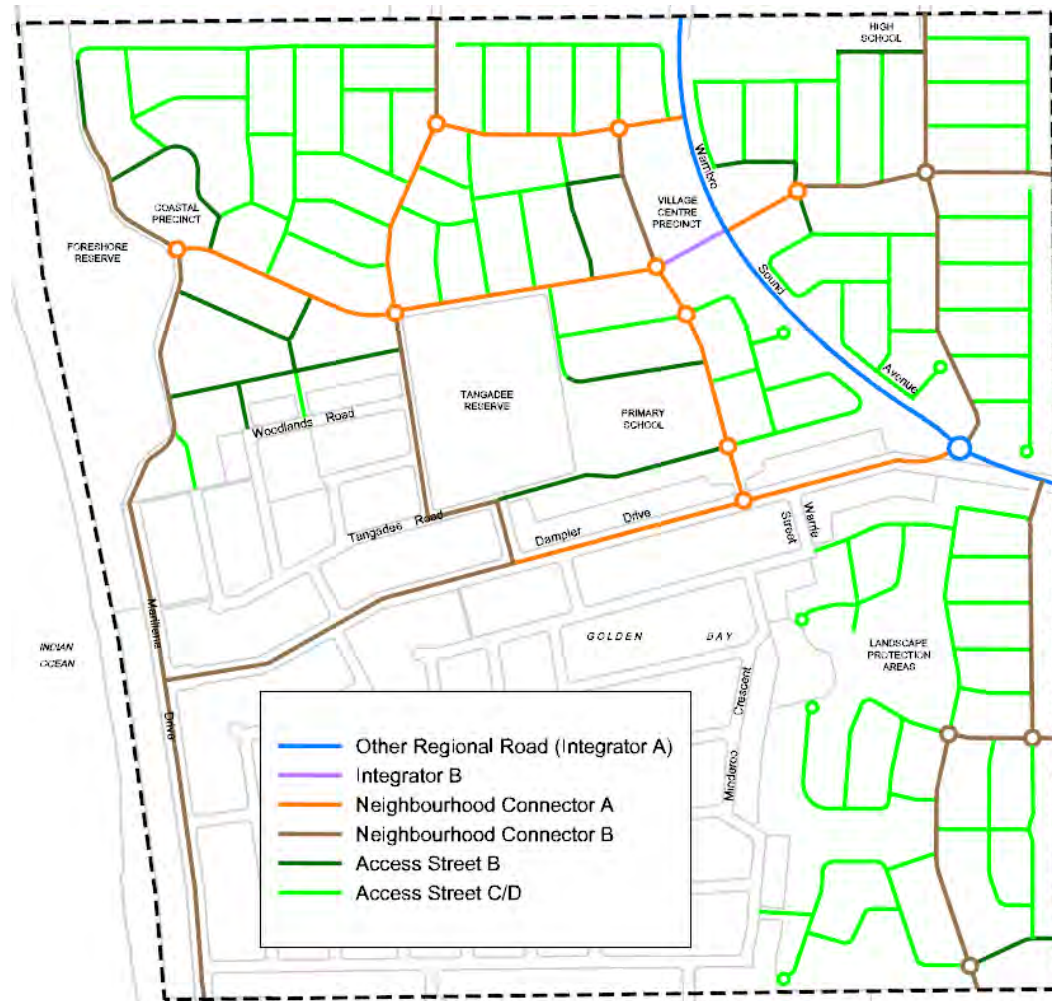


Figure 18: Road Hierarchy Plan  
Source: Transcore

carriageway rural road standard. The Mandurah Road / Dampier Drive intersection is controlled by traffic signals. The Dampier Drive / Warnbro Sound Avenue intersection is constructed as a two-lane roundabout.

- Estimated weekday traffic flows based on a recent manual count undertaken by Transcore, as well as MRWA data are as follows:

Warnbro Sound Avenue (north of Dampier Drive)	8-9000 vpd
Dampier Drive (east of Warnbro Sound Avenue)	6-7000 vpd
Dampier Drive (west of Warnbro Sound Avenue)	5-6000 vpd

- The bus service route 558, connects Rockingham Station, Warnbro Station and Mandurah Station via Warnbro Sound Avenue and through the existing suburb of Golden Bay and operates daily. Routes 559, 561 and 562 terminate at Comet Bay High School.
- Dampier Drive is considered a good riding environment in accordance with Perth Bike Map Series, 2009. A shared path also exists along the northern side of Dampier Drive and extends westwards to the coast and along the southern side of Dampier Drive to Mandurah Road

## 9.2 Proposed Transport Network

The Transport Assessment road hierarchy plan is shown as Figure 17. and described below.

### 9.2.1 Road Network

The key features of the proposed road network are as follows:

- **Warnbro Sound Avenue** is already dedicated as a road reserve and is equivalent to an Integrator A. It will ultimately be constructed to the same dual carriageway standard as existing sections north of the Structure Plan area within Secret Harbour.
- **Coastal Boulevard** is the proposed east west coastal street and will vary in standard along its length to reflect adjoining land uses. The portion of the Coastal Boulevard that passes through the neighbourhood centre will function as an Integrator B in a 25m road reserve incorporating a 5.5 m median accommodating a right turn pocket at the Warnbro Sound Avenue intersection. The western section of the Coastal Boulevard is planned as a Neighbourhood Connector A road in a 25 m road reserve and will accommodate street trees and services in the median. The section of Coastal Boulevard (east of Warnbro Sound Avenue) will have lower traffic flows and is planned as a Neighbourhood Connector B. This road will have a standard 18 m cross section, providing two 3.5 m traffic lanes and embayed parking on both sides within the 5.5 m verges, but generally no median or cycle lanes.

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- **Neighbourhood Connectors A and B** also exist across the site and their classification is dependent on the traffic volume each will carry. The standard Neighbourhood Connector A is a 23m road reserve based on Liveable Neighbourhoods for a road carrying over 7000 vpd, providing for two 5m single lane carriageways separated by a 2m median. The 5.5m verges can accommodate embayed parking where required. The Neighbourhood Connector B is typically an 18m wide cross section providing for two traffic lanes and embayed parking on both sides, but generally no median or cycle lanes.
- **Access Streets** shall range in width from 15m to 18m road reserves; however, will predominantly be 15m wide, consistent with the endorsed Stage 1 subdivision. A 15m wide road reserve accommodates a 4.5m verge on both sides and 6m wide carriageway, with embayed parking accommodated in the verges where required, to provide visitor parking for lots serviced by rear laneways. Access streets adjoining POS shall be reduced by 1 to 2 metres, resulting in road reserve widths of 13m and 14m, also consistent with the endorsed Stage 1 Subdivision.
- **Laneways** shall provide a minimum width of 6m to accommodate two-way movement and rubbish collection, in accordance with Liveable Neighbourhoods.

### 9.2.2 Public Transport

As an infill project the site will be exceptionally well serviced by public transport facilities. Discussions with the Public Transport Authority (PTA) have confirmed that there will be three bus routes running north south through the project area, connecting to district and regional facilities and the Karnup Station.

The PTA has indicated that bus routes 561 and 562 are ultimately anticipated to be extended south and east to the potential future train station at Karnup (Paganoni Rd). The Transport Assessment demonstrates the location of these routes, refer Appendix 11.

### 9.2.3 Pedestrian and Cyclist Facilities

The Structure Plan provides for excellent pedestrian and cyclist facilities consistent with Liveable Neighbourhoods:

- Permeable road network provides for good pedestrian and cyclist facilities, encouraging use of non-motorised transport modes.
- Footpaths to be provided on at least one side of all roads. Roads adjacent to school sites will have footpaths on both sides.
- Shared paths to be provided on Integrator Arterial and Neighbourhood Connector roads with a footpath on the opposite side.
- Footpaths to be provided on at least one side of all roads, constructed to a minimum width of 2 metres

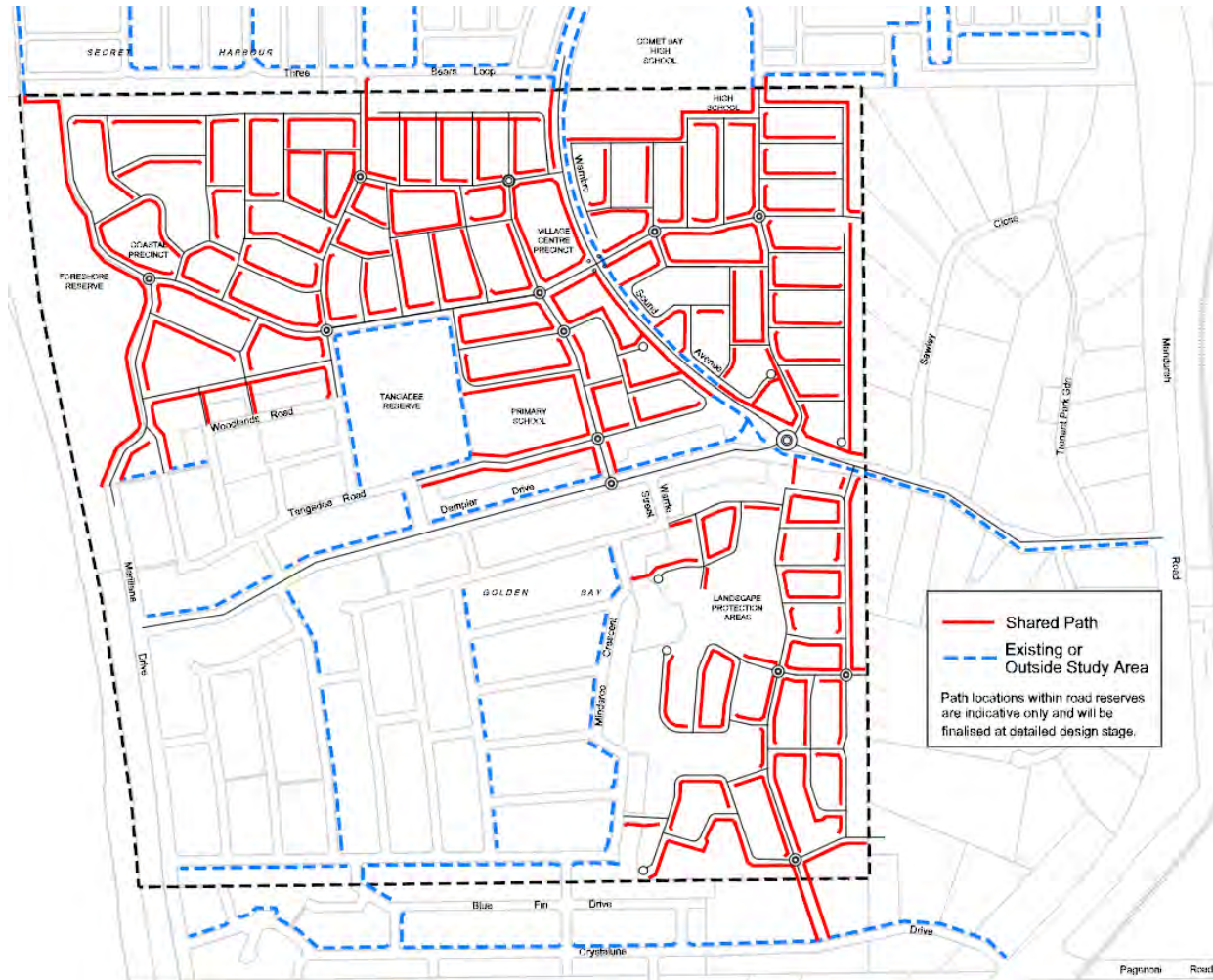


Figure 19: Pedestrian & Cyclist Network  
Source: Transcore

- Shared paths to be provided on all roads adjacent to school sites, on Integrator Arterial and Neighbourhood Connector roads, with a footpath on the opposite side.
- Laneway lots are to have footpath access to the visitor parking bays provided in the road reserve.
- On-street cycle lanes to be included on the Integrator B and Neighbourhood Connector A roads.

The pedestrian and cyclist network for the Structure Plan area is shown as Figure 19.

#### 9.2.4 Integration with Surrounding Areas

The existing road network within the Golden Bay will be extended northward into the western part of the Structure Plan area, with several road links including Marillana Drive and Coolawanyah Street, as well as a connection through to Dampier Drive west of Warrie Street. These connections are all consistent with the endorsed CDP.

On the eastern side of Golden Bay there are two road links from Lot 3 via Noreena Avenue and Minderoo Crescent, again consistent with the endorsed CDP.

Two connections have been provided along the eastern boundary of Lot 3, to ensure the plan is robust and accommodates for future development and connections to the future Karnup Station to the east.

Along the northern boundary to Secret Harbour there are two access points, one at Kingscliffe Drive and the other at Allatoona Avenue (adjoining the High School site), both consistent with the endorsed

CDP. The connection adjoining the High School site is important to relieve traffic congestion adjoining the school in peak periods. The comprehensive path network will also connect with all existing streets and path networks within Golden Bay and Secret Harbour.

### 9.3 Traffic Forecasts

In accordance with detailed traffic modelling, and based on 8 vehicle trips per day (vpd) per dwelling and 2 vpd per student for schools, it is anticipated that approximately 2 200 dwellings will generate approximately 17 900 vpd and if the proposed Primary School reaches 800 students when fully developed it will attract 1 600 vpd. Thursday (peak) traffic attraction by the neighbourhood centre results in approximately 3 740 vpd.

The volumes on proposed streets connecting to existing surrounding roads are relatively low and are at Liveable Neighbourhoods lower category of access streets.

The daily traffic generated by the Structure Plan area has been assigned onto the road network by a traffic model using the Emme transport modelling software package. This model was extended to include all existing land uses within the area bounded by Anstey Road in the north, Mandurah Road in the east, Crystaluna Drive in the south and the coast as the western boundary. Based on the Emme traffic model and the MRWA metropolitan traffic model the future total traffic volume on this route through the Structure Plan area will range from approximately 16 000 vpd on Warnbro Sound Avenue at the eastern edge of the Structure Plan area to around 24 600 vpd

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on Warnbro Sound Avenue north of the neighbourhood centre and approximately 29 500 vpd at the northern edge of the Structure Plan area.

It should be noted that these traffic volumes are based on the road network of the Structure Plan shown as Figure 8, including the Dampier Drive/Warnbro Sound Avenue 4-way roundabout and the north - south street in village centre precinct.

#### 9.4 Intersection Treatments

##### Warnbro Sound Avenue Intersections

Access to the Structure Plan area will be via four intersections on Warnbro Sound Avenue:

- The existing 3-arm roundabout at Warnbro Sound Avenue / Dampier Drive will become a 4-arm roundabout with new connection to the north side. Transcore have prepared a concept plan for this roundabout, as an appendix of the Traffic and Transport Assessment.
- A new unsignalised T-junction, located 150m to the east of the 4-arm roundabout, will provide access to Lot 3, south of Dampier Drive.
- A new 4-way signalised intersection on Warnbro Sound Avenue serving the Coastal Boulevard. Traffic signals are critical to this intersection due to the proposed neighbourhood centre, to encourage pedestrian movement across Warnbro Sound Avenue

and integrating the communities on either side of Warnbro Sound Avenue. Main Roads have given in principle support for this intersection on 9 December 2010.

- An unsignalised T-junction on the western side of Warnbro Sound Avenue, serving the north-western portion of the Structure Plan area. This intersection is approximately 210 m north of the proposed signalised intersection at the neighbourhood centre, meeting the requirements of Liveable Neighbourhoods.

##### Internal Intersections

Within the Structure Plan area there are a number of four-way internal intersections proposed providing maximum permeability through the project area. The busiest of these intersections will be controlled by way of roundabouts. The remaining four way intersections are located on short, low traffic volume streets and are to be constructed as priority controlled intersections, with give way signs on the minor road.

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## 10.0 CONSTRUCTION AND SERVICING

This section provides an outline of all engineering considerations across the site and demonstrates that as an infill site the project can be readily serviced from existing and planned infrastructure in the locality.

### 10.1 Geology & Groundwater

The soils and ground water characteristics of the project area make it highly suitable for urban development.

The Golden Bay area is largely underlain by Safety Bay Sands described as 'calcareous sands, white, medium grained, rounded, quartz and shell debris, well sorted. The south-eastern part of Lot 2 is underlain by limestone. The site features several distinct landforms including the Quindalup Dune System, covering the majority of the site as well as the Spearwood Dune System, located in the eastern section of the site. Surface conditions over most of the site comprise coastal dunes of varying heights (up to 30m) interspersed with low lying flat areas. Most the site is covered by grasses, shrubs and small to medium sized mature trees.

Lot 2 varies between undulating dunes to the west varying in elevation from RL3m AHD to RL12m AHD, to a relatively flat area through the middle of the lot at about RL6m AHD. East of Warnbro Sound Ave is more steeply graded with levels ranging from RL9m AHD to RL20m AHD at the eastern boundary. Lot 3 is very steeply undulating (dunes) and varies in elevation from RL36m AHD to RL6m AHD.

A preliminary geotechnical assessment has been prepared by Galt Geotechnics. Galt confirmed that the entire development area (Lot 2 & 3) is suitable for a site classification of "Class A" in accordance with AS2870-1996, "Residential Slab and Footings".

An investigation into the existing groundwater contours has been prepared by JDA Consultants and accompanies the LWMS. This report confirms that groundwater levels vary from RL0m AHD at the coast to approximately RL2.2m AHD at the eastern boundary of the site. This provides sufficient cover to groundwater for disposal of runoff via on-site soakwells and infiltration basins.

### 10.2 Siteworks & Earthworks

Site works for urban development at Golden Bay will generally comprise the clearing of existing vegetation and, where necessary, the earth working of the existing ground to facilitate the required levels for development. Whilst the site is being earth worked the finished levels will generally reflect the pattern of dunal landform.

In order to reduce housing cost, creating more affordable housing, level sites terraced between retaining walls reflect the ideal building site. In order to facilitate for the creation of level sites, removal of existing vegetation and modifications to topography may be required. Notwithstanding, the Structure Plan aims to retain existing vegetation and topography where possible. For example, within the designated Landscape Protection Areas in Lot 3, the form of significant dunes will be retained, in accordance with the endorsed

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Landscape Protection Management Plan, with minor modification to lower slopes to ensure appropriate integration with development sites. Furthermore, the Foreshore Reserve provides a designated area for protection of vegetation and conservation purposes.

In order to maximise the preservation of significant topographic features and allow for roads and development sites to be graded to best follow the existing topography and reflect the coastal landscape, the following approach is adopted for the earthworks and site works across the site:

- Road levels adjacent to the significant topographical dunal formations within Lot 3 (as identified in the Landscape Protection Management Plan, 1994) will be designed to minimise the extension of earthworks batters into the dunes to maintain their natural form. In accordance with the approved 1994 Plan, some retaining walls will be incorporated within these areas to minimise the extent of batters.
- Site works within gently sloping areas on Lot 2, west of Warnbro Sound Avenue will be carried out as part of subdivision works to match the adjoining roads and provide affordable housing sites for construction.
- Site works within steeply sloping sites on Lot 2, east of Warnbro Sound Avenue and Lot 3 will involve increased levels of earth working and retaining wall construction to provide level sites.
- In areas where topography is particularly steep, such as the eastern edge of Lot 3, innovative built form, such as pole homes and split level homes will be encouraged, therefore, not requiring the creation of levels sites in these more constrained areas.

### 10.3 Waste Water

The Water Corporation of WA (WCWA) has recently updated their wastewater strategy for the Structure Plan area. This strategy includes the construction of a 600mm dia main in Warnbro Sound Avenue connecting to a series of pump stations and pressure mains which ultimately feed into the existing Type 180 pump station at the corner of Warnbro Sound Avenue and Bluestone Parkway within the Secret Harbour development. Headwork items such as pump stations, pressure mains and sewers greater than 300mm in diameter would be funded by the Water Corporation through a prefunding arrangement. The standard WCWA head works will apply.

### 10.4 Water Supply

The WCWA has capacity within their existing network to service the Structure Plan area through utilisation of the existing 600 mm dia water main in Warnbro Sound Avenue to service the area. The WCWA has advised that Lot 3 has a height restriction of 28 m, although this is not a constraint to urban development. This restriction is reliant on the duplication of the existing 600 mm main in Warnbro Sound Avenue, which is proposed to be funded through the Corporation's Capital Investment Program. Without the duplication works the limit of supply would be reduced to 20 m. Standard WCWA head works will apply.

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

Stage/s	Timeframe (Lot Release)	Infrastructure
1	2011-2012	<ul style="list-style-type: none"> <li>Landscaping works POS N &amp; S;</li> <li>Landscaping works to eastern edge of POS C (Rhonda Scarrott);</li> <li>Creation of School Site and commencement of development works (DoF has indicated school opening approximately 2013).</li> </ul>
2	2012-2013	<ul style="list-style-type: none"> <li>POS K;</li> <li>Creation of public purpose site as additional High School site and POS L;</li> <li>Portion of NC site created;</li> <li>Construction of lights at Wambro Sound Avenue (WSA) / dualing of lanes along WSA / associated landscape works along WSA.</li> </ul>
3-4	2013-2015	<ul style="list-style-type: none"> <li>POS T;</li> <li>Balance of NC site created.</li> <li>Commencement of Foreshore Infrastructure works adjoining existing Golden Bay (south of development) including upgrade to existing tracks, formalised beach access, seating, possible viewing deck;</li> <li>Possible construction of limestone track along Coastal Blvd providing access to foreshore / construction of viewing deck within residential land adjoining foreshore.</li> </ul>
5-6	2015-2017	<ul style="list-style-type: none"> <li>POS S, P &amp; J;</li> <li>Landscaping to northern edge of POS C (Rhonda Scarrott);</li> <li>Improvements to POS M - including edge landscaping and implementation of fire management measures;</li> <li>Construction of Lot 3 Pump Station;</li> <li>POS F - construction of walkway providing access to POS M and implementation of fire management measures;</li> <li>Upgrade to existing roundabout at Dampier Drive and Wambro Sound Avenue.</li> </ul>
7-8	2017-2019	<ul style="list-style-type: none"> <li>POS S;</li> <li>Commencement of Foreshore Infrastructure works directly adjoining Stage 8 including construction of formalised beach access, car parking, viewing decks, seating and construction of northern portion of foreshore road;</li> <li>Construction of Foreshore Pump Station.</li> </ul>
9-10	2019-2020	<ul style="list-style-type: none"> <li>POS I, K, P &amp; R;</li> <li>Improvements to POS M - including edge landscaping and implementation of fire management measures;</li> <li>Commencement of construction of balance of Foreshore Infrastructure works (directly adjoining Stage 10) including construction of Surf Life Saving Club building, formalised beach access, car parking, viewing decks, seating and construction of balance of foreshore road.</li> </ul>

LEGEND	
	Indicative Staging Boundaries
	Neighbourhood Centre
	Single Residential
	Density Sites
	Public Open Space
	School Sites

Notes:

- Stages are based on areas of approximately 150 to 200 lots.
- Staging boundaries, timeframes for lot release and infrastructure works are indicative only and subject to change based on market and policy decisions.
- The street block pattern shown is indicative only and subject to detailed design at subdivision.
- The timing for lots marked with an \* shall be dependent on the development to the east and fire separation requirements.
- The indicative staging boundaries are based on the meeting with Department of Housing / Cosell & Wesley on 14th September 2010 and the email received from the Department of Housing on 17th September 2010.

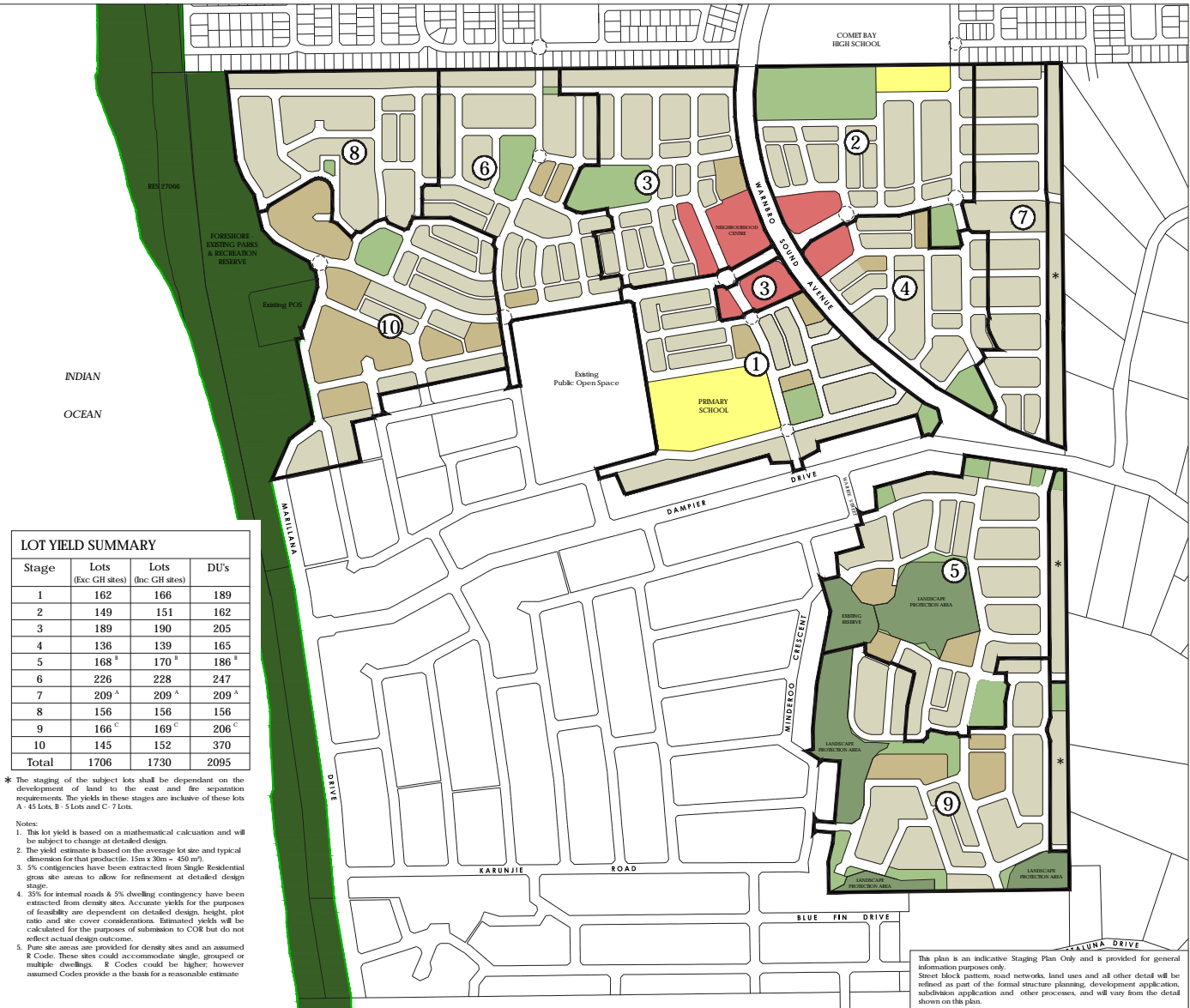


Figure 20: Staging Plan

Plan No.: 2187-205-01

### 10.5 Gas Supply

There is an existing high pressure gas main in Warnbro Sound Avenue capable of supporting the Structure Plan area.

### 10.6 Electrical Supply

There is existing capacity within the existing high voltage power network surrounding Golden Bay to service the proposed development. StreetVision lighting will be incorporated throughout the development.

### 10.7 Telecommunications

The Federal Government are currently reviewing their telecommunications policy with a view to providing optic fibre telecommunications to 90% of brown fields dwellings in Australia. Whilst this legislation is still being finalised, the most recent advice confirms that as of the 1st January 2010, new developments will be required to install 'fibre-ready' pit and pipe infrastructure at their cost. The installation of optic fibre, including the lead in to the development (backhaul) will be funded through the National Broadband Network (NBN).

As a result of the Australian Government's decision to roll out the NBN, the ownership issues of delivering the wholesale fibre to the home system have been transferred to the Government with a

number of retail service providers likely to offer services over the network. However, if there is a change in Government at the next election the delivery method will most likely revert to the current arrangements where Telstra is required to provide every home site with a telecommunication service, but not necessarily a high speed broadband service.

At this stage, it is anticipated that optic fibre will be installed with the Structure Plan area under the NBN initiative.

The broadband network will have potential to carry services such as:

- Internet;
- Free to air television services both analogue and digital (without the need for an antenna);
- Pay television (no dish required);
- Telecommunications Services (multiple fixed line services).

### 10.8 Timeframes & Staging

It is anticipated that the Golden Bay development will proceed to match market demand. Initially, development will be focused in the vicinity of Warnbro Sound Avenue to facilitate the easy extension of existing frontal services to newly created lots, refer Fig 21.

Development of the Foreshore node and commercial precincts will be staged as demand grows and will most likely be completed once sufficient demand is achieved.

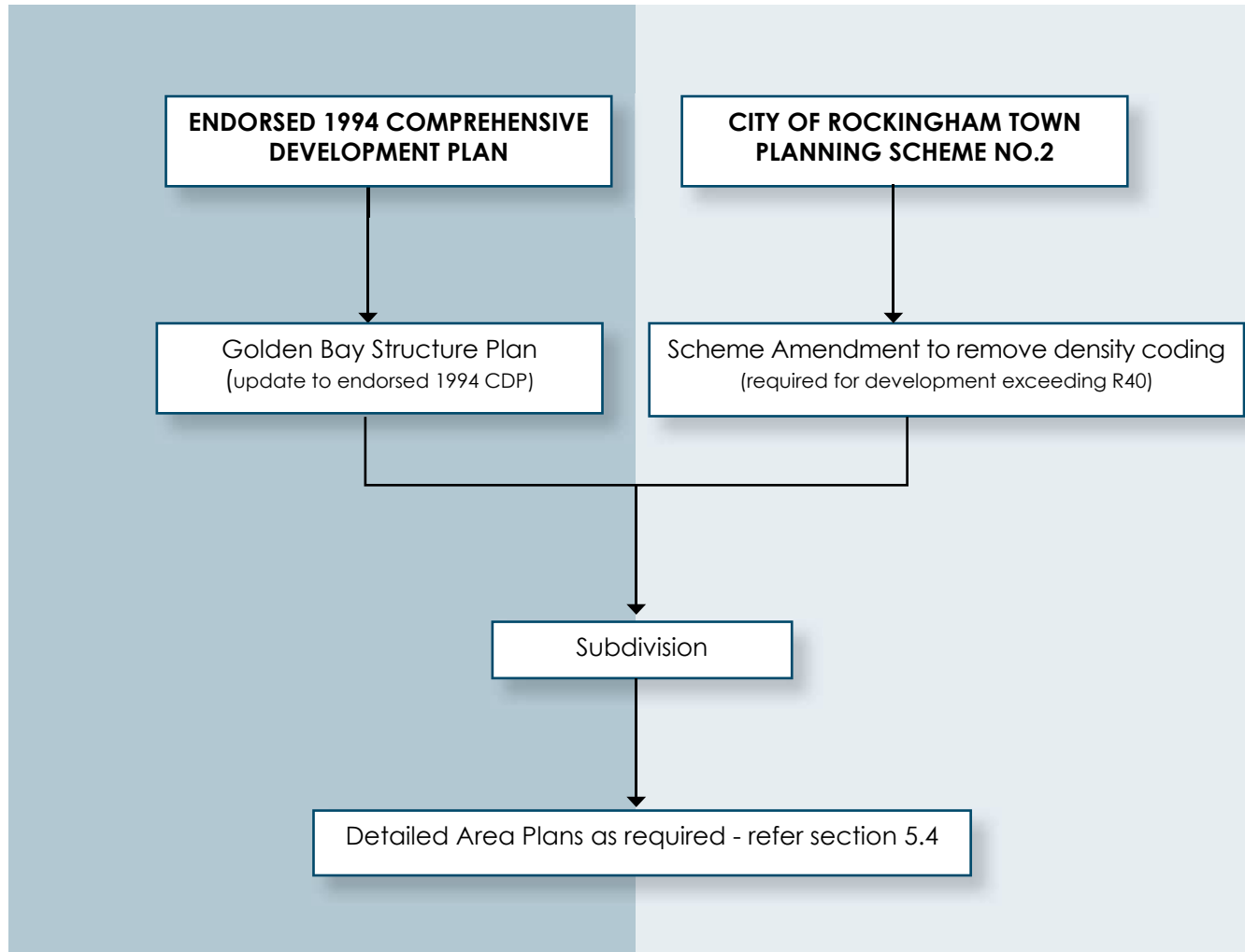


Figure 21: Statutory Implementation

Plan No.: 2187 Ch91A ET-10

### PART THREE: STATUTORY IMPLEMENTATION

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The endorsed 1994 Comprehensive Development Plan (CDP), together with the Scheme, currently form the basis for the statutory framework over the subject site. The Golden Bay Structure Plan, a refinement of the 1994 CDP, provides a contemporary statutory framework for the subject site. The Structure Plan outlines the planned pattern of development for the subject area. All development shall be carried out generally in accordance with the principles shown on the Structure Plan.

The Structure Plan provides the zoning and residential density codes applicable to the subject area. Pursuant to Clause 4.2.9.3 of the Scheme the zones and residential density codes designated pursuant to this Structure Plan apply to the land within it as if the zones and residential density codes were incorporated in the Scheme. All provisions, standards and requirements applicable to the zones and residential density codes in the Scheme shall apply, unless specific provision is made to the contrary in the Structure Plan. The Structure Plan will inform the preparation of subdivision applications and detailed area plans where required pursuant to Section 5.4.

The City of Rockingham has initiated an amendment to the Scheme, which includes the subject site, to delete the density codings of R5, R20 and R40 which are currently shown over the subject site in the Scheme Maps, to allow the R Codes to be allocated in accordance

with Structure Plan, consistent with the principles of Liveable Neighbourhoods. This will ensure that there are no inconsistencies between the residential density coding shown on the Structure Plan and those shown in the Scheme.

Figure 21 (Statutory Implementation) provides a simplified explanation of the role of the Structure Plan within a statutory context.

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**GOLDEN BAY STRUCTURE PLAN**  
AMENDMENT 2 ADDENDUM

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2187Rep437C  
October 2020

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

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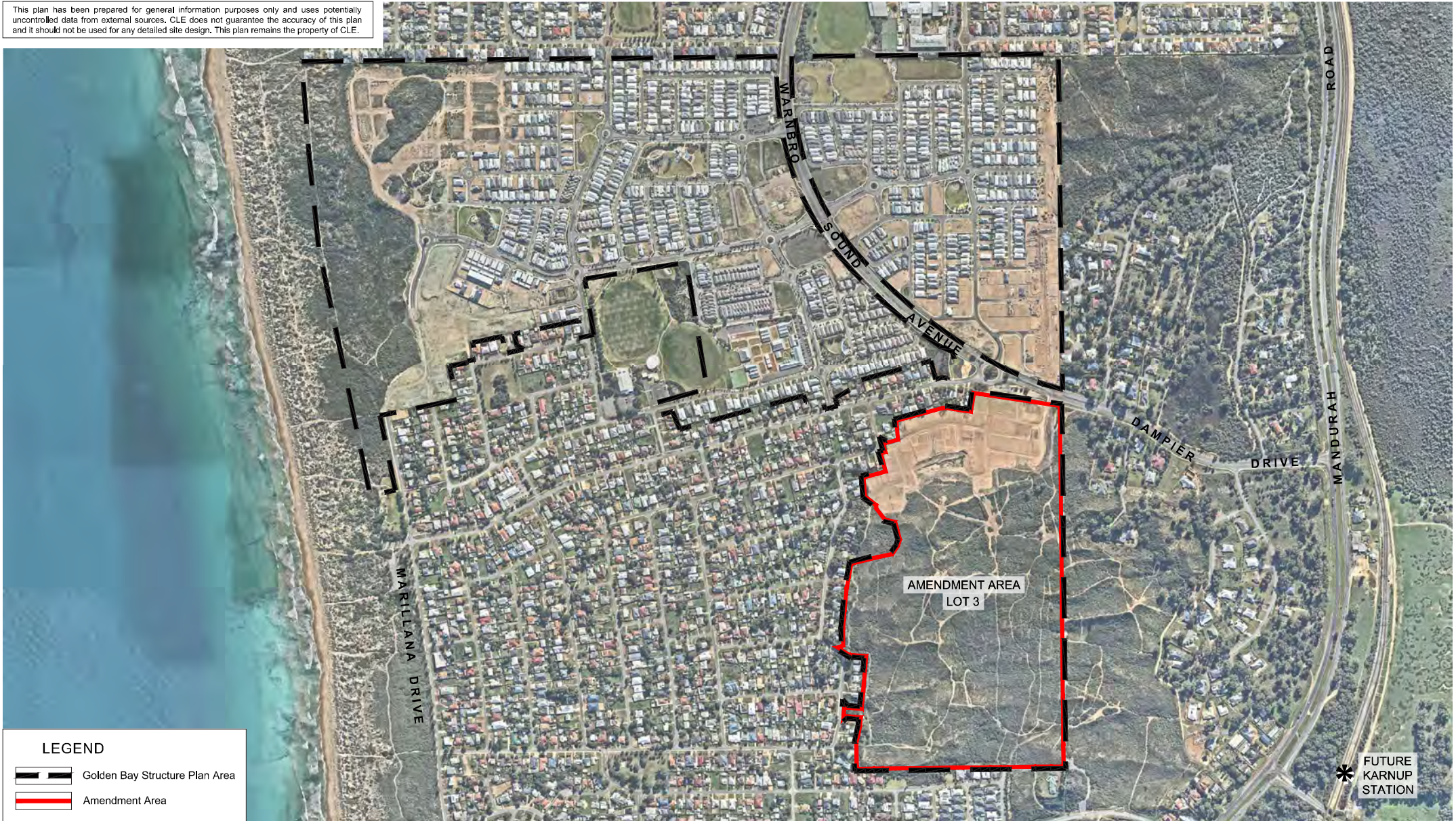


Figure 1 Site Plan

## 1.0 INTRODUCTION

The primary function of this amendment (Amendment 2) is to reconfigure the amount and distribution of public open space within the southern landholding of Golden Bay Estate, as well as rationalise the applicable density codes for the residential zoned land. The amendment will also take the opportunity to realign the key north-south Neighbourhood Connector road which passes through the site. The reason behind the amendment is to provide more connectivity for flora and fauna and protect a number of key landforms by reducing the Lot 3 urban footprint and increasing the provision of public open space. The amendment also proposes the rationalisation of the residential density codes to reflect current market trends and lots sizes, as well as provide for a catchment for the planned Karnup METRONET station. A realignment of the Neighbourhood Connector is also proposed to improve connectivity and efficiency in the road network.

Other administrative modifications are also proposed to the Part 1 – Implementation Report in order to align the Part 1 with changes in the overarching planning framework that have occurred since the Golden Bay Structure Plan was approved.

This Addendum Report explains and justifies the amendments to the Part 1 – Implementation Report and the LSP Map. It does not replace the preceding Golden Bay Structure Plan report (2012) rather, it forms an addendum and is supplementary to this report but instead addresses only the proposed amendments to the Part 1 - Implementation Report and Structure Plan Map.

## 2.0 AMENDMENT AREA AND OWNERSHIP

The Golden Bay Structure Plan (2012) area originally comprised Lots 2 and 3 Warnbro Sound Avenue, covering approximately 155ha. Development of the northern part of Golden bay has advanced considerably over what was formerly Lot 2. The Structure Plan area and original parent lots are as shown as Figure 1.

This amendment focuses primarily on Lot 3, being the land located south of Dampier Drive. This amendment does not look to materially affect the land covered by the (former) Lot 2.

Lot 3 is owned by Peet Golden Bay Pty Ltd and the Department of Communities, each with a half share, and is legally addressed as Lot 3 on Deposited Plan 53920, Volume 2652; Folio 593.

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

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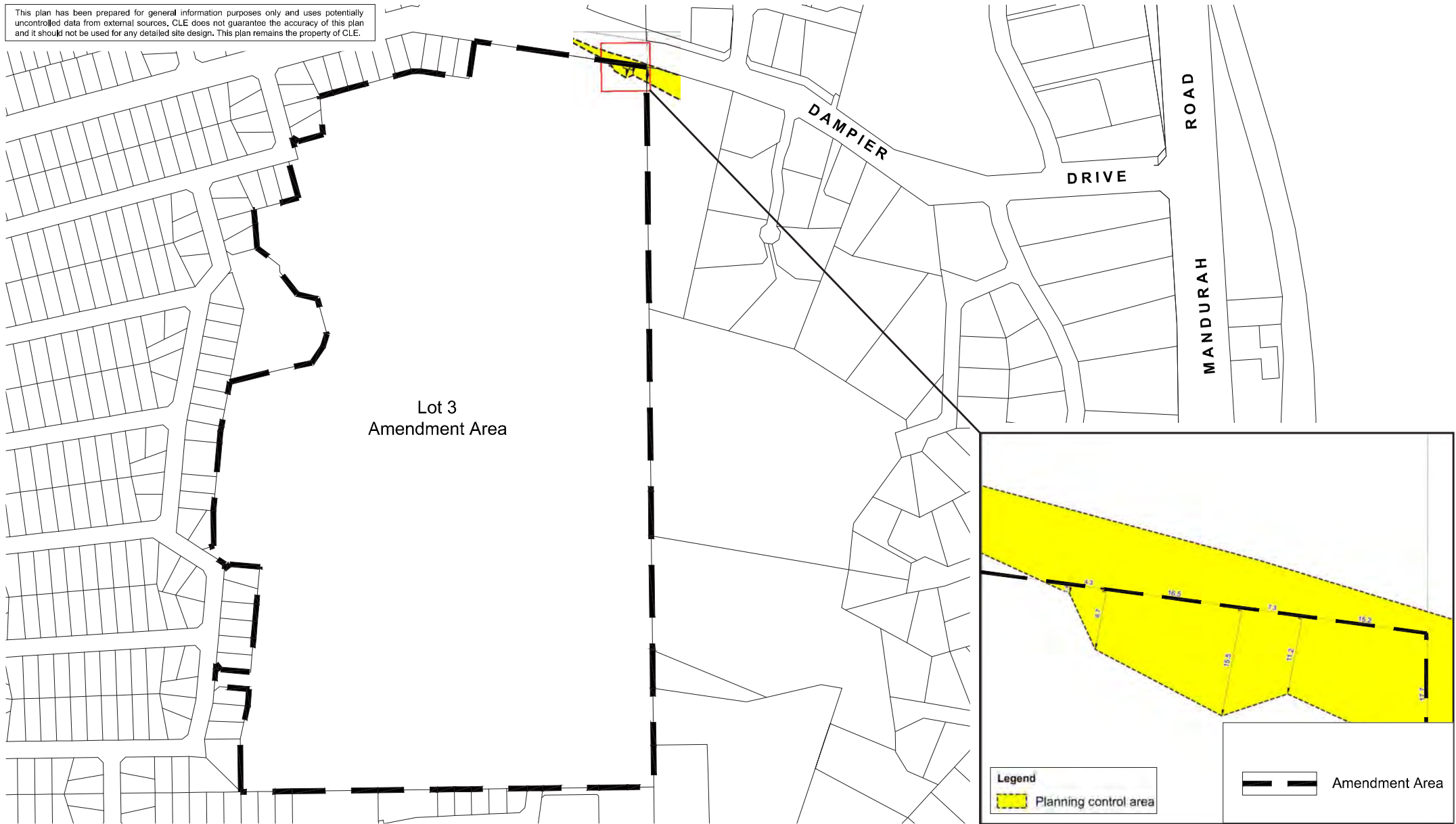


Figure 2 Planning Control Area No.216  
Source: WAPC

### 3.0 ENVIRONMENTAL APPROVALS AND PLANNING FRAMEWORK

Golden Bay is covered by a number of existing valid environmental and planning approvals that were subject to extensive community and agency review and engagement, collectively leading to the current (approved) Golden Bay Structure Plan. The following section discusses these in further detail.

#### 3.1 Environmental Approvals

The land that makes up the Golden Bay Estate was subject to a Public Environmental Review, with the Minister for the Environment issuing a 'Statement that Proposal may be Implemented' on 12 January 1993. A key outcome of this approval was the requirement for a Landscape Protection Area (LPA) to be defined, to retain and protect the significant dune landform situated on Lot 3.

In November 1993 the Minister for the Environment then approved the 'Area for Agreement' for the LPA, in accordance with the 'Statement that Proposal May Be Implemented'. This clearly defined (spatially) the significant landform features which had to be retained within Lot 3.

In December 1994 the City of Rockingham endorsed the 'Landscape Protection Area Management Plan' which sets out the landscape treatment of, access to, and interface with the Lot 3 LPA.

On 30 July 1997 the Minister for the Environment confirmed that the Golden Bay project had been substantially commenced, meaning that the environmental approval remains valid and operational.

In April 2008 the former Federal Department of Environment, Water, Heritage and the Arts (now known as the Department of Environment and Energy) confirmed that the proposed development did not require approval under the Environmental Protection and Biodiversity Act 1999, with no further assessment required.

#### 3.2 Planning Framework

##### 3.2.1 Zoning

The amendment area is zoned 'Urban' under the Metropolitan Region Scheme (MRS) with Dampier Drive and Warnbro Sound Avenue reserved 'Other Regional Roads'.

The 'Urban' zoned land is similarly zoned 'Development' under the City of Rockingham Town Planning Scheme No. 2 (TPS2), requiring a structure plan be approved prior to subdivision and development.

##### Planning Control Area

On 13 February 2018 a Planning Control Area (PCA) was declared under Section 112 of the *Planning and Development Act 2005* over land around the intersection of Dampier Drive and Mandurah Road, Karnup, west of Sawley Close to Nairn Road to the east, Paganoni Road to the south and north of Dampier Drive. The land subject to the PCA has been identified for a potential future extension of Dampier Drive including a grade separated interchange over Mandurah Road, all associated with the future Karnup rail station. There is no timeframe for these works. The intent of the PCA is to protect this land from development until such time as an amendment to the MRS is progressed.

Planning Control Area 126 (Golden Bay), as it affects the north-eastern most part of Lot 3, is shown as Figure 2.



### 3.2.2 Structure Plans

#### Golden Bay Comprehensive Development Plan 1994

On 3 May 1994 the Golden Bay Comprehensive Development Plan (1994 CDP) was endorsed by the City of Rockingham and Western Australian Planning Commission (WAPC). This 1994 CDP covered the land now commonly referred to as Lots 2 and 3, albeit with the land then being known to as Lot 12.

A copy of the 1994 Golden Bay Comprehensive Development Plan is shown as Figure 3.

The 1994 CDP was consistent with the aforementioned environmental approvals. Most pertinently for this amendment, included locating the Landscape Protection Areas in Lot 3 within areas of public open space to retain and protect these significant dunal landforms. The 1994 CDP also included a north-south spine road and road connections to the existing Golden Bay community.

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

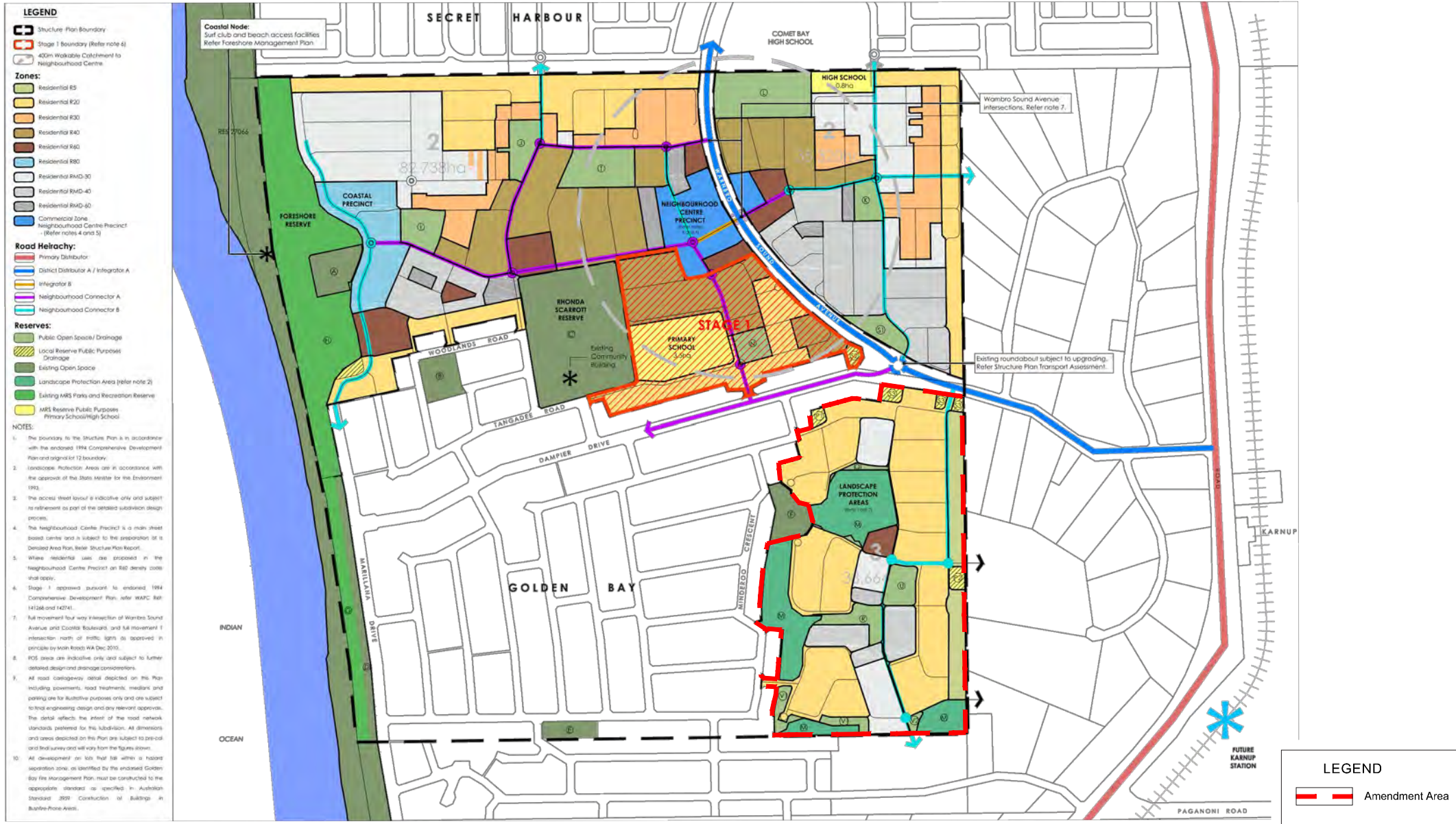


Figure 4 Approved Golden Bay Structure Plan (2012)

Golden Bay Structure Plan (2012)

The Golden Bay Structure Plan (the Structure Plan) was endorsed by the WAPC on the 5<sup>th</sup> April 2012 and serves as the planning framework to guide subdivision and development of 'Golden Bay'.

The Structure Plan comprised former Lot 2 and current Lot 3, with Lot 2 generally being the northern portion of the estate whilst Lot 3 covered the southern portion (south of Dampier Drive).

A copy of the approved Golden Bay Structure Plan is shown as Figure 4.

The Golden Bay Structure Plan had its beginnings circa 2010 when a review of the 1994 CDP was undertaken to bring the plan into alignment with contemporary planning principles and policy position. This involved providing for a more legible road network, rationalisation of the Golden Bay neighbourhood centre and a review of the density coding to reflect contemporary lot types; however, the key elements affecting Lot 3 largely remained the same including:

- Providing for the north-south spine road by way of a Neighbourhood Connector road.
- Providing for connections to the existing Golden Bay community.
- Locating the Landscape Protection Areas within areas of public open space.
- Provide a Landscape Concept Plan showing how the Landscape protection Areas (and adjoining public open space) could be landscaped in accordance with the Landscape Protection Management Plan (1994).

Other key aspects of the Structure Plan directly applicable to the current amendment included:

- Providing for future connections to the land situated immediately east in recognition of the future Karnup Station.
- Providing for a typical density coding ranging from R20 up to pockets of R60.
- Providing for an interface of low density (R5) residential lots along the eastern edge of Lot 3.
- Providing for a stormwater strategy which allowed for stormwater to be infiltrated on site by way of a number of drainage reserves.

Since the approval of the Golden Bay Structure Plan 2012, the development of the Golden Bay estate has been substantially progressed with subdivision approval and works already operating in the Lot 3 area.

This amendment only focuses on material changes to the Structure Plan covering land located south of Dampier Drive (Lot 3).

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

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Figure 5 Approved Subdivision Plan 154533

### 3.2.3 Subdivision

The amendment area is subject to two valid subdivision approvals. On 14 June 2017 the WAPC approved subdivision 154533 providing for the creation of 88 single residential lots, two drainage areas, one area of public open space and a portion of the planned Neighbourhood Connector road accessing off Dampier Drive. A copy of approved subdivision plan 154533 is shown as Figure 5.

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Figure 6 Approved Subdivision Plan 156181

On 7 June 2018 the WAPC approved subdivision 156181 over Lot 3 providing for a logical extension to approval 154533 with the creation of 52 single residential lots, a number of public open space areas and extending upon the Neighbourhood Connector road approved via 154533. A copy of approved subdivision plan 156181 is shown as Figure 6.

The current amendment, in response to these two subdivision approvals, reflects the approved lot sizes, road network and public open space configuration (including the LPA).

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#### 4.0 AMENDMENT PROPOSAL

This amendment will modify the Golden Bay Structure Plan map as follows:

- Increase and consolidate the amount of open space and modify its configuration within Lot 3.
- Modify the residential density coding across Lot 3.
- Realign the north-south Neighbourhood Connector which passes through Lot 3.
- Remove two drainage reserves.
- Remove the 'Stage 1' overlay located in Lot 2.
- Remove RMD reference from the map.

#### 4.1 Planning and Development (Local Planning Scheme) Regulations 2015

Since the current version of the Golden Bay Structure Plan was approved, important changes to the planning framework have been made that impact the operation and content of structure plans. As part of this amendment it is therefore necessary to update the Part 1 – Implementation Report to be consistent with these changes.

*The Planning and Development (Local Planning Scheme) Regulations 2015* were gazetted on 19 October 2015 and by virtue of the 'deemed provisions' within Schedule 2, contain provisions in relation to structure plans that override those within the City's Town Planning Scheme 2 under which the current Structure Plan was approved. The key changes to the Part 1 – Implementation Report necessary to bring the LSP into line with the Regulations are:

- Amend Section 3.0 'Interpretation and Relationship with Statutory Planning Framework' to provide that once

approved, the status of the Structure Plan as a 'due regard' document pursuant to clause 27 (1), Schedule 2 of the Regulations. This rectifies the current Part 1 provision which refers to the Zones and Reserves, and any other provisions within the Structure Plan, applying as if they have the same force and effect of TPS2.

- Amend Section 4.0 'Operation' to confirm that the Structure Plan commences operation once approved by the Western Australian Planning Commission.
- Delete Section 6.3 'Residential Design Code Variations' and Table 1 'Single House (RMD) Standards for Medium Density Housing.
- Insert Section 7.1 'Conditions of Subdivision Approval' to clarify subsequent requirement at the time of subdivision.
- Insert Section 7.2 'Development Contributions' to clarify cost contribution required in accordance with Development Area 2 and the City of Rockingham Local Planning Scheme No. 2.
- Rename the Part 1 Report of the Golden Bay Structure Plan to 'Implementation', in lieu of 'Statutory Section', in recognition of the current regulatory status of structure plans.

Part 1 (Implementation) Report of the Golden Bay Structure Plan, inclusive of the proposed modifications, is shown as Appendix 1.

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

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Figure 7 Concept Plan

## 5.0 JUSTIFICATION OF THE AMENDMENT

### 5.1 Subdivision Concept Plan

A Subdivision Concept Plan has been prepared in support of the amendment, showing how Lot 3 can be developed in accordance with the Structure Plan (as amended). This Subdivision Concept Plan reflects the two subdivision approvals. The Subdivision Concept Plan is shown as Figure 7.

The Subdivision Concept Plan retains all the design principles established in the Golden Bay Structure Plan with key aspects as follows:

- Reflects the two subdivision approvals immediately south of Dampier Drive.
- Retains but realigns the key north south spine road (Neighbourhood Connector Road).
- Retains road connections to the existing Golden Bay community to the west.
- Provides for future road connections to land situated east of the amendment area.
- Provides a residential density that is congruent with its surrounds, including retaining the low density (R5) transition along the eastern edge of the amendment area.
- Provides approximately 1.5ha of additional public open space that encompasses the Landscape Protection Areas

when compared to the current Golden Bay Structure Plan.

- Removes two drainage reserves as these have been found to be superfluous to stormwater drainage requirements.

Supporting technical work has been undertaken and supports this amendment, demonstrating that there are no impediments to the amendment.

#### 5.1.1 Environment

As discussed above the Structure Plan is supported by a number of environmental assessments and approvals.

As outlined above, the then Minister for the Environment issued a 'Statement that Proposal may be Implemented', being the state environmental approval for Golden Bay. This approval, amongst other aspects, established the requirement for a Landscape Protection Area (LPA) to be defined, which was to retain and protect the significant dune landform on Lot 3. In November 1993 the then Minister for the Environment approved the 'Area for Agreement' for the Landscape Protection Area, in accordance with the 'Statement that proposal may be Implemented'. This clearly spatially defined the significant landform features which had to be retained within lot 3.

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

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Golden Bay Structure Plan



Golden Bay Structure Plan Amendment 2

Figure 8 Development Footprint Comparison Plans

As a result, the Golden Bay Structure Plan encompassed the LPA within areas of public open space, ensuring its retention and ongoing protection. The Structure Plan was also supported by a detailed Environmental Assessment Report prepared by Coffey Environmentals which demonstrated that Lot 3 had no significant environmental constraints that would impede development.

With the amendment only looking to reduce the overall urban footprint in providing additional public open space, with the retention of the Landscape Protection Area remaining at the forefront, all current environmental assessments and approvals remain current and relevant for the site.

#### 5.1.2 Public Open Space

The amendment provides an additional 1.5ha of open space in comparison with the current (approved) Golden Bay Structure Plan. As indicated above, the key impetus of this amendment was to provide more open space surrounding the Landscape Protection Areas, demonstrating a commitment that these significant landforms will be both retained and protected for future use and enjoyment.

Figure 8 diagrammatically portrays this strategy in further 'sleeving' the LPAs, showing the reconfiguration and extra provision of public open space.

The calculation of creditable public open space (POS) in the Golden Bay Structure Plan does not strictly follow current Liveable Neighbourhood requirements. The 1994 CDP provided POS in accordance with the policy framework at that time (pre-dating

Liveable Neighbourhoods), as well as the conditions of the Minister for the Environment's 'Statement that Proposal may be Implemented'. The Golden Bay Structure Plan (2012) then went to demonstrate that POS provision met the requirements as calculated under the 1994 CDP whilst also recognising current policy requirements as far as practicable. As a result, two land use and POS schedules were included within the Golden Bay Structure Plan report – one being an update to the 1994 CDP with the second being generally in accordance with Liveable Neighbourhoods.

Given this history and the need to meet conditions of the Minister for the Environment's 'Statement that Proposal may be Implemented', this amendment provides an update to the two land use and POS schedules from the 2012 Structure Plan report.

Table 1 Golden Bay Structure Plan – Land Use Summary (Including Amendment 2)

<b>Gross Area - Golden Bay Original Lot 12 (Total Golden Bay Area)</b>	<b>274.541</b>
<b>Gross Area (Lots 2 &amp; 3 excluding existing GB area)</b>	<b>156.722</b>
<b>Non Residential Land Uses (Original Lot 12)<sup>1</sup></b>	
G - Foreshore Reserve 27066 (Lot 2031) <sup>2</sup>	2.000
Existing Local Centre	0.485
Other Regional Roads (WSA - Now resumed)	4.883
H - Foreshore Reserve within Lot 2	10.689
High School	0.800
Primary School	3.500
Village Centre Commercial	2.600
Wastewater Pump Station (POS U)	0.077
<b>Deductions</b>	
Drainage Areas - POS P1, P2, S2, S3, V2	0.601
<b>Gross Subdivisible Area</b>	<b>249.707</b>
Gross Subdivisible Area (Lots 2 & 3 only)	138.533
<b>Public Open Space Required @ 10%</b>	<b>24.971</b>
POS required @ 10% (Lots 2 & 3 only)	13.853
<b>Existing Public Open Space Provided</b>	
A - Reserve 34664 (Lot 2486)	1.276
B - Reserve 35364 (Lot 2533)	1.032
C - Reserve 32492 (Lot 2264)	8.109
D - Reserve 27066 (Local Open Space adj. Marillana Drive) <sup>4</sup>	1.369
E - Reserve 29466 (Lot 2134)	0.593
F - Reserve (Lot 4205)	1.158
Cash in Lieu provided (1972 Plan of Survey 10399)	0.507
<b>Total Existing POS Provided</b>	<b>14.045</b>

<b>Public Open Space Proposed under Structure Plan Lots 2 &amp; 3</b>	
POS I	0.610
POS J	0.755
POS K	0.477
L - POS co-located with High School (Lot 2) <sup>5</sup>	2.640
M - Landscape Protection (Lot 3) <sup>6</sup>	6.580
POS N	0.460
POS Q	1.262
POS R	0.104
POS S1	0.564
POS T	1.351
POS U	0.442
POS V1	1.758
<b>Total Open Space Proposed to be Provided</b>	<b>17.002</b>
<b>Total Existing Dedicated and Proposed POS (Ha)</b>	<b>31.047</b>
<b>Total Existing Dedicated and Proposed POS (%)</b>	<b>12.43%</b>

Notes:

1. The schedule has been prepared for the purpose of reviewing the approved 1994 Golden Bay CDP. All existing NRLU's and credited open space areas are based on the approved CDP.
2. Balance of Reserve 27066 not credited as Public Open Space as per Town Planning Department's letter of 1961.
3. POS P & S has been included as a deduction as these areas are provided to serve a drainage function.
4. Portion of Reserve 27066 credited as Public Open Space as Town Planning Department's letter of 1961.
5. CoR has confirmed that the open space ceded to Council adjacent to the Comet Bay High School (POS L) site forms part of the 10% open space contribution.
6. Lot 3 Landscape Protection POS (No. M) assumes agreement for 100% credit, consistent with 1994 CDP. These locations area set under existing environmental approvals.
7. This Open Space Schedule has been prepared based on the approved CDP and associated form Policy DC2.2, not Liveable Neighbourhoods
8. The existing reserve F has been subtracted from the Landscape Protection Area, 6.43 ha less 1.1583 ha for Reserve F.

*Update to 1994 CDP Schedule*

The 1994 CDP calculated open space across the original development area (Lot 12). On this basis, Table 1 sets out an updated land use and POS summary in accordance with the 1994 CDP.

This results in a total area of POS within Golden Bay of 31ha or 12.4% POS contribution, equating to an increase of 1.4ha.

Table 2 Golden Bay Structure Plan – Land Use Summary Based on Liveable Neighbourhoods (Amendment 2)

<b>Site Area</b>			<b>156.722</b>
<b>Less</b>			
H - Foreshore Reserve within Lot 2	10.690		
High School	0.800		
Primary School	3.500		
Village Centre Non-Residential Area <sup>5</sup>	2.600		
Wastewater Pump Station (POS U)	0.080		
<b>Total</b>		<b>17.670</b>	
<b>Net Site Area</b>			<b>139.060</b>
<b>Deductions</b>			
POS P1, P2, S2, S3, V2	0.600		
<b>Total</b>		<b>0.600</b>	
<b>Gross Subdivisible Area</b>			<b>138.460</b>
<b>POS @ 10%</b>			<b>13.846</b>

Assumptions made, as provided by City of Rockingham: -

- (i) Rainfall events greater than a 1:1yr event treated as restricted open space. This is based on the following:
  - Planning Policy 3.4.1, clause 4.7.5, requires the design of swales to demonstrate the usability of POS for recreation purposes.
  - Element 4 R43 of Liveable Neighbourhoods only refers to deductions to dedicated drainage reserves, not the base of drainage swales in restricted use open space.
- (ii) Restricted Open Space is calculated between a 1:1yr event - 1:5yr event in accordance with Liveable Neighbourhoods Element 4 R25 & R26.
- (iii) Drainage swales designed to accommodate a 1:10yr rainfall event can not comprise an area greater than 25% of any given POS Reserve. Alternate mechanisms to deal with drainage to be considered at UWMP stage.

<b>Unrestricted Open Space(min)</b>		<b>11.119</b>	
POS I	0.508		
POS J	0.408		
POS K	0.477		
POS L	1.796		
POS M	6.580		
POS N	0.397		
POS Q	1.262		
POS R	0.104		
POS T	0.932		
POS U	0.320		
POS S1	0.255		
POS V1	1.733		
<b>Total Unrestricted Use</b>		<b>14.795</b>	
<b>Restricted Open Space</b>			
<b>Restricted (min)</b>		<b>2.750</b>	
POS I	0.057		
POS J	0.292		
POS L	0.635		
POS N	Nil		
POS R	Nil		
POS T	0.353		
POS U	0.099		
POS SI	0.175		
POS V1	0.010		
<b>Total</b>		<b>1.620</b>	
<b>Total Area Provided</b>			<b>16.415</b>
<b>POS %</b>			<b>11.9%</b>

Update to Golden Bay Structure Plan 2012 Schedule

In contrast to the 1994 CDP, the 2012 Golden Bay Structure Plan calculated open space across Lots 2 and 3, and generally in accordance with Liveable Neighbourhoods with the noted exception that areas subject to the one year average recurrence interval rainfall event is treated as restricted use open space.

On this basis, Table 2 provides an updated land use and POS summary based on the 2012 Structure Plan

This results in a total area of POS within Golden Bay of 16.4ha or 11.9% POS contribution, again equating to an increase of 0.8ha.

5.1.3 Landscape Concept

A Landscape Concept has been prepared by EPCAD Landscape Architects showing the planned landscaping for all open space (including the Landscape Protection Areas) within Lot 3. The Concept provides for a range of different spaces, including revegetating areas of the LPA to its native form whilst providing controlled access, viewing decks and platforms and interpretive signage. Critically, the significant dune landforms will be retained within these LPAs.

To provide for the appropriate, ongoing management of the these landscaped areas (including the LPA) a landscape management plan will be required, to be approved by the City of Rockingham, that will require:

- (a) a targeted fauna assessment to determine any recolonization of Quenda into the landscape protection area, post construction;
- (b) a detailed flora and vegetation survey to assess vegetation condition, weed suites and priority weed locations;
- (c) an implementation plan for the ongoing maintenance of landscape protection areas which identifies:
  - (i) revegetation areas and priorities (methodology, timing, water course);

- (ii) the extent of any weed species that may be present and any weed control measures that may be required;
- (iii) any feral animal control measures that may be required;
- (iv) any measures that may need to be put in place to control access (fencing, gates, and consolidated tracks) by pedestrians, maintenance and emergency response;
- (v) fauna protection/housing units;
- (vi) where practicable, the location(s) of any potential fauna underpasses which connect landscape protection areas;
- (vii) any signage that may be required (for educational and/or safety purposes);
- (viii) any monitoring/contingency measures that may be required and any key performance indicators that may apply; and
- (ix) responsibilities and timeframes.

The EPCAD (Lot 3) Landscape Masterplan is provided as Appendix 2.

Table 3 Golden Bay Structure Plan - Detailed Open Space Breakdown And Drainage Area Specification

Local Open Space Area	Gross Area	Restricted Use POS			Unrestricted Open Space
		1:1 yr Drainage Area <sup>1</sup>	1:5 yr Drainage Area <sup>1</sup>	1:10 yr Drainage Area	Area not receiving drainage for < 5 yr event
POS I	0.610	0.045	0.102	Nil	0.508
POS J	0.755	0.055	0.347	0.379	0.408
POS T	1.351	0.066	0.418	0.440	0.932
POS K	0.477	Nil	Nil	Nil	0.477
POS L	2.640	0.209	0.844	0.844	1.796
POS M	6.580	Nil	Nil	Nil	6.580
POS N	0.460	0.063	0.063	0.085	0.397
POS Q	1.262	Nil	Nil	Nil	1.262
POS R	0.104	Nil	Nil	Nil	0.104
POS S1	0.564	0.045	0.220	0.220	0.344
POS U3	0.442	0.089	0.188	0.234	0.255
POS V1	1.7851	0.016	0.026	0.041	1.735
<b>Sub Total</b>	<b>17.002</b>	<b>0.588</b>	<b>2.207</b>	<b>2.242</b>	<b>14.857</b>
<b>Open Space Agreed to be Treated as Pure Deduction from Net Site Area<sup>2</sup></b>					
POS P1	0.080	0.017	0.017	0.018	0.070
POS P2	Nil	Nil	Nil	Nil	Nil
POS S2	0.221	0.039	0.102	0.124	0.120
POS S3	0.227	0.042	0.042	0.055	0.190
POS V2	0.072	Nil	0.046	Nil	0.080
<b>Sub Total</b>	<b>0.601</b>	<b>0.098</b>	<b>0.161</b>	<b>2.439</b>	<b>0.500</b>
<b>Total</b>	<b>17.60</b>	<b>0.69</b>	<b>2.37</b>		<b>15.24</b>

Notes:

1. The 1:5 year drainage area includes the 1:1 year area. The 1:1 and 1:5 drainage volumes have been sourced from the Cossill & Webley Proposed Drainage Catchment Plan (Ref 5453-LOT3-SK48) and JDA's Revised Stormwater Drainage Design for Stage 5C POS - LWMS Addendum (5 October 2020) with the drainage areas confirmed as part of open space concept planning by EPCAD. Drainage into open space will be refined as part of UWMP planning, and other options such as underground storage tanks, soak wells, verge and median swales will also be considered.
2. Drainage areas treated as a deduction are shown as Local Reserve Public Purposes Drainage on the Structure Plan, with the exception of V2 which forms part of the Landscape Protection Plan.
3. Gross area of POS U excludes 765m<sup>2</sup> for temporary wastewater pump station.

#### 5.1.4 Water Management

In accordance with the WAPC's Better Urban Water Management Guidelines, JDA Consulting Hydrologist have prepared a 'Revised Stormwater Drainage Design' in support of the amendment, detailing the stormwater design criteria, modelling parameters and results for the management of stormwater runoff. The 'Revised Stormwater Drainage Design' refines the work undertaken as part of the Emmerson Stewart Local Water Management Strategy which was approved as part of the Golden Bay Structure Plan.

The 'Revised Stormwater Drainage Design' concludes that the areas of public open space can easily accommodate the necessary stormwater drainage from within the amendment area, and that two of the drainage reserves initially set aside for stormwater retention are now superfluous and can revert to residential purposes. For this reason, these two drainage reserves (designated as a Local Reserve, Public Purpose Drainage) no longer appear on the Golden Bay Structure Plan map, instead having this land revert as 'Residential' (R20).

The management principles set out in the 'Revised Stormwater Drainage Design' will be refined and implemented as part of subsequent Urban Water Management Plans (UWMP) which have been and will continue to be prepared at the time of subdivision.

JDA's 'Revised Stormwater Drainage Design' is provided as Appendix 3.

#### 5.1.5 Zoning

One of the key elements of the amendment is a reconfiguration of the residential density coding.

- The creation of approximately 1.5ha of extra open space across Lot 3 (discussed above) has seen the 'urban' footprint proportionally reduced. In order to retain a comparative potential yield for the site notwithstanding this loss in development potential, the amendment will:
- Replace the current base code of R20 with R25, providing opportunities to deliver a range of traditional (front loaded) lots typically ranging in size from 300m<sup>2</sup> to 450m<sup>2</sup>.
- Low density R20 lots will be retained in the north-western portion of the Amendment area retain the planned interface with residents within existing Golden Bay.
- Identify areas of R30 within street blocks to create opportunities for more compact (front loaded) lots. These lots typical present to the streetscape as 12.5m wide but are slightly reduced in size (via shallower lot depths) with lots areas typically around 300m<sup>2</sup>.
- Medium density R40 coded lots will typically front areas of public open space (where a higher level of amenity exists) or will be located along the key east-west local road which has easy access to (future) bus routes. This coding provides the opportunity to support contemporary medium density dwellings. Single lot sizes will generally range from 240m<sup>2</sup> to 300m<sup>2</sup> and provide for more variety in housing choice within Lot 3.
- Remove all R60 density coding currently shown on the approved Structure Plan.

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Figure 9 Road Hierarchy  
Source: Transcore

The low density R5 code along the eastern edge of the Golden Bay Structure Plan remains, ensuring a suitable transition with the land adjacent to the site

The forecast development of Lot 3 (when viewed in isolation from Lot 2) never achieved the target of 15 dwellings per gross urban zoned hectare as established by Directions 2031 and Beyond, and Perth and Peel@3.5million (primarily due to the amount of open space and LPAs on the site, as well as the challenging topography). The reconfiguration allows approximately 11 dwellings per gross urban zoned hectare to be maintained.

As outlined above, where any future development of Lot 3 directly abuts existing residences, similar density outcomes are provided. This includes retaining the R20 density coding over the norther portion of Lot 3 where it is in proximity to existing residences, the R5 density along the eastern edge and R25 density coding to the south, interfacing with the exiting dwellings along Blue Fin Drive.

#### 5.1.6 Movement Network

The 2012 Golden Bay Structure Plan was accompanied by a comprehensive Transport Assessment prepared by Transcore (April 2011) which addressed all necessary transport planning matters for Golden Bay in its entirety.

The key elements of the 2012 Structure Plan and associated Transport Assessment, as relevant to the amendment area are to:

- Maintain connections to the (existing) Golden Bay and Secret Harbour, in accordance with the original Golden Bay CDP (1994), recognising that adjoining subdivisions were designed with road reserves abutting the development area allowing for future connections.
- Provide opportunity for future connections to the east of Lot 3, recognising the potential for possible development around the Karnup Station transit oriented development precinct.
- Provide for a north-south bus route via Dampier Drive and internally within the amendment area, along a north-south neighbourhood connector road.

The primary change to the road network being proposed by the amendment is the realignment of the north-south Neighbourhood Connector that passes through the amendment area. Presently having a staggered alignment under the current (approved) Structure Plan, the amendment will see this Neighbourhood Connector become a more direct connection from Dampier Drive to the southern landholdings. The amendment will also see a general reorientation of many of the Access Streets.

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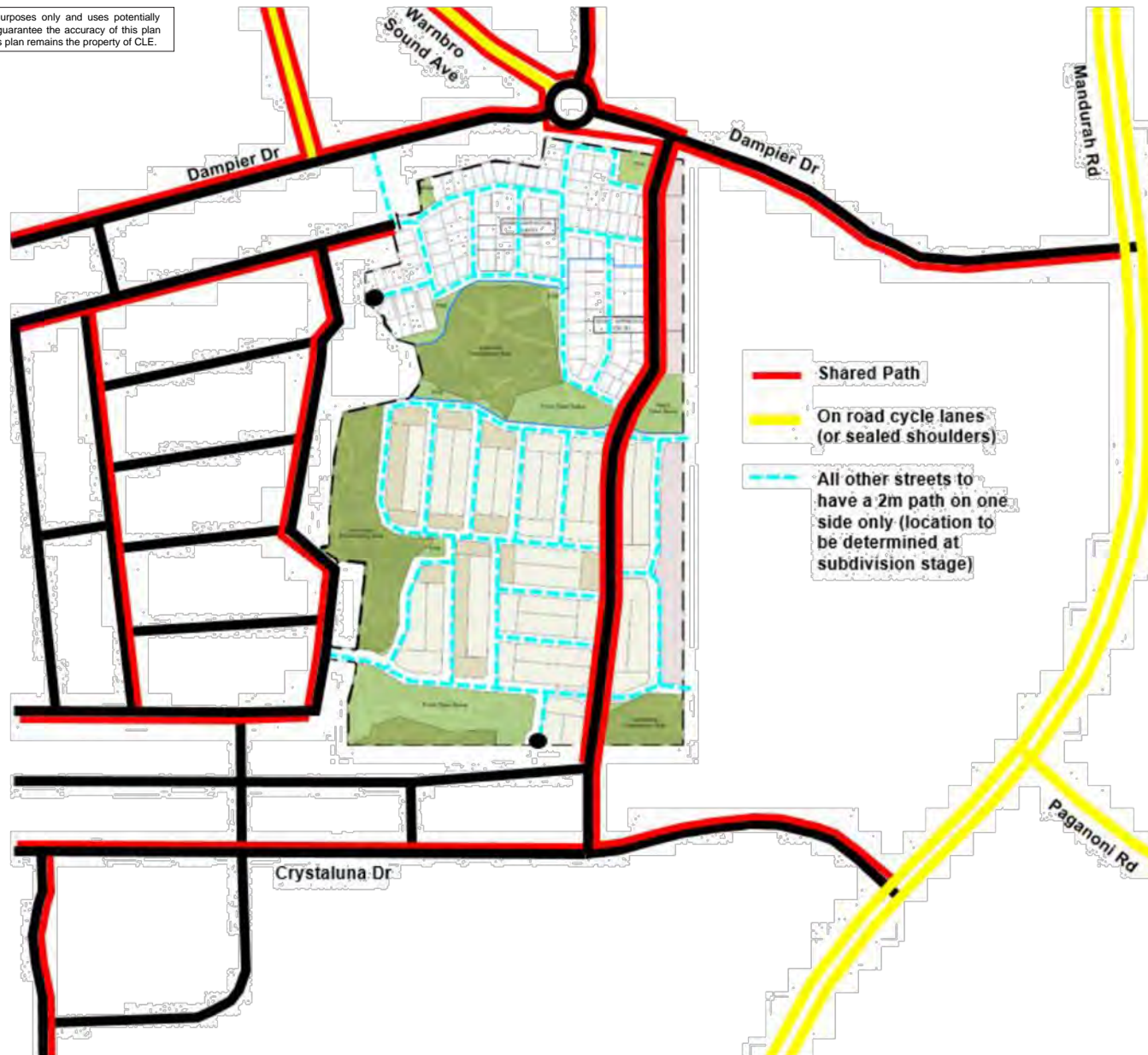


Figure 10 Pedestrian and Cyclist Facilities  
Source: Transcore

All other connections to external areas remain the same as under the current (approved) Structure Plan.

Transcore were subsequently commissioned to prepare a revised Transport Impact Assessment (TIA) in support of the amendment.

The TIA confirms that all roads can remain categorised as Access Streets, with the exception of the key north-south road (as realigned) which remains categorised as a Neighbourhood Connector B. The Road Hierarchy is shown as Figure 9.

Designated road widths will accommodate forecast traffic movements and the development of the amendment area does not pose a significant impact upon the wider road network. The TIA has considered the ultimate development of the Golden Bay estate and surrounding area, consistent with a 2031 timeframe.

The Amendment will deliver a safe and legible pedestrian and cycle movement network, both within the Amendment area and through connections to surrounding areas.

The key principles for determining the planned pedestrian and cycling facilities are shared paths being provided to the Neighbourhood Connector road with footpaths on at least one side of all access roads. Figure 10: Pedestrian and Cyclist facilities shows this planned network.

#### Dampier Drive \ Neighbourhood Connector Intersection

To ensure a robust transport assessment the TIA considered a preliminary concept plan prepared by Main Roads WA for the Dampier Drive extension which envisages a future grade-separated interchange, to replace the existing Mandurah Road \ Dampier Drive signalised intersection. The associated upgrade of Dampier Drive may include changes to access arrangements for the existing roads along Dampier Drive between Mandurah Road and the Warnbro Sound Avenue roundabout, which may ultimately result in the restriction of the existing full T-intersection to left in \ left out only. It is important to note that no decision regarding this design, nor its timing, has been determined.

The TIA demonstrates that regardless of the ultimate outcome, the network will successfully operate and the road hierarchy will remain appropriate for the modelled traffic volumes.

Transcore's Transport Impact Assessment can be found as Appendix 4.

#### 5.1.7 Bushfire Management

In accordance with the WAPC's 'Planning in Bushfire Prone Areas', Natural Area Consulting has prepared an updated Bushfire Management Plan (BMP) that includes a Bushfire Hazard Assessment identifying bushfire prone areas.

The Bushfire Management Plan concludes that bushfire risk is not an impediment to the development of Lot 3, and that any risk can be managed through the implementation of an adequate asset protection zones, and by requiring a minimum Bushfire Attack Level (BAL) standard of construction for those dwellings that are in proximity to an identified hazard.

# GOLDEN BAY STRUCTURE PLAN PART TWO - EXPLANATORY

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**Figure 11 Composite Services Plan**  
Source: Cossill & Webley

The Hazard Assessment requires that an Asset Protection Zone (APZ) be established between the identified bushfire prone vegetation and any future dwellings in order to achieve a Bushfire Attack Level (BAL) of 29 or less in accordance with AS3959 'Construction of buildings within bushfire prone areas'.

The amendment creates an APZ through the positioning of local access streets and mandatory building setbacks that ensure the required separation between bushfire prone vegetation and future dwellings is achieved. This will ensure BAL-40 and BAL-FZ construction standards are not required.

The BMP also requires any dwelling that falls within 100m of any identified bushfire prone vegetation will need to be constructed to a BAL12.5 standard, with appropriate notifications on titles to inform landowners of the need to construct dwellings to higher (BAL) construction standard.

All areas of public open space will be landscaped and maintained to a 'low hazard' standard within the amendment area.

A copy of the Natural Area Consulting Bushfire Management Plan is included as Appendix 5.

#### 5.1.8 Servicing

The amendment area can be provided with all essential services. The ability to service Golden Bay was comprehensively addressed as part of the 2012 Structure Plan and subsequently demonstrated through development across what was formerly known as Lot 2 and the northern portion of Lot 3, with the infrastructure network extended to service this land.

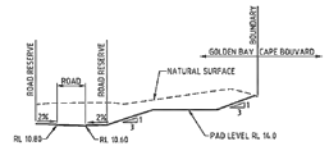
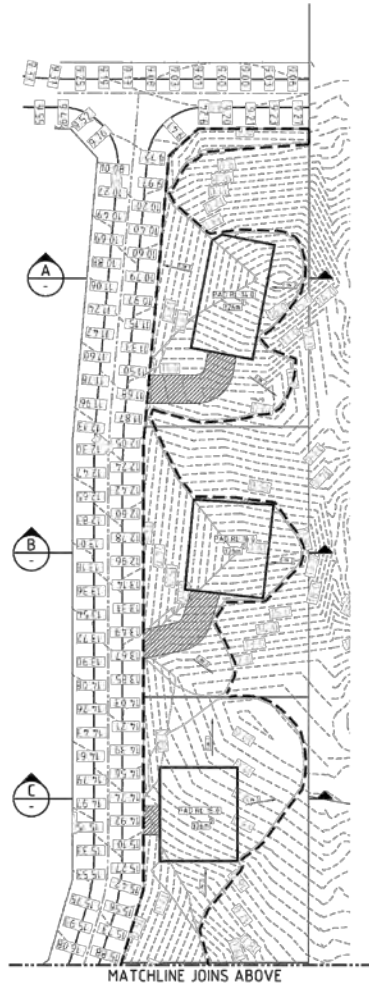
Nonetheless an updated Engineering Services Report has been prepared by Cossill & Webley engineers, provided as Appendix 6, with the overarching services strategy shown as Figure 11: Composite Services Plan.

#### Earthworks

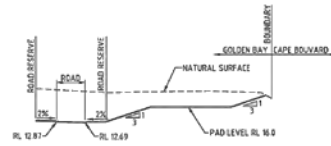
A preliminary earthworks strategy has been prepared for the Amendment area with key aspects being:

- Match into the ground levels found within the adjoining landholdings and road connections.
- Ensure the protection and retention of the significant Landscape Protection Areas.
- Create finished levels within the Amendment area that accommodate gravity reliant infrastructure (sewer and drainage).
- Achieve appropriate contouring to deliver drainage catchment areas consistent with the associated Local Water Management Strategy.

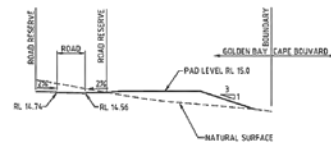
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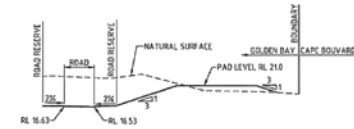
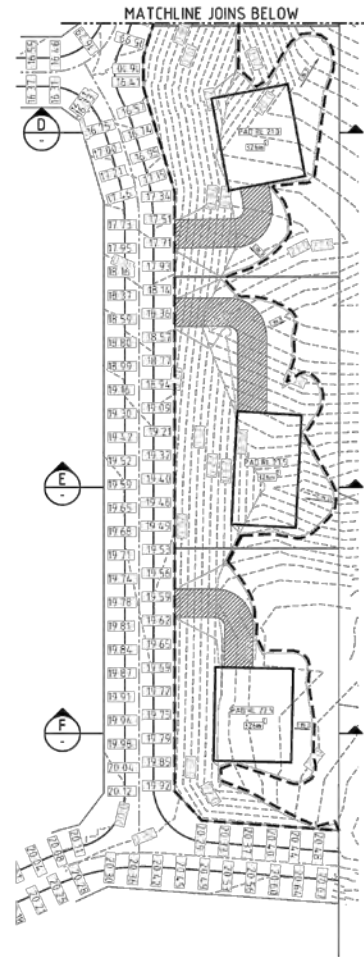
SECTION A  
1500



SECTION B  
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SECTION C  
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SECTION D  
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SECTION E  
1500



SECTION F  
1500

### LEGEND

- EXISTING CONTOURS (0.5m)
- EXISTING 1 IN 3 TOP OF BATTER
- 15.84 DESIGN VERGE LEVELS
- PROPOSED PAD LEVEL
- DESIGN IN FILL
- DESIGN IN CUT
- EARTHWORKS BOUNDARY

Figure 12 Preliminary Earthworks Design for R5 Lots

Source: Cossill & Webley

Cossill & Webley engineers have prepared preliminary earthworks design for the eastern edge of the Amendment area, demonstrating how the R5 lots can adjoin the neighbouring landholdings to the east, without any disruption to this (neighbouring) land, refer Figure 12: Preliminary Earthworks Design for R5 Lots.

As part of civil subdivision works, the Structure Plan area will be earthworked to ensure these key considerations are met.

#### Wastewater

Waste water from the amendment area will feed to an existing Type 180 Wastewater Pump Station at the corner of Warnbro Sound Avenue and Bluestone Parkway within Secret Harbour, with the need for a Type 10 temporary pump station located within the amendment area.

Ultimately the amendment area will feed eastwards to the Karnup Wastewater Pump Station once development east of Lot 3 is completed (and the Karnup WWPS operational), which carries an anticipated timeframe of 10 years.

#### Water Supply

The Water Corporation has advised that the amendment area has a general height restriction of 20m (AHD), with there being scope for a few lots to be positioned above this level in the short term. This is not an impediment to the development of the amendment area. Ultimately this level restriction will be lifted to 28m (AHD), predicated on a future DN7000 distribution main connection to a planned Karnup Tank.

#### Electricity Supply

Electricity supply will be provided via connections to the existing high voltage network in Crystaluna Drive and Dampier Drive.

#### Gas Supply

An existing medium pressure gas main is located in the Warnbro Sound Avenue reserve, which has capacity to service the amendment area.

#### Telecommunications

There is a current NBN Master Developer Agreement for the development of Golden Bay and the NBN network will be extended into the amendment area as development proceeds westwards.

#### 5.1.9 Stage 1 Overlay

This amendment will remove the 'Stage 1' overlay from the Structure Plan map.

When the Golden Bay Structure Plan was approved in 2012, the Structure Plan map included a 'Stage 1' overlay which related to an initial subdivision approval and development phase which was undertaken under the original 1994 Golden Bay CDP. It was considered appropriate at that time to differentiate between development undertaken in accordance the preceding CDP, in comparison to the subsequent Structure Plan

Given the advent of time and the mature development phase of Lot 2 – now extending well beyond any proximity of 'Stage 1' - this amendment is taking the opportunity to remove this 'Stage 1' overlay. This poses no change to any development requirements of the Structure Plan and is being done solely for the sake of simplifying the Structure Plan map.

## 6.0 CONCLUSION

This amendment to the Golden bay Structure Plan will facilitate the delivery of approximately 1.5ha of additional open space sleeving the significant dune landforms located within the Landscape Protection Areas of Lot 3. This will further ensure the safekeeping of these key landform features for the enjoyment of current and future residents in Golden Bay.

The amendment also proposes the rationalisation of the residential density code and realigns the north-south Neighbourhood Connector to improve connectivity and efficiency in the road network.

A number of administrative modifications are also proposed that brings the Golden Bay Structure Plan into alignment with current regulatory requirement.