South Alkimos

Local Structure Plan
No.72

FEBRUARY 2019 (Amendment 05)

Part One
Implementation Section

TITLE:	South Alkimos Local Structure Plan
PROJECT:	South Alkimos
PREPARED FOR:	LandCorp + Lend Lease
REFERENCE:	DLL ALK
STATUS:	Final
VERSION:	10 (modified by **element** 18/11/19)
DATE OF RELEASE:	February 2019 (Amendment 05)
AUTHOR:	R. Darby
CONTRIBUTORS:	Allen Jack + Cottier, Oculus, DPS, **element**
GRAPHIC DESIGN:	I. Franic / R.Huynh
APPROVED BY:	A. Jolic (Lend Lease)

CITATION

This document should be cited as follows:

R. Darby. (2017), South Alkimos Local Structure Plan, prepared by Roberts Day Pty Ltd.

ABN 53 667 373 703, ACN 008 892 135

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ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Wanneroo
District Planning Scheme No.2

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

23 JANUARY 2013

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

Date of Expiry: **19 OCTOBER 2032**

Record of Amendment made to the Agreed Structure Plan No. 72
South Alkimos Local Structure Plan

<table>
<tr><th>Amendment No.</th><th>Description of Amendment</th><th>Endorsed by WAPC</th></tr>
<tr><td>01</td><td>Amend Part 1 by including additional land use classes and permissibility's, amend Part section 6.7 regarding the road construction standards and intersections with Marmion Avenue and amend Appendix D – Traffic and Movement Network Report</td><td>8th September 2015</td></tr>
<tr><td>02</td><td>Amend Part 1 by rezoning land in the Gateway Precinct from 'Commercial' to 'Residential' and 'Mixed Use' and replacing Plan 1 – South Alkimos Local Structure Plan No. 72.</td><td>9th September 2015</td></tr>
<tr><td>03</td><td>Amend Part 1 by:
1. Including additional land within the Local Structure Plan area and annotating it as 'Area Subject to Further Planning';
2. Rezoning land in the Gateway Precinct from 'Commercial' to 'Private Clubs/Recreation'; and
3. Replace Plan 1 – South Alkimos Local Structure Plan No. 72.</td><td>8th September 2015</td></tr>
<tr><td>04</td><td>Amend Part 1 by:
1. Rezoning land in the Central Village from 'Mixed Use' to 'Commercial' (R-Code R80) and 'Residential' (R-Code Range R40 – R60);
2. Amending 6.2.1 (a) to read:
a. Objective
To provide for a minimum of 2282 dwellings within the Structure Plan area.
3. Amending the location of or removing Neighbourhood Connector roads;
4. Amending the route of the 'Indicative STS Route';
5. Amending the alignment of the Social/Pedestrian/Cycle Linkkage;
6. Amending Table 2 : Strategic Public Open Space Provision to read:
<table><tr><th>STRATEGIC POS SITE</th><th>SIZE (HA)</th></tr><tr><td>(A) Conservation POS</td><td>4.0</td></tr><tr><td>(B) Conservation POS</td><td>2.0</td></tr><tr><td>(C) Active Playing Fields</td><td>4.0</td></tr><tr><td>(D) Conservation POS</td><td>41.2</td></tr></table>and
7. Replacing Plan 1 – South Alkimos Local Structure Plan No. 72.</td><td>22 December 2015</td></tr>
</table>

Amendment No.	Description of Amendment	Endorsed by WAPC
05	1. Amending the Local Structure Plan map to: c. Remove the 'Area subject to further planning' notation from part of Lot 1050 (3) Brindabella Parkway, Alkimos; c. Include part of Lot 1050 (3) Brindabella Parkway, Alkimos within the 'Private Clubs/Recreation' zone; c. Insert odour buffer line; and c. Insert note on Plan stating "Buffer area subject to potential odour emissions from the Alkimos Waste Water Treatment Plant". 2. Amend Part 1 by: Amending Clause 5.1 to include: c. <u>Private Clubs/Recreation Zone – Area within Waste Water Treatment Plant odour buffer only</u> Sensitive land uses as defined by State Planning Policy 4.1 shall not be permitted within the odour buffer indicated on Plan 1, with the exception of playing fields and ancillary facilities associated with the St James Anglican School, which may be approved by the Local Government on the advice of the Water Corporation of Western Australia. 3. Replacing Plan 1 – South Alkimos Local Structure Plan No. 72.	25th February 2019
06	1. Amend Part 1 to insert textual provisions for the implementation of the Medium Density Housing Standards (R-MD) in accordance with the City's Local Planning Policy 4.19, to replace current provisions under Clause 7.2 Residential Design Code Variations. 2. Additional modifications to better align Part 1 provisions with the Planning and Development (Local Planning Schemes) Regulations 2015.	24th November 2017

Part One
Implementation Section

1.0 Structure Plan Area

This Structure Plan shall apply to Part Lot 9001 and 9002 Marmion Avenue, Alkimos being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (Plan 1).

2.0 Structure Plan Content

This Structure Plan comprises the:

a. Implementation Section (Part 1);
b. Explanatory Section (Part 2); and
c. Appendices - Technical Reports.

3.0 Interpretation

Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in the City of Wanneroo District Planning Scheme No. 2 (the Scheme) including any amendments gazetted thereto.

4.0 Operation Date

In accordance with clause 9.8.1 of the Scheme, this Structure Plan shall come into operation when it is either certified by the Western Australian Planning Commission (WAPC) pursuant to clause 9.6.3 of the Scheme or adopted, signed and sealed by the Council pursuant to clause 9.6.5 of the Scheme, whichever is the latter.

5.0 Land Use and Subdivision

The Structure Plan Map (Plan 1) outlines land use, zones and reserves applicable within the Structure Plan area. The zones and reserves designated under this Structure Plan apply to the land within it as if the zones and reserves were incorporated into the Scheme.

5.1 Land Use Permissibility

Land use permissibility within the Structure Plan areas shall be in accordance with the corresponding zone or reserve under the Scheme. Except for the following:

a. Mixed Use Zone
   Dry Cleaning Premises – 'D' Laundromat – 'D'
   Shop – 'D'
   Take Away Food Outlet – 'D' Transfer Compound – 'D' Community Activation Hub – 'D'

b. Residential Zone
   Transfer Compound – 'D' Community Activation Hub – 'D'

c. Private Clubs/Recreation Zone – Area within Waste Water Treatment Plant odour buffer only
   Sensitive land uses as defined by State Planning Policy 4.1 shall not be permitted within the odour buffer indicated on Plan 1, with the exception of playing fields and ancillary facilities associated with the St James Anglican School, which may be approved by the Local Government on the advice of the Water Corporation of Western Australia.

For the purposes of this Structure Plan:

- 'Transfer Compound' means any land used for the temporary storage of building waste and materials for processing offsite; and
- 'Community Activation Hub' means any land and/or temporary buildings used by Government agencies and/or community groups for meetings, functions, training and other community related uses. Such use may include the sale and serving of non-alcoholic beverages and the sale and serving of food which is not prepared on the site and in a form ready to be eaten without further preparation."

5.2 Residential

5.2.1 Dwelling Target

a. Objective
To provide for a minimum of 2282 dwellings within the Structure Plan area.

b. Subdivisions are to achieve the following:

i) A minimum average density of 25 dwellings per site hectare within 400 metres from the centre of neighbourhood centres and along neighbourhood connectors supporting future public transport routes.

5.2.2 Density

a. Plan 1 defines the broad residential density ranges that apply to specific areas within the Structure Plan. Lot specific residential densities, within the defined residential density ranges, are to be subsequently assigned in accordance with a Residential Density Code Plan approved by the WAPC.

b. A Residential Density Code Plan is to be submitted at the time of subdivision to the WAPC and shall indicate the Residential Density Coding applicable to each lot within the subdivision and shall be consistent with the Structure Plan, and the Residential Density Ranges identified on Plan 1 and locational criteria contained in Clause 6.2.3.

c. The Residential Density Code Plan is to include a summary of the proposed dwelling yield of the subdivision.

d. Approval of the Residential Density Code Plan shall be undertaken at the time of determination of the subdivision application by the WAPC. The approved Residential Density Code Plan shall then form part of the Structure Plan and shall be used for the determination of future development applications. Variations to the Residential Density Code Plan will require further approval of the WAPC.

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

i) the amalgamation of lots;

ii) iconsolidation of land for "superlot" purposes to facilitate land assembly for future development;

iii) the purposes of facilitating the provision of access, services or infrastructure; or

iv) land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential purposes.

5.2.3 Locational Criteria

The allocation of residential densities on the Residential Density Code Plan shall be in accordance with the following criteria:

a. R10-R60 Range

i) Low densities of R10 – R20 may be permitted to allow for landform and vegetation protection/retention.

ii) Medium densities of R30 – R60 shall generally be provided in areas of high amenity including within 800 metres of train stations and centres (activity and community) and adjacent to major public transport routes.

iii) An average density code of R25 shall generally be provided for all other residential lots within the Structure Plan.

b. R80 – R160 Range

i) Higher densities of between R80 – R160 shall generally be provided within activity centres and adjacent to Marmion Avenue.

5.3 Commercial

a. Pursuant to clause 3.4.3 of the Scheme the retail floorspace (NLA) for the Structure Plan is to be in accordance with the following Table 2.

Table 1: Retail Floorspace Provision

Centre	Maximum Net Lettable Area
Precinct 1 - Gateway	5000m^2
Precinct 2 – Central Village	1500m^2

b. Pursuant to clause 3.7.4 of the Scheme, the maximum NLA included in Table 1 may be exceeded through a Local Development Plan for the entire centre where the requirements of State Planning Policy 4.2 Activity Centres for Perth and Peel are met to the satisfaction of the WAPC and City of Wanneroo.

5.4 Public Open Space

The provision of a minimum of 10% public open space being provided in accordance with the WAPC's Liveable Neighbourhoods. Public open space is to be provided generally in accordance with Plan 1 and Table 2, with an updated public open space schedule to be provided at the time of subdivision for determination by the WAPC, upon the advice of the City of Wanneroo.

Table 2: Strategic Public Open Space Provision

Strategic POS Site	Size (HA)
(A) Conservation POS	4.0
(B) Conservation POS	2.0
(C) Active Playing Fields	4.0
(D) Conservation POS	41.2

5.5 Reports/Strategies Required Prior to Subdivision

Prior to the lodgement of subdivisions the following management plans are to be prepared, as applicable, to the satisfaction of the relevant authority and provided at the time of subdivision:

a. Vegetation and Fauna Management Plan (City of Wanneroo, on the advice of the DEC)

b. Fire Management Plan (City of Wanneroo, FESA)

c. Public Open Space Schedule prepared in accordance with Liveable Neighbourhoods (City of Wanneroo, WAPC)

d. Average Residential Density Plan to demonstrate progress towards achieving an average density coding of R25 (City of Wanneroo, WAPC).

5.6 Conditions of Subdivision Approval

a. At the time of subdivision the following conditions may be recommended, as applicable, requiring the preparation and/or implementation of the following strategies:

   i) Foreshore Management Plan (WAPC, City of Wanneroo)

   ii) Urban Water Management Plan (City of Wanneroo, Department of Water)

   iii) Geotechnical Report (City of Wanneroo)

b. At the time of subdivision the City of Wanneroo shall recommend to the WAPC the implementation of the following strategies which have been prepared and approved as part of the Structure Plan as conditions of subdivision:

   i) Fire Management Plan

   ii) Vegetation and Fauna Management Plan

   iii) Acoustic Assessment (to facilitate the development of any residential buildings and other sensitive land uses within 300 metres of Marmion Avenue

6.0 Development

6.1 Local Development Plans

Local Development Plans are to be prepared in accordance with the Scheme; prior to any subdivision and/or development for the Commercial Zone; Mixed Use Zone; residential development adjacent to the STS route and any other lot which requires specific development standards as identified by the City, the Department of Planning or the subdivider.

6.2 Residential Design Code Variations

The City of Wanneroo's 'Medium-Density Housing Standards (R-MD)' Local Planning Policy 4.19 (R-MD Codes LPP 4.19) sets out acceptable variations to the deemed-to-comply provisions of the R-Codes for lots coded R25-R60. Except in a situation where an approved LDP imposing R-Code variations applies, the standards set out in the R-MD Codes LPP 4.19 apply to this Local Structure Plan.

7.0 Other

7.1 Areas of National Environmental Significance

Areas identified as being of National Environmental Significance under the Environmental Protection and Biodiversity Conservation Act 1999 may be subject to assessment by the Federal Department of Sustainability, Environment, Water, Population and Communities, in accordance with this Act. Any conflict with this LSP arising from any such assessment must be resolved to the satisfaction of the City of Wanneroo and the Western Australian Planning Commission

7.2 Graceful Sun Moth

The clearing of habitat such as Lomandra hermaphrodita and Maritima that includes the taking of individual Graceful Sun Moths requires the permission of the Minister for Environment, or their delegate, pursuant to the Wildlife Conservation Act 1950. Evidence is to be provided to the WAPC at the time of subdivision that the licence (if required) has been issued by the Department of Environment and Conservation.

7.3 Alkimos-Eglinton District Structure Plan

The Alkimos-Eglinton District Structure Plan is subject to monitoring and review by the City of Wanneroo and/or the Western Australian Planning Commission commencing in 2017. Any amendments to the District Structure Plan may result in consequential amendments to the Local Structure Plan which must be consistent with the District Structure Plan.

7.4 Areas Subject to Further Planning

Prior to a structure plan(s) being prepared over the portions of land annotated with 'Area Subject to Further Planning' on Plan 1, the coastal setback issue(s) affecting these portions of land must be resolved to the satisfaction of the Western Australian Planning Commission.

Plan 1: South Alkimos Local Structure Plan No. 72

Legend

Structure Plan Area

Reserves
- Public Use - (PS) Primary School
- Regional Parks & Recreation (Foreshore Reserve)
- Conservation POS
- Active POS

Zones
- Residential
- Commercial
- Mixed Use
- Private Clubs/Recreation

Other
- Indicative STS Route
- Neighbourhood Connector
- Precinct Boundary
- Social / Pedestrian / Cycle Linkage
- Indicative Foreshore Pedestrian and Cycle Link (as per Alkimos-Eglinton District Structure Plan)
- Odour Buffer

Precincts
- (1) Gateway
- (2) Central Village
- (3) Residential
- (A) Strategic Public Open Space - Refer to Table 3 of Part 1 - Implementation Section

NOTES:

1. Areas identified as being of National Environmental Significance under the Environmental Protection and Biodiversity Conservation Act 1999 may be subject to assessment by the Federal Department of Sustainability, Environment, Water, Population and Communities, in accordance with this Act. The outcome of any such assessment may require either a modification to the LSP or minor variations from the LSP at the subdivision and/or development stage.

2. The clearing of habitat such as Lomandra hermaphrodita and Maritima that includes the taking of individual Graceful Sun Moths requires the permission of the Minister for Environment, or their delegate, pursuant to the Wildlife Conservation Act 1950. Evidence is to be provided to the WAPC at the time of subdivision that the licence (if required) has been issued by the Department of Environment and Conservation.

South Alkimos

Local Structure Plan No. 72

FEBRUARY 2019 (Amendment 05)

Part Two
Explanatory Section

TITLE:	South Alkimos Local Structure Plan
PROJECT:	South Alkimos
PREPARED FOR:	LandCorp + Lend Lease
REFERENCE:	DLL ALK
STATUS:	Final
VERSION:	10 (modified by **element** 18/11/19)
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APPROVED BY:	A. Jolic (Lend Lease)

CITATION

Thisdocumentshouldbecitedasfollows:

R.Darby.(2017),SouthAlkimosLocalStructurePlan,preparedbyRobertsDayPtyLtd.

ABN53667373703,ACN008892135

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Contents

Part Two
Explanatory Section

1.0Introduction

1.1 Background

TheSouthAlkimosLocalStructurePlan(LSP)areaissituatedwithinthe greater Alkimos – Eglinton District. The Alkimos – Eglinton District consists ofa2,660hectareparcelofIandlocated40kmnorth-westofthePerth CentralBusinessDistrict.

The LSP site is owned by LandCorp. Following an extensive selection processLandCorpchoseLendLeaseasthepreferredproponentto manage and coordinate planning, design, sustainability initiatives and development across the LSP landholdings. A portion of Lot 9001, which is ownedbyWaterCorporation,isincludedwithintheLSPareatoallowfor thecreationofaroadreserve.

1.2 Vision

ThevisionfortheLSPistocreateamaster-plannedcoastalcommunityof global significance that's moving towards carbon-neutral living.

To achieve this, South Alkimos will be developed upon the following strategic themes:

- Green Energy
- SmartWater
- Connectivity
- Community Wellbeing
- Distinctive Design

Green Energy

South Alkimos will explore the use of green energy to power the development. It is proposed to target a reduction in energy consumption acrossinfrastructuredelivery,landandbuiltformdevelopmentand commercial and domestic uses. The development will investigate the incorporation of renewable energy sources, energy efficient building design.

SmartWater

South Alkimos will value water. It will challenge conventional thinking and work toward the implementation of an integrated water management system. Along with business and community this water strategy will focus on demand management, reuse, recycling and conservation initiatives.

Connectivity

SouthAlkimoswillbeconnectedtoastateoftheartcommunications networkandbeacommunityfocused,walkableandbicyclefriendly development.Itwillbeconnectedtoemploymentopportunitiesin adjoining areas such as the Alkimos Regional Centre and Neerabup and transit-orienteddevelopmentprincipleswillbeappliedsupportedbythe potential of an extension to the northern rail line to the Alkioms Regional Centreandsupportedbyalocalareatransitsystem.

Community Wellbeing

South Alkimos will be an outstanding place to live, learn, work and play. Affordability, diversity, availability of land supply and job creation are high on the agenda that values participation and place making. South Alkimoswillensurethedevelopmentofacommunitythatfostersactive citizenship, is safe and healthy with access to jobs, services and learning.
Distinctive Design

The design of South Alkimos will capture the unique personality of its coastal location and the aspiration to a more dense, vibrant and flexible urban form that incorporates well-designed streetscapes, attractive and engaging public realm and the creation of outstanding public places for a widevarietyofpeopleanduses

1.3 Project Team

TheLSPsiteistobedevelopedbyLandCorpandLendLease.

Other members of the Project Team include:

• Roberts Day	Statutory Planning + Urban Design
• Cossill + Webley	Civil Engineering
• MacroPlan	Commercial/RetailAnalysis
• GHD	Water Management + Sustainability
• RPSEnvironments	Environment
• Bruce Aulabaugh	Traffic
• Herring Storer Acoustics	Acoustics
• Blackwell&Associates	LandscapeArchitectur e
• MP Rogers & Associates	Marine Engineering
• EdwardMMcDonaldPhd & Bryn Coldrick M.A.	Aboriginal Heritage

2.0 Subject Land

2.1 Location

TheSouthAlkimosLSPrelatestoanareaofapproximately230hectares in the south western area of the Alkimos-Eglinton District Structure Plan (DSP) area (refer Figure 1). The land is located in the north-western sub-region of the Perth metropolitan area, approximately 40 kilometres north-westofthePerthCBD.

TheLSPareacomprisesportionofLots9001and9002MarmionAvenue. TheLSPareaisboundbyaWaterCorporationwastewatertreatmentplant buffer to the north, Marmion Avenue to the east, urban land to the south andtheIndianOceantothewest.

TheSouthAlkimossiteincludesa6haportionoflandtothenorthofthe main LSP area. Due to this portion of land being isolated from the main LSP area it is proposed to defer planning over this land until such time that structure planning has occurred over the adjoining landholdings.

2.2 Ownership

WesternAustralianDevelopmentCorporation(LandCorp)ownsthesite being Lot 9002 Marmion Avenue (Volume 2771 Folio 786).

WaterCorporationownsLot9001MarmionAvenue(Volume2771Folio 785).

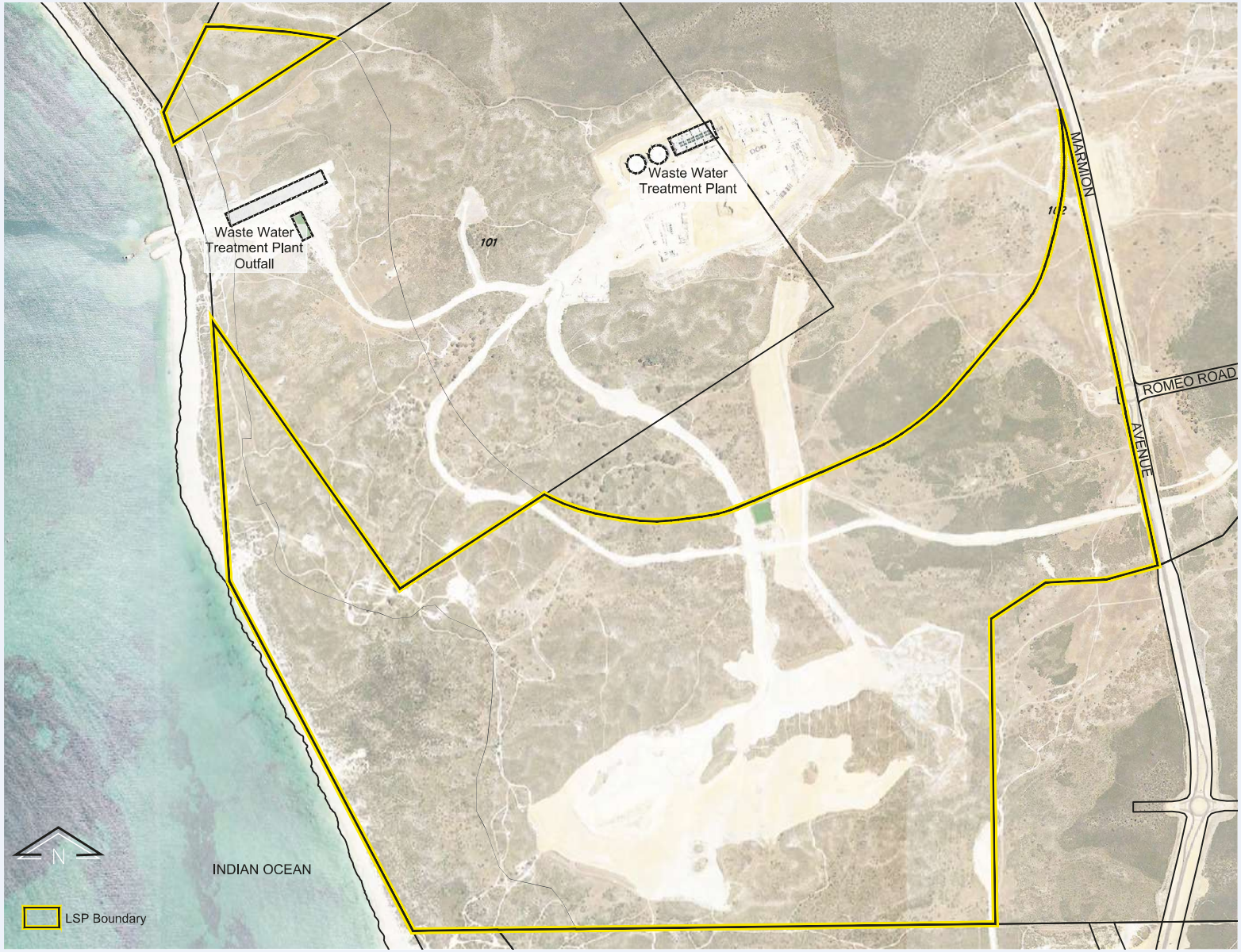


Figure 1 - Site Plan

3.0 Regional, District, Local + Site Context

3.1 Regional Context

The LSP site is located within the north-west sub-region of the Perth metropolitan area. The site is adjacent to the proposed Alkimos Regional Centre and is located approximately 16 kilometres north of the Joondalup Strategic Metropolitan Centre and approximately 9 kilometres south of the Yanchep Strategic Metropolitan Centre.

Figure 2 - Regional Context

3.2 DistrictContext

TheLSPsiteislocatedwithinthesouthernportionoftheAlkimos-Eglinton District. The Alkimos-Eglinton District Structure Plan (DSP) has been prepared to guide development of this 2626 hectare District which is proposed to create over 23,000 dwellings and house a population of approximately57,000residents.TheDSPhasbeenapprovedbytheCity of Wanneroo and endorsed by the WAPC subject to amendments. 3.4 LocalContext

TheLSPsiteiscurrentlyvacantandispredominantlyutilisedbypersons inrecreationalvehicles.A31hectareareainthecentralportionofthesite has been filled with surplus sand from the construction of the adjoining wastewatertreatmentplant.

Thelandtothenorthisutilisedforawatercorporationwastewater treatment plant and associated buffer, the land to the east is currently vacant but is the site for the proposed Alkimos Regional Centre and the land to the south is currently vacant but has structure planning approval forurbandevelopment.

3.3 SiteConditions

3.3.1 Climate

Theclimateisdescribedaswarm Mediterranean,andissimilartothat of other coastal areas in the Perth Metropolitan Region, with hot dry summersandmildwetwinters.Summermeandailytemperaturesare between 18.6ºC and 30.3ºC; and in winter 9.1ºC to 17.6ºC. Average annual rainfall at Wanneroo Post Office is 843mm; which mostly occurs between AprilandOctober.

Windsareaveryimportantfeatureofcoastalenvironmentsastheyare a major determinant of landwards sand migration, and landforms and landscape. During summer, winds blow from the east to south-east in the morning (4:00am to midday) and from the south-west in the afternoon (1:00pmto6:00pm,thelocalseabreeze).Winterischaracterisedby north-westerlystormwindsthatbackaroundtothewestandsouth-west, interspersedwithcalmerperiods.

3.3.2 Landform + Topography

Topography within the LSP area varies from 45m above sea level in the east down to 5m to the west. The LSP area comprises an undulating coastal Quindalup sand dune landform with younger dunes close to the coast and older more stable dunes further inland. The dunes are comprised of fine to medium grained, light brown to white, calcareous sand.

The site contains a number of prominent east-west ridges. A ridge through the south-eastern portion of the site forms a part of the southern arm of a large parabolic sand dune located on the eastern part of the site. The landscape within the LSP area is dominated by this large stabilised paraboliccdunewhichextendsinlandforaconsiderabledistance.This distinctive landform has had a major influence on the layout and form of the LSP design.

Swalesbetweensanddunesvaryinshapeandcontourlevelfromalow of 10 metres AHD adjacent to the coastal foreshore reserve to 20-30 metres AHD inland. The sand dunes are generally irregularly shaped with site slopes up to 30 percent gradient. Areas of outcrop occur and are comprisedofwellcementedcaprockzones.Surfacerockisanticipated to occur predominately as cemented limestone cap rock outcrops along ridge lines within the Quindalup dunes. Below the cap rock layers the limestone is generally of lower strength.

A 31 hectare area in the central portion of the site has been filled with surplus sand from the construction of the adjoining wastewater treatment plant. The fill area is located in the swales of the dunes with the summits of the dunes being retained.

Excavation conditions within the areas of rock are highly variable and are largely affected by the thickness of cap rock development. As a general rule, the potential for encountering difficult excavation conditions increases with further distance from the coast and with increasing depth of excavation due to the potential for encountering older cap rock formations.

The landscape is also dominated by the large foreshore reserve (Regional Open Space) which defines the western boundary of the LSP area. Thisisadistinctivetractofnaturallandscapethatwillseparateurban developmentfromtheocean.

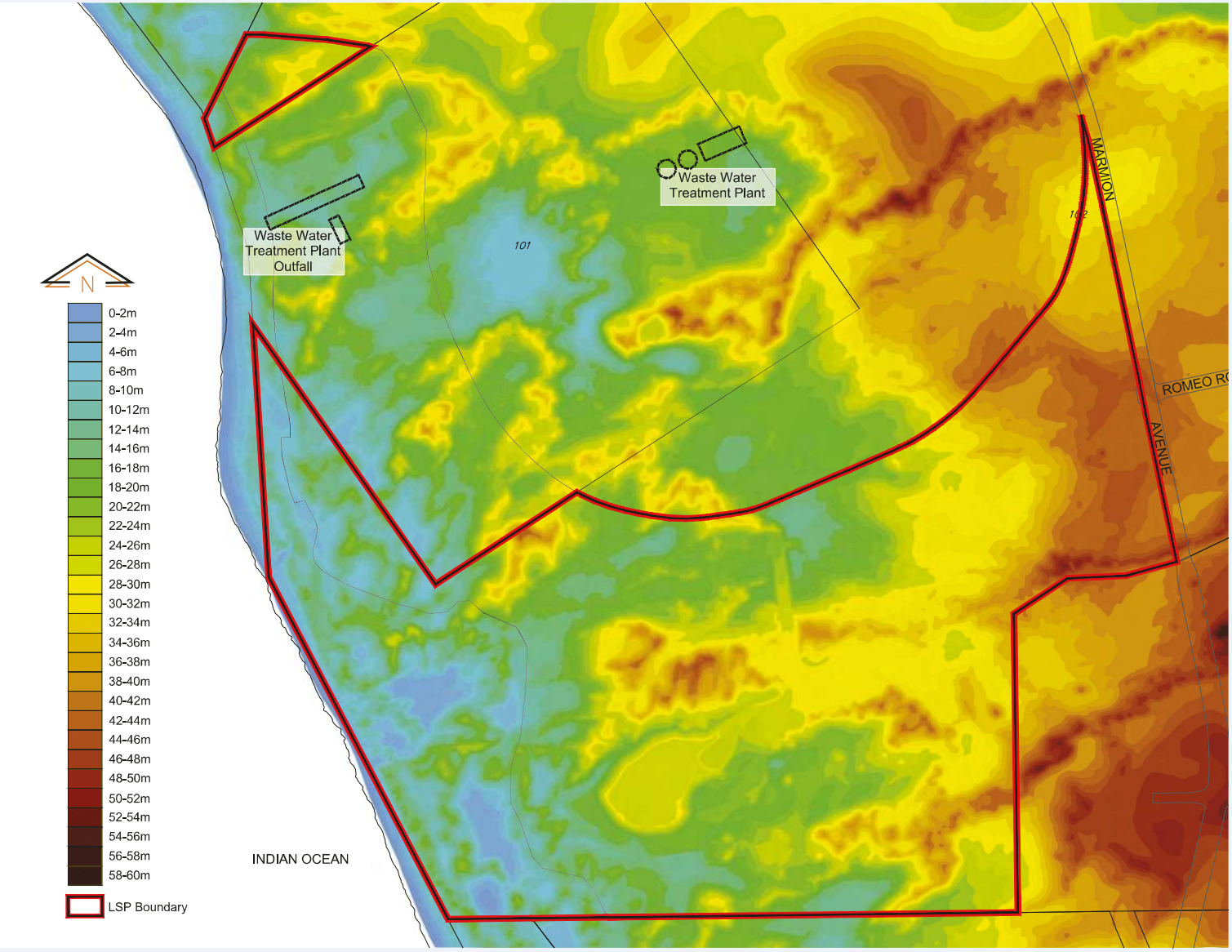


Figure 3 - Contour Plan

3.3.3 Soils

ThesoilsofthesiteweremappedbyMcArthurandBartle(1980).Twelve mapping units were described based on geology, landform and soils. ThedominantsoiltypeontheLSPsiteisQuindalup(Q3).Thisunitis comprised of loose, calcareous sand with some organic matter in the first 10cmandincipientcementationatdepth.

The following soil types are also found on the site:

- Quindalup (Q4): Loose pale brown calcareous sand with no soil profile development.
- Quindalup (Qp): Quindalup Deep sand flat phase – dark grey-brown sandtoabout50cmandthenpalebrownsand.
- Quindalup Shallow sand flat phase (Qs): Shallow calcareous sands over limestone.
- KarrakattaShallowSoilsPhase:Barerock,yellow/brownshallowsands andstonysoils.

Soil mapping can be found in the Local Environment Impact Assessment and Management Strategy (Appendix A).

3.3.3.1 Karst

Coffey Geotechnics have provided advice that based on their previous experiencewithkarsticterrainwithintheSwanCoastalPlainandthe relatively young geological age of the Quindalup and Spearwood Dune deposits within the site, it is considered that potential for significant karstic featuresisverylow.

Karstic ground formations are known to occur in the limestone rock along a band running north-south along the eastern side of Wanneroo Road, well clear of the South Alkimos LSP area. Recent ground probing radar investigations carried out within the Yanchep-Two Rocks area has confirmed the above.

The Alkimos Water Alliance has excavated an area, just north of the South AlkimosLSParea,fortheproposedAlkimosWastewaterTreatmentPlan. Theexcavationextendsdowntolevelsof3metresAHD,insomeareas, in limestone rock and, there has been no evidence of karstic ground conditions.

BasedonthisevidenceitisconsideredveryunlikelythattheSouth Alkimos LSP area contains karstic ground formations.

Not withstanding this provision will be made in the construction specifications for earthworks for progressive inspections of the works by qualified geotechnical engineers to confirm, or otherwise, the above. Therefore it is recommended that no further investigations are required in respect to karst. A copy of Coffey Geotechnics advice letter can be found inAppendixB.

3.3.4 Hydrology

3.3.4.1 Surface Water

A small wetland known as Karli Spring is the only surface water feature in the vicinity of the site. It is located in an inter-dunal depression in the foreshore reserve to the southwest of the site. Karli Spring is an expression of groundwater; the result of a topographic depression in the Quindalup Dune System. Karli Spring is 1 m below sea level, and located approximately 175 metres east of the coast. It contains permanent water and experiences only minor water level fluctuations.

3.3.4.2 Groundwater

The Perth Groundwater Atlas (Water and Rivers Commission, 1997) indicates the regional groundwater flow direction is south-east toward the Indian Ocean at a gradient of 0.001. The Perth Groundwater Atlas indicates that the groundwater beneath the South Alkimos LSP site is approximately at sea level; with maximum groundwater levels ranging from 0 mAHD at the coast to 1 mAHD in the north-east of the site. The topography of the site varies significantly and consequently the depth to groundwater is generally the height of the land above sea level, which ranges on the LSP site between 5 and 45 m AHD.

3.3.5 Fauna

The habitats in the LSP area are coastal heath, old Quindalup heath, cleared/pasture areas and Tuart trees. The LSP area contains some of the most degraded areas on the Alkimos - Eglinton site due to historic agricultural land use and continued use from recreational off-road vehicles.

Dr Mike Bamford from Bamford Consulting Ecologists was consulted to review the existing fauna lists for the South Alkimos LSP area from Alan Tingay and Associates (1996), Thompson (2005) and Bamford and Davies (2005). Based on his extensive experience in the general area, including the Alkimos Wastewater Treatment Plant site directly adjacent to the LSP area, Dr Bamford determined the species most likely to occur in the South Alkimos LSP area. These are represented in Table 1 of the Local Environment Impact Assessment and Management Strategy prepared by RPS (refer Appendix A).

Of the species listed in Table 1, the species described below are considered to be the most significant:

- Carnaby's Black Cockatoo (Calyptorhynchus latirostris), is listed as Endangered under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and on Schedule 1 (Endangered) under the Western Australian Wildlife Conservation Act 1950.
- The Carnaby's Black Cockatoo has become a particular species of concern to Department of Sustainability, Environment, Water, Population and Communities (SEWPAC). This concern has been based on a suspected continuing decline in population numbers and loss of habitat in the wheatbelt and on the Swan Coastal Plain. As a result, decisions and approaches adopted by the (former) Commonwealth Environment Minister (The Hon Peter Garrett) and by SEWPAC under the EPBC Act in relation to this species are amongst the most precautionary and protective of any listed threatened species.

The Commonwealth referral currently being prepared for South Alkimos notes a small area of Carnaby's Black Cockatoo habitat proposed to be clearedinthenortheastcornerofthesite.Acombinationofonsite conservation and off site offset is likely to be required to achieve approval for the project. That referral currently being prepared will be lodged approximatelythesametimeatthisLSP.

- Graceful Sun Moth (Synemon gratiosa) is listed as Endangered under theEPBCAct.TheWAWildlifeConservationAct1950listsThisspeciesas rareorlikelytobecomeextinct.

  ThespecieswasonlyincludedontheEPBCActThreatenedspecieslist in January 2009. To date very few projects have been considered that may have a significant impact on the species, and no approval/refusal decisions have been made relating to this species – there are as yet no precedents for onsite or off site compensation for loss of habitat. Furthermore,thelimitedopportunitytosurveyforthisspecies(annually inMarch)maymeanthatSEWPACwilltakeaprecautionaryapproachto any project with potential habitat on site.

- QuendaorSouthernBrownBandicoot(Isoodonobesulusfusciventer)a Priority5SpeciesprotectedundertheWildlifeConservationAct1950and Neelapscalonotos(Black-stripedSnake)aPriority3Speciesprotectedunder theWildlifeConservationAct1950areunlikelytobepermanentresidents withinthesite.Iftheyarepresentonthesite,theywouldmostlikelyreside in the areas of better quality vegetation in the adjacent reserves.

- MooditorBushRat(Rattusfuscipes)mayalsobelocatedonthesite although it would be most likely to occur around Karli Spring which is locatedintheforeshorereserve(BushForeversite397).Thisspeciesis not protected by Federal or State legislation.

3.3.6 Flora

The Quindalup vegetation complex is the most common complex on the LSP site. Remnant vegetation covers approximately 50% of the South Alkimos LSP site. The site contains some of the most degraded environments in the Alkimos – Eglinton area. The site was historically used for grazing and consequently some areas now support a high percentage of weed species. The site is considered to be in 'Very Good' to 'Completely Degraded' condition. The majority of better quality vegetation on the site is located on the dune ridges that were not grazed as intensively. Localised areas of disturbance exist from off-road vehicle tracks, and more recently, the construction of the Alkimos WWTP.

Floristically, the Quindalup dunes support a relatively low diversity of plants due to reduced soil development and more extreme climatic conditions when compared to inland dunes. The development of plant communities on the Quindalup dunes begins at the strand which is dominated by Spinifex Grassland backed by younger dunes comprised of an Open to Closed Heath or Shrubland.

The LSP site is dominated by Quindalup dunes supporting Melaleucea systena and Lomandra maritimae with some occurrence of Eucalyptus gomphocephala near the WWTP buffer and the foreshore reserve. Inter-dunal basins are either cleared or predominantly support weeds, as the result of the historical grazing land use.

No Declared Rare or Priority 1 Flora species have been located on the site during past vegetation surveys. According to ATA Environmental (2005), Crassula coloratasubsp. planescens (Priority 2) and Hibbertia spicata subsp. leptotheca (Priority 3) and Sarcozona bicarinata (Priority 3) were recorded on the Alkimos LSP site during the 2004 vegetation survey by E. Bennett.

3.3.7 Heritage

Two Aboriginal Heritage ethnographic surveys were conducted in the LSP area (for the Water Corporation) which encompass the LSP site. A specific survey for the South Alkimos LSP site was conducted in December 2007 by Ethnoscience Aboriginal Heritage Consultants (Appendix C refers).

The ethnographic consultation involved representatives of the Bibbulmun Tribal Group and the Ballaruk Aboriginal Corporation.

A search of the Department of Indigenous Affairs (DIA) site register identified two listed ethnographic sites in the vicinity of the LSP area. The first is DIA Site ID 3509 Karli Spring which is listed on the Permanent Register, and the second is DIA Site ID 24403 Spring which was recently placed on the Interim Register. However, this appears to be a duplicate recording of Karli Spring.

During the ethnographic consultation, a primary concern of both groups was the ongoing protection of Karli Spring in public open space with commemoration in the form of plaques and potentially a cultural centre. Karli Spring is currently within (and will continue to be so) the MRS Parks and Recreation reservation (foreshore reserve). Opportunities exist to work with the Aboriginal community to ensure this site is properly managed and appropriately celebrated through informative signage and perhaps an interpretive centre.

No previously unreported ethnographic sites were identified during the consultation. A number of topographical and environmental features were reported by Macintyre Dobson and Associates and O'Reilly (2005) as being associated with a Waugal Dreaming Track extending from Fremantle / Augusta to Two Rocks and beyond. The features were described not as discrete sites but attributes of this larger Waugal Dreaming Trail and it was acknowledged that the features were "common characteristics of the northerncoastalduneenvironment".Similarfeatureswererecordedthe following year by AIC.

The reported Waugal site involving the entire coastal dune system from Two Rocks to Fremantle/Augusta or Jurien Bay to Augusta is not a site within the meaning of Section 5 of the Aboriginal Heritage Act 1972.

Based on the outcomes of the ethnographic consultation results, Ethnosciences consultants have recommended the following:

- ThatthedevelopmentoftheLSPareabeallowedtoproceed.
- That all impacts on Karli Spring (DIA Site ID 3509) and the surrounding vegetation and associated features be avoided and that the site continues to be protected inside Regional Open Space.
- ThatthefeaturesreferredtoasALK01-05beavoidedifpossibleand commemorated through appropriate interpretive signage and/or publicartworks.
- That an Aboriginal Heritage Management Plan and Interpretation Plan be prepared to ensure the long term protection and interpretation of Karli Spring and any other places of Aboriginal cultural value that are tobepreservedwithinthedevelopment.Theplanshouldalsoinclude procedures for dealing with the potential for subsurface archeological material, including burials, to be unearthed in the course of the development.

3.4 MovementNetwork

3.4.1 Context

The LSP area sits within the context of the Alkimos-Eglinton DSP. The DSP describes the broad transport and access infrastructure requirements for Alkimos-Eglinton, including:

- adistrictroadnetworkandhierarchy:inparticular,theextensionof MarmionAvenuefromQuinnsRocktoYanchep/TwoRocks;
- regional public transport linkages including an extension of the northernsuburbsraillineandanSecondaryTransportSystem(STS)bus route linking key development nodes, and
- a district pedestrian and cycling network.

3.4.2 Existing Road Network

MarmionAvenue,ontheeasternboundaryoftheLSParea,isconstructed through to Yanchep as a two-lane road. There are no existing formalised roads within the LSP area. Access through the site and to the coast is currently available via an informal network of walking and four-wheel drivetracks.

3.4.3 Existing Pedestrian and Cycle Networks

There are no formal existing amenities for pedestrian and cyclists in the vicinity.ThePerthBicycleNetworkonlyextendsasfarnorthasQuinns Rock,whichisapproximatelyninekilometressouthoftheLSParea.

Theinformalbushlandandcoastaltracksintheareaareconsideredtobe oflowrecreationalvalueduetoalackofsuitableaccess.

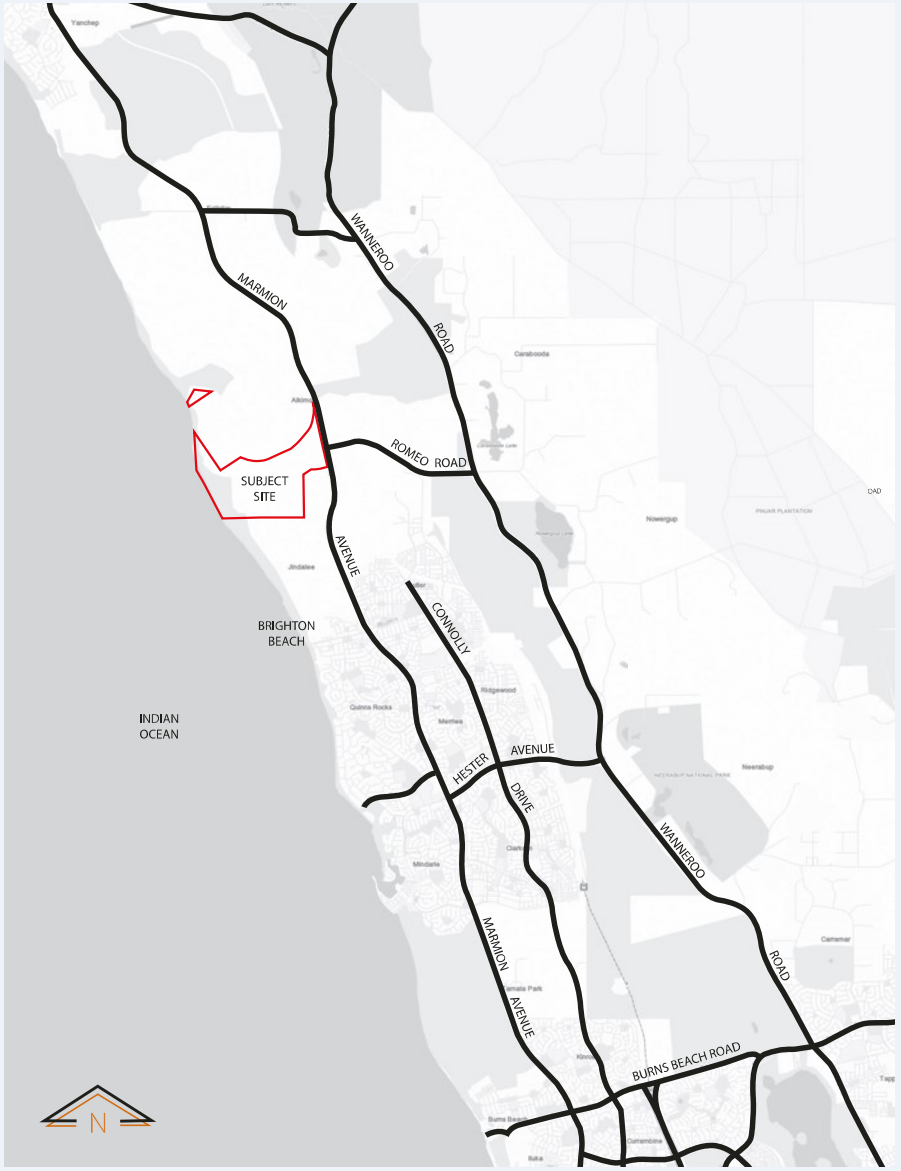


Figure 4 - Regional Movement Network

3.4.4 Existing Public Transport Routes

There are currently no public transport services operating through the LSP area. In the surrounding area, route 490 operates six to seven journeys perweekdaybetweenTwoRocksandClarksontrainstation.Thetrip time for this service is around 50 minutes. The service operates along the new Marmion Avenue extension, whereas it formerly operated along WannerooRoad.

TheclosestrailstationisClarkson,whichislocatedapproximatelysix kilometrestothesouthoftheLSParea.

Figure 5 - Existing Public Transport Network

3.4.5 Planned and Committed External Road Network

The road network included in the DSP is assumed as the planned and committed external road network. The key roads are:

- Marmion Avenue, which is currently constructed as a two lane road. This will be upgraded to a four lane divided Integrator Arterial (A) when traffic volumes warrant the upgrade.
- Mitchell Freeway will ultimately be constructed through to Yanchep when traffic volumes require its construction.
- Romeo Road and Alkimos Drive will ultimately connect with Mitchell Freeway.

3.4.6 District and Regional Public Transport Network

The public transport network included in the DSP is assumed as the planned and committed external public transport network. The traffic modelling prepared by Bruce Aulabaugh (Appendix D) was predicated on public transport being an attractive mode for residents of and visitors to the LSP area. The key features are:

- Extension of the Joondalup rail line to Yanchep, with stations at the Alkimos Regional Centre, Alkimos Drive Park and Drive and Eglinton District Centre.
- The potential provision of a STS bus route through Alkimos and Eglinton, ultimately connecting the main development centres - including the coastal villages - with the centres at Alkimos and Eglinton and the train line at these two locations. SKM has produced an assessment of the STS for the Alkimos Eglinton landowners.

The current State Government has committed to extend the northern rail line as far as Butler (which is south of Alkimos) and the Public Transport Authority (PTA) have advised that they expect to have passenger services commenced by the end of 2014. In the interim – i.e. before the northern line is extended to the Alkimos Regional Centre – it is anticipated that local bus services will operate between LSP area and the northernmost operational train station, Clarkson. The PTA are currently undertaking an assessment study for an extension of rail line from Butler to Yanchep.

3.4.7 District and Regional Walking/ Cycling Network

A regional coastal recreation path is planned along the western boundary of Alkimos LSP area as are cycle facilities – including Principal Shared Paths (PSPs) - parallel to both the proposed rail alignment and the Mitchell Freeway northern extension. This district infrastructure will principally be linked with the LSP area via the cycleways planned along the potential STS route. Furthermore, the potential provision of an underor overpass spanning Marmion Avenue, will increase connectivity between LSP area, the Regional Centre and district infrastructure.

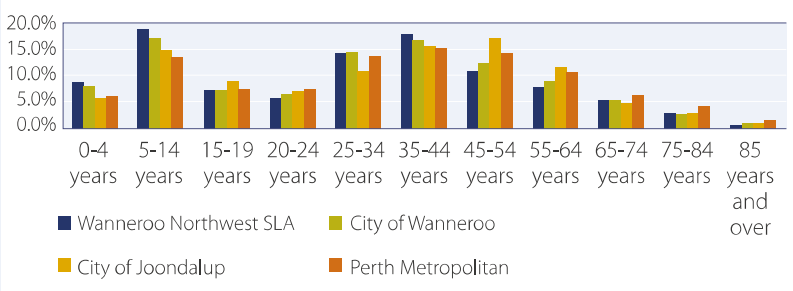
3.5 Demographics

Population

KeystatisticsonthepopulationwithintheWanneroo NorthwestStatistical Local Area's (SLA), are as follows:

- TheSLApopulationis37,652basedon2006ABSdata
- The SLA (26.1%) has a higher percentage of people aged 15 years or younger than the Perth average (20.9%)
- The SLA (15.8%) has a lower percentage of people aged 55 years or older than the Perth average (22.6%)
- The median age of the SLA (33 years) is two years younger than the Perthmedian(35years).
- The SLA (54.9%) has a lower percentage of Australian born residents than the Perth average (61.5%). Of the population in the SLA born outside of Australia, the highest percentage is from the United Kingdom (22.5%), compared with the Perth average of 11.8%.

The population proportion by age for the regions is illustrated in the following graph.

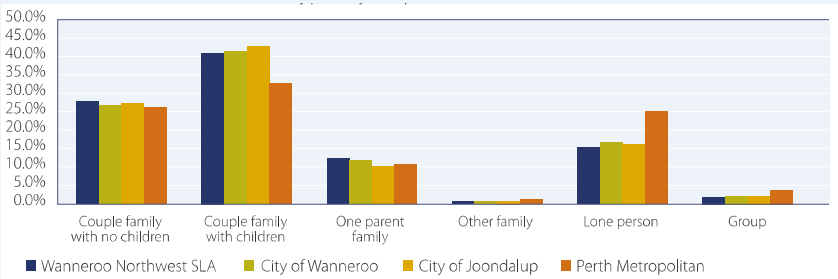


Graph 1 - Population Proportion by Age, ABS Census 2006

Dwellings and Household Structure

- In the 2006 Census there were 12,959 occupied private dwellings counted in the Wanneroo (C) - North-West SLA : 94.0% were separate houses, 4.8% were semi-detached, row or terrace houses, townhouses etc, 0.6% were flats, units or apartments and 0.3% were other dwellings.
- 92.1% of dwellings in the SLA are Separate Detached, compared to Perth (79.1%). Only 2% of dwellings in the SLA are apartments (Perth 8.5%) – balance of dwellings are semi detached.
- The SLA (3.0) has a larger household size than the Perth average (2.7).
- ThemostcommonhouseholdstructureintheSLAiscouplefamilieswith children (43.2%) (Perth 33.2%).
- Couple families without children account for 27.4% of households in the SLA (Perth average 26.9%).
- The percentage of single person households in the SLA (15.4%) are significantly lower than the Perth average (25.1%).
- The SLA (21.2%) has a lower percentage of dwellings being rented than the Perth average (25.7%). Full ownership accounts for 23.3% of dwellings in the SLA (Perth average 31.1%), whilst 52.2% are mortgaged (Perth average 39.7%).

The household types by proportion for the regions are illustrated in the following graph.



Graph2-HouseholdTypesbyProportion,ABSCensus2006

Theproportionofcouplefamilieswithnochildrenhouseholdsinthe CityofWanneroo issimilartothatoftheCityofJoondalupandthePerth metropolitan area. There is a higher proportion of couple families with childrenhouseholdsandalowerproportionoflonepersonhouseholdsin theCityofWanneroocomparedwiththePerthmetropolitanarea.

Employment,EducationandIncome

- The City of Wanneroo resident labour force is characterised by a higher proportion of Construction, Manufacturing and Retail industry workers comparedwiththePerthmetropolitanarea.TheCityalsohasalower proportion of Professional scientific, technical services industry workers, and a lower proportion of Education and Training industry workers living within the City.
- The City of Wanneroo contains a high proportion of manufacturing, construction, retail trade and education and training jobs compared with the Perth metropolitan area average. There are a low proportion of professional, scientific and technical jobs and health care jobs in the CityofWanneroocomparedwiththePerthmetropolitanarea.
- 23% of the City of Wanneroo resident workforce works within the City (the employment self-containment). A further 11% work in the City of Joondalup and 12% work in the City of Stirling. The data also shows that 11% of the working population living in the City of Wanneroo work outsideofthePerthmetropolitanarea.
- The median household income in the SLA ($60,944) is higher than the Perthmedian($56,420).
- The SLA has a lower percentage of upper white collar workers (25.9%) and higher percentage of upper blue collar workers (20.0%) than Perth (upper white 31.8%; upper blue 16.0%). The percentage of lower white collar (36.5%) and lower blue collar (16.1%) in the SLA is similar to the Perth average (lower white 34.6%, lower blue 16.1%).
- The SLA (12.5%) has a lower percentage of low income earners ($499 per week or less) than the Perth average, however, the upper income ($2,000 plus per week) is similar (SLA 18.05%; Perth 18.25%). Therefore the SLA has a higher percentage of middle income earners, in particular the $1,000 to $1,999 per week bracket (catchment 35.6%; Perth average 30.3%).
- The SLA (18.8%) has a lower percentage of people with Bachelor and Post Graduate Degrees than the Perth average (27.5%).

Cost of living

- Medianindividualincomeis$492perweek,withmedianhousehold incomeof$1,082andmedianfamilyincomeof$1,191
- Median housing loan repayment is $1,343
- Medianrentis$200perweek

Other

- The SLA (51.1%) has a higher percentage of homes with connected broadband than the Perth average (43.1%).
- Christianity (37.9%) is the most common religion in the SLA, predominantly made up of Anglican (15.1%) and Catholic (13.9%) (Perth – Christianity 37.3% - Anglican 12.4%; Catholic 15.5%).

Demographic population projections

The City of Wanneroo is expected to experience significant growth in population to 2021. ID Forecast Consulting has compiled the population projections using best practice forecasting models. The population projections for 2021 by age cohort are shown below compared with the ABSCensus2006data.

Table 1 - City of Wanneroo Population Projections

Age Cohort	CityofWanneroo2006 (ABSCensus)		CityofWanneroo2021 (IDForecast)	
	Persons	%	Persons	%
0-4years	9,340	8.1	20,079	8.4
5-9years	9,614	8.3	19,611	8.2
10-14years	9,520	8.2	18,309	7.7
15-19years	8,373	7.2	16,520	6.9
20-24years	7,819	6.7	15,594	6.6
25-29years	8,028	6.9	15,881	6.7
30-34years	9,207	7.9	17,014	7.2
35-39years	10,006	8.6	17,741	7.5
40-44years	9,289	8	17,724	7.5
45-49years	7,769	6.7	16,364	6.9
50-54years	6,442	5.6	14,451	6.1
55-59years	5,879	5.1	12,229	5.1
60-64years	4,393	3.8	10,097	4.2
65-69years	3,567	3.1	8,554	3.6
70-74years	2,605	2.2	7,227	3
75-79years	1,957	1.7	5,213	2.2
80-84years	1,223	1.1	3,306	1.4
85yearsabove	866	0.7	1,936	0.8
	115,897	**100.0**	**237,850**	**100**

Source: ABS Census 2006 and ID Forecast Population Projections City of Wanneroo 2021

The population projections show that the overall proportion of persons within each age cohort will experience little change, however there is projected to be a very significant increase in the number of persons in all age cohorts during the 15-year period averaging over 9,000 persons per annum.TheresidentpopulationintheCityofWanneroowasestimated tohaveincreasedbyaround18,000personsbetween2006and2008 indicating that the ID Forecast projections are on target.

The implications of this population growth are that there will need to be a corresponding increase in housing in order to accommodate the additional population. The high level of demand anticipated may lead tocontinuedincreasesinpricelevels.Thisprovidestheopportunityto introduce a wider variety of housing options for potential purchasers in order to keep prices low. That is, purchasers may be willing to forego large lots and large houses for smaller dwellings including medium and high-density dwellings in order to keep overall purchase costs down.

South Alkimos Population Projections

In respect to the population growth for the LSP area, it is estimated that the resident population will be 351 people by 2014 and increasing at 575peopleperyear,withanultimatepopulationof7239(basedonthe provision of 2413 dwellings with 3.0 persons per dwelling as per the SLA average).

In respect to the potential demographics for the LSP area, the proponent concurswiththeforecastsdetailedintheCityofWannerooPopulation and Household Forecasts (Eglinton-Alkimos) prepared by forecast.id (updated1/04/10).

4.0 Statutory Planning Framework

4.1 Metropolitan Region Scheme

Current MRS zonings and reservations (as a result of Amendment 1029/33 effective June 23rd 2006) for the Structure Plan area are shown in Figure 6.

The subject area is predominantly zoned Urban under the MRS with a small area in the east zoned Central City Area and the foreshore land is reserved for Parks and Recreation.

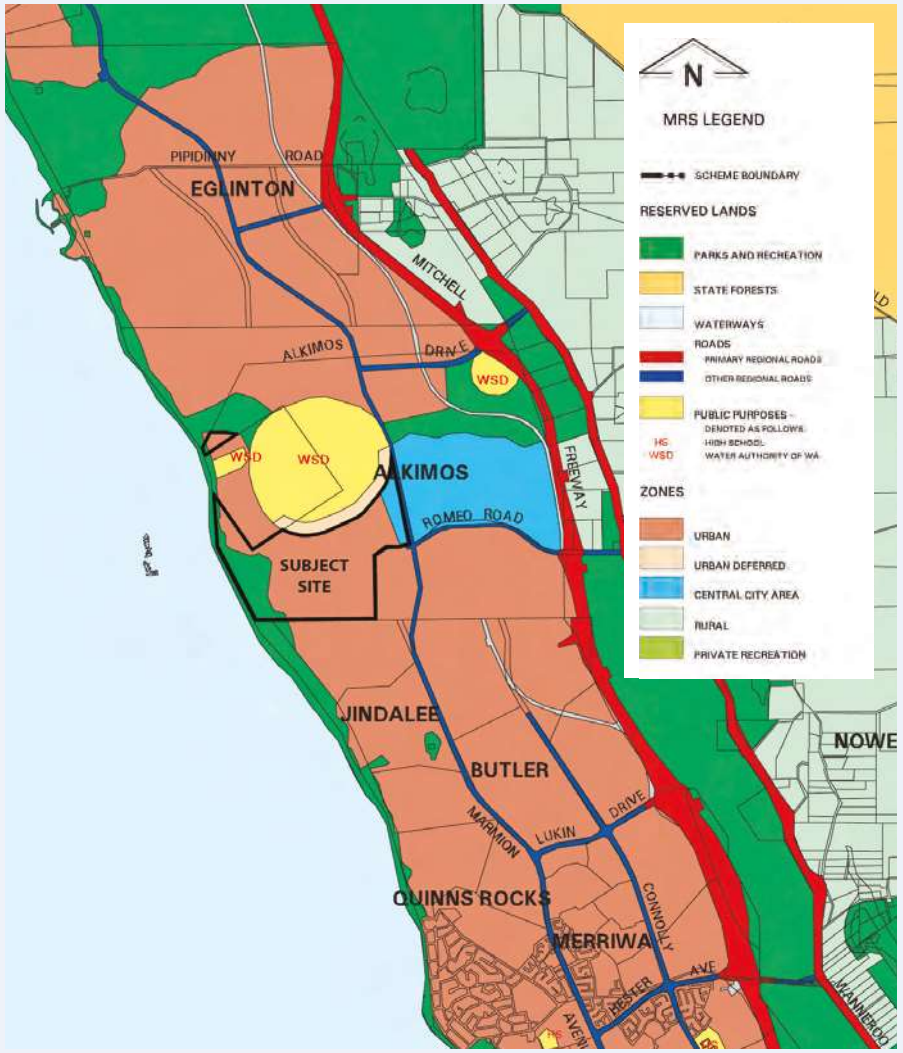


Figure 6 - Metropolitan Region Scheme

4.2 City of Wanneroo District Planning Scheme No. 2 (DPS2)

The City of Wanneroo District Planning Scheme No. 2 (DPS2) mirrors thereservationsthatwereadoptedoverthelandviaMRSAmendment 1029/33. The zones within DPS2, were amended to bring them in line with the approved changes to the MRS (Amendment No. 68 to DSP No.2, gazetted 16 May 2008).

PursuanttotheCityofWannerooDPS2,thelandiszonedCentre,Urban Development with the foreshore area being reserved for Parks and Recreation.

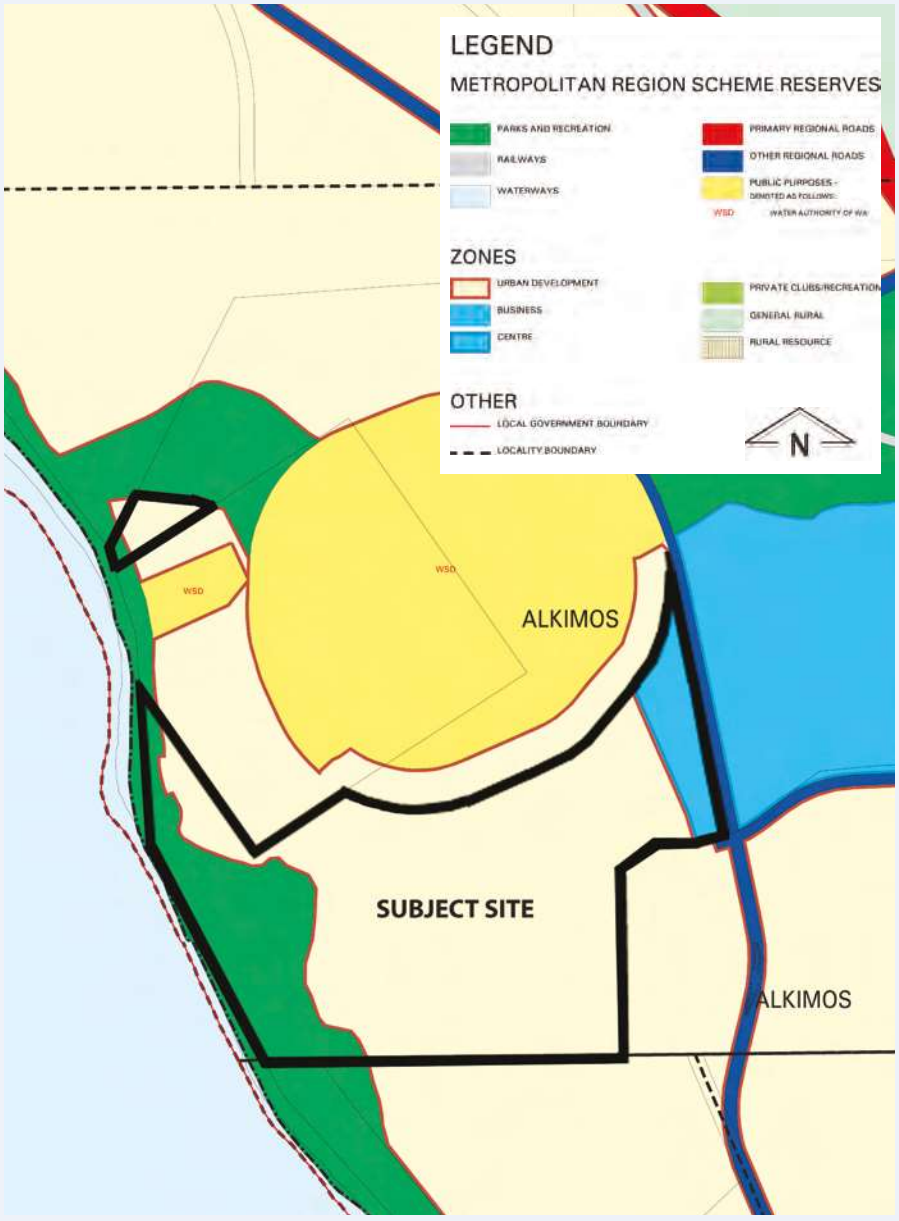


Figure 7 - District Planning Scheme No. 2

4.3 Alkimos-Eglinton District Structure Plan (DSP)

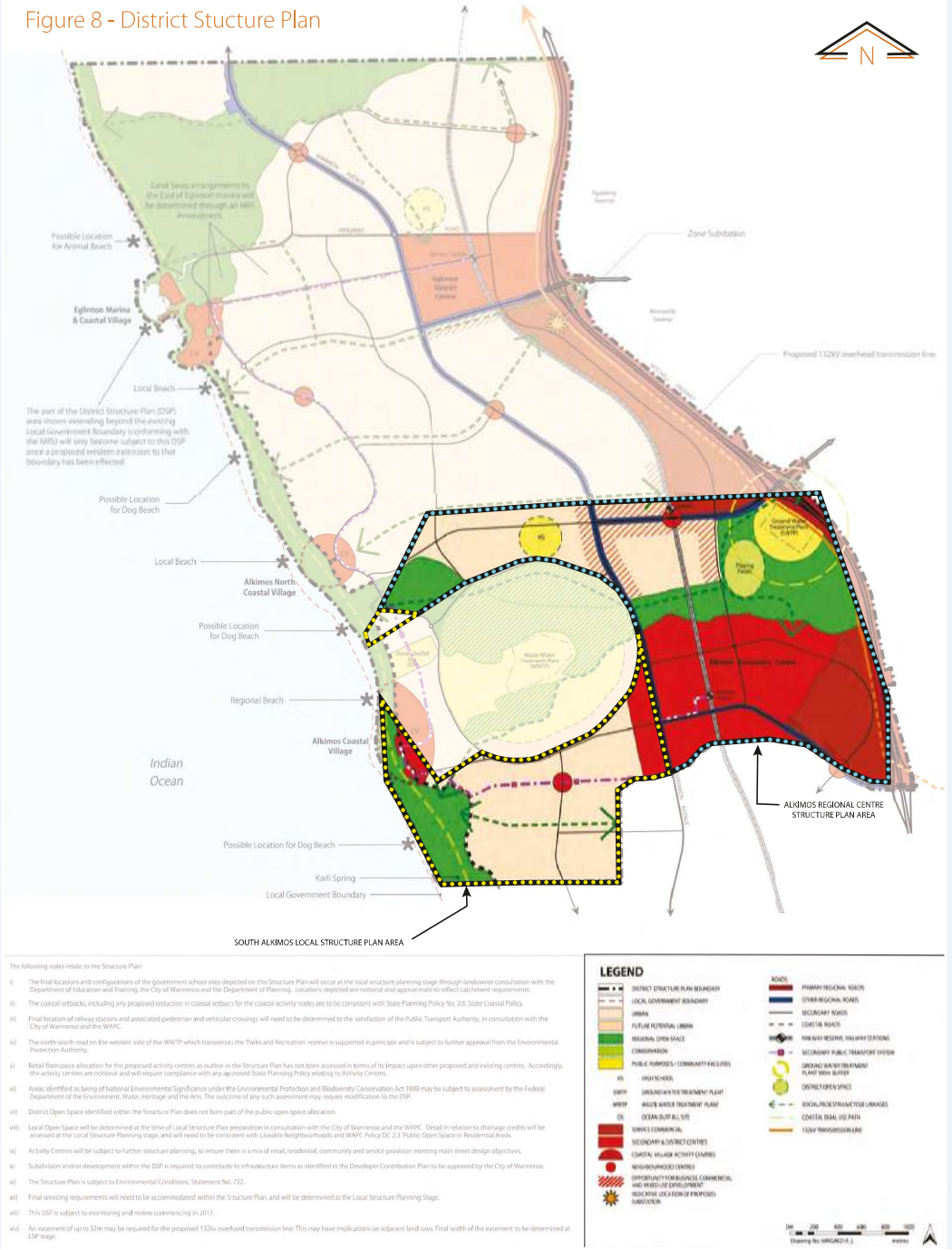
The subject land falls within the Alkimos Eglinton DSP area. The DSP was adopted by Council in August 2010 following endorsement by the Western Australian Planning Commission (WAPC), subject to modifications.

The DSP provides a broad district level land use strategy defining the strategic planning framework for the project area. The DSP (report and plan) form the framework for more detailed Local Structure Planning over the duration of the project, which will be developed to reflect changing planning trends, demographics, community needs and market demands.

This LSP is consistent with the intent of the adopted DSP, with the general arrangement of land uses and infrastructure as depicted on the DSP Map, including proposed land uses, residential density targets, road hierarchy and linkages to surrounding existing and planned developments.

The DSP requires that at the time of lodgement of a Local Structure Plan, the proponent shall provide supporting information to demonstrate how the objectives and strategies detailed in Part 1 of the DSP have been addressed and the supporting information utilised to guide and inform the Local Structure Plan design.

Figure 8 - District Stucture Plan



5.0 Strategic Planning Framework

5.1 State Planning Strategies + Policies

State Strategies

5.1.1 State Planning Strategy (December 1997)

The State Planning Strategy (1997) was prepared by the WAPC as a whole of Government approach to guide sustainable land use planning throughout the State up until 2029. The Strategy is aimed at developing a land use planning system to help the State achieve a number of key goals. These include generating wealth, conserving and enhancing the environment and building vibrant and safe communities for the enjoyment of this and subsequent generations of Western Australians. The Strategy was last audited in 2000-2001.

5.1.2 State Sustainability Strategy

The State Sustainability Strategy is the first attempt in this State to meet the needs of current and future generations through integrating environmentalprotection,socialadvancementandeconomicprosperity. The purpose of the State Sustainability Strategy is to illustrate how the State government will respond to the sustainability agenda by adopting the sustainability framework and highlighting actions across government that give meaning to the framework.

The key principle of the Strategy is as follows:

"Sustainability recognises that settlements need to reduce their ecological footprint (i.e. less material and energy demands and reduction in waste), while simultaneously improving their quality of life (health, housing, employment,community)..."

The Strategy also states that:

"...to be sustainable, settlements require the integration of environmental, socialandeconomicdimensions..."

5.1.3 NorthWestCorridorStructurePlan(1992)

TheNorthWestCorridorStructurePlansupersedesthe1977NorthWest Corridor Structure Plan. The 1992 Structure Plan is based on 60% self-sufficiency in employment. The Corridor is expected to ultimately house aresidentpopulationof420,000witharesidentworkforceof210,000(or up to 500,000 if the Carabooda / Nowergup areas are developed).

These forecasts are substantially higher than those of the 1977 plan. The plan recognises that there will also be a need to provide around 152,220 jobs, of which 125,000 will be taken up by Corridor residents and26,000willbetakenupbyworkersfromoutsidetheCorridor.The remainderoftheresidentworkforce,anestimated84,000,willcommute to work outside the Corridor. WAPC is currently undertaking a review of the NWCSP with a number of studies being commissioned into retail, transportandenvironmentalanalysis.

StatePolicies

5.1.4 State Planning Policy No 1 - State Planning Framework Policy (2006)

The State Planning Framework Policy (SPP 1.1) provides a framework for the application of more detailed planning policies and strategies in Western Australia, including general principles derived from the State Planning Strategy. It states that the primary aim of planning is to provide for the 'fair, orderly, economic and sustainable use and development of land'.

5.1.5 Statement of Planning Policy 2 - Environmental and Natural ResourcesPolicy

The policy sets out a planning response to environmental and natural resource management issues within the framework of the State Planning Strategy.

Specific policy areas of relevance to Alkimos-Eglinton include those relating to water resource management, air quality, soil and land quality, biodiversity, marine resources, landscapes, and greenhouse gas emissions and energy efficiency.

5.1.6 State Planning Policy 2.6 – State Coastal Planning Policy (2006)

This policy addresses land use planning and development issues as they relate to the protection and management of the coast. The policy requires strategic plans to guide local planning, development setbacks for protection against coastal processes such as erosion and storms, and theprovisionofcoastalforeshorereserves.Thepreparationofcoastal planning strategies or coastal foreshore management plans in partnership with the broader community is strongly advocated by the policy.

The policy provides high order guidance for decision making on coastal planning matters. The objectives of the policy are to:

- protect,conserveandenhancecoastalvalues,particularlyinareasof landscape, nature conservation, indigenous and cultural significance;
- provide for public foreshore areas and access to these significant areas onthecoast;
- ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry,commercialandotheractivities;and
- ensurethatthelocationofcoastalfacilitiesanddevelopmenttakesinto account coastal processes including erosion, accretion, storm surge, tides, wave conditions, sea level change and biophysical criteria.

The policy requires that structure plans (and other planning decisions and instruments):

- addressandprotectthepublic/communityinterest;
- ensurethatacoastalforeshorereserveissetasideforpublicownership andthereisanappropriatephysicalprocessessetback;
- ensure that coastal strategies and foreshore management plans are prepared;
- protects significant natural, cultural and indigenous features of the coast;and
- ensure that development and settlement along the coast is sustainable andlocatedinsuitableareas.

This SPP is has recently been reviewed by the Department of Planning and a draft version of the SPP is currently being advertised for public comment. The Department of Planning states the following is respect to thereviewedPolicy:

The Department of Planning on behalf of the Western Australian Planning Commission has completed a review of State Planning Policy 2.6 - State Coastal Planning Policy. The review of the policy took into account the latest coastal planning information locally, nationally and internationally; learning gained over 10 years of application of the policy, and an extensive internal and targeted external consultation. Thedraftrevisedpolicyproposesrevisionsandadditionsthatprovide more robust guidance to the Western Australian Planning Commission, State Government bodies and local governments for land use and development on or adjacent to the coastline.

This Policy has a significant impact on the subject site, in particular the Coastal Village Activity Centre identified in the Alkimos-Eglinton DSP, otherwise know as the Beach Village in the advertised version of this LSP. As a result of the uncertainty in respect to the SPP and the subsequent coastal development setbacks it was agreed to remove the Beach Village from this LSP until such time that the SPP had been finalised.

5.1.7 State Planning Policy 2.8 –Bushland Policy for the Perth Metropolitan Region (2010)

The policy has been prepared to give statutory effect to Bush Forever (Government of Western Australia, 2000), which identified in excess of 51,000 ha of regionally significant bushland for protection. One of the key objectives of Bush Forever is to conserve, where practical, a target of at least 10 percent of vegetation complex.

SPP2.8outlinesaframeworkforimplementationandrecommendations for each of the 287 Bush Forever Sites identified.

5.1.8 State Planning Policy 2.9 - Water Resources (2006)

The purpose of this policy is to guide development of land that may impactonwaterresourcesinthestate.Underthepolicy,waterresources include'waterinthelandscapewithcurrentorpotentialvaluetothe community or environment'. This incorporates features such as wetlands and waterways, surface water, groundwater, drinking water catchments andsources,stormwaterandwastewater.Thepolicyaimstoensurethat the quality and quantity of water resources in the state are not adversely affected by development and land use.

5.1.9 State Planning Policy No. 3 - Urban Growth and Settlement (2006)

This policy sets out the principles and considerations to apply to planning for urban growth settlement in Western Australia. The policy aims to facilitate sustainable patterns of urban growth and settlement.

The objectives of the policy are:

- Topromoteasustainableandwellplannedpatternofsettlementwith sufficient and suitable land to provide for a wide variety of housing, employment,recreationfacilitiesandopenspace.
- To build on existing communities with established local and regional economies,concentrateinvestmentontheimprovementofservices and infrastructure and enhance the quality of life in those communities.
- To manage growth and development of urban areas in response to social and economic needs of the community and in recognition of the relevant climatic, environmental, heritage and community values and constraints.
- Topromotethedevelopmentofsustainableandliveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.

5.1.10 State Planning Policy 4.2 - Activity Centres for Perth and Peel (2010)

This Policy aims to provide a more flexible regulatory approach to enableappropriatecommercial,residential,mixedbusinessandretail redevelopmentopportunitiesinactivitycentres,withamuchreduced emphasis on retail floorspace guidelines.

The South Alkimos site is identified as a 'Secondary Centre' in accordance withtheActivityCentresHierarchy.

5.1.11 Liveable Neighbourhoods (2007)

Liveable Neighbourhoods has been prepared to implement the objectives of the State Planning Strategy. It is an operational policy, adopted by the WAPC, for the design and assessment of structure plans and subdivision for new urban areas and large brownfield or urban infill sites in the metropolitanareaandcountrycentres.

5.1.12 Transit-Oriented Development

Development Control Policy 1.6 – Planning to Support Transit Use and Transit Orientated Development was released in January 2006 detailing the integration of public transport and land use. As the public transport system is further refined and extended, there are emerging opportunities for new developments that focus on and maximise the benefits of transit infrastructure.

The policy promotes the benefits of integrating land use and transit facilities. The objectives outlined in the policy are to:

- Promote public transport use;
- Encourage the creation of destinations in parallel with the location of public transport facilities; and
- Promote walking and cycling.

5.1.13 Directions 2031 and Beyond (2010)

Directions 2031 is a high level spatial framework and strategic plan that establishes a vision for the future growth of the metropolitan Perth and Peel region; including a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate a range of growth scenarios. Directions 2031 builds on many of the aspirational themes of previous metropolitan plans which sought to guide the future structure and form of the city.

Directions 2031 identifies the South Alkimos site in the north-west sub-region. Under the connected city scenario it is estimated that by 2031 the population of the north-west sub-region will have grown by 39 per cent to 395,000. To achieve Directions 2031 outcomes employment self-sufficiency must increase from the current level of 41 per cent to at least 60 per cent if the negative impact of a relatively weak local employment base is to be moderated. Attracting the additional 69,000 jobs required to achieve this level of employment self-sufficiency presents a significant challenge for the sub-region in the coming decades.

Figure 9 - North-West Sub-Region (Directions 2031)

5.2 City of Wanneroo Strategies + Policies

5.2.1 City of Wanneroo Strategic Plan 2006-2021

Following extensive public consultation, Council prepared a Strategic Plan (2006-2021)thatoutlinesitsvisionfortheCityofWanneroo,namely:

"The City of Wanneroo, the centre for creative and sustainable growth, delivering strong, vibrant and connected communities."

ThePlantakesintoaccountafreshfocusonpartnershipsandnetworks with other government agencies and private enterprises to achieve its goals, with the "Pillars" of the Plan being Environment, Social, Economic and Governance each of which has stated objectives.

5.2.2 Economic Development Strategy

The City of Wanneroo's primary economic goal is to decrease the amount of people having to travel out of the region to access suitable employment opportunities. This is intended to be achieved through the implementation of an Economic Development Strategy.

The Economic Development Strategy for the City of Wanneroo is designed to build upon the project initiatives already in place and being pursued by the City and introduce new initiatives in line with the Strategic Plan.

According to the Strategy, the promotion of the City of Wanneroo as an investmentandemploymentdestinationcanonlyoccurifitisunderstood that all regional stakeholders can contribute to growing the economic base of the region through their actions.

The key actions of the City's Economic Development Strategy are:

- Redressing the balance so that the City of Wanneroo has desirable centresofemployment;
- Investing for the future through increased collaboration with the State government and other key stakeholders to map the strategic activities for the north-west metropolitan economic region;
- Generating wealth through jobs to create a new economic base, which integrates the community into the wider regional economy; and
- Ensuring basic infrastructure is in place to allow businesses to prosper and grow.

5.2.3 EmploymentPolic y

The City of Wanneroo's Employment Policy is designed to establish a framework to encourage and retain local employment within the City of WanneroooandultimatelytheNorthWestCorridor.Thenecessityforthis policy has been driven by the fact that the City of Wanneroo suffers low employmentself-containmentwithinitsboundaries,whichhasledtothe many so-called 'dormitory suburbs'.

The Policy contains a schedule of strategies at district, local and subdivisionlevelstoindicatethetypeandscaleofinitiativesthatare expected when planning developments of various sizes. The City's Smart Growth Assessment Tool sets a target of 40% employment self sufficiency attheDSPlevel.

5.2.4 Tourism Strategy

The development of tourism within the City of Wanneroo is addressed in the City of Wanneroo's Tourism Strategy through six objectives:

- Development of new and existing tourism products;
- Provide a broader visitor experience;
- Increase year round appeal;
- Develop higher yield markets;
- Establish tourism as a major industry of the region; and
- Encourage industry participation in development of tourism.

5.2.5 Centres Strategy

The City of Wanneroo's Centres Strategy seeks to promote the future regional centres of Alkimos and Yanchep in the longer term as significant regional nodes offering community focus by providing a mix of retail, office, leisure, entertainment, recreation and community facilities. The Centres Strategy recognises that Alkimos has been planned as an important regional commercial and employment centre since the North West Corridor Structure Plan (1992). Proposals for the development of Alkimos as a Regional Centre along 'main street' principles are supported in the Centres Strategy.

5.2.6 Local Housing Strategy

The City of Wanneroo's Local Housing Strategy is aimed at guiding future housing development in new residential areas; protecting existing residential areas from inappropriate development and ensuring adequate housing choice is available to meet the changing social and economic needs of the community. The Local Housing Strategy is a key component of the City's Smart Growth Strategy - and together the two strategies indicate the commitment the City of Wanneroo has to planning for the future needs of the community as well as facilitating and supporting effective growth management.

Additional objectives of the Strategy are to ensure that an adequate supply of affordable housing is provided, particularly for first home buyers, and to promote appropriate forms of housing close to existing and proposed community facilities and services.

5.2.7 Local Biodiversity Strategy

The Perth Biodiversity Project (PBP) aims to increase Local Government actions and capacity to conserve Perth's biodiversity by assisting them to use their functions and powers to effectively protect and manage local natural areas (areas that exist outside of Bush Forever sites, the CALM managed estate and Regional Parks). The PBP supports participating Local Governments to implement the National Local Government Biodiversity Strategy.

To assist Local Government to strategically plan for the retention, protection and management of Perth's biodiversity, the PBP has prepared the Local Government Biodiversity Guidelines for the Perth Metropolitan Region (PBP, 2004).

5.3.8 Public Open Space Policy

This Policy articulates Council's position on the planning, provision, location, design, development and interim maintenance of public open space (POS) and is to be considered when preparing structure plans.

The purpose of this Policy is to:

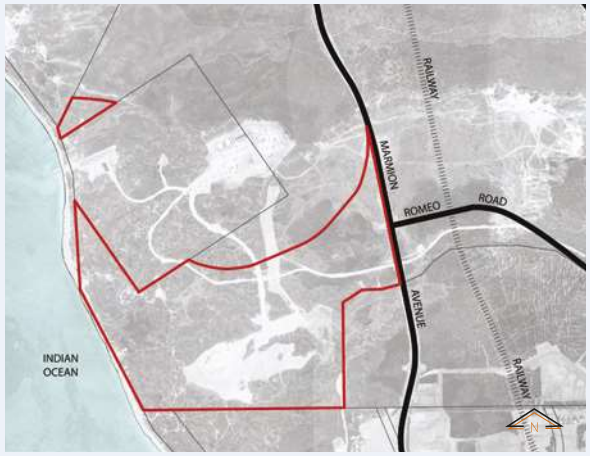
- Ensure that POS is delivered to optimise community benefit;
- Provide local interpretation of the WAPC Liveable Neighbourhoods policy; and
- Guide Council, its officers and applicants in considering the planning of POS in new urban areas.

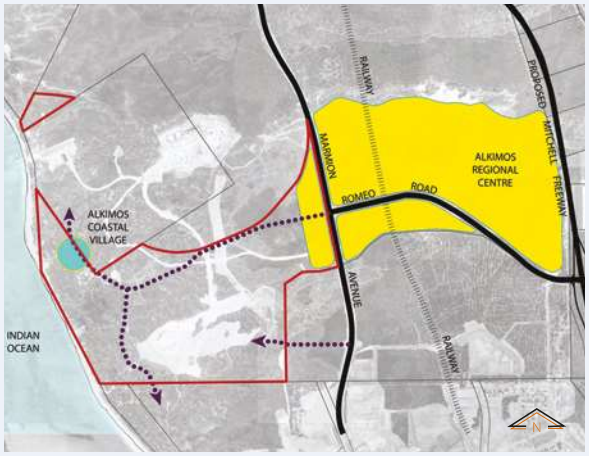
The LSP has been prepared to accord with this Policy

6.0StructurePlan

6.1 SiteAppreciation

A greater understanding of the site was achieved through a comprehensive examinationofthelocalsiteanditscontext, including physical attributes, proximity to existing and proposed infrastructure and identified development opportunities and constraints.





TheSite

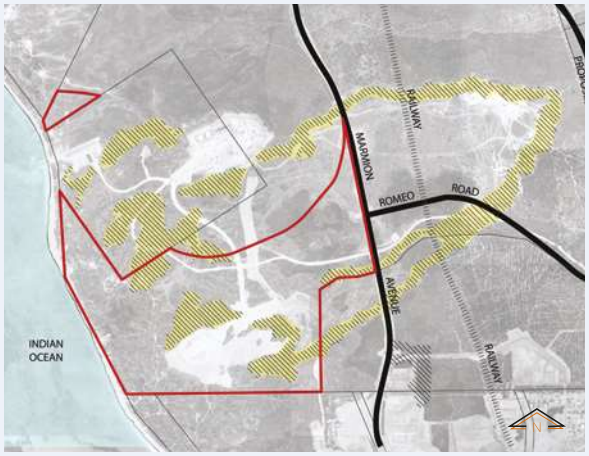
Thesiteandlocalcontextischaracterised bycontinuouswhitesandbeaches, offshore reefs and the distinctive, continuousparabolicdunes.Thecoastline ischaracterisedbysmaller,lesscontinuous quindalup dunes and coastal heath with scatteredtrees.Theinlandlandscapeis characterisedbycoastalheath,banksia,a smallnumberoftuarttreesandparrotbush vegetation. The site has been significantly alteredasaresultofthewastewater treatment plant overburden fill area, past over grazing and the continued use from recreational off-road vehicles.

CentresandConnections

The Alkimos Regional Centre will provide the primarycommercialandretailfocusforthe area. East and south of the Regional Centre, employmentareaswillbeprovided.Coastal Villages are to be connected to the Regional CentreandproposedAlkimosRailway Stationviapublictransportandaseries ofinterconnectedbicycleandpedestrian networks.Theprimarylocalroadnetworkwill provideconnectivitybetweentheCoastal Village localities, and from the Coastal Villages back to the Regional Centre. Connections to the proposed adjoining urban development will also be integral.

Regional Open Space + Conservation Areas

The Regional Open Space is constituted by a dedicated regional foreshore reserve and dedicatedconservationareas.Theforeshore reserveprovidesacontinuousopenspace corridor along the coast within the district. The east-west regional open space corridor islocatedinlandfromthewastewater treatment plant buffer to the Mitchell Freeway alignment. The conservation areas north of the LSP area form part of a 'green finger' connecting the inland green corridor withtheforeshorereserve.



Landform

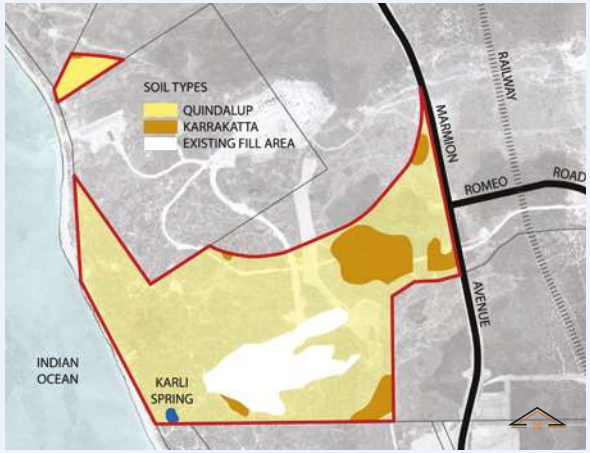
TheAlkimosQ2paraboliccduneisthemost legible and distinctive landform in the local area. It stretches from the eastern edges of theLSPsite,inlandtothefutureMitchell Freeway alignment. Smaller parabolic dune forms are continuous along the coast, with varying degrees of visual legibility depending on the integrity of the dune form. Recently formedandlessstabledunescharacterise theforeshorelandscape.

OceanViews

The highest points of the LSP site area are along the eastern boundary, at approximately RL45.Distantcoastalviewsarepossible from this level. Levels along Marmion Avenue undulate, and glimpses to the coastareavailablewheretheroadrisesto approximately RL45. Entering the site from the Romeo Road alignment, the land falls away moving inland from Marmion Avenue. Moving downslope, the expansive distant water views are reduced to specific view corridors. These corridors are formed by major dunelandformswithinthesite.Asecondary coastal ridgeline within the site provides views overlowerforeshoredunestothebeach.

Degraded / Cleared Areas

Large areas of natural vegetation have been clearedasaresultoftheWWTPoverburden fill area, continued use from recreational off-road vehicles and historic grazing. In some areas the vegetation has become completely degraded and inundated with weeds due to off-road vehicular disturbance, erosion and landfill.



Predominant Vegetation and Soil Types

The distribution of vegetation types across the site strongly relates to the Quindalup dunestructure.

Quindalup dunes take up the majority of the LSP site area. The Quindalup Vegetation Complex is typified by grassland, coastal heathandshrubland.Thischaracterisesthe vegetation over most of the site.

Significant Groups of Trees

The site includes three groups of Tuart trees. These areas have been identified for tree retention. A group of significant Casuarina treesislocatedwithintheForeshoreReserve, north of Karli Spring. Towards the east of the LSP area, groups of Banksia trees reflect thetransitiontoolderSpearwooddune landscape.

6.2 Opportunities+Constraints

The opportunities and constraints for South Alkimos have been grouped to communicate the key issues underpinning the future development of thesite.

Topography

South Alkimos is a unique and beautiful site which requires a sensitive development and grading approach. Reading, understanding and responding to the undulating topography and dune system is necessary to create a place which is strongly grounded in the site. Dependant on grading and fill requirements there is an opportunity to retain dunes as open space, for ecological as well as place making purposes. The potentialforduneretentionwillbedeterminedatthedetailedsubdivision design phase.

OceanViews

The undulating topography at South Alkimos provides a number of high pointsfromwhichoceanviewscanbeobtained.Twokeyviewpoints exist: one from the Romeo Road/Marmion Avenue high point, the other from the narrow 'pinch point' leading to the western-most part of the site. These two locations offer vantage points on the journey through the site, creating visual reinforcement of the site's proximity to the coast.

Ecology

The site has tracts of Regional Open Space (ROS) within and surrounding it. Opportunities to create 'green' open space links between ROS areas, including the foreshore reserve, and between retained dunes in both a north-south and an east-west direction exist. Retaining sustainable areas of existing vegetation and regenerating degraded areas will create habitat and feeding opportunities for native fauna.

CommunityFocusPoints

Thereareanumberofopportunitieswithinthesitetocreateareasof focusforthecommunity.Thesevaryinusesandsize.

- The Coastal Village outlined in the DSP is the main community hub, located adjacent to Alkimos Regional Beach. It consists of retail, commercial and community uses with some higher density residential. ThereisthepotentialforaMarinatobeco-locatedwiththeCoastal Village in the future (not part of this LSP).
- The Neighbourhood Centre is a smaller retail centre, located more centrallywithintheSouthAlkimossite.
- The District Park which requires a 4ha site if co-located with a primary school.
- The two schools which are required at Alkimos: a 4ha Primary School (3.5haifco-locatedwithaDistrictPark)anda7haPrivateSchool.

Transport

The DSP proposes a STS, providing a frequent bus connection between AlkimosRailwayStation(orthenorthern-mostRailwayStationonthe Joondalup railway line) and Eglinton Railway station, via the coastal villages. The STS route needs to be in walking distance to South Alkimos' keydestinations,suchasretailcentres,schoolsandemploymentareas, while serving as many residences as practicable. As advised previously a business case is currently being prepared to determine whether the STS routewilloccur.

Heritage

Karli Spring presents an opportunity for regeneration, interpretation and celebration. Well managed access to the Karli Spring wetland area is required. In addition, there is an opportunity to retain the 'Alkimos Waugal' (limestone outcrop features) where possible, with any interpretive information designed in consultation with Aboriginal groups. It may also be possible to celebrate the 'Alkimos Waugal' through public art.

AmeliorateEnvir onmentalImpacts

South Alkimos' coastal location results in wind conditions, which can provide desirable cooling breezes in summer, but also unpleasant, more extremewinds.Thesewindshavethepotentialtoreduceamenityin private open spaces, streets and parks; impact vegetation growth; and limit the opportunity for alfresco dining. Opportunities exist to ease wind impacts through street and block layout, building form and location, and planting design.

Soils

The low nutrient, sandy soils of the coast also present some challenges for the growth of vegetation. Careful species selection and improvements to soil quality and structure can create good conditions to support thriving vegetation.

Links to the Regional Centre

South Alkimos' location adjacent to the Regional Centre provides a great opportunity for commercial uses along Marmion Avenue, effectively extending the commercial function across both sides of this key arterial road. This will give South Alkimos an active 'frontage' and provide a buffer from traffic for residential uses. Connections, both vehicular and pedestrian, across Marmion Avenue are critical to ensuring good movement to and from the Regional Centre.

Surrounding Community Connections

Opportunities for multiple street connections to the (future) adjacent residentialareasexist.Itisimportantthatfootpathconnectionswith neighbouring streets are also made, to create a connected web of pedestrianpathways.

The Foreshore Reserve will include a dual use path, providing continuous north-south access along the coast for pedestrians and cyclists. Multiple east-westbeachaccesspathwayscanconnectwiththedualusepath, tying it back to the residential areas.

Infrastructure

TheQuinnsMainSewertravelsfromtheWastewaterTreatmentPlant through the LSP area. For a portion of its length, the sewer line must belocatedinthepublicdomain,withinaroadreserveoropenspace. Provision will be made to accommodate the alignment and protection of theQuinnsMainSewer.

This extent is indicated in Figure 10 - Opportunities and Constraints.

Figure 10 - Opportunities + Constraints Plan

6.3 Precincts

TheLSPsitehasbeenseparatedinto3Precincts,eachwiththeir distinctivelocation,functionandlanduses:

Precinct 1 – Gateway
Precinct 2 – Central Village
Precinct 3 – Residential Villages

6.3.1 Precinct 1 – Gateway

TheGatewayPrecinctislocatedonMarmionAvenuebetweenthetwoeast-westarmsoftheparabolicdune.TheGatewaymarkstheentrytotheSouth Alkimos LSP area. Being at the interface with the Alkimos Regional Centre, this Precinct will be a transitional zone between the regional commercial centre and thepredominantlyresidentialcharacteroftheLSParea.ItisaPrecinctwitha mix of uses; commercial along Marmion Avenue with mixed-use buildings and residential dwellings to the west along the entrance road. A 7 hectare private high school is proposed adjacent to Marmion Avenue, north of the entrance road.

If Marmion Avenue is to be retained in its current two-way format the buildings along this section of road could be characterised by larger floor plates for showroom and other bulky goods outlets complementing the scale of Marmion Avenue and the Alkimos Regional Centre. These buildings are to have landscaped front and side setbacks – their siting being within a landscaped setting. If Marmion Avenue is designed as a couplet (e.g. two one way streets) it provides theopportunityforcommercialandretaildevelopmenttofrontandactivate MarmionAvenue.

Landmark buildings on the corner of Marmion Avenue and the entrance road are to mark the entry to the LSP area. The LSP entry should be legible from the north and south along Marmion Avenue and from the east from Romeo Road, as the major connector to the Alkimos Regional Centre and future railway station.

The location of the Gateway is suited to a higher density residential development. Multi-unit buildings (up to 5 storeys) potentially may be sited behind the commercial developments on Marmion Avenue allowing their height and scale tobevisiblefromMarmionAvenue,buttheamenityoftheapartmentscannot be compromised by the noise and air pollution generated along this road. ApartmentswillhaveviewswesttotheoceanfromthiselevatedpositionA robust built form character will continue throughout the precinct, reinforced by building typology, materials and setbacks.

Principles

- Landmark buildings on the corner of Marmion Avenue and the entrance road to define the edges and mark the entry to the LSP area.
- Higher density and mix of uses.
- Larger scale buildings (commercial/showroom) along Marmion Avenue to complement the scale of the road and with the buildings proposed for Alkimos Regional Centre.
- Fine grain retail on the entry road.
- Buildings to have a front entry and street address.
- Active street frontages to Marmion Avenue and the entrance road.
- Residential apartments sited on streets at the high point behind the showroomsonMarmionAvenuetomaximiseamenity(views,airand acoustic quality, solar access, pedestrian safety).
- Providebusstopsontheentranceroadtoservicethe Centreand school.
- No direct vehicular access off Marmion Avenue (access from rear lanes orstreetsonly).
- Car parking for commercial developments may be at-grade between buildings but will be screened with landscaping when viewed from MarmionAvenue.

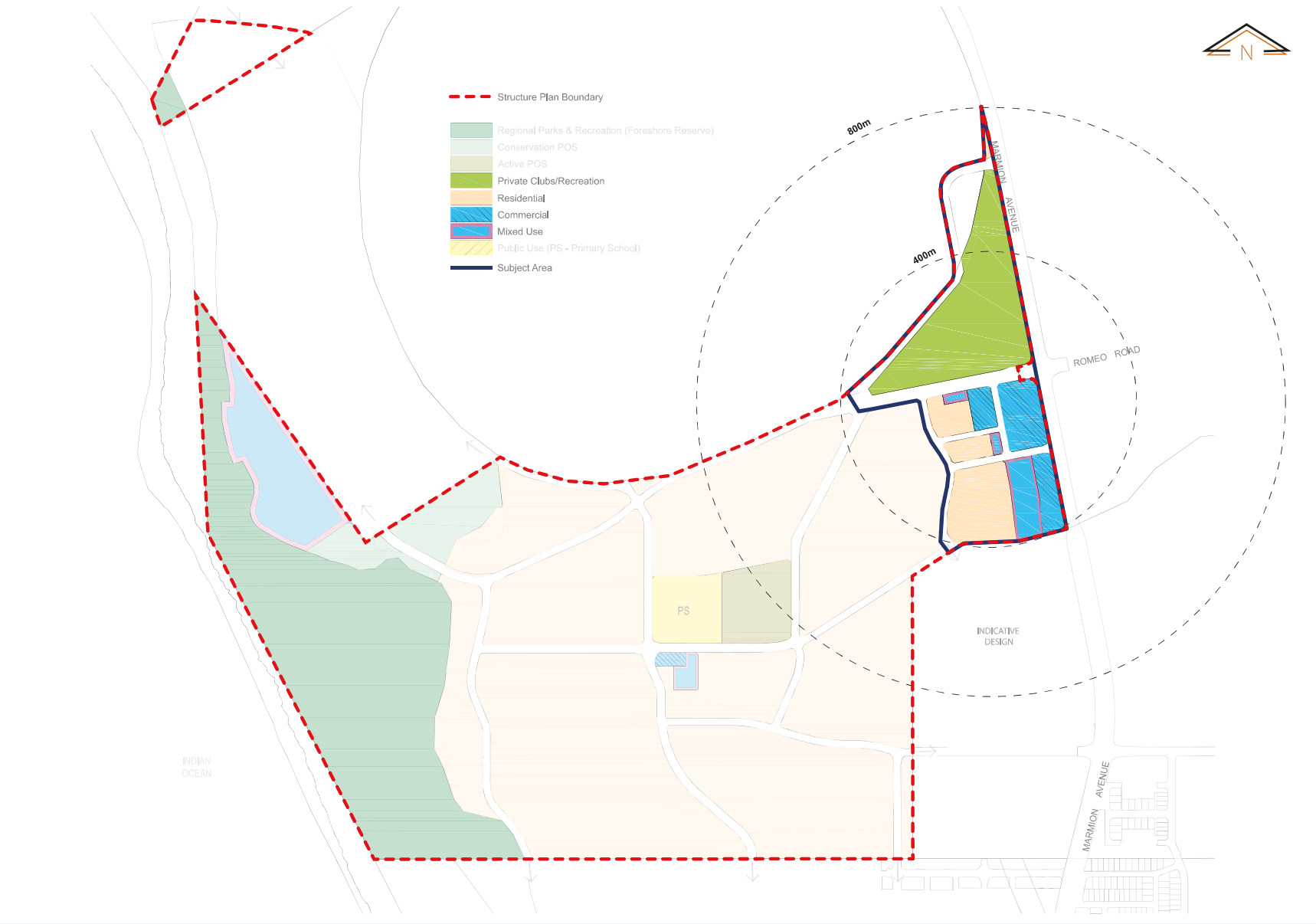


Figure 11 - Precinct 1 Gateway

6.3.2 Precinct 2 – Central Village

The Central Village is located on the main boulevard in the heart of the South Alkimos LSP area. This Village will have approximately 1,000m2 of retail floor space consisting of convenience retail and a group of local shops such as a chemist, newsagent, butcher, baker etc, as well as some services such as doctor, dentist and hair and beauty. This Village will also cater to the needs of the Residential Villages, which includes the local public primary school and district playing field.

Located on the main boulevard and on two neighbourhood connector streets, the Central Village will be well serviced by public transport, pedestrian and cycle routes which may encourage the Village to be patronisedbyresidentsfromoutsidetheLSParea.ThescaleoftheCentral Village is generally 2 to 3 storeys, with landmark buildings on the main thoroughfare to mark its location. The Village will also include the primary school and district playing field. The school site is have an area no less than3.5hectares.Theusesassociatedwiththesefacilitieswillassistthe Village in being vibrant and active.

The Central Village will be supported by a mixed-use attached dwelling type suitable for home-based businesses. The built form will be fine-grain retailwithcommercialandresidentialusesabove.

Principles

- Co-locate school with district park and playing fields.
- Locate the Central Village on the main bouelvard and provide bus stops and dedicated cycle parking at the retail site.
- Active street frontages along the main boulevard and surrounding the districtpark.
- Provide mixed-used development to increase day/night activity to Central Village.
- Shoptop housing/offices to overlook streets and public spaces providing surveillance of the public spaces.
- Rooftop terraces to mixed-use developments to take advantage of views,solaraccessandtoincreaseareaofcommunalopenspace.
- Provide tall landmark buildings to some prominent corners.
- Avoid pedestrian/vehicular conflict.
- Vehicularaccessfromsecondarystreetsandlaneways.

The Residential Villages are located in the centre of the LSP area surrounding the Central Village. These Villages will be characterised by the undulating topography set amongst the retained dunes. The views and vistas available fromthesePrecinctsofnaturalterrainandretainedlandscapewillserveas constantremindersoftheircoastallocation.Thebuiltformwillprimarilybe low scale residential with some multi-unit development sited at strategic locations,suchasthebusstopsandwhereoceanviewsareavailable.They will be serviced by a local neighbourhood centre within the Central Village, a primaryschoolandavarietyofbothactiveandpassiverecreationalareas.

A range of housing types will be developed to compliment the local landform,torespondtosocialneedsanddiversityofhousehold compositionsinaneconomicandenvironmentallysustainableway.The benching and retaining of lots will be avoided where possible, with level changes accommodated within the built form as much as possible. In order to achieve this built form outcome early dialogue has commenced with project home builders currently working in the north-west corridor.

Principles

- Generally retain natural topography where possible.
- A safe pedestrian and cycle network that connects each of the Villages and the activity centres (e.g. Gateway Precinct, Central Precinct and BeachPrecinct).
- Provision of a variety of housing types including apartments, attached and detached dwellings which are predominantly low-scale.
- Provision of an adaptable housing type along public transport routes and near the Central Village to allow for home-based business and changes of use in the future.

Figure 12 - Precinct 2 Central Village

6.3.3 Precinct 3 – Residential Villages

The Residential Villages are located in the centre of the LSP area surrounding the Central Village. These Villages will be characterised by the undulating topography set amongst the retained dunes. The views andvistasavailablefromthesePrecinctsofnaturalterrainandretained landscapewillserveasconstantremindersoftheircoastallocation.The builtformwillprimarilybelowscaleresidentialwithsomemulti-unit development sited at strategic locations, such as the bus stops and where ocean views are available. They will be serviced by a local neighbourhood centre within the Central Village, a primary school and a variety of both activeandpassiverecreationalareas.

A range of housing types will be developed to compliment the local landform,torespondtosocialneedsanddiversityofhousehold compositionsinaneconomicandenvironmentallysustainableway.The benching and retaining of lots will be avoided where possible, with level changes accommodated within the built form as much as possible. In order to achieve this built form outcome early dialogue has commenced with project home builders currently working in the north-west corridor.

Principles

- Generally retain natural topography where possible.
- A safe pedestrian and cycle network that connects each of the Villages and the activity centres (e.g. Gateway Precinct, Central Precinct and BeachPrecinct).
- Provision of a variety of housing types including apartments, attached and detached dwellings which are predominantly low-scale.
- Provision of an adaptable housing type along public transport routes and near the Central Village to allow for home-based business and changes of use in the future.

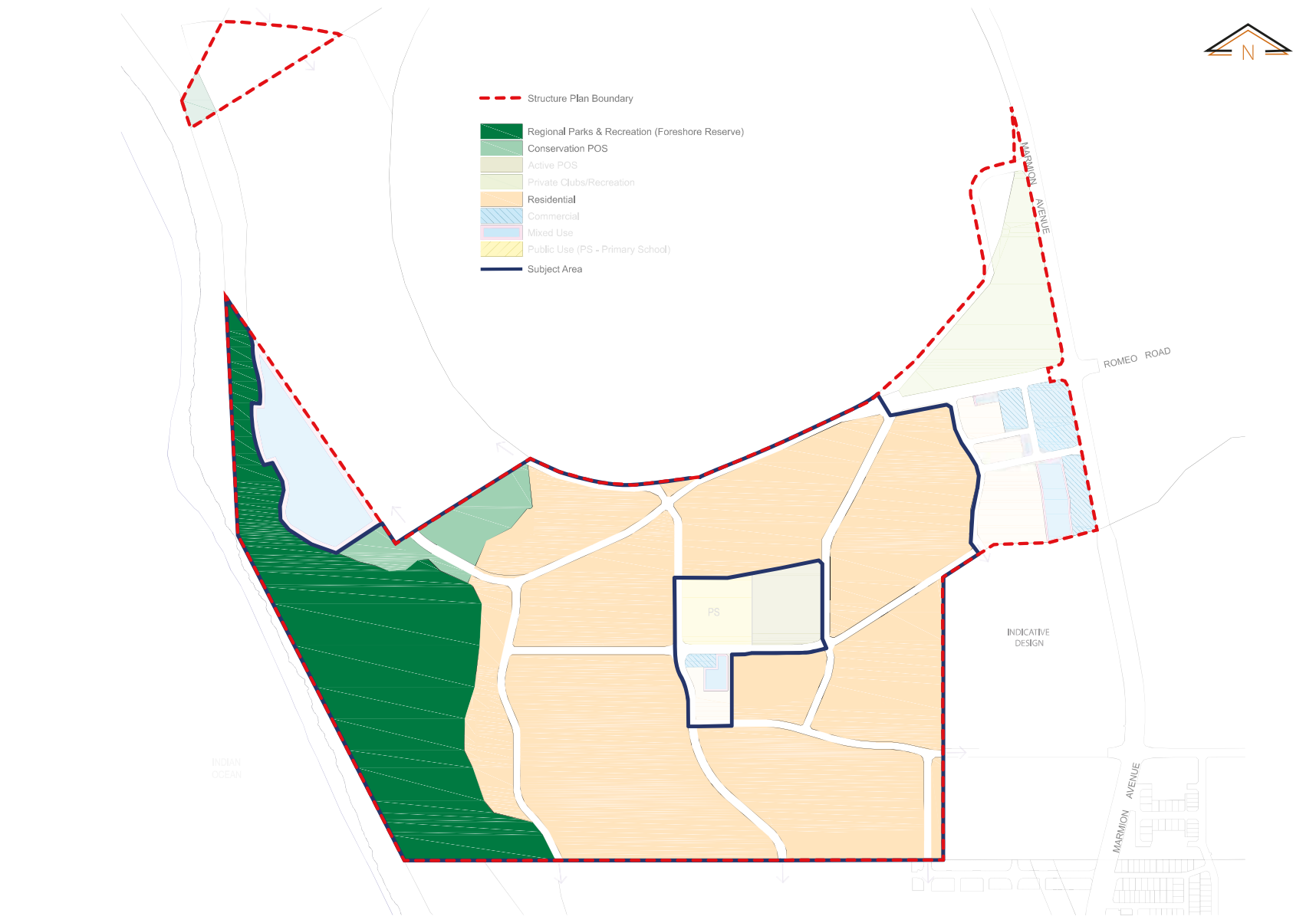


Figure 13 - Precinct 3 Residential Villages

6.3.4 Future Beach Village

The Beach Village is located on the western portion of the site between the WWTP and the Foreshore Reserve. This Village was initially included within this LSP but was subsequently removed and will be subject to further planning, for the following reasons:

- The review of SPP2.6 State Coastal Planning Policy and the subsequent uncertainty in respect to the coastal development setback;
- The potential development of a marina in this location; and
- Ensuring suitable integration with the adjoining landing (Lot 9001).

Notwithstanding the removal of this portion of land from the LSP it is still considered important to provide the following contextual information and its relationship with the LSP. The Village's proximity to the Alkimos Regional Beach provides a suitable location for retail, mixed use and medium density residential development. The layout of the Beach Village has been designed to accommodate any future marina, its traffic and associated uses.

The public open spaces, streets and uses within the Beach Village are unique to this area. These elements combine to create an urban coastal character which is place specific and contributes to the positive image of the South Alkimos LSP as a whole. The Village is characterised by highly walkable streets, both in terms of their location, their uses, and their interconnection, and by the buildings that front them.

The area is expected to accommodate mixed-use development, with up to 6,500m2 of retail and commercial floor space. Some educational and tourism related uses will be accommodated, as well as ancillary uses that support and enhance the liveability of the place. Residential uses will be above the retail and surrounding the village core. Active uses will be located at street level and facing public areas, enhancing the vibrancy of the public domain and creating a local activity centre within the wider Alkimos area. Residential dwellings will vary from shop-top housing, apartment blocks and a range of attached and detached dwellings.

The visual character of the precinct is important as it:

- is the major retail hub within the LSP area;
- maintains ocean views and vistas through the alignment of proposed streets; and
- provides visual links to water and possible marina.

Principles

- Provideastreetnetworktoallowforanyproposed Marinadevelopment and significant traffic movements, particularly on weekends.
- Avoid pedestrian/vehicular conflict.
- Encourage mid-block public pedestrian connections through large blocks.
- Minimise vehicular crossovers along streetfronts.
- Provide visual connection to the water along the main street.
- ProvidephysicalconnectiontoForeshoreReserveandbeach.
- Design the Beach Village to integrate with the beach and possible marina.
- Provide a bus stop at the Beach Village Square.
- Provide landmark buildings to some prominent corners.
- Promote active street frontages along Village Main Street.
- Encourage buildings with active street frontages to be built to the front boundary.
- Provide mixed-used development to increase day/night activity to Village.
- Design shoptop housing to overlook streets and public spaces.
- Encourage rooftop terraces to mixed-use developments to take advantage of views, solar access and to increase area of communal openspace.
- Minimise vehicle use in around the Village.
- Use landscaping to screen public parking areas from STS route, the ForeshoreRoadandpublicareas.

6.4 Masterplan

An indicative masterplan for the site has been prepared to demonstrate that the LSP design will create a legible, connected and functional development which will be home to a vibrant and well catered for community. The mixture of open spaces, including an active playing field, conservation reserves, neighbourhood parks and the east-west link from the Regional Centre to the coast, will provide amenity and recreational opportunities for South Alkimos residents, surrounding residents and visitors to the area alike.

A series of residential villages within the coastal dunes will provide a range of addresses with distinct character and a range of housing options will deliver a diverse community for all. Each village will be walkable, providing convenient access to community amenity and focal points. Diversity and choice will be a driving principle at South Alkimos. From the early delivery of key community, recreational, business and learning facilities, South Alkimos will ensure that each individual in the community can live their life, their way. The activity nodes will create a dynamic and vibrant atmosphere by being true mixed-use precincts that embrace retail, residential and businesses. The train station will be at the heart of the regional centre and will embed transit oriented development principles throughout Alkimos.

It is critical to place-based urban design that there is an understanding, appreciation and respect for the South Alkimos landform. The approach to the urban design of South Alkimos will be to recreate the main east west link through the site and ensure that the residential villages, infrastructure and activity nodes nestle along this link to create a distinct coastal setting. South Alkimos residents will be able to move freely from village to village and reach amenities along well-designed pedestrian links. While each village may have its own subtly different character, they will all reflect the overall character of a contemporary coastal community. The urban design will place people and the environment a head of all else. Every opportunity will be provided for pedestrians to connect with the environment and to feel safe while doing so.

It is proposed that the urban form of South Alkimos will attempt to respond to the existing unique topographical features of the site. The key activity nodes such as the Gateway and Central Village will be positioned and aligned to be more responsive to the site's geoheritage which will act as a key place making and character framework for the development. The resulting development form and character will be reflective of a contemporary coastal community that imparts a softer, responsive urban footprint on the site.

The development will have an integrated access network (walking and cycling paths, open space corridors and road networks) that will facilitate movement and connectivity through all parts of the development. The alignment of these networks has been driven by a philosophy of providing for pedestrians and cyclists over the car. While these vehicle and pedestrian corridors may coexist, detailed design and delivery will reinforce this approach. The "safe streets" approach will require a review of Local Government service provisions, road corridor widths and street tree planting.

South Alkimos will provide the gateway to from the Alkimos Regional Centre to the regional beach and potential marina. The Gateway Precinct will provide for a vibrant and cosmopolitan entrance to the LSP area with a mixture of residential, retail, commercial and food and beverage uses.

Residents will be well serviced by local convenience shopping and educational facilities within the LSP area and in the future will be well located to take advantage of the services that the Alkimos Regional Centre will offer, including a train station, sporting facilities, shopping and employment opportunities.

The design will allow for the provision of a mix of lot sizes and dwelling types to cater for a variety of demographics, ranging from first home buyers, to families to retirees. This mix of demographics will result in a diverse community.

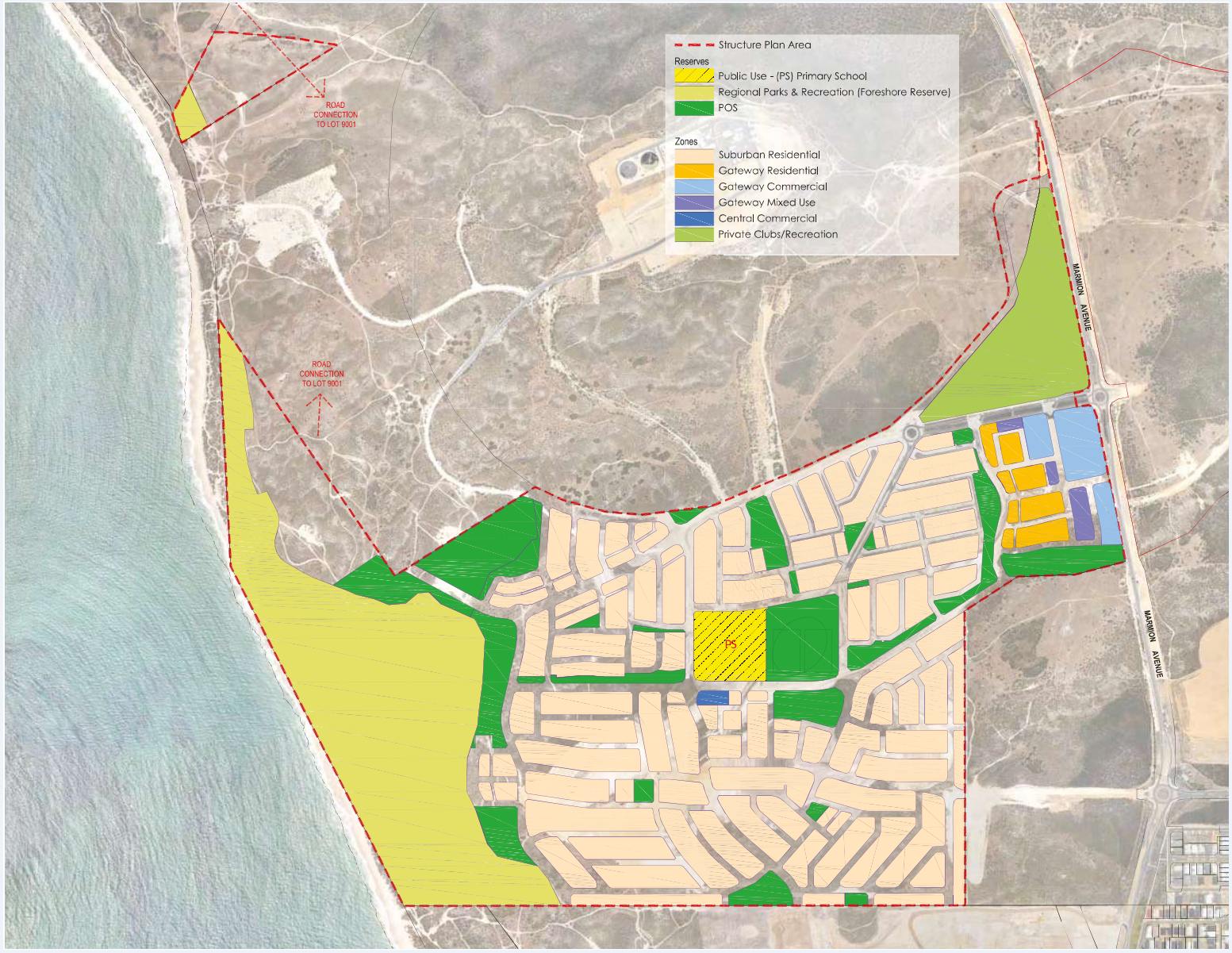


Figure 14 - Indicative Masterplan

6.4.1 Relationship to Adjoining Projects

ThepreparationofanindicativeMasterplanhasdemonstratedtherobustness and compliance of the proposed LSP with the Alkimos-Eglinton DSP. This provides stakeholders with confidence that the project will deliver on the expectationscontainedintheLSPandDSP.

Moreover, the indicative Masterplan has enabled the project team to engage with the proponents and owners of adjoining development sites. This collaboration has been important and effective in ensuring cohesion between the respective design aspirations of the various surrounding projects andtheAlkimosLSP.Thiswillenableaseamlessfunctionalitybetweenthe projects in regards to all elements of the design. This has been achieved for alloftheLSPbarasmallportionofthelandtothenorththatisdisconnected from the LSP, by position of Lot 9001. This small area is adjacent to the foreshore reserve and also adjoins the Shorehaven LSP (Peet Ltd) as well as the remainder of the LandCorp landholdings (not the subject of this LSP). In the absence of development proposals for the remaining LandCorp landholdings and Lot 9001, it is not possible to conclude on an indicative Masterplan design for this small portion of the LSP area. It is intended that this outstanding task will be held in abeyance until all affected landowner are in a position to engage in a collegiate process.

The LSP shows a design interface to Lot 9001 that includes public open space and road connections, including a shared road reserve next to the future Beach Village. These treatments have been agreed with the landowner group for Lot 9001. Further detailed planning of this precinct will be undertaken betweentheLendLease,LandCorpandtheWaterCorporationlandowner syndicate.

Consultationwiththeimmediatelandownerstothesouth(Jindalee/Satterley) has resulted in a cohesive design outcome. This has also been achieved along the south-east boundary (Trinity/LWP Property) although final negotiations, seeking to attain a logical road hierarchy in the Trinity project, are required.

The LSP also presents an indicative settlement pattern within the buffer of the Water Corporation's landholding and has been prepared only to demonstrate alikelydevelopmentoutcome.

TheproposedMasterplanalsoincludesanindicativemarinalayout,an opportunitymootedbytheDepartmentofTransport.Thisproposalis subject to further investigation, but has been given due consideration to accommodatethisfacilityintheproposedLSP.

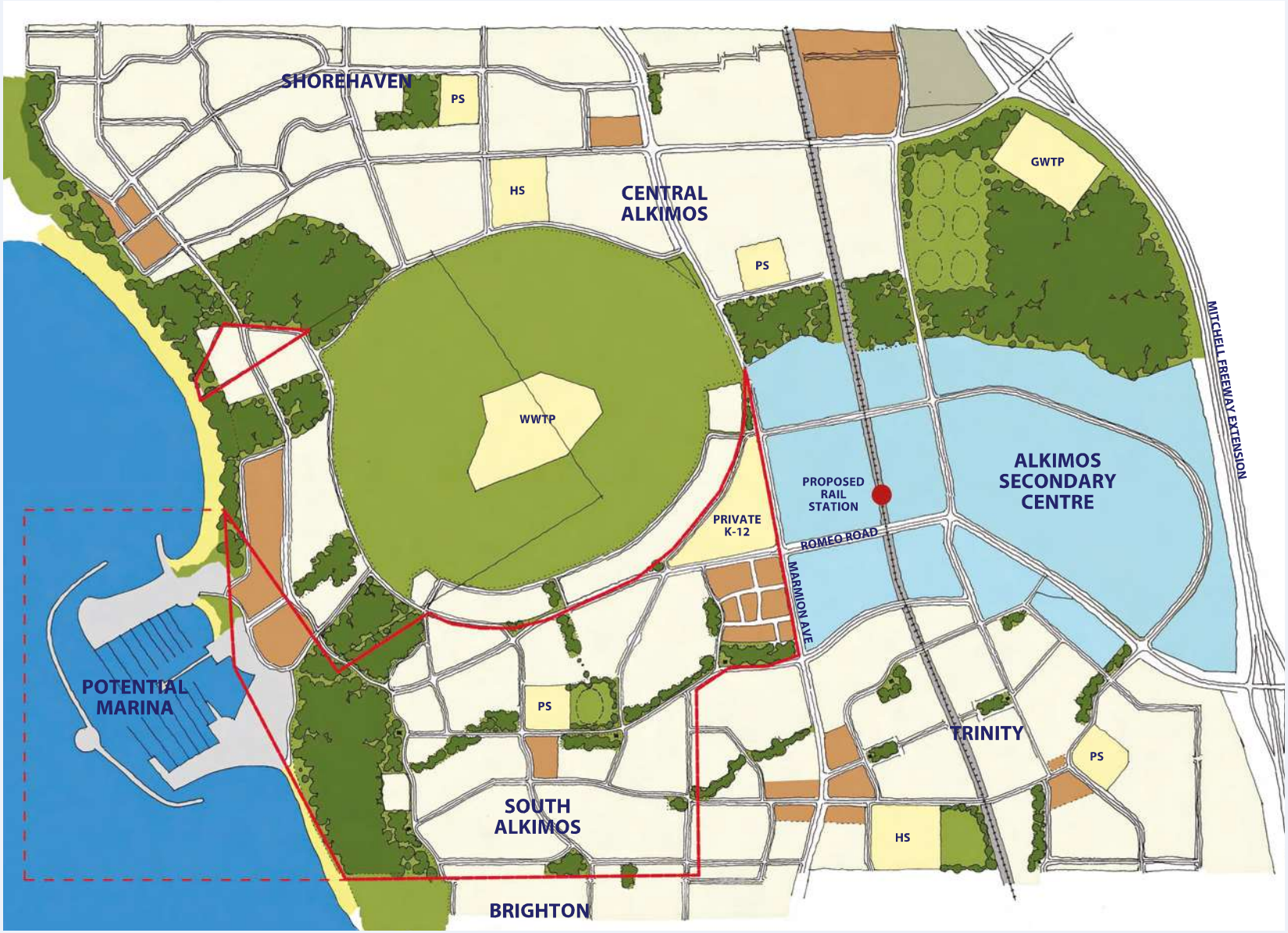


Figure 15 - Alkimos Masterplan

6.5 Dwelling Yield + Land Use Mix

The following table provides a summary of the ultimate estimated dwelling yields for the LPS:

VILLAGE	DWELLINGYIELD
GatewayMixedUse	178
North-EastResidential	569
South-EastResidential	668
Central Village	38
North-WestResidential	412
South-WestResidential	548
TOTAL	2413

The dwelling yield target for the LSP, as detailed in Part 1, is 2413 dwellings. The dwelling yield may not be achieved in the initial development of the LSP, however flexibility has been provided for to allow forfurthersubdivisionanddevelopmentinthefutureviatheprovisionof higher residential density codings (e.g. duplex lots).

The estimated dwelling yield for the South Alkimos LSP results in an average density of over 25 dwellings per site hectare, calculated in accordance with Part 1 – Statutory Section of the Alkimos-Eglinton DSP.Thiswillprovideforapopulationofapproximately6032residents, calculated at 2.5 residents per dwelling.

Each of the Precincts has been allocated a Residential Design Code density range within Part 1 of this LSP. The dwelling yield for each Precinct will be controlled via the Residential Design Code Plan and Detailed Area Plan. The inclusion of a Residential Design Code density range allows flexibility in the future to increase densities to meet market demands while giving security to the City and Department of Planning that adequate densities will be achieved.

The following table details the indicative residential and commercial/retail landuseareasforeachofthePrecincts.Ofparticularimportanceisthe indicativesplitbetweenthelandusesforthetwoactivitycentreswithin theLSParea.Thetabledoesnotincludetheprimaryschoolsite,which hasanareaof3.5ha.

Precinct	ResidentialArea	Retail/ CommercialArea	Total
GatewayMixedUse/ Commercial	3.9ha	13.8ha	17.7ha
Central Village	1.12ha	0.5ha	1.62ha
North-EastResidential	18.75ha	0.0ha	18.75ha
South-EastResidential	23.83ha	0.0ha	23.83ha
North-WestResidential	14ha	0.0ha	14ha
South-WestResidential	19.64ha	0.0ha	19.64ha
Total	81.24ha	14.3ha	95.54ha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6.5.1 Land Allocation Table

The following Land Allocation Table has been prepared in accordance with the City's Local Planning Policy 4.2.

LANDUSE	AREA
Commercial	17.7ha
Mixed Use	1.62ha
Residential	76.4ha
Primary School	3.5ha
POS – Social/Pedestrian/Cycle Link	7.2ha
POS – Active Playing Field	4.0ha
POS – Conservation	6ha
POS – Neighbourhood Parks	8.5ha
Foreshore Reserve	41.18ha
Dedicated Drainage	0.48ha
Roads	51.0ha
TOTAL	217.58ha

6.6 Servicing

6.6.1 Sewer

Water Corporation has constructed the first stage of the Alkimos Wastewater Treatment Plant. The treatment plant is in trial operation mode and will be commissioned during November 2010. Water Corporation completed the construction of the Quinns Main sewer through lot 1004 earlier in the Alkimos WWTP construction programme.

The sewer would be available, therefore, to receive wastewater flows from the urban development of the southern part of the Alkimos area, including the South Alkimos LSP area. Connections from the areas of development would be via a network of headwork's infrastructure including pumping stations, pressure mains and gravity outfall sewers.

These headwork's would be funded by Water Corporation although prefunding by developers may be required to service 'non-frontal' development.

The route of the Quinns Main Sewer through the LSP site included sections constructed in deep tunnels which will be protected by a 10 metre wide subterranean easement. This will, therefore, only affect surface development to the extent that groundwater bores will be prohibited within the easement.

North of this tunnel section, the sewer was constructed in an open trench and is relatively shallow requiring a surface easement. This section of the sewer has therefore been located within road reserves and open space to accommodate the surface easement requirement

The eastern part of the South Alkimos LSP area will be connected to the main sewer via gravity reticulation sewers. The balance of the South Alkimos LSP area is located within separate wastewater catchments which will be sewered via pumping stations located adjacent to the coast.

6.6.2 Water

Water supply to the South Alkimos LSP area will ultimately be via a series of groundwater bores, located throughout the Alkimos Eglinton area, linked by collector watermain's to a central treatment plant and reservoir. Areas of development will be serviced by a network of distribution watermains, from the reservoir, connected to reticulation systems within those areas.

The reservoir site is located in Carabooda, east of Wanneroo Road with the treatment plant to be located within the Regional Open Space area at the south-west corner of the interchange between the Mitchell Freeway and Alkimos Drive.

The first stage of the Carabooda reservoir is programmed to be constructed by Water Corporation by late 2011. Initially this would be supplied by a trunk watermain which links the reservoir to the Neerabup groundwater treatment plant. The watermain will initially function as both an inlet and outlet watermain, supplying water from the reservoir to the Butler area.

Supply to the Alkimos area will be provided by another outlet watermain in Romeo Road to be constructed, to suit the urban development programme, after 2011. A temporary watermain has been constructed by Peet Limited as part of their Shorehaven development north of the South Alkimos land holding. There is limited capacity in the temporary main to supply South Alkimos.

Beyond the above the Water Corporation's programme is to construct the groundwater treatment plant in Alkimos and additional outlet watermains to match demand.

All of the above headworks, will be funded by Water Corporation.

Distribution watermains would be headwork's funded by Water Corporation and may be required to be prefunded by developers for 'non-frontal' development subject to further negotiations.

6.6.3 Power

Western Power has installed of a 22 KV HV underground electricity cable in Marmion Avenue between Alkimos and Yanchep. The cable connects to the existing zone sub-station in Romeo Road with the Yanchep system adding security of supply to Yanchep. This electricity supply also provides initial supply to land holdings in the Alkimos Eglinton area.

Western Power's longer term planning for electricity supply to the overall Alkimos Eglinton area is via a proposed 132 KV electricity transmission line located along the western side of the Mitchell Freeway reserve. This line will again connect to the existing zone sub-station in Romeo Road and it will supply a new zone sub-station located on Lot 1007, Eglinton. The 132KV transmission line and the new sub-station are provided for in the Alkimos-Eglinton DSP.

6.6.4 Gas

Westnet has to date extended its natural gas service to the Butler Jindalee area.

A further extension of the gas network is currently under construction commissioned by Peet Limited for the Shorehaven development. This extension is expected to be commissioned early in 2011 and will be available for the South Alkimos LSP area.

6.6.5 Telecommunications

It is understood that the Yanchep Beach Joint Venture has been discussing various funding arrangements with Telstra to install an optic fibre telecommunication cable within the Marmion Avenue road reserve to improve the network to Yanchep. These will provide the link between Telstra's existing metropolitan network and Yanchep.

The optic fibre cables will be available, therefore, to supply the development of the South Alkimos LSP area with both telephone and broadband information technology services.

It is understood that the Peet's Shorehaven development is also in negotiation with Telstra for provision of telecommunication services. We understand from Telstra that which ever option occurs first it is likely sufficient conduit capacity will be installed in Marmion Avenue to accommodate the future growth of the corridor. However, additional fibre optic cables may need to be 'pulled' through the conduits back to either the Jindalee or Yanchep exchange buildings.

6.6.6 Siteworks

There are a number of factors which need to be considered in reviewing the finished levels of the development of the South Alkimos LSP. These are summarised as follows:

- Finished development levels within Lot 9002 will need to match the finished development levels within Lots 1002 and 9 along the common boundaries of Lot 9002. Close liaison will need to be maintained into the future with the developers of Lots 1002 and 9 and their consultants to ensure that this is the case and to ensure that the Lot 9002 levels are not compromised by unreasonable proposals for the adjacent landholdings.

  Cossill & Webley are the engineering consultants for Lot 9 and a preliminary earthworks design has been prepared for that landholding. The preliminary work carried out to date for the Lot 1004 earthworks levels has been co-ordinated with the Lot 9 levels.

  Contact has been made with the engineering consultants for Lot 1002, the preliminary design details have been exchanged and a continued liaison will be maintained with them as a part of the detailed engineering design of the road and development levels along the common boundary of the South Alkimos LSP area.

- The Alkimos Water Alliance has filled some of the lower swale areas of the South Alkimos LSP area, within Lot 9002, with excess material excavated from the wastewater treatment plant site. This work was completed in 2008.

  The fill levels are as designed by Cossill & Webley to suit the likely final development levels for Lot 9002 and the South Alkimos LSP. The levels have been designed to suit the landowner's objectives for development.

  The earthworks filling on Lot 9002 is the subject of a development application which has been approved by the City of Wanneroo.

  The filling comprises permanent filling using approximately 55% of the excavated material, together with a temporary stockpile of the balance of the excavated material above this.

- The existing levels along the coastal foreshore reserve boundary to Lot 1004 will need to be taken into account to minimise the impacts of the adjacent development on the reserve.
- Siteworks within the Alkimos area may be subject to further investigation surveys for Unexploded Ordnance (UXO), in accordance with FESA requirements. However FESA advice suggests that sufficient surveys have now been completed for Alkimos.

The South Alkimos LSP has been designed in accordance with the following objectives:

- To maximise the preservation of the significant topographic features in specific conservation public open space areas.
- To allow for roads and development sites to be graded to best follow the existing topography and to best reflect the coastal landscape.

The approach adopted to achieve these objectives is outlined as follows:

6.6.6.1 Significant Landscape Features

In the case of significant landscape features the South Alkimos LSP includes the retention of high dune ridges within Lot 9004 within open space areas.

Road levels adjacent to these areas will be designed to minimise the extension of earthworks batters, into the ridges, to maintain their natural form.

ThelocationsoftheroadswithintheSouthAlkimosLSPhavebeen established to best facilitate this ongoing design work.

6.6.6.2 RoadsandDevelopmentSites

ThepreparationoftheSouthAlkimosLSPhasinvolvedareviewofa number of options for the grading of roads and development sites. This hascomprisedanumberofiterationsofdevelopmentlevels,between Cossill & Webley and the town planning and landscape consultants, aimed at identifying a plan which best balances the grading objectives with the other objectives for economics, engineering design, development land uses, traffic planning etc.

ItisconsideredthattheSouthAlkimosLSPachievesanappropriatebalance and it provides a flexible basis for the derivation of subdivision plans, ongoing detailed design and construction work. The South Alkimos LSP is based on road grades which follow the existing topography but which still maintainsappropriatestandardstoensurethesafetyofroadusers.Road grades should not exceed 10% and the sight distance should not be less than the stopping sight distance for the design speed.

The LSP promotes the adoption of lower road design and operating speeds, in accordance with Liveable Neighbourhoods objectives, through the road layout and the urban design of streetscapes. The engineering design standards which suit these lower speeds provide greater flexibility to follow the existing topography through the adoption of steeper grades, shorter sight distances, etc.

The approach to the grading of development sites for the South Alkimos LSPisasfollows:

- For gently sloping sites it is proposed that where possible minimal siteworks be carried out as a part of subdivision and that the existing grades within the allotments be dealt with as a part of building works. This should not require complex or special building forms.
- Medium sloping sites would be earthworked as a part of subdivision but only to the extent where resultant grades allow building works as above for gentle sloping sites. This may involve the construction of some retaining walls as a part of the subdivision siteworks.
- For steeply sloping site it is expected that the subdivision siteworks would involve more earthworks and retaining walls construction to provide suitable sites for single residential housing, without special building forms.

It is proposed that in areas where medium and higher density development is envisaged the subdivision siteworks would be minimal. Existing slopes and topography would be dealt with as a part of building design and construction. The grade within allotments may not exceed 1:8.

Similarly in some special design areas the existing steeper topography may be left for single residential houses where special building forms, like split levels, framed construction, undercroft garages, etc could be employed to suit the existing grades.

In practice the final choice of subdivision siteworks and building typologies will be dependant on a range of factors including, affordability, product mix,economics,etc.ItisconsideredthattheSouthAlkimosLSP,will provide flexibility for the consideration of the range of options, in ongoing development, to maintain the landowners objectives for the project.

Further information of the servicing of the site can be found in Appendix E – Local Engineering Infrastructure Report.

6.6.7 Local Water Management Strategy

A District Water Management Strategy (DWMS) has been prepared for the Alkimos-Eglinton DSP area. It is understood that an integrated approach to water management will be adopted within the DSP area. While the final approach to water management has not yet been determined, the Local Water Management Strategy (LWMS) prepared for the LSP site addresses some aspects typically covered by the DWMS strategy including:

- Setting of water quantity and quality management objectives to be achieved;and
- Identification of potential water sources for drinking and other uses, such as irrigation.

These aspects will be reviewed in subsequent revisions of the LWMS.

6.6.7.1 Design Criteria

The design criteria adopted for the LWMS are based on the design objectives outlined in Better Urban Water Management (Western Australia Planning Commission, 2008). These criteria are further outlined in the sectionsbelow.

WaterConservation

TheoverallintentionoftheSouthAlkimosLWMSistoachievesustainable management of all aspects of the water cycle within the development. This includes minimal potable water use outside the home and buildings, with the use of potable water to be as efficient as possible. Specifically the objectives for integrated urban water management for the development are:

- Minimise total water use. The State water planning framework sets a target of reducing unrestricted annual water consumption to 100 kL/ person, including not more than 40 – 60 kL/person/year scheme water.
- Substitute drinking quality water with fit-for-purpose water for non-drinking water uses. The State Water Strategy (Government of Western Australia, 2003) sets a target of 20% reuse by 2012. The development aims to reduce the use of scheme water by providing an alternative fit-for-purpose water supply for non-drinking use.

LandCorp recently secured a $19.5M grant from the Department of Environment, Water Heritage and the Arts on behalf of the Alkimos Eglinton Landowners Group. The funding was provided under the "Water fortheFuture"NationalUrbanWaterandDesalinationPlan.Theproposal is a groundwater/stormwater harvesting concept to deliver non-potable water for irrigation of POS and irrigation for the region. This could potentially be Phase 1 of a longer term project to supply the entire region with a third pipe non potable solution which extends to toilet flushing in the home, thereby generating further potential potable water savings.
Water Quantity Management

Principle

The post development annual stormwater discharge volumes and peak flows are to be maintained relative to predevelopment conditions, unless otherwise established through determination of ecological water requirements for sensitive environments.

To achieve the above principle the following criteria will be applied:

- Ecological protection - For the critical one year average recurrence interval (ARI) event, the post-development discharge volume and peak flow rates shall be maintained relative to pre-development conditions in all parts of the catchment. Where there are identified impacts on significant ecosystems, the project will maintain or restore desirable environmental flows and/or hydrological cycles as specified by DoW.
- Flood management - Manage the catchment run-off for up to the 1

in100yearARIeventinthedevelopmentareatopre-development peak flows, unless otherwise indicated in an approved strategy or as negotiated with the relevant drainage service provider.

- Protect infrastructure and assets from inundation and flooding. Urban development usually results in the removal of significant areas of vegetation and replacement of permeable areas with buildings, roads and paved areas. This results in increased volumes and flows of surface runoff, which has the potential to cause flooding and inundation.

Water Quality Management

Principle

Maintain surface and groundwater quality at pre-development levels (winter concentrations) and if possible, improve the quality of water leaving the development area to maintain and restore ecological systems inthesub-catchmentinwhichthedevelopmentislocated.

To achieve the above principle the following criteria will be applied:

- Ifthepollutantoutputsofdevelopment(measuredormodelled concentrations)exceedcatchmentambientconditions,theproponentshall achieve water quality improvements in the development area or, alternatively, arrange equivalent water quality improvement offsets inside the catchment. Iftheseconditionshavenotbeendetermined,thedevelopmentshouldmeet relevant water quality guidelines stipulated in the National Water Quality Management Strategy (ANZECC and ARMCANZ, 2000).
- Ensure that all runoff contained in the drainage infrastructure network receives treatment prior to discharge to a receiving environment consistent with the Stormwater Management Manual.
- Protect groundwater as a resource. The site has highly permeable soils and adeepwatertable.Thedevelopmentoftheareamustprotectthewater quality of the unconfined aquifers, which are a valuable water resource for irrigation.

Table 2 summarises the objectives and strategies for this LWMS.

Table 2 - Water management objectives and strategies

Objective	Strategy	Design Criteria
Minimise total water use in the study area.	Limit potable water use within building and outside the house.	◗ Reduce the average per capita potable water consumption to 100 kL/year.
Protect infrastructure and assets from inundation and flooding.	Maximise infiltration opportunities though out the drainage system.	◗ Maximising infiltration by adopting a stormwater retention system to contain the 1 year ARI storm. ◗ Infiltration swales / open basins located in POS areas will be designed to accommodate the 100 year storm event ◗ Floor levels of all habitable building pad levels 0.3 m above the 100 year event flood level. ◗ Runoff from impervious surfaces shall be directed to infiltration devices and areas.
Protect environmental values.	Reduction in the average annual loads of pollutants compared to traditional systems, discharging to the surface water and groundwater.	◗ Using structural controls such as swales, in combination with non-structural controls such as education campaigns, to minimise potential pollution of groundwater.

6.6.7.2 AlternativeWaterSources

In order to reduce the use of potable water for irrigation and other non-potable purposes the LWMS has investigated alternative water sources to servicethesite.

Groundwater

Groundwater abstraction is the easiest and usually most cost effective method of providing an alternative to scheme water for irrigation. It is generally acknowledged that the consumption of groundwater by individual households owning a private bore is greater than for those households irrigating from scheme water, and thus it is considered that encouraging private bore use within the study area would not lead to achievement of the water conservation objectives.

However, if a centralised system were to be installed, supplying groundwater via a third pipe network and with central management, this could be implemented in such a way as to minimise the use of irrigation water and help achieve the water conservation objectives. Such a system is currently operating in the nearby development of Brighton.

Existing water allocation planning by the Department of Water indicates that within the Eglinton subarea, the Superficial aquifer is currently 106% allocated (allowing for requested allocations). As such, there is no groundwater allocation available for POS irrigation and an alternative watersourcemustbeconsidered.

Rainwater

Rainwatertankshavepreviouslybeenconsideredoflittlevalueinthe southwestWesternAustralianenvironment.However,ifrainwaterisused to supply in-house requirements rather than irrigation, they are effective inwinter.Onanannualbasis,a2kLtank(withbackupfromscheme water) could supply approximately 36% of in-house non drinking water requirements if connected to toilets and the cold water inlet of washing machines.Thiscalculationhasbeenbasedonasuburbanresidential lotwithaconnectedroofareaofapproximately276m ^{2}, irrigation area of69m ^{2}andaninhousenon-potabledemandof210litres.Theonly potentiallowriskposedbytheuseofrainwateristopublichealthwhere the water quality is poor. Rainwater quality is generally considered to be of a high standard if regular maintenance and appropriate management of the system is undertaken. Appropriate maintenance and management of rainwater tank systems includes: installation of first flush diverters; prevention of access to any vermin or disease vectors; filters to minimise the entry of large particles and leaves; and regular inspection and maintenance of gutters and downpipes.

With appropriate maintenance and management, it is considered that the rainwater quality would be of a sufficient standard to be used for non-potablein-houseusewithoutfurthertreatment.Theuseofrainwater tanks is not considered to present a significant risk to the environment and may provide a benefit in the management of stormwater across the development, by removing or detaining roof runoff from lots. At this stage it is not proposed that rainwater tanks will be mandatory for the development.

Stormwater

As a result of urbanisation, there is an increase in stormwater runoff due to the additional flows associated with drainage of rainwater from hard surfaces and the recharge component of household irrigation. Accordingly, it may be possible to supply irrigation and other non-potable needs from reclaimed stormwater. Using only the surplus contributes towards achieving the objective that post-development flows remain similar to the pre-development flows.

The most efficient option for harvesting stormwater is:

- Infiltration of stormwater to the superficial aquifer at (or close to) source;
- Direct supply of groundwater from the superficial aquifer via a third pipenetwork.

Collection and storage of stormwater for reuse other than by aquifer storage is regarded as inefficient due to the need to construct large storages and water collection infrastructure.

A study is currently being undertaken at a district level to develop a third pipe groundwater supply based on stormwater harvesting.

Wastewater

Wastewater recycling is not currently available for the LSP area as the existence of the Priority 3 PDWSA does not allow irrigation with treated wastewater.However,preliminarydiscussionswiththeDepartment ofWaterhaveindicatedthatthePriority3PDWSAboundarymaybe modified in the future.

While the immediate use of treated wastewater through a third pipe scheme to supply irrigation and non potable uses is not possible, the reuseofwastewatershouldnotbediscountedinthefutureshouldtheP3 boundary and/or restrictions be modified.

Watersourcerecommendations

A non-drinking water source is required within the South Alkimos LSP and itisrecommendedthatthealternativewatersourceselectedisconsistent withthedistrictlevelapproach.

An alternative water scheme for non-drinking water supply being considered within the DSP area comprises stormwater harvesting, infiltration, aquifer storage, recovery, treatment and distribution through localised third pipe systems. In order to achieve this effectively, the stormwater drainage infrastructure may have to allow for maximising the harvestpotentialofstormwaterandfortheconveyanceofsuchwater to targeted infiltration points to maximise the recharge to the aquifer as opposed to conventional localised stormwater retention and infiltration.

If establishment of a third pipe groundwater scheme is successful, use oftreatedwastewater(directorindirectly)shouldberevisitedforfuture stages of South Alkimos development.

Rainwatertankswillbeconsideredatanindividuallotlevelforthis development.

6.6.7.3 Stormwater Management Strategy

SurfaceWaterQuantity

To address stormwater management, the principles of the minor/major system of drainage will be employed. The minor/major drainage system is defined as a system of underground pipes, swales and kerbs etc which are designed to carry runoff generated by low frequency (minor) ARI storms (5 year ARI) and a system of roads, drainage reserves, basins and open space designed to convey the major events (greater than the 5 year ARI).

The City of Wanneroo requires the stormwater management strategy to retain the 100 year ARI event within the site. These objectives can be achieved through using the minor/major system incorporating the principles of water sensitive urban design (WSUD) and best management practices(BMPs).

Runoff from storms greater than 1 in 1 year ARI and up to 1 in 5 years would be conveyed in an underground pipe system to low point infiltration basins. Roads and POS would be designed to cater for the surface overflow for more severe storms with building pads constructed at least 300 millimetres above the 1 in 100 year ARI flood or storage level atanylocation.

The sizing of infiltration swales / open basins located in POS areas is based upon modelling by Cossill and Webley Consulting Engineers. Post development catchment boundaries were defined by the preliminary earthworks design. The drainage catchments have been calculated assuming 30% of the gross catchment is impervious. All lot drainage will be contained on site by the use of soakwells or other infiltration facilities.

SurfaceWaterQuality

Urban runoff is a significant source of nutrients and other contaminants that are discharged to the shallow aquifer. Runoff water quality from roadsandotherpavedsurfacescanbevariableandisdependentonlocal soiltypes,landuseandclimate.Therearenowaterwayswithinthestudy area, however, the surface water quality is to be managed to ensure that the quality of the receiving groundwater is maintained.

Maintaining pre-development discharge rates and volumes from developed catchments is expected to prevent the majority of contaminants from reaching the receiving environment by ensuring that the majority of flows from high frequency events are detained or infiltrated on site.

Provided that the initial flow of more significant events is subject to the same detention and treatment received by high-frequency events, surface runoff that occurs during more significant events represents a lower risk to water quality. This is because nutrients and other contaminants that represent a threat to water quality are typically transported within the 'first flush' of an event.

As there are no waterways present within the LSP area, water quality criteria based upon waterway water quality targets are not applicable. An alternative approach is to develop catchment water quality related design objectives that adopt BMPs for Water Sensitive Urban Design (WSUD). According to the WSUD Engineering Procedures: Stormwater Design Process, a bioretention system, which represents 2% of the total impervious area, is likely to result in performanceatthemaximumpossiblereductions.Thecalculatedswaleareas for the development represent more than 2% of the impervious catchment.

The quality of the stormwater infiltration and runoff will be maximised through:

- Adopting a treatment train approach to runoff, through the use of water sensitive urban design best management practices such as permeable pavements, buffer strips, bioretention swales, rain gardens, biofiltration pockets, median swales, gross pollutant traps, and infiltration basins;
- Amaintenanceplanfortheupkeepofthetreatmenttrain;and
- A monitoring program implemented during construction and post-development to ensure that the management measures for stormwater quality are meeting the design objectives.

6.6.7.4 Groundwater Management Strategy

ThePerthGroundwaterAtlas1997indicatesthatthemaximum groundwater levels beneath the site range from 0 m AHD at the coast to 3 m AHD just outside the study area with the groundwater flow towards the west. Depth to groundwater over the site is highly variable due to the uneven topography associated with the dune formations. Based on the three bores constructed within the study area, the depth to groundwater ranges from 13.5 m to 26.7 m below natural surface.

The existing quality of groundwater based on available monitoring bore data indicates reasonable water quality. To ensure that the existing groundwater quality is maintained, the quality of the stormwater infiltration to groundwater will be maximised through:

- Adopting a treatment train approach to runoff, through the use of WSUD BMP's such as permeable pavements, buffer strips, bioretention swales, rain gardens, biofiltration pockets, median swales, gross pollutant traps, and infiltration basins;
- Amaintenanceplanfortheupkeepofthetreatmenttrain;and
- A monitoring program implemented during construction and post-development to ensure that the management measures for stormwater quality are meeting the design objectives.

6.6.7.5 Implementation

Monitoring

It is recommended that monitoring during construction and post-developmentforaperiodoftwoyearsshouldoccurtodeterminethatthe management measures for stormwater quality are meeting the design objectives. The post development groundwater monitoring should utilise the pre-development monitoring bores.

Surface water monitoring sites should capture inflows and outflows for the whole site, all detention or retention storages, and any water dependent ecosystems. Monitoring of groundwater levels should be initially on a monthly basis to establish water level fluctuations. Surface water monitoring requirements are site-specific and must meet the regulatory bodies' recommendations.

The effective management of urban stormwater quality typically focuses on the treatment of frequent, low-intensity stormwater events. These small but frequent flows account for the majority of nutrient loads and represent the best opportunity for water quality improvement.

The process of infiltration filters the stormwater and is effective in the removal of particulate nutrients. Dissolved nutrients cannot be filtered and are therefore more difficult to treat. Urban runoff is a combination of dissolvedandparticulatenutrients.

If the treatment measure is infiltration, then filtered and unfiltered samples of total nutrient concentrations should be measured to quantify the proportion of dissolved and particulate nutrients generated within the developmentsite,andthemethodrecorded.

Requirements for Following Stages

The next stage of subdivision planning will require the development of an Urban Water Management Plan (UWMP). This will include progressing conceptual designs to detailed designs. Specifically, the following issues willneedtobeaddressedwithintheUWMP:

- Demonstration that the UWMP will meet the objectives and criteria stated in the local water management strategy and any future DWMS;
- Demonstration of compliance with regulatory requirements, including required licences and approvals, Building Code of Australia and Plumbing code of Australia;
- Determining the infrastructure requirements and land required to fit the infrastructure for the detailed design, including drainage and development requirements for stormwater management;
- Detailed designs for the major/minor stormwater management system, including best management practices to achieve the water quality and quantity objectives given in the LWMS;
- Identifying floor level heights; and
- Operationalandmaintenanceresponsibilitiesandliabilities.

FurtherdetailscanbefoundintheLWMS(AppendixF).

6.7 MovementNetwork

6.7.1 Regional Roads

Marmion Avenue and Romeo Road are identified as Integrator Arterial Type A Roads within the Alkimos-Eglinton District Structure Plan. These roads serve to distribute traffic throughout the district and in conjunction withthefutureMitchellFreeway(PrimaryDistributor)providethemain accessroutestotheLSParea.MarmionAvenueiscurrentlyatwolane single carriageway road and is carrying approximately 6500 vehicles per day. In its current configuration, Marmion Avenue has a capacity of approximately15,000vehiclesperday.

Romeo Road when constructed will initially be a two lane single carriageway road (similar to current Marmion Avenue) and will connect MarmionAvenuetoWannerooRoad.Thereisnoindicationfromstate planning authorities when the Mitchell Freeway will be constructed to Romeo Road. The transport priority is to progress development of the northern suburbs passenger railway (extension to Butler Station by mid 2014).RailserviceisexpectedtoreachtheAlkimosTownCentreStation byapproximately2021.

Marmion Avenue and Romeo Road are defined in the Metropolitan Region Scheme as Other Regional Roads and have road reservations to accommodate4-lanedividedarterialstandards.

6.7.2 South Alkimos LSP Roads

The South Alkimos LSP local road network is presented in the context of the wider district network. Local Distributors run throughout the LSP area and connect its neighbourhoods to each other, to the Alkimos Regional Centre, to the adjacent land holdings and to the Integrator Arterial Type A Roads (e.g. Marmion Avenue and Romeo Road).

Figure 18 shows the functional road hierarchy, including Local Distributors and Integrator Arterials. Subsequent subdivision applications will detail the Access Street network and provide Access Street cross-sections.

It is proposed to have one connection (t-intersection) from Marmion Avenue to the LSP area. The provision of two connections in accordance with the City's Local Planning Policy 3.8: Marmion Avenue Arterial Road Access is not possible due to conflicts with turning lanes associated with the Marmion Avenue/Graceful Boulevard intersection.

As the proposed four-way Marmion Avenue/Graceful Boulevard intersection is unlikely to be constructed until the later stages of the development it is proposed that the subject t-intersection be constructed as a temporary full access t-intersection until such time that the aforementioned four-way intersection is constructed. This full access t-intersection will service the first stages of the Gateway Precinct. Once the Marmion Avenue/Graceful Boulevard four-way intersection is constructed the t-intersection will be modified to left-in/left-out access only.

The external road connections to the east and south of the site have been located to connect with the approved and proposed adjoining designs (e.g. Trinity to the east and Brighton to the south). These connections have been located following collaboration with the adjoining landowners to ensure seamless integration. Multiple access points have been provided to Lot 101 on the northern boundary of the site.

The LSP has also been designed to integrate with Lot 9003 and to the proposed development to the north with the main access point being via a neighbourhood connector. This neighbourhood connector straddles the boundary between the subject site and Lot 101, with the road split evenly on both landholdings. The entire road reserve, including a portion of Lot 9003, has been included within the LSP boundary. The owners of Lot 9003 have agreed to this.

As part of the initial planning for the Alkimos Regional Centre, the project partners are investigating an alternative configuration for Marmion Avenue within the Regional Centre. The purpose of this alternative configuration is to remove the road barrier between the South Alkimos LSP area and the Alkimos Regional Centre to ensure better integration and connectivity.

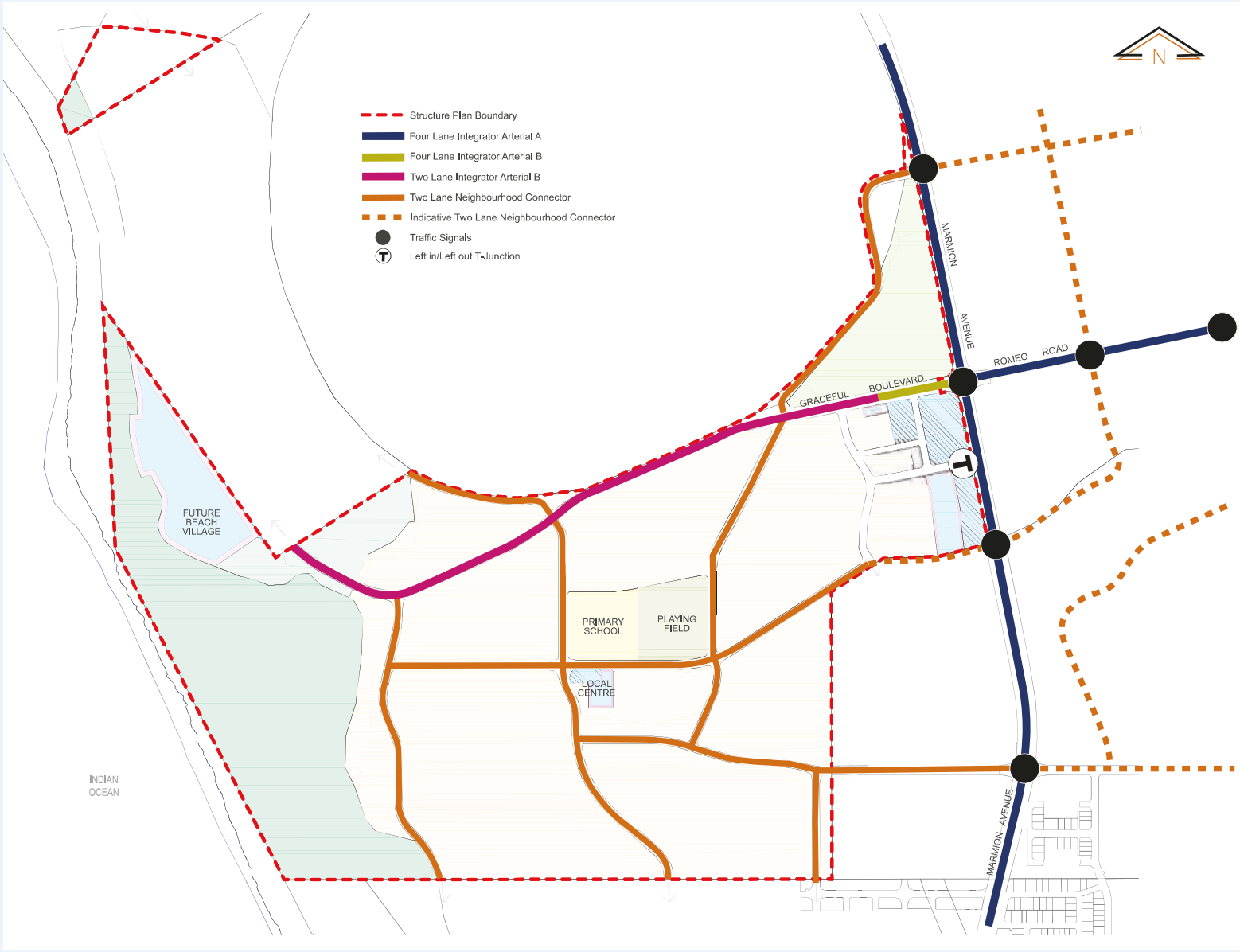


Figure 16 - Proposed Road Hierarchy

6.7.3 Public Transport

Figure 17 shows the proposed bus services in the South Alkimos LSP study area:

- Route 482 (Alkimos to Clarkson);
- Future Bus Route (Alkimos to Clarkson);
- Potential STS Route (Eglinton to Alkimos)

Route 482 runs from Alkimos Station through South Alkimos then south through Lot 9, Lot 10 and Lot 12 en-route to Clarkson Train Station. Route 482 will use the local distributor roads (as shown) and buses will stop on-street without bus embayment's, as per Transperth standard practice in local street networks.

The Future Bus Route runs from Alkimos Station down Marmion Avenue via Brighton Station and Mindarie en-route to the Clarkson Train Station. This route will be provided with bus embayment's along Marmion Avenue (consistent with current practice on high traffic arterial roads).

Service frequencies for the Routes are likely to be:

- 20 minutes in the peak (potentially 10 minutes if funding is available)
- 60 minutes off peak (potentially 30 minutes if funding is available)
- 60 minutes at night and on weekends (there is a chance the Future Bus Route won't run Sundays and this is subject to funding)

The indicative STS (special high frequency transit service) route is shown in Figure 18 (as identified in the Alkimos Eglinton DSP traffic report by SKM).

A couple of route options have been identified for the STS through the South Alkimos LSP study area:

- Land Owner Preferred Option – this route maximizes South Alkimos bus catchments on the north and south side of the STS and takes the route past the Coastal Centre, the Local Centre and to Alkimos Town Centre via Romeo Road (west).
- Alternative Link 1 and/ or Alternative Link 2 – these alternative route options can be used individually with the western portion of the Land owner preferred option or together to form an complete east end alternative for the STS route. The route options including these links are more direct to Alkimos Station and access Marmion Avenue at the proposed traffic signals about 460m south of Romeo Road (as in the AE CAT alignment shown in Figure 18).

Preliminary discussions about these route options have been held with Transperth. Transperth do not feel the Land Owner Preferred option provides a suitable route for the STS on the grounds that is not direct enough and does not adhere to the indicated alignment set out in the Alkimos Eglinton DSP. Transperth have indicated that Alternative Link 1 and Alternative Link 2 (in combination) provide a suitable alignment but only if the 'twists/ turns' are removed to reduce turning movements along the route.

Further discussions with Transperth, the City of Wanneroo and the Department of Planning will be needed to explore the multiple objectives being addressed as part of the South Alkimos LSP, including the best STS route option which respects a balanced design outcome.

STS route options from Marmion Avenue to the Alkimos Station and the bus priority strategy through that more congested portion of the district road network should be considered as part of the above mentioned discussion.

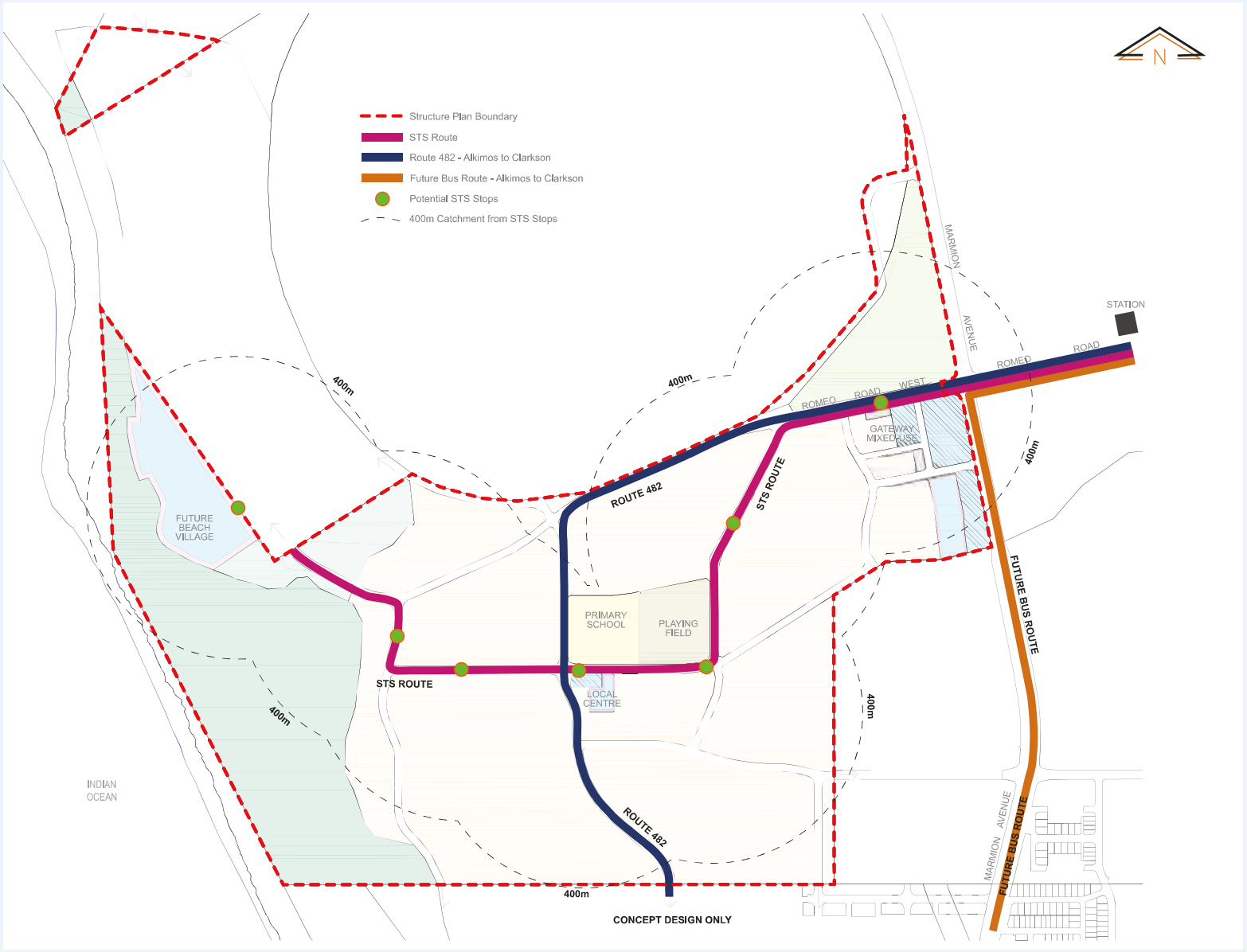


Figure 17 - Proposed Public Transport Routes

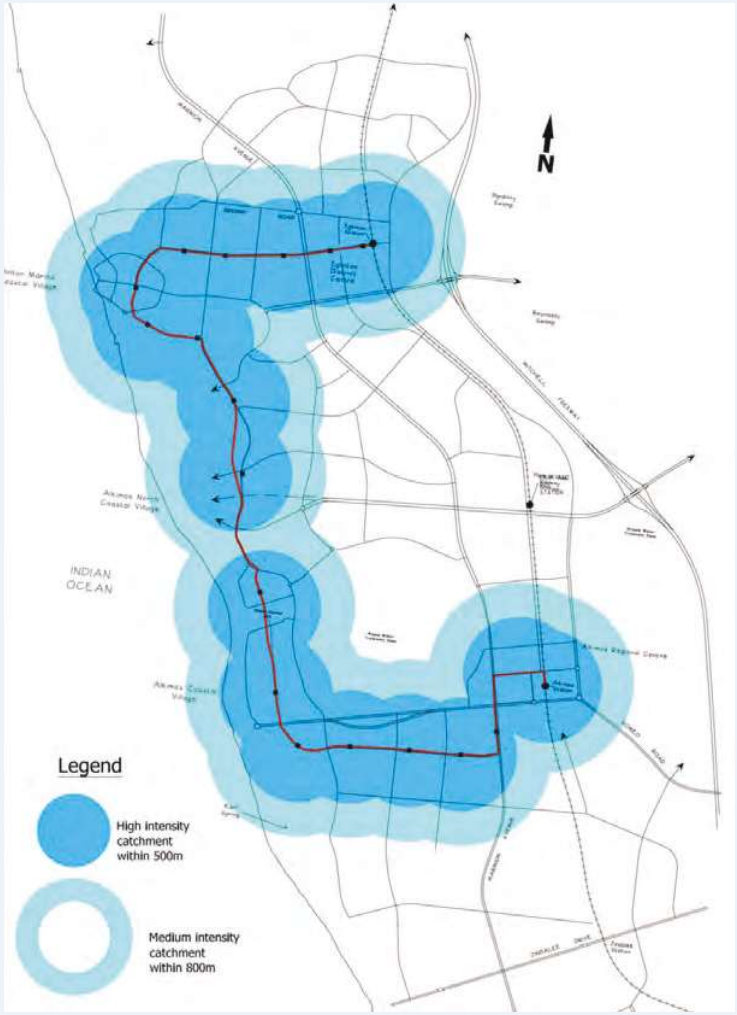


Figure 18 - Alkimos-Eglinton DSP - Proposed STS Route

6.7.4 Pedestrian+Cyclist

TheproposedSouthAlkimosLSPsharedpathandcyclelanenetworks are shown in Figure 19. Additional footpaths and/or shared paths will be added at the detailed subdivision stage when the Access Street network design is confirmed. Path and cycle lane allocations are set out using the following guidelines:

- Integrator Arterial Type A and Type B Roads: Shared paths and cycle lanesareprovidedonbothsides
- Local Distributors with traffic > 3000 vehicles per day: Shared path one side,footpathoppositeside,cyclelanesbothsides.
- Local Distributors with traffic < 3000 vehicles per day: Shared path one sideandfootpathoppositeside.

In addition to the above, special attention will be required in the planning and design of pedestrian road crossings. Pedestrians will cross Marmion Avenue at signalised intersections where pedestrian button signal activationwillbeavailable.

AttheSouthAlkimosPrimarySchool,a40km/hrschoolspeedzone would be appropriate on roads fronting the school. Most local road crossings will however be unmarked and will have kerbed ramps and pedestrian gaps in medians.

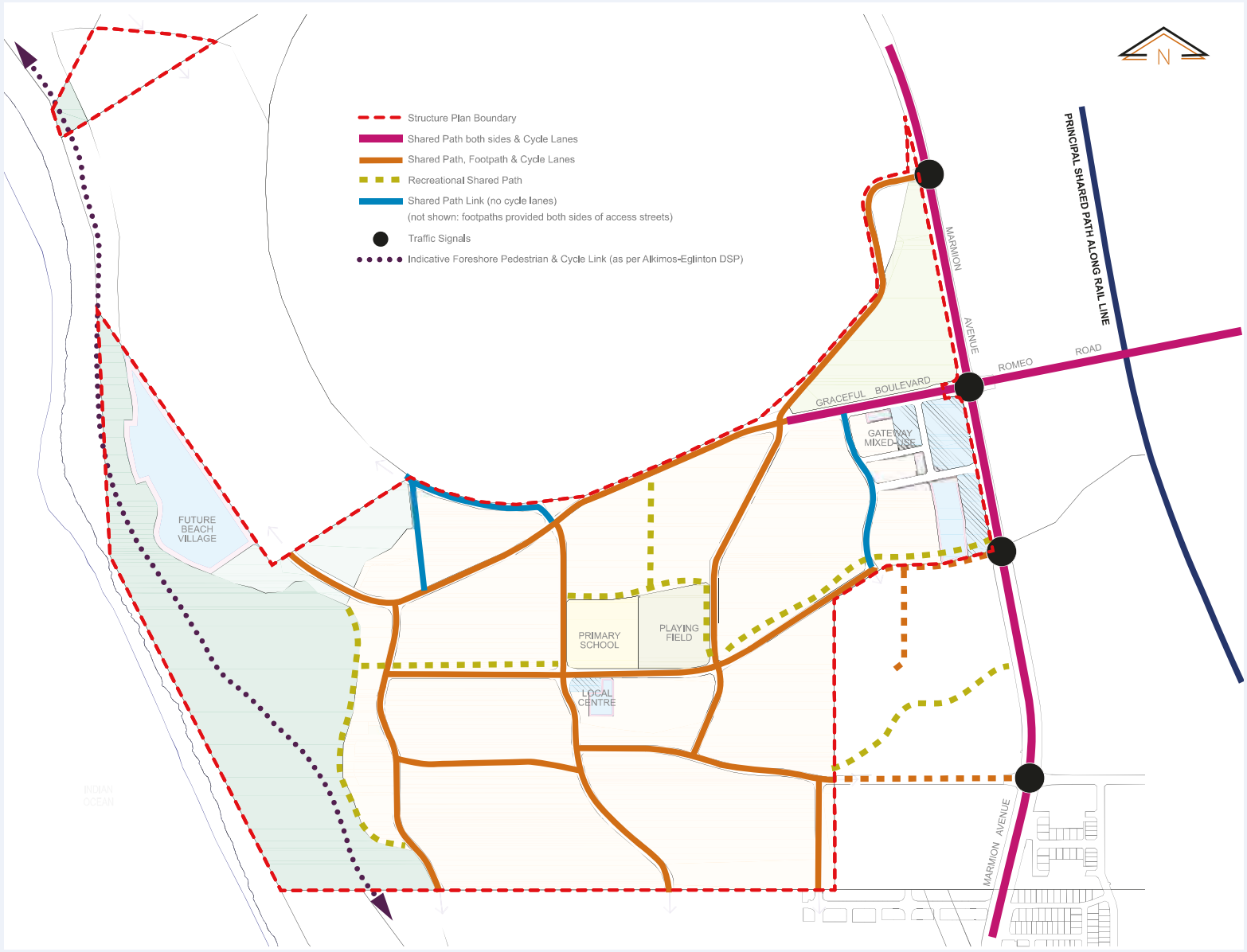


Figure 19 - Pedestrian and Cycle Network

6.7.5 Acoustics - Marmion Avenue

Herring Storer Acoustics was commissioned to undertake an acoustic assessment of noise that would be received at proposed site locations from vehicles travelling along Marmion Avenue. As part of the study, the following was carried out:

- determine through noise modelling the projected/predicted noise emissions from vehicles travelling along Marmion Avenue in the year 2031;
- assess the predicted noise levels for compliance with the acceptable criteria; and
- if exceedances are predicted, comment on possible noise amelioration options for compliance with the appropriate criteria.

Under the Western Australian Planning Commission Planning Policy 5.4 "Road and Rail Transport Noise and Freight Considerations in Land Use Planning", noise received at "Noise Sensitive" premises needs to comply with the "Noise Limits" as outlined in Section 5.3 of the Policy. Thus, the acoustic criteria would be:

- LAeq(Day) of 60 dB(A); and
- LAeq(Night) of 55 dB(A).

For the South Alkimos site, the only premises that would be considered as "noise sensitive" are the classrooms within the proposed High School. As the High School would only be occupied during the day period, the appropriate acoustic criteria for the classrooms would be an LAeq(Day) of 60 dB(A). However, for a High School, the acoustic assessment should consider internal noise levels and the recommended maximum noise levels as outlined in AS/NZS 2107:2000 should be used as the acoustic criteria. Therefore, for a classroom the internal acoustic criteria would be an LAeq(Day) of 45 dB(A).

Given the location of the site adjacent to a Regional Centre, a noise wall or earth bund is not recommended for this development. As an alternative, if required, enhanced construction of the "Noise Sensitive" elements of the school is recommended.

We note that with windows shut and using standard glazing, a noise reduction of around 15dB(A) would be achieve. Therefore, if compliance is achieved with the external criteria, then compliance would also be achieved with the internal criteria of 45dB(A).

Based on the noise modelling undertaken, compliance with the Acoustic Criteria would be achieved at a distance of 60 metres from the edge of the Marmion Avenue road reserve. Thus, if the classroom were constructed outside this distance, standard construction could be used. However, if classrooms were constructed within this distance, enhanced construction would be required. The degree of enhanced construction would vary depending on the distance from Marmion Avenue. For example, in the worst case, with a classroom constructed within 20 metres of Marmion Avenue, then the following enhanced construction would be required:

1. 6.38mm laminated glass.
2. Enclosed eaves using 6mm compressed cement sheeting.
3. Ceilings being 1 layer of 13mm plasterboard, with a minimum of R2 insulation within the ceiling space.
4. Light fittings / PA speakers etc to be surface mounted.
5. Doors to be located on facade facing away from Marmion Avenue.

It is also note that the degree of enhanced construction can be minimised by locating less noise sensitive areas of the school between the Marmion Avenue and any classrooms.

These less noise sensitive sections of the school would include:

- Administration.
- Gymnasium.
- Laboratories.
- Assembly halls.
- Library.

If Marmion Avenue is constructed as an alternative configuration to the existing then the acoustic modelling will require updating, this may result in a change to the enhanced construction requirements.

FurtherdetailscanbefoundintheAcousticReport(AppendixG).

6.8 Public Open Space

In accordance with the City's draft Public Open Space Local Planning Policy the public open space (POS) for the LSP has been designed to meet the objective of ensuring new POS areas provide a balance between:

- A diversity of recreational uses and options for the community;
- The predicted active recreational needs of the community;
- Conservation of natural assets;
- High levels of amenity;
- Affordability; and
- Environmental sustainability.

The Alkimos-Eglinton DSP stated that in defining POS areas, land attributes and functional values should be considered, including the following:

- Recreation needs;
- Conservation value;
- Fauna habitat values (e.g. significant habitat trees);
- Linkage values;
- Accessibility for the community;
- Visual quality and place making opportunities;
- Management issues; and
- Safety

The DSP identified the following open space requirements for the South Alkimos site:

- Foreshore reserve; and
- Social/pedestrian/cycle linkages.

In light of the above, the POS areas proposed for the site can be categorised into five types:

1. East-West Green Link;
2. Conservation;
3. Foreshore Reserve;
4. Playing Field; and
5. Neighbourhood Parks.

Each of the POS categories provides an independent function to meet the City's requirements and address the DSP. The following details the purpose and function of each POS category.

1. Social/Pedestrian/Cycle Link

The purpose of this POS is to link the proposed development on the eastern boundary of the site to the foreshore reserve. The alignment of this POS links a number of dune high points within the site. Where possible the dunes and associated remnant vegetation located within this east-west link will be retained. However due to their fragile nature, current degraded condition, required surrounding level changes and likely intrusion by future residents, their retention may prove difficult. The ultimate form of this POS will be determined at the detailed design stage, but the original landform of the site will be acknowledged and celebrated regardless. If the remnant vegetation within this link is retained it will be improved with further planting of endemic species to the local area and if any vegetation is to be removed it will be replaced and the area rehabilitated.

The function of this POS is to provide a high amenity link for pedestrians and cyclists to move through the site and access a number of facilities along the link including the neighbourhood centre, playing field, primary school, foreshore reserve and regional centre. The POS will be complemented by a number of greenways which link this POS to the neighbourhood parks and other important destinations. The link will include breakout areas on its periphery at the base of the dunes to provide for formalised active areas with playgrounds, shelters and turf areas.

Figure 20 - Social/ Pedestrian/ Cycle Linkage

2. Conservation

It is proposed to provide two conservation reserves within the site, totaling an areaofapproximately6hectares.Thereserves,whicharedissectedbyaroad, formthelinkbetweentheforeshorereserveandtheWWTPconservationarea. Onereserveislocatedonthesouthernsideoftheproposedbeachnode accessroad,whilstthesecondislocatedonthenorthernside.Thesouthern conservationresrveincludestheretentionofanumberoftuarttrees,which are confined to small areas within the site. The northern conservation reserve consists of an existing dune which will be retained in its current form.

EachoftheconservationreserveswillhaveafootpathordualuseEachoftheconservationreserveswillhaveafootpathordualuse path on its boundary with low permeable fencing to protect remnant vegetation and educational signage to encourage people to recreate in the designated active POS areas.

The following Viability Assessment Table has been prepared in accordance with Schedule 6 of the City's Local Planning Policy 4.3: Public Open Space to demonstrate that it meets the conservation requirements of the Policy. A minimum score of 14 is required for a conservation POS area to be consideredtobeviable:

Table3-ConservationPOSAssessmentTable

ViabilityFactor	Category	Score
Size	Greaterthan4halessthan10ha	3
Shape	Irregular shape with few indentations	2.5
PerimetertoAreaRatio	Greaterthan0.02lessthan0.04	2
Vegetation Condition	100% Good	4
Connectivity	Forms part of a Regional Ecological Linkage and is contiguous with a protected natural area greater than 4ha	5
TOTAL		16.5

Theproposedconservationreservesmeettheminimumscore.ThePolicy also requires that a minimum of 3% of the gross subdivisible area shall be provided as POS for the purposes of conservation. The gross subdivisible areaofthesiteis171hectaresanditisproposedtoprovideapproximately 6 hectares for conservation, this equates to 3.5%. It should be noted that the provision of the conservation reserves is in addition to providing 41 hectaresfortheforeshorereserve.

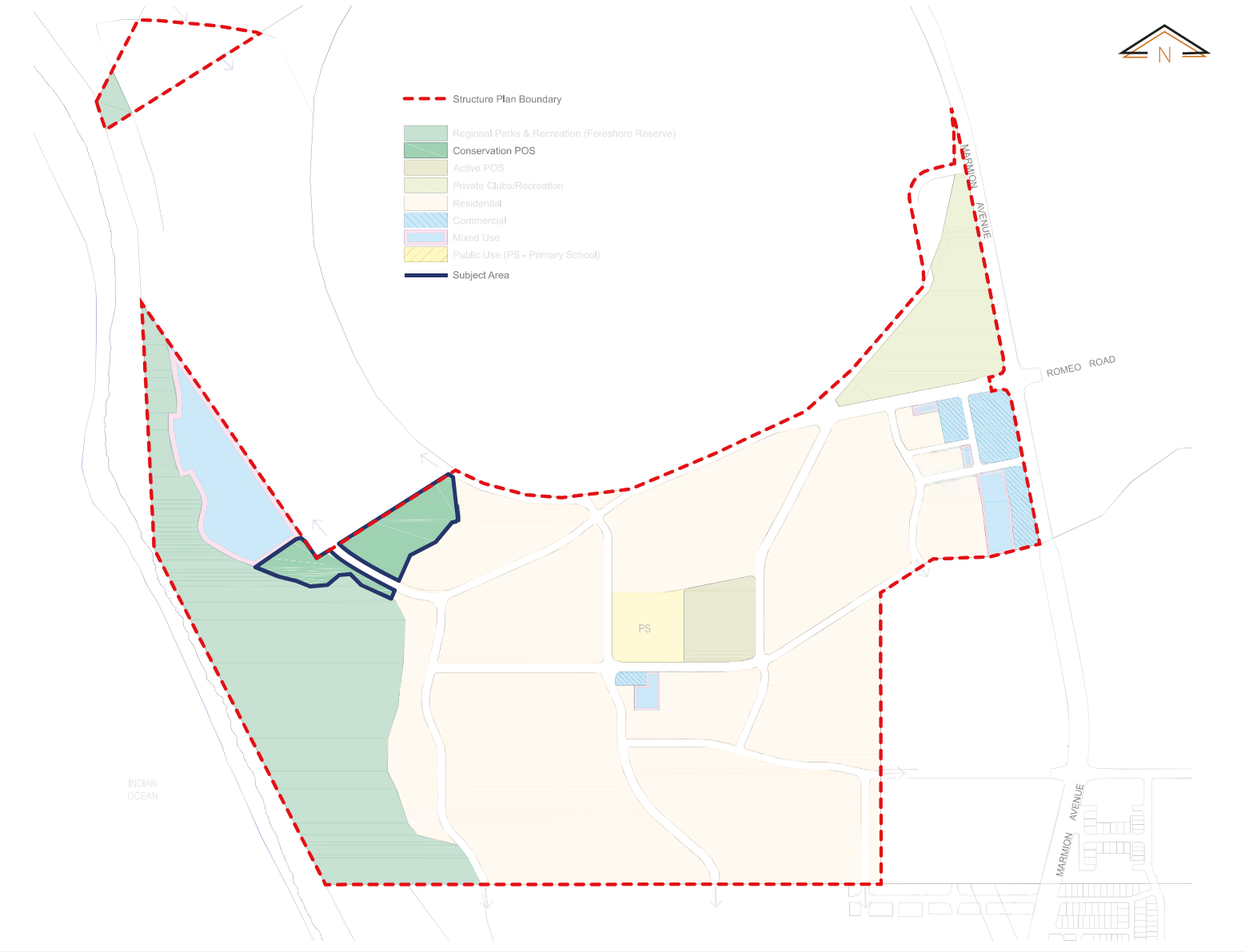


Figure 21 - Conservation POS

3. Foreshore Reserve

The Foreshore Reserve is a Regional Open Space and conservation area, and therefore protected from any significant development. It is important that the natural dunal vegetation, topography and character is retained and protected. Development within the reserve will be for public use infrastructure, designed to limit disturbance, while allowing people to experience this asset. Public access will be controlled via a designated and sign posted path network which will link development from the south and east to the future coastal village and beach. A Foreshore Management Plan will be prepared prior to any development occurring within the reserve.

Figure 22 - Foreshore Reserve

4. Playing Field

The Playing Field POS sits within the central area of the site, adjacent to the primaryschoolandwillbeacommunityfocusedpark.Itwillbedeveloped asasharedfacilitybetweentheCityandtheDepartmentofEducationand Training and will accommodate a full sized oval. The park is surrounded by mixed developmentonthreesidesandwillbereadilyaccessedviathemainboulevard and the east-west green link. Whilst the park will primarily accommodate active recreation,itscentrallocationwillallowforittobeusedforcommunityevents and gatherings such as markets and fetes.

Figure 23 - Playing Field

5. Neighbourhood Parks

Neighbourhood Parks provide nearby residences with high amenity open spaces,primarilyforpassiveactivities,butsomewillincludekick-around areasforactiverecreation.Itisproposedtoprovideavarietyof POStypes and encourage exploration and development of the 'sense of place' within eachspace.

The parks will have manipulated topographies, which reflect but do not necessarily conserve the existing site grades. The neighbourhood parks vary in size and will be well defined by tree planting and public streets orpathways.Theywillcontainanumberoffacilitiesandareasthatallow people in the community to gather and meet; including elements such as barbecues, picnic tables, off-leash dog areas etc.

Someoftheparksarelocatedatlowpoints,toassistwithstormwater detention and drainage, however these parks also include planting, pathways, lighting and seating to ensure they contribute to the communityaswellastheenvironment.Greenwaysprovidemid-block pedestrian and cycle access, and are located primarily to provide greater accesstoparks,theforeshoreandtheactivityareaswithinthesite.

Figure 24 - Neighbourhood Parks

The following table, prepared in accordance with Liveable Neighbourhoods, provides an indicative outline of the POS provided within the LSP area. The calculations demonstrate that approximately 11.7% of the gross subdivisible area is being provided as POS. This percentage is indicative only and will be subject to refinement at the detailed subdivision design stage.

SiteArea			216.3861ha
Less ForeshoreReserve ConservationPOS	 41.1796ha 6.0071ha		
Total		47.0767ha	
TotalNetSiteArea			169.3094ha
Deductions			
PrimarySchoolSite Commercial	3.5285ha 14.4922ha		
Total		18.0207ha	
GrossSubdivisableArea(GSA)			151.2887ha
Public Open Space requirement @10% of GSA			15.123ha
PublicOpenSpaceContribution			
Maycomprise: Minimum 80% Unrestricted Public Open Space Maximum 20% Restricted Public Open Space		 12.0986ha 3.0246ha	 15.123ha
UnrestrictedPublicOpenSpaceSites(12.7551ha required)			
A0.1996 B1.6100 C0.8110 D0.0917 E0.2296 F1.2687			
G0.2432 J 1.4496 K1.7070 L1.2232 M1.4048 N0.3435 O 0.1921 P 1.0255 Q 0.6418 R 1.1970 S2.0251 T4.0015 Minus1in1yearstormvolume MinusRestrictedPOS		 19.6649ha -1.9048ha -0.1835ha	 17.5766ha
RestrictedPublicOpenSpaceSites(3.1888ha maximum)			
Totalrestrictedusepublicopenspace contribution (less than 20% of total POS) Drainage area in POS (subject to inundation greater than 1 year ARI rainfall interval but more frequently than 5 year ARI rainfall event – i.e. between1and5yearrainfallevent)			0.1835ha
TotalPublicOpenSpaceProvision		11.7%	17.7601ha
POSOversupply			2.4536ha

Figure 25 - POS Masterplan

6.9 Landscaping

6.9.1 Vision

TheLandscapeArchitecturalVisionforSouthAlkimosseeksto:

- Encourage the stewardship of retained and recreated natural coastal heathareasincombinationwiththeprovisionofaccesspaths,active areas,andrelatedamenities.
- Retain the existing dunal landscape character, vegetation and landforms wherever physically possible through careful site planning, topography, POS and drainage catchment design.
- Promote the use of sustainable practices throughout.
- Provide distinct landscape character types including natural areas that preserve existing coastal vegetation and terrain, urban squares and plazas.
- Provide active areas in both the smaller local parks together with the larger playing field facilities and their associated amenities.
- Encourage landscape architectural solutions to site grades as opposed to engineered solutions wherever possible.
- Make CPTED principles an integral part of all external spaces including the provision of well serviced, safe spaces that encourage community interaction over extended periods of the day, promoting healthy lifestyles.
- ConsiderallPOSareastohaveopportunitiesforpassiverecreationusein the form of paths and seating areas.
- Provide effective wildlife corridor links that offer educational and sustainable benefits. It is proposed to investigate the transplanting of existing site Lomandra maritima and Lomandra hermaphrodita from dunalareasthataretobeearthworked.
- Significantly restrict the provision of irrigated turf grass areas within the development, directing this treatment to active public open spaces.
- Designing for ease of maintenance and longevity through robust, tried andtestedsolutions
- Implement a hierarchy of materials, finishes and products of landscape features and furniture to suit site situation (i.e. urban square finishes and materials will be to a higher specification than the treatments applied to walk trails through conservation areas).
- Provide universal access as alternative routes where required
- Considerthatalllandscapetreatmentsmustsuittheharshconditionsof thecoastalcontext(i.e.saltspray,seabreezes,sand,etc.)

6.9.2 Streetscapes

Streetscapes shall be designed to:

- Use the hard and soft landscape treatments as integral components to the proposed stormwater management systems and traffic engineering designs such as the integration of infiltration swales within road reserves todealwithandtreatstormwateratthelocationwherepossible.
- Featurestreettreesthatwillbesuitableinscaleandformforthe hierarchicalstreetstructureandreservewidths.
- Includeplantspeciesthatareprimarilyendemic,thenlocal,thenWest Australianplants.Allproposedspeciestobeapprovedpriortouseby Council Officers.
- Avoid the use of any 'water hungry' turf and encourage the use of alternative species of groundcover more appropriate to the climate and beachsidelocation.
- Provision of shade structures and seating to encourage pedestrian activity.
- Provision of interpretive signage to guide residents and visitors and to encourage community education.
- Createultimateenvironmentsthatarepleasantandshady,particularly to encourage pedestrian use.
- Punctuate on-street car parking with landscape treatments to encourage the use of local streets as an extension of the public realm.

6.9.3 PublicOpenSpaces

Objectives for the development of POS areas include:

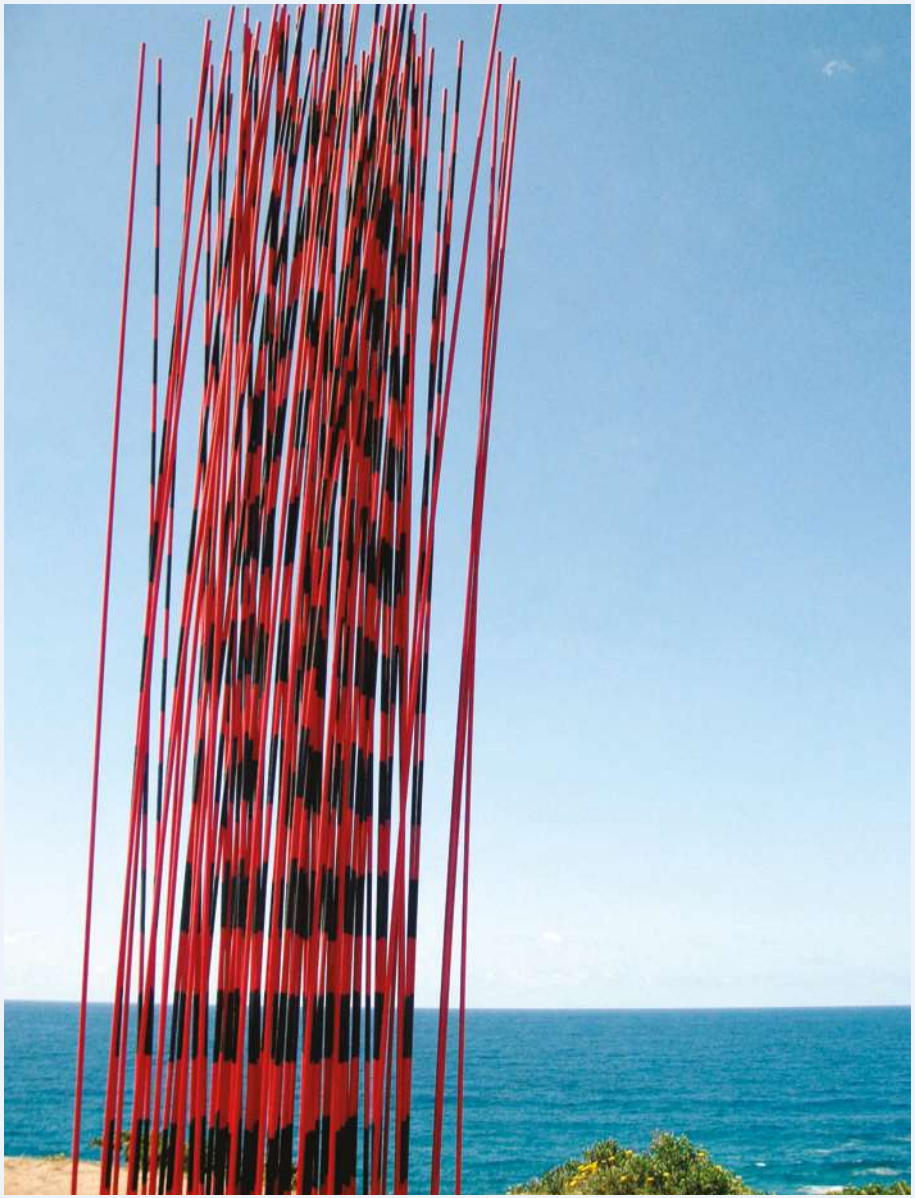
- Where physically possible, retention of the existing vegetation will maintain existing habitats, provide wildlife corridors, biodiversity and reduce ongoing maintenance costs.
- The early collection of site seeds for seeding and nursery propagation shallformanimportantpartoftheinitialsiteworks.
- The design shall aim to maximise the functions of the POS through integration of drainage requirements, conservation areas, integration of <5-100year stormwater ARI's into POS areas.
- Consider mosquito/midge risk and comply with current documentation andadvice.
- To reuse/interpret felled timber/logs/vegetation through re-integration of salvaged materials as landscape features. This may include site mulch, dune brushing and the like to minimise waste and associated transportation costs and energy.
- Toprovidecomfortablespaceswithconsiderationofshadeandshelter fromwinds.

6.9.4 Playground, Sports and Exercise Reserves

- To provide suitable playing fields to encourage activity and stimulate learning.
- Local playgrounds may take the form of play equipment within a play landscape but may also include the integration and ongoing maintenanceofmorenaturalareasforinformalplay.

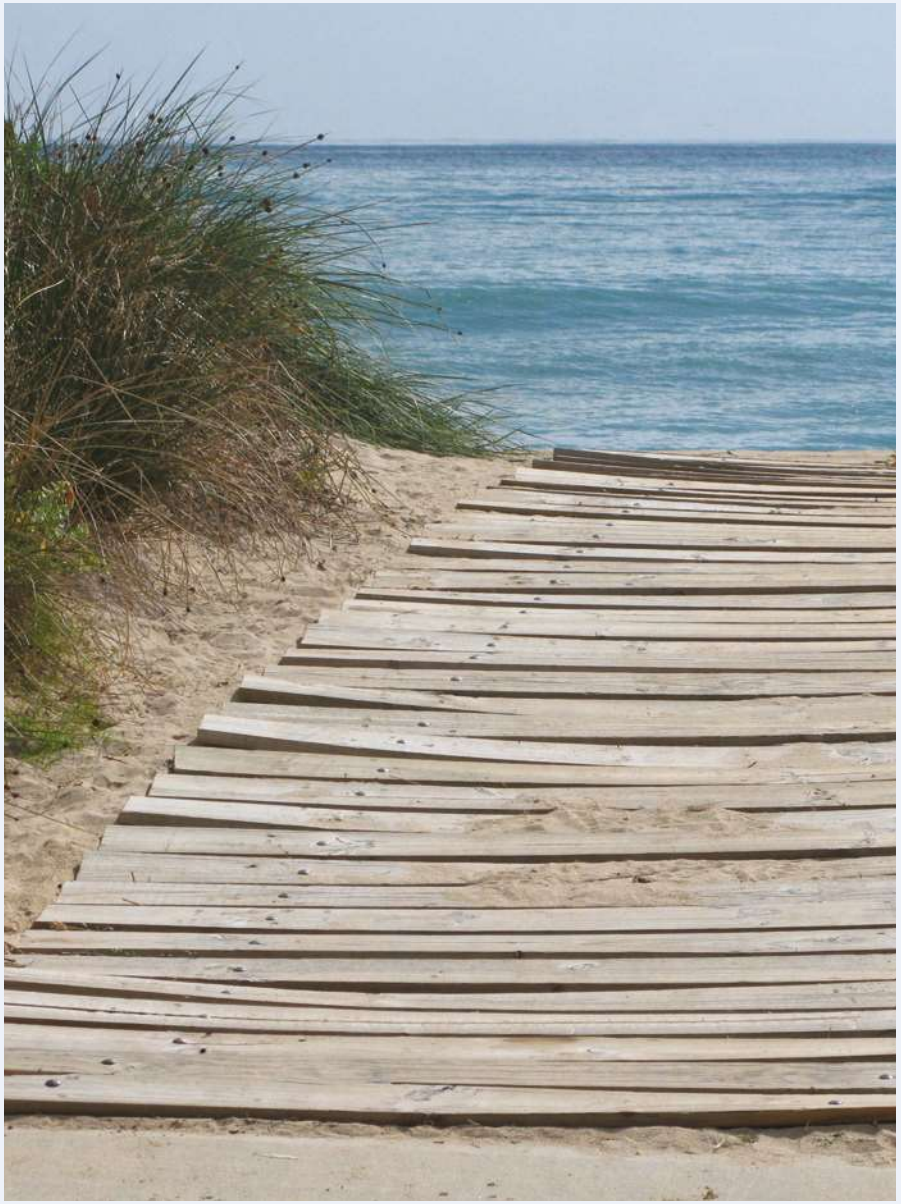
6.9.5 PublicArt

- To engage a public artist or public art consultant early in the design process so as to develop site specific artworks and promote a distinctive localcharacter.



6.9.6 ForeshoreReserveandConservationAreas

- Theprotection,rehabilitation,enhancementandmaintenanceofthe foreshoredunesystemandprotectedconservationareasisofcritical importance in order to maintain existing ecosystems, thereby reducing the requirements for ongoing maintenance.
- This area will be protected by the use of low visual impact fencing which provides protection without restricting views.
- The provision of fenced connections and thoroughfares through the dune system will be designed in order to protect the vegetation but also to access to encourage visual awareness of, interaction with and respectforthisimportantasset.
- Theseareasshallincorporateasystemofinterpretiveandeducational signage to engage the site user.
- Dualusepathsshallbeprovidedforformalandinformalaccesspaths and shall be constructed where possible utilising existing tracks.
- Consideration shall be given to providing high amenity beachfront POS in key locations containing facilities such as public toilets, change rooms,showers,footwashers,shadeetc.
- Materialsusedforconstructionshallberobustandsuitabletotheharsh maritimeclimatetoachieveminimalmaintenancewhereverpossible.



6.9.7 SustainabilityandConser vation

SustainabilityistobefurtheredwithinthepublicrealmbY:

- Investigating options for storm water harvesting.
- The retention and protection of significant stands of trees and vegetation.
- The use of robust, durable, low embodied energy furniture, materials andpartsinordertoreducelifecyclecostsandemissions.
- Encouraging the progressive stripping, direct placement of topsoil during earthworks to maximise retention of soil microbes and propogates rather than long term stockpiling
- TominimisetheimportationofsoilconditioneR/improvertosite.
- To fully embrace WSUD principles throughout the development.
- The preparation of fully hydro-zoned designs to reduce water consumption/requirements and allow intelligent irrigation timings.

6.10 EnvironmentalSustainableDevelopment

The Sustainability Strategy (Appendix H) prepared for this LSP follows the sustainability elements set out in the Alkimos Eglinton DSP and demonstrates how the objectives and strategies detailed in the DSP have been further developed, guided and informed in the LSP design, and will be progressed following approval of the LSP.

The Strategy is structured in accordance with the DSP report, and outlines objectives and strategies under the elements of Community, Water, Energy and GreenhouseGasesandEcosystemHealth.

Sustainability objectives and strategies developed for the LSP, together with actions required to progress the strategies post LSP are set out in the tables below.

Community

Objective		Strategy	PostStructurePlanActions
C1	Promoteinvestment consistent with strategic vision	Earlyinvestmentsineconomichealthand a focus on growing local jobs and a diverse business base to create higher employment self-sufficiency	Appointment of dedicated Economic Development Manager
			Investment into economic enabling infrastructure (such as a world class fibre opticnetwork)
			Developactionplantoprovideservicesandinitiativesthatsupport innovation and entrepreneurship, sustainability, growing local business, health,andrecreationandwellness
C2	Advocateprovision ofcommunications infrastructure	Establishmentofacommunityareanetwork including infrastructure and services aimed at supporting home based business (e.g. fibre, SOHObuiltproduct)	Establishmentofanonlinecommunityintranet/portal
			Establishmentofacommunityareanetwork
			Investigation into sustainability initiatives that can take advantage of the Fibre tothePremise(FttP)network
C3	Encourage diversity of housing	Facilitate a mix of lot sizes and housing types catering to a variety of demographics	Ongoing investigation to accommodate housing size and diversity strategies
C4	Ensure affordable housing	Explore opportunities to deliver affordable housing with industry	Approach Foundation Housing and Community Housing Limited to work through which organisation would be best for South Alkimos or to explore a combination amongst providers
			Develop a Housing Affordability Strategy
C5	Encourage social cohesivenessandcivic participation	EstablishmentofSouthAlkimosCommunity andEducationBoard	SeeksupportfromDET,EdithCowanUniversity,SwanTAFE,Catholic Education,BaptistMinistry,WanneroCouncilandDepartmentof Communitiestoformboard

Water

Objective		Strategy	PostStructurePlanActions
WCM1	Promote more efficient use of water	Investigate and develop feasible water efficiency initiativessuchas: • Water efficient fixtures and fittings in homes and other buildings • Water efficient irrigation systems • Low water requiarement plantings	SeekpartnershipwithWaterCorporationonWaterwise Display Village program
			All front yard landscaping installed by the Developer shall beWaterwise
			Ensure Design Guidelines cover fixtures and fittings, garden design and irrigation systems
WCM2	Develop integrated water management strategies to increase water efficiency	Allow for water sensitive urban design to replenish superficial aquifer	BMPs to be developed for subdivision design
		Investigate and develop alternative water sources for irrigation and nondrinking water uses (e.g. rainwater, groundwater, recycled wastewater)	UWMPtobepreparedtosupportsubdivisionapplication
			Progress concept design and dialogue with Water CorporationandDeptofWater

Energy and Greenhouse Gases

Objective		Strategy	PostStructurePlanActionsmayinclude:
E&G1	Reduceprivate transportemissions	Develop integrated primary and secondary transportnetwork	Design Special Transport System stops, inclusive of shelter areas, street crossings, and provision for CCTV/IT systems. Stops, adjacent paths and street crossing designs will comply with Universal Access requirements. Integrate stops within high intensity surrounding land activity.
			Detailed design of key precincts including all activity centres to reduce traffic speeds, support active streetscapes and provide regular, safe street crossing points
			A detailed car parking supply and management plan for the coastal village
			Pulse timetabling of public transport to integrate the STS with the metro rail
		Investigate car sharing	Investigate car sharing in conjunction with City of Wanneroo and private sector partners
		Investigate electric vehicle infrastructure	Investigate electrical vehicle infrastructure requirements
E&G2	Reducematerial intensity/embodied energy	Encourage use of recycled construction and demolition waste in road base and low grade concrete(kerbs,drivewaysetc)	Undertakestudytoestablishtheopportunities,technicalandeconomicfeasibilityof incorporating recycled materials
		Investigate housing requiring proportion of lightweight materials	Establish a framework for the adoption of building materials with low embodied energy
		Encourage use of concrete utilising low EE cement replacement materials (e.g. fly ash and blast furnace slag)	Develop a specification for the construction concrete to include a proportion of blast furnace slag or fly ash
E&G3	Reduceoperational energy consumption	Investigate and develop feasible energy efficiency initiatives, including: • Encourage building orientation • Energy efficient housing • Energy efficiency requirements for other buildings • Encourage use of Smart Meters • Investigate novel energy efficient built-in appliances • Provide information on energy use and energy efficient appliances to homebuyers • Encourage use of natural gas as clean fossil fuel	Work with builders to encourage more energy efficient housing design
			Commercial buildings should be prepared to undergo NABERs energy audits and should be designed according to energy efficient principles and to enable energy monitoring
			ThepotentialfortheintroductionofSmartMetersshouldbepursuedtofacilitatehouseholder energy education and participation in energy demand management
			Subdivision planning for lot layout and orientation to encourage building orientation so as to achieve best use of natural heating, cooling and lighting

E&G5	Identifyandrespond to climate change risks	Identifyrisksthatcouldimpactonthe development as a result of climate change and plan to manage these risks	GainadvicefromDoPCoastalDivisiononcoastalvulnerabilitystudy

EcosystemHealth

Objective		Strategy	PostStructurePlanActions
EH1	ConserveandEnhance LocalBiodiversity	Retention and management of passive POS and conservation areas within the LSP design to facilitate ecological linkages and conservation of the areas of greatest biodiversity value across the site	Ongoing conservation POS management should include butnotbelimitedto: • Rehabilitation • Weed and plant pathogen management • Access management • Fire management, and • Communityeducation • Afaunaunderpassbeconstructedbetween ConservationPOSareasAandB
EH2	Encourage local environmentalawareness in the community through initiativessuchaslocalbush care	Provide local residents with information on the significance of local conservation areas, including local flora and fauna	Foster the development of community groups
		Encourage and foster the development of local community groups to assist and be a part of the management and maintenance of the conservation areas throughout the development	Encourage the involvement of the community in the management of Conservation POS areas within the development
EH3	Encourage sustainable waste management options andimproveresource recovery	Waste management controls and targets to minimise, reduce, or recycle construction,household,andcommercialwastes	Development of South Alkimos Waste Management Plan (SAWMP)
			Implement SAWMP during subdivision construction wherepossible
		Recycle organic wastes locally for use in parks and gardens	IncorporateinSAWMP

6.11 Economy+Employment

6.11.1 LocalEconomicDrivers

Thesuccessfuldevelopmentofanylocaleconomyistheabilityfornatural and artificial local and regional drivers to be leveraged and built upon to foster economic and investment activity. The Alkimos locality, including the LSP area, is blessed by a number of key strategic drivers which will support local economic health and prosperity through the creation of wealthandemployment.

KeyLocaleconomicdriversinAlkimosinclude:

- LocationintheNorthWestCorridor:Alkimosiscentrallylocatedinthe North West Corridor - Perth's fastest growing urban area. This strategic locationprovidesopportunitiesforAlkimostobecomeacentral services, employment and logistics hub for businesses servicing the broaderCorridor.
- DistancetoPerth:Alkimosislocatedapproximately45-50minutesfrom the Perth CBD, making the local area a true part of the metropolitan Perth economy. Locations beyond this distance are generally too remote or isolated for local businesses to effectively transact with other metropolitanbusinessesand/orservicemetropolitancustomers.Such locationstendtobecomemoredisconnected,internalised,lowervalue-addeconomies.
- Collocation with Regional Marina and Beach: the collocation of South Alkimos with the potential Regional Marina and Regional Beach represent a significant amenity attractor for both residents and visitorsalike.TheabilityofSouthAlkimostoattractandcapturecross-metropolitanandState-wideexpenditurefromvisitorswillsupport local employment generation and diversify the local economy. It will also subsidise a larger and higher quality retail offering than would otherwise be supported by the local population, further increasing the residentialamenityandattractivenessofthelocation.
- Future Exposure to Passing Traffic: the position of the South Alkimos LSP area south of Eglinton, Yanchep and Two Rocks presents significant opportunities to capture expenditure associated with passing traffic. This can be in the form of both population serving activities (fuel/ vehicle expenditure, food etc), as well as through business services due to higher levels of exposure, particularly for the Gateway Precinct on MarmionAvenue.
- Population Critical Mass: the broader Alkimos Eglinton area is projected toaccommodateapproximately50,000residents.Thispopulationsize representsacriticalmassthresholdnecessarytosupportsubstantial, high quality retail offering, provides a diversified labour force for local businesses and generate demand for higher order regional service provisioneducationandhealth.
- DevelopmentSizeandMultipliers:thesizeoftheproposed developmentmeansthatconstructionanddevelopmentphaseswill generate significant economic activity and expenditure. The extended pipeline of development projected for the local area and broader region presentsanopportunityforeconomicmultipliersassociatedwith developmenttobecapturedlocally.Thesemayincludesectorssuchas building materials, waste disposal, green energy solutions, education and training and administration.

Together, these economic drivers will underpin the economic health of the local community, providing prosperity through business investment andemployment.ThesuccessofeconomicdevelopmentinSouth Alkimosisthereforedependentontheabilityofallstakeholdersto implement initiatives to capture, leverage and generally take advantage of these economic drivers in the short, medium and long-term.

6.11.2 Activity Centre's in South Alkimos

Overview

Incontrasttoresidentialsettlementpatterns,employmentandeconomic activity tends to be spatially concentrated in major centres and nodes. This reflects:

- the desire and preference of businesses to collocation with major pieces of transport infrastructure, including major highways and more recently trainstations;
- the benefits of economic agglomeration that arise through the concentrationofbusinessactivity;
- the desire to reduce the risk profile of investment by building upon the previousinvestmentdecisionsofotherbusinesses;
- the desire to reduce transaction costs by collocating with major components of the business' supply chain; and
- to benefit from well known and recognisable locations – natural or artificial – as a proxy for business specific marketing.

Assuch,theemploymentandeconomicactivityinSouthAlkimoswillbe primarily located in three centres or 'Villages':

- Beach Village (proposed);
- Central (Neighbourhood) Village; and
- Gateway Village.

Each of these centres will play a distinct yet highly interconnected role within the local South Alkimos and surrounding economy.

Approach

MacroPlan has developed projections of the economic floorspace and employment for the three Villages within the South Alkimos LSP area through the application of a "bottom-up" modelling methodology. This methodology entails the following key factors:

- Analysisoflandavailabilityandpotentialdevelopmentdensities;
- Assumptionsastotheroleandfunctionofeachlocation;
- Analysis of key economic drivers of the local area (e.g. key attractors, retailcatchmentsandcentreinterrelationships).

These factors are combined to calculated floorspace estimates for each centre/activity node. Workspace ratios are then applied to the floorspace, by industry, to determine the FTE job yield. Finally, region specific, average full-time/part-timeemploymentbreakdownsareappliedtocalculatetotal job numbers.

Figure 26 - Bottom-Up Methodology, Floorspace and Employment
Source:MacroPlanAustralia(2010)

The application of this "bottom-up" methodology for the Local Structure Plan, compliments the "top-down" whole of corridor approach adopted for the Alkimos Eglinton DSP, providing an additional level of rigour that enhances the confidence in the overall forecasts.

Beach Village

Role and Function

The proposed Beach Village is not included in this LSP however it is considered important to have due regard to its potential development when discussing the centres within the LSP. The proposed Beach Village is a unique type of economic node or centre within the local and regional network in that it will fulfill two primary yet distinct roles:

1. It will provide household services (food retail, cafe and restaurant, community services etc) to the local population, at a high amenity location; and
2. It will provide tourism-related activities and amenity (marina, beach and related services) for non-resident visitors.

This duality in role and function is important as either role alone would be negative for the local community. A Beach Village with a tourism focus alone would be highly seasonal and expose the local economy to significant economic volatility with associated detriments in terms employment and investment certainty.

On the other hand, a focus on local population servicing alone would represent a significant loss of economic potential for the local economy, limiting economic growth and overall levels of prosperity. It would also impinge on the role and function of the future Centra Village – which will have a predominant focus on serving the local population – with the coastal amenity more readily able to attract investment and activity.

Therefore, it is important that the Beach Village will have a balanced mix of both local population and visitor serving uses and activities to support the sustainability of local economic health.

Sizing and Timing

Optimising the size of the Beach Village is a critical factor in its ability to effectively and sustainably contribute to the health of the local economy. A small Coastal Villages does not effectively capitalise on the opportunities presented by the location amenity and therefore represents a loss of potential economic activity and value to the local economy. This can undermine the wealth and prosperity of the community.

In contrast, a very large Beach Village can suffer from the fact that the density of built form and activity can offset the natural amenity of the coastal position which is the fundamental driver of its attractiveness as a tourism and business location. Striking a balance between these two factors – maximising the capture of economic value while maintaining a Village feel – is critical to the long-term success of the South Alkimos Beach Village.

MacroPlan projects the following floorspace and employment will be supported in the South Alkimos Beach Village over the next 30 years.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	268	455	690	748	810	874
Retail(Visitor)	0	268	723	1085	1458	1648	1848
Accommodation,Cafeand Restaurant	0	179	2526	3742	3976	4223	4481
Office Commercial	0	0	250	345	592	653	718
Health,Educationand Community	0	250	350	525	971	1020	1071
PersonalServices	0	0	250	375	694	728	765
Total	0	964	4554	6761	8440	9082	9757
Employment	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	9	15	23	25	27	29
Retail(Visitor)	0	8	21	31	42	47	53
Accommodation,Cafeand Restaurant	0	5	72	107	114	121	128
Office Commercial	0	0	13	17	30	33	36
Health,Educationand Community	0	8	12	18	32	34	36
PersonalServices	0	0	13	19	35	36	38
Total	0	30	145	214	277	298	320

Table 5 - Floorspace and Employment, Alkimos Coastal Village, 2011 to 2041
Source:MacroPlanAustralia

RelationshipwithOtherActivityCentres

The Beach Village will have the following relationships with other Centres intheSouthAlkimosLSParea:

- Central Village: the amenity of the Beach Village will attract significant local resident visitation and activity. This will delay the timing of the Central Village until the wealth of the local area can support the effective operation of retail and population serving activity at both Villages. This will be supported by the steady move of the Beach Village activitymixtovisitorsupportwiththedeliveryofcriticalinfrastructure (the potential regional marina) and the greater recognition and familiarity among visitor populations.
- Regional Centre and Gateway Village: the amenity of the Beach Village will be highly attractive to businesses that policy seeks to locate in the future Regional Centre. This fact is compounded by the lagged nature of Regional Centre development. To combat this natural draw to the Beach Village and maintain the primacy of the Regional Centre in the long-term, early and recognisable links from the Regional Centre to the coast must be established. This is a potential role of the Gateway Village, as well as through the delivery of a defined road network and second tierpublictransport.

Central (Neighbourhood) Village

RoleandFunction

The Central Village will play an exclusively population-serving role. It will formacentralconcentrationofcommunityfacilitiesandservices(suchas education and sporting facilities) and, in later years, provide boutique and convenience retail offerings for residents within a local catchment.

Sizing and Timing

The timing of the Central Village is dependent on the development of the Beach Village and residential settlement patterns of the local catchment. As outlined above, the attractiveness and amenity of the Beach Village to localresidentswill,inearlyyears,underminetheviabilityoftheCentral Village. However, this will change over time as:

- the Beach Village play an increasingly visitor-oriented role (while maintaining a sustainable balance),
- the population within the Central Village catchment intensifies; and
- the wealth profile of local residents and households increases through growth in local prosperity and the natural churn of early households for morematurefamilies.

MacroPlan projects the following floorspace and employment will be supported in the South Alkimos Central Village over the next 30 years.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	0	150	500	625	781	977
Retail(Visitor)	0	0	0	0	0	0	0
Accommodation,Cafeand Restaurant	0	0	50	63	78	98	122
Office Commercial	0	0	0	0	0	0	0
Health,Educationand Community	0	150	188	234	293	308	323
PersonalServices	0	0	50	63	78	98	122
Total	0	150	438	859	1074	1284	1544
Employment	**2011**	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	0	5	17	21	26	33
Retail(Visitor)	0	0	0	0	0	0	0
Accommodation,Cafeand Restaurant	0	0	1	2	2	3	3
Office Commercial	0	0	0	0	0	0	0
Health,Educationand Community	0	5	6	8	10	10	11
PersonalServices	0	0	3	3	4	5	6
Total	0	5	15	29	37	44	53

Table 6 - Floorspace and Employment, Alkimos Central Village, 2011 to 2041
Source:MacroPlanAustralia

RelationshipwithOtherCentres

The Central Village will have the following relationships with other centres intheSouthAlkimosLSParea:

- Beach Village: the growth of the retail and commercial activity in the Central Village is dependent on the timing of the Beach Village's re-orientation to a visitor focused centre, the timing of residential build out and growth in local household wealth and prosperity.

Gateway Village

RoleandFunction

The Gateway Village has a highly defined primary role and function – it is designed to visually and spatially represent the "gateway" to the South Alkimos LSP area from the major arterial road of Marmion Avenue. As such, the degree of success of the Gateway Village will be significant implications for the profile and therefore success of the other South Alkimos Villages.

The Gateway Village will also invariably play a support role for the Alkimos Regional Centre. In this role, the Gateway Village can be viewed as an extension of the Regional Centre to the west of Marmion Avenue, with associatedbuilt-formdensitiesandusemix.

Finally the Gateway Village, due to its collocation with Marmion Avenue, representstheonlyeconomiccentreintheSouthAlkimosLSPareathat can provide businesses with significant exposure to passing traffic and capture district and Corridor wide expenditure flows.

Sizing and Timing

The Gateway Village should be developed early in growth of South Alkimosinorderto:

- Provide a spatial gateway for the South Alkimos LSP area (particularly to the Beach Village);
- Provideanearlyalternativelocationforusesthatshouldnotbe allowed to locate in the Regional Centre prior to the delivery of rail infrastructure;
- Allow the Alkimos Beach Village to specialise in visitor and high amenity population-serving activities; and
- Providing a location for the Alkimos local economy to capture passing traffic expenditure.

MacroPlan projects the following floorspace and employment will be supported in the Alkimos Central Village over the next 30 years.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	1250	1250	1313	1378	1447	1519
Retail(Visitor)	0	0	0	0	0	0	0
Accommodation,Cafeand Restaurant	0	250	300	360	432	454	476
Office Commercial	0	0	0	500	575	719	898
Health,Educationand Community	0	75	83	91	95	100	105
PersonalServices	0	75	83	91	100	110	121
Total	0	1650	1715	2354	2580	2829	3120
Employment	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	42	42	44	46	48	51
Retail(Visitor)	0	0	0	0	0	0	0
Accommodation,Cafeand Restaurant	0	7	9	10	12	13	14
Office Commercial	0	0	0	25	29	36	45
Health,Educationand Community	0	3	3	3	3	3	4
PersonalServices	0	4	4	5	5	5	6
Total	0	55	57	87	37	106	119

Table 7 - Floorspace and Employment, Alkimos Gateway Village, 2011 to 2041
Source:MacroPlanAustralia

RelationshipwithOtherCentres

The Gateway Village will have the following relationships with other centresintheSouthAlkimosarea:

- Beach Village: the development of the Gateway Village is critical to the successful establishment of the Beach Village due to the need to build recognition among regional and metropolitan households and businesses of the existence of the high amenity location that is Alkimos and its attractiveness. The lack of direct exposure of the Beach Village fromMarmionAvenuemeanstheGatewayPrecinctmustestablisha sense of entry to the South Alkimos LSP area and encourage movement fromMarmionAvenuetothecoast.
- Regional Centre: The difficulty of the Gateway Village being an extension of the Regional Centre is that it will be developed first. In reality, it is the development of the Regional Centre and its natural requirement for an investment "release valve" location (an alternate locationforeconomicandemploymentactivitywhenlandvalues/ accommodation costs in the primary centre become too high for some businesses/industrytypes)thatwoulddrivethedevelopmentofthe Gateway Village under this role and function.

However, the early development of the Gateway Village can support the long-term development of the Regional Centre by providing an appropriate location of Regional Centre uses prior to the delivery of a rail connection. This is particularly the case for early retail offering, which, if delivered in the Regional Centre prior to the train line, would invariably be a "Big Box" format. This would have significant sunk cost implications for the future development of the Regional Centre, undermining density, an effective integration of uses and the general growth of a TOD.

Summary

Overall,MacroPlanestimatesthatapproximately14,400m ^{2} of floorspace could be supported in the South Alkimos LSP area by 2041, generating approximately 491 jobs.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
Beach Village	0	964	4554	6761	8440	9082	9757
Central Village	0	150	438	859	1074	1284	1544
Gaateway Vilalge	0	1650	1715	2354	2580	2829	3120
Total	0	2764	6707	9974	12094	13196	14421
Employment	2011	2016	2021	2026	2031	2036	2041
Beach VIllage	0	30	145	214	277	298	320
Central Village	0	5	15	29	37	44	53
Gateway Village	0	55	57	87	95	106	119
Total	0	90	217	330	409	448	491

Table 8 - Floorspace and Employment, Alkimos Villages, 2011 to 2041
Source:MacroPlanAustralia

The Beach Village will be the largest contributor to this floorspace and employment yield, reflecting the collocation of the Village with major regional visitation attractors as well as the general amenity of the location for residents and businesses alike. The Gateway Village can be established at the same time as the Beach Village though it diversifies into a true Regional Centre support precinct later in the period in response to price and land availability drivers in the Regional Centre itself. Finally, the development of the Central Village lags the other Villages and only becomesviableoncethelocalpopulationthresholdhasbeenreached and wealth levels increased through household churn and general economic growth.

6.11.3 Home-Based Employment and Self-Sufficiency

Home-BasedEmployment

MacroPlanhasestimatedthenumberofhome-basedworkersthatwill resideintheSouthAlkimosareain2041.Thisisbasedontheapplication ofhome-basedemploymentsharestotheresidentworkforce,basedon trends in the North West Corridor of Perth. Three specific categories of home-based employment have been identified:

- Home-based businesses – small businesses run from the home by the resident.Thisincludesretailandotherserviceswherecustomerscome tothehomeasaplaceofbusinessaswellasvirtualandB2Bbusinesses where clients are serviced offsite. Account for approximately 2.5% of the residentlabourforce.
- Telecommuting – where a worker spends one or more days working from home. Major drivers of telecommuting including transport congestion, work-life balance, technology (e.g. Broadband) and distance to major employment nodes (e.g. the Perth CBD). Account for 1.5% of theresidentlabourforceatanyonetime.
- Mobile Trades – trades people in construction and other sectors do not have a fixed place of work. As such, their primary draw down of infrastructure is at their place of residence (the origin is the only consistent point in their journey to work patterns). These workers are usually not counted as part of employment self-sufficiency calculations attheirplaceofworkduetotheirmobilenatureandsoareallocatedto their place of residence. Account for 5% of the resident labour force.

Basedonthesharesabove,MacroPlanestimatesthatat2041,therewill beapproximately230membersoftheresidentlabourforceinonetypeof home-basedemployment.Thiswillbeincludedinthetotalemployment estimateforSouthAlkimos.

Employment Self-Sufficiency

Overall, MacroPlan estimates that by 2041, there will be approximately 721 jobs in the local Alkimos area, which includes Village and home-based employment. Comparing these figures with the estimated resident workforce at residential build out, MacroPlan projects that employment self-sufficiency at this time will reach 26.3%.

Employment	Employee No.s
Beach Village	320
Central Village	52
Gateway Village	119
Village Total	491
Home-Based Employment	230
Total	721
Resident Labour Force	2740
Employment Self Sufficiency	26.3%

Table 9 - Employment and Self-Sufficiency, Alkimos 2041
Source: MacroPlan Australia

This employment self-sufficiency level is strong for a small spatial area and reflects the maximisation of employment opportunities in Beach and Gateway Villages. It is even stronger with the delivery of marina infrastructure. It is not as high however as the 60% target for the broader DSP area. This is due to the highly concentrated nature of employment activity, around major transport and infrastructure nodes within the activity centre hierarchy. This means that, as outlined in the Alkimos Eglinton DSP, the Alkimos Regional Centre will account for approximately 75% of all employment in the District and underpin achievement of regional-wide employment self-sufficiency targets.

Conclusions

South Alkimos is blessed with a range of local and regionally significant drivers which will underpin business activity, investment, employment generation and the overall health of the local economy. The collocation of the Beach Village with a potential regional marina and beach will elevate South Alkimos from a dormitory suburb to a genuine destination for metropolitan and State-wide visitors, capturing out-of catchment expenditure flows and diversifying the economic base.

It is important to view the key nodes of economic activity in South Alkimos – the Beach, Central and Gateway Villages – as part of a local and district wide network. The role, sizing, staging, and composition of each of these Villages are highly interrelated and should not be developed in isolation. Instead, a holistic approach to commercial investment in Village development in South Alkimos is required to ensure that key economic opportunities are maximised and challenges are managed and mitigated to the benefit of the economic health and prosperity of the local South Alkimos community.

Please refer to Appendix I for the complete report.

6.11.4 South Alkimos Economic Development Strategy

LendLeaseandLandCorptakespridentheeconomicoutcomes achieved on its flagship projects of the past. Experience over time has proven that the greatest results are realised when the following conditions arepresent:

- Strong commitment and support from all Government and key stakeholderpartners
- Long term support of a flexible and adaptable planning framework to ensurethatthedevelopercanrespondtomarketopportunitiesina timelyandinnovativemanner
- Commitment to challenge the norms and embrace innovation in the pursuitofexcellence
- Focus on ensuring the community becomes a positive contributor (i.e. in employment and economic output) to its regional economy

Alkimos will be known as a thriving employment area and a location of choiceforbusinessinthenorth-westcorridorofthePerthmetropolitan area. The creation of jobs will be of paramount importance in supporting a community in which the people feel they can belong and thrive.

The Alkimos Economic Development Strategy (Appendix I) will strongly influence ongoing site development and explore the opportunities presentedbythenaturalandthebusinessenvironment.

The following six strategic themes have been identified for economic healthatAlkimos.Futuredetailedinitiativeswillbedevelopedin accordance with these strategic themes.

The six strategic themes are:

- Business Signatures
- Growing Local Business
- ConnectedBusiness
- Governance and Resourcing
- RetailandAmenity
- Information and Communications Technology

Economic development activities at Alkimos will focus on growing local jobs and a diverse business base, from small businesses through to large corporations. This approach aims to create higher employment self sufficiency, cater to the needs of the local resident population and provide a platform for attracting flagship businesses.

Consideration will also be given to the economic needs of the North West corridor as Alkimos' success will be very much linked to the success of the broader region

This first Economic Development Strategy for Alkimos is an important step in consolidating our existing knowledge and project understanding, establishing the broader economic objectives and identifying the actions required to meet these objectives.

Working in close partnership with Government and key stakeholders, Landcorp and Lend Lease will commit resources to delivering economic development programs and initiatives at the community level.

The South Alkimos Economic Development Strategy will be reviewed and updated annually to ensure it remains aligned with related strategies. The joint ventures emphasis on partnering with Government and key stakeholderswillcontinue.Thisapproachhasalreadydeliveredeconomic rewards in the past and is critical in addressing challenges and converting opportunitiesastheyariseinthefuture.

6.12 Community Development

6.12.1 Overview

A Community Development Strategy (CDS) (Appendix K) has been created by Lend Lease and Land Corp to ensure consultation and ownership occur sin the development and delivery of South Alkimos in order to empower future citizens to live in a sustainable and supportive environment.

The CDS has resulted from stakeholder consultation, a comprehensive community audit and social and demographic research and identifies further opportunities for community input and engagement at South Alkimos.

The consultation in the planning and delivery of this document has involved:

- City of Wanneroo;
- Department of Education;
- Department for Communities; and
- Creating Communities and their extensive knowledge and understanding of the area.

Community input and dialogue will be continuous throughout the delivery of Alkimos not just during the development of the LSP. Next steps will include:

- The establishment of five focus groups prior to Christmas 2010 to understand the market, community aspirations, community needs etc;
- Ongoing purchaser (every 2 months) and rejecter (every 6 months) focus groups, once sales commence in late 2011;
- A well defined stakeholder feedback system for recording, addressing and responding to public comments; and
- Stakeholder surveys every 2 years and community strength surveys for residents.

The CDS identifies strategies to realise the full potential for South Alkimos and focuses on connecting people to the outstanding bush and coastal environment, connecting the residents to each other and to the diverse communities surrounding the project, while addressing the needs of the youth within the area.

The objectives

There will be a unique appeal to living in South Alkimos that will result from the creation of a diverse and stimulating environment. It will offer opportunities to across-section of society and meet the needs of its residents through the implementation of the initiatives contained in the Alkimos Community Development Strategy. Participation will be encouraged and it is envisaged people will want to contribute to the community and to the well-being of others as the community is established.

The objectives of the CDS are to:

- Create opportunities for South Alkimos community members to have a voice and shape their future;
- Prioritise key community activities for ongoing delivery at South Alkimos;
- Determine the resources that are required for the sustainability of these activities;
- Identify who the most suitable stakeholders are to provide these activities; and
- Determine transition stages for activities over time.

CDS Methodology

In 2004 the research project, Building Social Capital in New Master Planned Communities, arose from a mutual interest in social capital by The University of Queensland and Lend Lease (LL) and how the concept might be applied to the task of building community in large new master planned communities. While the research locale was Springfield Lakes,

it was always intended that findings from the research would have applicability to other LL Master Planned Communities (MPC). It is through constant evaluation and refinement of community development that inspires the LL team to move beyond the past practices and into the future of creating communities that flourish and sustain.

Community development is about building active and sustainable communities based on inclusion, social justice and mutual respect. It is about how people relate to the groups and institutions that shape their lives, and how they can help bring about change by being actively involved in the issues that affect them. In practical terms this means empowering the future citizens of LL communities and their surrounding areas with adequate support and resources to find solutions to problems they identify in their own communities.

To do this we must "create the structure" then "make the place" involving the community. The CDS is that "structure" that outlines how LL will work with the community to build the place.

This CDS has been structured under 4 key themes:

- Strategic Theme - Clever Community
- Strategic Theme - Thriving Community
- Strategic Theme - Connected Community
- Strategic Theme - Safe and Healthy Community

Strategic Theme – Clever Community

Lend Lease (LL) will deliver innovation in education and build social capital among the residents of Alkimos. The LL way of providing education and learning opportunities has taken more than 20 years to develop. It is continuing to evolve as education methods change in line with new technology. Learning for all and learning for life are central concepts in our community development model, so we seek to engage the best thinkers and practitioners to provide direction for the evolution of our learning model. We have assembled a panel of pre-eminent individuals to provide advice, including Professor Barry McGaw, former Director for Education, OECD (Chair), Professor Alan Fels, Dean, Australian and New Zealand School of Government, Mr Rob Hunt, recently retired Managing Director, Bendigo and Adelaide Bank Group and Mr Hugh Mackay, Social Research and Commentator.

Initiatives:

Alkimos Community and Education Board – (Timing - prior to delivery of first community building)

LL will establish a board that will look to set a vision and establish a broad strategic approach to the delivery of education and seek to maximise its relationship with community infrastructure. This group will include public and private sector education providers, tertiary and TAFE providers as well as local and State government agencies involved in the provision of education and community services. The board may establish specific working groups to deliver major items or initiatives. Some of the key initiatives that the board will oversee are detailed below.

Community and Education Manager – (Timing - following establishment of Board)

LL will appoint a staff member to oversee the delivery of innovation and partnering in programs and infrastructure. It is intended to be a jointly funded resource between project Local and State Government that is dedicated to achieving community and education outcomes will be delivered to do this. Consideration will be given to recruitment options such as seconded government resource, a LL employee or externally recruited resource.

Excellence in education and training through an alliance approach

The board will facilitate an alliance between the public and private sector schools to identify ways in which they can provide a broader subject offering. This may result in the students of various schools studying more diverse subjects together in the same classroom by a teacher from a different school. Through this approach the offering at Alkimos will have greater input from the community and stakeholders; ensuring learning reflects the local needs which in turn build a reputation of inclusion and a more personalised curriculum.

Learning for all – greater adult opportunities that are responsive to daily work routines

Through the education alliance a flexible delivery of adult learning at Alkimos can be considered. The board will seek to facilitate a partnership between Edith Cowan University, TAFE, local schools and council. It is envisaged that this partnership will allow for adult learning to be delivered from either school, council or other appropriate facilities. This will allow for growth over time as demand increases and more facilities become available.

Centre of Excellence for environmental learning (Timing – in planning delivery of first school sites)

A major opportunity for the board will be to explore the possibility of establishing Alkimos as a centre of excellence in learning, with a key signature being environmental learning and research. This presents the opportunity to showcase this in a shared learning centre. With the aspiration of the Alkimos community being innovative, responsive and world class – this centre of excellence will deliver on that objective.

Coordinated planning of education and community services

LL has a track record in brokering not only co location opportunities but complementary service delivery through shared infrastructure delivery. This minimises capital cost, recurrent costs and often enables services to be delivered sooner than the conventional approach. This approach will be taken through the Alkimos Community and Education Board.

Strategic Theme ⊠ Thriving Community

Constantly evaluating and refining our community development approach has inspired us to move beyond today's best practice. Looking to the future is the only way to ensure the communities we are creating continue to flourish.

As part of this approach, in 2004 LL and the University of Queensland commenced the research project, "Building Social Capital in New Master Planned Communities" at Springfield Lakes (Queensland) and its findings can be applied to any LL community.

The research demonstrated that any attempt to foster community mindedness is more successful when implemented through a "grass⊠ roots" approach rather than by central authorities. Our approach incorporates a devolved community decision making process; encouraging the involvement of all stakeholder groups; fostering the emergence of community leaders; and facilitating local projects managed by those leaders.

Other studies we have supported include the "Work, Housing, Services and Community Project" with the Centre for Work and Life at the University of South Australia. This study includes our master planned communities and analyses how changes at work and in households are reconfiguring relationships between work, home, services and community in ten sites across four States. A thriving community can be

empoweredtomakedecisionsonhowitsidentityshouldevolve.Social entrepreneurswillbeinvitedtobepartoftheempowermentprocess.The skills that people bring to the neighbourhood when they move in can be nurtured so that they can earn a living, supplement their income or simply gain satisfaction from contributing. Alkimos will embody innovation in everything. Interaction with universities and academics will foster innovation in thought but, more importantly, dynamic ways of working on the ground will ensure innovation in practical action.

Initiatives:

Social and Business Entrepreneurs forum (Timing – when first 100 residents move in)

Thisforumwillprovidetheplaceandnetworkopportunitiesforresidents of Alkimos to inspire one another, an environment to challenge each other and seek to celebrate the notion of pursuing excellence in anything and everything. It will be part of the connections program that builds the social capital through growing individuals. This forum will be an opportunityfortheresidentstoidentifymentors,tobetutorsandshare the knowledge and experience they have as well as a means of identifying "experts" that can assist in creating an ongoing culture of collaboration and expanded learning which is focused on building a better community.

Adventure Club (Timing – negotiated when school communities established)

The Alkimos Adventure "club" will be open to all members of the Alkimos community. Co-ordinated by the Community and Lifestyle Managers, residents will be invited to explore their potential by joining groups that will push their comfort zone, while undertaking activities such as diving, mountain biking and kayaking in a safe and social environment. There will be a wealth of experience amongst this broad ranging group and the club will offer a breadth of opportunities for networking and personal development.

Defining the social place and identity of Alkimos (Timing – as part of marketing process during sales and settlement process)

A process of engaging residents will be developed to enable their meaningful involvement in deciding on the scale and location of essential community infrastructure. This will initially involve inviting community members to be part of LL's planning forums for major aspects of the project and ultimately evolve into a more elaborate mechanism for communityinvolvement.Itwillidentifycommunityleadersearlyinthe processandallowthemtobepartofthedecisionsthatshapetheir communityanditsidentity.

Measures of Community Strength and Wellbeing (Timing – need at least 300 residents prior to doing this)

The Indicators of the Community Strength model is based on the Victorian Government's work with LL during the Caroline Springs partnership. From theinceptionofAlkimos,LLwillcommencedatacollectionofcommunity strength by conducting surveys of residents. The information can be used to provide direction in the development of strategies and the ongoing planning of the project and the development of the community. The residentswillbeabletomakeinformeddecisionsonwhatneedstobe done to refine, enhance or change existing strategies and ensure that their thinking is well informed.

Strategic Theme ⊠ Connected Community

We believe a sense of belonging is fundamental to community connectedness. This is created in a place that residents feel part of, a place that they are proud to call home and a place where others aspire to live. The urban landscape and open spaces created at Alkimos will respect the natural features of the landscape and ensure a connected environment that promotes active living where people meet and look out for one another. The infrastructure at Alkimos will be put in place so that it can evolve and grow in line with changing community needs and demands. Involvement in community groups, the engagement of youth, access to an online community and a welcome program for all new residents will ensure that the Alkimos Community is connected not only physically and virtually. There will be clear benefits of living and working in Alkimos because people will offer help when it's needed.

Initiatives:

Community Connections Officer (Timing – prior to first resident moving in)

A dedicated resource will be provided to focus on and manage the connection and wellbeing initiatives. LL's experience has demonstrated that the success of the connections programs is directly linked to the level and experience of resourcing at a project level. The role will be to establish the connections framework and ultimately transfer its ongoing management to the Alkimos

Community Development Association. (Timing – when critical mass and interest from community)

Alkimos Community Development Association Ensuring that the residents of Alkimos have the tools and the capacity to interact, connect and ultimately look after one another will be the responsibility of the Alkimos Community Development Association. This will be established by LL (in conjunction with a partner organisation such as the Bendigo Bank) and will operate as a not for profit organisation. Functions of the group will be to facilitate provision of services/facilities for community needs, support new and existing community groups and to liaise with local and State government agencies on behalf of the broader community.ve Details

Community Connections Program (Timing – prior to first resident moving in)

The program involves the identification, development and implementation of activities by LL and key local stakeholders to ensure that the residents of Alkimos and visitors alike feeling a connectedness and exhibit a community spirit. This will also include a staffed brokerage service, through the Community Connections Officer, connecting people to the services they need within or beyond Alkimos. The corner stone of this program will be the 'welcome process'. This involves every new resident being welcomed by the Community Connections Officer, another resident or online 'connecting' them to Alkimos.

Alkimos Youth Partnership (Timing – as role that will be arranged through Community and Education Board)

LL will partner with the Jim Stynes' (OAM) REACH Foundation established 15 years ago in Melbourne. REACH, through participation on the Federal Minister For Youth's Youth Advisory Consultative Forum Committee, is at the forefront of best practice and will assist LL in developing and implementing a strategy for young people and connecting them with their community. This initiative will involve local service providers (including local and State governments, schools and police) to engage and support young people by enabling them to participate in REACH programs and others like it, ensuring that they have a voice and ownership in Alkimos. Online Community (Portal) (Timing – prior to first resident moving in) Lend Lease has several years of experience in successfully deploying portals (intranets) across the globe. LL has been at the forefront of this work and will have over 10 online communities by the end of 2009. This provides greater scope for Alkimos to connect to the LL Community network as well as other like communities locally, regionally and globally.

Strategic Theme ☒ Safe and Healthy Community

LL will facilitate an active and healthy community at Alkimos by creating opportunities for people to come together. This will occur by providing a responsive, future driven and connected social and open space network set within a supportive urban design framework. The landscape (both social and physical) will respect the natural features of the landscape and create a connected environment conducive to active living where people connect to the place and love to be part of it. The design philosophy will enshrine a safety culture from concept through to construction and use. All aspects of the place will be reviewed with safety in mind.

Initiatives:

Sport and Recreation Manager (Timing – prior to first resident moving in as part of community development role)

LL will employ a resource to develop and oversee the implementation of the Alkimos Active Living Strategy.

Alkimos Active Living Strategy - (Timing – prior to first resident moving in)

This will be part of the Community Development Strategy and will set out the principles and means of creating an active and participative community. It will ensure the creation of a landscape that will give the community the opportunity to connect and incorporate physical activity as a part of everyday life. Assistance will be provided in the establishment, co☒ordination and management of sporting groups, lifestyle programs and ensuring that everyone in the community has access to a broad range of activities.

Club Development Network - (Timing – when sports grounds and pavilions are being developed)

LL has developed a new model of community sport based on the findings of Commonwealth Government's Independent Review of Sport in Australia. This work would see the Sport and Recreation Manager focus on early delivery of sporting clubs developing community engagement and self determination for the provision of a centrally coordinated sports clubs and strategic direction in program implementation, whilst allowing flexibility to tailor the delivery to meet community needs.

Sport and Recreation for Business (Timing – to be in conjunction of the town centre development)

LL will facilitate sport, recreation and wellbeing programs specifically for the businesscommunity .Thiswillprovideopportunitiesforlocalbusinessesto compete against each other in various sporting activities. Research has shown these ongoing programs to be of assistance in the attraction and retention of staff, enhanced workplace performance and also enhanced business networking.

Child Health

LL has invited Professor Fiona Stanley to be part of a peer group to assist in the development of strategies and policies to ensure child health is a key principle in the design of Alkimos.

Risk and Opportunity at Design (ROAD) process

LLimplementsaROADreviewforallaspectsofitscommunities.Itisembedded into the design process and is used to critique designs and to identify any risks and opportunities during design. The objective is to make sure that the constructionanduseoftheinfrastructureissafer,andthatiftherearerisks everything has been done to eliminate them or a strategy is implemented to manage the risk.

CommunityFacilities

Inordertoascertaintheneedsforcommunityfacilitieswiththe SouthAlkimos project an audit was undertaken of facilities within the surrounding locality. The catchment area within five kilometres of the South Alkimos development site has veryfewfacilitiesandservicesandpresentsanopportunityforSouthAlkimosto build on or augment the services provided within the 5 to 10km catchment as well as ensuring provision of sufficient services for the future population of South Alkimos.

The sporting, leisure, health and welfare services provided within the 5 to 10 km catchment are insufficient to meet the needs of the current population in the area. The Arena Joondalup and Aquamotion are the only aquatic facilities in the region and both of these facilities are outside of the 10km catchment for South Alkimos. Therefore, district level recreation and aquatic facilities will need to be considered strategically to ensure that the planning integrates the current level of facility provision while also considering what is likely to be provided at a regional levelinthefuture.

There is currently a lack of provision of cultural facilities and programmes in the corridornorthoftheJoondalupcitycentre.Theprovisionofhuman,welfare and health services in the region is delivered using an outreach model, utilising predominantly multi-purpose community buildings that can co-locate a variety of services. It is imperative that the provision of facilities of multi-purpose design is continued.

The audit has found that there is a significant level of service provision to Culturally and Linguistically Diverse (CALD) clients within the 5 to 10 km catchmentarea.Thecurrentlevelofschoolprovisionwithinthe5to10km catchment is diverse and offers a range of private and state options. However, specific facilities and services for youth are inadequate within the 10km catchmentarea.

Community Facilities make up part of the CDS and identify existing and future planned facilities for the area. This has been confirmed through work with the City of Wanneroo and Creating Communities who has undertaken community planning for the South Alkimos development.

6.13 BuiltForm

ExcellenceinBuiltEnvironmentandInfrastructure

Aspiration - The design of South Alkimos will create a place that is authentic,withadistinctcharacterthatcelebratesitsrelationshipwith the coast, responding to the beautiful natural environment. It will be contemporary,individualandbedistinctiveincharacter.

ThebuiltenvironmentatSouthAlkimoswillblendseamlesslywiththe naturalcoastalcharacterofthesiteinawaythatcreatesaniconiccoastal community.Thearchitecturalstylewillbedistinctiveandestablish South Alkimosasthebenchmarkurbandevelopmentin WesternAustralia. Buildings will be distinctly coastal and use a blend of traditional and contemporary construction techniques and materials for the delivery of thebuilt-form.

ExcellenceinBuiltForm

TheopportunityexiststocreateaWesternAustraliancoastalcharacter for the region. The delivery of built form at South Alkimos will be managed through a covenants approval process. This will be achieved in partnership with the building industry to ensure their products meet the project partners aspirational built form objectives. The project partners will also set the tone for built form outcomes in the development through the delivery of key commercial and community buildings. A range of new housing products will be delivered to the Western Australian market that will increase housing choice. We will work with the building industry to deliver construction outcomes sympathetic to the existing topography.

ControlofBuiltFormOutcomes

Lend Lease and LandCorp will develop a set of design guidelines for all residential, community and commercial buildings. The guidelines will focus on ensuring that the character of the place and vision of South Alkimos is delivered through attention to detail when designing buildings. An on-the-project covenants team will review every house design and where appropriate architects will be engaged to review non-residential and commercial designs. This has a number of advantages as it ensures that everyone complies with the guidelines and most importantly providescertaintyaroundbuiltformoutcomes.

DevelopanArchitecturalStylethatCelebratesanSouth AlkimosCoastalCharacter

Through collaboration with local builders, the development of a "Western Australian Coastal" character for housing will be explored. While it is recognised that housing character will need to be responsive to market needs, by working with builders, Lend Lease and LandCorp believe that the market can be led in exploring signature housing outcomes. Lend Lease has an excellent history in product development with Lend Lease's Town Cottage, Warehouse and Adaptus products being well received by the market. The Town Cottage has been successfully rolled out across all of Lend Lease's major markets in Australia and continues to be highly sought after. A unique opportunity exists at South Alkimos to use products like the Town Cottage to evolve a signature Western Australian Coastalcharacterforthedevelopment.

Further, the architectural character of key buildings (commercial, civic and education) will reference a contemporary coastal village theme that will influence the distinctive character of built form design throughout the site.

The dwelling type yield for the LSP is presented below, based on the likely distribution of dwelling types in the LSP area. The proposed dwelling type percentages generally accords with the City's Housing Strategy.

Dwelling Type	Indicative Dwelling Yield	Percentage of Dwelling Type	City of Wanneroo Housing Strategy Requirement
Separate House	1858	77%	76.2%
Semi Detached/Town Houses	289	12%	14.4%
Apartment Units	266	11%	9.4%
Total	2413	100%	100%

6.13.1 Living Options

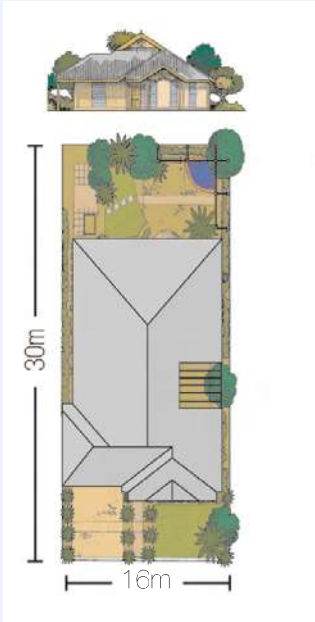
The following are the details of the residential living options which will be available within South Alkimos.

Traditional

- Size and Frontage range
  - Width/Frontage ranges from 17.5 to 25 metres
  - Depth ranges from 24 to 35 metres
  - Size ranges from 450m^2 to 900m^2
- Design – double garage detached housing product with minimal build to boundary allowance. Single storey solutions with good outdoor spaces, double storey solutions with real yards.
- Function – designed for the many stages a family grows through. Also suitable for smaller families or couples/singles either in transition towards/away from a family who value the garden, the yard or the outdoor living capacity of a standalone house on a larger block
- Built Form Capacity – Accommodates a single storey house with up to 60% site cover or a two storey house with a maximum 75% plot ratio.
- Garaging – Usually a double garage, but single or tandem garage options acceptable. Garage capacity beyond two spaces is encouraged where boat/caravan/trailer storage is desired, but is encouraged as deeper garages rather than more garage doors. A third garage door may be considered on its merits where it does not dominate the frontage of the dwelling.
- Setbacks
  - Side and rear – 1.5 m wall to property boundary unless service easement require more, some longer blocks may have larger rear setback requirements
  - Front – 4.5 metres to front wall, 5.0 metres to garage door, unenclosed roofed areas such as verandas/porticos can be 2.0 metres front property boundary.
- Streetscape – houses set in landscape, individual houses should blend with adjacent houses, with the front yard landscapes and the street tree plantings dominating the feel of the street.
- Village Positioning – generally traditional houses are located in the suburban villages with proportions varying from up to 60% in more expensive villages to less than 10% in more affordable villages.

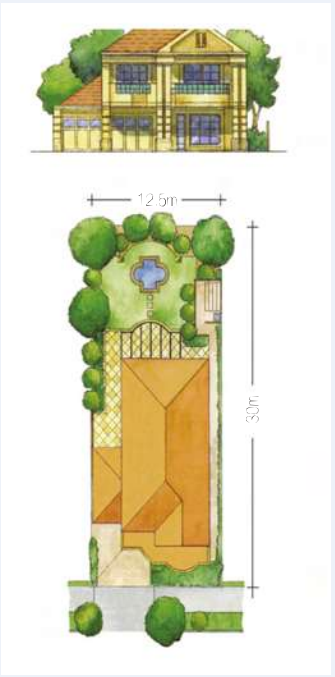
Courtyard

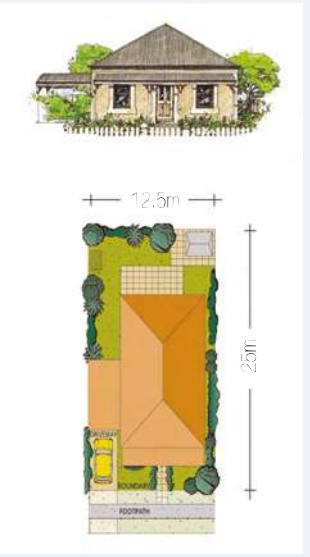
- Size and Frontage range
  - Width/Frontage ranges from 14 to 16 metres
  - Depth ranges from 24 to 35 metres
  - Size ranges from 350m^2 to 550m^2
- Design – double garage detached housing product with optional build to boundary on lowerside of block for up to 15 metres
- Function – intended as a full size house on a more efficient land block. Suits the family or the household where the yard or garden is less important. With careful design delivers great outdoor spaces adjacent the indoor living spaces. As a two storey option, it allows a more efficient response to sloping sites and still can deliver some yard spaces.
- Built Form Capacity – Accommodates a single storey house to 60% site cover or a two storey house with a maximum 75% plot ratio. Accommodates a double garage and a two room plus hallway housing width.
- Garaging – Usually a double garage, but single or tandem garage options acceptable. Garage capacity beyond two spaces is encouraged where boat/caravan/trailer storage is required but must be done as deeper garages as a third garage door will only be tolerated on corner lots where it is located on the secondary frontage.
- Setbacks
  - Side and rear – 1.5 wall to property boundary excepting build to boundary area. (greater setback where service easements are required)
  - Front – 3.0 metres to front wall, 5.0 metres to garage door, unenclosed roofed areas such as verandas/porticos can be 1.5 metres from the front property boundary.
- Streetscape – houses set in landscape, individual houses should blend with adjacent houses, minimal front yard landscape, street trees need to be higher and more intense to accommodate more two storey built form and still allow landscape to dominate street.
- Village Positioning – generally courtyard houses are located throughout the suburban villages with proportions varying from 0% to 40% dependant upon the village positioning. They may also be included in mixed use villages as the larger detached lots within these areas.



Premium Villa

- Size and Frontage range
  - Width/Frontage ranges from 12.5 to 14 metres
  - Depth ranges from 24 to 35 metres
  - Size ranges from 300m^2 to 450m^2
- Design – double garage or carport detached and semi-detached housing product with optional build to boundary on lower side of block for up to 15 metres
- Function – these blocks can accommodate a full size family house but are intended for smaller houses up to around the 200m^2 range. At this size they are still able to accommodate a family but are unlikely (unless two storey and well planned) to allow for a yard or significant external spaces.
- Built Form Capacity – Accommodates a single storey house with up to 65% site cover or a two storey house with a maximum 80% plot ratio.
- Garaging - Usually a double garage, but single or tandem garage options acceptable. Garage capacity beyond two spaces is encouraged where boat/caravan/trailer storage is required but must be done as deeper garages as a third garage door will only be tolerated on corner lots where it is located on the secondary frontage. Where designs are complementary, carports can be considered in lieu of garages.
- Setbacks
  - Side and Rear – Nil to 1.0m to property boundary, but eave requirement will generally force wall back to 1.5 metre setback, excepting build to boundary area (greater setback where service easements are required)
  - Front – 3.0 metres to front wall, 5.0 metres to garage door, unenclosed roofed areas such as verandas/porticos can be 1.5 metres from front property boundary
- Streetscape - houses set in landscape, individual houses should blend with adjacent houses, minimal front yard landscape, street trees need to be higher and more intense to accommodate more two storey built form and still allow landscape to dominate street.
- Village Positioning - generally premium villa houses are located throughout the suburban villages with proportions varying from 10% to 40% dependant upon the village positioning. They are also likely to be a significant portion of the detached products in mixed use villages. The land size delivers a housing form that is ideal for formalised live work options in the mixed use areas. (it is assumed that all products will be able to accommodate work from home options in all village areas).



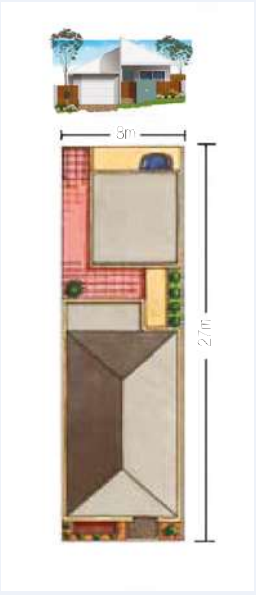


Villa

- Size and Frontage range
  - Width/Frontage ranges from 9 to 12 metres
  - Depth ranges from 24 to 32 metres
  - Size ranges from 250m^{2}to385m ^{2}
- Design – single or tandem garage/carport detached and semi-detached housing product with optional build to boundary on lower side of block for 15 metres, excepting corner blocks where the option exists for a double garage to the rear of the secondary frontage
- Function-theseblocksareintendedforsmallerhousesuptoaround the180m ^{2} range. At this size they are still able to accommodate a family butareunlikely(unlesstwostoreyandwellplanned)toallowforayard or significant external spaces. The smaller built form allows for a better response to sloping sites.
- Built Form Capacity – Accommodates a single storey house with up to 65% site cover or a two storey house with a maximum 80% plot ratio.
- Garaging – Only a single or tandem garage are allowed. On a corner lot a double garage will be considered on the secondary frontage but must comply with the 5.0m setback requirement. Where designs are complementary, carports can be considered in lieu of garages.
- Setbacks
  - Side and Rear – Nil to 1.0m to property boundary, but eave requirement will generally force wall back to 1.5 metre setback, excepting build to boundary area (greater setback where service easements are required)
  - Frontage – 3.0 metres to front wall, 5.0 metres to garage door, unenclosedroofedareassuchasverandas/porticoscanbe1.5metres fromfrontpropertyboundary
- Streetscape-housessetinlandscape,individualhousesshouldblend with adjacent houses, minimal front yard landscape, street trees need to be at closer spacings to accommodate reduced front yard landscapes andstillallowlandscapetodominatestreet.
- Village Positioning - generally villa houses are located throughout the suburban villages with proportions varying from 0% to 40% dependant upon the village positioning. Single garage product is unlikely to included in the more expensive villages. They are also likely to be a significant portion of the detached products in mixed use villages. The land size delivers a housing form that is ideal for formalised live work optionsinthemixedusеareas.(itisassumedthatallproductswillbe able to accommodate work from home options in all village areas).

Terrace(DualAccess)

- Size and Frontage range
  - Width/Frontage ranges from 5 to 10 metres
  - Depth ranges from 27 to 32 metres
  - Size ranges from 135m^{2}to300m ^{2}
- Design – horizontally attached row housing on individual freehold titles. Generally, rear access to garaging with pedestrian access from the main frontage.
- Function – these blocks are intended for houses built on low maintenance lots, where the privacy issues are addressed through thebuiltformratherthanthelandseparationofdetachedlots.The varying widths accommodate everything from single bed and studio apartment style options through to full size family houses. The compact building form when used with two or three levels on the 30 to 32 metre products allows for a yard to be considered and a family housing solution to be offered on these blocks. All terrace block sizes can accommodate SOHO (small office home office) and other formal live workoptions.
- Built Form Capacity – While not compulsory, two or three storey housing is the preferred form for terrace blocks. Maximum site cover including garaging is 70% and maximum plot ratio is 100%.
- Garaging - Garages access off rear lane (side frontages also an option for corner garages) Lanes frontages require a pedestrian access in addition to the garage, so terraces that are not on a corner lot require a width of 7.2 metres before a double garage is allowed. Lots less than 7.2 m wide can only have a double garage where the garage fronts to a side road andnottherearlane.
- Setbacks
  - Side – Build to boundary up to 75% of each side boundary length
  - Rear – Build to rear boundary for pedestrian entry or balconies off accessory units over garages. Garage door must be setback 1.0 metre from rear boundary and 400mm from surrounding built form frame.
- Front – 2m to front wall, unenclosed roofed areas to ground or first floor areallowedtothefrontboundary.
- Streetscape – Terraces houses dominate the streetscape and generally have only low level landscape to the frontage. The facade architecture oftheterracesneedstoprovidesomevariationanddepthtoensure an interesting and engaging streetscape. Street trees should be high enough to accommodate the higher and closer to boundary built form and should be at spacing more consistent with the smaller frontages.
- Village Positioning – Terraces are located throughout all suburban and mixed use villages.



Terrace(FrontAccessed)

- Size and Frontage range
  - Width/Frontage ranges from 6 to 9 metres
  - Depth ranges from 25 to 32 metres
  - Size ranges from 150m^{2}to290m ^{2}
- Design – horizontally attached row housing on individual freehold titles. Generally, with car and pedestrian access from the primary frontage street (optional second frontage garaging for corner lots)
- Function-theseblocksareintendedforhousesbuiltonlow maintenance lots, where the privacy issues are addressed through the built form rather than the land separation of detached lots. The varying widths accommodate everything from single bed and studio apartment style options through to full size family houses. Terrace block sizes wider than 7.2 metres can accommodate SOHO (small office home office) and otherformalliveworkoptions.
- Built Form Capacity – While not compulsory, two or three storey housing is the preferred form for terrace blocks. Maximum site cover including garaging is 70% and maximum plot ratio is 100%.
- Garaging – Single or tandem garages are allowed. Double garages will only be allowed on any secondary frontage, or where a half or full basement can be incorporated into the design.
- Setbacks
  - Side – Build to boundary up to 70% of each side boundary length
  - Rear – 1.5 metres from rear boundary
  - Front – 2m to front wall, unenclosed roofed areas to ground or first floor are allowed to the front boundary.
- Streetscape – Terraces houses dominate the streetscape and generally have only low level landscape to the frontage. The facade architecture oftheterracesneedstoprovidesomevariationanddepthtoensure an interesting and engaging streetscape. Street trees should be high enough to accommodate the higher and closer to boundary built form and should be at spacing more consistent with the smaller frontages.
- Village Positioning – Front loaded Terraces are located within the more affordable suburban villages and the mixed use villages.

Gallery

- Size and Frontage range
  - Width/Frontage ranges from 15 to 20 metres
  - Depth ranges from 24 to 35 metres
  - Size ranges from 400m^{2}to700m ^{2}
- Design – duplex, triplex and other multiple dwellings on nominated larger corner lots designed to accommodate two or more smaller dwellings within a building form that complements the surrounding detached housing stock. Individual street facing entry, garaging and driveway for each dwelling. Generally on strata title or other shared titling options, but can be considered with individual freehold titles.

Apartment

- Size and Frontage range
  - Minimum frontage will vary dependant upon number of apartments inblockorcomplex
  - Depth varies to suit apartment block configurations and the block depth configurations of the surrounding houses – Where possible block depth will match that of adjacent houses.
- Sizevariestosuitnumberofunitsandproposeddensity.Itisintended to propose densities ranging from 75 dwellings to 150 dwellings per sitehectare.
- Design – Vertically and horizontally attached dwellings with shared pedestrian entry and garaging options. Generally strata titled.

6.14 Marina

The former Department of Planning and Infrastructure (DPI), now Department of Transport, has previously proposed a Marina be located adjacent to Alkimos, within the Foreshore Reserve and south of Alkimos Regional Beach. The proposed Marina may potentially include:

- 800 wet berths; and
- 4 boat ramps.

Demand

A broad examination of the demand for boating facilities in the Perth Metropolitan area was completed by the DPI in 2008. This report reviewed the current and predicted future demand for facilities based on population projections provided by the WAPC. Increases in boat registration rates were also considered and were combined with the projected population growth to provide an estimate of the number of boats within the Perth metropolitan region out to 2025.

The predictions of future demand were separated into three zones, being the northern, central and southern metropolitan zones. The northern zone comprises the localities of Stirling, Swan, Joondalup and Wanneroo and therefore encompasses the Alkimos development and proposed marina location. The DPI report outlines that the predicted demand for boating facilities in the northern zone will be significant in the future. Through expansion of existing facilities and development of sites with existing planning approval (Eglinton Marina), the demand for lanes of boat ramp and boat pens is expected to be met in the short term (2012). In the medium and long term (2018 and 2025) it is expected that new initiatives will be required in order to meet the demand. New initiatives that were identified were the Ocean Reef Boat Harbour and the Alkimos Marina. The report suggests that the Alkimos Marina would need to deliver 4 lanes of boat ramp and at least 200 boat pens to meet the demand in the medium term (2018), with an additional 4 lanes of ramp and 600 boat pens required to meet the demand in the long term (2025).

Based on the predictions of DPI it is therefore expected that there will be sufficient demand for a marina facility to be constructed at this site. Moreover, DPI suggests that if the marina is not constructed there will be a significant shortfall in marina facilities along the northern metropolitan coastline in the medium and longer term.

Coastal engineers, MP Rogers and Associates, have provided comment on technical issues relating the navigation, water depth, sand movement and water quality. This can be found in Appendix K.

If such a Marina is to be developed, a number of issues have been considered to ensure full integration with the South Alkimos LSP area such as:

Coastal Village Integration

The need for a direct and legible physical connection between the Coastal Village and the Marina is a priority. The Coastal Village has been designed as an independent centre, should the Marina development be built sometime after the Village. However, when the Marina is built, it is vital that the Marina buildings knit into the urban fabric of the Coastal Village, providing a unified retail and community focus for South Alkimos and the surrounding locality. Figure 27 Potential Future Marina, shows how the Coastal Village and Marina streets and buildings can be designed to create a unified and cohesive centre. Marina buildings should be designed with dual frontages, addressing both the Marina and the Coastal Village. Pedestrian connections from the village streets to the Marina should be provided wherever possible.

Access and Traffic

The proposed Marina development would be a popular destination, drawing many visitors in peak times such as weekends. While some visitors will use public transport to access the Marina and associated facilities, many people will use private vehicles (some with boat trailers). The design of the Alkimos street network anticipates increased traffic volumes due to the Marina. Traffic modelling confirms that the network works effectively with the increased traffic volumes. The Marina is served by two connector streets. One is a straight east-west street, accessed directly off Marmion Avenue via Romeo Road; the other connects to the STS route at the southern entry to the Beach Village. The Marina will be predominately accessed by the street located to the south of the Beach Village to ensure the amenity of residents is protected. The Marina development will include carparking for cars and trailers.

The dual use pedestrian and cycle path proposed for the Foreshore Reserve is an important public infrastructure element providing access along the coast. It should be continued through the Marina development.

Ecology

The proposed Marina development interrupts the Foreshore Reserve, splitting the open space in two and disrupting the ecological link. For this reason, the South Alkimos LSP proposes an alternative ecological link connecting the widest part of the Foreshore Reserve to the WWTP Regional Open Space buffer through public open space in the LSP area. A further ROS connection is provided north of the LSP area.

A 2.8ha stand of Allocasurina lehmanniana is located at the widest section of the foreshore reserve, just north of Karli Spring. This vegetation is in 'Excellent' condition. The proposed Marina is located to the north west of the Allocasurina lehmanniana stand. If the marina is constructed, the stand will play an important role as a refuge and ecological corridor for fauna movement and therefore must be retained.

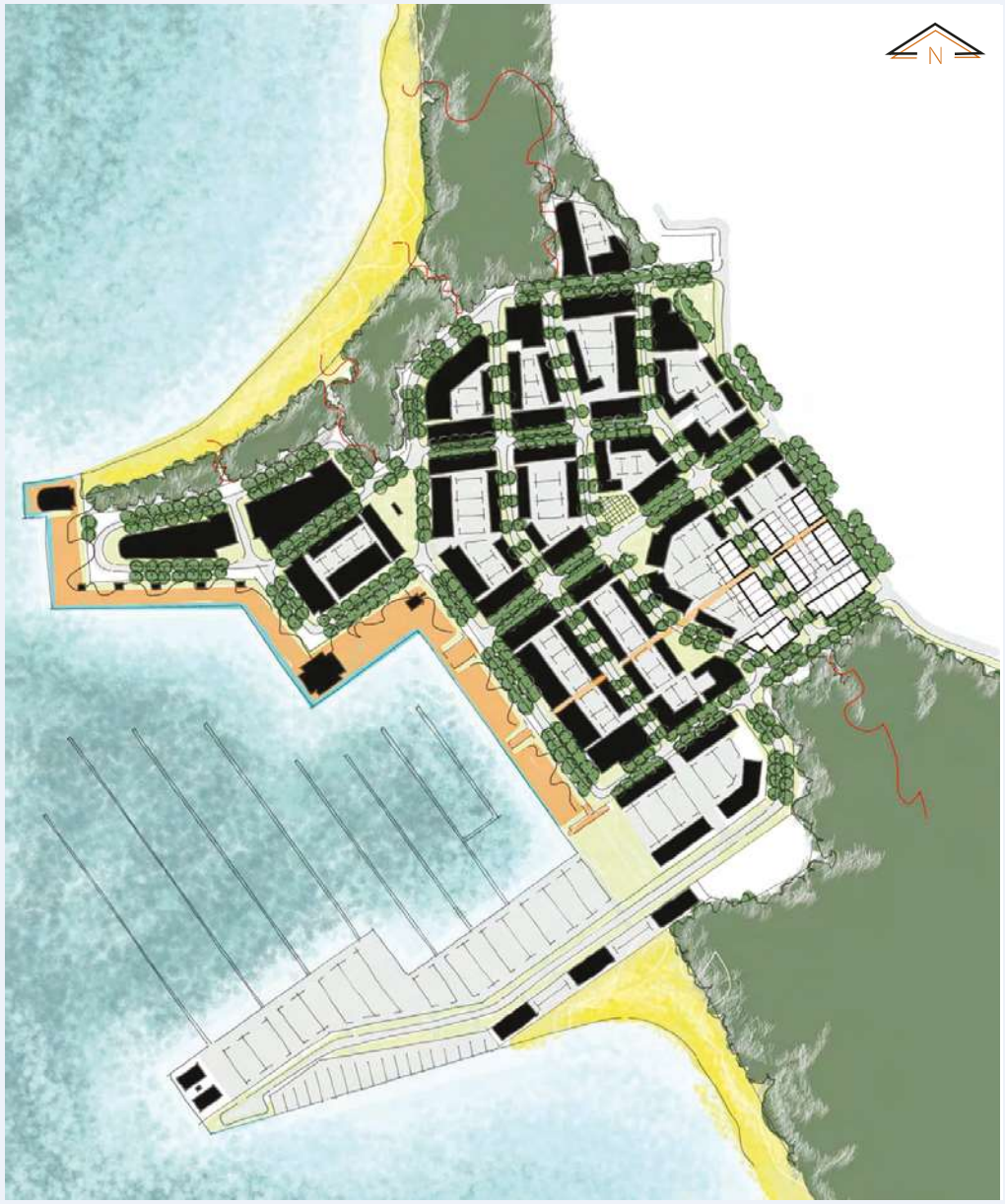


Figure 27 - Indicative Marina Concept

Economics

The delivery of an 800 pen, 4 ramp lane regional marina to be collocated with the Beach Village by 2015, would not only generate additional floorspace and employment for the Beach Village, but also accommodate part of that additional floorspace, particularly that of short-stay accommodation, cafe and restaurant and marina specific retail. An estimate of the floorspace in the Alkimos Beach Village that will in fact be accommodated on-marina is outlined in the figure below.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	750	938	1172	1230	1292	1357
Retail(Visitor)	0	750	2025	3038	3797	3987	4186
Accommodation,CafeandRestaurant	0	500	3475	4691	4926	5172	5431
Office Commercial	0	0	250	988	1234	1296	1361
Health,EducationandCommunity	0	250	350	525	971	1020	1071
PersonalServices	0	0	250	375	694	728	765
Total	0	2250	7288	10788	12853	13495	17170
Employment	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	25	31	39	41	43	45
Retail(Visitor)	0	21	58	87	108	114	120
Accommodation,CafeandRestaurant	0	14	99	134	141	148	155
Office Commercial	0	0	13	49	62	65	68
Health,EducationandCommunity	0	8	12	18	32	34	36
PersonalServices	0	0	13	19	35	36	38
Total	0	69	225	346	419	440	462

Table 10 - Floorspace and Employment, Alkimos Beach Village (Including Marina), 2011 to 2041
Source:MacroPlanAustralia

This includes the floorspace and employment generated as a result of marina activitythatisaccommodatedbothon-marinaandbymarina-relatedactivity.The figure below outlines the share of this floorspace and employment that would be supportedontheMarinaitself.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	300	300	300	300	300	300
Retail(Visitor)	0	300	810	1215	1455	1455	1455
Accommodation,Cafe andRestaurant	0	200	591	591	591	591	591
Office Commercial	0	0	0	400	400	400	400
Health,Educationand Community	0	0	0	0	0	0	0
PersonalServices	0	0	0	0	0	0	0
Total	0	800	1701	2506	2746	2746	2746
Employment	2011	2016	2021	2026	2031	2036	2041
ServiceCommercial	0	0	0	0	0	0	0
Retail(Residents)	0	10	10	10	10	10	10
Retail(Visitor)	0	9	23	35	42	42	42
Accommodation,Cafe andRestaurant	0	6	17	17	17	17	17
Office Commercial	0	0	0	20	20	20	20
Health,Educationand Community	0	0	0	0	0	0	0
PersonalServices	0	0	0	0	0	0	0
Total	0	24	50	82	88	88	88

Table11-FloorspaceandEmployment,On-Marina,2011to2041
Source:MacroPlanAustralia

The following table details the amount of total floorspace and associated employmentifthemarinaisconstructed.

Floorspace(GFAm ^{2})	2011	2016	2021	2026	2031	2036	2041
Beach Village	0	2250	7288	10788	12853	13495	14170
Central Village	0	150	438	859	1074	1284	1544
Gateway Village	0	1650	1715	2354	2580	2829	3120
Total	0	4050	9440	14002	16507	17609	18834
Employment	2011	2016	2021	2026	2031	2036	2041
Beach Village	0	69	225	346	419	440	462
Central Village	0	5	15	29	37	44	53
Gateway Village	0	55	57	87	95	106	119
Total	0	129	297	461	551	590	634

Table 12 - Floorspace and Employment, Alkimos Villages (including Marina), 2011 to 2041
Source:MacroPlanAustralia

Principles

- Maintain the integrity of the regional beach arc.
- Provide an alternative ecological link for flora and fauna, in-lieu of a continuousForeshoreReserve.
- Retain and protect the significant stand of Allocasurina lehumanniana (DuneSheoak)intheForeshoreReserve.Allpathwaysandroads associatedwiththeMarinamustbelocatedtoavoidthisstandof vegetation.
- Provide pedestrian connections from the Beach Village streets to the Marina.
- Maintain the proposed dual use path through the Marina site, providing continuous north-south access along the foreshore.
- Design Marina buildings with dual frontages, addressing the Marina and the Beach Village / beach.
- Locate service areas of buildings away from primary frontages and view terminations.
- Locate Marina parking to minimise visual impact on beach, Marina public areas, surrounding streets and neighbourhoods.
- Minimise impact of Marina traffic on the Coastal Village by providing primary vehicular access from neighbourhood connector streets south of the Village.
- Promotetourismbasedlanduseswhichwillservicevisitorsto the regional beach as well as other commercial and educational opportunities.
- ProvideanareawithintheMarinafortheprovisionofmarinebased industries such as boat stacking, boat servicing etc.

6.15 BushFirePr otection

A Fire Management Plan (FMP) has been prepared in accordance with the 'Planning for Bushfire Protection' (May 2010' document (WAPC/FESA). RefertoAppendixL.

The FMP recommends a number of fire mitigation strategies to ensure that any future development is not adversely impacted by bush fire. Furtherinformationisavailableinsection7.12ofthedocument.


REDGATE·FARM

7.0 Summary of Technical Reports

7.1 Local Environment Impact Assessment + Management Strategy (RPS, 2011)

The South Alkimos LSP area is zoned "Urban" and "Parks and Recreation" in the MRS, and includes the majority of the foreshore reserve along its western margin. This foreshore reserve is part of Bush Forever site 397; a semi-contiguous north-south vegetated coastal strip. The recommendations of the EPA in their report; Alkimos-Eglinton Metropolitan Region Scheme Amendment No. 1029/33 (EPA 2005) included increasing the size of the foreshore reserve for environmental and heritage conservation. The EPA considered that this area forms part of a larger natural area of outstanding regional significance; Bush Forever site 397 (EPA 2005).

The South Alkimos LSP site abuts the east–west conservation linkage associated with the Alkimos Wastewater Treatment Plant (Alkimos WWTP) buffer on the northern margin. This area is zoned for Parks and Recreation, Public Purposes (Conservation) and Urban Deferred in the MRS.

The South Alkimos LSP site contains some of the most degraded environments in the Alkimos – Eglinton area. The site was historically used for grazing and consequently some areas now support a high percentage of weed species. The site is considered to be in "Very Good" to "Completely Degraded" condition. The majority of better quality vegetation on the site is located on the dune ridges that were not grazed as intensively. Localised areas of disturbance exist from off-road vehicle tracks, and more recently, the construction of the Alkimos WWTP.

The proposed South Alkimos LSP is predominantly a residential area in line with its "Urban" zoning in the MRS. The CoW's draft Local Planning Policy (Policy No. 4.2): Structure Planning, outlines the city's requirements for structure planning within its municipality. The policy details the requirement for LSP's to be supported by a Local Environmental Impact Assessment and Management Strategy, which should address the potential impacts of the implementation of the proposed LSP and the proposed management measures designed to mitigate these impacts as much as possible. This report; South Alkimos Local Structure Plan – Local Environmental Impact Assessment and Management Strategy, has been prepared in accordance with the city's draft policy.

The "Urban" zoned portion of the South Alkimos LSP site does not contain any of the areas that were considered to be regionally significant by the EPA during their assessment of MRS Amendment 1029/33. The environmental factors assessed by the EPA included:

- Vegetation
- fauna
- odour (waste water treatment plant) – (deferred factor)
- geoheritage
- Aboriginal heritage – (deferred factor)
- risk (groundwater treatment plant).

The site is known to contain limited foraging habitat for Carnaby's Black-Cockatoo and populations of the Graceful Sun Moth. These two fauna species are protected under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The South Alkimos LSP may require referral under the EPBC Act if the potential impact on either of these species is likely to be significant.

7.2 Karst Investigation Advice (Coffey Geotechnics, 2010)

The advice from Coffey Geotechnics is that based on their previous experiencewithkarsticterrainwithintheSwanCoastalPlainandthe relatively young geological age of the Quindalup and Spearwood Dune deposits within the site, it is considered that the potential for significant karsticfeaturesisverylow.Therefore,intheabsenceofanydirect indicationsofkarsticfeatureswithinthesiteitisrecommendedthat the development of specific karst management plan need not progress beyondthecompleteddesktopstudies.

7.3 Aboriginal Heritage Report (EM McDonald PHD & B ColdrickMA,2009)

Based on the outcomes of the ethnographic consultation results undertaken as aprt of the preparation of the Aboriginal Heritage Report, the following recommendations are made:

1. That the development of the Alkimos Eglinton LSP area be allowed to proceed;
2. That all impacts to Karli Spring (DIA Site ID 3509) and the surrounding vegetation and associated features be avoided and that the site continues to be protected inside Regional Open Space;
3. That the features referred to as ALK01–05 be avoided if possible and commemorated through appropriate interpretive signage and/or publicartworks;
4. That an Aboriginal Heritage Management Plan (AHMP) and Interpretation Plan be prepared to ensure the long-term protection and interpretation of Karli Spring and any other places of Aboriginal cultural valuethataretobepreservedwithinthedevelopment.Theplanshould also include procedures for dealing with the potential for subsurface archaeological material, including burials, to be unearthed in the course ofthedevelopment.

7.4 Local Transportation Strategy (Bruce Aulabaugh, 2011)

The Local Transportation Strategy addresses matters including traffic forecasting, regional road access planning, local street design, local traffic treatments,pedestrian/cyclistfacilitiesandbusservices.

7.5 Local Engineering Infrastructure Report (Cossill & Webley,2011)

The Local Engineering Infrastructure Report adviced the following in respecttotheservicesoftheLSP:

Staging

TheurbandevelopmentoftheSouthAlkimosLSPareawillbe implemented in stages over a period of time the duration of which will be dependent on the demand, for residential housing and the services and facilities that are associated with it. The provision of engineering infrastructure will also need to be staged to suit the development demand and a detailed program for this will need to be prepared as a part of ongoing detailed planning and design of the infrastructure. The current estimate for development growth of the South Alkimos LSP area includescommencementin2011andthedevelopmentrateof350 allotmentsperyear.

The current programs for infrastructure provision are as follows:-

Regional and District Roads

Capricorn Village Joint Venture (JV) is developing the Capricorn Project atYanchep.AsapartofthistheJVhasprefundedtheextensionof MarmionAvenuefromButlertoYanchep.Theextensioncomprisesthe

bulk earthworks for the ultimate dual carriageway road, a single two-way carriageway constructed to a rural standard and drainage road crossings. These road works are normally funded by developers as a condition of subdivision. The construction of the road extension was completed in November 2008. Main Road WA's has no program for the extension of the Mitchell Freeway beyond Burns Beach Road. On this basis, Marmion Avenue would be available to provide district and regional road access for the development of the South Alkimos LSP area until the freeway is constructed in the longer term.

Northern Suburbs Railway

The Public Transport Authority (PTA) is now preparing a master plan for the extension of the railway from Butler to Yanchep. The PTA is presently working on the detailed design and construction of the railway line between Clarkson and Butler, with completion expected by late 2015.

Wastewater Treatment

Water Corporation commissioned first stage of the Alkimos WWTP in November 2010.

Water Supply

The Carabooda reservoir is programmed to be constructed by Water Corporation by late 2011.

Initially this would be supplied by the trunk watermain which links the reservoir to the Neerabup groundwater treatment plant. The watermain will initially function as both an inlet and outlet watermain, supplying water from the reservoir to the Butler area. Supply to the Alkimos area will be provided by another outlet watermain in Romeo Road to be constructed, to suit the urban development program, after 2011. Beyond this, the Water Corporation's program is to construct the Eglinton groundwater treatment plant and additional outlet watermains to match the demand. The reservoir and treatment plant will ultimately be supplied from groundwater bores within the Alkimos Eglinton area. All of the above headworks will be funded by Water Corporation. Development within the South Alkimos LSP area prior to construction of the outlet watermain in Romeo Road will need to be supplied from the temporary watermain constructed by Peet Limited. The permanent watermains would be headworks funded by Water Corporation and may be required to be prefunded by developers for 'non-frontal' development.

Electricity, Gas and Telecommunications

In all cases the development of the South Alkimos LSP area could be serviced via extensions to existing electricity, gas and telephone networks either within the Jindalee Butler area or those systems extended to service Peet Limited's Shorehaven. The funding of the services extensions for 'frontal' development would be by the services providers. For 'non-frontal' development the associated costs may need to be funded or prefunded by developers subject to negotiations with the providers.

7.6 Local Water Management Strategy (GHD, 2011)

GHD Pty Ltd was commissioned by to prepare a local water management strategy in support of a local structure plan for the proposed South Alkimos development. In accordance with State Government planning framework as outlined in Better Urban Water Management (WAPC, 2008), a Local Water Management Strategy is required to accompany the structure plan. Urban Water Management

Plans will be required to accompany the subsequent development applications.

7.7 Acoustic Report (Herring Storer, 2010)

Under the Western Australian Planning Commission (WAPC) Planning Policy 5.4 "Road and Rail Transport Noise and Freight Considerations in Land Use Planning", noise received at "Noise Sensitive" premises needs to comply with the "Noise Limits" as outlined in Section 5.3 of the Policy. Thus,theacousticcriteriawouldbe:

LAeq(Day) of 60 dB(A); and
LAeq(Night) of 55 dB(A).

FortheSouthAlkimosLSP,theonlypremisesthatwouldbeconsidered as "noise sensitive" are the classrooms within the proposed High School adjacent to Marmion Avenue. As the High School would only be occupied during the day period, the appropriate acoustic criteria for the classrooms would be an LAeq(Day) of 60 dB(A). However, for a High School, the acousticassessmentshouldconsiderinternalnoiselevelsandthe recommended maximum noise levels as outlined in AS/NZS 2107:2000 shouldbeusedastheacousticcriteria.Therefore,foraclassroomthe internal acoustic criteria would be an LAeq(Day) of 45 dB(A).

Giventhelocationanddevelopment,anoisewallorearthenbundis not recommended for this development. As an alternative, if required, enhanced construction of the "Noise Sensitive" elements of the school is recommended. We note that with windows shut and using standard glazing a noise reduction of around 15 dB(A) would be achieve. Therefore, ifcomplianceisachievedwiththeexternalcriteria,thencompliance wouldalsobeachievedwiththeinternalcriteriaof45dB(A).

Based on the noise modelling undertaken, compliance with the Acoustic Criteria would be achieved at a distance of 60 metres from the edge of the MarmionAvenueroadreserve.Thus,iftheclassroomwereconstructed outsidethisdistance,standardconstructioncouldbeused.However,if classroomswereconstructedwithinthisdistance,enhancedconstruction would be required. The degree of enhanced construction would vary depending on the distance from Marmion Avenue. For example, in the worstcase,withaclassroomconstructedwithin20metresofMarmion Avenue, then the following enhanced construction would be required:

1. 6.38mm laminated glass.
2. Enclosed eaves using 6mm compressed cement sheeting.
3. Ceilings being 1 layer of 13mm plasterboard, with a minimum of R2 insulation within the ceiling space.
4. Light fittings / PA speakers etc to be surface mounted.
5. Doors to be located on facade facing away from Marmion Avenue.

It is also note that the degree of enhanced construction can be minimised by locating less noise sensitive areas of the school between the Marmion Avenueandanyclassrooms.

Theselessnoisesensitivesectionsoftheschoolwouldinclude:

- Administration.
- Gymnasium.
- Laboratories.
- Assemblyhalls.
- Library.

7.8 Sustainability Strategy (GHD, 2010)

The objectives and strategies proposed by the Sustainability Strategy are detailedinsection6.10ofthisdocument.

7.9 Alkimos Economic Development Strategy (Lend Lease,2011)

LendLeasetakespridein theeconomicoutcomesachievedonits flagship projects of the past 30 years. Experience over time has proven that the greatest results are realised when the following conditions are present:

- Strong commitment and support from all Government and key stakeholderpartners;
- Long term support of a flexible and adaptable planning framework to ensurethatthedevelopercanrespondtomarketopportunitiesina timelyandinnovativemanner;
- Commitment to challenge the norms and embrace innovation in the pursuitofexcellence;and
- Focus on ensuring the community becomes a positive contributor (i.e. in employment and economic output) to its regional economy.

South Alkimos will be known as a thriving employment area and a locationofchoiceforbusinessintheNorth-WestofPerth.Thecreation of jobs will be of paramount importance in supporting a community in which the people feel they can belong and thrive. The South Alkimos Economic Development Strategy will strongly influence ongoing site developmentandexploretheopportunitiespresentedbybothth e naturalandbusinessenvironment.

A series of strategic themes and supporting initiatives have been developed for Economic Health at South Alkimos. The six strategic themesare:

- Business Signatures
- Growing Local Business
- ConnectedBusiness
- Governance and Resourcing
- RetailandAmenity
- Information and Communications Technology

Economic development activities at South Alkimos will focus on growing local jobs and a diverse business base, from small businesses through to large corporations. This approach aims to create higher employment self sufficiency, cater to the needs of the local resident population and provide a platform for attracting flagship businesses. Consideration will also be given to the economic needs of the North West corridor as South

Alkimos' success will be very much linked to the success of the broader region.

This first Economic Development Strategy for South Alkimos is an important step in consolidating our thinking, establishing the broader economic objectives and identifying the actions required to meet these objectives.

South Alkimos is about to enter an exciting phase, with the commencementofonsitedevelopmentactivityplannedforthe near future. Working in close partnership with Government and key stakeholders,LandcorpandLendLeasewillcommitresourcesto delivering economic development programs and initiatives at the communitylevel.

The South Alkimos Economic Development Strategy will be reviewed and updated annually to ensure it remains aligned with related strategies. Our special emphasis on partnering with Government and key stakeholders willcontinue.Thisapproachhasalreadydeliveredeconomicrewards in the past and is critical in addressing challenges and converting opportunitiesastheyariseinthefuture.

7.10 Community Development Strategy (LL, 2010)

The Community Development Strategy states that there will be a unique appeal to living in Alkimos that will result from the creation of a diverse and stimulating environment. It will offer opportunities to a cross-section of society and meet the needs of its residents through the implementation of an Alkimos Community Development Strategy containing a wide range of initiatives. Participation will be encouraged; people will want to contribute to the community and to the well-being of others as the community is established.

The objectives of the plan are to:

- Create opportunities for Alkimos community members to have a voice and shape their future
- Prioritise key community activities for ongoing delivery at Alkimos
- Determine the resources that are required for the sustainability of these activities
- Identify who the most suitable stakeholders are to provide these activities
- Determine transition stages for activities over time

7.11 Marine Engineer Advice (MP Rogers & Associates, 2010)

M P Rogers and Associates Pty Ltd were commissioned to complete a physical processes etback assessment to allow for the action of physical coastal processes in the coming 100 years in accordance with the State Coastal Planning Policy for freehold development. This report outlined the methodology and results of these assessments in accordance with the recommendations and intent of Schedule One of the State Coastal Planning Policy.

The following is a summary of the key findings and conclusions made for the freehold development case:

SBEACH modelling was conducted for the proposed Alkimos development using the SCPP storm. The modelling showed a simulated erosion extent ranging from 44 m behind the HSD for the steep dunes in the south to approximately 24 m of MSL contour recession in the north.

Analysis of shoreline movement along the coastline adjacent to the proposed development indicated the majority of the shoreline has remained relatively stable with net movements of less than 10 m in the 1965 to 2010 period. These areas were given a safety allowance of 20 m to account for uncertainties and unknown factors that may affect the shoreline position over the next 100 years. However substantial net recession had been noted at the small headland located at approximately chainage 1,300 m. This resulted in historical shoreline movement allowances of 110 m for the section of shoreline located between 1,100 m and 1,700 m.

Based on the WAPC interim position statement and the latest work by the IPCC, a 90 m S3 allowance is required to account for the potential shoreline recession as a result of sea level rise.

The total recommended setback to allow for the action of physical coastal processes for the freehold development case were recalculated to range from 134 m to 218 m.

7.12 Bushfire Management Plan

The BMP provides the following mitigations strategies:

AccessandFirebreaks

The property is served by a major road (Marmion Avenue). To this will be linked a network of sealed access roads throughout the development and arounditsperimeter.Internalroadswillalsobelinkedwithroadnetworks infutureurbandevelopmenttothesouthandeastoftheproperty.This will ensure adequate access and egress for all lots within the property.

Itisproposedthatawalkpathwilllinkthedevelopmenttothebeach. This will allow evacuation to a safe area in a fire emergency. Areas of publicopenspacewillbeseparatedfromlotsbyroads.Allareasof retained or reconstituted vegetation must comply with the City of WannerooFirebreakOrder.

Native vegetation fuel management

All of the native vegetation on the sections of the site on which houses aretobebuilt,withtheexceptionofretainedtuarttreesandsome smallpatchesofbushlandonsteepdunes,willberemovedatthe time of development. This will eliminate the fire hazard in these areas. Native vegetation will be retained in the foreshore reserve and will bereconstituted/re-establishedonpocketsofopenspacewithinthe development. In time the fire hazard on these areas will develop. In the case of the pockets of vegetation on open space areas, these are unlikely to constitute a serious fire hazard. However, it will be desirable that the foreshore reserve is subject to mild fuel reduction burning about every 10-12years.Thiswillbetheresponsibilityofthe CityofWannerooonce the development is complete. Some slashing of vegetation may also be needed in between burns. Suitable weather for mild burning is often available after a run of fine weather during the winter months.

Grassandweedfuels

During the development phase weed and grass growth on vacant lots will become a fire hazard to adjoining housing during summer and autumn. Tominimisethisriskthedeveloperswillneedtoapplyaherbicideor physical means to control grass and weed growth in the spring before each fire season.

FirehazardonWaterCorporationland

Thelandtothenorthofthepropertyisvestedin theWAWater Corporation. If allowed to remain long-unburnt, this will represent a bushfire hazard to the property, as well as to Water Corp's treatment plant.

ItisrecommendedthattheDeveloperapproachWaterCorporation, bring this problem to their attention and convince them of a need to develop a fire plan, install and maintain a 20m wide firebreak around their buffer zone and carry out periodic fuel reduction burning, or other fuel modification to reduce the fire risk. Preliminary discussions with Water Corp staff have indicated they are favourably disposed to developing a Fire Management Plan for this area of native vegetation under their control.

Fire equipment

ItisnotrecommendedthatfutureresidentsatAlkimosprovide themselves with special fire fighting gear. Provided the house yards are maintained generally free of inflammable fuel and a garden hose is available to extinguish embers landing on properties in the event of a summer fire in the neighbouring water treatment reserve, this should be sufficient.

Watersupplies

Everylotwillbeconnectedtothemainswatersupply.Firehydrantsare to be installed at 200 metre intervals in residential areas, and identified by standard markings.

Powersupplies

Every lot will have power, delivered through underground power lines.

Building Protection

For lots adjoining the Water Corporation buffer zone, the following measuresarerecommended:

- There must be a sealed road separating the bushland from the lots;
- There must be a 30 metre Building Protection zone between the edge of the bushland and proposed houses on lots adjoining the Water Corporation bushland. This Zone will comprise road, footpath and setback of building.

For lots adjoining the foreshore reserve the following measures are recommended.

- There must be a minimum of a 20 metre Building Protection Zone of very low fuel between the edge of the foreshore reserve vegetation and proposed housing adjoining the foreshore reserve.

Building construction standards

Dwellings on lots adjoining the foreshore reserve and the Water Corporation buffer zone are to be constructed to meet the following standards:

- The City of Wanneroo Specification and Requirements
- AS 3959 – 2009 Construction of Buildings in a Bushfire Prone Area and to conform to Bushfire Attack Level (BAL) – 12.5 as detailed in Section 3 and 5 of AS 3959 – 2009.

Provision of fire services

TheproposeddevelopmentiswithintheareaservicedbytheQuinns Rocks and Two Rocks Volunteer Bush Fire Brigades. There is a Fire and RescueServiceStationatHesterAvenue,Butler.Provisionforadditional fire service for the area can be addressed under the Fire and Emergency Services Authority (FESA), 'Risk to Resources' modelling in consultation withtheCityofWanneroo.

OtherFireProtectionmeasures

- The footpath linking the housing area with the beach should be sealed, and wide enough to allow the passage of a light 4-Wheel Drive fire unit;
- The town football oval should be designated as the fire refuge area, and signposted as such;
- Every new resident should be issued with a copy of this fire management plan on the purchase of a lot and also with a copy of The Homeowners Bush Fire Survival Manual and a copy of Planning for Bushfire Protection- guidelines Edition 2-May 2010 plus the City of Wanneroo's Fire and Ranger Information sheet.

8.0 Alkimos Eglinton District Structure Plan - ComplianceTable

SustainabilityComplianceTable

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to prepare a Sustainability Strategy outlining the implementation path and measures that will be taken to achieve the sustainability objectives, in line with this DSP.	Complies	Sustainability Strategy has been prepared by GHD – refer Appendix H and Section 6.10 of the SouthAlkimosLSP
S 2 LSPs to include a Local Water Management Strategy that incorporates best practice water sensitive urban design principles and which is in line with the district water management design objectives andstandardsinthisDSP.	Complies	Local Water Management Strategy has been prepared by GHD – refer Appendix F and Section 6.6.7oftheSouthAlkimosLSP
S 3 LSPs to conserve and enhance local biodiversity through design facilitating the retention of significant natural features in POS areas, road reserves, Social/Pedestrian/Cycle linkages or provide suitable justification otherwise.	Complies	LSPprovidesfor: • RetentionofForeshoreReserve • GreenlinksfromForeshoreReservetoWWTP • Recognition of the significance of Karli Springs • Social/Pedestrian/Cycle linkage • Retentionofdunes,wherepossible Refer: • SouthAlkimosLSPPart2-Sections6.4and6.8
S 4 LSPs to provide for Secondary, District, Neighbourhood and Local Activity Centres and employment corridors, generally as depicted on the DSP Map 1.	Complies	LSPprovidesfor: • Regional Centre Gateway • Central(Local)Centre • Activity corridor along the Secondary Transport System Refer: • SouthAlkimosLSPPart1-StructurePlan • South Alkimos LSP Part 2 – Sections 6.3 and 6.11
S 5 LSPs to provide for development of the coastal nodes into Activity Centres, incorporating beachside facilities, retail, employment and economic activity generators and non-retail activities such as hospitality.	Complies	The coastal node has not been included in this LSP and is subject to further planning in order to resolve the following matters: • The review of SPP2.6 State Coastal Planning Policy and the subsequent uncertainty in respect tothecoastaldevelopmentsetback; • Thepotentialdevelopmentofamarinainthislocation;and • Ensuring suitable integration with the adjoining landing (Lot 9001).
S 6 LSPs to investigate opportunities for effective waste management (reduction, reuse and recycling) in construction and domestic/commercial consumption through alternative technologies, products and services.	Ongoing	• LSP strategies outlined in GHD Sustainability Strategy – refer Appendix H

CommunityDevelopmentComplianceTable

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to prepare a Community Development Plan outlining the implementation path and measures that will be taken to achieve the DSP Community Development Objectives as outlined in Clause 7.5.	Complies	CommunityDevelopmentPlanhasbeenpreparedbyLend Lease – refer Appendix J
S 2 LSPs to investigate and facilitate collaboration between the developers, City of Wanneroo, community-based organisations, local business, local residents and State Government agencies to explore community fostering and early delivery of services programs..	Complies	Refer to Community Development Plan – Appendix J
S 3 LSPs to undertake facilities planning and make provision for community facilities that accommodate a range of uses to maximise civic participation and accommodate changing community needs and showcase leading practice sustainable building and landscape design.	Complies	Refer to Community Development Plan – Appendix J
S4 LSPs to provide sites for high schools, in locations, generally in accordance with that described on the DSP Map 1, based on the Department of Education and Training (DET) criteria and embracing good urban design outcomes, including: • Provision for sites of a sufficient size, configuration and topography to accommodate the intended use. • Promotion of safe access by a range of transport modes • Promotion of multiple use of school infrastructure by the broader community through co-location of facilities andpartnershipswithrelevantauthorities. • Sites for primary schools, whilst not shown on the DSP Map 1, need to be provided for at the LSP stage.	Complies	LSPprovidesforalocalPrimarySchooltobe: • located adjacent to the Local Centre. • neartheSecondaryTransportSystem • on a major north-south connector street. • onacycleway. • co-located with a District Park and playing fields on a total7.5hasite. Refer: • SouthAlkimosLSPPart2-Sections6.3.3and6.4
S5 LSPstomakeprovisionforprivateschools.	Complies	LSP provides for a Private High School to be: • adjacent to Marmion Avenue within the Gateway Precinct. • ona8hasitelocatedincloseproximitytothe SecondaryTransportSystemapproximately500mfrom theproposedAlkimosRailwayStation. Refer: • South Alkimos LSP Part 2 –Sections 6.3.1 and 6.4
S 6 LSPs to investigate opportunities for co-location of educational facilities with other community, retail and recreationalinfrastructure.	Complies	• Private High School located within the Gateway Precinct. • Local Primary School to be co-located with the Playing Field POS and playing fields on a total of 7.5ha and adjacent to the LocalCentre.
S 7 LSPs to investigate opportunities to create synergies between civic and educational institutions, such as: • Extendedhoursactivity/creativityprecinctsaroundtertiaryinstitutions; • CollaborativeresearchbetweenGovernmentandIndustryofinitiativesinassociationwithtertiary institutions; • Co-locating open space, performing arts venues and libraries with secondary or tertiary institutions; • Where appropriate, encouraging partnerships that enable joint provision and shared-use of infrastructure.	Ongoing	Proposed TAFE is in Alkimos Regional Centre which is outside theLSParea. Refer: • South Alkimos LSP Community Development Plan – AppendixJ
S 8 The school site location will need to be determined through LSP upon the advice of the Department of Education and Training and to the satisfaction of the City of Wanneroo and the WAPC.	Complies	The locations of the primary school and private high school have beendiscussedwiththeDETandtheCity,whoprovidedtheir support.

Economy,EmploymentandActivityCentresComplianceTable

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to develop Economic and Employment Strategies, in partnership with State and Local Government, which, amongst other things, clearly define roles andresponsibilitiesinthedeliveryofemployment,andprovideaclearprocess and set of milestones, which can be used as performance monitoring for employmentdevelopment.	Complies	LSPprovidesfor: • An employment node in the form of a Gateway 'Mixed' Use' Precinct and Central Village (LocalCentre) • Local Centre –small retail centre to service the local community. • Gateway on Marmion Avenue is zoned 'Commercial' and will accommodate a range of retail, commercialandresidentialuses. • Employment areas such as home-based business located adjacent to the three activity centres and along the Boulevard or Secondary Transport System. Refer: • SouthAlkimosLSPPart1-StructurePlan • SouthAlkimosLSPPart2-Section6.11 • SouthAlkimosLSPAppendicesl
S2LSPstoincorporateappropriatesitesforemploymentnodesandcorridors,in locations generally as depicted on the DSP Map 1.	Complies	LSPprovidesfor: • Central Village - zoned 'Mixed Use' • Gateway Precinct - zoned 'Commercial' Refer: • SouthAlkimosLSPPart1-StructurePlan. • SouthAlkimosLSPPart2-Section6.11 • SouthAlkimosLSPAppendicesl
S 3 LSPs to provide appropriate sites for Regional, District and Coastal Activity Centres, in locations generally in accordance with those depicted on the DSP Map1.	Complies	LSPprovidesfor: • Central Village (Local Centre) • GatewayPrecinct Refer: • SouthAlkimosLSPPart1-StructurePlan. • SouthAlkimosLSPPart2-Section6.11 • SouthAlkimosLSPAppendicesl
S4 LSPstomakeprovisionforadiversityoflanduseswithintheActivityCentres, including higher density residential developments and employment generators.	Complies	LSPprovidesfor: • Regional Centre Gateway • Central(Local)Centre • Activity corridor along the Secondary Transport System Refer: • SouthAlkimosLSPPart1-StructurePlan. • South Alkimos LSP Part 2 – 6.3 and 6.5

Economy, Employment and Activity Centres Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
S5 LSPstofacilitateaccesstotheActivityCentresbyavarietyoftransportmodes, especiallypublictransport.	Complies	LSPprovidesfor: • Activity Centres to be located on the STS route connecting the centres to the proposed railway station, the Alkimos Regional Centre and north to theShorehaven. • Centres to be located on major connector streets linking the LSP area to surrounding neighbourhoods. • Cycleways are designed to pass through the Activity Centres. Refer: • SouthAlkimosLSPPart1-StructurePlan. • South Alkimos LSP Part 2 – 6.7
S 6 LSPs to accommodate generally the scale and allocation of retail, commercial, community service and associated floorspace as indicated in this DSP.	Complies	LSPprovidesfor: • Centres designed to accommodate retail floor areas as shown in Part 1 – Statutory Section Tables B – H • Centres vary in scale and use depending on desired use and future characteroftheirlocation. • Gateway – potential large format retail along Marmion Avenue with mixed use along the main entry road. • Local Centre – Convenience shopping with ancillary retail and commercial. • Communityandeducationaluses • Higher density mixed-use, shop-top housing. Refer: • SouthAlkimosLSPPart1-StructurePlan. • South Alkimos LSP Part 2 – Sections 6.3 and 6.5
S 7 The size and function of centres to be consistent with the State's Policy on Activity Centres.	Complies	The size and function of centres are consistent with the State's Policy on ActivityCentres.

TransportandMovementComplianceTable

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to provide for the Regional Road network to reflect the road alignments shown in the Metropolitan Region Scheme..	Complies	The LSP retains the alignment of Marmion Avenue as shown in the MRS. Refer: • SouthAlkimosLSPPart1-LSPStructurePlan • South Alkimos LSP Part 2 – Metropolitan Regional Scheme Plan • South Alkimos LSP Part 2 – District Structure Plan • SouthAlkimosLSPPart2-Section6.7 • Appendix D – Local Transportation Strategy

Transport and Movement Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
S 2 LSPs to identify neighbourhood connectors and major intersection points in locations generally in accordance with those depicted on the DSP Map 1.	Complies	LSP provides for: The location of major intersections and neighbourhood connectors as shown in DSP Refer: • South Alkimos LSP Part 1 - Structure Plan • South Alkimos LSP Part 2 - District Structure Plan • South Alkimos LSP Part 2 - Section 6.7
S 3 LSPs to provide for integrated road, rail, bus, pedestrian and cycle access at key nodes within the development (Alkimos Town Centre, Eglinton District Centre, Activity (employment) Corridors), the three proposed Coastal Activity Centres and railway stations.	Complies	LSP provides a highly permeable and safe movement and transport network, incorporating a Secondary Transport System (STS) designed to connect with the nearest proposed railway station (ultimately Alkimos Railway station). Refer: • South Alkimos LSP Part 1 - Structure Plan • South Alkimos LSP Part 2 - Section 6.7 • Appendix D – Local Transportation Strategy
S 4 LSPs to provide for the location of the three railway stations to integrate and activate the Alkimos Town Centre, Eglinton District Centre and park and ride/activity node located between the Regional and District Centres..	Not applicable - there is no railway station located in the LSP area	The three railway stations are outside of the LSP boundary, however, the LSP area is linked to Alkimos Station via the STS. Refer: • South Alkimos LSP Part 2 - Section 6.7 • Appendix D – Local Transportation Strategy
S 5 LSPs design to optimise integration between the transport system and the land uses which it supports.	Complies	LSP provides for an integrated transport system connecting trains, STS and cycleways to service: • Activity centres and employment areas; • Higher density residential areas; and • Areas of community and recreational use. Refer: • South Alkimos LSP Part 1 – LSP Structure Plan • South Alkimos LSP Part 2 - Section 6.7
S 6 LSPs to identify a secondary public transportation route capable of accommodating a variety of transportation modes and thereby maximising resident access to the rail infrastructure and local employment opportunities.	Complies	The Secondary Transport System route incorporates the following transport modes: • STS buses • Cyclists with a separated cycle lane • Pedestrians, with footpaths to both sides of the street • Private vehicles Refer: • South Alkimos LSP Part 1 – LSP Structure Plan • South Alkimos LSP Part 2 - Section 6.7 • Appendix D – Local Transportation Strategy

Transport and Movement Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
S 7 LSPs to establish a road hierarchy which clearly emphasises, in the longer term, the Mitchell Freeway for regional trips, Marmion Avenue and east - west roads for district trips, all supported by a local road network, to improve efficiency in the useoftransportinfrastructureandservices...	Complies	The four-way entry road is the main spine through the LSP area andextendstoRomeoRoadwhichultimatelylinkstotheFreeway. WithintheLSParea,thenetworkincludes: • a highly legible street hierarchy • a good street connections to areas outside the LSP area • fourstreetconnectionstoMarmionAvenue Refer: • SouthAlkimosLSPPart1-LSPStructurePlan • SouthAlkimosLSPPart2-Section6.7 • Appendix D – Local Transportation Strategy
S 8 LSPs to integrate higher densities and diversity of development with public transport stops, to maximise the convenience, efficiency and usage levels of public transport.	Complies	Catchment areas for the STS stops cover the majority of the LSP area.Generally,residentialdensitiesimmediatelyaroundSTSstops aremaximised. Refer: • SouthAlkimosLSPPart1-StructurePlan • SouthAlkimosLSPPart2-Section6.7 • Appendix D – Local Transportation Strategy
S 9 LSPs to incorporate design measures for both high volume roads within Activity Centres and local roads to ensure the street environmentissafeandamenabletopedestrians,cyclists,homeandbusiness.	Complies	LSP provides a highly permeable and safe movement and transport network, incorporating a Secondary Transport System (STS) designed to connect with the nearest railway station (ultimately AlkimosRailwaystation). Refer: • SouthAlkimosLSPPart2-Section6.7 • Appendix D – Local Transportation Strategy
S10LSPstodefinearobustwalk/cyclenetworkthatwillaimto: • Encourage reduction in the private car dependency for residents. • Increaseaccessibilitytoemploymentandotherurbanactivities. • Reduceadverseenvironmentalimpactsoftransport. • Increase resource efficiency in a multi modal transport system. • Provide a healthy, safe and interesting lifestyle.	Complies	TheLSPincorporatesanextensiveandconnectedpedestrianand cycle network, including on-road cycle lanes, off road shareways and dual-use pathways within major POS areas. • Key destinations have been defined and included. • SouthAlkimosLSPPart2-Section6.7 • Appendix D – Local Transportation Strategy
S 11 LSPs to design a road network which responds to the topography and environment of the project area, whilst recognising the need to facilitate an urban road framework that enables energy efficient housing orientation.	Complies	TheLSPlayoutprovidesaframeworktocreatestreetswhich: • reflect topographical change • provide flexible blocks for a range of housing types • create a predominance of housing lots which allow house designs to respond to solar orientation Refer: • SouthAlkimosLSPPart1-LSPStructurePlan • SouthAlkimosLSPPart2-Section6.6.6 • Appendix D – Local Transportation Strategy

Movement and Transport Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
S 12 LSPs to provide on-street cycle lanes and off-street shared paths on all district distributors and access streets to have shared paths/ footpaths in order to create cycling and walking networks that arecontinuous,connected,convenient,attractiveandsafeandarelinkedtokeydestinations.	Complies	The LSP incorporates an extensive and connected pedestrian and cycle network, including: • an on-road separated cycleway along the potential STS route • on-road cycle lanes and shared paths along all Neighbourhood Connector Streets. • footpathstobothsidesofalllocalstreets. • Dual-use pathways within major POS areas. Key destinations have been defined and included. Refer: • SouthAlkimosLSPPart2-Section6.7 • AppendixD
S 13 LSPs to investigate strategic agreements with the Public Transport Authorities for the provision ofpublictransportbetweenallactivitycentresandforfeederbussystemstobedevelopedin residential neighbourhoods.	Complies	Refer to South Alkimos Local Structure Plan Local Transportation Strategy prepared by Bruce Aulabaugh (Appendix D)
S14 LSP to ensure a road, open space or appropriate land use interface occurs with the above ground railwayreserveandsensitivelandusessuchasresidentialdevelopmenttoaddressnoiseamenity issues, or provide suitable justification otherwise.	NA	There is no above ground railway reserve located within the LSP area
S 15 Roads to be in accordance with Liveable Neighbourhoods.	Complies	The road cross-sections are generally in accordance with Liveable Neighbourhoods. Where thereisavariationthishasbeendiscussedandapprovedbytheCity.

Ecology, Public Realm and Open Space Compliance Table

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to reflect the Regional Open Space reserved under the MRS, with a further area of 114ha to be preserved for conservation purposes within the Waste Water Treatment Plant buffer, generally as depicted on the DSP (see Figure 3.2).	Complies	The Foreshore Reserve is protected as Regional Open Space as per the MRS.
S 2 LSPs to include an overall strategy for the provision and form of public realm including green linkages, active POS and passive POS including conservation areas, beaches and recreational facilities.	Complies	LSP provides clear strategic direction for open space with a hierarchy of parks including: • Social/Pedestrian/Cycle linkage (active and passive POS with conservation areas) • Conservation(passivePOS) • Playing Field (active POS) • Neighbourhood and Local Parks (active and passive POS) Refer: • SouthAlkimosLSPPart2-Section6.4 • South Alkimos LSP Part 2 – Section 6.8
S3 PublicOpenSpacewithinLSPsmustprovideamixofactiveandpassiveopenspaceinaccordance with WAPC Policy DC 2.4 'Public Open Space in Residential Areas' and/or Liveable Neighbourhoods.	Complies	POSareasareinaccordancewiththeoutlinedpolicies.Inparticular,theLSPprovides approximately 12% of the gross subdivisible site area as POS with: • Aconservationreservewithduneretentionover4ha. • A Playing Field with multi-purpose oval and associated facilities, co-located with the primaryschool. • Neighbourhood and Local Parks interspersed across the development.

Ecology, Public Realm and Open Space Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
	Complies	All POS areas are accessible from surrounding public streets and many are located on the cycleway network. Environmental features, such as the dunal landscape and vegetation quality/ typesarewelldocumentedintheLSPandAppendices.POSareashavebeenlocatedtoretain these significant features.
S 4 LSPs to identify significant landscape features, such as ridge lines and dunal formations, and significant natural features (refer Appendix A – Alkimos Local Structure Plan Environmental Assessment Lots 101 and Lot 1004, August 2009 byRPS), such as locally significant vegetation and fauna habitat (as is defined by the WALGA/ Perth Biodiversity Project's Local Government Biodiversity Planning Guidelines of the Perth Metropolitan Region 2004), and integrate these either within POS or with a suitably controlled and managed, highly landscaped responsive form of development or provide suitable justification otherwise.	Complies	All POS areas offer high levels of surveillance from adjacent public streets, public pathways and overlooking residences. Refer: • SouthAlkimosLSPPart2-Section6.3 • SouthAlkimosLSPPart2-Section6.8 • South Alkimos LSP Local Environmental Impact Assessment prepared by RPS – Appendix A Conservationreservescomprise6haofPOS,locatedtoconservedunalformations,native vegetation and provide a link between the Foreshore Reserve and the WWTP conservation area. 45.68ha of Foreshore Reserve is retained for conservation, protecting locally significant vegetation and fauna habitat. Areas of urban development are to be graded to provide a strong memory of the existing dunal topography. Refer: • SouthAlkimosLSPPart2-Section6.8 • SouthAlkimosLSPPart2-Section6.6 • South Alkimos LSP Local Environmental Impact Assessment prepared by RPS – Appendix A • South Alkimos Local Engineering Infrastructure Report prepared by Cossill and Webley – AppendixE.
S 5 LSPs to investigate and facilitate interlinking recreational areas, environmental reserves, landscaped streetscapes and local POS to provide 'stepping stones' from hinterland to the coast generally in accordance with the Social/ Pedestrian/Cycle linkages shown on the DSP (Map 1) and the Guidelines in this DSP.	Complies	The LSP provides two primary green linkages in the LSP area: • Social/Pedestrian/Cycle linkage from the Foreshore Reserve to neighbouring Lot 3, providing connectedopenspacesandpedestrian/cycleaccess. • A north-south ecological link from the Foreshore Reserve to the Regional Open Space within theWWTPsite. Refer: • AlkimosLSPPart2-Section6.8

Ecology, Public Realm and Open Space Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
S 6 Foreshore Management Plans (FMPs) are to be generally prepared in consultation with the Department of Planning's Coastal Planning section, with setbacks to be in accordance with SPP No. 2.6 Coastal Planning Policy and will address the following: • Support for the development of the coastal nodes into Activity Centres • Community access and beach side facilities and focal points • Conservation values • Linkages • Dune stabilisation • Perpetual management • Recreation opportunities • Pedestrian access • Fauna habitat retention	Complies	The following reports are provided as an appendix to the LSP: • South Alkimos LSP Local Environmental Impact Assessment prepared by RPS – Appendix A A FMP will be prepared and lodged with the WAPC prior to any development within the Foreshore Reserve
S7 LSPs and/or FMPs to provide for a continuous foreshore shared path and identify appropriate locations for public beach access and facilities.	Complies	A continuous north-south dual use pathway through the Foreshore Reserve is outlined in the LSP. The locations for public beach access and facilities will be determined when the FMP is prepared. Refer: • South Alkimos LSP Part 2 - Section 6.7 • South Alkimos LSP Part 2 - Section 6.9
S8 LSPs to identify conservation areas, such as conservation public open space, or passive open space with a conservation function, and design these in such a way so that they remain viable (as defined by the WALGA/ Perth Biodiversity Project's Local Government Biodiversity Planning Guidelines of the Perth Metropolitan Region, 2004).	Complies	Conservation areas are outlined on the LSP. Refer: • South Alkimos LSP Part 2 - Section 6.8
S 9 Landscape plans for public spaces to utilise local indigenous plant species, or provide suitable justification otherwise, and their use to be encouraged in private landscapes.	Complies	Refer: • South Alkimos LSP Part 2 - Section 6.9
S 10 LSPs to include a Vegetation Management Strategy, which will include, where appropriate, a vegetation survey, fauna survey, fauna habitat survey, highlight the areas of vegetation and habitat to be retained and highlight opportunities for existing vegetation to be retained in the landscape through measures such as local seed provenance and retention in public space.	Complies	A Vegetation and Fauna Management Plan for the LSP area has been prepared by RPS and is provided as an appendix to the LSP. Refer: • South Alkimos LSP Local Environmental Impact Assessment prepared by RPS – Appendix A
S11 LSPs to provide for co-location, such as schools with public open space, and multiple uses, such as conservation and passive recreation, where practicable.	Complies	The LSP provides for a Playing Field with multi-purpose oval and associated facilities to be co-located with a primary school. Refer: • South Alkimos LSP Part 2 - Section 6.8
S 12 The design of the public realm in Activity Centres to be generally based around a grid of open air streets.	Complies	The LSP provides for a clear and flexible street network across the whole urban development area. Refer: • South Alkimos LSP Part 2 - Section 6.7

BuiltEnvironmentComplianceTable

DSP Strategies	Compliance	LSP Strategy
S 1 LSP and subdivision design to be robust and be able of being intensified over time.	Complies	The design allows for densification over time. Refer: • SouthAlkimosLSPPart2-Section6.3
S 2 LSPs to prepare a Housing Diversity, Residential Yield and Density Analysis Plan allocating densities consistent with the City's Housing Strategy.	Complies	LSP provides an R-code ranges, indicative building type plan and explanation Housing diversity is also addressed. Refer: • SouthAlkimosLSPPart2-Section6.5 • SouthAlkimosLSPPart2-Section6.13
S 3 LSPs to allocate higher residential density codings generally consistent with the DSP andinaccordancewiththecriteriabelow: • A minimum average density of 50 dwellings per site hectare within 400 metres from the centre of regional activity centres; • A minimum average density of 30 dwellings per site hectare within 400 metres fromthecentreofdistrictactivitycentres; • A minimum average density of 25 dwellings per site hectare within 400 meters from the centre of neighbourhood centres and along neighbourhood connectors; supporting future public transport routes; • A range of densities in other locations in order to deliver housing diversity.	Complies N/A N/A Complies Complies	The South Alkimos LSP provides for a density of 28 dwellings per site hectare over theentireLSParea. Refer: • SouthAlkimosLSPPart2-Section6.5
S 4 LSPs to develop residential design standards that are responsive to site and lot attributes and facilitate energy-efficient, affordable and flexible dwelling design.	Complies	Part 1 establishes requirements for future DAPs and key site planning and building design considerations. The Sustainability Strategy identifies energy efficiency requirements for housing and commercial buildings to meet. Refer: • SouthAlkimosLSPPart2-Section6.10 • Sustainability Strategy - Appendix H
S 5 LSPs to provide for energy-efficient development through appropriate subdivision design and R-Code variations.	Complies	Towards carbon neutrality and therefore energy efficient development is an underlying goal for South Alkimos. Part 1 establishes requirements for future DAPs and key site planning and building design considerations. Refer: • South Alkimos LSP - Part 1 – Statutory Section Table A

Built Environment Compliance Table (cont'd)

DSP Strategies	Compliance	LSP Strategy
S6 LSPstoprovideforbuiltformthatincorporatestheopportunityforpassivesolar design, energy and water efficiency principles.	Complies	LSP establishes principles energy and water efficiency. Refer: • SouthAlkimosLSPPart2-Section6.10 • Sustainability Strategy - Appendix H
S 7 LSPs to allow for 'ageing in place' through the provision of a range of dwelling types, including those suitable for the elderly.	Complies	The LSP includes a range of housing types including intergenerational housing and aged housing. Refer: • SouthAlkimosLSPPart2-Section6.5 • SouthAlkimosLSPPart2-Section6.13
S 8 LSPs to develop and implement strategies for affordable housing product and to facilitateincreasedopportunitiesforhomeownership.	Complies	The LSP makes a commitment to provide affordable housing. The LSP also includes a strategy for site grading that provide flatter site to support more affordable building houses verses steeper sites that may require more specific house designs. Refer: • SouthAlkimosLSPPart2-Section6.5 • SouthAlkimosLSPPart2-Section6.13
S 9 LSPs to provide for housing types in accordance with the City's Housing Strategy.	Complies	For detailed information on housing types. Refer: • SouthAlkimosLSPPart2-Section6.5 • SouthAlkimosLSPPart2-Section6.13
S10LocalandCentrestructureplansand/ordetailedareaplanshalldemonstratehow thescaleandallocationofretail,commercial,communityserviceandassociated floor space will be delivered by: • Delivering a robust street network that can accommodated an increase in intensity ofbuiltformanduseovertime; • Providing adaptable building design capable of multifunctional ground floor use andtheprovisionofadditionallevelswithouttheneedfordemolition;and • Enabling generational change to occur as a right in certain circumstances without the need for further planning approval.	Complies	Part 1 establishes requirements for future DAPs and key site planning and building design considerations.

Resources, Infrastructure and Services

S1 LSPs to demonstrate how funding arrangements, including the endorsed Alkimos Eglinton Developer Contributions Plan, are to be implemented, in order to provide for the efficient and equitable delivery of infrastructure and services.	NA	The Alkimos Eglinton Developer Contributions Plan is yet to be finalised. Discussions are currently underway with the City in respect to the draft Local Planning Policy 3.3: Northern Coastal Growth Corridor Developer Contributions.
S2 LSPs to make provision for infrastructure and essential services to development areas.	Complies	All essential services are available to the site. Refer: • South Alkimos LSP Part 2 - Section 6.6 • South Alkimos LSP Appendix E
S3 LSPs to investigate opportunities for communications infrastructure.	Complies	Negotiations are currently underway to provide optic fibre telecommunication cable to service the LSP, which will allow for telephone and broadband information technology services. Refer: • South Alkimos LSP Part 2 - Section 6.6.5 • South Alkimos LSP Appendix E
S 4 LSPs to explore opportunities and initiatives for energy efficiency.	Complies	It is proposed to investigate and develop feasible energy efficiency initiatives. Refer: • South Alkimos LSP Part 2 - Section 6.10 • South Alkimos LSP Appendix H

Staging

S1 LSPs shall demonstrate that the establishment of residential areas, activity centres, employment-generating uses, transport systems, infrastructure, public spaces and community facilities within that LSP will be staged in a way that efficiently and effectively caters for the needs of the community. This includes the prioritisation of new retail and commercial development within centres over that of the adjoining areas or along corridors, within the LSP area.	Complies	A staging plan has been prepared to demonstrate that the LSP meets this strategy. Refer: • South Alkimos LSP Part 2 - Section 8.1

9.0 Implementation

9.1 Planning Process

The implementation of the LSP will follow the typical development process followed within Western Australian, being:

ENDORSEMENT OF SOUTH ALKIMOS LOCAL STRUCTURE PLAN
↓
SUBDIVISION APPLICATION
↓
PREPARATION OF DETAILED AREA PLANS
↓
CLEARANCE OF SUBDIVISION CONDITIONS
↓
CREATION OF CERTIFICATE OF TITLES
↓
DEVELOPMENT APPLICATION/BUILDING LICENCE

9.2 Indicative Staging Plan

The urban development of the South Alkimos LSP area will be implemented in stages over a period of time the duration of which will be dependent on the demand, for residential housing and the services and facilities that are associated with it.

The provision of engineering infrastructure will also need to be staged to suit the development demand and a detailed program for this will need to be prepared as a part of ongoing detailed planning and design of the infrastructure.

The current estimate for development growth of the South Alkimos LSP area include commencement in 2011 and the development rate of 350 allotments per year.

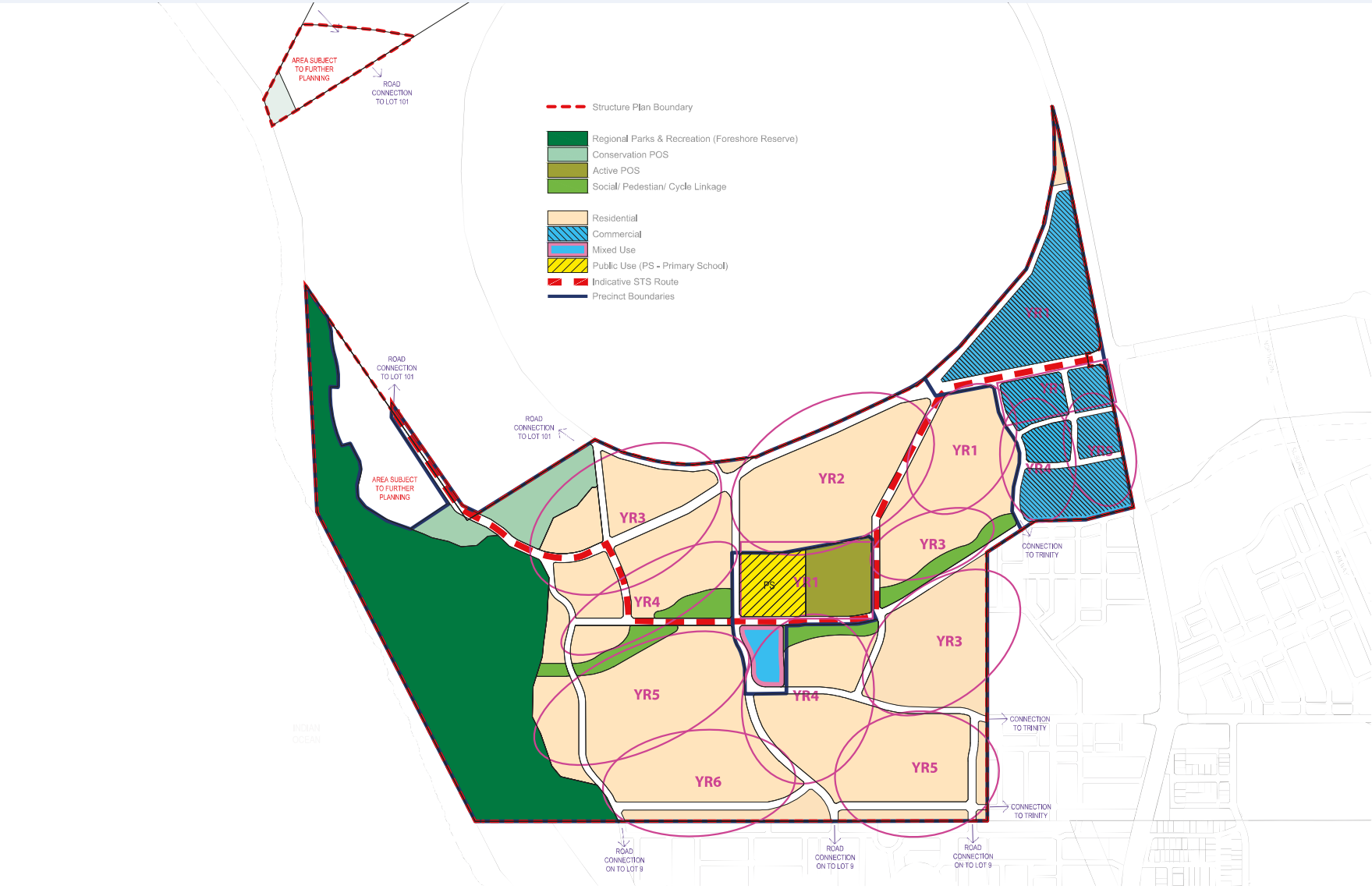


Figure 28 - Indicative Staging Plan

RobertsDay
planning·design·place