

ALKIMOS EGLINTON DISTRICT STRUCTURE PLAN

18 FEBRUARY 2020
(Amendment 02)

THIS STRUCTURE PLAN IS PREPARED AND SUBMITTED TO
COUNCIL PURSUANT TO THE PROVISIONS OF
PART 9 OF THE CITY OF WANNEROO DISTRICT PLANNING
SCHEME NO. 2

ON BEHALF OF:
LANDCORP
EGLINTON ESTATES PTY LTD
PEET ALKIMOS PTY LTD
ALKIMOS LOT 101 JOINT VENTURE

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EXECUTIVE SUMMARY

Preface... by Professor David Lock (UK)

This document describes the location and scale of the Alkimos Eglinton vision, to create a “truly intelligent seaside town” in the City of Wanneroo, 15km north of Joondalup in the Northwest Corridor of the Perth Metropolitan Region.

With around 57,000 new inhabitants destined for 2,626 ha of land under the unified control of a public/private partnership, Alkimos Eglinton is one of the largest self-contained planned development projects in Australia, and in the developed world.

This document confirms the huge ambition of the promoters not only to bring forward a District Structure Plan that seeks to be exemplary in its careful fit with the current development planning policy and sustainability requirements of Western Australia, but also to ensure that the project remains exemplary in international terms.

The involvement of international practitioners has enabled the work to remain benchmarked against current best practice over as many continents as possible. There is a tangible sense of the responsibility carried by the entire team that Alkimos Eglinton must be created in such a way that it will endure as a sustainable community; that it will have minimum harmful impact; that it will maximise its beneficial effects; and, above all else, that it will be a delightful place in which people will come to settle, create, innovate and flourish in every respect. A “business as usual” approach has never been part of the Alkimos Eglinton culture. This place aims to be one of the best, and is on course to be so.

The baseline leading edge features of the project remain founded on the international obligation to bring about sustainable development. This generates over-arching concern for the achievement of a durable balance between social, environmental and economic considerations. Of these, social and economic considerations are the most challenging today, because they are even less easily measured and not so popularly understood as environmental issues have become.

We can be confident that thus this development will tread far more lightly on the topography and underlying geology of the site than have conventional subdivisions. The transport and communications patterns of streets, footpaths and cycleways will bend more respectfully to celebrate the pattern of the landscape with its ancient dunes, and the built environment will be composed, oriented and detailed to minimise carbon consumption in construction and over the long term.

In addition, however, the structure of Alkimos Eglinton described here meets the social imperative to encourage mixed tenure, mixed income, and convivial density neighbourhoods; to create social inclusion because neighbours will meet and converse; to encourage children to walk to school with their friends; to enable businesses to be joined into the physical fabric on the busiest streets and squares of each neighbourhood; and for the best possible public transport systems to tie the whole together such that it can offer choices of friendship groups, cultural facilities, and a wide breadth of civic life. These are often underrated features of sustainable development, and it is to the great credit of the team that they see the priority to be given to such matters.

Then there is the economic life of the project to consider. The District Structure Plan has been tested to ensure that the welcome it will offer to new and expanding businesses will be irresistible – the prospect of a full and prosperous life in a beautiful coastal place in which work and home are close and often a seamless experience. It is excellent that the way the place will earn its daily bread is designed to be visible and part of the everyday life of the community.

EXECUTIVE SUMMARY

A healthy, creative and stable community is the best possible attractor for inward investment, and the commitment to sustainable development will make Alkimos Eglinton especially attractive to businesses creating goods and services for the carbon-neutral age we must enter without any further delay. Micro-generation of energy, minimising water consumption, using renewable energy resources, are all an explicit part of the plan.

The process of producing this District Structure Plan has involved international peer group review, by which several of us from outside Australia have been able to contribute current best practice perspectives, experiences, examples, and anecdotes. We have been positively encouraged to provide constructive criticism of the emerging design.

This international dialogue is in itself is best practice, has sustained the testing processes that have been the hallmark of project so far, and confirms the high merit of what is proposed in these pages. The serious commitment of the public/private partners to get this right, and to make Alkimos Eglinton the scheme by which others will be judged, is here displayed.

David Lock is an international planning and urban design consultant based in the UK where he was Chief Planning Adviser to the government for some years, and advises major landowners developers and government bodies on large urbanisation schemes. He is Visiting Professor at the University of Reading in England, and is Chair of the Town and Country Planning Association. David has established an Australian-owned arm of his consultancy business in Melbourne, Victoria, and that team has been contributing to aspects of the design of Alkimos Eglinton in its own right.

EXECUTIVE SUMMARY

A Vision for Alkimos Eglinton

Alkimos Eglinton is proposed to be a truly intelligent seaside town, designed to serve the needs of modern communities into a rapidly changing future. Located 15 km north of Joondalup, it will accommodate more than 57,000 residents and engender a vibrant coastal lifestyle. Rather than merely extending the urban fringe northwards in a similar manner that has occurred over the past twenty years, the Alkimos Eglinton landowners have planned to create a most innovative self-sustaining community that appropriately responds to perceived 21st Century demands. As a clever, transit oriented development it will have sustainability at the heart of its design and central to its residents' way of life.

Alkimos Eglinton will comprise two major mixed-use Town Centres strongly linked to three vibrant Coastal Villages. Its diverse communities will grow, with the focus on attractive waterfront precincts and coastal lifestyle. It will feel very much like a series of modern, vibrant coastal villages. It will be a liveable "place for people". The project's planned innovative, flexible and robust approach will allow it to adapt to changing lifestyles and demographics over the life of the development, always bringing tomorrow's living to today's world.

The Opportunity

The development of Alkimos Eglinton will transform this attractive coastal location into a vibrant coastal community, provided with a diverse variety of housing choice, retail, commercial and cultural facilities, entertainment and civic spaces – a place to live, work and play. The Alkimos Eglinton District Structure Plan (DSP) has been prepared to facilitate and enable this extensive coastal development to provide for the logical growth of the North West corridor, addressing vital land supply demand and employment creation. The project will:

- Provide housing diversity;
- Provide a range of local employment opportunities;
- Provide a range of community amenities;
- Protect areas of natural environment within identified Regional Open Space reservations and open space systems;
- Provides a variety of active recreation facilities;
- Facilitate ease of access to the attractive coastal environs;
- Facilitate formation of an integrated community, and a strong "sense of place";
- Encourage reduction in the use of water and power and the delivery of a sustainable community and outcomes;
- Provide new infrastructure and encourage best practice in built form;
- Afford excellent access to a range of public transport options and aim to reduce car dependency; and
- Promote excellence in education by providing a range of educational establishments.

EXECUTIVE SUMMARY

The Context

Policy Drivers

A major element behind the thinking and planning for Alkimos Eglinton has been compliance with State Government and City of Wanneroo policies, particularly those relating to sustainability. The development proposals demonstrate best practice in addressing these policies, respond to and conform with the recently approved amendments to the Metropolitan Region Scheme (MRS) for the area.

Sustainability

The triple bottom line imperatives of economic, social and environmental sustainability have played a dominant role in the planning process and desired outcomes for the Alkimos Eglinton Project.

Design Approach

The design approach has been a rigorous multidisciplinary process with a focus on excellence in urban design, achieving a sense of place and sustainability principles. The guiding principles that were developed and upon which the plan was based included:

- Creating a sense of place at both the local and regional level;
- Integrating and connecting with all elements of the area;
- Ensuring flexibility and robustness in urban form;
- Creating an urban form that encourages and facilitates the development of “community”;
- Providing a diversity and mix of use;
- Creating an attractive living and working urban environment;
- Utilisation of “best practice” to maximise energy efficiencies and energy and water conservation to promote sustainable urban development; and
- Utilisation of “best practice” to ensure excellence in environmental outcomes.

The Alkimos Eglinton District Structure Plan (DSP)

The Alkimos Eglinton District Structure Plan provides a robust planning framework for the creation of a vibrant, sustainable new coastal community, comprising over 23,000 dwellings housing more than 57,000 people. The DSP responds to the Project Vision and includes Guiding Principles and Objectives to assist in facilitating and guiding the future local structure planning and development phases of the project. The DSP is a high level document, used to guide subsequent levels of more detailed planning, subdivision and eventual development. It is recognised that in order to implement sustainability at Alkimos Eglinton, clear implementation paths will be necessary.

EXECUTIVE SUMMARY

Project Overview

Embracing over 2,626 ha of land with 7.5 km of coastal frontage, the Alkimos Eglinton Project will:

- Create over 23,000 dwellings which will ultimately house a new, vibrant coastal community of in the vicinity of 57,000 people;
- Preserve over 500 ha of the coastal dunal system and environmentally significant landform;
- Incorporate two major east-west Social/Pedestrian/Cycle linkages, connecting the ocean to the major north-south Regional Park System extending from Woodvale to Yanchep;
- Create the Alkimos Secondary Activity Centre and Eglinton District Activity Centre and incorporate three new Coastal Villages;
- Develop the Eglinton Marina;
- Address important sustainability criteria;
- Provide nine new Primary Schools, two High Schools and sites for two Private Schools;
- Provide a modern second tier public transport system connecting the rail stations at Secondary and District Activity Centres to the three coastal villages and adjoining residential precincts;
- Provide a wide range of housing diversity;
- Provide for localised employment opportunities; and
- Make a significant contribution to satisfying land and housing supply in the City of Wanneroo and Perth Metropolitan Region as a whole, for the next 20-25 years.



EXECUTIVE SUMMARY

Project Team

The following specialist consultants have been involved in the preparation of the District Structure Plan:

TASK	CONSULTANT
Project Management	Woodsome Management Pty Ltd
Town Planning / Urban Design	Development Planning Strategies RobertsDay (Amendment 01) CLE Town Planning + Design (Amendment 02)
Engineering Services	Cossill and Webley
Transport Planning	Sinclair Knight Merz
Environmental Studies	RPS Bowman Bishaw Gorham
Sustainability Initiatives	GHD
Landscape Evaluation	EPCAD
Community Research	CSD Network
Retail Consultants	Ibecon
Employment and Economic	Syme and Marmion
International (UK) Town Planning and Urban Design – Peer Review	David Lock Associates
Workshop Design / Development	Urbanizma
Aboriginal / Heritage	Australian Interaction Consultants

Purpose of District Structure Plan

The Alkimos Eglinton District Structure Plan has been funded by and prepared on behalf of the combined Alkimos Eglinton landowners and is intended as a broad district level land use strategy defining the strategic planning framework for the project area.

The plan forms the framework for more detailed local structure planning over the duration of the project, which will be developed over the next 20 to 25 years and thus needs to be able to adapt and reflect changing planning and development trends, demographics, community needs and market demands.

This document and accompanying plan form the first in a hierarchy of Structure Plans, setting up an overall district framework under which more detailed structure planning can occur.

EXECUTIVE SUMMARY

Planning Process to Date

The Northwest Corridor has long been recognised as a major growth corridor for the Perth Metropolitan Region. The Corridor Plan (1970) identified the Northwest Corridor as being particularly attractive for urban development because of its undulating well drained soils, proximity to Indian Ocean and the substantial lifestyle and climatic advantages for housing that it offers. The report Planning Structure for the Northwest Corridor, released in 1977 by the former Metropolitan Region Planning Authority, provided a structure plan to guide development in the Northwest Corridor, including the Alkimos Eglinton District. Following the adoption of Metroplan in 1990, the 1977 Corridor Structure Plan was reviewed and replaced by the WAPC's North West Corridor Structure Plan (1992).

Following the Environmental Protection Authority (EPA) approval in January 1992, a portion of Lot 11 (Eglinton Beach Resort) was rezoned under the Metropolitan Region Scheme from 'Rural', 'Waterways Reservation' and 'Parks and Recreation' to 'Urban' and 'Parks and Recreation', in order to facilitate the development of a marina complex incorporating mooring facilities, private housing, a resort centre hotel, public recreational, commercial facilities, and a golf course. In April 1993 the WAPC commenced a program of major amendments to the MRS that has resulted in the MRS being brought into conformity with the various structure plans published and approved by the WAPC, including the North West Corridor Structure Plan (1992).

An initial regional level Structure Plan for the total Alkimos Eglinton area was produced in May 1993. The land use arrangements proposed by that Plan were reflected in the 1994 MRS Amendment (No. 932/33), which rezoned large portions of the project area from 'Rural' to the following zones and reserves:

- 'Urban' over the bulk of the area, incorporating portions of Swan Location 16, Lot M1503, Lot 11, Pt Lot 6, Lot M1482, Lot 102 and Lot 3;
- 'Urban Deferred' over a small portion of land affecting Lots M1482 and Lot 102, reflecting the area proposed for marine related uses within the wastewater treatment plant buffer;
- 'Central City Area' over the proposed regional commercial / institutional and employment centres within Lot 102 Alkimos;
- 'Parks and Recreation' over important landform and environmental areas along with foreshore reserves;
- 'Public Purpose' over the Water Corporation Alkimos Wastewater Treatment Plant site, Groundwater Treatment Plant site and a portion of Lot 101 (Ocean Outfall construction site);
- 'Important Regional Roads' along the Marmion Avenue alignment, portion of Connolly Drive and east-west aligned district distributors;
- 'Controlled Access Highways' over the proposed Mitchell Freeway Reserve;
- 'Railways' over the proposed extension of the North West passenger railway line; and
- Private Recreation.

In July 1995 the Alkimos Eglinton District Strategy Plan was produced in support of bringing the City of Wanneroo Town Planning Scheme No.1 in line with the preceding MRS Amendment (923/33).

In December 1997, a second draft Alkimos Eglinton District Structure Plan was produced. The 1997 Structure Planning process was commenced and funded by the major landowners within the area. This significant Structure Planning process comprised workshops and design charrettes involving the project team and various other stakeholders. This process has also been referred to as the 'Master Planning' process.

EXECUTIVE SUMMARY

Complex and lengthy negotiations followed with the Water Corporation on relocation of the proposed Alkimos Wastewater and Groundwater Treatment Plants along with a thorough review of other regional planning consideration including regionally significant Parks and Recreation areas, the final alignment of Marmion Avenue and realignment of the Railway Reserve.

As part of the ongoing program of amendments, in August 2000, MRS Amendment 1029/33 Alkimos Eglinton was initiated to facilitate the implementation of important elements of the 1997 Alkimos Eglinton District Structure Plan in relation to the Parks and Recreation, Public Purposes, Primary Regional Roads and Other Regional Roads reservations, and the City Centre, Urban and Urban Deferred zones. As a result of submissions received to the first advertising, the WAPC required a significant re-examination of the 1998 Alkimos Eglinton District Structure Plan. As a consequence of this review, a District Concept Plan (which altered some key elements of the earlier structure plan) was adopted by the stakeholders in 2004. The Alkimos Eglinton Amendment 1029/33 was then modified to reflect the changes proposed by the 2004 District Concept Plan and re-advertised.

This culminated in the publication of the Environmental Protection Authority Bulletin 1207 and the approved May 2006 MRS Amendment 1029/33 (refer [Section 4](#)).

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

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

19 October 2015

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

PART ONE - STATUTORY SECTION

Record of Amendments made to the Alkimos Eglinton District Structure Plan

AMENDMENT NO.	DESCRIPTION OF AMENDMENT	WAPC ADOPTED	COUNCIL ADOPTED
01	Amend Service Commercial zoning in the Alkimos Secondary Centre and remove the North Alkimos rail station.	31 May 2016	21 July 2015
02	Amend 35.6ha of Service Commercial Land and designate as Urban.	19 March 2020	2 July 2019

PART ONE - STATUTORY SECTION

1.0 STRUCTURE PLAN AREA

This District Structure Plan (DSP) shall apply to the area of land contained within the inner edge of the broken line shown on the District Structure Plan Map (DSP Map 1).

2.0 STRUCTURE PLAN CONTENT

This Structure Plan comprises:

- a. Statutory Planning Section (Part 1)
- b. Explanatory Section (Part 2)
- c. Technical reports (Appendices to Part 2)

Part 2 is intended to explain and clarify the application of the statutory provisions in Part 1, and is intended for guidance purposes only. Part 2 includes information and detail, which is not duplicated in Part 1. This is intended to be used to inform the application and implementation of the DSP, not to circumscribe the provisions of Part 1.

3.0 INTERPRETATIONS

The words and expressions used in this Structure Plan shall have the respective meanings given to them in the Scheme, or where not defined in the Scheme, as set out in this document.

'The Scheme' shall mean the City of Wanneroo District Planning Scheme No.2 (as amended).

4.0 OPERATION DATE

In accordance with sub-clause 9.8.1 of the Scheme, this Structure Plan shall come into operation on the later date of when it is certified by the WAPC pursuant to sub-clause 9.6.3 of the Scheme, or adopted, signed and sealed by the Council under sub-clause 9.6.5 of the Scheme.

5.0 RELATIONSHIP WITH THE SCHEME

In accordance with clause 9.8 of the Scheme, the provisions, standards and requirements specified under Part 1 of this Structure Plan shall have the same force and effect as if it were a provision, standard or requirement of the Scheme. Part 2 of this DSP provides further explanation and detail to elaborate on the provisions contained within Part 1 and shall be used as a reference to guide interpretation and implementation of Part 1.

PART ONE - STATUTORY SECTION

6.0 GENERAL PROVISIONS

The DSP provides the broad district level planning framework for development of the DSP Area. It provides inter alia, the broad disposition of land use, major roads, rail and other community infrastructure. The DSP provides the general basis for subsequent preparation of local structure plans (LSPs) over portions or precincts within the DSP area. Those LSPs will comprise a more detailed level of planning necessary to facilitate development.

The DSP does not include a plan showing zonings, specific residential density codings or detailed development standards and requirements. Generally, no subdivision or development should be commenced or carried out until such time as an LSP has been prepared and becomes operative for the relevant portions of the DSP area. Any subdivision or development which does take place is to accord generally with an approved LSP unless it can be demonstrated that the subdivision/ development will not prejudice the design or outcome of the relevant LSP.

The intent of the land uses shown in the DSP Map 1 is to specify the general types of land use required or that are most appropriate for the subject land in order to achieve the various outcomes stated in this document. Their arrangement is strategic and should not be read as absolute, with the ultimate extent and type of zonings to be defined at the LSP stage.

PART ONE - STATUTORY SECTION

7.0 PLANNING PRINCIPLES, ELEMENTS, OBJECTIVES AND STRATEGIES

This section details a number of Guiding Principles, Elements, Objectives and Strategies, which are intended to inform and guide the detailed planning process.

7.1 GUIDING PRINCIPLES

The following Guiding Principles are broad statements, which underpin the intent of the DSP and reflect the content of State Sustainability Strategy, WAPC's Liveable Neighbourhoods Policy and the City of Wanneroo's Smart Growth Strategy. Development is to:

1. Form an integrated ecological and human system with an interconnected network of a variety of open spaces, Social/Pedestrian/Cycle linkages, activity centres and activity corridors.
2. Facilitate the creation of healthy communities in terms of lifestyles and social cohesion.
3. Facilitate robust local economic development, economic prosperity and employment self-sufficiency.
4. Respond to and integrate key landscape features and foreshore interfaces. Be responsive to the climate, environment, character and identity of the locality.
5. Provide for diversity, choice, adaptability, efficiency and innovation.
6. Be designed for efficient and integrated movements systems such as public transport, cycling and walking.
7. Provide for a safe, attractive and high quality public realm that caters for a wide range of uses from active recreation to informal, unplanned events and experiences.
8. Provide for a wide range of civic, commercial, educational and recreational and employment opportunities that are available to the entire community.
9. Foster innovative, knowledge-based economies to create robust 21st Century communities.
10. Facilitate the efficient provision of infrastructure and services.
11. Development staging is to provide for progressively increasing employment self-sufficiency and opportunities.
12. Development and resource utilisation is to respond to and accommodate natural hydrological and nutrient cycles.

7.2 ELEMENTS

Stemming from the guiding principles, the following Elements have been identified to form the framework for the Objectives and Strategies:

- Sustainability
- Community Development
- Economy, Employment and Activity Centres
- Ecology, Public Realm and Open Space
- Transport and Movement
- Resources, Infrastructure and Services
- Built Environment

PART ONE - STATUTORY SECTION

7.3 OBJECTIVES AND STRATEGIES

Objectives and strategies are provided for each of the elements to ensure the guiding principles flow through the subsequent layers of the planning and development process and are effectively implemented. The objectives set out the desired outcomes for each element and the strategies identify mechanisms to achieve these outcomes.

The objectives and strategies are to be implemented through the Scheme, this DSP, LSPs, subdivision, detailed area plans, development and infrastructure provision supported where appropriate through strategic agreements and Memorandums of Understanding (MOUs).

LSPs prepared within this DSP area shall demonstrate compliance with the objectives and strategies, including implementation, to the satisfaction of the City and WAPC. LSPs shall be accompanied by supporting reports, plans and / or strategies as required by the City and / or the WAPC.

If there is a conflict between one of more of the Objectives and Strategies, then the City of Wanneroo and WAPC will determine which takes priority.

7.4 SUSTAINABILITY

Objectives

- O 1 To deliver 'triple bottom line' sustainability outcomes being:
- Economic - commercial success for all.
 - Environment – preservation and/or response to significant natural features, energy, water and waste minimisation.
 - Social - a vibrant and safe community.

Strategies

- 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.
- 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 and standards in this DSP.
- 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.
- S 4 LSPs to provide for Secondary, District, Neighbourhood and Local Activity Centres and employment corridors, generally as depicted on the DSP Map 1.
- 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.
- 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.

PART ONE - STATUTORY SECTION

7.5 COMMUNITY DEVELOPMENT

Objectives

- O 1 To establish a hierarchy of strong Activity Centres, to serve the needs of the community and act as a focus for development, employment, the provision of services, and community activity and interaction.
- O 2 To accommodate urban growth in a Network City pattern, incorporating communities.
- O 3 To facilitate the formation of active and healthy communities, well connected to each other, the natural environment, and built on distinctive local identities, offering a broad range of lifestyles.
- O 4 To facilitate community development through the formation of a distinctive sense of place for each LSP area, creation of connections such as paths and public transport routes linking people to and between where they live, work and play.
- O 5 To support the establishment of community through the timely provision of facilities, services and transport, entertainment, recreational and cultural activities.
- O 6 To facilitate the provision of educational facilities and services that meets the needs of the Alkimos Eglinton community.
- O 7 To provide a public realm which expresses regional and local sense of place, knitted together with a transport system.

Strategies

- 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.
- 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.
- 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.
- S 4 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 and partnerships with relevant authorities.
 - Sites for primary schools, whilst not shown on the DSP Map 1, need to be provided for at the LSP stage.
- S 5 LSPs to make provision for private schools.

PART ONE - STATUTORY SECTION

- S 6 LSPs to investigate opportunities for co-location of educational facilities with other community, retail and recreational infrastructure.
- S 7 LSPs to investigate opportunities to create synergies between civic and educational institutions, such as:
- extended hours activity/ creativity precincts around tertiary institutions;
 - collaborative research between Government and Industry of initiatives in association with tertiary institutions;
 - co-locating open space, performing arts venues and libraries with secondary or tertiary institutions; and
 - where appropriate, encouraging partnerships that enable joint provision and shared-use of infrastructure.
- 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.

PART ONE - STATUTORY SECTION

7.6 ECONOMY, EMPLOYMENT AND ACTIVITY CENTRES

Objectives

- O 1 To establish a hierarchy of strong Activity Centres, with a range of complementary activities, including employment, retail, living, entertainment, education and medical services, to serve the needs of the community and act as a focus for community activity and interaction.
- O 2 To enable the development of Activity Corridor, between Activity Centres, which foster employment opportunities and support the development of the public transport network.
- O 3 To aim for a minimum of 60% employment self-sufficiency within the DSP area, with a range of employment opportunities contributing to an overall self-sufficiency within the North-West Corridor of 72%.
- O 4 To create a robust urban framework within and around Activity Centres, which enhances opportunity for community and economic activity to generate locally, based employment at active focal points.

Strategies

- S 1 LSPs to develop Economic and Employment Strategies, in partnership with State and Local Government that, amongst other things, clearly define roles and responsibilities in the delivery of employment, and provide a clear process and set of milestones, which can be used as performance monitoring for employment development.
- S 2 LSPs to incorporate appropriate sites for employment nodes and corridors, in locations generally as depicted on the DSP Map 1.
- 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.
- S 4 LSPs to make provision for a diversity of land uses within the Activity Centres, including higher density residential developments and employment generators.
- S 5 LSPs to facilitate access to the Activity Centres by a variety of transport modes, especially public transport.
- S 6 LSPs to accommodate generally the scale and allocation of retail, commercial, community service and associated floorspace as indicated in this DSP.
- S 7 The size and function of centres to be consistent with the State's Policy on Activity Centres.

PART ONE - STATUTORY SECTION

7.7 ECOLOGY, PUBLIC REALM AND OPEN SPACE

Objectives

- O 1 To integrate areas of local significance (as defined by WALGA/ Perth Biodiversity Project's Local Government Biodiversity Planning Guidelines of the Perth Metropolitan Region 2004) and/or significant natural features within POS areas, road reserves, Social/Pedestrian/Cycle linkages and suitably controlled private space.
- O 2 To maintain the ecological integrity of the coastal foreshore and manage it by focusing the needs for recreation and activity.
- O 3 To provide for a range of coastal recreational activities on the foreshore reserve and to enable development associated with Coastal Activity Centres, to satisfy the needs of the community.
- O 4 To provide a range of recreational opportunities within the DSP Area, including active recreation, passive recreation and conservation areas and utilise multiple use opportunities, such as passive recreation with conservation uses.
- O 6 To designate areas for district recreational facilities, generally as depicted on the DSP Map 1.
- O 7 To integrate the built environment with the natural ecosystem in a complementary manner.
- O 8 To consider the natural topography in conjunction with vegetation retention and the built environment.
- O 9 Accessible and high quality walking and cycling networks connect with key destinations and other transport modes;

Strategies

- S 1 LSPs to reflect the Regional Open Space reserved under 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 Map 1.
- S 2 LSPs to include an overall strategy for the provision and form of public realm including social/pedestrian/cycle linkages, active POS and passive POS (including conservation areas, beaches and recreational facilities).
- S 3 Public Open Space within LSPs must provide a mix of active and passive open space in accordance with WAPC Policy DC 2.4 'Public Open Space in Residential Areas' and/or Liveable Neighbourhoods.
- S 4 LSPs to identify significant landscape features, such as ridge lines and dunal formations, and significant natural features, 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 landscape responsive form of development or provide suitable justification otherwise.
- 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.

PART ONE - STATUTORY SECTION

- 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 beachside facilities and focal points
 - Conservation values
 - Linkages
 - Dune stabilisation
 - Perpetual management
 - Recreation opportunities
 - Pedestrian access
 - Fauna habitat retention
- S 7 LSPs and / or FMPs to provide for a continuous foreshore shared path and identify appropriate locations for public beach access and facilities.
- S 8 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 they remain viable (as is defined by the WALGA/ Perth Biodiversity Project's Local Government Biodiversity Planning Guidelines of the Perth Metropolitan Region 2004).
- 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.
- S 10 LSPs to include a Vegetation Management Strategy, which, where appropriate, will include 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.
- S 11 LSPs to provide for collocation, such as schools with public open space, and multiple uses, such as conservation and passive recreation, where practicable.

PART ONE - STATUTORY SECTION

7.8 BUILT ENVIRONMENT

Objectives

- O 1 To create an urban structure, which is comprised of a coherent network of Activity Centres connected by mixed use corridors, serviced by public transport, cycle lanes and footpaths.
- O 2 Neighbourhood clusters, with walkable mixed use centres, to function as the primary structuring component of development.
- O 3 To create a range of densities, including higher densities, as an important part of the urban fabric of the Alkimos Eglinton area to facilitate community interaction, support different needs and lifestyles.
- O 4 Create higher residential densities and mixed use developments in walkable catchments of railway stations to facilitate Transit Oriented Development.
- O 5 To achieve sustainability outcomes and sufficient catchment to support proposed public transport systems, including a second tier of public transportation through higher target population densities.
- O 6 Create a choice of dwelling types to support different needs of the community, lifestyles and affordability thresholds.
- O 7 To provide for a distinctive and responsive built form that enhances a sense of place and the community identity of Alkimos Eglinton.
- O 8 To provide for built form responsive to the climatic and environmental conditions and features, through innovation.

Strategies

- S 1 LSP and subdivision design to be robust and be able of being intensified over time.
- S 2 LSPs to prepare a Housing Diversity, Residential Yield and Density Analysis Plan allocating densities generally consistent with the City's Housing Strategy.
- S 3 LSPs to allocate higher residential density codings generally consistent with the DSP Map 1 and in accordance with the criteria below:
 - A minimum average density of 50 dwellings per site hectare within 400 m from the centre of secondary activity centres.
 - A minimum average density of 30 dwellings per site hectare within 400 m from the centre of district activity centres.
 - 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.
- 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.

PART ONE - STATUTORY SECTION

- S 5 LSPs to provide for energy - efficient development through appropriate subdivision design and R-Code variations.
- S 6 LSPs to provide for built form that incorporates the opportunity for passive solar design, energy and water efficiency principles.
- S 7 LSPs to allow for 'ageing in place' through the provision of a range of dwelling types, including those suitable for the elderly.
- S 8 LSPs to develop and implement strategies for affordable housing product and to facilitate increased opportunities for home ownership
- S 9 LSPs to provide for housing types in accordance with the City's Housing Strategy.
- S 10 Local and Centre structure plans and/or detailed area plan shall demonstrate how the scale and allocation of retail, commercial, community service and associated floor space will be delivered by:
- Delivering a robust street network that can accommodate an increase in intensity of built form and use over time;
 - Providing adaptable building design capable of multifunctional ground floor use and the provision of additional levels without the need for demolition; and
 - Enabling generational change to occur as a right in certain circumstances without the need for further planning approval.

7.9 TRANSPORT AND MOVEMENT

Objectives

- O 1 To provide an interconnected movement network that maximises access and safety for vehicles, cyclists and pedestrians.
- O 2 To provide good public transport accessibility and connection to major attraction focal points of the development (coastal nodes, employment, retail centres and community facilities).
- O 3 To provide for convenient and safe movement of vehicles, pedestrians and cyclists through and between neighbourhoods, having regard for the need to access schools, shops, recreation and other land uses, as well as public transport access points.
- O 4 To provide strong internal and external connectivity.
- O 5 To provide strong vehicle, cycle and pedestrian connectivity to the coast.
- O 6 To facilitate a high frequency, efficient secondary transit system linked to rail stations.
- O 7 To maximise pedestrian and cyclist connection to the local and regional pedestrian/cyclists network.
- O 8 To provide for orientation of roads that maximise solar orientation and energy efficiency benefits.

PART ONE - STATUTORY SECTION

Strategies

- S 1 LSPs to provide for the Regional Road network to reflect the road alignments shown in the Metropolitan Region Scheme.
- S 2 LSPs to identify neighbourhood connectors and major intersection points in locations generally in accordance with those depicted on the DSP Map 1.
- 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.
- S 4 LSPs to provide for the location of the two railway stations to integrate and activate the Alkimos Town Centre and Eglinton District Centre.
- S 5 LSPs design to optimise integration between the transport system and the land uses which it supports.
- 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.
- 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 use of transport infrastructure and services.
- 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.
- S 9 LSPs to incorporate design measures for both high volume roads within Activity Centres and local roads to ensure the street environment is safe and amenable to pedestrians, cyclists, home and business.
- S 10 LSPs to define a robust walk/cycle network that will aim to:
- Encourage reduction in the private car dependency for residents.
 - Increase accessibility to employment and other urban activities.
 - Reduce adverse environmental impacts of transport.
 - Increase resource efficiency in a multi modal transport system.
 - Provide a healthy, safe and interesting lifestyle.
- 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.
- 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 are continuous, connected, convenient, attractive and safe and are linked to key destinations.

PART ONE - STATUTORY SECTION

- S 13 LSPs to investigate strategic agreements with the Public Transport Authorities for the provision of public transport between all activity centres and for feeder bus systems to be developed in residential neighbourhoods;
- S 14 LSP to ensure a road, open space or appropriate land use interface occurs with the above ground railway reserve and sensitive land uses such as residential development to address noise amenity issues, or provide suitable justification otherwise.
- S 15 Roads to be in accordance with Liveable Neighbourhoods.
- S 16 The creation of a permanent park and ride facility within the Alkimos Secondary Centre will not be supported. If permanent park and ride facilities are proposed they shall be dispersed through the centre, compliment the overall amenity of the centre and shall not detract from the centres primary function of providing employment, retail, living, entertainment, education and medical services.

PART ONE - STATUTORY SECTION

7.10 RESOURCES, INFRASTRUCTURE AND SERVICES

Objectives

- O 1 To ensure that community, commercial and employment infrastructure plus roads, services and public transport, are provided in an appropriately staged manner with flexibility to cater for a range of future development growth rates and patterns and emerging technologies.
- O 2 To establish innovative solutions which provide the most efficient, proven and affordable servicing, transport, communications and energy management.
- O 3 To ensure that development and infrastructure utilises best-practice water sensitive urban design including, localised rainwater and stormwater harvesting, localised wastewater treatment and reuse, demand management and infiltration at source.

Strategies

- S 1 LSPs to demonstrate how funding arrangements, including the endorsed Alkimos Eglinton Developer Contribution Plan, are to be implemented, in order to provide for the efficient and equitable delivery of infrastructure and services.
- S 2 LSPs to make provisions for infrastructure and essential services to development areas.
- S 3 LSPs to investigate opportunities for provision of communications infrastructure.
- S 4 LSPs to explore opportunities and initiatives for energy efficiency.

7.11 STAGING

Objectives

- O 1 To ensure the staging of development is aligned with the needs of the community, requirements to conserve the natural environment, the provision of sufficient employment and the needs of the local economy.
- O 2 To ensure the subdivision and development of land for residential purposes is accompanied by a commensurate provision of infrastructure, services and employment to meet the needs of the community.

Strategies

- S 1 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.

PART ONE - STATUTORY SECTION

8.0 OPERATION OF THE STRUCTURE PLAN

LSPs are to be generally consistent with the intent of the adopted District Structure Plan and with the general arrangement of land uses and infrastructure as depicted on the DSP Map. If a LSP does not accord with the Objectives and Strategies of the agreed DSP, then the proponent should provide justification to the satisfaction of the City and / or the WAPC.

At the time of lodgement of a LSP, the proponent shall provide supporting information pertinent to the relevant area detailed on the DSP Map 1 to demonstrate how the objectives and strategies as detailed in [Part 1](#) herein have been addressed and the supporting information utilised to guide and inform the LSP design.

This supporting information shall include (where relevant) the following supporting technical documents:

- Vegetation Management Strategy (in conjunction with LSP)
- Fauna Management Strategy (in conjunction with LSP)
- Local Water Management Strategy (in conjunction with LSP)
- Landscape Concept Plan, (in conjunction with LSP)
- Open Space Strategy (in conjunction with LSP)
- Karst Investigation (in conjunction with LSP).
- Local Road Network Plan (in conjunction with LSP)
- Sustainability Strategy (in conjunction with LSP)
- Community Development Plan (in conjunction with LSP)
- Economic and Employment Strategy (in conjunction with LSP)
- Developer Contribution Strategy (in conjunction with LSP)
- Housing Diversity, Residential Yield and Density Analysis Plan (in conjunction with LSP)

Local Water Management Strategy (in conjunction with LSP); and Karst Investigation and Management (if required) in conjunction with LSP – these requirements are to address each of the requirements outlined in the Environmental Conditions, Statement 722.

This list is not exhaustive and additional information may be required depending on the LSP; refer to Schedule 7 of the Scheme.

9.0 THE STRUCTURE PLAN MAP

The DSP Map 1 outlines the planned pattern of development for the DSP Area. All developments should be carried out in generally accordance with the principles detailed in this document and described on the DSP Map1. The intent of the land uses shown in the DSP Map 1 is to specify the general types of land use required or that are most appropriate for the subject land in order to achieve the various outcomes stated in this document. Their arrangement is strategic and should not be read as absolute, with the ultimate extent and type of zonings to be defined at the LSP stage.

PART ONE - STATUTORY SECTION

10.0 MONITORING AND REVIEW OF STRUCTURE PLAN

The City of Wanneroo will analyse the economic and employment data for the DSP area in 2017 and thereafter within 12 months of the release of future Australian Census Data focusing on activity centre and employment land within the DSP area. The City of Wanneroo is to:

- monitor and forecast employment trends for the DSP area;
- ensure there is positive progress towards achieving the employment self sufficiency and employment density objectives for the DSP area; and
- to consider any issues that may affect item (i) and (ii) above, taking into account the progress of the provision of public infrastructure, including road and rail, and whether future initiatives or intervention is required to improve economic development and employment in the area.

The City of Wanneroo's analysis of the economic and employment Centres Data is to be forwarded to the WAPC, along with a resolution by the City either to recommend that a review of the DSP is:

- supported; or
- not supported.

Following receipt of the City of Wanneroo's analysis and recommendation, as to whether a review of the DSP is required, the WAPC will, following consultation with the City, determine if a review of the DSP is necessary. If a review of the DSP is required by the WAPC, this may result in amendments to the DSP and consequential amendments to the relevant LSPs.

Any decision of the WAPC to require amendments to the DSP and consequential amendments to the relevant LSPs in accordance with this clause will give rise to a right of review to SAT under clause 9.12.3 of the TPS.

11.0 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

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

LSPs will need to comply with the Environmental Protection and Biodiversity Conservation Act, and may require referral to the Federal Department for the Environment, Water , Heritage and the Arts.

PART TWO - EXPLANATORY SECTION

1.0 LOCATION

The Alkimos Eglinton project area (project area) comprises a total area of approximately 2,626 ha of coastal land located within the City of Wanneroo. It stretches along the coastline north of Butler/Jindalee for about 7.5 km and abuts the southern boundary of the locality of Yanchep.

The project area is located approximately 40 km north-west of the Perth Central Business District, 1 km west of Wanneroo Road, encompassing the localities of Alkimos and Eglinton. The project area is bound by the Mitchell Freeway reserve to the east and the Indian Ocean to the west (refer Figure 2).



PART TWO - EXPLANATORY SECTION

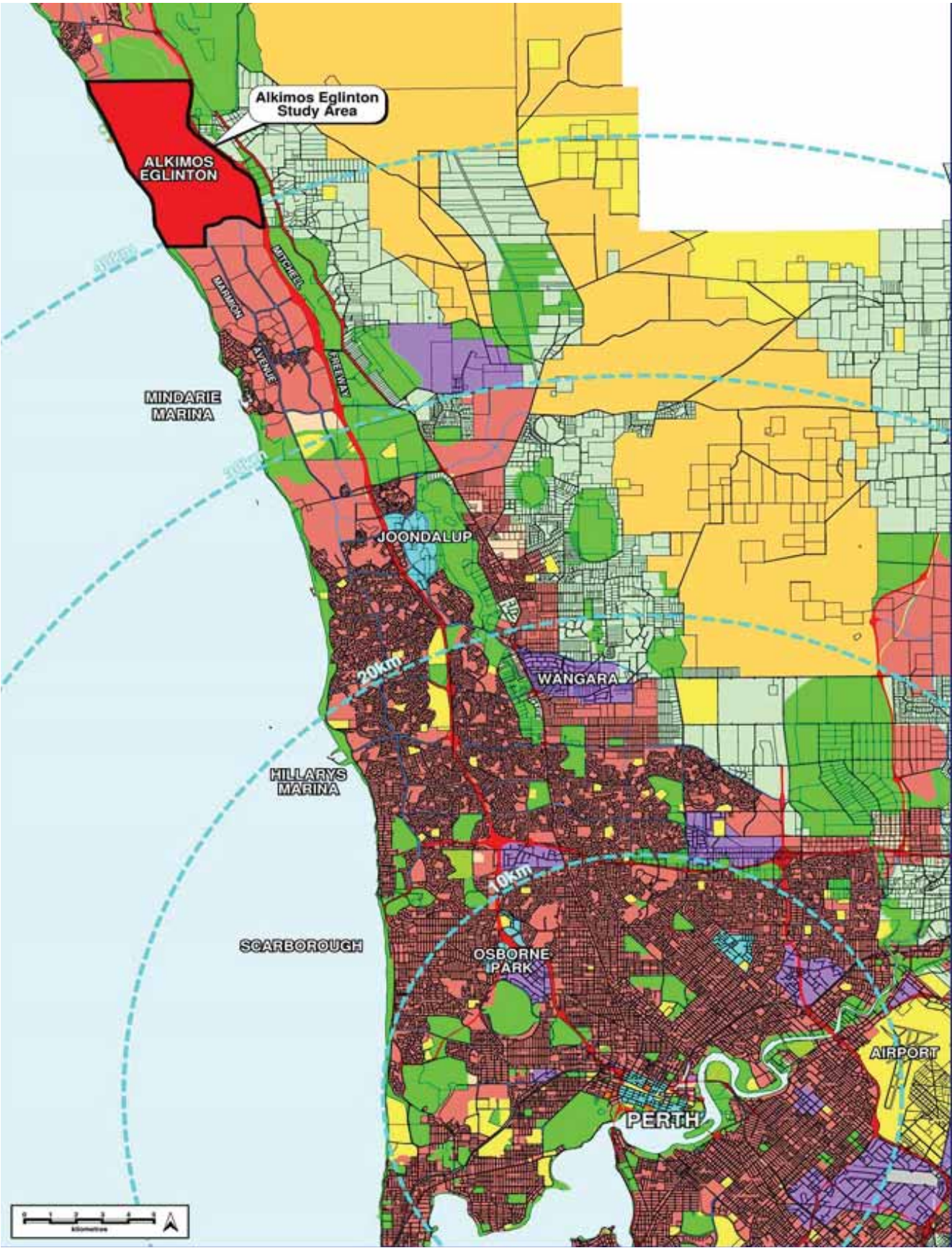


Figure 2: Location Plan

PART TWO - EXPLANATORY SECTION

2.0 TITLE DETAILS AND LAND OWNERSHIP

OWNER	LOT DESCRIPTION	AREA OF LOT WITHIN DSP AREA (HA)
Western Australian Development Corporation (LandCorp)	Portion of Lot 102, Swan Location 1370	865.29
Western Australian Development Corporation (LandCorp)	Lot M 1503, Swan Location 1370	554.55
Western Australian Planning Commission	Lot 8, Swan Location 1370	15.32
Eglinton Estates Pty Ltd	Portion of Lot 11, Pt Swan Location 1370	551.90
Western Australian Planning Commission	Lot 16 (Freeway Reserve)	10.24
Western Australian Planning Commission	Lot 14 (Marmion Avenue)	14.08
Western Australian Planning Commission	Lot 15 (Kakulas Drive)	13.32
Perpetual Trustees WA Ltd (Dr Lindsay Spiers)	Portion of Pt Lot 6, Swan Location 1370	67.17
Western Australian Planning Commission	Lot 17, Swan Location 1370	20.26
Peet Alkimos Pty Ltd	Portion of Lot M 1482, Swan Location 1370	239.85
Water Corporation	Lot 101, Swan Location 1370	159.40
TOTAL AREA		2511.38 Ha

Table 1: Title Details and Land Ownership

The area of land encompassed by the DSP boundary also includes the coastal foreshore, a portion of the Mitchell Freeway Reservation plus the proposed Eglinton Marina (as depicted on the MRS). The total area comprises approximately 2,626 ha. Part of the DSP area shown on Map 1 extends beyond the existing City of Wanneroo municipal boundary and will only become subject to this DSP once a proposed extension to the western boundary has been affected (Council is currently pursuing this change).

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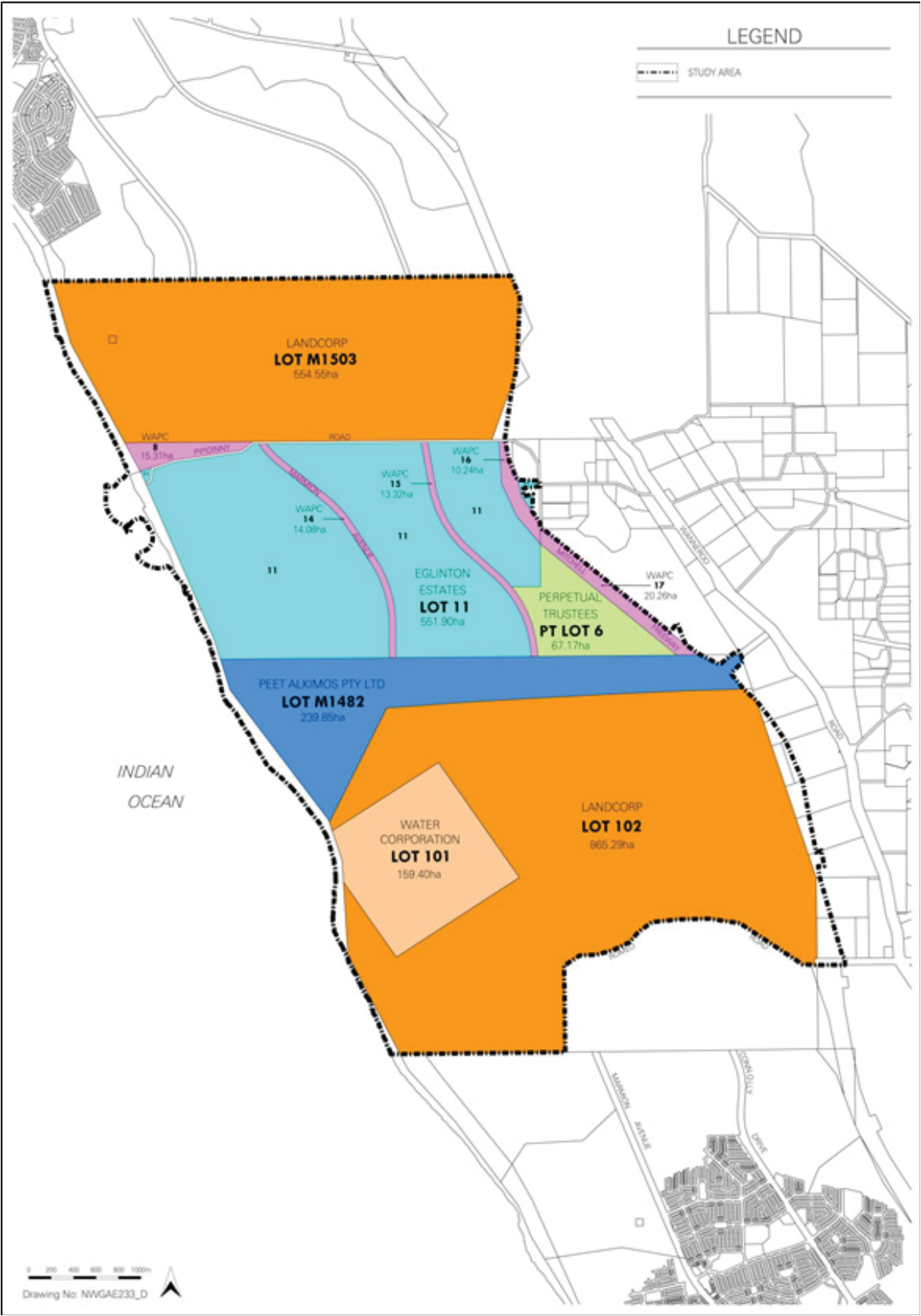


Figure 3: Land Ownership

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3.0 CONTEXT ANALYSIS

3.1 URBAN

3.1.1 Existing Land Use and Development

The project area is currently vacant. In the past it has been used for livestock grazing. With the exception of boundary fences, there are no structures present. Pipidinny Road is a constructed road traversing east west along the northern boundary of Lot 11 and connects to Wanneroo Road.

A proto-type tree farm was established on Lot 11 in the early 1990's for the purpose of researching the most appropriate tree species to be utilised within the project area and developing strategies for landscaping in coastal locations. Remnants of the tree farm are still present on Lot 11.

The remains of the Alkimos shipwreck are located off-shore west of Lot M1482 and are a focal point for boating activities, diving, fishing, etc.

The beach at the western end of Pipidinny Road is also a popular surfing and fishing area. Due to previous and on-going four-wheel driving activities, the dunes in this vicinity have been severely disturbed.

The project area adjoins a series of smaller privately held land holdings along its eastern boundary, some of which have been incorporated into a southerly extension of the Yanchep National Park system under the MRS. The remaining land to the east is zoned as 'Rural' under the MRS and 'General Rural' under the City of Wanneroo Town Planning Scheme No.2 (TPS 2).

The land to the south west forms part of the Butler / Jindalee project. The land is privately owned and zoned for urban development. To its south east is located Lot 3 which is also zoned for Urban development. To the north of the project area the land forms part of the Yanchep development.

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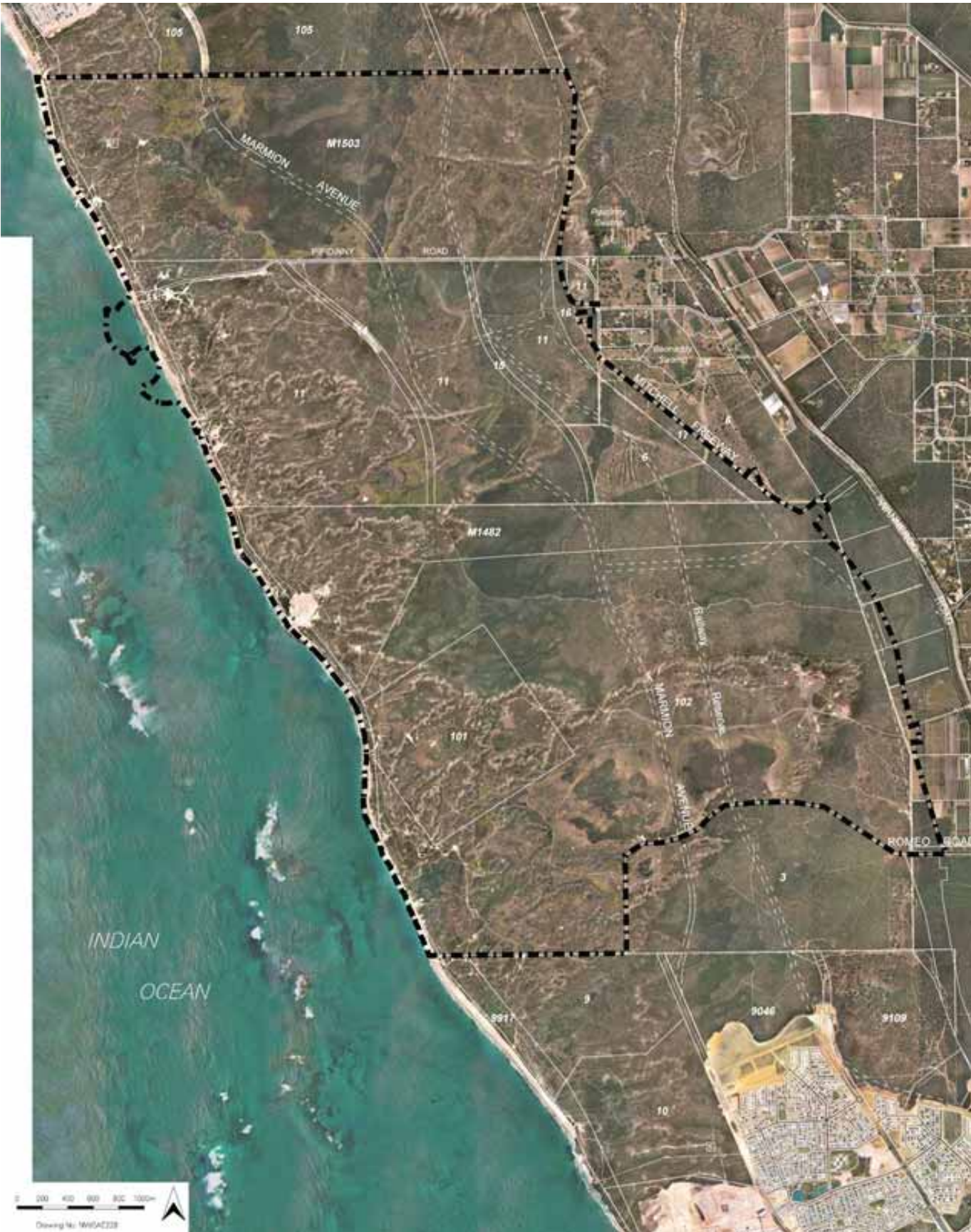


Figure 4: Existing Land Use

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3.1.2 Existing Landscape Character

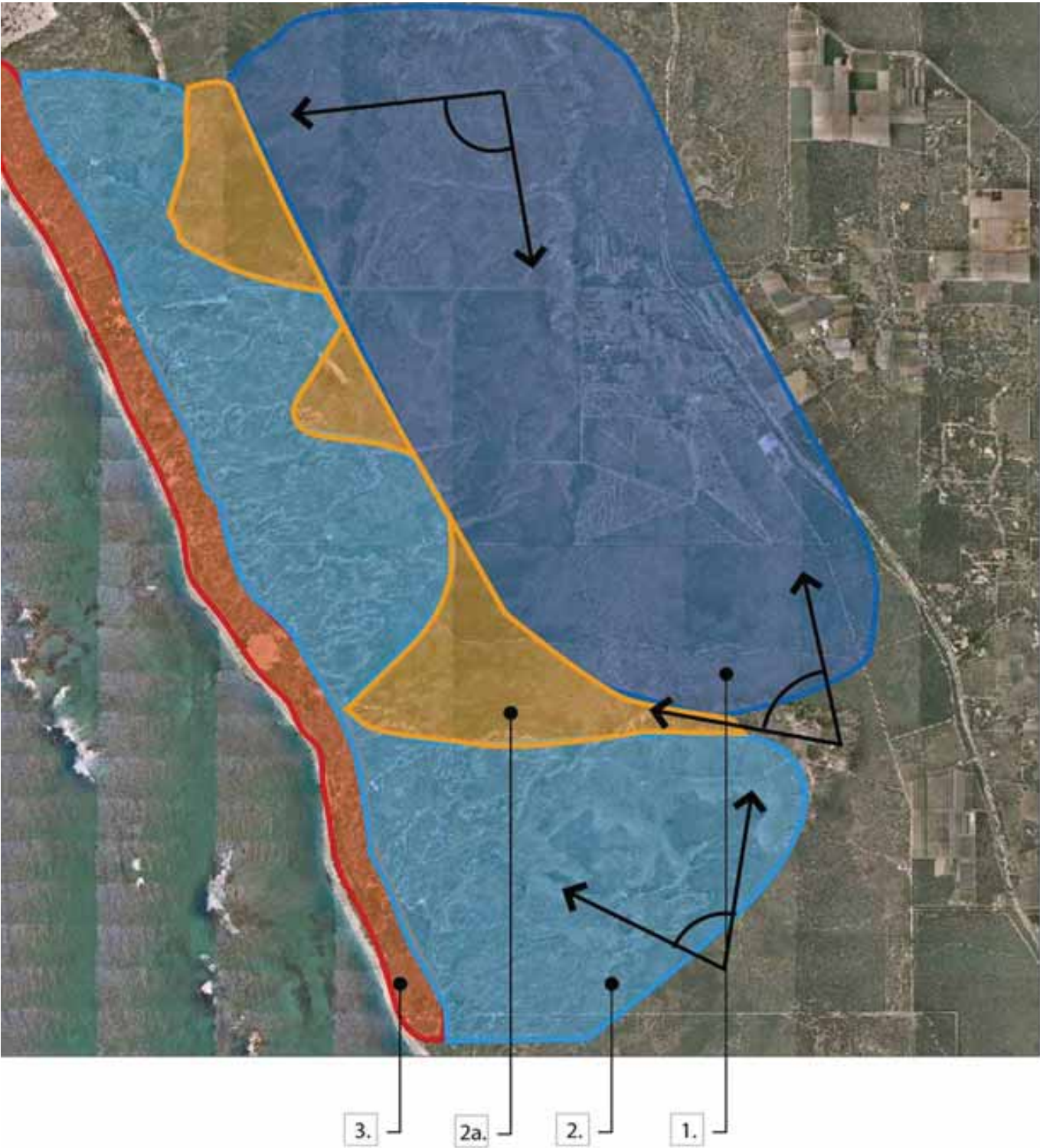
The project area comprises a broad landscape made up of four primary landscape characters. The landscape characters are determined primarily by the combination of dominant vegetation type and topographic features. Overall the experience of the viewer is of an expansive natural landscape with little effects of human intervention.

The broad undulating coastal heath land forms the inner area to the east. This area includes a broad inland ridge, which provides views to the ocean and dunes.

A wide belt (approximately 1 km) of defined parabolic dunes fronts the coast. These dunes have very steep sides and elevations up to 25m. At the south of the project area a large stabilised parabolic dune extends inland for a considerable distance and forms a dominant landscape feature.

The land enclosed by the series of dunes along the coast is different in character to the areas between the bigger dunes. These interceding locations often have a stronger enclosed “feel” and lack the sometimes chaotic smaller topographic features that can be found within the parabolic dunes. The fore dunes and foreshore represent the last dominant landscape character and are typical young unstable dunes with occasional blowouts and low dunes vegetation.

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key

- 1. Broad Undulating Coastal Heath
- 2. Defined Parabolic Dunes
- 2a. Enclosed Sheltered Zone
- 3. Unstable Steep Dunes



Panoramic Views

Figure 5: Existing Landscape Character Area

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3.1.3 Landscape Context

The broad rolling landscape of the area extends to the east off the project area where the native vegetation gives way to farming and smallholdings of Carabooda. Two areas of Regional Open Space (ROS) lie immediately to the east of the Mitchell Freeway alignment, forming a strong north south landscape zone that surrounds the subject land. The reserves contain Pipidinny Swamp and Beonaddy Swamp that provide a contrasting character type to the coastal heath communities of Alkimos Eglinton. The ROS reserves of the Alkimos Eglinton district create major open space corridors linking the coast to the chain of ROS reserves that run north south within the north west metropolitan corridor.

The broad reserves at Alkimos Eglinton contain landscape features that are representative of the range of characters situated in a band approximately 2km wide along the coast. The broad tracts of reserve land and the buffer zone to the Wastewater Treatment Plant are large enough to accommodate topographic features, diverse landscape characters and biodiversity types. The location of the ROS reserves define this district by creating distinctive tracts of natural landscape separating the main urban development zones from neighbouring urban areas.

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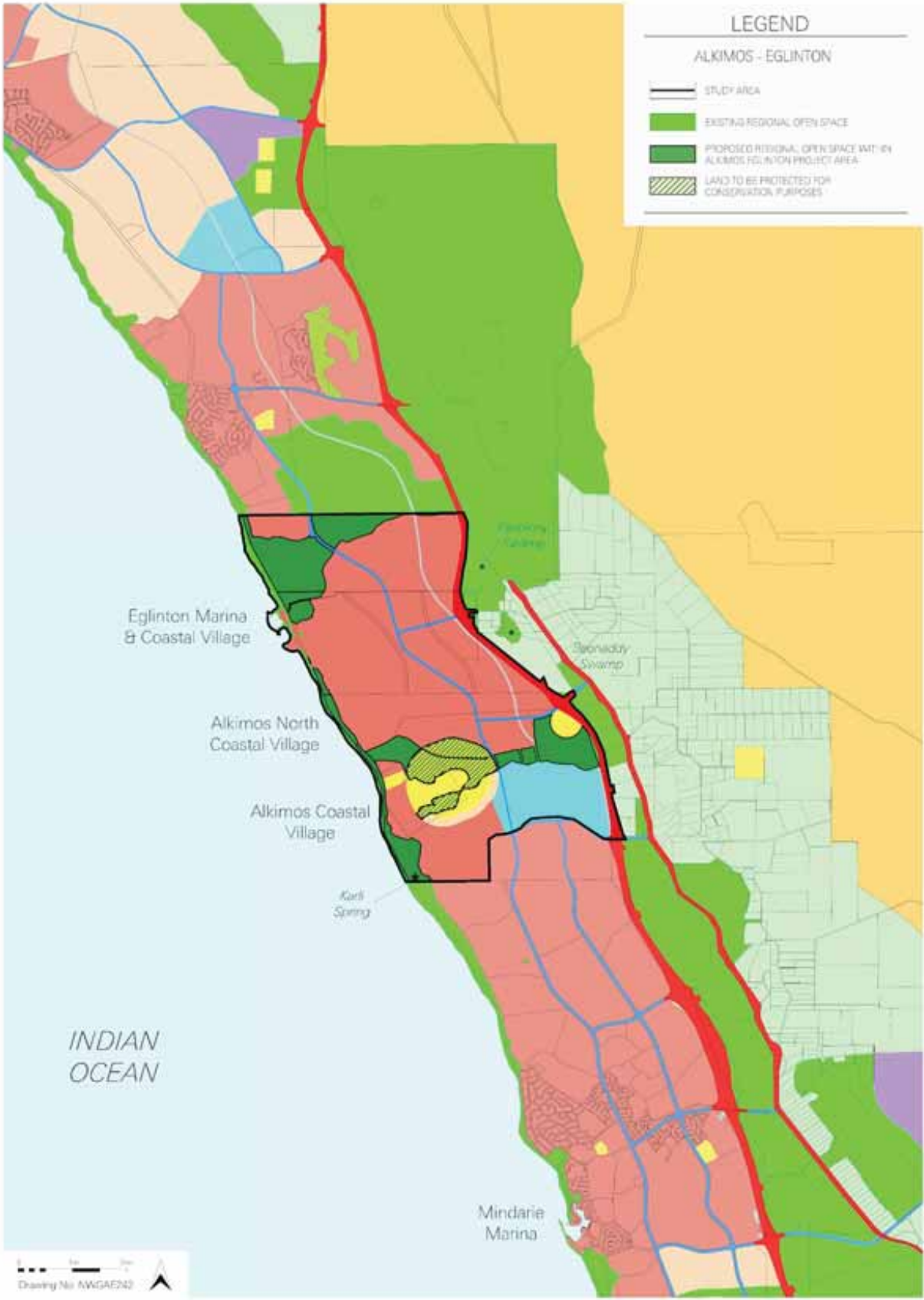


Figure 6: Landscape Context / Regional Reserves

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3.2 ENVIRONMENTAL

An Environmental Assessment Report for Alkimos Eglinton has been prepared by RPS Bowman Bishaw Gorham and is included as [Appendix 2](#). The report can be summarised as follows.

3.2.1 Climate

The climate is described as warm Mediterranean, and is similar to that of other coastal areas in the Perth Metropolitan Region, with hot dry summers and mild wet winters. Summer mean daily temperatures are between 18.6°C and 30.3°C; in winter 9.1°C to 17.6°C. Average annual rain fall at Wanneroo Post Office is 843mm; most of the rainfall occurs between April and October.

Winds are a very important feature of coastal environments as they are 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 (1:00pm to 6:00pm, the local sea breeze). Winter is characterised by north-westerly storm winds that back around to the west and south-west, interspersed with calmer periods.

3.2.2 Geomorphology and Landscape Elements

The project area comprises a north-west to south-east trending undulating dune landscape overprinted to a large degree by well defined vegetated dunes. A one km wide belt of discontinuous dunes is located along the coastal frontage with elevations of up to 30-35m AHD. Further inland the dunes are less concentrated.

Approximately 2.5 km from the coast there is a long ridge running generally parallel with the coast with peak elevations of about 55m AHD. This inland ridge is overlain in places by further sand dunes extending from the coast in an easterly direction.

There are two dune systems on the project area: Quindalup and Spearwood. The older Spearwood Dunes are partially overlain by the newer calcareous Quindalup Dunes which occur in a complex series of parabolic dunes.

The Spearwood Dunes have a core of aeolianite overlain by siliceous sand with weak pod sol development. The soils have often been removed by wind action to expose the underlying limestone. The Spearwood Dunes are older, more weathered, less undulating and less dramatic when compared to the Quindalup Dunes, their soil profile is more developed. They support Banksia, Tuart and Parrot Bush vegetation.

The Quindalup Dunes have formed more recently and exhibit more undulating and dramatic landscape features. The Quindalup Dunes have accumulated in four main phases of activity. These are pictured and described as follows:

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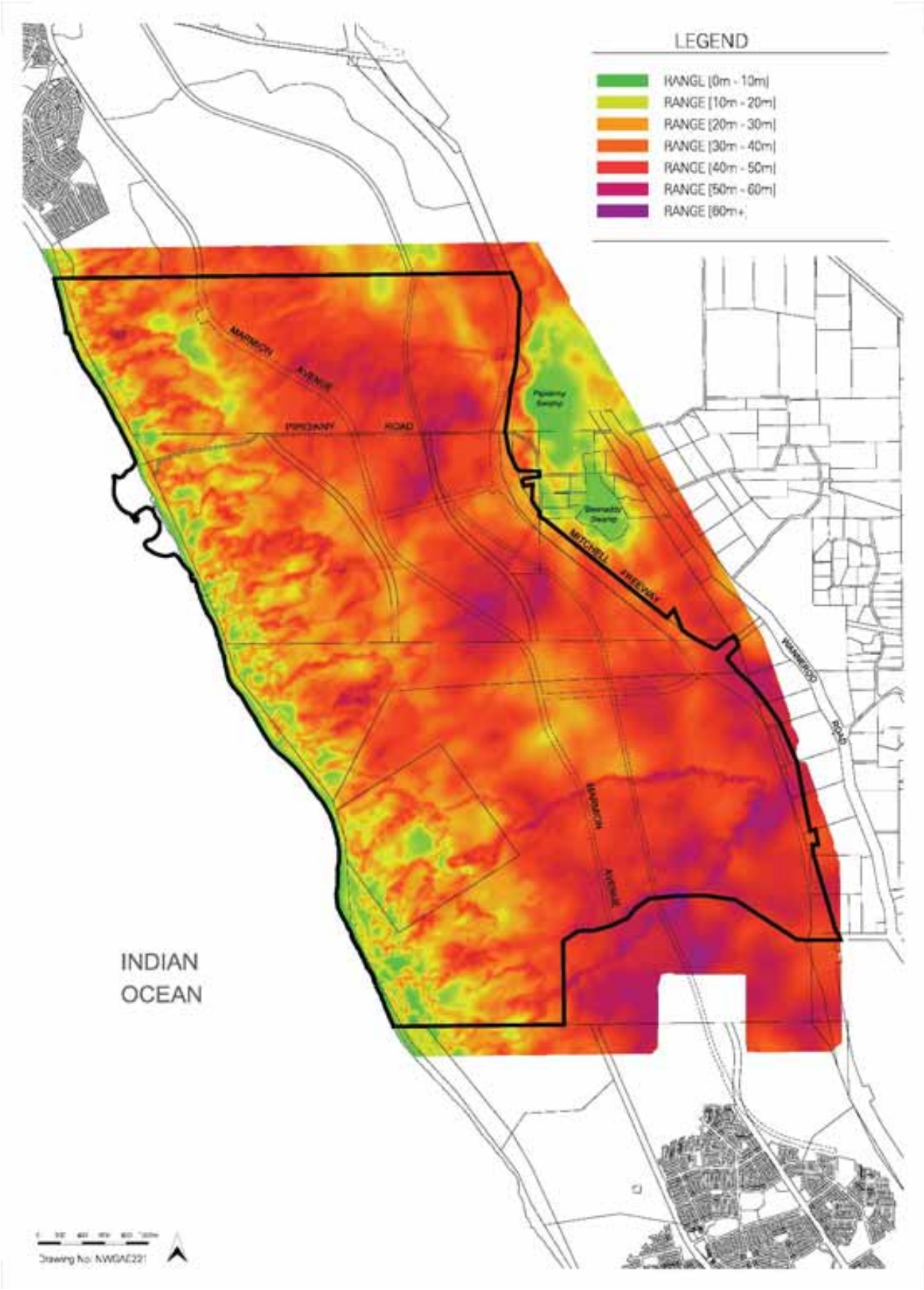


Figure 7: Topography / Elevation Range

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- Q1 The Q1 dunes are the oldest and most weathered of the Quindalup Dunes. This plate is taken from the top of a Q1 dune.



Q1 Dune

- Q2 There is a well preserved example of a Q2 parabola in the southern portion of the project area, the northern arm of which is located in the Alkimos (east-west) ROS. The Eglinton ROS also contains some examples of Q2 dunes. The picture below was taken from the top of the Q2 dune that is to be retained in the Alkimos ROS.



Q2 Dune

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- Q3 All the Q3 dunes are located in the western half of the project area, a few examples are located in ROS however most of the Q3 parabolas are in the urban area. The Q3 parabolas are smaller and more compact than the Q2 parabola and steeper and more dramatic than the Q1.



Q3 Dune

- Q4 The Q4, the newest phase offers the most dramatic landscape value, with fairly random sand dune landscape features. There are no Q4 parabolas. Most of the Q4 dunes on the site are located in the Foreshore Reserve.



Q4 Dune

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3.2.3 Soils

The dominant soil types of the project area associated with the Spearwood Dune system are as follows:

- Karrakatta Shallow Soils Phase (Kls) – Brown and yellow-brown sandy soils with a large proportion of limestone outcrop; and
- Karrakatta Sand Yellow Phase (Ky) – The soil consists of a grey-brown surface which passes into a bright yellow sand, limestone usually occurs within 2m of the surface.

These two soil types occur over more than 50% of the site, predominantly in the eastern half of the site.

The dominant landform/soil types associated with the Quindalup Dune system (found predominantly in the western half of the project area) are as follows:

- Quindalup Oldest Dune Phase (Q1) – this unit occurs as a wall of sand with low relief, a smooth outline and a symmetrical cross section, it can occur up to 6km inland. The soil profile is calcareous throughout has organic matter to at least 30cm, white sand below which shows cementation at about a metre below the surface;
- Quindalup Second Dune Phase (Q2) – Similar to Q1 with slightly higher relief and slightly less organic matter;
- Quindalup Third Dune Phase (Q3) – this unit has steeper slopes and greater relief than Q1 and Q2 and an irregular outline. Organic matter to 10cm, cementation in minimal;
- Quindalup Youngest Dune Phase (Q4) – generally dunes are asymmetric with gentle inner slopes and steep outer faces. The outline is very jagged with many deep scallops and irregularities. The soils show very little pedological development other than slight organic accumulation at the surface; and
- Quindalup Deep Sand Flat Phase (Qp) – nearly flat or gently undulating plains enclosed within parabolic dunes. Soils are dark in colour with organic matter accumulation to 50cm, then pale sand, sometimes weakly cemented, overlying older limestone.

3.2.4 Surface Water

The project area has no surface water features apart from Karli Spring, a small wetland located in the south-west corner of the project area within 200m of the coast. Karli Spring contains permanent water and experiences only minor water level fluctuations. Karli Spring is not identified as a wetland in the 'Wetlands of the Swan Coastal Plain', however it is the only wetland known to occur on the Quindalup Dunes in the northern Perth Metropolitan Region.

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3.3 GROUND WATER

The Groundwater Atlas (WRC, 1997) indicates the regional groundwater flow direction is south-east toward the Indian Ocean at a gradient of 0.001. The maximum groundwater levels beneath the project area range from 0m AHD at the ocean's edge to 3m AHD approximately 3km inland. Depth to groundwater over the project area is highly variable due to the uneven topography associated with the dune formations. The base of the superficial aquifer occurs between -30 and -35m AHD.

The project area lies within the Perth Coastal Groundwater Area and the Yanchep Underground Water Pollution Control Area (UWPCA) which extends from the northern boundary of the MRS to Gwelup and from Wanneroo Road to within some 1-2 km of the coast. The Water Corporation is responsible for ensuring that activities which may pollute the groundwater system are either not permitted within the area, or are regulated.

The groundwater area is designated a Priority 3 Source Protection Area by the WCWA. Priority 3 areas contain substantial resources of water supply, but do not preclude urban development. WCWA has confirmed that the coastal groundwater resource has adequate capacity to supply the urban development of the project area. Should this occur, regulation of development will need to include the following controls:

- Installation of reticulated sewerage for all urban development with appropriate disposal of wastewater effluent, preferably off-catchment;
- Septic tank densities and location in non-urban areas to comply with Health Department and Department of Water Guidelines (if in groundwater protection area);
- Restrictions on development of industries handling or processing noxious, toxic or polluting materials;
- Restrictions on the establishment of underground and above ground fuel storage tanks;
- Restrictions on intensive agricultural development; and
- Exclusion of disposal sites for polluting wastes.



Karli Spring

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3.3.1 Marine and Coastal Environment

The coastal and marine environment adjacent to the project area was investigated during the design phase for the marina at Eglinton. This was the subject of a formal environmental assessment by the Environmental Protection Authority (EPA) in 1991.

Subject to compliance with the recommendations listed in Bulletin 500 (EPA, 1991), together with the commitments provided by the proponent, the EPA determined that the environmental issues associated with the marina are manageable.

The marine environment adjacent to the project area is undisturbed and in good condition (EPA, 1991). The main marine habitats in the project area are; sub-tidal sandy floor, sub-tidal limestone pavements, sub-tidal reefs, inter-tidal reefs and platforms, sandy beaches and beach rock. The banks of the offshore reefs and seagrass meadows significantly attenuate the offshore wave climate resulting in considerably milder sediment transport regime than might be expected on an open coast.

According to the EPA (1991) the bathymetry of the marine environment in the region of the Eglinton marina can be characterised by:

- Sloping sea floor immediately west of the shoreline which forms a basin to 9m depth before steeply rising to meet a limestone reef 1.4km offshore. There is a shallow sandy bank 2-4 m in depth between Alkimos Reef and the shoreline. This bank separates basins to the north and south;
- Linear depression (10-15m deep) between the inner-most reef and a more perforated middle ridge further offshore;
- Shallowing to depths of 3-4m around Hugill Reef before dropping into a deeper (20-25m) inter-ridge depression further to the west; and
- Rise in the sea floor to an outer reef with depths of 10-12m before sloping westwards towards the continental shelf.

The coastal environment, characterised by the Quindalup Dune system (Section 3.2.2 refers), was investigated by MP Rogers and Associates in 1998. The setbacks for urban development were determined. The result of that study was the basis for the current foreshore reserve boundary (some additions to the foreshore reserve were made following the recent EPA assessment of MRS Amendment 1029/33 for conservation purposes).

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3.3.2 Vegetation / Flora and Fauna

Vegetation, flora and fauna were comprehensively investigated during the preparation of supporting documentation to the recent MRS Amendment relating to the project area. The results are contained in ATA Environmental Report (2005). Brief summaries are provided in the following sections.

Vegetation Complexes

Natural vegetation covers approximately 80% of the project area and much of this vegetation is in good to excellent condition, while some areas are in a degraded condition due to the past land use of grazing and from off-road vehicular disturbance.

The distribution of vegetation types strongly reflects the underlying Quindalup and Spearwood Dune soils and landforms. In general, the western region of the project area comprises vegetation representative of the Quindalup Vegetation Complex, with the eastern portion supporting vegetation of the Cottesloe Central - South Vegetation Complex on the Spearwood Dunes.

The Spearwood Dunes vary floristically depending on the presence of limestone, sands derived from limestone and the topography of the inland area. In general, the limestone outcrops support Open to Closed Low Heaths dominated by *Dryandra sessilis*, *Hakea trifurcata*, *Calothamnus quadrifidus*, *Scaevola nitida*, *Acacia truncata* and *Allocasuarina humilis*. Occasional Shrublands of *Xanthorrhoea preissii* occur within the Heath.

On the deeper soils of the Spearwood Dune System, generally in the eastern half of the project area, taller shrublands, woodlands and forests occur. *Banksia* woodlands and forests are the most extensive of these vegetation types, and feature *B. attenuata* and *B. menziesii* in places, in association with *Allocasuarina fraseriana*, *Eucalyptus todtiana*, *Eucalyptus gomphocephala* (Tuart) and *Eucalyptus marginata* (Jarrah).



Banksia Woodland - Spearwood Dunes

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Floristically, the Quindalup Dunes support a lower 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 of *Scaevola crassifolia*, *Olearia axillaris*, *Acanthocarpus preissii*, *Hemiandra pungens* and *Acacia rostellifera*.

Further inland on the older Quindalup dunes and plains, the vegetation types are more variable in structure and height. Heaths and shrublands predominate with areas of scrub and localised herblands and woodlands. Several of the vegetation types feature *Acacia rostellifera* as the dominant species. *Acacia lasiocarpa* is also dominant in low heaths and dwarf scrubs in combination with various other species, and *Melaleuca systema* is dominant in some areas of low heaths and shrublands. Various dominant species which occur on the younger dunes closer to the coast are also present, including *Olearia axillaris* and *Scaevola nitida* as dominant in open shrubland, and *Lomandra maritima* and *Melaleuca systema* as dominant in low heath.



Costal Heath - Quindalup Dunes

The vegetation and flora of the Alkimos Eglinton area has been surveyed by Trudgen and Keighery (1990a and b), Armstrong (1996), ATA Environmental (2002) (presented in ATA Environmental, 2003) and Bennett (2004) (presented in ATA Environmental, 2005).

Vegetation was an environmental factor during the EPA's assessment of MRS Amendment 1029/33. Mapping of the vegetation associations present (according to Bennett's 2004 survey) and the inferred Floristic Community Types (FCTs) as presented in ATA Environmental 2005, for the whole site were considered in the assessment. The corresponding Floristic Community Type (FCT) for each of the Vegetation Associations has been inferred in ATA Environmental (2005) from the descriptions of the vegetation associations provided by Bennett (2004) with reference to the FCT descriptions in Gibson et al. (1994) and Bush Forever (Government of WA, 2000).

The only Threatened Ecological Community (TEC) that possibly exists on the project area (FCT26a) has been included in the ROS as part of MRS Amendment 1029/33 and the EPA's recommendations in Bulletin 1207 (EPA, 2005).

The family makeup of the native flora recorded from Eglinton and Alkimos is relatively typical of the flora of the south-west of WA and is comparable with that of previous studies of coastal and near coastal areas on the Swan Coastal Plain.

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Flora

There are no Declared Rare Flora or species protected by the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) on the project area. There are no Priority 1 species on the project area. One Priority 2 species, four Priority 3 species and one Priority 4 species were recorded on the project area during the 2004 vegetation survey or earlier vegetation surveys (ATA Environmental, 2005). The known location of Priority flora species populations (according to Bennet, 2004) was considered in the EPA's assessment of MRS Amendment 1029/33.

Fauna

A vertebrate fauna survey of the project area was undertaken in October, 1996 (Alan Tingay and Associates, 1996). This survey included a trapping program using Elliott, pit fall and cage traps as well as bird transect surveys, active searching and opportunistic recordings.

The habitats within the project area can be broadly separated into three major types that dominate the area. These are based primarily on the broad vegetation units that strongly reflect the underlying soil types and geomorphic features. The main broad habitat types comprise:

- Old Quindalup Heath;
- Limestone Heath; and
- Banksia Woodland.

Other habitats which constitute a relatively minor portion of the area include heath on the younger Quindalup Dunes, Tuart Woodland and cleared grassland or pasture.

The survey recorded 1 amphibian, 18 species of reptiles, 49 bird species, and 3 indigenous and 3 introduced mammal species. A much greater number of species could occur within the Alkimos Eglinton area based on known distribution and habitat usage. The project area is expected to support relatively high species diversity due to its large area, range of habitats and general quality of the habitats within the project area, combined with the connectivity of the area to other extensive vegetated areas to the north, south and east of similar and different habitat types.

The list of recorded and expected species includes 35 species that have been identified as having special conservation significance by being listed under provisions of the Commonwealth Environmental Protection and Biodiversity Conservation (EPBC) Act and Wildlife Conservation Act 1950, on CALM's Priority Fauna list or identified as Significant Bird Species in Bush Forever. Species of special significance are listed in the following table.

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Species	Wildlife Conservation Act 1950	EPBC Act 1999	CALM's Priority Fauna list	Preferred habitat	Has this species been Observed on-site?
Short-billed Black-Cockatoo or Carnaby's Cockatoo (Calyptorhynchus latirostris)	Schedule 1	Endangered		Banksia woodland for foraging	Yes
Peregrine Falcon (Falco peregrinus)	Schedule 4	-		Tuart woodland surrounding Pipidinny Swamp	Yes
Southern Carpet Python (Morelia spilota)	Schedule 4	-	Priority 4	Limestone Heath Banksia and Tuart Woodland areas	No
Southern Brown Bandicoot or Quenda (Isodon obesulus)	-	-	Priority 4	Favour low (<1m), dense vegetation	No
Western Brush Wallaby (Macropus irma)	-	-	Priority 4	Woodland habitats	No

Table 2: Species of Special Significance

Endangered species are protected by the Environment Protection and Biodiversity Conservation Act 1999.

Schedule 4 species are 'other specially protected fauna' under the Wildlife Conservation Act 1950.

Priority 4 species are listed as taxa in need of monitoring on CALM's Priority Fauna List. These species are considered to have been adequately surveyed, or for which sufficient information is available, and are not currently threatened or in need of special protection, but could be if circumstances change.

Fauna was an environmental factor during the EPA's assessment of MRS Amendment 1029/33. Fauna background studies and habitat mapping (as presented in ATA Environmental, 2005) for the whole project area were considered in the assessment.

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3.3.3 Areas of Conservation Significance

The EPA assessed MRS Amendment 1029/33 under Section 48A of the Environmental Protection Act 1986. The result of this assessment was that the EPA identified the regionally significant areas of the project area, which areas were principally identified for their geo-heritage and biodiversity values.

The Environmental Conditions for MRS Amendment 1029/33, published by the Minister for the Environment, require the inclusion of the regionally significant areas in Parks and Recreation and Public Purpose reservations in the MRS (refer [Figure 6](#)) and states that these areas shall only be used for conservation, landscape and complimentary purposes. Most areas of environmental significance are now included in the Parks and Recreation and Public Purposes reservations in the MRS including:

- Karli Spring;
- Three small areas that possibly support FCT26a;
- The majority of areas where known populations of Priority flora and other flora that is considered important by the WA Government occur;
- Most of the Q4 landforms on the site;
- The northern arm of a large Q2 parabola; and
- Approximately 150ha of Carnaby's Black Cockatoo foraging habitat.

3.4 UNEXPLODED ORDINANCES

The Fire and Emergency Services Authority of Western Australia (FESA) have advised that the issue of possible unexploded ordinance contamination within the Alkimos Eglinton area needs to be addressed, thus it will be required that all applications for subdivision or development will need to be referred to FESA for advice prior to any works being undertaken.

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3.5 SOCIAL

3.5.1 Aboriginal Heritage

Australian Interaction Consultants completed a Heritage Assessment for the Alkimos Eglinton DSP. The Heritage Assessment entailed archival research, a preliminary archaeological appraisal and an initial meeting with the Aboriginal Elders and representatives from various Native Title Claimant groups and other Aboriginal metropolitan working groups.

The purpose of the survey was to identify, in broad terms, areas of potential heritage significance and sensitivity in order that Aboriginal heritage places and issues are taken into account to inform planning through the various stages of development and be incorporated into the vision of sustainability.

A search of the Department of Indigenous Affairs database identified three (3) registered sites in the general area, one of which is within the proposed project area (Karli Spring). During the preliminary archaeological appraisal no archaeological material was located in the field visit, however the appraisal found concluded that archaeological potential does exist, particularly around fresh water areas (Karli Spring).

The consultations with Aboriginal groups were undertaken in July 2006. During these consultations it becomes apparent that, in the broad context, large areas of cultural sensitivity have not yet been fully paramatised as sites under the Aboriginal Heritage Act. It is acknowledged that in survey's involving the coastal dune system Aboriginal people have expressed the significance of these features. Surveys in neighbouring developments such as Tamala, Gngangara, Mindarie and Brighton have identified features found in the dune system on a project by project basis.

In conclusion, the Elders have confirmed the significance of the coastal dune system at Alkimos Eglinton in the Aboriginal belief system and identified areas of cultural sensitivity including Karli Spring. No archaeological sites or material were located during the survey. However, more detailed consultations and surveys throughout the project area may be undertaken on a project by project basis and any issues and concerns will be managed as required by the Aboriginal Heritage Act 1972. The potential for locating archaeological material during site works or systematic archaeological surveys at more detailed planning stages is acknowledged.

Should the landowners wish to interpret or impact on the sites in any way, then the appropriate process will be followed including submitting a notice under section 18 of the Aboriginal Heritage Act.

The DSP aims to ensure that development at Alkimos Eglinton retains the unique and natural cultural heritage of the area. Importantly, Karli Springs will be protected from development as it is included in a Parks and Recreation Reservation. 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. As more detailed planning progresses further studies and liaison with the Aboriginal Groups will be undertaken as required to appropriately address heritage issues.

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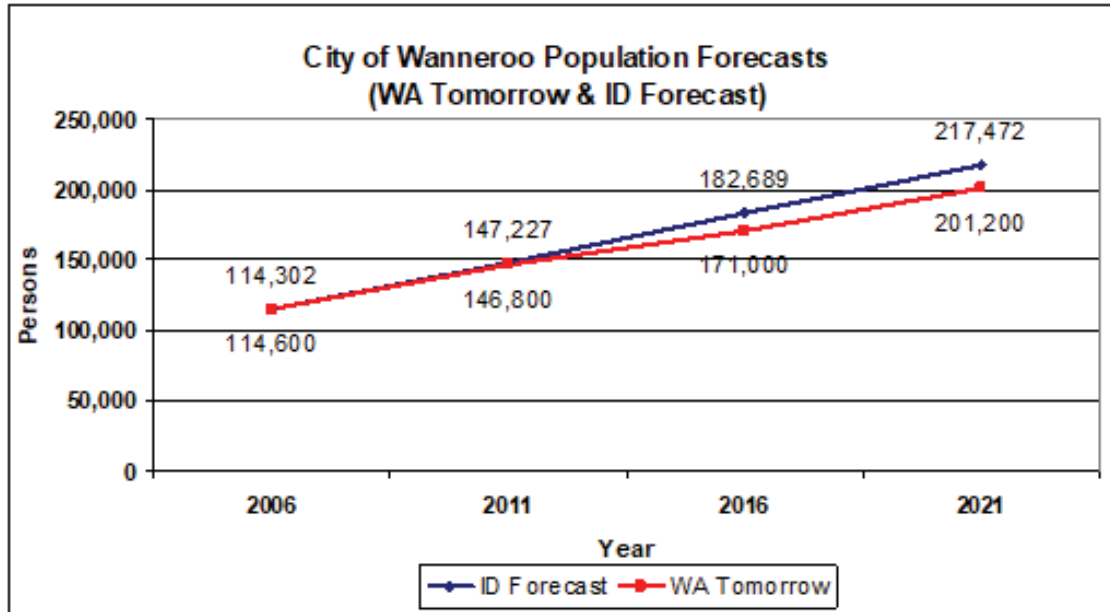
3.5.2 Growth Trends, Population and Housing

The following samples and statistical forecasts provide an understanding of the demographics of the City of Wanneroo over the next fifteen years and illustrate that although households with family increase by over 22,700 over the next fifteen years, as a proportion of total households this is a decrease from 56.5% to 53.9% whilst lone person households increase from 15.8% to 19.3%.

City of Wanneroo Household Structure	2001	Proportion	2021	Proportion	Change	Proportion
Couple Family No Ch HHs	6,844	25.6%	17,134	24.4%	10,290	23.7%
Remainder Family HHs	15,081	56.5%	37,801	53.9%	22,720	52.4%
Lone Person Households	4,208	15.8%	13,526	19.3%	9,318	21.5%
Group Households	582	2.2%	1,651	2.4%	1,069	2.5%
Total	26,715	100.0%	70,113	100.0%	43,398	100.0%
Average HH Size	2.87		2.79		2.74	

Table 3: City of Wanneroo Household Structure

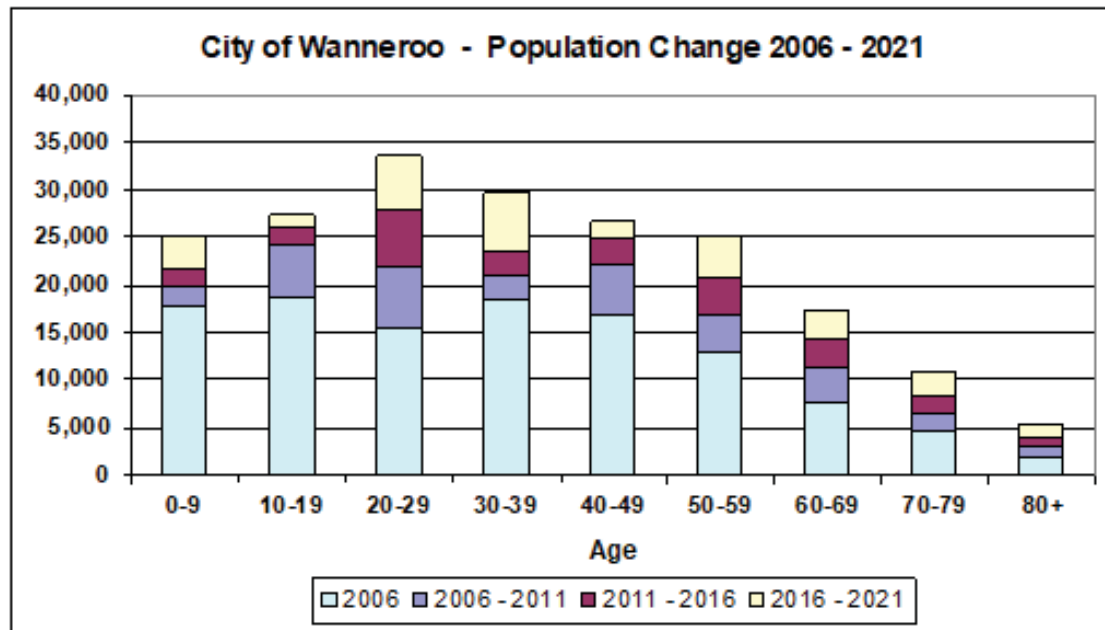
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Graph 1: City of Wanneroo Population Forecasts - Source: ID Forecast and WA Tomorrow (WAPC, 2005)

The graph demonstrates a substantial difference between the respective population projections of each data source in 2021 of almost 9%. This result serves to illustrate the uncertainty of the level of population growth in the City of Wanneroo. In either analysis, the forecast growth in the City is substantial.

Graph 2 below, shows the population by age at 2006 and the forecast increase in population by age to 2021.



Graph 2: City of Wanneroo - Population Change 2006 - 2021 – Source: WA Tomorrow (WAPC, 2005)

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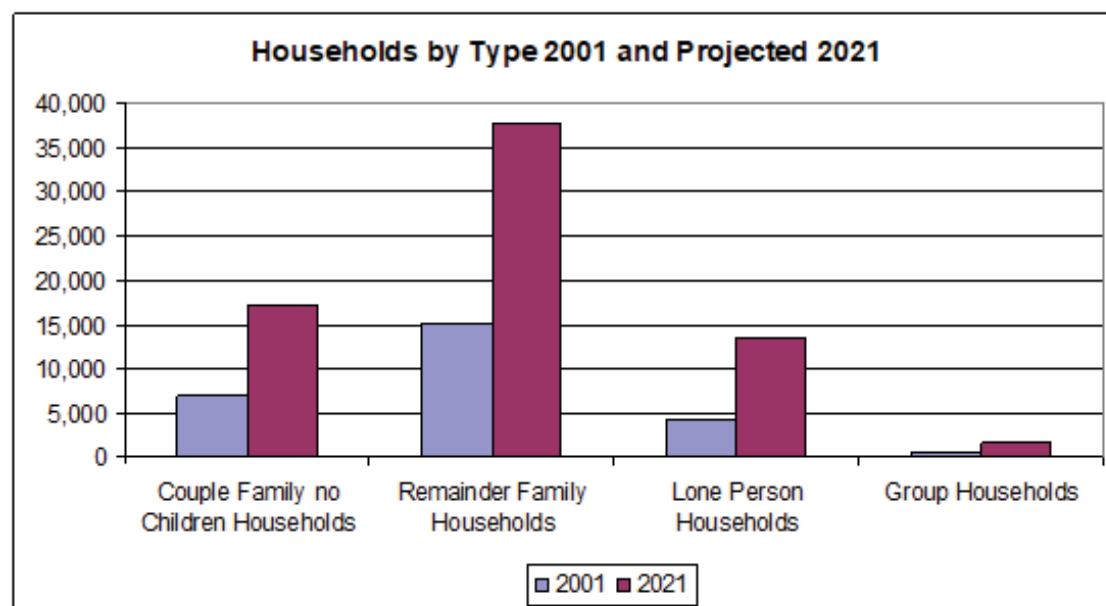
Table 4 below conveys population by age at 2006 for the City of Wanneroo and the additional population by age from 2006 to 2021.

Resident Working Population City of Wanneroo (2001)	Total Employed	Population	Proportion
Persons: 15-19 yrs	2,767	6,057	45.7%
Persons: 20-24 yrs	3,314	4,930	67.2%
Persons: 25-34 yrs	8,482	12,563	67.5%
Persons: 35-44 yrs	9,144	12,858	71.1%
Persons: 45-54 yrs	7,077	9,969	71.0%
Persons: 55-64 yrs	2,771	6,216	44.6%
Persons: 65 and over	350	6,114	5.7%
Persons: Total	33,905	58,707	57.8%

Table 4: Population by Age

Table 4 illustrates that the population of 20-29 year olds is expected to more than double between 2006 and 2021, with a similar forecast for the population of persons aged 60+ which is expected to more than double over the next 15 years.

Graph 3 below shows how the population increase is expected to influence the household size and structure in the City of Wanneroo based on WA Tomorrow population projections, being a major consideration in determining housing diversity.



Graph 3: Housholds by Type 2001 and Projected 2021 – Source: WA Tomorrow (WAPC 2005)

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Table 5 shows residential building approvals data for the City of Wanneroo from 2001 to 2005.

Age	2006	Change 2006-2021	
0-9	17,800	7200	40%
10-19	18,600	8800	47%
20-29	15,500	18000	116%
30-39	18,400	11400	62%
40-49	17,000	9700	57%
50-59	12,800	12200	95%
60-69	7,800	9600	123%
70-79	4,700	6300	134%
80+	1,950	3350	172%
Total	114,550	86,550	76%

Table 5: New Dwelling Approvals (Source: ABS Building Data)

The Australian Bureau of Statistics (ABS) estimated residential population for the City of Wanneroo in 2005 was 107,317 persons or an increase of approximately 27,300 since the 2001 Census (an average of 6,827 per annum). This suggests that recent new development in the City equates to an average household size of approximately 2.42 persons per dwelling.

If the growth rate remains between 6,800 and 7,700 per annum from 2005 to 2021, this would add between 109,000 and 123,000 persons to the City's population for a total population in 2021 of 216,000 to 230,000 persons. This compares with ID Forecast projections of 217,000 persons in 2021.

ABS 2005/2006 building approvals data (6 months to December 2006) show 1,702 approvals, indicating that a possible additional 3,400 dwellings may be approved in the 2005/2006 year. This equates to housing for approximately 8,200 persons (at 2.42 persons per dwelling). This indicates that the higher scenario figure of 230,000 persons in 2021 is possible.

ID Forecast projections of 15,220 persons for Alkimos Eglinton in 2021 at 2.42 persons per dwelling equates to a total of approximately 6,300 dwellings. At 6% additional total growth (higher scenario), the population would be approximately 16,100 or 6,600 dwellings for Alkimos Eglinton.

The urban form contemplated for Alkimos Eglinton, coupled with overall long term changes in demography is likely to support a long term household size of approximately the Perth Metropolitan area average. This is currently approximately 2.4 persons per household and trending lower. Therefore, for planning purposes, the long term household size for Alkimos Eglinton is expected to be approximately 2.4 to 2.5 persons per household. The population projections for the project area are outlined in [Section 10](#).

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3.6 ECONOMIC

3.6.1 Employment, Workforce Breakdown and Income Levels

Table 6 provides a breakdown of the number and proportion by age of the resident working population in the City of Wanneroo for 2001.

ABS Building Approvals data	City of Wanneroo New Dwellings Approved
2001_2002	2,330
2002_2003	2,714
2003_2004	3,006
2004_2005	3,229
TOTAL	11,279
Average per annum	2,820

Table 6: City of Wanneroo Resident Working Population by Age (Source: ABS Census 2001)

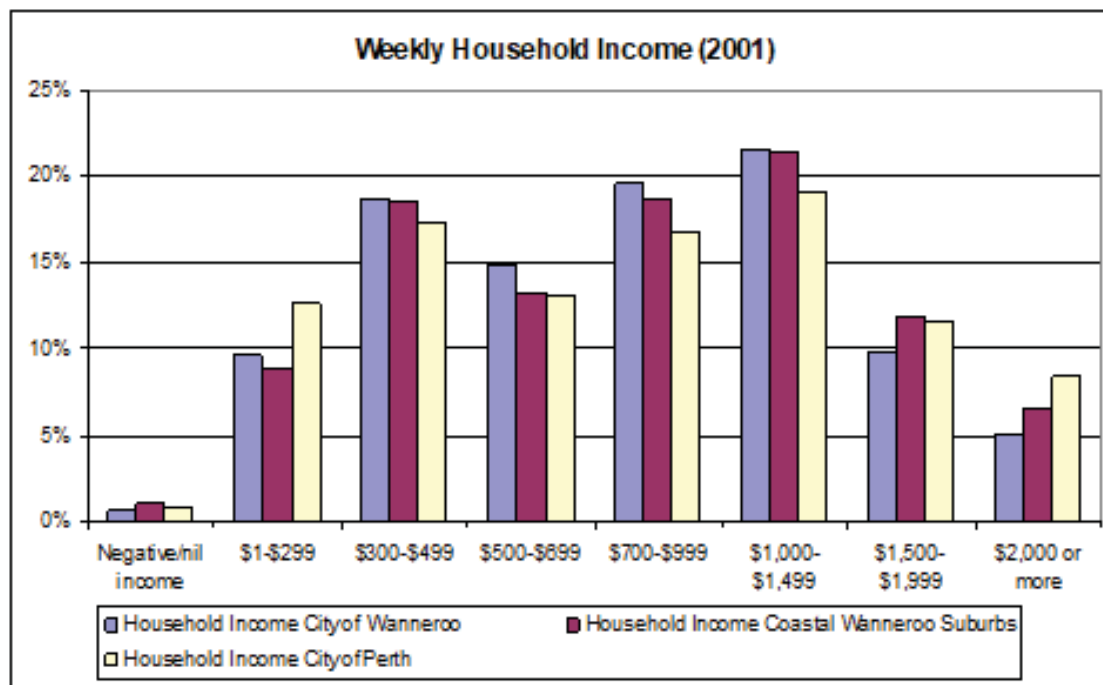
Table 7 shows the estimated City of Wanneroo and Alkimos projected workers by age based on current worker to population ratios.

Additional Resident Working Population City of Wanneroo 2021	Population Change (2006 - 2021)	Estimated Workers (based on 2001 proportions by age)	%
Persons: 15-19 yrs	5,500	2,513	45.7
Persons: 20-24 yrs	8,700	5,848	67.2
Persons: 25-34 yrs	16,200	10,938	67.5
Persons: 35-44 yrs	8,500	6,045	71.1
Persons: 45-54 yrs	12,200	8,661	71.0
Persons: 55-64 yrs	10,900	4,859	44.6
Persons: 65 and over	14,050	804	5.7
Total		39,667	
Alkimos Workers (18% of CoW Growth)		7,140	
Full Time Workers		4,613	
Part Time Workers		2,527	

Table 7: Estimated City of Wanneroo and Alkimos Resident Working Population by Age (Source: ABS Census 2001)

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Graph 4 below, compares 2001 weekly household income of households in the City of Wanneroo, the Perth Metropolitan Area and the coastal suburbs within the City of Wanneroo.



Graph 4: Weekly Household Income (2001) – Source: ABS Census 2001

The above graph illustrates that comparatively, the coastal suburbs within the City of Wanneroo have a slightly higher proportion of households with weekly incomes of \$700 to \$1,499 per week and a slightly lower proportion of households with weekly incomes of \$1 to \$299 and \$2,000 or more per week.

It is likely that weekly household income levels in Alkimos Eglinton will be broadly similar to some of the Perth Inner area suburbs due to the location adjacent to the major economic centre St Andrews. The area is likely to be an attractive option for higher income earners seeking to live close to their work address.

The Employment Strategy for the project area is outlined in [Section 9](#).

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3.7 EXISTING INFRASTRUCTURE

An Engineering Infrastructure Report has been prepared by Cossill and Webley Pty Ltd (CW) for the Alkimos Eglinton DSP (Appendix 5 refers). The following section outlines the existing infrastructure conditions for the project area.

3.7.1 Ground Conditions

The ground conditions within the area have been assessed by Coffey Geosciences. This has been based on a desktop study of existing geological maps and on Coffey's experience with past site investigations within the North-West corridor.

3.7.2 Unexploded Ordinance

There is potential that Unexploded Ordinance (UXO) exists on the site. Prior to any ground disturbing activities occurring on the site, the proponent will be required to conduct a UXO search. In order to complete the UXO search, vegetation must be slashed to the ground.

The potential existence of UXO on the site should be considered in more detail at local structure planning stage. Applications for subdivision will be referred to FESA as a matter of course by the WAPC.

3.7.3 Existing Roads

Road access to the Alkimos Eglinton area is currently via Wanneroo Road which links with the Perth central area. At Alkimos, Wanneroo Road comprises sections which are a two-lane rural standard road and sections that have been upgraded by Main Roads WA to a four-lane divided standard. The road is in good condition generally and provides for an operating speed of up to 90 km per hour, the sign posted speed limit. South of Wanneroo the road provides for four-lane divided movement of traffic, and is constructed to an urban standard with kerbed and drained carriageways, etc.

Existing road links to the eastern boundary of the area from Wanneroo Road include Romeo Road, north of Lot 3 at Alkimos, and Pipidinny Road, north of Lot 11 at Eglinton. Romeo Road is constructed to a rural standard, with a two lane sealed carriageway between Wanneroo Road and the project area, where its reserve currently ends, at the north-east corner of Lot 3. Pipidinny Road extends along the northern boundary of Lot 11 to within some 500 m of the coast. The road is constructed to a rural standard with a two lane, sealed carriageway which is in good condition.

3.7.4 Reticulated Water Supply

WCWA's planning for water supply comprises a series of groundwater bores, located throughout the Alkimos Eglinton area, linked by collector water mains to a central treatment plant and storage reservoir. A new Ground Water Treatment Plant (GWTP) site has been defined and reserved under the MRS adjacent to the Freeway (Amendment 1029/33). Areas of development will be serviced by a network of distribution water mains from the reservoir connected to reticulation systems within those areas.

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

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3.7.5 Sewerage and the Alkimos Waste Water Treatment Plant (AWWTP)

The Alkimos Waste Water Treatment Plant (AWWTP) site located in the southern portion of the project area mostly on Lots 101 and 102, is planned to service the northern suburbs of Perth, including Alkimos Eglinton and Yanchep.

Trunk sewers, being an extension of the Quinns Main Sewer, plus the planned Yanchep Main Sewer will traverse the subject land linking to the AWWTP.

An ocean outfall pipeline is proposed from Lot 101 which has necessitated the siting of a Public Purpose reservation under the MRS in order to accommodate construction of the ocean pipeline. The final definition of precise odour buffer requirements, has been determined through the Section 38 Environmental Approval process of the [Environment Protection Act, 1986](#) (refer EPA Bulletin 1239).

3.7.6 Electricity

Electricity supply currently available to the Alkimos Eglinton area is via existing 22kV overhead lines in Romeo Road and Pipidinny Drive. These are both feeders from Western Power Corporation's (WPC) zone substation in Romeo Road.

3.7.7 Gas

Natural gas has been extended by Alinta to service the Clarkson-Butler area to the south and would be available therefore for further extension to also supply the Alkimos Eglinton area.

3.7.8 Telecommunications

The main telecommunications cables are currently located at Telstra's existing Neerabup exchange and the existing optic fibre cable in Wanneroo Road.

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4.0 EXISTING STATUTORY CONSIDERATIONS

4.1 PLANNING PROCESS TO DATE

A brief overview of the historic planning process involved in advancing the project to this point in time is included in the *Executive Summary*. A more detailed analysis of the current statutory situation appears below:

4.2 METROPOLITAN REGION SCHEME ZONING

In August 2000, WAPC resolved to proceed with Amendment No. 1029/33 to the MRS. Pursuant to section 33E of the then Metropolitan Region Town Planning Scheme Act, 1959, the amendment was referred to the EPA to determine whether environmental assessment of the amendment would be required.

In December 2000, because the proposed land use changes were considered to have the potential to significantly impact on a number of environmental factors, the EPA resolved to formally assess the amendment under Division 3 of Part IV of the Environmental Protection Act, 1986 and issued instructions for the preparation of the Environmental Review.

Following determination of all of the submissions by the WAPC, the recommendations of the EPA (as published in Bulletin 1207) and the Minister for the Environment's Statement 722, Amendment 1029/33 was modified to incorporate all of the requirements of the Minister for the Environment:

- Changes to the areas to be reserved as Parks and Recreation;
- Additional areas to be reserved for Parks and Recreation;
- An increase in the area to be reserved for Public Purposes in order to provide for the Alkimos Wastewater Treatment Works and its associated air quality buffer;
- A concomitant reduction in the extent of land to be zoned Urban Deferred around the AWWTP; and
- The inclusion of conditions in MRS Schedule 1 Environmental Conditions that provide for the management of extensive areas within the land reserved for the Alkimos WWTW as part of the conservation estate, and for the preparation of environmental management plans to ensure that roads, railways and utilities passing through the lands reserved for Parks and Recreation are appropriately designed and constructed.

The clarification of Environmental Conditions from the EPA/Minister of Environment (following determination of Appeals in relation to the EPA's Bulletin), dated 24 April 2006, confirmed acceptance of infrastructure corridors traversing areas of ROS within the Amendment area, particularly to the west of the Ground Water Treatment Plant (the northern arm of the parabolic dune).

Current MRS Zonings and reservations as a result of Amendment 1029/33 (effective June 23rd 2006) are shown in *Figure 8*.

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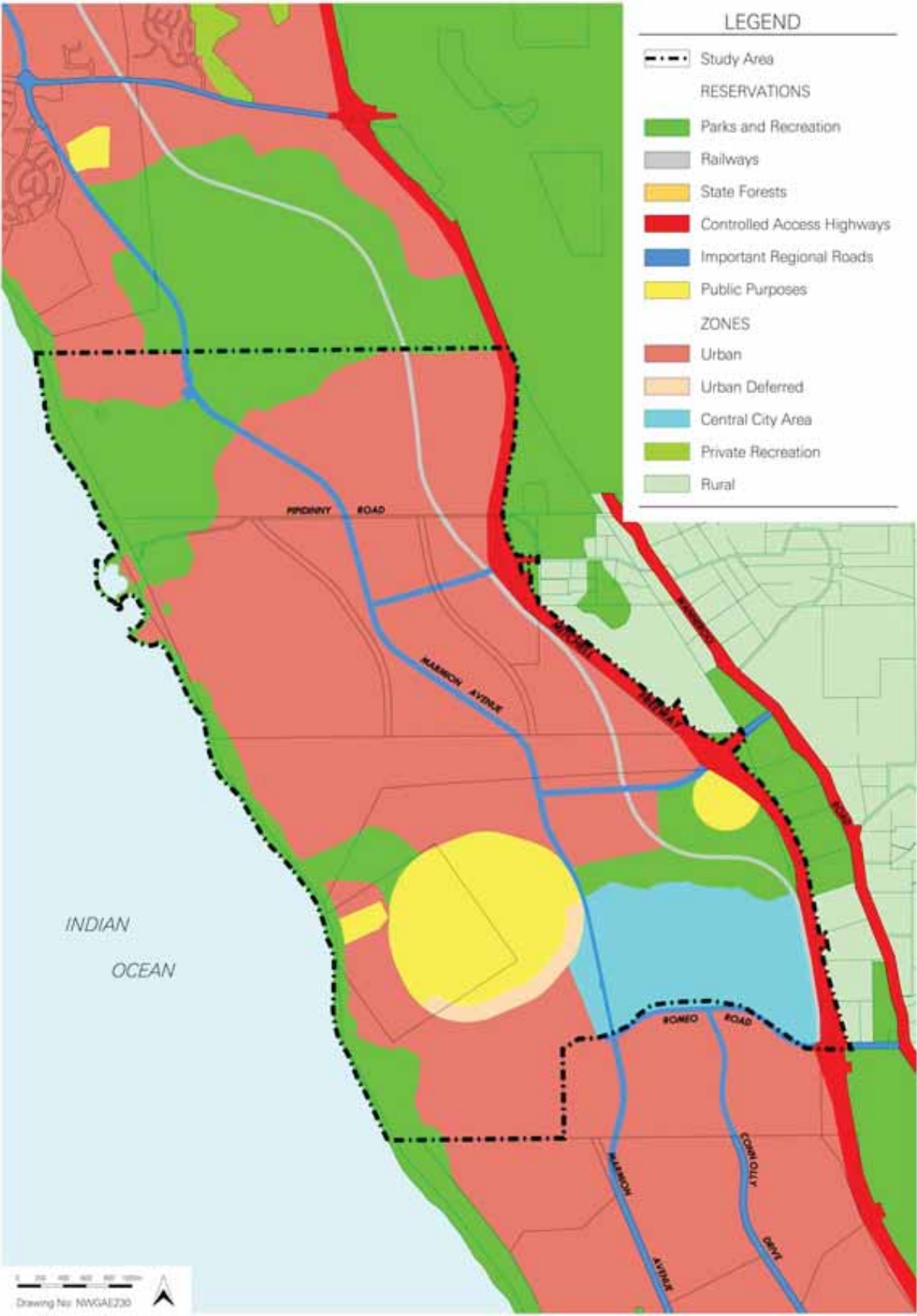


Figure 8: Current Metropolitan Region Scheme

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4.3 DISTRICT PLANNING SCHEME ZONING

The City of Wanneroo District TPS No. 2 mirrors the reservations that have been adopted over the land via MRS Amendment 1029/33. The zones within the Scheme have been amended to bring them in line with the approved changes to the MRS (Amendment No. 68 to DSP No. 2 gazetted 16 May 2008 refers).

The part of the DSP area shown on Map 1 extending beyond the existing Local Government boundary will only become subject to this DSP once a proposed western extension to that boundary has been affected. City of Wanneroo is undertaking this process.

4.4 ENVIRONMENTAL PROCESS TO DATE

The Environmental Review was finalised and advertised concurrently with the MRS amendment on both occasions. The key environmental issues identified by the EPA were as follows:

- Significance of flora and vegetation, presence of Priority Flora and other significant flora;
- Fauna including Specially Protected (threatened) Fauna;
- Coastal stability and management;
- Odour, public risk and noise impacts resulting from the groundwater treatment plant (GWTP); and
- Odour, public risk and noise impacts resulting from the wastewater treatment works (WWTW).

The WAPC considered that all of the environmental matters relevant to the Amendment could be satisfactorily addressed and managed, subject to some further modifications of the Amendment. The WAPC forwarded its response to the environmental issues raised in a submission to the EPA in September 2005.

The EPA subsequently published its findings in its Bulletin 1207 in November 2005 and provided a fourteen day appeal period. After considering the Appeals Convenor's report and consulting with the Minister for Planning and Infrastructure, the Minister for the Environment determined the scheme could be implemented, and determined the appeals accordingly.

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4.5 ENVIRONMENTAL APPROVALS

Planning for the project area commenced in 1996 and in the ensuing work took the form of extensive background studies over the full range of relevant topics and issues, most of which were completed prior to the initiation of MRS Amendment 1029/33.

Environmental reports which have been prepared over the history of the project and contain relevant background information include the following:

1. Alkimos Eglinton MRS Amendment No. 1029/33. Bulletin 1207 (EPA, 2005);
2. MRS Amendment 1029/33, Alkimos Eglinton Flora, Vegetation and Fauna Baseline Information (ATA Environmental, 2005);
3. Alkimos Eglinton Environmental Review (ATA Environmental, 2003);
4. Coastal Planning Strategy (ATA Environmental, 2003);
5. Coastal Planning Strategy Update (Alan Tingay and Associates, 1999). Report prepared for LandCorp;
6. Alkimos Eglinton Coastal Engineering Study (MP Rogers and Associates, 1998). Prepared for LandCorp;
7. Alkimos Eglinton Environmental Report (Alan Tingay and Associates, 1997);
8. Alkimos Eglinton Vertebrate Fauna Survey (Alan Tingay and Associates, 1996) Unpublished report for LandCorp;
9. Vegetation Condition and Conservation Values Lots 8 and 11 Eglinton, City of Wanneroo (Armstrong, P., 1996) Unpublished report for LandCorp and Alan Tingay and Associates;
10. Alkimos Eglinton Study: Definition of Foreshore Reserve Boundary and Environmental Assessment of Proposed Alignment of Marmion Avenue/Mitchell Freeway (Alan Tingay and Associates, 1993);
11. Eglinton Beach Resort: Report and Recommendations of the EPA, Bulletin 500 (EPA, 1991);
12. A Report on the Flora and Vegetation of the Alkimos Area and Conservation Issues Affecting It (Trudgen, M. and Keighery, B.J., 1990). Unpublished report for LandCorp;
13. A Report on the Flora and Vegetation of the Ningana Area and Conservation Issues Affecting It (Trudgen, M. and Keighery, B.J., 1990). Unpublished report for LandCorp; and
14. Eglinton Beach Resort an appraisal of the vertebrate fauna (Ninox Wildlife Consulting, 1990);
15. Consulting Environmental Engineers, Report on Buffer Zone for Proposed Alkimos Wastewater Treatment Plant (2006) and subsequent Section 38 Public Environmental review and issuing of Department of Environment and Conservation "Report and Recommendations of the EPA" (detailed in EPA Bulletin No.1239) confirming the buffer zone requirement (as depicted on the DSP).

The EPA assessed a range of relevant environmental factors (over the whole project area) during the Environmental Review of MRS Amendment 1029/33. Major elements examined included:

- Vegetation;
- Fauna;
- Odour (Wastewater Treatment Plant) – (deferred factor, now determined under EPA Bulletin 1239);
- Geo-heritage;
- Aboriginal heritage – (deferred factor); and
- Risk (Groundwater Treatment Plant).

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The EPA's assessment of Amendment 1029/33 was based on a consideration of the environmental values across the entire project area which led to the identification of specific areas of regional environmental significance, which were set out in Bulletin 1207 (EPA, 2005). The areas of environmental significance identified by the EPA have been reserved for Parks and Recreation and Public Purposes (for the purpose of conservation, landscape and complimentary purposes) under the MRS.

In Statement 722, amongst other matters, the Minister for the Environment has set environmental management conditions which must be met for these areas. Amendment 1029/33 to the MRS was approved by the Minister for the Environment on 24 April 2006 and was gazetted on 23 June 2006.

The conditions of approval set by the Minister for the Environment require that prior to the Local Authority or WAPC issuing the relevant approval for some of the elements of the DSP, an Environmental Management Plan will need to be prepared and implemented to achieve the objective of managing the potential impacts of the proposed subdivision and development of infrastructure on the land Reserved as Parks and Recreation in the MRS, and on bushland that may be part of an ecological linkage.

- Alkimos Wastewater Treatment Plant (WWTP) – A Public Environmental Review under Section 38 of the Environmental Protection Act 1986 has been undertaken. The Department of Environment and Conservation Report and Recommendations of the EPA, as conveyed in Bulletin 1239, confirms the buffer requirements and sets environmental approval conditions for the Waste Water Treatment Plant.
- The (proposed) Eglinton Marina has an existing EPA approval from 1991 (EPA Bulletin 500). Many of the environmental approval conditions have already been met and complied with. The proponent is working towards compliance with all other environmental conditions. The MRS includes the relevant zonings for a marina from the 1991 approval. An MRS Parks and Recreation reservation in the area where the proposed Marina extends out into the ocean is reflected in the City of Wanneroo's District Planning Scheme No.2, however the areas of the Eglinton Marina that are currently zoned Urban in the MRS are currently unzoned as such under Council's Scheme. In order for the Eglinton Marina to proceed, Council's Scheme will require amendment following extension of the City of Wanneroo municipal boundary to conform to the MRS.
- Any requirements for environmental assessment under Commonwealth Environmental legislation will be addressed at the local structure planning stage.

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4.6 STATE GOVERNMENT POLICIES AND STRATEGIES

An analysis of the level of compliance with State Government planning policies and strategies for the DSP has been prepared and is outlined in [Section 17](#). The following is an overview of relevant policies and strategies considered during preparation of the DSP:

4.6.1 State Planning Strategy (December 1997)

The State Planning Strategy (December 1997) contains five 'guiding principles' which underpins each of the State's planning policies and guidelines:

- Environment;
- Economic;
- Regional;
- Infrastructure; and
- Community.

4.6.2 Statement of Planning Policy No 1.1: State Planning Framework Policy

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' in accordance with the five guiding principles identified above.

4.6.3 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 environmental protection, social advancement and economic prosperity. 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.

4.6.4 Network City

Network City: Community Planning Strategy for Perth and Peel (Network City) provides the overarching, long term metropolitan planning strategy for the Perth region. The final Network City document was adopted in August 2004, with the results of this public consultation forming the basis for the WAPC's Statement on Partnerships for Planning Perth and Peel in November 2005.

4.6.5 Bush Forever

Bush Forever aims to identify areas of regional significance worthy of protection to conserve the biodiversity of the vegetation on the Swan Coastal Plain.

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4.6.6 Liveable Neighbourhoods

Liveable Neighbourhoods has been prepared to implement the objectives of the State Planning Strategy, which aims to guide the sustainable development of Western Australia to 2029. An “operational” draft of Liveable Neighbourhoods was originally released as in 1997, with a refined edition 2 released in June 2000, as an integrated planning code addressing both strategic and operational issues to facilitate the development of sustainable communities. Edition 3 of Liveable Neighbourhoods, released in October 2004, further refines the trial policy. Whilst the policy still has the status of an operational draft, it provides an important mechanism for the assessment of major development in Western Australia.

4.6.7 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.

4.6.8 Statement of 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:

- To promote a sustainable and well planned pattern of settlement with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.
- To build on existing communities with established local and regional economies, concentrate investment on the improvement of services 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.
- To promote the development of sustainable and liveable 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.
- To coordinate new development with efficient, economic and timely provision of infrastructure and services.

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4.6.9 North West Corridor Structure Plan (1992)

The North West Corridor Structure Plan supersedes the 1977 North West Corridor Structure Plan.

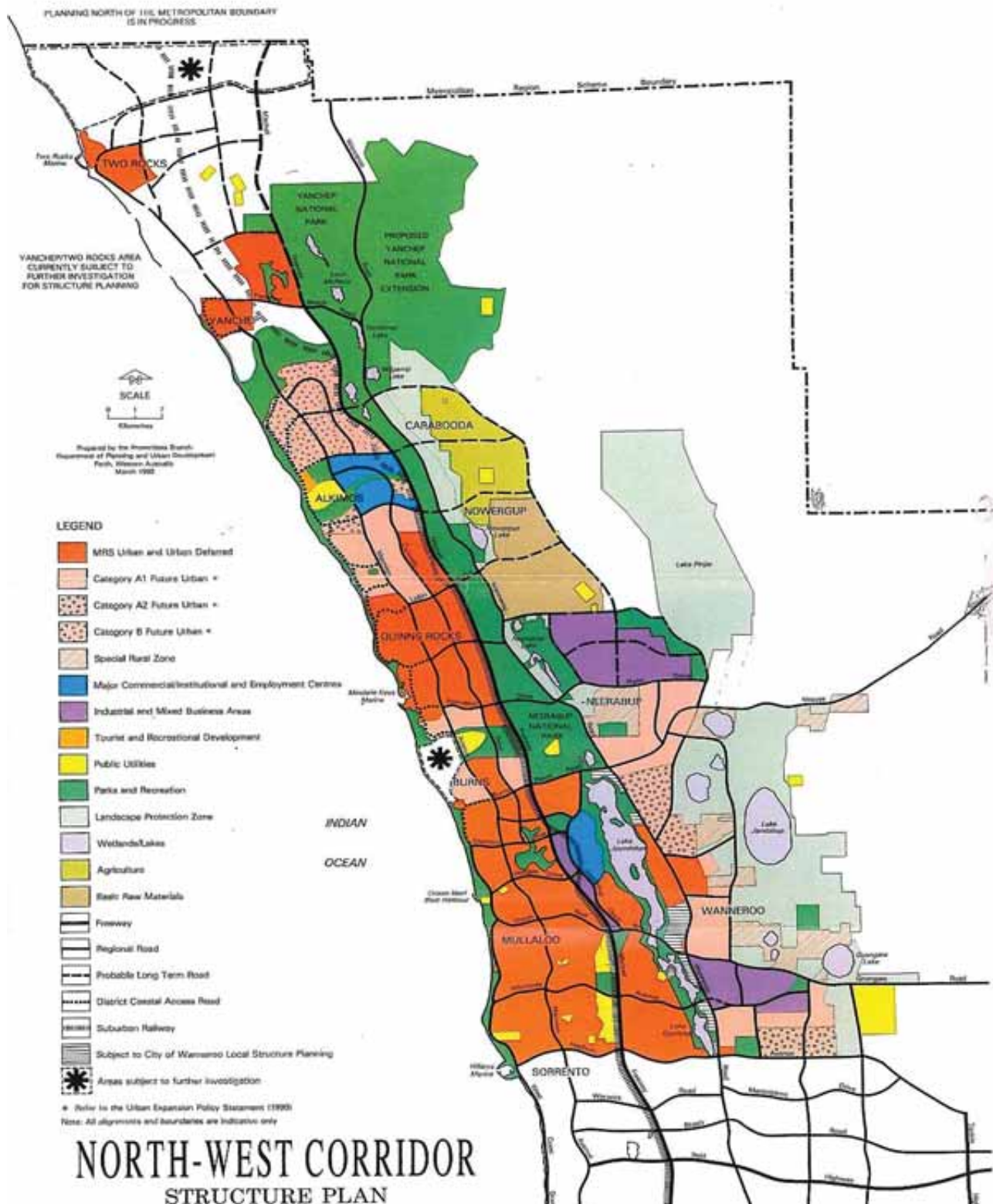


Figure 9: North West Corridor Structure Plan (1992)

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The 1992 Structure Plan is based on 60% self-sufficiency in employment. The Corridor is expected to ultimately house a resident population of 420,000 with a resident work force of 210,000 (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 and 26,000 will be taken up by workers from outside the Corridor. The remainder of the resident work force, an estimated 84,000, will commute to work outside the Corridor.

WAPC is currently undertaking a review of the NWCSPP with a number of studies being commissioned into retail, transport and environmental analysis. The DSP's compliance with and any departures from the NWCSPP are outlined in Section 17.

4.6.10 Metropolitan Centres Policy (2000)

The Metropolitan Centres Policy was prepared by the State Government under Section 5AA of the Town Planning and Development Act 1928 (as amended). The purpose of the policy is to provide a broad regional planning framework to coordinate the location and development of retail and commercial activities within the metropolitan region. It is mainly concerned with the location, distribution and broad design criteria for the development of commercial activities at the regional and district level, with Local Planning Strategies prepared by Local Governments providing more detailed guidance for planning and development control at the local level.

4.6.11 State Coastal Planning Policy (2003)

This policy addresses land use planning and development issues as they relate to the protection and management of the coast. The policy requires strategies plans to guide local planning, development setbacks for protection against coastal processes such as erosion and storms and the provision of coastal foreshore reserves. The preparation of coastal 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:
- protect, conserve and enhance coastal values, particularly in areas of landscape, nature conservation, indigenous and cultural significance;
- provide for public foreshore areas and access to these on the coast;
- ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities; and
- ensure that the location of coastal facilities and development takes into 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) address and protect the public/community interest, ensure that a coastal foreshore reserve is set aside for public ownership and there is an appropriate physical processes setback, 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 and located in suitable areas.

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4.6.12 Statement of Planning Policy 2 - Environmental and Natural Resources Policy

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

4.6.13 Statement of Planning Policy 2.8 – Draft Bushland Policy for the Perth Metropolitan Region

The draft policy has been prepared to give a 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. The document outlines a framework for implementation and recommendations for each of the 287 Bush Forever Sites identified.

4.6.14 Statement of Planning Policy 2.9 - Water Resources

The purpose of this policy is to guide development of land that may impact on water resources in the state. Under the policy, water resources include 'water in the landscape with current or potential value to the community or environment'. This incorporates features such as wetlands and waterways, surface water, groundwater, drinking water catchments and sources, stormwater and wastewater. The policy aims to ensure that the quality and quantity of water resources in the state are not adversely affected by development and land use.

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4.7 CITY OF WANNEROO POLICIES AND INITIATIVES

4.7.1 City of Wanneroo Strategic Plan 2006-2021

Following extensive public consultation Council has prepared a Strategic Plan (2006-2021) that outlines its vision for Wanneroo, namely:

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

The Plan takes into account a fresh focus on partnerships and networks 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.

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4.7.2 Smart Growth Strategy and Assessment Tool

Building upon the City of Wanneroo Strategic Plan the City has prepared a Smart Growth Strategy and related Smart Growth Policy, which gives effect to these four strategic “Pillars” through the following six Smart Growth principles:

- Lifestyle and housing choice - Smart Growth encourages the provision of a variety of housing types and the enhancement of lifestyle options;
- Effective use of land and infrastructure - Smart Growth supports the effective use and development of land and buildings for the benefit of the local area;
- Long term health of the environment - Smart Growth promotes development that minimises environmental impact, together with practices that conserve and enhance natural areas;
- Identity, equity and inclusiveness - Smart Growth is creating opportunities to enhance and develop the identity of our places and our people;
- Long term economic health - Smart Growth supports opportunities that enhance industry growth and promote job creation within our region; and
- People and government - Smart Growth encourages citizen and stakeholder participation in governance and development decisions.

Development proposals within the City will be examined in respect of their degree of consistency with the City’s Smart Growth Strategy and Policy, Smart Growth Principles and related Strategies. To assist with this aim the, City has developed a Smart Growth Assessment Tool or SGAT, which is intended to facilitate consideration and evaluation of development proposals based on an integrated assessment of the environmental, social and economic impacts of a development.

The assessment tool draws together, in a comprehensive fashion, all City and State Government Statutes that are relevant to a major development in Wanneroo. Its development has required the formulation of precise definitions and measures for more generally stated City policies and strategies, resulting in greater clarity, both within and outside the City, of the City’s expectations for development outcomes. It therefore fosters a consistent and coordinated response by the City to major developments and improves clarity for development proponents.

The SGAT is an aid to decision making and negotiation, but no more than that. It does not remove the need for judgement, compromise and negotiation, especially where large and complex proposals are considered. It does, however, identify areas in which proposals may be strong or weak and assign a measure of relative importance to them. Thus it enables the costs and benefits of tradeoffs to be measured, and provides a focus for further refinement of a development proposal.

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4.7.3 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 Economic Development Strategy, the promotion of Wanneroo as an investment and employment destination can only occur if it is understood 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 Wanneroo has desirable centres of employment;
- Investing for the future – increased collaboration with the State government and other key stakeholders is needed 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
- Basic Infrastructure has to be in place to allow businesses to prosper and grow.

4.7.4 Employment Policy

The City of Wanneroo's Employment Policy is designed to establish a framework to encourage and retain local employment within the City of Wanneroo and ultimately the North West Corridor. The necessity for this policy has been driven by the fact that the City of Wanneroo suffers low employment self-containment within its boundaries, which has led to the many so-called 'dormitory suburbs'.

The Policy contains a schedule of strategies at district, local and sub-division levels to indicate the type and scale of initiatives that are expected when planning development of various sizes. The City's Smart Growth Assessment Tool sets a target of 40% employment self sufficiency at the DSP level. The DSP compliance with the Employment Policy is outlined in [Section 9 – Economic Development and Employment](#).

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4.7.5 Tourism Strategy

The development of tourism within 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.

The Tourism Strategy objectives attempt to give broad direction to the plan over all, allowing innovative actions to result. The DSP response to the Tourism Strategy is outlined in [Section 8 – Commercial and Centre Creation](#).

4.7.6 Centres Strategy

The City of Wanneroo's Centres Strategy seeks to promote the future 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 Secondary Centre along 'main street' principles are supported in the Centres Strategy.

The Alkimos Eglinton Centres Strategy is outlined in [Section 8 – Commercial and Centre Creation](#).

4.7.7 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.

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4.7.8 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).

The City of Wanneroo is participating in a pilot project with the PBP to develop a Local Biodiversity Strategy. This Strategy is still in a draft format and is not yet publicly available.

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4.7.9 Regional Community Infrastructure Requirements Discussion Paper (June 2006)

The City of Wanneroo has prepared an initial draft discussion paper outlining regional community infrastructure requirements. The paper focuses on the regional community infrastructure requirements and articulates the preferred models of provision and associated locational criteria. Allocation of land for community facilities will occur through future local structure planning processes and will need to be integrated with planned regional facilities.

Guiding Principles

The following guiding principles for the provision of regional community infrastructure have been identified:

- Provide multi-use / shared facilities;
- Integrate passive open space with active open space;
- Integrate aquatic facilities, indoor sport and recreation centres, libraries, performing arts centres and district open space with Tertiary / TAFE providers, large scale indoor recreation facilities, high schools etc;
- Integrate primary school ovals with active open space to provide additional local open space options;
- Ensure good transport links;
- Provide good access to co-located facilities via road links; and
- Integrate aquatic facilities, indoor sport and recreation centres, libraries and performing arts centres within regional, district and local centres where possible.

The DSP reflects these principles.

Alkimos Eglinton Recreational Facility Needs

The City of Wanneroo, following a review of recreational facility needs for the northern portion of the North West Corridor, has advised that it considers the following facilities are required at Alkimos Eglinton:

- 1 x regional open space stand alone playing fields, (approx 50ha) located east of Alkimos Secondary Centre, between the freeway and Wanneroo Road;
- 1 x district open space (13ha) potentially collocated with tertiary providers and/or high schools spread throughout the Alkimos Eglinton area in full;
- 1 x municipal golf course (80ha) stand alone, single purpose facility not co-located with any other regional infrastructure;
- 1 x regional library and performing arts centre, potentially co-located with tertiary provider/high school;
- 1 x aquatic and recreation centre, based on Joondalup Arena model, potentially co-located with tertiary provider;
- 1 x indoor sport / recreation centre, potentially co-located with tertiary provider or high school; and
- 1 x surf life saving club located within or in close proximity to a primary coastal node.

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5.0 INTRODUCING THE DISTRICT STRUCTURE PLAN

5.1 AN OVERVIEW

Alkimos Eglinton has been the focus of extensive planning workshops and negotiations between all of the relevant stakeholders over the past four years, which culminated in a major workshop chaired by the WAPC in 2005. The outcome of this workshop was the Alkimos Eglinton Concept Structure Plan which formed the basis for MRS Amendment 1029/33 and set the broad framework for the DSP.

Over the past six months the Alkimos Eglinton DSP project team has researched and reviewed all of the relevant elements necessary to inform the DSP, which addresses the planning framework at a finer grain. The DSP is a robust document and plan that defines the guiding principles for preparation of LSPs and future development of the project area.

The DSP also assists Council and provides an additional level of support for an amendment to its District TPS to bring it in line with the current MRS. The following sections outline the project vision and guiding principles that informed preparation of the DSP.

Table 8 shows the proposed land use allocation areas (major land uses) broken down by land ownership.

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Major Land Uses	Land Ownership	Area (ha)
Urban	Eglinton Estates	401.7
	Landcorp	630.3
	Peet Alkimos Pty Ltd.	166.5
	Perpetual Trustees	28.2
	WAPC	25.7
	Water Corp.	33.4
Subtotal:		1285.8
Future Potential Urban	Landcorp	25.8
	Water Corp	2.2
Subtotal:		28.0
Service Commercial	Eglinton Estates	25.0
	Landcorp	64.8
	Peet Alkimos Pty Ltd.	23.6
	Perpetual Trustees	35.9
Subtotal:		149.3
Secondary Activity Centre	Landcorp	158.2
Subtotal:		158.2
District Activity Centre	Eglinton Estates	63.7
	WAPC	2.2
Subtotal:		65.9
Coastal Village Activity Centres	Eglinton Estates	7.8
	Landcorp	8.1
	Peet Alkimos Pty Ltd.	8.7
	Water Corp.	11.7
	Crown Land	5.6
	Unallocated Crown Land	5.0
Subtotal:		46.9
Regional Open Space	Eglinton Estates	21.7
	Landcorp	338.6
	Peet Alkimos Pty Ltd	25.2
	WAPC	13.1
	Water Corp.	7.8
Subtotal:		406.4
Public Purposes	Landcorp	118.4

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Major Land Uses	Land Ownership	Area (ha)
	Water Corp.	104.2
Subtotal:		222.7
Total Area:		2363.2
Minor Land Uses		Area (ha)
Primary Regional Roads (Red)		108.0
Secondary Regional Roads (Blue)		60.2
Foreshore		58.4
Rail Reserve		22.2
Marina		6.5
Pipidinny Road Reserve		6.3
Regional Open Space (other ownership)		2.1
Total Area:		263.7
TOTAL DSP AREA:		2626.9

Table 8: Land Allocation Table

Part 1 herein (Section 1.8) details Objectives and Strategies relating to the “Built Environment” including minimum density targets and residential codings to be defined at the LSP stage.

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6.0 SUSTAINABILITY, VISION, GUIDING PRINCIPLES AND OBJECTIVES

6.1 VISION FOR ALKIMOS EGLINTON

Alkimos Eglinton is proposed to be a truly intelligent seaside town, designed to serve the needs of modern communities into a rapidly changing future. Located 15 km north of Joondalup, it will accommodate more than 57,000 residents and engender a vibrant coastal lifestyle.

Rather than merely extending the urban fringe northwards in a similar manner that has occurred over the past twenty years, the Alkimos Eglinton landowners have planned to create a most innovative self-sustaining community that appropriately responds to perceived 21st Century demands. As a clever, transit oriented development, it will have sustainability at the heart of its design and central to its residents' way of life.

Alkimos Eglinton will comprise two major mixed-use Town Centres strongly linked to three vibrant Coastal Villages. Its diverse communities will grow, with the focus on attractive waterfront precincts and coastal lifestyle. It will feel very much like a series of modern, vibrant coastal villages. It will be a liveable "place for people".

The project's planned innovative, flexible and robust approach will allow it to adapt to changing lifestyles and demographics over the life of the development, always bringing tomorrow's living to today's world.

A Snapshot

- Coastal living: sun, surf and fresh sea air;
- A vibrant local community ruled by people, not traffic;
- Integrated, rapid local and regional public transport;
- Diversity of housing and lifestyles;
- Schools, shops and services from an early stage;
- Excellence in education;
- Intelligent environmental management, including advanced water management;
- Substantial coastal dunes and vegetation preserved and linked to the nearby National Parks system;
- Attractive waterfront precincts, a marina and three coastal villages;
- Design guidelines encouraging sustainable contemporary ocean side buildings;
- A community provided with healthy lifestyle opportunities;
- Local employment: live, work and play in your neighbourhood; and
- Long-term investment and economic benefit to Western Australia.

The vision for Alkimos Eglinton is to build liveable, sustainable and affordable communities. It will create a public realm which expresses regional and individual local identities, knitted together with a transport system based upon amenable and accessible transport orientated design principles, and utilising sustainable environmental design to create a unique "sense of place" that responds to the existing landscape.

The vision is rational, achievable and sustainable. It is based on intensive research and analysis of the project area, an understanding of its surroundings, the economics of the project and the aspirations for the future of Alkimos Eglinton.

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As infrastructure and urban patterns begin to be imprinted on the project area, the design approach aims to express ways in which the special qualities of the landscape can inspire an appropriate form of urban development. Special care will be taken to respect and protect key landscape features and highlighting their prominence through design.

The vision also aims to inspire and unite all stakeholders in a common goal: to create a very liveable “place for people”, embracing best practice urban design and sustainable development to demonstrate that Alkimos Eglinton can make a significant contribution to the aesthetic and environmental values of Perth’s north-western coastline.

6.2 OBJECTIVES

The following table provides an outline of the key project objectives, being those that have been identified as critical to the delivery of the project vision for the site. The table also identifies the sustainability objectives that are more fully detailed in Section 6.4.

Key Project Objectives		Sustainability Objectives
Locality	Establish Alkimos Eglinton as a recognised sub-region within the North West Corridor and which, in its own right, makes a major contribution to urban life, image and character of Perth.	
The Site	Facilitate development which is viable and sustainable over the long term and yet reflects a sound and responsible balance between the potential for maximising site development and the desire to create a development of the highest quality and public amenity	
Infrastructure	Establish solutions which provide the most technically advanced yet proven servicing, transport, communications and energy management.	<ul style="list-style-type: none"> Advocate provision of communications infrastructure Reduce private transport emissions Reduce material intensity / embodied energy Reduce operational energy consumption Increase renewable energy
Community	Establish and support a sense of community through the timely provision of facilities, services and transport, entertainment, recreational and cultural activities.	<ul style="list-style-type: none"> Encourage diversity of housing Ensure affordable housing Encourage social cohesiveness and civic participation Promote the provision of community facilities and services and meet the needs of the community
Amenity	Produce an urban environment which makes a major contribution to lifestyle, image and character of the region.	

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Key Project Objectives		Sustainability Objectives
Environment	Establish solutions which respond in a sensitive yet innovative way to both the environmental and planning constraints and opportunities inherent in the project area.	<p>Promote more efficient use of water</p> <p>Develop integrated water management strategies to increase water efficiency</p> <p>Conserve and enhance local biodiversity</p> <p>Encourage community participation in local bush care efforts</p> <p>Encourage sustainable waste management options and improve resource recovery.</p>
Innovation	Encourage innovative solutions to all land use categories including retail, commercial, residential, civic and recreation uses.	
Commerce	Encourage and support the growth of localised business and employment	Promote investment consistent with strategic vision
Implementation	Establish a solution which can be accurately defined and costed to enable a commercially successful development to be completed within program and budget.	

Table 9: Key Project and Sustainability Objectives

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6.3 GUIDING PRINCIPLES AND STAKEHOLDER IDEALS

The DSP has been prepared based on the following key guiding principles, which were identified during a series of stakeholder workshops and forums held over the last few years.

The Promotion of Sustainable Urban Development

The project should maximise the opportunities for built form to embrace energy efficiency measures and energy conservation. Detailed planning and engineering will need to encompass state of the art methods to ensure maximisation of sustainability, provision of opportunities for recycling, and on-site waste management to minimise impact on local and regional environment.

The project should also utilise “best practice” to ensure excellence in environmental outcomes. To do so the development should contribute to protection and enhancement of natural environment. It needs to integrate with, protect and enhance the ecological attributes of the area. It is important that it contributes to enhanced biodiversity and offers a basis for developing and implementing various sustainability initiatives.

The development should preserve areas of highest conservation value on the site, conserve examples of the different natural areas on the site, incorporate natural areas into the new urban fabric, provide linkages through the project area to nearby national parks and interpret the existing landscape and site memory in the development areas.

Integrating all elements of the area

It is important that development visually connects and integrates with surrounding developments, infrastructure and landforms. Physical linkages to the surrounding developments should be maximised, particularly existing and proposed facilities, environment, movement systems, employment, community, retail and commercial, built form and open space systems.

Creating a sense of place at both the local and regional level

It is essential that development creates a point of difference that sets it apart from other areas in Perth. The project should set new benchmarks for urban development in Perth and provide an example for future growth within the Perth Metropolitan Region. The development should engage with and connect to the coast. Public access to the coast should be optimised. The plan for the project area must recognise the coast as a key focus and link its elements with the coastal developments to the north and south.

At a local level, the aim is to create a strong “sense of place” giving residential precincts their own identity, incorporating a modified grid system whilst ensuring maximum pedestrian accessibility, legibility and robustness, and facilitating a greater degree of mixed use and employment opportunities.

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Ensuring flexibility in urban form and policy frameworks to allow for change

The DSP must be flexible and be able to evolve over time to meet changing market demands and changing objectives. It must also allow for flexibility in development staging.

Creating an urban form that encourages the development of community

As the project area will accommodate some 57,000 people, opportunities for activated community hubs will be an essential strategy for achieving social and economic sustainability and facilitating the formation of community and the local economy.

Early provision of and adequate access to education, services and facilities will also be necessary.

Providing diversity and mix of use.

Plan for integrated development to cater for the residential, retail, service, educational, employment, health, sporting and entertainment needs of the population.

Creating an attractive living and working urban environment

The project should focus on achieving excellence in urban design leading to the creation of a quality living and working environment. Good urban design and sustainable development has the potential to create places that are economically and socially sustainable, environmentally responsible, amenable, equitable and enjoyable places to live.

On a more detailed level, good urban design can enhance the vitality and viability of town centres and encourage people to live within them.

The DSP reflects these objectives at a macro level. It will be at the detailed planning level that these objectives need to be closely addressed and implemented.

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6.4 PRIORITY SUSTAINABILITY OUTCOMES

6.4.1 The Approach to Sustainability at Alkimos Eglinton

Sustainability objectives and key principles have been developed for Alkimos Eglinton using the State Sustainability Strategy, and the Smart Growth Assessment Tool for guidance.

A District Structure Plan is a high level document, used to guide subsequent levels of more detailed planning, subdivision and eventual development. It is recognised that in order to implement sustainability at Alkimos Eglinton, clear implementation paths will be necessary. Accordingly Implementation Plans have been developed to provide a guide mechanism by which the sustainability objectives can be further investigated and operationalised in the future.

Details of the Sustainability Strategy for project area are summarised in the key elements of the Strategy.

6.4.2 Priority Sustainability Objectives

Those sustainability objectives that should be considered a priority in relation to planning within this region, and the measures that will be taken to achieve these objectives are described below.

Community Development

Community development objectives are a key focus of the overall Sustainability Strategy for the project area. There are four key strategies that will play an important role in the effective roll out of the community related sustainability objectives. These are set out in detail in Sections 9 and 11 of the DSP, and summarised below.

Investment promotion

The creation of economic activity in areas in and adjacent to Alkimos Eglinton is a critical issue for creating a sustainable settlement. The priority components of this from the viewpoint of the sustainability strategy are:

- Marina and tourism associated development at Eglinton with a resort centre and hotel
- Regional commercial and employment centre at Alkimos

Communications infrastructure supporting home-based work

Home-based work is an important element of the sustainability strategy in terms of both creating community and reducing car dependence.

The development of adequate communications infrastructure at Alkimos Eglinton to facilitate fast broadband is required to ensure the opportunities are realised. The Engineering Infrastructure report (Appendix 5 refers) provides specific details about a strategy for implementing broadband services.

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Diversity of Housing

- Housing sizes that match emerging demography

Reducing the size of new housing to suit the real needs of families and individuals, now and in the future would have many benefits including housing affordability, maintenance of housing values and energy efficiency (embodied and operational).

- Wide range of housing types

The other consequence of the changing demographics is the need for a more diverse housing product that can cater to singles living alone or in groups, families (including extended families) and “empty-nesters”.

Alkimos Eglinton will strive to set a new benchmark in housing diversity to cater for the 21st century demographic.

Affordable Housing

- Affordable housing initiatives for both sale and rent

Purchasing a house is becoming increasingly difficult for Perth families. Accordingly strategies are needed that facilitate entry into the ownership market, as well as meet the needs of those who either cannot, or don't wish to become homeowners.

Alkimos Eglinton will seek to promote initiatives to achieve both objectives.

Encourage social cohesiveness and civic participation

- Indoor and Outdoor Spaces for community and social activity and interaction

The creation of informal public spaces and ‘transitional’ spaces (such as ‘liveable’ front yards) that create opportunities for unplanned social interaction will be a focus for design at Alkimos Eglinton.

Promote the provision of community facilities and services that meet the needs of the community

The following initiatives are seen as key to the sustainability strategy for Alkimos Eglinton.

- Early provision of essential services
- Community services structured around Alkimos and Eglinton District Centres, Coastal Villages, Neighbourhood Centres/Nodes, “bus-stop” nodes
- Exploring, encouraging and facilitating collocation of community infrastructure

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Water Management

A high level Integrated Water-cycle Management (IWM) study has been undertaken for the Alkimos Eglinton study area (Appendix 1 refers).

This study identifies the potential for meeting the objectives through a combination of the following measures:

Water Efficiency

- Water efficient fixtures and fittings in homes and other buildings
- Water efficient irrigation systems
- Low water requirement plantings (xeriscaping)

Integrated Water Management (IWM)

- Water sensitive urban design to replenish the superficial aquifer

Water sensitive urban design seeks to incorporate stormwater drainage into the urban fabric in a manner that ensures the protection of surface and groundwater quality, and enhances the opportunities for reuse of stormwater.

Alkimos Eglinton will be developed in accordance with the Department of Water's (DoW) stormwater management objectives outlined in Better Urban Water Management (Essential Environmental Services, 2008) and the Storm Water Management Manual for Western Australia (DoW, 2004-2007).

- Alternative water supply for non-drinking water uses

The IWM study conducted by GHD (Appendix 1 refers) identifies the potential for substituting drinking water with non-potable sources including:

- rainwater
- groundwater
- recycled wastewater

These approaches could lead to 70-80% savings on scheme water in comparison to existing and projected demand patterns. The use of non-potable water sources in conjunction with the outlined opportunities for fit-for-purpose use in Alkimos-Eglinton potentially removes any need for scheme water use outside of buildings.

To ensure efficient and sustainable water management practices are employed, Part 1 of the DSP requires Urban Water Management and Local Water Management Strategies to be prepared as planning and development of the proposals within Alkimos Eglinton are progressed. An important element of these water management studies is the need to research and make recommendations on storage and reuse of potable and non potable water sources such as:

- use of private roof water collection tanks;
- grey water storage and recycling;
- groundwater usage;
- stormwater collection and usage; and
- use of treated wastewater

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The IWM options identified require further development within the proposed Local Water Management Strategies and consultation with a wide range of stakeholders including the Department of Water, the Water Corporation, the City of Wanneroo, landowners and the community.

Energy and Greenhouse

A number of measures have been considered to minimise energy use and contribute to greenhouse mitigation in Alkimos Eglinton.

Transport Emissions

- Integrated rail/ AE-CAT/ bus systems

A modern second tier public transportation system is proposed to provide links between Alkimos Secondary Activity Centre (and Alkimos train station), the three proposed coastal villages (including Eglinton Marina and Coastal Village) and connect through to Eglinton District Activity Centre and Eglinton train station. (refer to [Section 7.5](#).)

- Integrated land uses facilitating and encouraging walking / cycle usage.

Integrated land use planning using Transit Oriented Development (TOD) principles will reduce reliance on private cars for local trips (refer to [Section 7](#)).

- Integrating and co-locating community infrastructure
- Incorporation of safe attractive to use and efficient pedestrian cycleway networks linking major land uses.

Emissions Arising from Energy Embodied in Construction Materials (EE)

Very significant amounts of energy are used in the manufacture, transport and assembly of building materials into their final form on site. Where possible, consideration will be given to addressing this greenhouse source by focussing on efficiencies in energy usage through the following:

- Recycled construction and demolition waste in road base and low grade concrete (kerbs, driveways etc)
- Requiring housing to have a proportion of lightweight materials
- Concrete utilising low EE cement replacement materials

Emissions arising from the operation of buildings

- 5 star energy efficient housing

Housing that meets this standard will achieve significantly lower greenhouse emissions than the average Perth house.

- Energy efficiency requirements for other buildings

The Building Code also contains performance requirements for non-residential buildings which will deliver energy efficiency for those buildings.

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Increasing Renewable Energy

- Greenhouse efficient (eg. gas boosted solar hot water) in homes and other buildings
- Promotion of grid connected photovoltaic installation in homes

A study of the cost and greenhouse impact of grid connected photovoltaic (PV) systems has been undertaken and is included in Appendix 1.

- Green Energy Purchase

Electricity demand represents approximately 83% of household emissions in the average Perth house. The use of Natural Power by occupiers at Alkimos Eglinton would therefore significantly reduce the greenhouse profile of the project area. New renewable energy sources and generation processes are evolving and need to be considered in addressing energy supply within Alkimos Eglinton.

Overall Greenhouse Reductions

The net result of the measures to be adopted will be very significant reductions in the greenhouse profile for Alkimos Eglinton. Approximate figures are produced in the table below for the housing component of the project.

Measure	Annual Transport Emissions T CO2-e	Annual Operational Energy emissions T CO2-e	Embodied Energy emissions T CO2-e
Average Perth household	7	6.75	48
Approximate savings from proposed measures	1.4	3.9-5.6	9
% Reductions	20%	42-83%	19%

Table 10: Energy Efficiency Measures at Alkimos Eglinton

Best practice should be researched and considered in formulating strategies relating to energy sources and greenhouse emissions at the local structure planning stage.

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Ecosystem Health

Conserve and Enhance Local Biodiversity

- Conservation of existing significant environmental assets

As described in [Section 15](#), Environmental Management Plans will be prepared and implemented (by the relevant stakeholders) to manage impacts on Regional Open Space and bushland that may be part of an ecological linkage.

[Section 15](#) also contains principles for protection and management of Vegetation, Regional Open Space, Public Open Space, Biodiversity, Fauna, Foreshore areas, Geoheritage, and Aboriginal Heritage.

- Biodiversity based landscaping of public and private spaces

There is an exceptional opportunity at Alkimos Eglinton to consider biodiversity beyond conservation, by developing a landscaping strategy that seeks to create an environment similar in composition and structure to that of the existing vegetation communities (refer [Section 14 - Landscape Strategy](#)).

- Encourage community participation in local bush care efforts

Involvement of the community in protection of biodiversity is an important element of building a sustainable community.

Opportunities to establish a community based bush regeneration program and implement an education program will be further investigated at a local structure planning level, to encourage residents' awareness of conservation management issues and their responsibilities.

Waste management and resource recovery

- Construction waste management controls and targets to minimise waste and re-use / recycle residuals.

Waste minimisation plans will be further investigated and encouraged for construction contracts to ensure that the waste recovery targets are met for construction work. It may be appropriate for contracts to include waste minimisation measures, the streaming and data basing of residual wastes, and measures to facilitate recycling.

Consideration will be given to apply the above measures to both subdivision work and to building works.

- Recycle organic wastes locally for use in parks and gardens

Mindarie Regional Council (of which the City of Wanneroo is a member) is planning to construct and operate a state of the art resource recovery facility at Neerabup Industrial Area. High quality compost will be a product of this facility.

There is an opportunity to use this material to significantly replace fertilisers in both public landscaping and for private gardens, thus recycling nutrients within Alkimos Eglinton and reducing landfill.

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6.5 URBAN DESIGN EXCELLENCE

The following commentary on urban design principles is considered relevant to achieve the vision for Alkimos Eglinton and influenced design decisions reflected in the DSP. Importantly it has been included as part of the DSP to assist in guiding the future with detailed planning phases.

Good urban design is considered an important element in creating places that are economically and socially sustainable, environmentally responsible, amenable, equitable and enjoyable to live. Urban Design has been central to the evolution of the Alkimos Eglinton DSP.

Elements considered important in achieving the vision for Alkimos Eglinton include:

- Offering a diverse range of settings for living, working and playing;
- Organising development of land use and density patterns that reduce the need to travel and facilitate non car-based travel modes, in turn promoting healthy lifestyles and socially cohesive and inclusive communities;
- Organising development in built form patterns that are sensitive to and celebrate the natural landform and landscape;
- Developing a local identity through distinctive building and landscape characters, while maintaining a diverse and attractive urban environment;
- Creating a network of convenient, safe and easily navigable movement routes;
- Providing an appropriate level of support for each mode of travel within each type of street, with particular regard to promoting walking, cycling and public transport. Providing an inter-connected constellation of safe and stimulating public spaces that supports a diverse range of activities and experiences;
- Protecting and celebrating traces of the site's history; and
- Ensuring flexible subdivision patterns and adaptable buildings to 'future proof' against changing needs and preferences.

The broad principles underlying these elements are set out below. They address mixed use, connectivity, the public domain, legibility, flexibility, the animation of public places and visual delight. The creation and celebration of local identity, or 'place making', is discussed in Section 6.6.

The DSP creates a framework that will facilitate a strong "sense of place" and "place making" whilst ensuring maximum accessibility, legibility and robustness and facilitating a high degree of mixed use and employment opportunities. The DSP seeks to facilitate sustainable urban development in the following ways:

- Providing for a diversity in housing and land uses to promote energy efficiency;
- Diversity in housing and land uses that encourages social and cultural diversity; and
- A layout which minimises the use of private transport promoting walking and cycling, as well as maximising the use of public transport and providing excellent accessibility to the coastal environment.



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6.5.1 Principles for Urban Design and Open Space Design

The DSP preparation has reflected upon broad scale development principles for urban design excellence which include elements of connectivity, the public domain, legibility and character, mixed use precincts, flexibility, the animation of public places and the need for introduction of visual delight and interest.

Connectivity Principles

Fundamental to the vitality of centres is the creation of an integrated network of public thoroughfares, and the development of a viable public transport and services infrastructure like mixed use, a well-connected environment creates shorter travel distances. It also creates a greater number of routes between two points, offering a choice of experiences and dispersing traffic. Key attributes of a well-connected environment are:

- Accessible, reliable, rapid, frequent, safe and affordable public transport services;
- An interconnected street network, or a 'grid' of streets and paths, which need not be orthogonal;
- A clear hierarchy of street types within the grid, each with its own set of priorities for different travel modes, but all providing generous pedestrian and cycle provision;
- A pattern whereby the main streets connect the main destinations, such as town centres, while the local streets provide access to small numbers of individual properties;
- A web of linear parks, pedestrian and cycle paths, linking green spaces within and beyond the development; and
- Development that addresses these movement routes to provide an attractive and safe environment.

In order to achieve this, the following principles have informed the DSP:

- Develop a hierarchy of routes to accommodate vehicles, prioritise public transport and create a framework for a clear sequence of interconnected public spaces;
- Using key landscape features, topography and significant landscape zones, linked by pedestrian and cycle paths, to connect a wider open and green space network;
- Implement an appropriate and high quality services infrastructure including broadband and telecommunications that will provide amenity and access to global networks;
- Provide access to practical and safe public transport infrastructure that will reduce reliance on the private car, increase amenity and connectivity to the centres for all users and add to the animation of public spaces; and
- Provide strong movement systems that enable the community to derive the lifestyle benefits that the coastal environment affords.



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Public Domain Principles

In preparing the DSP and to guide future local structure planning, recognition has been given to the need for a good public domain that provides variety of attractive, successful and safe public spaces, in a range of types and sizes; that can accommodate an extensive variety of uses and that are valued by people who use them. The public and private spaces should be clearly distinguished through continuity and enclosure.

The public domain is the 'glue' of an urban place. It includes streets, squares and parks. The public domain has utilitarian functions such as providing access to property and corridors to run services, but is also the setting for social interaction and play, and determines the image of the place. A good public domain should provide a variety of attractive, stimulating and safe public spaces, in a range of types and sizes that support an extensive variety of uses and are valued by people who use them. Key attributes of a good public domain are:

- Well-defined edges, clearly distinguishing the public domain from private space through continuity and enclosure;
- Edges that offer some interaction with the private space beyond, to enhance their safety and interest;
- Control over the adverse impacts of traffic on pedestrians, cyclists and public transport;
- A balance of dynamic and more passive spaces;
- A balance of sunshine and shade; and
- Good lighting.

The public domain should be a place where the users feel they are as safe as possible. Elements within the network of public spaces may include:

- **Streets:** Streets are where the life happens. Streets are to be designed to limit the effects of cars on pedestrians, with safe and amenable crossing points, robust and appropriate planting and street/shade trees, appropriate footpath widths to accommodate pedestrians and multi-access. Designated bike lanes should be provided to encourage cycling;
- **Town squares:** Town squares should be of a size and central location to accommodate a variety of formal and informal uses (markets, public rallies, lunchtime breaks, meeting place, town gatherings etc). The squares should be edged with a range of appropriate uses that can interact with the space (cafes, restaurants, bars, information kiosks, town hall, public library);
- **Main Streets:** Primarily a retail, entertainment and commercial zone. Main Street are to offer wide footpaths to accommodate outdoor dining, promenading and street trading, access to public transport, and mixed use buildings with active frontages;
- **Parks:** Associate recreational open space with key landscape features or areas of landscape significance. Parks must provide opportunities for passive and active recreation in a safe and comfortable setting; and
- **Small Spaces:** Smaller public squares and spaces provide diversity in the public realm allowing for greater use and less social marginalisation. Mid block footpath breakout zones with public seating, shade trees and landscaping, provide opportunities for resting, and meeting spots, as well as opportunities for casual surveillance.



PART TWO - EXPLANATORY SECTION

Legibility Principles

A legible place is one that is easy to navigate around because it has a coherent and readable pattern of development within which the principle features (the main routes, edges, spaces, intersections, landmarks and precincts), are distinct. The Alkimos Eglinton DSP provides a framework for a legible urban structure.

The legibility of places to be created within the Alkimos Eglinton place will be reinforced and enhanced through the detailed design of the fabric of centres by ensuring that design features are appropriate. This can be achieved in the following ways:

- Define strong gateway features, incorporating taller buildings and landmarks that herald arrival within the new centres;
- Characterise key intersections as distinct nodes and terminate vistas with landmarks;
- Accommodate changes in level within buildings and animated spaces where pedestrian movement is encouraged;
- Enhance the legibility of the overall structure of the environment by cultivating a number of distinct character areas. Local character can be drawn from local landscape features, climate, heritage references and public art. Develop strongly governed design guidelines that define the development of local character. This is vital to distinguishing the new centres from one another, and providing attraction;
- Give the primary thoroughfares a distinct and memorable character, reinforced by landmark buildings, and different combinations of soft landscaping and frontage treatments; and
- Integrate key land forms (parabolic dunes, high points) and views wherever practical as strong landmark elements.



PART TWO - EXPLANATORY SECTION

Flexibility Principles

The design of the subdivision pattern, buildings, streets and public spaces should ensure that there is flexibility for them to accommodate a number of uses at once and change in use over time as needs and preferences dictate.

Attributes of flexible places include:

- Street-blocks that are large enough to accommodate a range of uses;
- A variety of lot sizes;
- Most lots large enough to provide on-site open space;
- Most lots with good solar orientation;
- Street frontage to all lots;
- Rear laneways, offering alternative access points;
- Buildings sited on their lots to create private open space;
- Buildings that can be naturally lit and ventilated; and
- Buildings with easily-moved internal walls.



PART TWO - EXPLANATORY SECTION

Mixed Use Principles

Provide a good mixture of compatible and complementary uses. Mixing appropriate land uses reduces the distances people have to travel for certain trips. This reduces car use and, perhaps more importantly, reliance on the car, improving accessibility for those without ready access to one. This, in turn, enables more people to walk and cycle, enhancing their personal health. It also fosters a sense of community.

- Mixed use also creates:
- More diverse and, therefore, interesting environments offering a greater range of settings; and
- Safer environments, by populating the streets at different times of the day and week.
- Mixed use is facilitated by:
- Street-block sizes that can accommodate a range of different uses;
- Mixed development settings, including varied street types and lot sizes;
- Flexible subdivision patterns and adaptable buildings, able to change to respond to evolving market demands and community preferences;
- Flexible planning controls, allowing compatible uses to adjoin each other both horizontally and vertically; and
- Land use boundaries through the middle of blocks rather than along streets, to avoid conflicting uses facing each other.



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Animated Public Space Principles

Animated public spaces are those in which there is activity. This creates safer and more stimulating places. The animation of public spaces can be achieved by designing active frontages and encouraging on street activity. Public spaces can be animated by:

- Edging them with 'active' building frontages – those which offer extensive opportunities for interaction between people inside and outside the building through doors, windows, balconies and so on; and
- Fostering activity within the space, for example through the provision of places to sit, dine, play games, perform and so on, and throw events.

Visual Delight Principles

Visual delight is part of creating a stimulating urban environment. It can be created through richness and variety in architecture, landscape design, public art and lighting. Visual delight can be achieved by:

- Allowing for creative expression in architecture, with guidelines required to establish a distinctive character;
- Use of topography to create interesting streetscapes utilising the drama of the local landscape;
- Integration of public art into streetscapes and public spaces; and
- Lighting that provides safe and amenable spaces while creating visual interest and delight.

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6.5.2 The Value of Good Urban Design

The value of good urban design can be measured both quantitatively and qualitatively. It adds economic value to development, supports the integration of mixed use elements in development and engenders community empowerment and social and environmental value. Good urban design:

Adds economic value by:

- Producing high returns on investments (good rental returns and enhanced capital values).
- Making new places more attractive than the local competition at little cost.
- Responding to occupier demand.
- Reducing on-going costs (management, maintenance, energy and security costs).
- Contributing to more contented and productive inhabitants.
- Supports the integration of mixed use elements in development by:
 - Differentiating places and raising their prestige; and
 - Unlocking sites, opening up investment opportunities, raising confidence in development opportunities and attracting grant monies.
- Engenders community empowerment and social and environmental value by:
 - Creating well connected, inclusive and accessible new places;
 - Delivering mixed use environments with a broad range of facilities and amenities available to all;
 - Delivering development sensitive to context – this is a sensitive environment and must be respected;
 - Enhancing the actual and sense of safety and security within and beyond the new developments;
 - Boosting civic pride and enhancing civic image; and
 - Creating more energy efficient and less polluting development.

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6.6 LOCAL IDENTITY AND SENSE OF PLACE

'Place Making' or the creation of a local identity or 'sense of place' is an essential part of cultivating a feeling of belonging for a community and pride in its environment, which are in turn, key generators of social capital.

Local identity or sense of place can be generated by the following elements:

- The natural setting, including landform, water bodies, landscape character, views, climate and so forth;
- The built setting, including existing building styles and characteristics structures of materials;
- Introduced features, such as building and streetscape styles; and
- Introduced uses, such as a university, type of employment or arts community.

Place Making was identified as being an essential element in the Alkimos Eglinton urban fabric. The DSP by its nature can only reflect at a very general level some of the principles of place making, however in future local structure planning the following principles are relevant.

Development of a "sense of place" – place making – is characterised by a focus on incorporating localized landscape and specific design of built features in the public domain, such as squares, plazas, parks, streets and waterfronts, for the use of creating an activated and vibrant public domain, and creating meaningful connection between people and where they live.

Good place making deals proactively with broad urban design principles by translating these general principles into a very local and specific context. Good place making works on a local level and with the specific integration of local identity and local features to create a development that adheres to best practice urban design principles but is embedded in the local context of its place.

After the design process is complete other systems must be employed to continue to encourage a robust public realm and authentic sense of place: activities, management, community and sociability, must all be taken into account.

Broad place making principles and possible design strategies to achieve each of these principles are set out below.

6.6.1 Place Making Principles

Key place making principles include taking cues from the natural environment, referencing landscape and topography, capture and highlight key elements of interest, provide a robust and stimulating public realm, storytelling, flexibility and future proofing.

Respond to Natural Landform

- Utilise natural features as development boundaries;
- Maintain views of major natural features and use them as landmarks, gateways and termination points for vistas;
- Utilise built form to express topography;
- Orientate roads and development blocks to work with contours;
- Locate parkland and public open space on high points or areas of landscape significance;
- Retain original drainage lines where possible;
- Utilise hillsides for views; and
- Orientate streets to capture views.

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Take Cues from Natural Landscape

- Utilise natural landscape as development boundaries;
- Integrate development into the natural landscape;
- Utilise indigenous landscaping in streetscapes; and
- Use planting that is sympathetic and compatible with the natural landscape.

Reference Local Building Vernacular

- Incorporate local building forms;
- Incorporate local building materials; and
- Incorporate local building elements.

Introduce Appropriate Building Themes

- Develop distinctive built form characters for each precinct using forms, materials and details; and
- Concentrate introduced features in the primary streets and public spaces, where they have the greatest impact.

Storytelling

- Tell stories about a place through marketing, community groups, local events and urban art; and
- Reference local heritage to ground the place in a historic setting.

Flexibility and Future Proofing

- Allow place making frameworks to be flexible and to develop over time as the place matures and develops new stories.

6.6.2 The Value of Place Making

The value of good place making is in the creation of great places with a distinctive identity and character that can be embraced and loved by the people who inhabit them. Place making has the potential to build and support the local economy, nurture and define community identity, foster frequent and meaningful contact, promote a sense of comfort, create improved accessibility and draw a diverse population. These are described in more detail below:

Build and Support the Local Economy

Appropriate variety of grain size encourages small-scale entrepreneurship, can lead to higher real estate values, promotes local ownership and therefore local value and attracts more desirable jobs.

Nurture and Define Community Identity

A happier and healthier community is capable of greater community organisation, is engendered with a sense of pride and volunteerism, ensures a perpetuation of integrity and values prompts less need for municipal control and is self-managing.

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Foster Frequent and Meaningful Contact

A well designed place has the ability to improve sociability, provide more cultural exposure and interaction, provide an open forum for exchanges and preserves information, wisdom and values can reduce race and class barriers and provide a feeling of interconnection.

Promote Sense of Comfort

A well designed place can be visually pleasing, is generally stimulating, can provide a sense of belonging, provides greater security, allows for better environmental quality, and provides a feeling of freedom.

Create Improved Accessibility

A well designed place is more walkable, is safe for pedestrians, is compatible with public transit, reduces need for cars and parking, is a more efficient use of time and money for residents and visitors and has a greater connection between uses.

Draw a Diverse Population

A well designed place attracts more women, med, elderly and children, has greater ethnic and cultural pluralism, encourages a range of activities and uses, encourages new service, retail, and customer niches, has variation and character in built environment and encourages community creativity.

6.7 LANDFORM, BUILDING TYPOLOGIES AND DENSITIES

One of the key principles and objectives for the project is to facilitate development of the project area and accommodate the needs of urban expansion, whilst respecting existing landscape, topography and environment of the project area.

A key point of difference of the Alkimos Eglinton project is that approximately 20% of the project area will be preserved for conservation and landform retention purposes.

Environmental objectives identified for the project area include preserving areas of highest conservation value, conserving examples of the different natural areas on the site, incorporating natural areas into the new urban fabric, providing linkages through the site to nearby national parks and interpreting the existing landscape and site memory in the development areas.

The key identified objectives and principles relating to landform and building typologies are as follows:

- Utilise significant landscape character to create individual character zones;
- Allow landform and topography to greatly influence the generation of development patterns and appropriate built form. The inland parabolic dune system and coastal landscape should represent primary influences in site planning and design;
- Retain views to the ocean and green spaces from coastal nodes, and celebrate panoramic views over the expanse of the project area and into the distance from inland nodes;
- Retain significant areas of landform and vegetation;
- Respond to people's desire for ocean communities and recognise and build upon the outstanding natural attributes and coastal proximity;

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- Built form should be encouraged to provide an expression of the natural landform and the history of the project area;
- Create places that are equitable and amenable for all, that are embedded in their surroundings, and are enjoyed and embraced by the people who live there;
- Recognise the dramatic coastal character as the definer of sense of place and identifier for the coastal nodes. Particular emphasis should be placed on retaining the diverse visual landscape of the fore-dunes and the ocean views, as values which will attract people to the area;
- Communities should be developed to be orientated towards a coastal lifestyle, and influenced by the dunal heath land ecosystem and environment. Therefore sustainable living could be developed as a basis for community identity and sense of place;
- Recognise the influence of topography, panoramic views and landscape typologies in shaping the patterns of development in the inland nodes. Draw out connections to the beach through green corridors and parkland;
- Frame the project with corridors of open space and green infrastructure to limit sprawl and provide greater catchments for social infrastructure;
- Create legible centres with public domains that cater to a wide variety of use and users; and
- Find a way to harmonise and synthesise the apparent incompatible goals of higher density development and place making that references local topographic forms. It is in this way that a distinctive character for Alkimos Eglinton will be created.

The size and scale of the Alkimos Eglinton project, which will evolve as built form over a long period of time (some 20-25 years), necessitates strong restraint in setting stringent rules and policies that will inhibit essential flexibility to accommodated variance in built form responding to demands at particular periods in time. For the project to be at the forefront and to create an environment that leads rather than follows, including far reaching limiting controls on aspects such as building heights and densities should be avoided. However core principles should be employed to ensure quality built form and urban environments.

The Alkimos Eglinton project will incorporate a range of housing types and densities which make community, retail and public transport infrastructures more viable. In focusing on excellence in urban design and development proposals, neighbourhoods will be designed to contain housing types that cater for diverse mixture of socio-economic groups.

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7.0 ACCESS / MOVEMENT NETWORK

Sinclair Knight Merz has prepared a Traffic and Access Report for the Alkimos Eglinton District Structure Plan. The following sections are a summary of this report. The full report has been provided in Appendix 4.

7.1 TRANSPORT PHILOSOPHY

An important objective of the DSP is to encourage best practices in integrated transport and land use initiatives. This in turn will ensure best practice urban design objectives of:

- Connectivity;
- Density and Transit Oriented Developments;
- Legibility;
- Location: responding to landscape characteristics and views;
- Flexibility;
- High amenity of the public domain; and
- Creating a very liveable environment.

It is desirable that Alkimos Eglinton should support the Metropolitan Transport Strategy which has the following vision for Perth and its people:

“Perth will be a place of vitality and well being. There will be a sharing of spaces for living, work and leisure activities, which can be reached easily and safely by all members of the community.”

Of principal importance are the co-location of land uses and the reduction of major barriers to walking and cycling. A major element is the provision of quality public transport services to reduce non-essential car driver trips.

Three major themes have been developed by the Metropolitan Transport Strategy:

- Better coordination of the components of the transport system;
- Greater integration between the transport system and the land uses which it supports; and
- Improved efficiency in the use of transport infrastructure and services.

The transport philosophy for Alkimos Eglinton has been developed to follow these three major themes.

Better coordination of the components of the transport system

The transport system proposed for Alkimos Eglinton integrates road, rail, bus and cycle access at key nodes within the development. The key nodes include the Alkimos Town Centre, the Eglinton District Centre and the three proposed coastal villages. The coordination between road and rail is through park and ride and bus/rail interchanges, complimented by cycle to rail co-ordination through a system of strategic cycle links which connect up to the two major rail stations.

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Greater integration between the transport system and the land uses which it supports

One of the key features of the Alkimos Eglinton DSP is the proposed location of the two rail stations which will integrate and activate the Alkimos Secondary Centre and Eglinton District Centre.

Improved efficiency in the use of transport infrastructure and services

The proposed transport infrastructure for the Alkimos Eglinton DSP includes a road hierarchy which clearly emphasises the Mitchell Freeway for regional trips, Marmion Avenue and east-west roads for district trips, all supported by a local road network. In this way more efficient use of infrastructure can be achieved, particularly since Marmion Avenue is not required to undertake a regional function.

The integrated transport system proposed by the DSP supports WAPC's Liveable Neighbourhoods (WAPC, 2004) and Transperth's Better Public Transport – 10 Year Plan.

7.2 OBJECTIVES

The following objectives have been identified for the movement network:

- Providing excellent accessibility and connection to major attraction / focus points of the development (coastal nodes, employment, retail centres, and community facilities).
- Facilitation of an efficient public transport network linked to rail stations.
- Providing strong internal and external connectivity.
- Encourage traffic to utilise Marmion Avenue, whilst facilitating easy access to the Freeway in the longer term.
- Appropriate orientation of roads to maximise solar orientation and energy efficiency benefits.
- Providing strong connectivity to the coast.

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7.3 PROPOSED ROAD NETWORK

The DSP incorporates a network of proposed primary roads comprising regional and major district distributor roads. Figure 11 shows the proposed ultimate road network and hierarchy proposed in the DSP. The proposed ultimate road network incorporates the transport framework included in the current MRS, with the following features:

- The Mitchell Freeway will form the eastern boundary of the Alkimos Eglinton DSP. It is a Primary Regional Road ('red road') under the MRS. There will be grade separated crossings to the Mitchell Freeway at Romeo Road, Alkimos Drive and Eglinton Avenue.
- Marmion Avenue is proposed as a north-south integrator arterial (A). It is designated as an Other Regional Road ('blue road') under the MRS.
- Romeo Road is proposed as an east-west integrator arterial (A), connecting Marmion Avenue to the Mitchell Freeway, through the Alkimos Town Centre. It is proposed as an Other Regional Road ('blue road') under the MRS. Romeo Road has been realigned in the DSP compared to the MRS. This allows for the road to better service the Alkimos Secondary Centre and the Alkimos Coastal Village by providing more direct access to and from the Mitchell Freeway and Marmion Avenue. The realignment of the road reserve will be part of a future MRS Amendment.
- The Alkimos EW Coastal Village Connector is proposed as an integrator arterial (B), connecting the Alkimos Coastal Village to the Alkimos Town Centre. It is planned to connect with Marmion Avenue at the same location as Romeo Road, providing a continuous link between the coast and the Mitchell Freeway.
- Alkimos Drive is proposed as an east west integrator arterial (A) for the section east of Marmion Avenue. It will connect Marmion Avenue to the Mitchell Freeway. This section of Alkimos Drive is proposed as an Other Regional Road under the MRS. West of Marmion Avenue, Alkimos Drive is proposed as an integrator arterial (B).
- Eglinton Avenue is proposed as an east west integrator arterial (A). It will connect Marmion Avenue to the Mitchell Freeway. This section of Eglinton Avenue is proposed as an Other Regional Road under the MRS. West of Marmion Avenue, Eglinton Avenue is proposed as an integrator arterial (B).
- Neighbourhood connectors throughout Alkimos Eglinton will form the local road linkages to the district roads.
- Wherever practical a coastal road, is to be provided to clearly delineate the boundary between the foreshore and the land to be developed for urban purposes. This road is not intended to be a major thoroughfare (indeed it is to be a lower order road) although it must provide full public recreational access to the coast and assist in the provision of coastal parking facilities.

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The roads have been described using road definitions provided in Liveable Neighbourhoods,

Marmion Avenue, Eglinton Avenue, Romeo Road and parts of Alkimos Drive (district distributor roads) will ultimately all be four lane divided roads with reserve widths varying from 36 to 53 m. The design will be based on an ultimate operating speed of 60-70 kph, with the lower speeds applying through the Secondary and District Centres. These operating speeds are also consistent with the intended function of the roads to integrate more with the surrounding land uses as well as cater for district traffic movements. Through urban areas and the centres the district distributor roads will ultimately have frontage land use, with service roads and associated pedestrian activity.

The alignment of Marmion Avenue as defined by the MRS follows an undulating route which aims to take account of the existing topography, creating visual interest. The proposed, lower operating speeds will allow the road to be designed and constructed to be less divisive in terms of its fit with the topography and its integration with the adjacent development.

The vertical geometry of district distributor roads will also be designed to suit the levels of the adjacent land development, particularly through the Secondary and District Centres and where development is frontal to the roads. Through the ROS it will be designed to minimise the extent of earthworks and, therefore, clearing of vegetation. The vertical and horizontal alignments for this road will create interesting visual experiences including changing views of inland, the coast and the ocean, dunal landform and vegetated open space.

The road reserve for Marmion Avenue will be widened at its intersections with the other district distributor roads for the ultimate construction of signalised intersections with Romeo Road and Eglinton Avenue and either signals or a roundabout at Alkimos Drive.

The district roads will have operating speeds of 50-60 kph and reserve widths of 20 to 30 m. Carriageway configurations vary from two lane boulevards to single, two-way carriageways to accommodate traffic volumes of between 2,000-15,000 vehicles per day.

The road network illustrated in the DSP has been designed to respond to the topography of the project area whilst recognising the need to facilitate an urban road framework that enables energy efficient housing orientation. The road network based upon an 800-900 metre grid network has also been designed to accommodate an efficient bus service linking major land use elements.

7.4 TRAFFIC MODELLING

Extensive traffic modelling for the Alkimos Eglinton project has been undertaken by Sinclair Knight Mertz based upon the proposed DSP road network and land use allocation to estimate future traffic volumes. [Figure 12](#) indicates predicted traffic volumes allocated to the road network incorporated in the DSP. Further details on each road, including cross sections and road reserve widths as well as the recommended controls at major intersections, are included in the SKM Transport and Access Report.

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7.5 PUBLIC TRANSPORT

Figure 13 shows the proposed public transport network. The proposed ultimate public transport network will include three components:

- The northern suburbs railway line for line-haul movements to district and regional destinations. Within Alkimos Eglinton it is planned to have 2 rail stations: Alkimos Town Centre and Eglinton District centre. The two stations will provide a high quality service.

The Alkimos Eglinton second tier public transport system which will link the main demand centres within the area and also act as a collector service to the railway stations. The indicative alignment and stopping pattern of the CAT service (Figure 13) provides a high quality public transport service.

- Conventional Transperth bus services would provide a public transport service to areas outside of the catchment of the CAT.

Figures 14, 15 and 16 shows the walkable catchments for each public transport services proposed. The large majority of the project area is within 800 m of a rail station, CAT stop or bus route.

At the DSP level, the route alignments are indicative and subject to refinement as detailed planning progresses for each of the development stages.

7.5.1 Railway Alignment

The DSP includes an alignment for the extension of the Northern Suburbs Railway through the area. This varies from the alignment in the current MRS and is based on a review by the Department for Planning and Infrastructure (DPI) of the railway as part of its overall review of the Structure Planning for the North-West Corridor.

The DPI railway review has been carried out by GHD, Consulting Engineers, with the results embodied in a report entitled 'Northern Suburbs Railway Alignment Definition – Alkimos to Yanchep' and dated August 2005. The railway alignment is an extension of the alignment proposed through the Jindalee Butler area and extends beyond Eglinton to the proposed Town Centre within Yanchep landholding to the north.

The horizontal railway alignment adopted in the DSP includes provision for the tracks, a principal shared path, access road, earthworks and retaining walls, generally within a 35 metre wide reserve. The alignment has been designed for train speeds up to 140 kph.

The GHD definition work identified the provision of three rail stations within the DSP: Alkimos Town Centre, Eglinton District Centre and a Park and Ride Station at Alkimos Drive. Through the design process for the Alkimos City Centre Activity Centre Structure Plan (ASP) and the LandCorp landholding to the north, known as Central Alkimos, it was advised by the Department of Transport that the Park and Ride Station at Alkimos Drive was no longer required.

In light of the above all reference to the previously proposed Park and Ride Station at Alkimos Drive has been removed from the DSP.

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Figure 13: Proposed Public Transport Network

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Figure 14: Railway station Walkable Catchments

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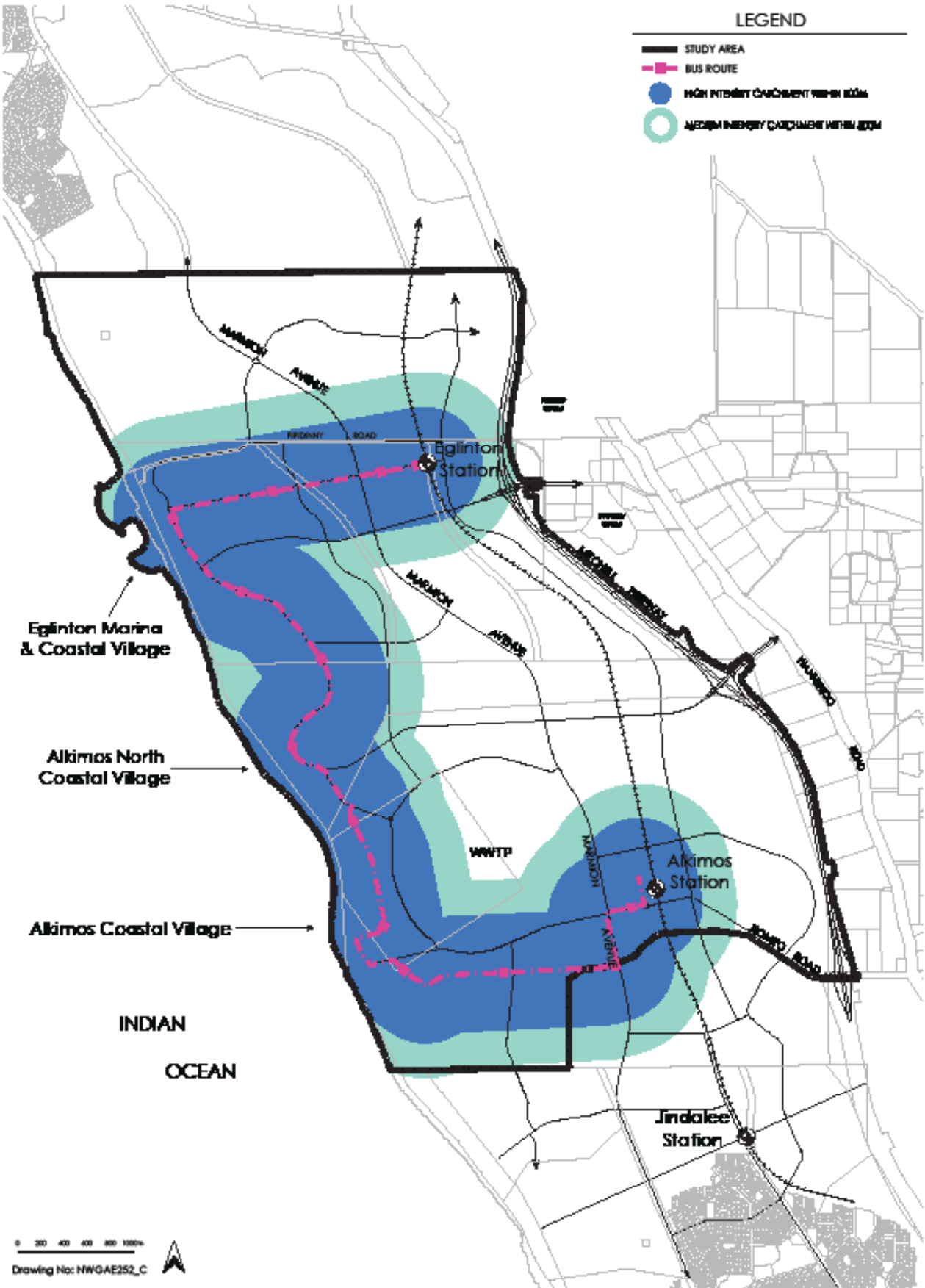


Figure 15: Alkimos Eglinton Cat System Walkable Catchments

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Public Transportation Fleet (Source: Public Transport Authority Website)

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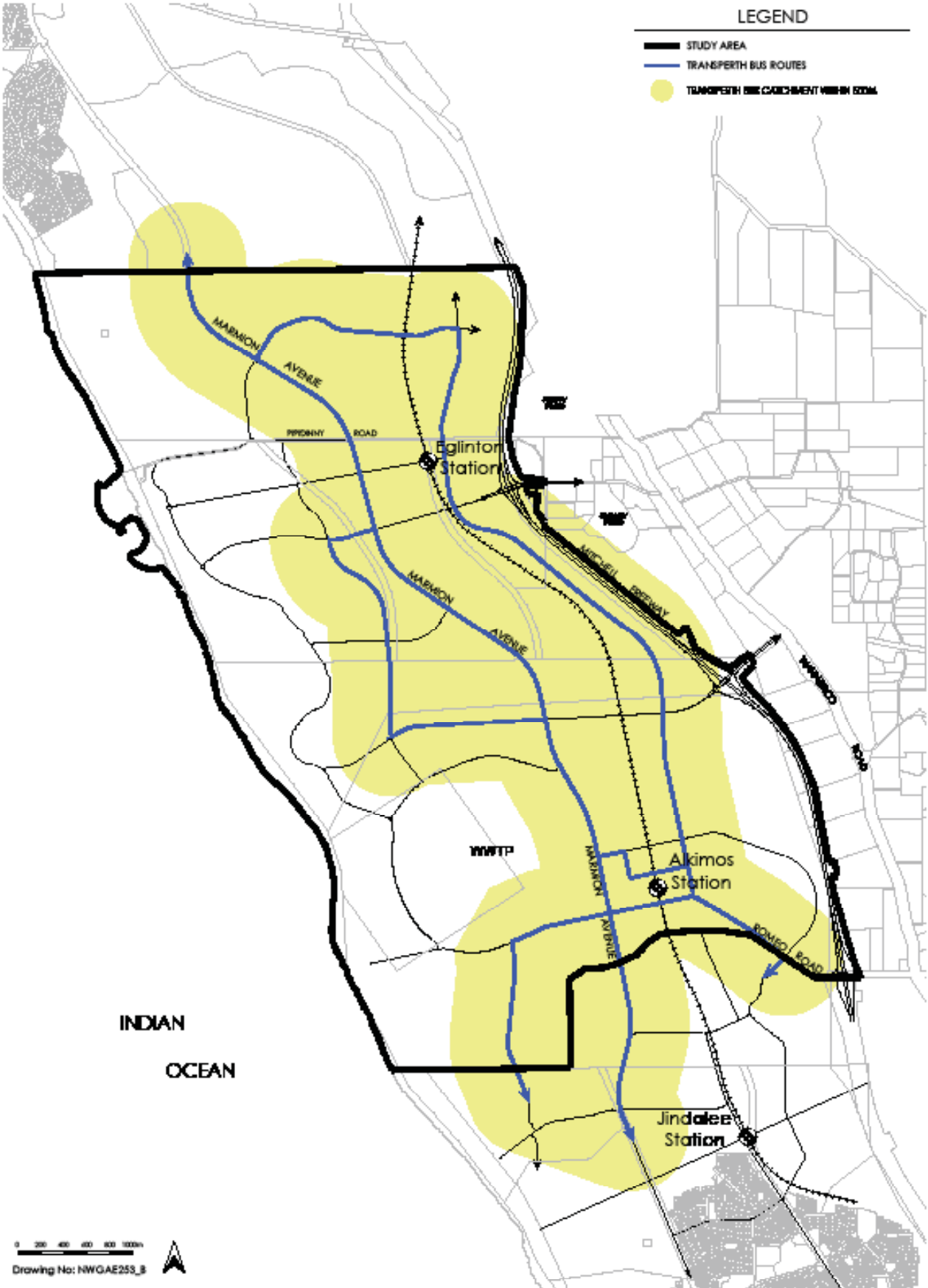


Figure 16: Conventional Transperth Bus Routes and Walkable Catchments

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7.6 PEDESTRIANS AND CYCLISTS

The walking and cycling network has an important role within the overall transportation infrastructure for the project and will be integrated with major land uses. It is proposed that a robust walk/cycle network be provided that will:

- Reduce private car dependency for residents;
- Increase accessibility to employment and other urban activities;
- Reduce adverse environmental impacts of transport;
- Increase resource efficiency in a multi-modal transport system;
- Reduce transport related accidents; and
- Promote a healthy, safe and interesting lifestyle.

The objective of the proposed pedestrian and cycle network is to provide for a convenient and safe movement of pedestrians and cyclists through and between urban cells, having regard for the need to service schools, shops, recreation and other land uses as well as public transport access points.

The DSP aims to maximise pedestrian and cyclist connections to the local and regional pedestrian/cyclist network. The proposed strategic pedestrian and cyclist network is shown on [Figure 17](#). Grade separated crossings will be provided at selected intersections of major roads.

It is proposed to accommodate on street cycle lanes and off street shared paths on all neighbourhood connectors and district distributors. Access streets will have shared paths/footpaths.

The detailed local pedestrian and cycle network will be developed at the local structure planning level and will respond to the above objectives. An important element in developing a local pedestrian network will be its creation of a network of safe, attractive to use pathways that contribute towards facilitating a healthy lifestyle.



Example of Good Quality Footpaths and Cycleways

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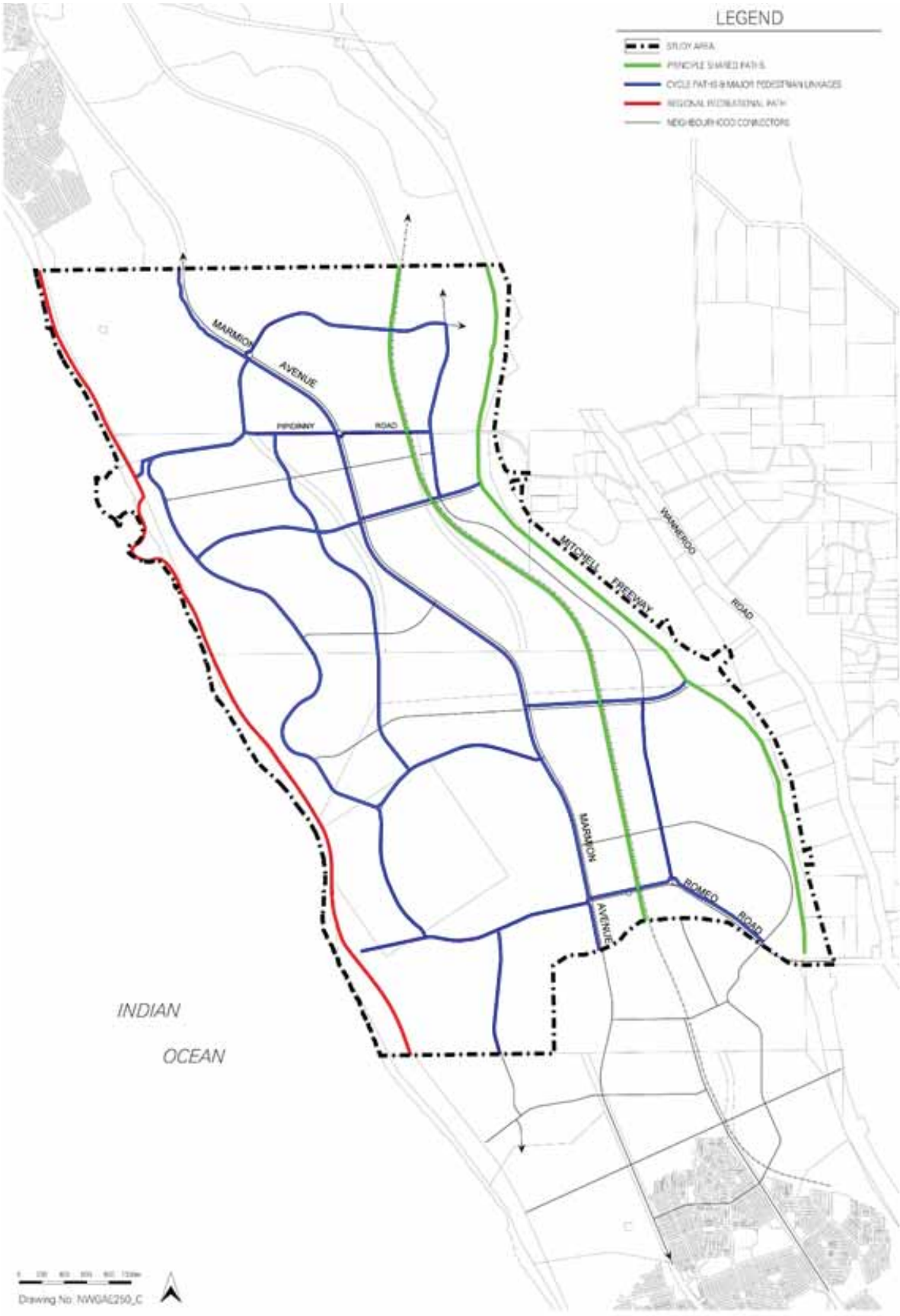


Figure 17: Pedestrian and Cyclist Network

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8.0 COMMERCIAL AND CENTRE CREATION

8.1 RETAIL ANALYSIS AND CENTRES HIERARCHY

WAPC Statement of Planning Policy No. 4.2 Metropolitan Centres Policy Statement for the Perth Metropolitan Region provides a broad regional planning framework to co-ordinate the location and development of retail and commercial activities in the Metropolitan Region.

The policy is intended to provide a guide for centre development that is flexible enough to enable commercial development to respond to market conditions and has a degree of certainty to assist in commercial investment decisions. It recognises that local planning strategies prepared by local governments will provide more detailed guidance for planning and development control at the local level in relation to Alkimos Eglinton area, the policy recommends 50,000m² shopping floor space for the Alkimos Secondary Centre. The policy promotes shopping floor space of 15,000m² for District Centres and recommends that City of Wanneroo should determine the centre requirements for Eglinton.

LSPs and Centre Plans for major Activity Centres will be required, and will need to address the composition and character of centres, as well as their design. It will be important to differentiate between centres in Alkimos Eglinton and other tourist precincts in the North West Corridor.

The market potential for retail facilities in the Alkimos Eglinton region was assessed by IBECON Pty Ltd ([Appendix 6](#)). A detailed study was undertaken providing a comprehensive analysis and forecasts of the region's demography, retail needs, sales forecasts and impact assessment for all shops in the region.

The review was prompted by various reports including the Butler-Jindalee DSP Centres Strategy prepared by Shrapnel Urban Planning dated April 2004 and the Revised Final version dated January 2005. The recommendations of that study involved the movement of Butler / Brighton Regional Centre to the north and substantial reductions in retail locations at Alkimos. No assessment was made in that study of retail facilities in Eglinton.

Total proposed retail floor space in Alkimos Eglinton area recommended by IBECON report is approximately 100,000m² retail GLA.

The study also recommended that about 20,000m² of additional floor space be allocated as bulk retail adjacent to the Alkimos Town Centre. Once the sub-region projected population is fully developed this bulk retail floor space could be converted to other commercial or community facilities.

The study further recommended that a further 15 - 20,000m² GLA be distributed as local/neighbourhood centres, appropriately spread throughout the Alkimos Eglinton sub-region.

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The Centre hierarchy for Alkimos – Eglinton is composed of:

- Alkimos Secondary Activity Centre;
- Eglinton District Activity Centre;
- Three coastal nodes:
 - Alkimos Coastal Village (Local Activity Centre);
 - Alkimos North Coastal Village (Local Activity Centre);
 - Eglinton Marina and Coastal Village (Local Activity Centre);
- A number of Local Neighbourhood Centres throughout the area; and
- Mixed Use Centres adjacent to the Secondary and District Centres and the Central rail station.

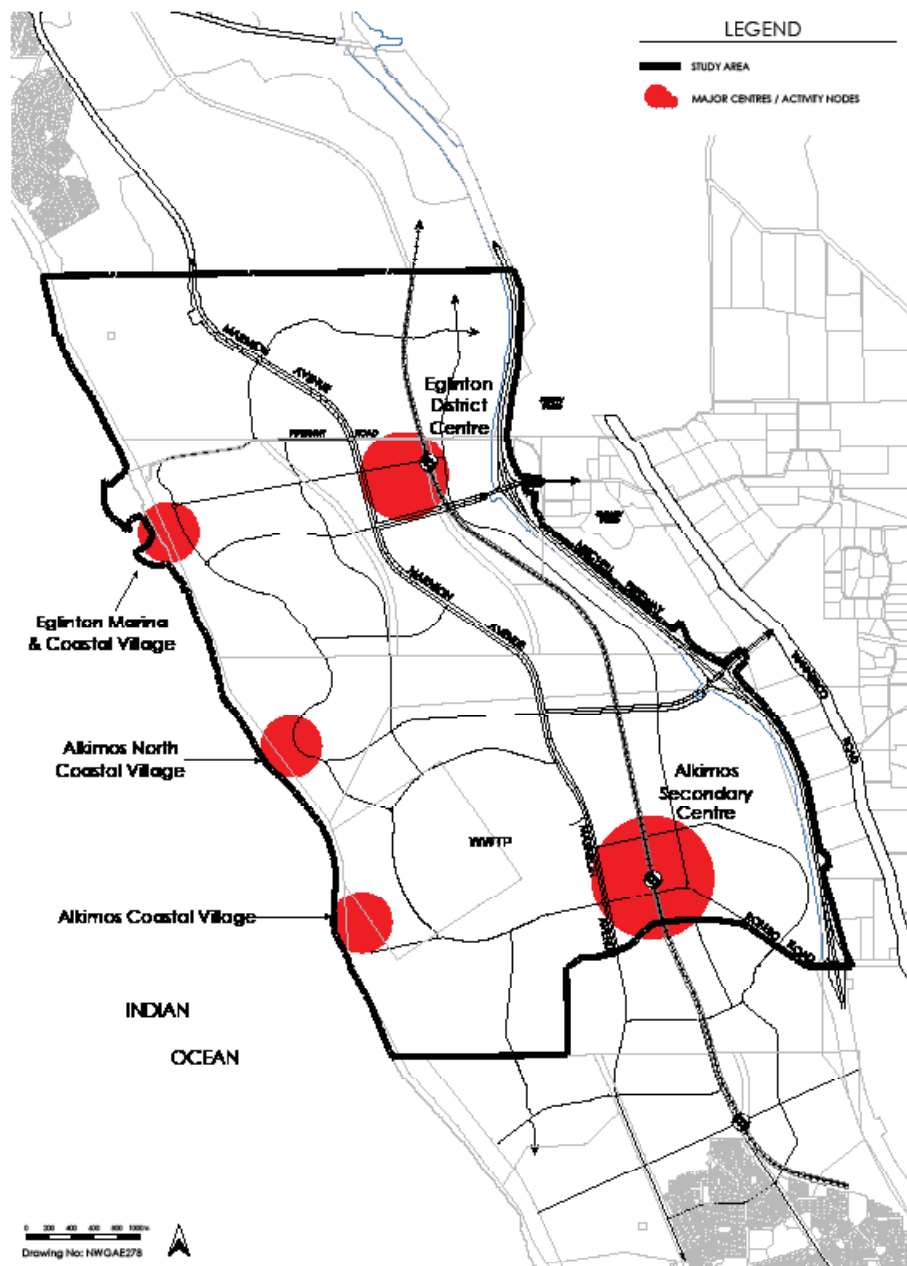


Figure 18: Centres Strategy

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8.2 ALKIMOS SECONDARY ACTIVITY CENTRE

The Alkimos Secondary Activity Centre (Town Centre) was identified as having regional status in the 1992 North West Corridor Structure Plan. The WAPC's Metropolitan Centres Policy and the City of Wanneroo Centre Strategy both confirmed its regional status with a floor space of 50,000m² NLA. More recent analysis of the market potential for retail facilities in the Alkimos Eglinton region undertaken by IBECON Pty Ltd ([Appendix 6](#) refers) indicated potential for 65,000 m² GLA within the Alkimos Secondary Activity Centre, which is now proposed as part of the DSP.

The Town Centre will function not only as a major retail centre but importantly as a true regional centre incorporating a wide range of regional uses. These are considered essential to achieving sustainable employment and community creation in this important part of North West Corridor.

The centre will become the community, social and economic heart of Alkimos Eglinton. In addition to retail, the centre will accommodate a number of other uses including:

- Civic Buildings;
- Offices;
- Bulky Goods;
- Medical Facilities;
- Entertainment (cinemas, bars, restaurants/cafes);
- Educational Establishments (including potential TAFE or University campuses);
- Community Buildings and Halls;
- Medium and High Density Residential;
- Urban Parks; and
- Railway Station.

Essential in creating vitality for the centre a diverse range of housing types is proposed. This will include medium density single residential and high density apartment style dwellings which will not only facilitate vibrancy, but importantly, will contribute to its centre's commercial viability, along with deriving full benefit from (and supporting) the high level provision of public transport services, including a rail station.

Core retail such as supermarkets and department stores are envisaged to be located around the railway station and linked by specialty shops and mixed use development. Bulky goods and destination retail are to be located adjacent arterial roads to allow exposure to passing by traffic. From a planning perspective, the Town Centre is ideally located on flat land framed by the dramatic parabolic dune system.

The Town Centre will be highly accessible via regional transportation routes, including the freeway and railway and accessible by local and district traffic via an array of district and local distributor roads. Two access points off the freeway, one to the south and one to the north, provide excellent regional road access in addition to Marmion Avenue which travels through the Town Centre.

The pedestrian and cyclist network will be co-located along the railway, and connector roads. Strong pedestrian links will be provided between the town centre and adjacent district recreation areas, in addition to providing strong linkages to the surrounding residential precinct and coastal villages.

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A service employment area will be located in the southern portion of the Town Centre along Romeo Road between Marmion Avenue and the Mitchell Freeway and will incorporate a small component of retail to service the workforce.

Town Centre uses are proposed on both sides of Marmion Avenue, with the railway station being centrally located, providing strong public transport connectivity to the metropolitan region.

The Town Centre represents an important element of the DSP. The civic spaces at its core will provide for high public amenity and play a crucial role in activating the community. These spaces will be where the community comes alive, going to community events, having a coffee on the sidewalk, watching lunchtime performances over a sandwich, taking a break from work, having a picnic and generally enjoying a vibrant, healthy lifestyle.

Open spaces will take the form of urban parklands, town squares or piazzas. Detailed design of these spaces will allow for flexible use and will provide places to gather, shelter and have a passive sanctuary. Public art will also play a significant role in enhancing the aesthetic qualities of the civic areas. The main street will form a backbone of the 'pedestrian scaled' Town Centre.

A detailed Urban Design strategy will be undertaken at the local structure planning stage to determine final built form and height. Urban design objectives identified for the Town Centre are listed below to inform the LSP preparation:

- Create an interesting skyline to match the topography;
- Create point of interest;
- Provide for varying heights of the built form;
- Encourage creation of built form landmarks to be occupied by marquee building and tenants;
- Evenly distribute high quality urban parks;
- Encourage retail parking to be accommodated behind shops, in underground or rooftop form;
- Create buildings and streetscapes that are designed at a human scale inviting people to walk;
- Create buildings and streets that provide generous shade, shelter and wide pathways for easy walking and cycling;
- Architecturally designed buildings to front streets in a traditional town centre manner that emphasises quality, permanence and structure;
- Utilise that main street design and other Liveable Neighbourhoods principles would be employed; and
- Facilitate the creation of a true transit oriented development.

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8.3 EGLINTON DISTRICT ACTIVITY CENTRE

Complimenting the Alkimos Secondary Centre will be the Eglinton District Activity Centre centred upon the proposed Eglinton Railway Station. This centre will provide district level facilities for residents of Eglinton and the broader catchment.

The WAPC's Metropolitan Centres Policy Statement for Perth Metropolitan Region (2000) indicates that District Activity Centres may have up to a maximum floor space of 15,000m² NLA. The Commission's policy states that District Activity Centres are intended to meet the weekly shopping and services needs of the community including the provision of office and community facilities.

The City of Wanneroo Centres Strategy identifies a District Centre (up to 15,000m² NLA) at Eglinton. More recent analysis of the market potential for retail facilities in the Alkimos Eglinton region undertaken by IBECOM Pty Ltd ([Appendix 6](#) refers) indicates potential for 20,000 m² GLA within Eglinton District Activity Centre, which is now proposed as part of the DSP.

The District Centre is located centrally to its catchment, conveniently accessible by public transport including the rail system, the secondary public transport system, and is located on major district and regional roads. It has high visual prominence and facilitates creation of a true landmark in this locality. The District Centre will accommodate a mix of uses, similar to the Town Centre, but at a smaller scale, and will create an important focal point for the Eglinton community.

Uses within this Centre will include the following, with the urban design objectives enunciated for the Alkimos Secondary Centre being utilised to inform the local structure planning for the Centre:

- Retail;
- Offices;
- A diverse range of Medium and Higher Density Housing;
- Entertainment;
- Community Facilities;
- Education Facilities;
- Bulky Goods;
- Town Squares and Parks; and
- A vibrant Main Street with Restaurants and Coffee Shops

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8.4 ALKIMOS COASTAL VILLAGE

Physically and visually linked to the Alkimos Secondary Activity Centre the Alkimos Coastal Village (Local Activity Centre) is located at the southern end of the Alkimos Regional Beach, and provides an important coastal focal point for the community. It will be a place of “vitality” engendering the coastal lifestyle, being an essential element in delivering the vision for the project.

This node has a strategic location centred on an excellent regional swimming beach with panoramic views northward up the coastline.

It is intended that “Alkimos by the Sea” will be an intensive lifestyle and recreation node with:

- Pedestrian promenades;
- Extensive landscaped areas;
- Grassed terraces;
- Boardwalks;
- Shelters;
- A Main Street; and
- Other Beach Facilities.

Importantly it will provide for a diverse range of housing types including medium and higher densities. The vibrancy of this node will derive from intensifying density housing around the proposed lifestyle elements including cafes and restaurants that focus on and are integrated with beach side facilities.

Whilst addressing the need for good environmental outcomes, coastal development should be integrated with, and provide for strong connectivity with adjacent land uses. At the local structure planning and detailed design stages, the opportunity to integrate tourism, beachside facilities and activity nodes with the coastal foreshore should be explored and pursued. This process will provide an opportunity for a review of coastal setbacks, which would require appropriate environmental and planning assessment and approvals.

The possibility of a new marina adjacent to the Alkimos Coastal Village as recommended in the recently released Department for Planning and Infrastructure, Draft Perth Recreational Boating Facilities Study will add a new dynamic dimension to this activity centre and will provide a further catalyst to enabling a wider range of tourist, community, recreation and aquatic activities and uses to be incorporated.

The opportunity to incorporate this marina into the development and integrating it with the Alkimos Coastal Village is still at a very premature stage, however the implications of this facility being developed need to be explored at the local structure planning stage along with the early identification of protocols and process needed to achieve necessary environmental and planning approvals.

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8.5 ALKIMOS NORTH COASTAL VILLAGE

The Central Coastal Village (Local Activity Centre) is located at the northern end of the regional beach and is within 500m of the proposed second tier public transport system which links it to the other coastal nodes, commercial centres and the proposed rail stations.

The Central Coastal Village will sit within the existing landform overlooking and connected to the coast. The village will comprise a range of land uses including such activities as:

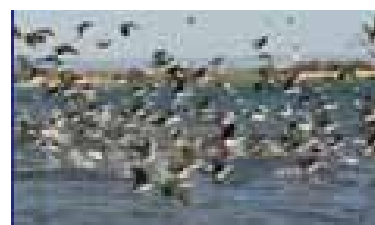
- Cafes/Restaurants;
- Hotels/Short Stay Accommodation;
- Function Centres/Entertainment Venues;
- Retail, particularly lifestyle orientated retail such as Surf Shops/Boutiques/Book Shops;
- Potential market breakout spaces;
- Tourism related retail and residential; and
- A Main Street.

A main street is envisaged which runs down the valley towards the beach with its western end anchored in coastal and beachfront activities and its eastern end anchored on the north south coastal road and secondary transit route.

Uses along the main street will likely be framed by higher density residential and mixed use development running parallel to the central main street avenue, through the core of the valley area and could include such alternatives as shop-top housing.

The village will connect from the coast through to the interior both physically and visually. It is envisaged that at this coastal node the immediate foreshore area between the coastal village and the beach front will be a zone of activity connecting the village to the beach and providing a true coastal mixed use activity centre experience for the resident community and visitors. In this regard the opportunity to use the existing dune blow out at this location to secure this beachfront node of activity is recognised.

Integrated coastal development comprising tourism, beachside facilities and activity nodes with the foreshore should be explored at LSP stage.



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8.6 EGLINTON MARINA AND COASTAL VILLAGE

The Eglinton Marina Village will create a vibrant coastal focal point providing a vital element in the delivery of coastal lifestyle and essential employment and economic activity generation.

Importantly the EPA approved marina adds an important dynamic to this activity node, providing not only colour and movement but also the essential catalyst for tourist facilities and marine based recreation businesses and activities. The opportunities that arise out of having this marine based activity and the potential uses that it will attract need to be fully explored at the local structure planning stage. In particular a significant opportunity exists to create a truly integrated coastal village and community.

The Eglinton Coastal Village and Marina (Local Activity Centre) will not only provide boating facilities for approximately 220 berths but will also incorporate and be integrated with, but not limited to:

- Marina based activities;
- A diverse range of residential development at varying densities closely integrated with the Marina precinct.
- Cafes and restaurants;
- Tourist facilities incorporating Hotel, Function Centre and Entertainment Venues;
- Retail Outlets;
- Weekend Markets
- "Event" facilities;
- Recreational Facilities; and
- A variety of accommodation types.

Collectively the proposed three coastal villages reinforce and enable a healthy coastal lifestyle for the community of Alkimos/Eglinton in addition to providing the essential catalyst for facilitating employment creation and economic activity.

As local structure planning evolves and progresses, addressing the final form of the three integrated Coastal Activity Centres, it will be necessary to follow due planning and environmental processes and obtain all necessary approvals relating to foreshore reserve and land use changes.

The possible 'book ending' of the extremities of the Alkimos Eglinton foreshore with two fully integrated Coastal Villages and Marinas adds a truly new dimension to the vitality and attraction of this section of Perth's northern coastline. The Coastal Road and Secondary Public Transportation System connections between these Coastal Villages and the Northern Suburbs Railway Stations significantly reinforce the lifestyle choices, employment opportunities and economic potential of the Alkimos Eglinton area.



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8.7 NEIGHBOURHOOD CENTRES

To provide an appropriate level of service to residents at Alkimos Eglinton, neighbourhood centres will be developed throughout the Alkimos Eglinton area. The IBECON report (Appendix 6) recommends 15-20,000m² GLA be distributed for neighbourhood centres spread throughout the area. The precise location of these centres will be determined at more detailed local structure planning stage. The Alkimos, Alkimos North and Eglinton coastal nodes have been classified as local centres however they will also provide an important tourist function, particularly the proposed marina to be developed as part of the Eglinton Coastal Village. The co-location of community infrastructure with the centres will assist in creating a stronger “sense of place” and local identity.

8.8 SERVICE COMMERCIAL

The DSP provide for substantial service commercial areas in association with the Secondary and District Centres. These commercial areas will incorporate uses such as Business and Research Parks, service commercial and service industrial uses which meet the needs of larger retail outlets, showrooms, retail warehouses, light industrial and service industries. These areas, which provide for essential localised employment opportunities, have been strategically located between the freeway and Marmion Avenue, in order that they have maximum accessibility and are near truck routes. A total of 57.6ha of land have been allocated for these major employment centres.

8.9 MIXED USE CENTRES

Mixed Use Centres are proposed along Marmion Avenue and proposed major roads to the north of the Secondary Centre, in addition to an area immediately to the south and abutting the District Centre. These centres will not only capitalise on the economic energy derived from the traffic movement along these major traffic arteries, but importantly also assist in creating localised employment opportunities.



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9.0 ECONOMIC DEVELOPMENT AND EMPLOYMENT

9.1 ALKIMOS EGLINTON ECONOMIC AND EMPLOYMENT DEVELOPMENT

Alkimos Eglinton is identified in the City of Wanneroo's Economic Development Strategy as a "Major Regional Centre" with a population of approximately 50,000 persons to 2030. The Strategy also identifies Yanchep/Two Rocks (St Andrews) as having a population of 150,000 persons and 60,000 jobs by 2035.

The City of Wanneroo has set a target employment self sufficiency of 40% for District Structure Plans. The job self-sufficiency ratio is determined by the formula:

Jobs available in the area: Workers living in the area.

Syme Marmion and Co prepared an Economic and Employment Strategy for the Alkimos Eglinton project ([Appendix 7](#) refers). The strategies were based on a comprehensive analysis of the City of Wanneroo demographics and population projections for the project.

Based on the estimated dwelling yields projections of approximately 23,000 ([section 10](#) refers) and the current 1.16 ratio of workers per dwelling in the City of Wanneroo, the estimated job self-sufficiency ratio for the Alkimos Eglinton project will aim for a minimum of 60% employment self-sufficiency within the DSP area. A range of employment opportunities will contribute to an overall self-sufficiency within the North West Corridor of 72% and progressive interim targets, in line with the Economic and Employment Strategy, Community Development Plan and the District Staging Strategy, to be prepared at LSP stages. This is considerably higher than the 40% target set by the City of Wanneroo. With additional strategies for economic development within the DSP area, it is likely that the final self-sufficiency ration at full development will be somewhat higher than this base figure.

Applying a higher ratio of home based business, for example 10% as included as a standard in the City of Wanneroo's Smart Growth Assessment Tool, the Alkimos employment self-sufficiency could exceed the 60% target.

Alkimos and St Andrews are two neighbouring major developments planned for the North West Corridor. It is only economically viable for one of these developments to become a major economic and employment centre and currently St Andrews is planned to perform this role. Therefore, in terms of contribution toward an overall 60% employment self-sufficiency target for the North West Corridor, activity in the Alkimos development is limited due to the scale of the proposed adjacent St Andrews development which will provide up to 55,000 jobs with a local workforce of around 72,000, or a self-sufficiency of 76%.

When the Alkimos and St Andrews worker and job figures are combined, the total workforce will be approximately 98,000 and the total jobs approximately 73,000. This will result in an overall self-sufficiency of up to 73% for the combined development of Alkimos and St Andrews. This is well in excess of the 60% target for the North West Corridor Structure Plan.

Approximately 457 ha of land within the DSP area has been identified as potentially generating employment, generally in service commercial, Activity Centres and mixed use areas, as shown in Table 11.

In areas denoted on the DSP Map 1 as "Opportunity for Business, Commercial and Mixed Use Development", there is no intent to limit/restrict residential development. It is acknowledged that whilst initially these areas may be developed as residential, over the fullness of time they may be transformed into employment generating areas. The design of these areas needs to be robust to accommodate an increase in intensity of built form and use over time (Part 1, Clause 7.8, S10 refers).

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Location	Area
Secondary Activity Centre	154ha
District Activity Centre	65ha
Coastal Village Activity Centres	46ha
Service Commercial	149ha
Urban/Mixed Use	40ha
Total	454ha

Table 11: Potential Employment Generating Land

A critical element of economic development is the timely identification of appropriate sites for employment nodes, which need to be identified very early in the planning process. The DSP identifies several areas of employment which will accommodate the following employment uses:

- Population linked activities including regional, district and local retail, mixed use precincts, regional, district and local services plus manufacturing to meet local and regional needs.
- External economy oriented activities that may locate in the area, but particularly associated with the coastal nodes and the waste water treatment plant buffer.

The following initiatives have been identified as appropriate to be utilised to ensure that the targeted employment self sufficiency ratio is achieved. These initiatives will be further explored at detailed local structure planning stages.

- Waste Water Treatment Plant Buffer Zone - potential to develop a set of compatible land use activities within the unencumbered portions of the waste water treatment plant's buffer.
- Broadband - increased viability of home based business, increased viability of commercial use, and increased density of commercial use.
- Business Outreach Service - enables programs to be targeted to increase efficiency and effectiveness of economic development and employment initiatives.
- Business Activity Centre - to be established early in the project on the Secondary Centre site - the promotion of economic activity earlier in the project than would otherwise be the case, allows for the early establishment of the economic base.
- Small Business Incubator - encourages home based and other small businesses to expand or locate into the incubator with assistance from the business outreach officer. The subsidised lease scheme will enable start-up businesses to commence without committing to a long term commercial lease.
- Home Based Business Support - encourages a greater proportion of home based businesses to be located in the area.
- Early Retail Provision - encourages local residents to shop locally and captures a portion of spending from those visiting the location such as construction workers.
- Contribution towards the Wanneroo Business Association - stimulates the local economy and supports local job creation.
- Ancillary contribution to smaller projects - stimulates the local economy and supports local job creation.
- Education – provision of both private and public education facilities focusing on excellence in education provides significant employment opportunities.

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9.2 ALKIMOS EGLINTON ECONOMIC PROGRAMS

Alkimos Eglinton will have ample appropriately zoned land for employment generation / activities and therefore capacity to facilitate high levels of employment self-sufficiency. The Alkimos Eglinton proponents recognise that the responsibility to facilitate employment goes beyond the provision of appropriately zoned land. In response to this one of the landowners, LandCorp, has recently employed an Economic Development Manager to work specifically on the business and employment generation aspects of the development

The following strategies and initiatives will therefore be undertaken to ensure that Alkimos Eglinton develops business locations delivering a full complement of services and experiences and high levels of employment self-sufficiency:

9.2.1 Economic Development and Employment Generation Strategies

Part 1 herein requires the preparation of Economic Development and Employment Strategies which is part of the ongoing detailed planning phases for Alkimos Eglinton which will:

- Articulate the business and employment vision for each of their activity centres and the development as a whole;
- Formulate the relationship between the Alkimos Eglinton activity centres and other activity centres within the North West Corridor, aiming to complement these centres where possible and create distinctive points of difference for Alkimos Eglinton;
- Identify strategies for progressing the vision;
- Set the work plan for business attraction and employment creation components of the development;
- Link community wellbeing and community outcomes with economic development outcomes; and
- Set performance measures and targets for each activity centre and the development as a whole that recognise and respond to the various stages of growth and graduation that each centre will experience from initiation through to full maturity.

Through the District Structure Plan, the landowners have accommodated the spatial requirements for ongoing employment and economic development through the provision of a range of employment generating land uses.

9.2.2 Place Specific Economic Development Plans

To complement the overall vision and whole-of-development Economic Development and Employment Strategy, each landowner will prepare specific economic development plans for their activity nodes during the local structure planning phase. These plans will:

- Articulate the relationship between activity centres and set the scope for the primary focus and function of each centre;
- Set the principles to inform what will be delivered on the ground and guide design work;
- Set targets for business and service attraction for each node;
- Suggest mechanisms for building local employment initiatives into the early stages of development; and
- Clarify how home-based business will be attracted and encouraged to locate in each activity node and across the development in its entirety.

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9.2.3 Business Attraction, Retention and Growth

The developers in partnership with the State and Local Government will develop a range of focused economic development strategies and plans to guide the delivery of business services and local employment into the centres, a range of tactical activities at the appropriate time will also be undertaken to deliver a good range of services early in the development. These initiatives which will be specifically relevant to LandCorp's landholdings and in specific locations likely to be relevant to the other landowners should include:

- Business attraction information and packages;
- A range of incubation practices;
- Early lease-hold opportunities to encourage businesses into the development without locking them into locations which may not be appropriate as the centres grow and develop,
- Early provision of a range of educational and health services, using flexible facility provision and delivery models;
- Business support via business enterprise officer / business outreach type initiatives and through the linking of businesses to City of Wanneroo and State Government programs and initiatives; and
- Development of incentives and attractors to encourage retail and other businesses into the centres early on in their development phase.

9.2.4 Local Employment Facilitation:

With Alkimos Eglinton setting relatively high employment self-sufficiency targets, it will be important that these targets are supported with robust programs and initiatives. The developers will therefore work with employment facilitation agencies; education and training providers and the City of Wanneroo inter alia, to encourage local employment practices.

Initiatives (of which some are relevant to specific landowners and others are shared with all landowners) should include:

- Creation of good transport links and public transport options between Alkimos and Neerabup to maximise access to industrial jobs for Alkimos residents;
- Local employment quotas and priority requirements for contractors and builders working within Alkimos Eglinton;
- A range of initiatives to have local residents 'job-ready' and able to access local jobs once created;
- Strong links between educational providers and local/regional businesses to encourage progression from education programs into local jobs, traineeships and apprenticeships; and
- Strong emphasis on supporting home-based businesses to locate within the development;

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9.2.5 Tourism

With a designated 'regional beach', an approved marina, possible second marina and a plethora of natural attractions, tourism will be an important element of the business mix for Alkimos Eglinton. It is recognised that tourism alone won't supply all of the employment needs of the residents and is only part of the business mix that is required to support Alkimos Eglinton.

Attention will therefore be given to developing tourism products and experiences:

- Creating points of difference that can be built upon and enhanced by non-tourism businesses to create a sense of identity and authenticity for the centre;
- Able to be sliced into and incorporated into centres that offer a range of services and experiences;
- Able to generate a range of employment opportunities (not just low-end hospitality jobs);
- Complementing the overall vision and sense of identity for the development;
- Creating year-round activity; and
- Providing an identity and experience that can enhance the entire region and be used as a business and residential attractor for the region.

Both Tourism WA and the City of Wanneroo's tourism strategies and guiding documents will form the basis for tourism development proposals.

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9.3 REGIONAL INITIATIVES AND EXTERNAL OPPORTUNITIES

It is recognised that Alkimos Eglinton sits within the rapidly expanding North West Corridor of Perth and must consider this context in all its planning. Importantly, Alkimos Eglinton aims to develop strategies and a focus that will complement the centres of Neerabup and St Andrews and will be identifying unique points of difference and competitive advantages to differentiate its activity nodes.

In addition to having its own internally focused employment and business development plans and programs, Alkimos Eglinton will also participate in and contribute to a range of regional initiatives coordinated via the City of Wanneroo or the North West Corridor Economic Development Strategy implementation team.

9.3.1 Neerabup Industrial Area (Meridian Park)

With no industrial zones of its own, Neerabup fulfils an important function for Alkimos Eglinton as a local source of industrial employment. Neerabup is expected to create approximately 20,000 jobs over time and is the largest industrial area in the North West Corridor of Perth.

As both Alkimos Eglinton and Neerabup have a common major landowner (LandCorp) strategies are currently being developed to link the two developments and ensure that the relationship between the two developments can be optimised.

Initiatives stemming from these strategies are likely to include:

- Creation of rapid public transport services between Alkimos Eglinton and Neerabup to facilitate access to industrial jobs within Neerabup;
- Focus on linking Alkimos Eglinton residents with specific employment opportunities in Neerabup (via web sites, employment agencies, VET placements etc);
- Graduation opportunities for Neerabup businesses to relocate into either the serviced commercial or Secondary centre in Alkimos Eglinton, should the nature and focus of their business change; and
- Encouraging Neerabup business owners and employees to live in Alkimos Eglinton.

9.3.2 St Andrews

At full development, St Andrews, to the north of Alkimos Eglinton will house 150,000 residents and create 55,000 jobs. St Andrews has been identified as the major employment anchor for the northern portion of the North West Corridor. Given this intensity, there is an opportunity for St Andrews to provide employment for some Alkimos Eglinton residents.

It will be similarly important for St Andrews and Alkimos Eglinton to develop in a complementary manner, with Alkimos Eglinton developing specialisations that will enhance industry clusters at St Andrews. The developers of Alkimos Eglinton will be attempting to work with the St Andrews project proponents wherever possible to instil this complementary focus and will also be relying on initiatives such as the North West Corridor Economic Development Strategy and bodies such as the City of Wanneroo, the Department of Industry and Resources and the Department of Planning and Infrastructure to nurture such complementary development.

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10.0 RESIDENTIAL

10.1 DWELLING YIELDS AND POPULATION ESTIMATES

The projected dwelling yields for the Alkimos Eglinton area are based on the following assumption of applicable densities:

- 20 dwellings/ha gross, within the 1km urban catchment (500m either side) of the second tier of public transportation route; and
- 10 dwellings/ha gross for urban areas outside the 1km catchment.

The projected dwellings are therefore as follows:

Public Transport Route Residential Catchment (500m either side)	Area (ha)	Dwelling Units
Urban	552	11037
Urban Deferred	23	463
Regional/District/Coastal Centres	174	3489
Total	749	14,989
Balance Urban (outside catchment)	Area (ha)	Dwelling Units
Urban	754	7540
Urban Deferred	5	48
Secondary Centre	65	1307
Total	824	8895
Total Projected Dwellings in Alkimos Eglinton		23,884

Table 12: Projected Dwelling Yields

Based on the above projected dwellings in the Alkimos Eglinton area, and using an estimated 2.4 persons per dwelling ratio, the total projected population is 57,321. Part 1 herein (Section 1.8) details Objectives and Strategies relating to the “Built Environment” including minimum density targets and residential codings to be defined at the LSP stage.

The higher densities proposed reflect the objectives and policies of Government and the City of Wanneroo.

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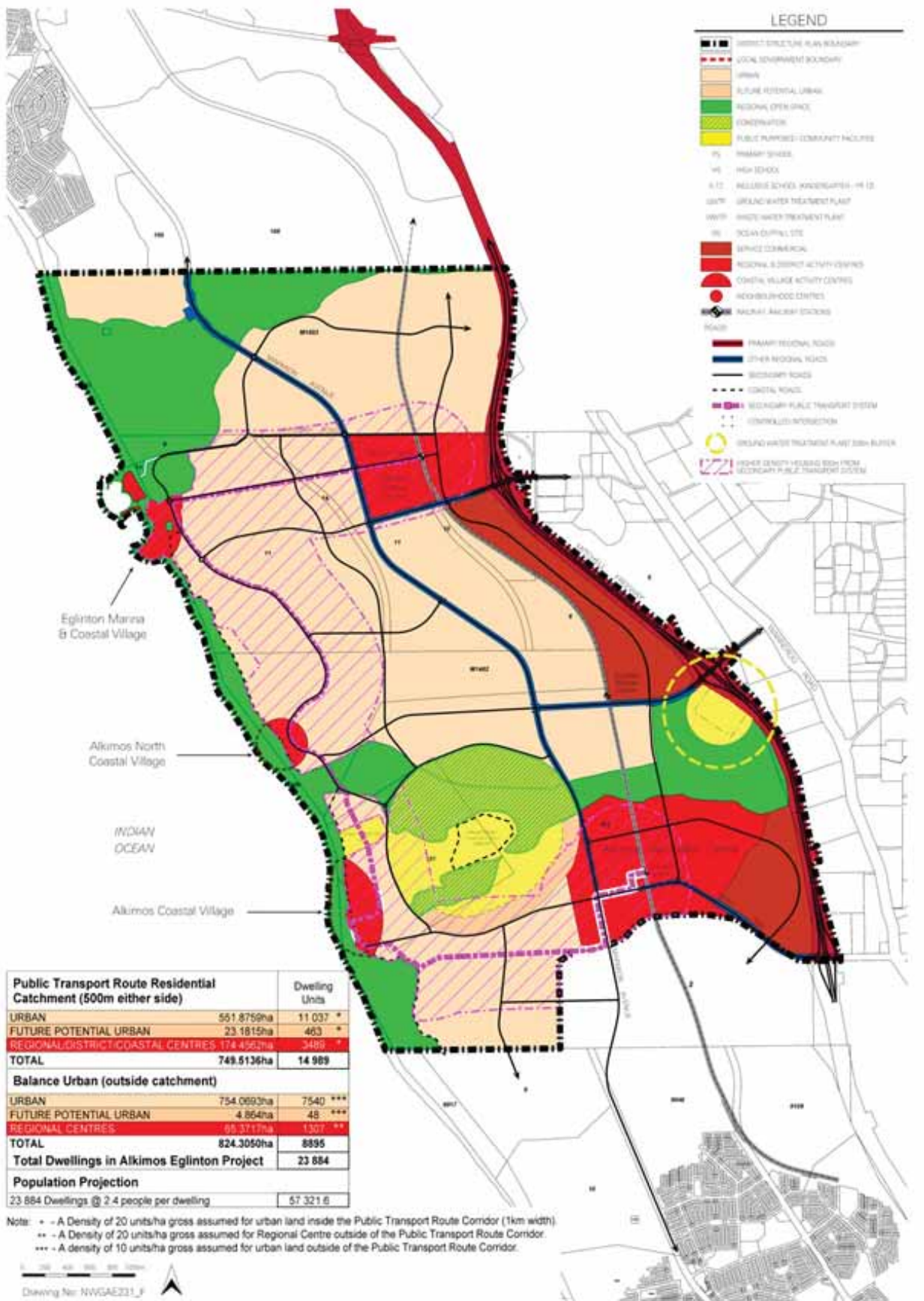


Figure 19: Dwelling Yield and Population Estimates

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10.2 DENSITY

To provide an appropriate choice of dwelling types to cater for the extremely diverse and ever changing household compositions, proposed residential areas need to incorporate a wide range of densities.

To achieve appropriate sustainability outcomes and sufficient catchment to support the new second tier of public transportation (in line with the Sinclair Knight Merz report recommendations - Appendix 4) higher target population densities overall were seen as essential.

Densities must be achieved around each transit stop to ensure sufficient patronage and economic viability. Desirable densities to support the system include 20 dwellings/ha gross, (equivalent to about R30/R40 net) within the 1km urban catchment of the second tier of public transportation and 10 dwellings/ha gross for urban areas outside the 1km catchment.

The interpretations of 'Gross Residential Area' (GRA) and 'Net Residential Area' (NRA) are as follows:

GRA: the land occupied by residential development, excluding non-residential land uses that are not capable of being used for residential purposes. These include (where relevant) various easements, non-creditable wetland core(s) and buffer(s), non-creditable drainage areas, primary and other regional roads, school sites and other non-residential land. This area does include local access roads and public open space, including creditable wetland(s), buffer(s) and drainage areas.

NRA: the land occupied by residential development, excluding non-residential land uses that are not capable of being used for residential purposes. These include various easements, non-creditable wetland core(s) and buffer(s), primary and other regional roads, school sites, local access roads (approximately 30% of GRA) and public open space.

'Gross Residential Density': the 'Gross Residential Area' divided by the number of proposed residential lots for that area.

'Net Residential Density': the 'Net Residential Area' divided by the number of proposed residential lots for that area.

Conforming to the intent of State and Council policies, proposed residential areas will therefore incorporate a wide range of densities to provide an appropriate choice of dwelling types to cater for the extremely diverse and ever changing household compositions.

Pockets of higher density areas coded R40, R60 and up to R160 are envisaged near the railway stations and within the Secondary and District Activity Centres. It is important that planning provisions do not inhibit these targets.

Within the coastal villages and along the coastline, a range of densities is envisaged, including high density developments. These will add to the vibrancy of these coastal locations in addition to providing a variety of accommodation.

The specific distribution of densities will be determined at the more detailed local structure planning level, however clearly higher densities will be an important part of the urban fabric of the Alkimos Eglinton Fabric and are essential if public transport and sustainability objectives are to be realised.

Part 1 of this document details Outcomes and Strategies to ensure appropriate residential densities are achieved within Alkimos Eglinton

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11.0 COMMUNITY

11.1 COMMUNITY FACILITIES / RECREATION

CSD Network, the project's community planners, produced a Community Needs Assessment to establish a set of standards appropriate for the estimated population of approximately 57,000 for the Alkimos Eglinton area, defining what community, recreation, social and health facilities should be provided to serve its future population. Following a series of meetings with the relevant stakeholders, these findings were further refined. The identified desirable types of facilities to be incorporated within Alkimos Eglinton are as follows:

- Regional Open Space stand alone playing fields, (50ha) located east of Alkimos Secondary Centre outside DSP area. The need for and location of this facility will be determined in more detail through the NWCSF review currently being undertaken by WAPC;
- District Open Space (DOS) adjacent to the Secondary Centre, within the ROS site. This DOS site should accord with the City's District Active Reserve Concept Plan. An opportunity exists to co-locate the DOS with an Inclusive School site, north of the Eglinton District Centre, and may be required if the development of DOS in ROS adjacent to GWTP does not receive approval from the required agencies.
- Aquatic and recreation centre, based on Joondalup Arena model, potentially co-located with tertiary provider adjacent to the Alkimos Secondary Activity Centre;
- Performing arts centre in the Alkimos Secondary Activity Centre, also including a regional library;
- Surf life saving club at southern coastal node;
- Inclusive school (1), combining high school, primary schools, special facilities;
- High schools (2);
- Primary schools (9);
- Health and medical centres;
- Medical campus;
- Child care centres;
- Police station;
- Places of worship; and
- Range of community purpose sites.

The list is not exclusive and considerably more detailed analysis will be undertaken at the local structure planning stage, including consideration of the final location for dog/horse exercise areas.

PART TWO - EXPLANATORY SECTION

The DSP nominates recommended indicative locations for the:

- District Playing Fields;
- Neighbourhood Playing Fields;
- School Sites (Public and Private);
- Surf Club Facility; and
- Aquatic Recreation Centre.

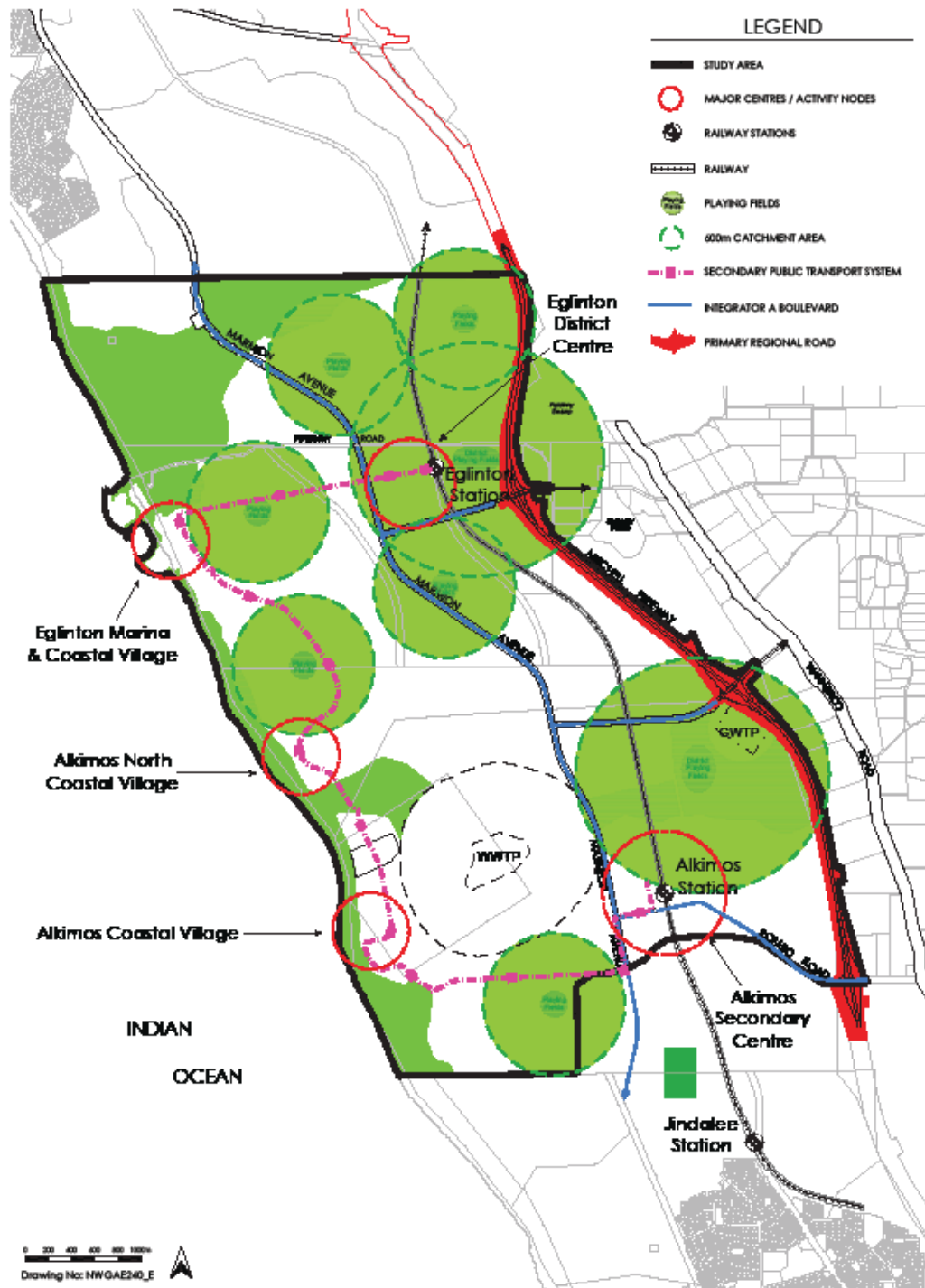


Figure 20: Major Playing Fields

PART TWO - EXPLANATORY SECTION

11.2 COMMUNITY DEVELOPMENT STRATEGY

The design of the DSP aims to foster the establishment an urban environment that can deliver improved social and community outcomes relative to conventional development. This aspect underlines the overall thrust of Liveable Neighbourhoods, with its focus on walkable mixed use communities that are well served by facilities, services and public transport, and designed to create a special sense of place for the community. The preparation of LSPs needs to embrace these principles, including reflecting upon the following key components for community development.

- **Place development** – a built and natural environment that creates the physical ‘canvas’ in which people can realise the vision.

Facilitating community development through the formation of a distinctive sense of place, creation of meaningful connections between people and where they live, work and play. The distinctiveness and uniqueness of the wonderful physical attributes of the project area offers interesting potentials for community development in exceptional coastal setting, environmental and cultural attributes, all contributing to its special attributes that will provide useful cues for community development programming.

- **Infrastructure development** – early provision of optimum facilities and services that offer a wide range of opportunities.

The key to a sustainable approach to community development is the provision of appropriately located community facilities, opportunities for the communities to socially interact and to build social capital, and opportunities to facilitate physical activity as a contributor to physical and mental health.

- **Community (people) development** - a range of on-going community fostering strategies. Key social and community structures and processes needed to create a viable, stable and secure community will be identified from the outset. This approach reflects a clear understanding that:
 - Effective communities do not necessarily evolve spontaneously
 - A visually well designed environment with the right amount of secondary infrastructure is only part of a necessary foundation; and
 - Delaying the introduction of critical social, economic and cultural elements may narrow options and rule out what might have been a better alternative.

Creating a fully functioning and sustainable community where people prosper and enjoy a good quality of life will require a collaborative effort between the developers, City of Wanneroo, community based organisations, local businesses, local residents and State Government agencies. The form, distribution and timing of community facilities will be established at the next stage of more detailed local structure planning, including exploring community fostering and early delivery of services programs.

11.3 EDUCATION

The DSP identifies the preferred location for public primary schools and high schools based on the Department of Education and Training (DET) criteria, in addition to making provision for private high schools. The location of schools on the DSP is notional, reflecting catchment requirements. It is acknowledged there is scope to refine the size, location and distribution of schools at the local structure planning stage.

The benefits derived from co-location of education facilities with other community, retail and recreation infrastructure will be part of ongoing studies and research. The final location and special arrangements with other facilities will be determined at the local structure planning stage. Provision of excellence in education is a key objective of the project.

PART TWO - EXPLANATORY SECTION

11.4 PRIMARY SCHOOLS

The DSP provides for nine public primary schools. A ratio of 1 school per 1500 dwellings has been applied for residential densities of R20. At those densities one lot is equivalent to one dwelling.

In accordance with DET advice for the project, where higher densities are proposed (R30, R40, R50, R60 and above), the ratio of 1 school per 3000 lots applies. At those densities one lot is equivalent to two dwellings. The area requirements range from 4ha (stand alone school) to 3.5ha if co-located with local active POS.

11.5 HIGH SCHOOLS

The DSP provides for two high schools, based on the DET required ratio of one high school per four primary schools. The ratio relevant to the lots proposed in the area is 1 high school per approximately 6000 lots. Pursuant to the WAPC DC Policy 2.4 the area requirement is currently 10ha for each High School.

One of the two high schools is co-located with a primary school, in accordance with DET requirement for a provision of one 'Inclusive Learning' school per region to accommodate special facilities for children with disabilities. In addition to the standard area requirements for a primary school and high school, an additional 1.5ha area will be required to accommodate special facilities.

11.6 PRIVATE SCHOOLS

It is envisaged that in addition to the public schools, a number of private schools will establish in this area. Private school sites have not been shown on the DSP.

11.7 TERTIARY EDUCATION

Potential for a tertiary education facility has been identified within the Alkimos Town Centre.

PART TWO - EXPLANATORY SECTION

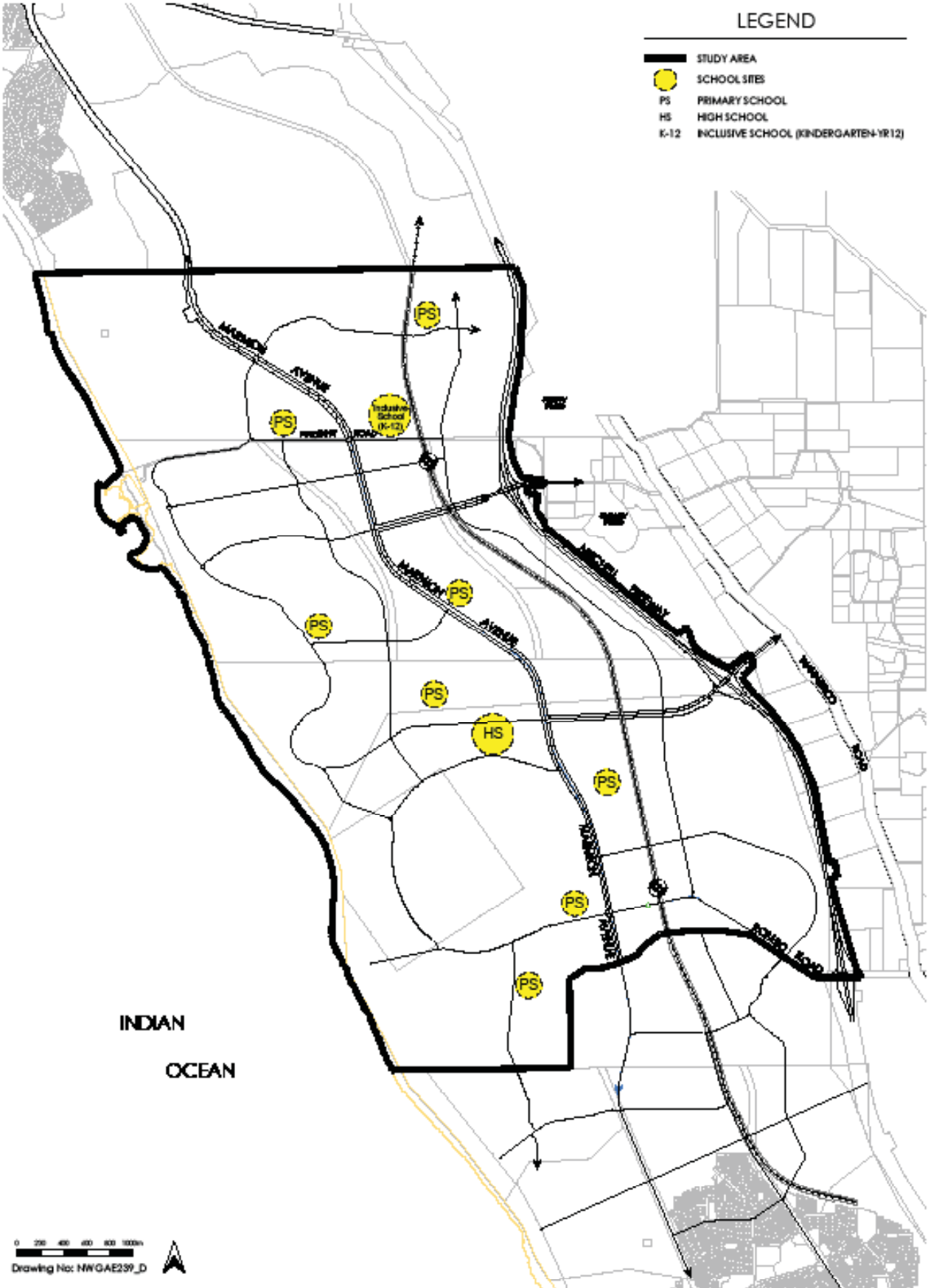


Figure 21: Education Sites

PART TWO - EXPLANATORY SECTION

12.0 OPEN SPACE

12.1 REGIONAL OPEN SPACE

Following the recent environmental assessment of MRS Amendment 1029/33, the EPA recommended the area of Regional Open Space (ROS) increased by 146 ha to a total of 421 ha, with a further area of 114 ha to be preserved for conservation purposes within the Waste Water Treatment Site buffer. This recommendation has been incorporated into the DSP. As a result, ROS occupies 20% of the total project area, providing major east west linkages connecting from the coast to the existing extensive Regional Park extending from Woodvale to Yanchep. The ROS areas will be used primarily for conservation purposes, however recreation opportunities will be explored within these areas.

Management Plans for localised areas of ROS should be developed at the local structure planning stage to address site specific management concerns and measures to be implemented to retain the environmental values of the ROS.

The items addressed in the ROS Management Plans should include the following:

- Conservation value;
- Linkages;
- Dune stabilisation;
- Perpetual management;
- Recreation opportunities;
- Pedestrian access (fencing and pathways);
- Fauna habitat retention; and
- Integration of activity nodes with the foreshore.

12.2 FORESHORE

The coastline of the project area is 7.5km. The foreshore reserve as reflected in the MRS will be utilised for conservation and recreation. Foreshore Management Plans will be required to be prepared and approved prior to subdivision of the land and should address:

- Conservation value;
- Recreation opportunities;
- Linkages;
- Pedestrian access (fencing and pathways);
- Dune stabilisation;
- Fauna habitat retention;
- Perpetual management; and
- Integration of proposed coastal activity centres with the foreshore.

(also refer to [Section 13 - Coastal Strategy](#))

PART TWO - EXPLANATORY SECTION

12.3 REGIONAL AND DISTRICT RECREATIONAL FACILITIES

The DSP identifies regional and district recreational facilities including:

- Regional open space stand alone playing fields, (50ha) located east of Alkimos Town Centre, between the freeway and Wanneroo Road (outside the Structure Plan Area). The need for and location of this facility will be determined in more detail through the NWCSP review currently being undertaken by WAPC ;
- District open space adjacent to Secondary Centre; Aquatic and recreation centre, based on Joondalup Arena model, potentially co-located with tertiary provider adjacent to the Alkimos Town Centre;
- Performing arts centre in Secondary Centre, also including a regional library; and
- Surf life saving club at southern coastal node;



PART TWO - EXPLANATORY SECTION

12.4 LOCAL PUBLIC OPEN SPACE

Areas of Public Open Space (POS) will be identified at the local structure planning stage. POS areas will provide for active recreation but will, where appropriate, incorporate areas of high environmental value.

The DSP nominates the indicative recommended location for District and major playing fields, which will form part of the POS allocation. The precise location and shape of these parks will be detailed at the local structure planning and subdivision stages.

As stated, localised areas of POS will be identified at the local structure planning stage and will address site specific management concerns and measures. In defining these POS areas, land attributes and functional values should be considered, including the following:

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

Where appropriate, and practicable, POS areas should be strategically located to provide local Social/Pedestrian/Cycle linkages between the hinterland and the coast. These may take form of passive and active POS areas, landscaped parks, ovals, cycle paths, wide vegetated road reserves and drainage areas as well as visual links celebrating the iconic natural features of the site.

Much of the vegetation at Alkimos Eglinton is in very good condition and areas of environmental interest should be identified at local structure planning stage and (where appropriate) retain in POS to form part of the Social/Pedestrian/Cycle linkages. To assist in identification of areas of local environmental significance during local structure planning, results of the vegetation flora survey conducted by Bennet in 2004 and reported in MRS Amendment 1029/33 – Alkimos Eglinton Flora Vegetation and Fauna Baseline Information (ATA Environmental, 2005) have been included in [Appendix 2](#).

PART TWO - EXPLANATORY SECTION

13.0 COASTAL STRATEGY

The principal purpose of a foreshore reserve is to provide a setback from physical coastal processes and provide protection of ecological values, landscape, visual amenity, indigenous and cultural heritage, and public access, recreation and safety (WAPC, 2003). Importantly, it also needs to facilitate the creation of vibrant coastal focal points where the community can truly enjoy the coastal experience.

The DSP shows the majority of the 7.5km coastline of the project area to be retained in its natural state with recreation access concentrated in three coastal nodes of Eglinton, Alkimos North and Alkimos. It is intended that all three coastal nodes (refer Sections 8.4 – 8.6) will be vibrant “people places” and provide a community focal point for coastal recreation and enjoyment of a coastal lifestyle.

The initial Coastal Planning Strategy for the project area was prepared by Alan Tingay and Associates in 1993, and updated in 1999. A second Coastal Planning Strategy was prepared by ATA Environmental in 2003. These documents have been reviewed by RPS Bowman Bishaw Gorham (Appendix 3 refers) and an updated Coastal Strategy has been prepared. The general ethos of the previously prepared Coastal Strategies for the site are fully supported by the vision for Alkimos Eglinton, and the planning philosophy is focused towards creating a distinctive liveable vibrant coastal community.

It is proposed that essential beachside activity elements such as shelter, promenades, pathways, grassed areas, barbeques, etc be sympathetically and appropriately located at the focal points along with adjacent lifestyle elements including cafes and restaurants. Current coastal planning policies facilitate creation of such nodes provided they do not compromise the integrity of the environmental values of the foreshore reserve.

Access pathways spaced at regular intervals, located following detailed foreshore analysis defining vegetation and environmental qualities, are also required to control movement of people to the beach environs.

Management measures for the foreshore reserve will include continuous pedestrian access to the coastline via a principal dual use path running north-south in the foreshore reserve and the construction of designated beach access ways through the foreshore reserve to control beach access.

The Coastal Strategy incorporates the influence of the new planning policies and guidelines such as Network City and the commitment of the landowners to install a secondary tier transport system at the Alkimos Eglinton development, which encourages greater densities. Foreshore Management Plans will be required to be prepared and approved prior to subdivision of the land.

PART TWO - EXPLANATORY SECTION

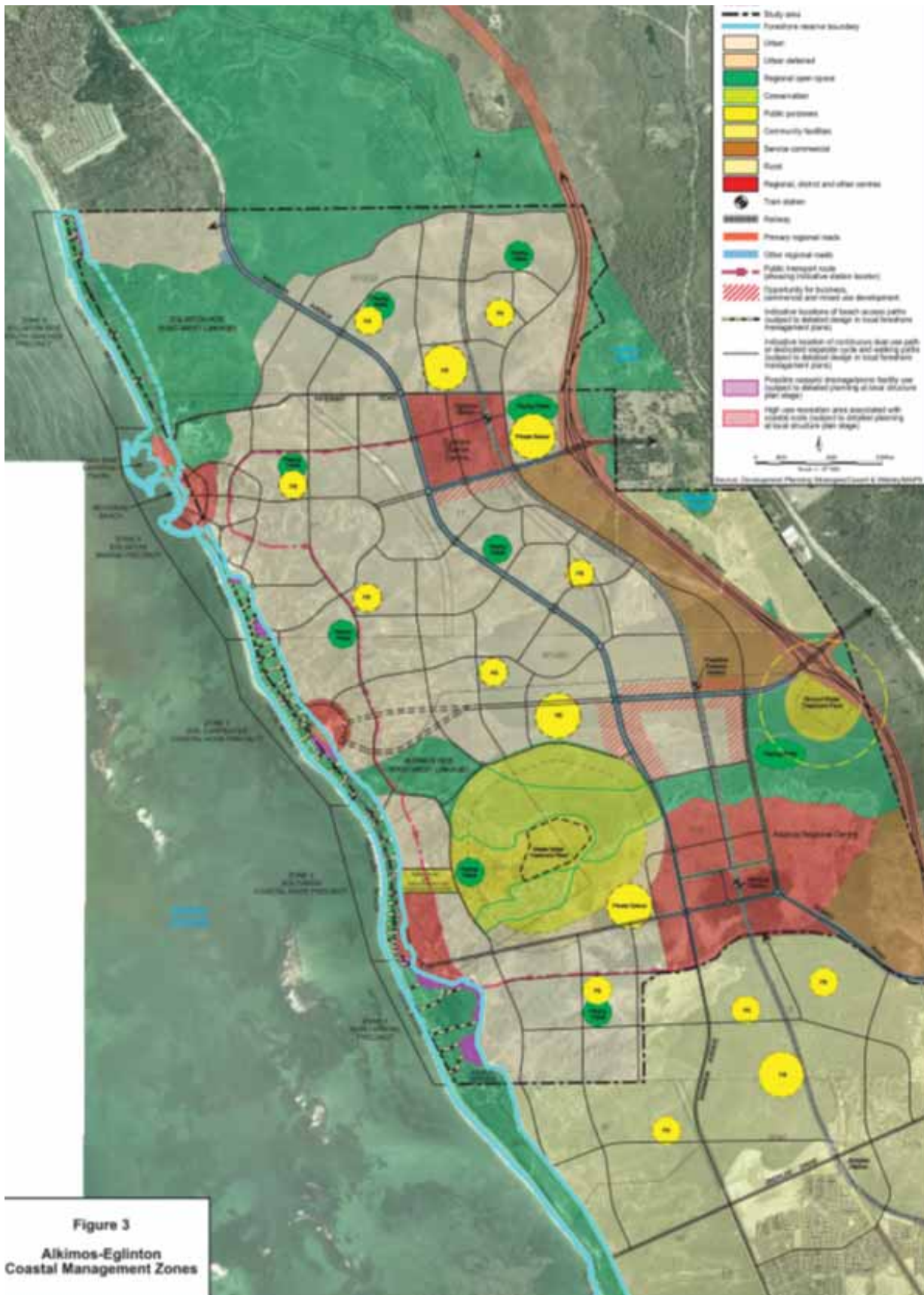


Figure 22: Coastal Management Zones

PART TWO - EXPLANATORY SECTION

14.0 LANDSCAPE STRATEGY

Alkimos Eglinton presents a unique opportunity to create a new coastal community having diverse new landscapes of streets, parks and places. The change from the existing landscape to a “new landscape” should accommodate planning and design references to the land characteristics that make this area distinctive.

Vast areas (over 535 ha) of existing landform are preserved within ROS, including coastal foreshore and major portions of the dunal formations. Indeed, approximately 20% of the project area has been preserved for conservation purposes thus ensuring that the strong visual references these features provide will be retained.

In addressing the landscape issues of development at Alkimos Eglinton two key aspects need to be understood:

- One, the existing landscape qualities will be transformed by urbanisation and that comprehensive retention of features or species may be inappropriate within an urban context.
- Two, that the urban area and the resulting urban landscape will have to reflect the constraints imposed by an urban population and the opportunities and requirements of that population.

The area is very large and planning at this scale should not define levels of landscape planning and design that are more appropriately considered at a local structure planning level. At the district level it is important that strategic landscape initiatives are integrated within the overall planning. In creating a new liveable urban landscape it is not appropriate to try and replicate what is there.

The new landscape will emerge from the urban spaces and building form and mass will alter the microclimate, earth working will affect the prevailing drainage regime, changing growing conditions and enabling species that are not endemic to the area to establish. The new landscape therefore must respond to the urban environment and affect the urban environment. At a district level it is not appropriate to try and define details such as species but more ensure that strategic landscape responses are embedded within those elements that will affect the new landscape.

14.1 OBJECTIVES FOR THE NEW LANDSCAPE

- Create a liveable place;
- Create a sustainable lasting landscape (principal issues - water and management);
- Create new diverse urban landscapes that reflect the site’s unique characteristics;
- Conserve representative landscapes of the area;
- Retain vegetation wherever practical; and
- Promote the use of native, low water demanding plants.

PART TWO - EXPLANATORY SECTION

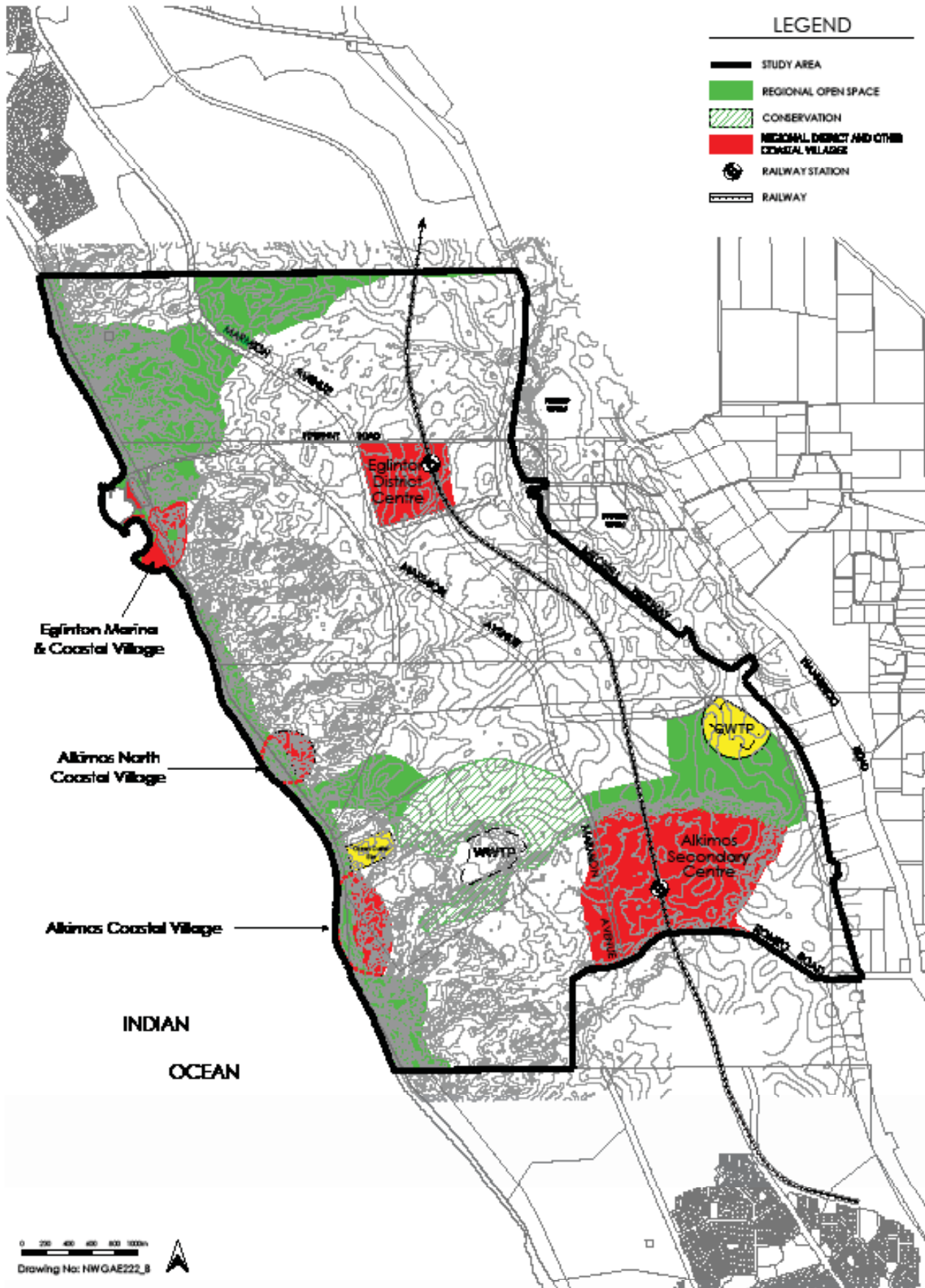


Figure 23: Landform and Landscape

PART TWO - EXPLANATORY SECTION

14.1.1 Strategies for the New Landscape

- Preserve topographic features and associated vegetation assemblages in Regional Open Space.
- Establish landscape corridors, links and greenways.
- Establish primary landscape character areas.
- Establish primary infrastructure and development levels that maximise the potential retention of vegetation at more detailed planning.
- Pursue water harvesting, passive irrigation and integrated urban irrigation.
- Use of natives as a dominant species in Public Open Space and public realm infrastructure.



Dune System



Managed Public Access

PART TWO - EXPLANATORY SECTION

14.1.2 Preservation of Topographic Features and Vegetation Assemblages in Regional Open Space

The parabolic dunes are a significant landform with associated vegetation that defines the character of the coastal zone. Within the context of an urban area, their preservation in total is not possible as they constitute a significant portion of the overall project area. Just over 20% of the project area is, however, designated for Regional Open Space and conservation purposes (including land within the Waste Water Treatment Plant buffer areas).

The management of dunes as open space within an urban area also provides significant management challenges that could result in the degradation of the landscape features and vegetative community, as pressure of recreational use and the pressures of access adversely affect them. It is therefore sensible to consolidate the retention of such features into larger regional open spaces as proposed, where management can be focussed.

The conservation of the major dunal landform and associated vegetation types in the Regional Open Space reserves and buffer zone around the AWWTP will ensure representative landscapes are retained intact on a scale that still enables the visitor to experience the natural characteristics of this landscape.

Public access to this fragile landscape will however have to be carefully managed, limiting access to designated routes and providing interpretive material to ensure that these large areas are valued by the community for passive recreation.

The broad Regional Open Space corridors create primary landscape areas that are considered the strategic landscape framework for the district. This framework provides a valuable recreation amenity but importantly also creates a retained visual and biological asset of a scale that will characterise the district.



Low Coastal Vegetation

PART TWO - EXPLANATORY SECTION

14.1.3 Social/Pedestrian/Cycle Linkages and Guidelines

In creating a new urban landscape that reinforces the site's proximity to the coast and its natural features an opportunity exists at the local structure planning stage to create Social/Pedestrian/Cycle linkages connecting the inner urban areas with locations such as schools, centres and the coast, which provides strategic public entry points to the Regional Open Space system. These linkages should facilitate a strong sense of place through a designed connectivity effectively drawing coastal

The linkages could take several forms; from a linkage, which retains and enhances the natural environment to a view corridor that combines several landscaped elements of passive and active open space. Wherever possible, the linkages should be designed to include pockets of native vegetation, landscaped parks, ovals, schools, pedestrian boulevards, cycle paths, wide vegetated road reserves or drainage areas. The general principle to retain as much natural vegetation in the linkages as possible should be applied.

If possible, the Social/Pedestrian/Cycle linkages should form part of the pedestrian and cycle movement network through the development, connecting focal points and features such as the beach and the town centre to encourage and facilitate walk-ability and reduction in the use of cars for short trips within the development. The linkages which cross major barriers such as roads and railways should consider providing some form of safe and convenient pedestrian access across these barriers.

DSP Map 1 shows potential indicative locations for Social/Pedestrian/Cycle linkages. It is noted that many of the proposed linkages are located along major roads. The linkages can also have an ecological function in integrating areas of natural vegetation and POS areas by using a 'stepping stone' approach. Detailed studies at the LSP planning stage should be undertaken and utilised to inform and guide the significant features which are to be retained as part of the linkages, their final alignment, width, form and ultimate integration within the urban context to achieve a strong sense of place and connectivity.

Much of the vegetation at Alkimos Eglinton is in good condition and areas of environmental interest will be identified through the detailed analysis of a subset of the site through the local structure planning process. Where possible and practical, areas of special environmental interest that are located in the "developable" area of the DSP (ie. outside the areas currently reserved for conservation purposes in the MRS) should be incorporated in POS in future developments within the Alkimos Eglinton DSP area.

In order to enable areas of local environmental significance to be identified during the local structure planning process and inform the preparation of that Plan the results of the vegetation and flora survey conducted by Bennet in 2004 and reported in Metropolitan Region Scheme Amendment 1029/33 – Alkimos-Eglinton Flora, Vegetation and Fauna Baseline Information (ATA Environmental, 2005) have been included in [Appendix 2 – RPS District Structure Plan Environmental Assessment June 2008](#).

PART TWO - EXPLANATORY SECTION

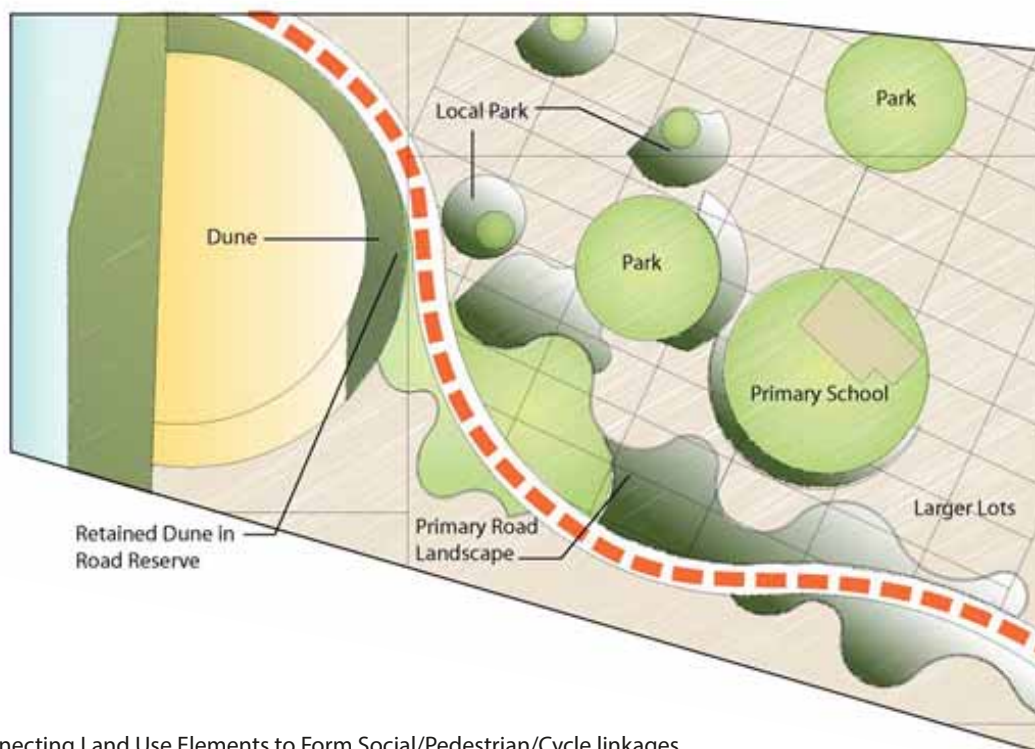


Figure 24: Connecting Land Use Elements to Form Social/Pedestrian/Cycle linkages

14.1.4 Primary Landscape Character Areas

The project area is big enough to accommodate a plethora of new characters – all based on reinforcing the proximity of the beach and foreshore and referencing the landforms that define the place. Figure 24 maps the primary landscape character areas proposed by the DSP.

The primary landscape character of an area is largely perceived when observed and experienced from open space, roads and pedestrian routes. It is the location and alignment of this infrastructure and its relationship to topography and retained vegetation that presents the landscape character of urban development.



Coastal Foreshore

PART TWO - EXPLANATORY SECTION

Key east west routes have been aligned to retain dunal landscapes and to provide an alignment that follows the base of the dune. This infrastructure alignment allows the coastal landscape character to penetrate into the core of the urban area.

The foreshore landscape will be a corridor for conservation of the dunes. The existing landscape character will be punctuated by activity nodes where the landscape will reinforce the destination through species change and urban form. The landscape character of the activity nodes are proposed to contrast with that of the foreshore reserve.

The use of iconic strategic tree groups and building form is proposed to help reinforce the active urban nature of the nodes. It is likely that at a LSP level, this will include the specification of species such as Norfolk Island Pines or Sheoak groves as distinctive elements within the urban landscape.

Creating new urban landscapes that draw from local characteristics, views and topography, includes the creation of urban forms that respond to local landforms through density and alignment. The corridor of dune formations behind the foreshore creates a zone of smaller spaces. This zone can accommodate denser development that is accommodated within the larger dune formations forming defined sub precincts and neighbourhoods.

The broad open landscape that forms the eastern areas of the project is extensive and expansive. The area affords distant views to the coast but otherwise does not offer diversity. A structured landscape response to this area to create precincts is required to produce neighbourhoods that are distinct from each other.

The planning and design response in the north east is for the built form to accentuate the height of the landform. At a district scale this will have the potential of creating a significant new feature within the urban landscape, distinctive character zone and landmarks within the total development area.

Further to the south Public Open Space needs to become a focus to the urban cells where the broad landform has no distinctive sub-character areas.



Residential Interface with Dune Landscape

PART TWO - EXPLANATORY SECTION



key

-  regional open space
-  activity node
-  high density villages
-  foreshore
-  suburban
-  hilltop
-  corridor landscape

Figure 25: Primary Landscape Character Areas

PART TWO - EXPLANATORY SECTION

14.2 PRIMARY INFRASTRUCTURE AND DEVELOPMENT LEVELS THAT MAXIMISE THE POTENTIAL RETENTION OF VEGETATION AT MORE DETAILED PLANNING

The area does contain some stands of trees and canopy vegetation that can provide a significant contribution to the urban landscape. The retention of trees and large shrubs as a component of public open space, street verges and within some private lots, is considered very important in creating the new landscape. It is therefore important not to create conditions that prevent the possibility of retention being considered at more detailed planning levels. Generally, if strategic infrastructure is set at levels that take into account the resultant development levels of surrounding areas then these can be set to optimise the levels that will also give the opportunity for tree and vegetation retention.

14.2.1 Water Harvesting, Passive Irrigation and Integrated Urban Irrigation

A district water supply strategy for the new landscape is considered essential as without having a strategy for the delivery of water to the area for landscape purposes the development will be bound into a non sustainable approach to the production of the new public realm environment.



Flush Kerbs and Swale

PART TWO - EXPLANATORY SECTION

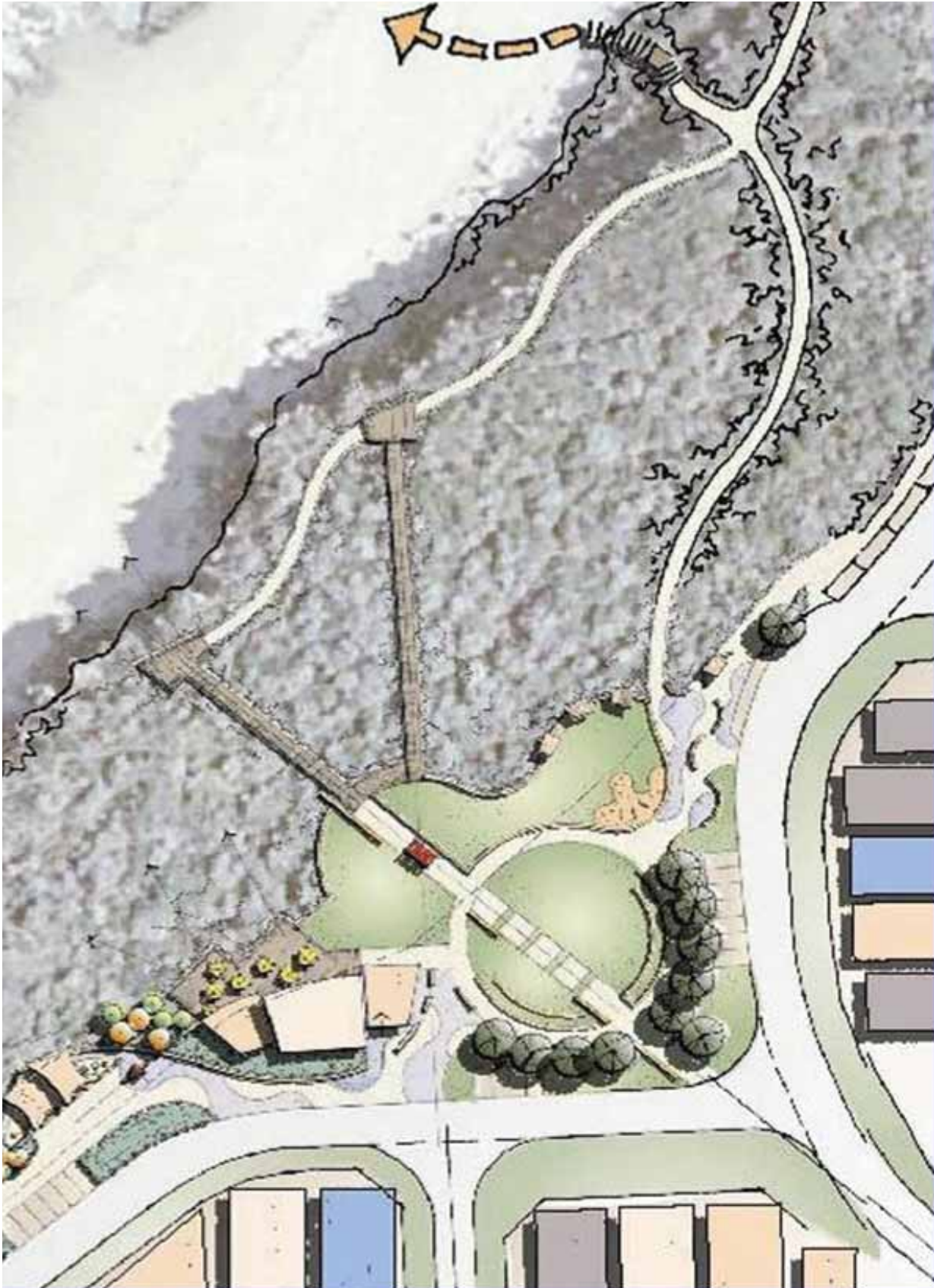


Figure 26: Activity Node in Foreshore

PART TWO - EXPLANATORY SECTION

All public realm landscapes require water, even if in the long term species are established that do not require irrigation. To ensure that adequate water is available for the establishment and ongoing health of the new urban landscape, two strategic responses are proposed:

1. Water harvesting and passive irrigation; and
2. Integrated urban irrigation.

These two engineering approaches will complement the use of native and low water demanding species as the dominant landscape trees in the urban landscape.

Water Harvesting and Passive Irrigation: Within the subject area, the planning of surface water drainage at the LSP level should incorporate drainage management techniques that facilitate the irrigation of public open space and verges. The management of drainage and infiltration measures should consider providing for the passive irrigation of general amenity grass areas and structural landscape planting.

Integrated Urban Irrigation: Water reuse needs to be accomplished in stages. Concepts and programs will be developed that allows for recycled water from drainage and treated wastewater when it becomes available from development.

District level urban irrigation may involve the coordinated recharge of the superficial aquifer and subsequent bore abstraction, potentially reticulated recycled water supply and local neighbourhood urban water management plans that enable the local reuse water to neighbourhood landscape infrastructure.

Concepts of water reuse and other water recycling programmes need to be considered in terms of time frame. Water recycling from a community can only be achieved when there is a substantial community using and producing water. The establishment of open space and landscape infrastructure is generally required prior to a community being present. Interim provision of water therefore will be required until an integrated system is achieved. Strategies for integrated urban water management will be developed by the land owners in consultation with WCWA and Council.



Native Vegetation with Recharge Swale

PART TWO - EXPLANATORY SECTION

14.2.2 Natives as a Dominant Species in Public Open Space and Public Realm Infrastructure

It is proposed that low water use native vegetation will form the dominant species in all public realm landscape. Species will not generally be local provenance types as the existing species on site such as Banksia or low heath land species may not be appropriate for the urban situation where shade and stature are characteristics that are sought. Other native but not local species, appropriate to the modified urban environment are capable of creating a sustainable vegetative structure across the project area.

The dominant native structuring landscape will be contrasted around coastal activity nodes and district centre with species that are aesthetically contrasting but still capable of establishing in the coastal environment. Species such as the Norfolk Island Pine can provide a distinctive landscape feature and create recognisable destinations.

In addition, within the denser development areas, the use of low water demanding exotic species may be considered where solar access in streetscapes would be advantaged by using non natives. In such situations the irrigation of such species must be an integral component of an urban water management plan.



Natives for Street Trees



Exotic Trees at Nodes

PART TWO - EXPLANATORY SECTION

15.0 MANAGING THE ENVIRONMENT

15.1 FLORA AND FAUNA

The majority of the project area will be developed for residential purposes over the life of the project. During that time the current natural environment will be transformed to an urban environment. Approximately 20% of the project area will be retained in ROS, much of this will be retained in its natural state to allow for the retention of representative examples of the vegetation, flora and habitats that are currently present on the site, and will provide for fauna movement.

The conservation areas on the project area will be managed through the preparation of management plans at the local structure planning stage prepared by the relevant stakeholders for the foreshore reserves, ROS and POS. Site works management plans will need to be prepared for construction phases of the project at subdivision stage to ensure that the construction works in the development areas do not impact on the conservation areas or the fauna present. Site works management plans should include environmentally sensitive clearing protocols.

15.2 FORESHORE

The foreshore reserve is 7.5km long. The Coastal Planning Strategy for the project area identifies the principles for the management of coastal areas. Foreshore Management Plans will be prepared at the local structure planning stage for localised areas to facilitate the protection of the areas of conservation value and management of population pressures on the sensitive coastal environment.

15.3 TOTAL WATER CYCLE MANAGEMENT

15.3.1 Treated Wastewater Reuse

Under the State Water Strategy the Western Australian Government aims to have Perth recycling 20 percent of its total wastewater by 2012. WCWA is investigating achieving this target largely by recharging groundwater aquifers with treated wastewater (managed aquifer recharge) along with a number of other initiatives. The ongoing design and construction of the AWWTP will take account of this. At this stage it is intended that the recharged groundwater would only be used for irrigation, agriculture or industrial purposes.

At Alkimos, the opportunities for treated wastewater reuse include irrigation water for the Carabooda market gardens and the recharge of the Gnangara Mound groundwater aquifer to the east of Wanneroo Road. WCWA will continue to investigate these opportunities to develop the most sustainable approaches for reuse on a regional basis. In the shorter term, any such approaches will be more suited to the Beenyup Wastewater Treatment Plant since the initial treated wastewater flows from the AWWTP will be only minor in comparison. WCWA has confirmed that the coastal groundwater resource has adequate capacity to supply the urban development of the Alkimos Eglinton area.

PART TWO - EXPLANATORY SECTION

15.3.2 Groundwater Treatment Plant

The Eglinton Groundwater Treatment Plant (EGWTP) will be located within the ROS area at the south-west corner of the intersection of the Mitchell Freeway and Alkimos Drive.

In both cases, the EGWTP will occupy an area of some 12 ha with an additional 500 metre radius chlorine hazard buffer. Land uses within this buffer would generally be restricted to open space and recreational facilities within 350 m of the treatment plant boundary and non-residential uses beyond this.

Again, in both cases, the chlorine hazard buffer will be contained within either the area covered by the AWWTP odour buffer or the ROS area. The chlorine buffer will not therefore be a constraint on urban development outside of those areas.

15.3.3 Urban Water Management

Urban Water Management (UWM) is now a key part of the urban development process incorporating principles of integrating water and land use planning, considering all water sources in water planning, integrating water use and natural water processes and a total catchment integration of natural resource use and management (Ref. Department of Water, Stormwater Management Manual for Western Australia, DoE, April 2004).

Stormwater drainage management is a major component of an overall UWM plan for which achievement of the principals of the plan may be facilitated through the application of Water Sensitive Urban Design (WSUD) techniques during planning, design and construction of urban development projects. Objectives of WSUD include:-

- Detention of stormwater rather than rapid conveyance;
- Use of stormwater to conserve potable water;
- Use of vegetation for filtering purposes; and
- Water efficient landscaping.

At a District Structure Planning level the WAPC's objectives for a UWM are defined in its Draft Statement of Planning Policy No. 29 Water Resources, 2004. These comprise the development of broad stormwater management strategies for major flood control and guidelines for water quality management at a district scale. This assumes that more detailed implementation plans will be prepared as a part of the ongoing subdivision planning when the local level land use pattern is being defined. For the Alkimos Eglinton area the main WSUD practices which should be incorporated into the ongoing implementation of the DSP proposals are as follows:-

Stormwater Management

The maximisation of stormwater recharge of the shallow aquifer through the adoption of 'Best Management Practices' (the Department of Water Stormwater Management Manual), which promote the dispersion and infiltration of runoff. These include the use of porous paving for roads and car parks, the diversion of runoff into road medians and road-side swales, drainage soak wells to infiltrate runoff from building roofs and private open space areas and the disposal of road runoff into infiltration basins within POS areas.

PART TWO - EXPLANATORY SECTION

Water Quality Management

The maximisation of the quality of recharge water through the adoption of 'Best Management Practices' which promote the disposal of runoff via water pollution control facilities (including vegetated swales and basins, detention storages and gross pollutant traps) and the implementation of non-structural source controls (including urban design, street sweeping, community education, low fertiliser landscaping regimes, etc).

Stormwater Collection and Disposal

The Alkimos Eglinton area proposed for urban development is generally free draining with no low-lying areas with high groundwater levels or defined watercourses. The existing sandy ground is permeable and the depth from the ground surface to groundwater is significant.

Overall, therefore, the land is highly suited to the implementation of the WSUD management practices outlined above.

Drainage

In all areas of development it is expected that runoff within developed sites will be contained within the lots. This includes the Secondary and District Centres and the Coastal Villages. Stormwater disposal will be via soak wells or other infiltration facilities which form a part of the building and private open space development.

Drainage from public roads and lanes would be collected via conventional gullies or open swales depending on the nature of the adjacent land uses, the extent of traffic and pedestrian activity, etc.

In all cases disposal would be via infiltration to the ground to maximise effective recharge of the shallow groundwater aquifer. Infiltration mechanisms would include swales, basins and sumps dispersed throughout each drainage catchment.

The drainage collection and conveyance system will be designed to cater for the runoff from storms with up to a 1 in 5 year recurrence interval. Infiltration basins would be designed to store runoff from up to 1 in 10 year storms. In all cases roads and POS would be designed to cater for the surface overflow for more severe storms with building pad levels set at least 300 mm above the 1 in 100 year flood or storage level at any location.

The dispersion of stormwater disposal will maximise the area of recharge down through the soil profile to the shallow aquifer, thereby maximising the potential for nutrient stripping and water quality improvements.

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16.0 SERVICE DEVELOPMENT AND INFRASTRUCTURE

16.1 SITE WORKS

16.1.1 General

Site works for urban development comprises the clearing of existing vegetation and the earth working of existing ground to facilitate a required form of development. In Perth it is often the case that the extent of site works is dictated by the density and nature of development and by the finished ground shape required for building houses, etc. Increased densities and decreasing lot sizes has led to the current trend for the development areas to be fully earth worked to create level lots which are terraced between retaining walls.

This approach provides a number of positive outcomes:-

- It reduces house building costs;
- It rationalises retaining wall layouts and designs consistent with Local Authority specifications; and
- It enables lots to be terraced up natural slopes to maintain elevation and views.

What it doesn't allow for, however, is the retention of existing vegetation and topography within the lot areas. This is particularly the case within the coastal areas where the topography comprises the irregular shapes and heights of Quindalup sand dunes.

16.1.2 Possible Development Scenarios

Notwithstanding the above, there is a growing appreciation of the importance to retain existing vegetation and topography to provide 'sense of place' within development areas and to meet 'sustainability' objectives.

To a large extent this has been a basis for the establishment of the Regional Open Space reserves at Alkimos Eglinton. These protect a range of existing natural attributes including the coastal foreshore dunes and inland sand dunes and vegetation.

Beyond this, the Alkimos Eglinton project will inevitably comprise the full range of development forms and densities necessary to meet the demands of a diverse community. The current site works approach, outlined above, will apply to the larger part of this development. The scale of the project will, however, provide opportunities for different approaches based on different development forms, as follows:

- Retention of landmark landform features and/or vegetation within areas of local public open space;
- Retention of existing landform and vegetation within lower density development with designated building envelopes to control clearing and earthworks;
- Alternative building forms including framed and split level housing to better suit existing slopes;
- More 'organic' subdivision layouts locating roads through valleys and retaining existing landform within varying sized and shaped lots; and
- At the local structure planning stage these various scenarios will be explored and development options selected and presented in detail.

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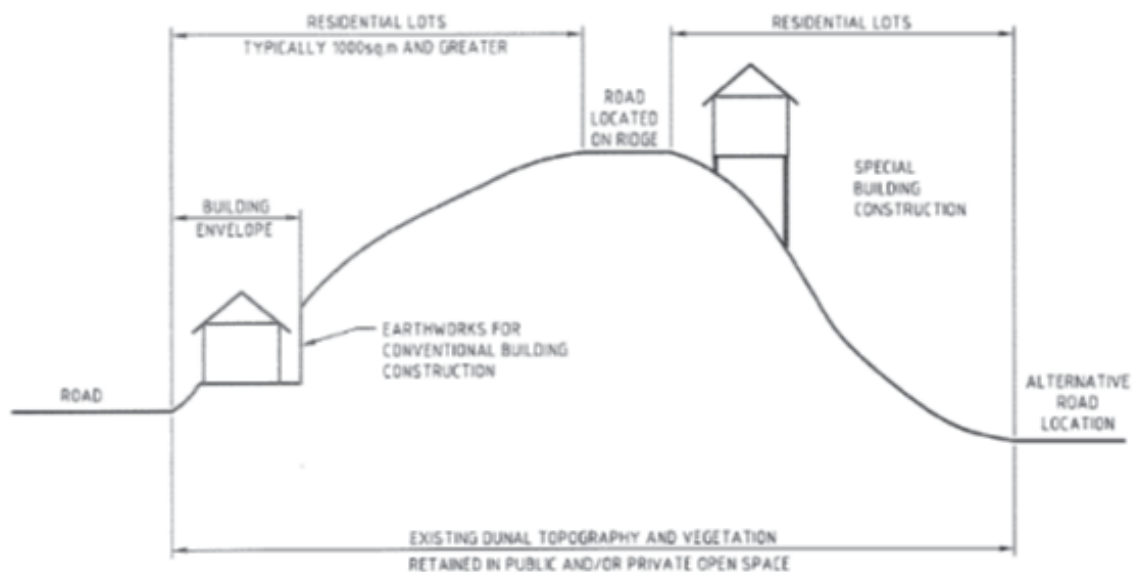


Figure 27: Site Works Options

DSP elements and provision of engineering services:

- The major features of the DSP include the primary roads and railway, the secondary transit line and the secondary and district centres. These are located to, and where possible, have least impact on the major topographical features of the project area;
- A preliminary design of the vertical geometry for Marmion Avenue was carried out by Cossill and Webley for the MRS Amendment 1029/33. This was based on the adoption of design speeds appropriate for initial speed limits of 70kph through the area of the Alkimos Secondary Centre and 90kph north of this. Ultimately, the speed limits along the total section of the road will be 60-70 kph;
- Based on these criteria, the proposed road geometry is such that it reflects the undulations of the existing topography. Substantial earthworks will be required as the road cuts through the parabolic dune ridges within Alkimos and management plans will be required to make provision for the environmental impacts through the designated ROS area;
- Within the proposed Alkimos Town Centre area earthworks will be required to provide development sites with grades of less than 3% say. The Town Centre levels would need to tie in with the levels of Marmion Avenue, the railway and the Mitchell Freeway as well as the parabolic dune ridges along its northern boundary. The existing topography is such that these development grades could be achieved without the need for major earthworks;
- Through the Alkimos Town centre the road is flat graded to suit Town Centre land uses and frontage development. Further north the road grades up and over the high dune ridge through the southern part of Lot 11, with ocean views from the road possible;
- The Eglinton District Centre is located on land which grades up from Marmion Avenue and earthworks will be required to provide benched development sites with appropriate finished grades;
- In general, the preliminary levels of the railway are such that it will be in cutting for most of its length through the area, particularly through the Secondary and District Centres, where it is expected that the railway line will be 'built over' as part of the development of the centres;
- Where the railway levels are at or above existing ground levels, it is expected that the adjacent development areas will be filled such that their finished levels are raised above the railway;

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- The DSP includes an alignment for a secondary transit route linking to the Alkimos and Eglinton railway stations from the coastal areas. This proposal is described in detail by Sinclair Knight Merz in its report on Transport and Access (refer Appendix 4);
- The transit system will comprise buses on dedicated lanes within neighbourhood connector road reserves. The vertical geometry of the roads will be designed to suit with maximum grades of 5-6%. The alignment of the transit line has been adopted to minimise, as much as possible, the earthworks which would be required to achieve these grades, particularly through the coastal area. Notwithstanding this, earthworks will be required where the transit line cuts through dunal ridges; and
- The earthworks will need to extend beyond the road reserve where higher density, frontal development is proposed. Finished levels of these development sites will involve earthworks benching, either side of the transit line.

16.2 SERVICE INFRASTRUCTURE

16.2.1 Wastewater Collection / Reticulated Sewerage

The Water Corporation of WA's (WCWA) planning for the sewerage of the Alkimos Eglinton area comprises a system of pumping stations and pressure main connections to gravity trunk sewers. The areas of development would be serviced with a conventional system of reticulation sewers connected to the various pumping stations or directly to the trunk gravity sewers. Provision for the pumping station sites will need to be made in the ongoing detailed subdivision planning and development of the area.

The trunk sewers will discharge to the proposed Alkimos Waste Water Treatment Plant (AWWTP) to be located on Lots 101 and 102 at Alkimos. The southern trunk sewer connection to the AWWTP is the extension of the Quinns Main Sewer from the Jindalee Butler area to the south. WCWA is currently finalising the preliminary design of the alignment of this sewer as part of a programme of work to design and construct it within the next 3-4 years.

The preliminary Quinns Main Sewer alignment is shown on [Figure 28](#) and comprises a main section through Lot 102 which will be constructed by tunnelling at depths greater than 6-8 m below the surface. This will not constrain the urban development other than a requirement by WCWA for the sewer to be protected by a subterranean easement prohibiting groundwater bores from being constructed within the area of the easement, where the sewer is not within a road reserve.

The sewer will be constructed prior to any development of this portion of Lot 102 and therefore, the construction works, tunnel portal requirements, etc will not have any impact on that development. Beyond the tunnel the Quinns Main Sewer's preliminary alignment has been located within future road reserves. This avoids the need to create surface or subterranean easements for the sewer through development areas. Through this section the sewer is shallower and will be constructed by open trench methods.

[Figure 28](#) also shows an alignment for the Yanchep Main Sewer which is proposed by WCWA to extend through Alkimos and Eglinton to the Yanchep Two Rocks area. To date, only a very preliminary alignment has been defined by WCWA based on existing topography. The alignment shown on [Figure 28](#) has been prepared by Cossill and Webley based on WCWA design criteria and to best suit in terms of road layout, etc. The Yanchep Main Sewer may not be constructed for some time and will generally be by open trench method rather than tunnelling.

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The sewer construction is likely to follow the urban development of some of the land along its alignment. It is important, therefore, that the sewer is located within road reserves or public open space to ensure that the impact of its future construction, through urban development areas, is minimised. Major roads shown on the DSP generally accord with the planned Main Sewer alignments. Refinements to these road reserves to accurately align with final sewer routes and easements will take place at the local structure planning stages.

As indicated above, WCWA proposes to construct the AWWTP partially within Lots 101 and 102 at Alkimos. Current planning is for this plant to ultimately serve the development of both the north-west and north-east corridors. The location of the treatment plant site shown on the DSP has been the subject of a Public Environmental Review, prepared by WCWA (MRS Amendment 1029/33 refers).

WCWA has indicated its intention to design and construct the AWWTP in line with state of the art technology treatment processes and odour control facilities. This will allow the odour buffer, around the plant, to be a distance of 600 m from the plant boundary. WCWA proposes that the disposal of treated wastewater will be via an ocean outfall pipeline with a launching site area also located on Lot 101 and as shown on [Figure 28](#). The outfall proposal was also included in the Public Environmental Review.

The wastewater treatment plant site, its odour buffer and the ocean outfall site are shown on the DSP, as finally determined by MRS Amendment 1029/33. WCWA's programme for development of the AWWTP is for the Stage 1 construction to be completed by the end of 2009 to early 2010, ready to receive sewage flows, from the south, via the then newly completed Quinns Main Sewer.

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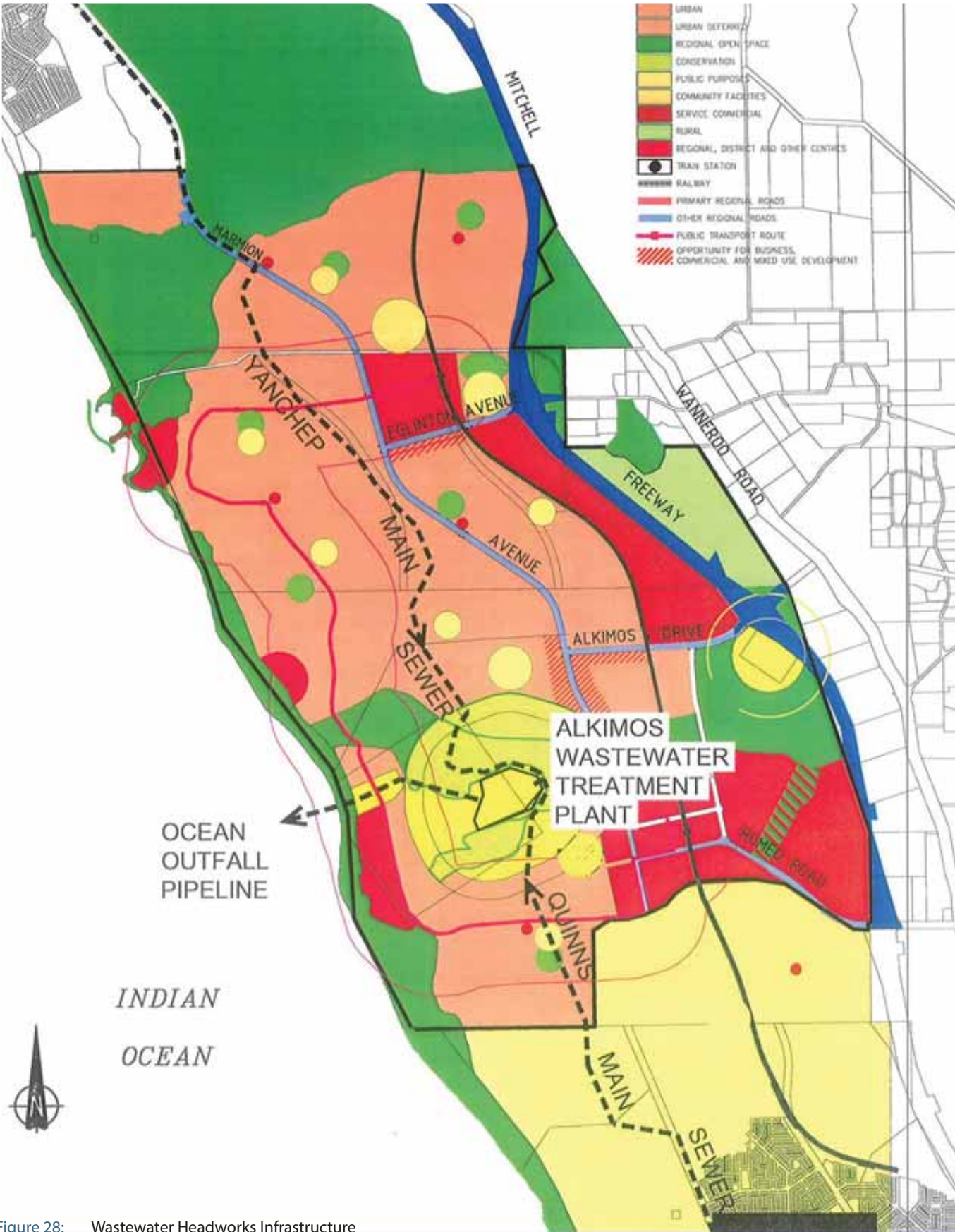


Figure 28: Wastewater Headworks Infrastructure

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16.2.2 Drinking Water Source Protection

The site is within the existing Perth Coastal Underground Water Pollution Control Area (proclaimed under the Metropolitan Water Supply, Sewerage and Drainage Act, 1990) and is proposed to be managed to achieve Priority 3 (P 3) objectives. Urban uses are considered compatible with P3 areas, however, consideration must be given during detailed planning stages to allow for appropriate protection zones around any drinking water production bores to prevent contamination of the groundwater source.

Guidance on appropriate land uses in P3 areas should be taken from the WAPC Statement of Planning Policy 2.7 (June 2003). Detailed consideration of compatible land uses and protection zones should be undertaken during local structure planning stages.

Any private abstraction of groundwater will require licensing in accordance with requirements of the Department of Water of Western Australian.

16.2.3 Water Supply

WCWA's planning for water supply comprises a series of groundwater bores, located throughout the Alkimos Eglinton area, linked by collector water mains to a central treatment plant and storage reservoir. Areas of development will be serviced by a network of distribution water mains from the reservoir connected to reticulation systems within those areas. The reservoir site is located within the Carabooda area east of Wanneroo Road with the treatment plant to be located either within the AWWTP site or within the ROS area at the south-west corner of the interchange between the Mitchell Freeway and Alkimos Drive.

Groundwater abstraction will comprise a combination of shallow bores into the unconfined aquifer and deep bores into the confined Leederville aquifer. Each bore site will measure approximately 50 by 20 m in area.

The location of the Carabooda reservoir, treatment plant site options and approximate bore sites are shown on [Figure 28](#). The figure also shows options for the locations of the main inlet and outlet water mains to/from the reservoir. In general, these will comprise large 1,200 millimetre diameter pipelines located within the district distributor road reserves and along the boundary of the Mitchell Freeway. Where these water mains are not located in road reserves, they will need to be protected by an easement 5-10 m wide depending on the pipe depth.

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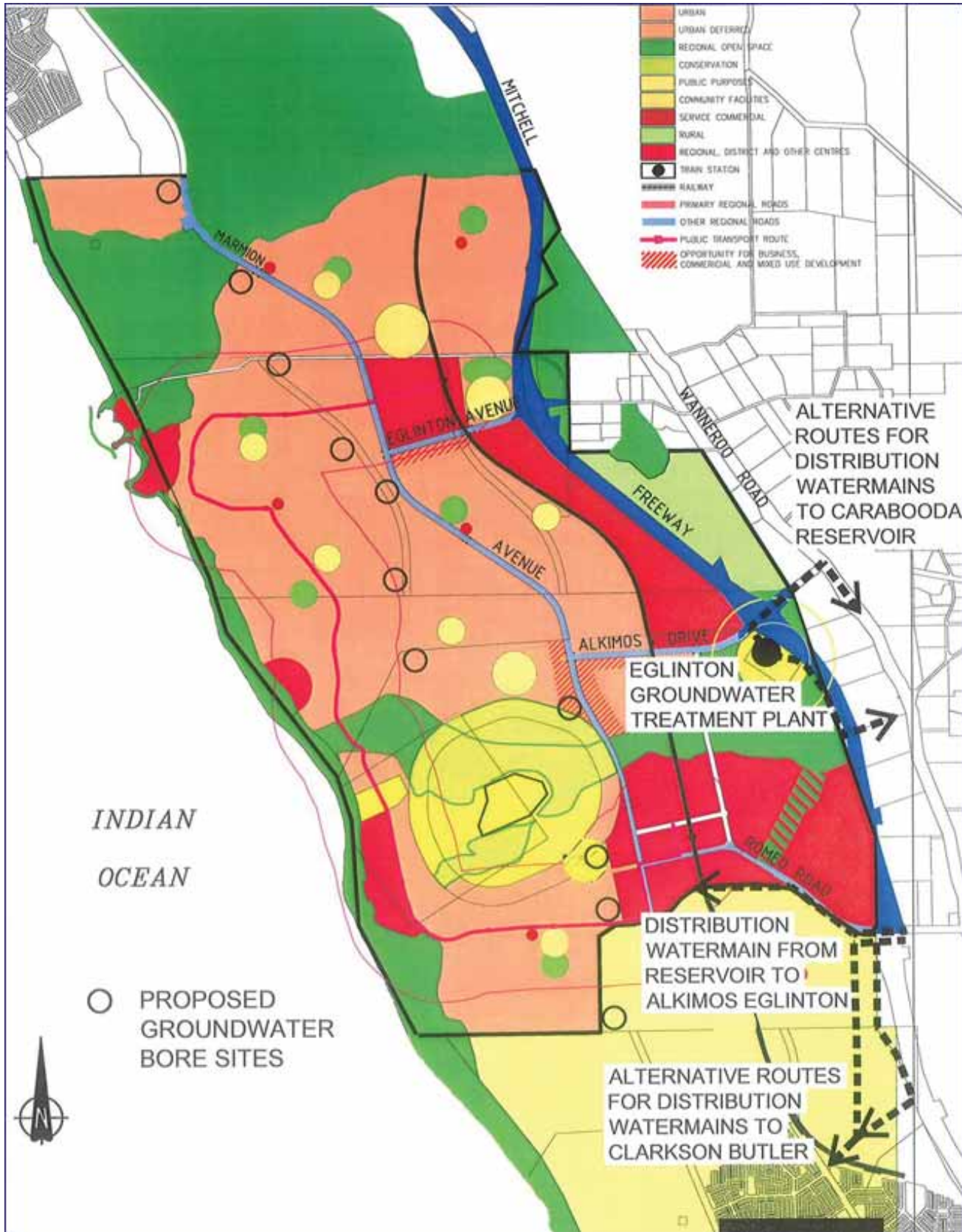


Figure 29: Water Supply Headworks Infrastructure

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16.2.4 Electricity

Electricity supply to the Alkimos Eglinton areas would currently be via existing 22kV overhead lines in Romeo Road and Pipidinny Drive. These are both feeders from Western Power Corporations (WPC) zone substation in Romeo Road.

Urban development of the area could be supplied from the existing system, although its capacity is limited and would need to be upgraded. In the short term this may involve upgrading of the existing supply from the sub-station to the existing feeder lines followed by the provision of additional lines. Beyond this, it will be necessary to extend 132kV transmission lines to supply a new zone sub-station within the area. From this a network of new 22kV feeder lines will extend throughout the areas of development to supply the local network of padmount transformers, switchgear and low voltage lines. In all cases, the 22kV feeder and low voltage lines would be underground within road reserves.

The zone sub-station will be a substantial facility occupying site 1-1.5 ha in area. An indicative location within the Service Commercial area between the railway line and Freeway Reserve has been agreed to by WPC. The 132kV transmission lines will be overhead on single steel poles. An easement of up to 32m may be required, subject to negotiations at LSP stage. The final width of the easement is to be determined at LSP stage. This may have an implication on adjacent land uses.

WPC consider that it is cost prohibitive for these to be underground although, it is technically feasible. The matter of undergrounding power in areas where they abut residential development and other sensitive land uses will be further investigated at LSP stages.

Underground transmission lines are common within the inner city areas of Perth, Subiaco, etc. WPC's preference at Alkimos Eglinton is for the overhead line to be located in Romeo Road to supply the new sub-station and to then extend north to Yanchep in Marmion Avenue. The Alkimos Eglinton landowners and their consultant team's strong preference are to locate the above infrastructure, particularly the transmission lines, along the eastern boundary of the urban development area.

A key objective of the development planning is to maximise the amenity of residential and commercial areas through good urban design, adopting Liveable Neighbourhood principles. It is considered that this would be put at risk if unsightly, overhead transmission lines were installed through the area. The transmission lines comprise very high, large diameter poles which would be very much out of scale with the urban development. This is particularly the case for the Marmion Avenue streetscape which will be designed to maximise pedestrian amenity and the integration of frontage land use.

The sub-station site and transmission line routes would be further defined as a part of the ongoing local structure planning and subdivision planning. At this stage it is envisaged that the transmission line would be located alongside the western boundary of the Mitchell Freeway reserve, either within a local frontage road or within a services corridor. Discussions are being held with WPC and MRWA regarding potential for easements to overlap the Freeway Reserve.

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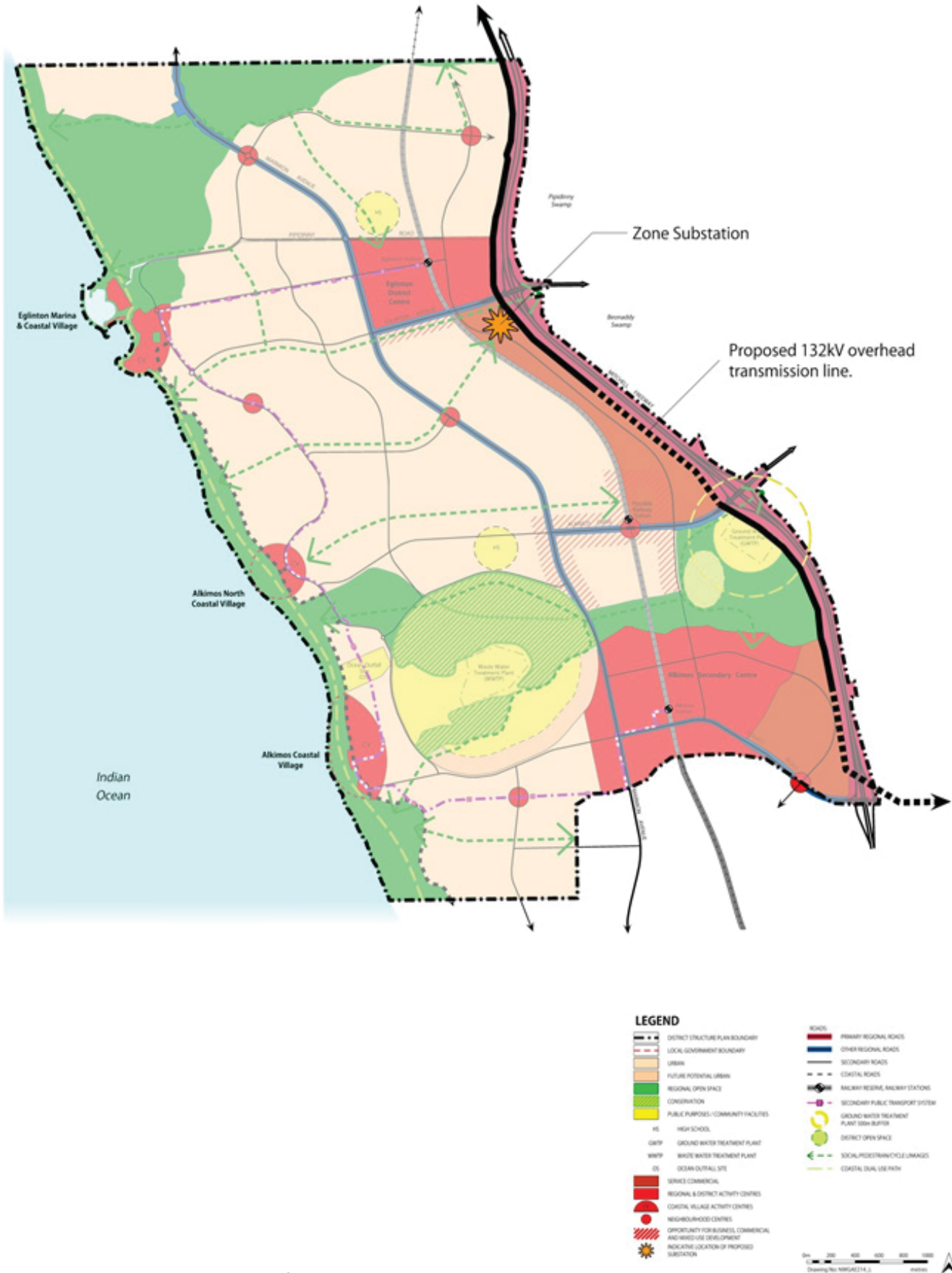


Figure 30: Electricity Transmission Infrastructure
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The DSP objectives require that all utility services be installed underground, including the transmission lines and that the sub-stations are screened with adequate landscaping to minimise their visual impact. The landowners approach to the development of Alkimos Eglinton will also be to seek the highest level of efficiency in energy use as a part of the sustainability objectives for the project.

Clearly, therefore, the location of the electricity headworks infrastructure needs to be a balance of the technical efficiency of WPC's network and the broader planning and environmental objectives for the project.

16.2.5 Gas

Natural gas has been extended by Alinta to service the Clarkson-Butler area to the south and would be available therefore for further extension to also supply the Alkimos Eglinton area. High pressure gas mains would be located within the distributor road reserves with reticulation systems of underground pipes within each area of development.

16.2.6 Telecommunications

Telecommunications for the Alkimos Eglinton area would be via the extension of main cables, from Telstra's existing Neerabup exchange and the existing optic fibre cable in Wanneroo Road, to additional exchanges and switching stations within the area. The local system of distribution and local network cables would be connected to the switching stations with all cables located underground in road reserves.

Exchanges and switching stations would be housed within buildings generally located within commercial/industrial centres. The buildings would be designed and constructed to be integrated with the other buildings within each centre. The main optic fibre cable has the capacity to service development growth within the north-west corridor for some 20-30 years at the forecast development rates. In the longer term it would need to be duplicated as part of Telstra's ongoing programme for headworks upgrading.

Advances in communications technology have the potential, more than many other technologies, to redefine the lifestyle for suburban development over the next 20-30 years, the life of the Alkimos Eglinton project. Whilst this may have only a marginal impact on the current Structure Planning it is clear that the longer term implications for the planning of transportation, employment, retail and other development facilities will be substantial.

In the shorter term, the opportunities lie in the provision of the services infrastructure necessary to accommodate the technology trends as they emerge including; home PC's, CATV Satellite TV, electronic banking and shopping, tele-working and telecommuting, central security systems with remote monitoring and CCTV, video conferencing, 'smart' house systems incorporating automatic systems and metering controls, etc.

Access to these technologies will require every type of building to have access to broadband communication carriers via optic fibre cables, cellular services antennae, and wireless system. Maximum flexibility will be provided in the ongoing implementation of the DSP to ensure that adequate allowance is made for these systems in the detailed design and installation of the services infrastructure.

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17.0 COMPLIANCE WITH STATE GOVERNMENT PLANNING POLICIES AND STRATEGIES

An analysis of the level of compliance of the DSP with high level planning policies is fundamental to the assessment of its compliance with the statutory planning framework.

The development contemplated by the DSP is fundamentally consistent with the principles contained in the policies and strategies relevant to the development.

The DSP complies with regional policies and strategies, it embraces and addresses the vision, values, principles and objectives of all the relevant regional policies and strategies set out below.

In particular, the following characteristics of the proposed development demonstrate that the fundamental design of the Structure Plan is consistent with State and Regional Policy:

- The delivery of a sustainable development has been a key objective of the planning and urban design process and, as a result, sustainability forms the foundation of the DSP.
- The opportunity for about 57,000 people to live in predominantly mixed land use settings, with easy access to proposed rail stations, will promote public transport usage and discourage motor vehicle use dependency.
- The connection of the subject land to the passenger rail system and availability of the proposed second tier of public transportation will significantly increase the opportunity for residents to forego at least multiple, and possibly even single car ownership.
- Alkimos Eglinton will create a significant population within the metropolitan area. It will make a substantial contribution to the objective of reducing urban sprawl and achieving a more compact and efficient urban form for the Perth Metropolitan Area.

17.1 STATE SUSTAINABILITY STRATEGY

In the State Sustainability Strategy, the Western Australian Government has addressed sustainability comprehensively for the first time. While there have been elements of sustainability within government policy in the past, the Strategy is the first attempt in this State to meet the needs of current and future generations through integrating environmental protection, social advancement and economic prosperity.

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. By focusing the Strategy on agency activity, the State government is demonstrating its important leadership role in supporting the transition to a sustainable future. Sustainability outcomes for the Alkimos Eglinton project are outlined within the various sections of this report.

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17.2 STATE PLANNING STRATEGY (1997)

The DSP is consistent with the five 'guiding principles' of the State Planning Strategy, December 1997, which underlies each of the State's planning policies and guidelines:

- **Environmental:** the DSP contains measures to protect and enhance the natural and cultural assets of the Alkimos Eglinton area, and deliver development based on environmentally sustainable principles.
- **Community:** the DSP aims to create a vibrant, accessible, safe and self-reliant community.
- **Economic:** the development of aims to maximise the property potential of the area and maximise opportunities for economic activity where relevant.
- **Infrastructure:** the DSP is consistent with efficient use of infrastructure due to the location of the subject land and the density of the proposed residential development.
- **Regional:** the unique requirements of the Northwest Corridor, which has long been recognised as a major growth corridor for the Perth Metropolitan Region, are accommodated by the DSP. The Corridor Plan (1970) identified the Northwest Corridor as being particularly attractive for urban development because of its undulating well drained soils, proximity to Indian Ocean and the substantial lifestyle and climatic advantages for housing that it offers. The DSP responds to the findings of the Corridor Plan.

17.3 STATEMENT OF PLANNING POLICY NO.1.1: STATE PLANNING FRAMEWORK POLICY

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' in accordance with the five guiding principle identified above. As outlined above, the DSP is consistent with these principles.

17.4 STATEMENT OF PLANNING POLICY NO. 2.6: STATE COASTAL PLANNING POLICY

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

The policy requires that structure plans (and other planning decisions and instruments) address and protect the public/community interest, ensure that a coastal foreshore reserve is set aside for public ownership and there is an appropriate physical processes setback, 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 and located in suitable areas.

A Coastal Planning Strategy has been prepared for Alkimos Eglinton in accordance with this Statement of Planning Policy and addresses all of the objectives and requirements of the SPP.

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17.5 STATEMENT OF PLANNING POLICY NO. 4.2: METROPOLITAN CENTRES POLICY (2000)

The Metropolitan Centres Policy was prepared by the State Government under Section 5AA of the Town Planning and Development Act 1928 (as amended). The purpose of the policy is to provide a broad regional planning framework to coordinate the location and development of retail and commercial activities within the metropolitan region. It is mainly concerned with the location, distribution and broad design criteria for the development of commercial activities at the regional and district level, with Local Planning Strategies prepared by Local Governments providing more detailed guidance for planning and development control at the local level.

The policy is intended to provide a guide for centre development that is flexible enough to enable commercial development to respond to market conditions and has a degree of certainty to assist in commercial investment decisions. The objectives of the policy are to:

- Establish a hierarchy of well-located centres in the metropolitan region that will:

promote the Perth central area as the dominant centre and the primary focus for retail, commercial, cultural, entertainment and tourist facilities;

- promote strategic regional centres as “cities in the suburbs” and the preferred location for major offices and retailing as well as a mix of entertainment, recreation and community facilities;
- promote regional centres as important suburban centres offering a focus for the community by providing a mix of retail, office, entertainment, recreation and community facilities;
- promote district centres to meet the weekly shopping and service needs of the community including the provision of offices and community facilities; and
- promote neighbourhood centres, local centres and corner shops as performing a vital role in providing the day-to-day convenience shopping for the neighbourhood as well as an important focus for neighbourhood services and community facilities.
- Encourage centres to be developed as the focus of the community and employment activities comprising a range of appropriate commercial and community uses;
- Ensure that centres are highly accessible, of a high standard of urban design and developed with due regard to the residential amenity of the locality;
- Encourage local governments to develop local planning strategies to provide detailed planning mechanisms to implement the objectives of this policy; and
- Provide policy measures and guidelines for the planning and design of centre developments.

Released by the State Government in 2000, the policy updates the outcomes of the North West Corridor Structure Plan by identifying a 50,000m² retail floor space limitation on the Alkimos Regional Centre, and reintroducing the Yanchep South (Eglinton) District Centre, with a maximum retail floor space allocation of 15,000m². The DSP incorporates the Alkimos Regional Centre (Alkimos Secondary Centre) and the Eglinton District Centre.

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17.6 NETWORK CITY

Network City: Community Planning Strategy for Perth and Peel (Network City) provides the overarching, long term metropolitan planning strategy for the Perth region. The final Network City document was released for public comment in September 2004, with the results of this public consultation forming the basis for the WAPC's Statement on Partnerships for Planning Perth and Peel in November 2005.

The DSP is consistent with the key planning principles and strategies espoused by Network City as follows:

- Spatial Plan and Strategy:

The Concept Plan included in Network City identifies the subject land as a 'future community' to be designed around transport networks, activity corridors and centres.

The document defines Transport Corridors as being routes that are intended for higher speed through traffic, in particular truck / freight routes and express bus services. Activity Corridors are defined as being connections between Activity Centres which provide excellent, high frequency public transportation.

These corridors are not to be designed as high-speed through traffic routes, instead accommodating a variety of land uses that support the use of public transportation. Activity Centres are defined as being locations where a range of activities are encouraged, for example employment, retail, living, entertainment, higher education and specialised medical services. Strong centres are to be located at each end of 'activity corridors' in order to support effective public transport systems in both directions along the corridor.

The plan identifies the Alkimos Secondary Centre as being a major Activity Centre, with the Eglinton District Centre and Marina being identified as being other activity centres of relevant significance. Marmion Avenue and the east-west link between the Eglinton District Centre and Marina are identified as being Activity Corridors with excellent public transportation, whilst not surprisingly, the Mitchell Freeway is identified as being a major Transport Corridor.

The DSP responds to the spatial Network City context of Alkimos Eglinton area consistently with the key actions identified by the policy. These responses include seeking to support public transport infrastructure, including passenger rail stations and second tier of public transportation; adopting urban design principles aimed at achieving high levels of amenity and functionality for users; providing a major contribution to limiting urban sprawl by accommodating a very significant number of dwellings; and by providing an important example of a well integrated, medium and high density development.

- Governance and Process:

Network City encourages development which is designed to deliver a better quality of life, a city with 'urban energy', creativity and vitality, and planning processes which involve the community.

The development contemplated by the DSP is consistent with the objectives of Network City by providing a diverse range of land uses and densities that respond to the unique coastal context of the project area. The DSP has been designed consistently with this objective, in partnership with the City of Wanneroo. Significant community and stakeholder consultation was undertaken during the formulation of the plan, and the DSP incorporates many of the features which emerged as desirable outcomes from that process. The DSP approval process will allow continuing refinement of the plan through further stakeholder consultation, which is to be followed in the future by a more detailed local structure planning process.

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- Planning for a Liveable City:

Network City promotes the development of identity and pride in local places and the enhancement of social and cultural capital, through the co-location of a mix of land uses, housing diversity, the provision of lifestyle opportunities with equitable access, and the revitalisation of centres and suburbs through enhanced attractiveness, amenity and economic, social and cultural vitality. The DSP is consistent with the strategies. It will facilitate a sense of place through its coastal location. The project combines a range of uses at a range of densities, whilst ensuring that all residences have good access to a range of facilities and a significant amount of open space.

Network City promotes the accommodation of urban growth within a Network City pattern, with the provision of medium and high density areas along public transport corridors, and the provision of a range of affordable and quality housing options. The DSP is consistent with this objective, by virtue of facilitating accessibility to passenger rail stations, provision of second tier of public transportation and the mix of medium and high density residential development.

- Economy and Employment:

Network City promotes urban growth within the Network City pattern, to promote the provision of a wide range of facilities within centres on a local basis, and ensuring that employment is created in centres. The DSP fits within the Network City economic and employment pattern, by facilitating provision of a high level of employment opportunities for residents in the area supported by high and medium density mixed use developments. The DSP incorporates a detailed economic analysis demonstrating its economic sustainability.

- Environment and Heritage:

Network City promotes the protection of the natural environment, open spaces and heritage through conservation and preservation. The design of the DSP is consistent with these principles. It includes strategies to conserve and enhance environmental and heritage values, and where appropriate, remediate and manage existing degraded areas. The high and medium density, transport oriented design of the development proposal embraces principles of environmental sustainability, which is consistent with the environmental objectives of Network City. A complete and sustainable approach to water cycle management is being promoted by the DSP.

- Transport:

The key transport-related objectives of Network City are to accommodate urban growth within a Network City pattern, particularly by locating high and medium density centres around public transport nodes and adopting design principles to reduce car dependency. The development contemplated by the DSP aligns closely with these objectives, both through the location of higher density residential and mixed use developments near the proposed passenger rail stations, and by promoting the second tier of public transportation to provide local services within walkable distances of much of the residential development.

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- Infrastructure Coordination:

Network City outlines a number of strategies with respect to infrastructure, with the essential objective of promoting its efficient use and coordinated delivery. The DSP is fundamentally consistent with this objective and seeks to maximise the efficient use of infrastructure where possible.

A key strategy of Network City is to manage urban growth to limit the urban sprawl of Perth. Infill development and development within the existing urban fabric is an important technique to manage the urban growth of Perth in accordance with this strategy.

The DSP has been developed based on the underlying philosophy of Network City. It recognises the regional significance of the project area. The context of the proposed development is one where there is a unique opportunity to meet a significant demand for new housing in an area where it is proposed to enhance the conservation and biodiversity values while providing easy access to passenger railway stations and other important transport links.

By strongly supporting reduced car dependency in favour of public transport, the DSP responds positively to the Network City policy in a manner which is appropriate both in a regional and local context.

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17.7 STATEMENT OF PLANNING POLICY NO. 3 – URBAN GROWTH AND SETTLEMENT

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

The objectives of the policy are:

- To promote a sustainable and well planned pattern of settlement with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.
- To build on existing communities with established local and regional economies, concentrate investment on the improvement of services 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.
- To promote the development of sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.
- To coordinate new development with efficient, economic and timely provision of infrastructure and services.

The policy sets out the requirements for sustainable communities. In summary, these requirements relate to the following:

- Strong, diversified economic base with access to employment;
- Sufficient and suitable land for all purposes, coordinated with transport, infrastructure and human services;
- Variety and choice in housing and affordability of housing;
- Efficient use land
- Directing urban growth into designated growth areas well serviced by employment and transport;
- Higher residential densities in accessible locations;
- Clustering retail, employment, recreational and other land uses that attract large numbers of people in activity centres at major public transport nodes;
- Access for all to employment, health, education, shops, leisure and community facilities
- Good urban design which enhances community identity, sense of place, liveability and social interaction;
- Designing to reduce crime;
- Proper consideration of the environment;
- Positive planning framework which seeks to facilitate and promote good quality development rather than overly focussing on rules and regulations; and
- Focus on building partnerships.

The key elements of the State Planning Strategy are reinforced in this policy. As outlined in [Section 17.2](#), the DSP is consistent with these principles. The DSP achieves the requirements for sustainable communities set out in SPP 3 and is consistent with the policy objectives.

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17.8 NORTH WEST CORRIDOR STRUCTURE PLAN (1992)

The North West Corridor Structure Plan superseded the 1977 North West Corridor Structure Plan.

The 1992 Structure Plan is based on 60% self-sufficiency in employment. The Corridor is expected to ultimately house a resident population of 420,000 with a resident work force of 210,000 (or up to 500,000 if the Carabooda / Nowgerup 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 and 26,000 will be taken up by workers from outside the Corridor. The remainder of the resident work force, an estimated 84,000, will commute to work outside the Corridor.

The Structure Plan designates Lot 102 Alkimos as a Regional Centre containing a regional hospital, tertiary education facilities and railway / bus transfer station. Alkimos is also nominated as a major retail / commercial centre with a total employment base of 8,000, rising to 10,000 if the Carabooda land is urbanised. The Structure Plan specifies that the floor space for the regional centre is unrestricted.

In addition, the 1991 Draft North West Corridor Structure Plan identified a District centre at Eglinton along Eglinton Avenue. The report referred to this as 'Yanchep South', designating to this a retail floor area of 15,000m² NLA in the very long term. This is not reflected in the final North West Corridor Structure Plan. The Plan is currently being reviewed by WAPC.

Northern Suburbs Railway Alignment

The DSP includes an alignment for the extension of the Northern Suburbs Railway through the area. This varies from the alignment in the current MRS and the NWCSP and is based on a review by the DPI of the railway as part of its overall review of the Structure Planning for the North-West Corridor.

The DPI railway review has been carried out by GHD, Consulting Engineers, with the results embodied in a report entitled 'Northern Suburbs Railway Alignment Definition – Alkimos to Yanchep' and dated August 2005. The railway alignment is an extension of the alignment proposed through the Jindalee Butler area and extends beyond Eglinton to the proposed Town Centre within Yanchep landholding to the north. An amendment to the MRS will be required to reflect this alignment of the railway.

MRS Zonings and Reservations

The DSP reflects current zonings and reservations resulting from MRS Amendment 1029/33 which became effective on 23 June 2006. The location and extent of ROS, location of Public Purpose sites (WWTP, GWTP), Central City Area and the alignment of Important Regional Roads vary from those shown on the 1992 NWCSP. The current MRS zonings and reservations will require to be reflected in the revised NWCSP.

Retail Hierarchy

The hierarchy of Centres as proposed by the DSP reflects the provisions of WAPC SPP 4.2 Metropolitan Centres Policy Statement for the Perth Metropolitan Region and detailed study undertaken by IBECON Pty Ltd ([Appendix 6](#) refers) providing a comprehensive analysis and forecasts of the region's demography, retail needs, sales forecasts and impact assessment for all shops in the region.

Following the approval of the DSP by the Council and the WAPC, the above variations to the NWCSP, will be reflected in the revised NWCSP.

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17.9 LIVEABLE NEIGHBOURHOODS

Liveable Neighbourhoods has been prepared to implement the objectives of the State Planning Strategy, which aims to guide the sustainable development of Western Australia to 2029. Liveable Neighbourhoods creates a policy framework for structure planning, development and subdivision of land in accordance with the concepts of New Urbanism, whereby urban design principles are utilised with the objective of the creation of communities. Consequently, Liveable Neighbourhoods provides a framework to facilitate the development of sustainable communities. The DSP is consistent with the principal aims of Liveable Neighbourhoods, as follows:

- To provide for an urban structure of walkable neighbourhoods clustering to form towns of compatibly mixed uses in order to reduce car dependence for access to employment, retail and community facilities.
- To ensure that walkable neighbourhoods and access to services and facilities are designed for all users, including users with disabilities.
- To foster a sense of community and strong local identity and sense of place in neighbourhoods and towns.
- To provide for access generally by way of an interconnected network of streets which facilitate safe, efficient and pleasant walking, cycling and driving.
- To ensure active street-land use interfaces, with building frontages to streets to improve personal safety through increased surveillance and activity.
- To facilitate new development which supports the efficiency of public transport systems, where available, to provide safe, direct access to the system for residents.
- To facilitate mixed use urban development which provides for a wide range of living, employment and leisure opportunities capable of adapting over time as the community changes, and which reflects appropriate community standards of health, safety and amenity.
- To provide a variety of lot sizes and housing types to cater for the diverse housing needs of the community at a density that can ultimately support the provision of local services.
- To ensure the avoidance of key environmental areas and the incorporation of significant cultural and environmental features of project area into the design of an area.
- To provide for more integrated approach to the design of open space and urban water management.
- To ensure cost effective and resource efficient development to promote affordable housing.
- To maximize land efficiency wherever possible.

17.10 DEVELOPMENT CONTROL POLICY NO. 1.6 - PLANNING TO SUPPORT TRANSIT USE AND TRANSIT-ORIENTED DEVELOPMENT

The policy, released in January 2006, promotes the benefits of integrating land use and transit facilities. Higher residential densities and mixed use developments in the walkable catchments of transit facilities have the potential to reduce car dependence and increase accessibility for those without access to private cars. The support of public transit also reduces congestion on the road network and the demand for new road space. Through alternate non-car based transport options, reduce fuel consumption and air pollution will occur and supporting housing and quality developments that are both diverse and affordable.

The Alkimos Eglinton DSP responds to the principles of the Development Control Policy 1.6 and promotes transit orientated development as a core principle for its spatial design. The proposal satisfies both the Policy Objectives and the Policy Measures as detailed within the document.

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17.11 BUSH FOREVER

Bush Forever aims to identify areas of regional significance worthy of protection to conserve the biodiversity of the vegetation on the Swan Coastal Plain. All existing Parks and Recreation reserves at Alkimos Eglinton are included in Bush Forever Sites 289 and 397. Site 397 spans the coastline between Wilbinga and Mindarie and Site 289 extends into the project area from Yanchep National Park. Bush Forever Site 289 incorporates 185 ha of land at Eglinton reserved as Parks and Recreation. Bush Forever states that Site 289 has the following values:

- Protects vegetation and fauna habitat of the Quindalup/Spearwood units.
- Provides for the continuation of natural processes comprising 196 ha of vegetation of the Quindalup Dunes extending 3.9 km inland and linking the coast and other regionally significant vegetation in Yanchep National Park.
- Protects the Quindalup/Spearwood Dune interface.
- Protects the Alkimos Dune Complex.
- Protects populations of Priority 3 Flora.
- A significant area of Site 289 is cleared or degraded land.
- Bush Forever Site 397 encompasses a semi continuous north-south vegetated coastal strip and extends inland 0.8 km to include a Parks and Recreation reserve adjacent to Lot 101. This land is also part of the existing WWTP and GWTP buffer area. Bush Forever states that Site 397 has the following values:
 - Protects vegetation of the younger Quindalup Dunes.
 - Provides for the protection of continuing natural processes by protecting 302 ha of bushland of the Quindalup Dunes extending inland to a maximum of 0.8km.
 - Forms a semi contiguous north south vegetated linkage along the coast.
 - Protects the only wetland in the Quindalup Dunes north of Perth (Karli Spring). Protects populations of Priority 3 Flora.

The consultant team undertook an assessment of the environmental values of the entire district and have proposed a number of changes to the boundaries of Bush Forever Sites 289 and 397. The proposed changes to the Bush Forever boundaries mirror the proposed changes to the Parks and Recreation reserve boundaries as reflected in the approved MRS and are embodied in the DSP.

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18.0 IMPLEMENTATION

18.1 PLANNING PROCESS AND INDICATIVE TIMEFRAMES

18.1.1 District Structure Plan

The DSP is intended as 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. The DSP is a robust planning document that will be refined by the more detailed local structure planning with elements contained in the Plan changing in response to more detailed analysis and changing trends.

18.1.2 MRS and TPS Rezoning

The DSP includes an alignment for the extension of the Northern Suburbs Railway through the area. This varies from the alignment in the current MRS and is based on a review by the Department for Planning and Infrastructure (DPI) of the railway as part of its overall review of the structure planning for the North-West Corridor. The DPI railway review has been carried out by GHD, Consulting Engineers, with the results embodied in a report entitled 'Northern Suburbs Railway Alignment Definition – Alkimos to Yanchep' and dated August 2005. An MRS amendment will be required to reflect the revised alignment of the railway line. The City of Wanneroo District Planning Scheme No. 2 reflects the reservations that have been adopted over the land via MRS Amendment 1029/33. Minor changes to the zones within the Scheme No. 2, have also been amended, to bring it to line with the approved MRS Amendment 1029/33 by procedural amendment to that Scheme (Amendment No. 68 to DPS No. 2, gazetted in May 2008 refers).

18.1.3 Local Structure Plans

Following the determination of the DSP, a series of local structure plans will be required to be prepared in accordance with the provisions and requirements of the City of Wanneroo Town Planning Scheme No. 2 defining in detail planning for selected phases of the project to facilitate subdivision and development for the Alkimos Eglinton project. The timing and relevant areas contained in the local structure plans is likely to be determined by the staging of the project. The broad principles and guidelines outlined in the DSP will be refined through the local structure planning process.

18.2 STAGING AND COSTS

The urban development of the Alkimos Eglinton 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 programme for this will need to be prepared as a part of ongoing detailed planning and design of the infrastructure.

Staging of the development needs to be linked to the provision of infrastructure services and community facilities and not necessarily in a sequential vector of pattern of growth. Services and infrastructure need to be provided in an appropriately staged manner as development proceeds.

Part 1 of the DSP provides objectives and guidance for the preparation of LSPs and subsequent development to ensure community infrastructure will be provided early on. Where appropriate, interim solutions may need to be considered, including delivery mechanisms (such as MOUs between the landowners and relevant Local Government Authority).

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The Metropolitan Development Program (MDP) is prepared by DPI to provide information to Government and the public on projected residential land development activity and the provision of services and infrastructure requirements, within a rolling five year time horizon. The aim of the MDP is to facilitate orderly and economic development through the timely provision of land, services and infrastructure. The MDP should form a basis for the planning and provision of engineering headworks infrastructure by the various government authorities.

The current MDP includes an estimated production of 1,500 residential lots within the Alkimos Eglinton area during the period of 2009-2014. This will be reviewed and updated on an annual basis by DPI and the landowners. The more recent estimates of development growth for the area are as follows:

Stage	Approx. Development Yield (Residential Dwellings)	Period
1	5,000	0-5 years
2	5,000	5-10 years
3	4,905	10-15 years
4	5,130	15-20 years
5	3,450	20-25 years
Totals	23,485*	0-25 years

Table 13: Lot Yields by Timeframes

*Part 1 herein (Section 1.8) details Objectives and Strategies relating to the Built Environment including minimum density targets and residential codings to be defined at the LSP stage.

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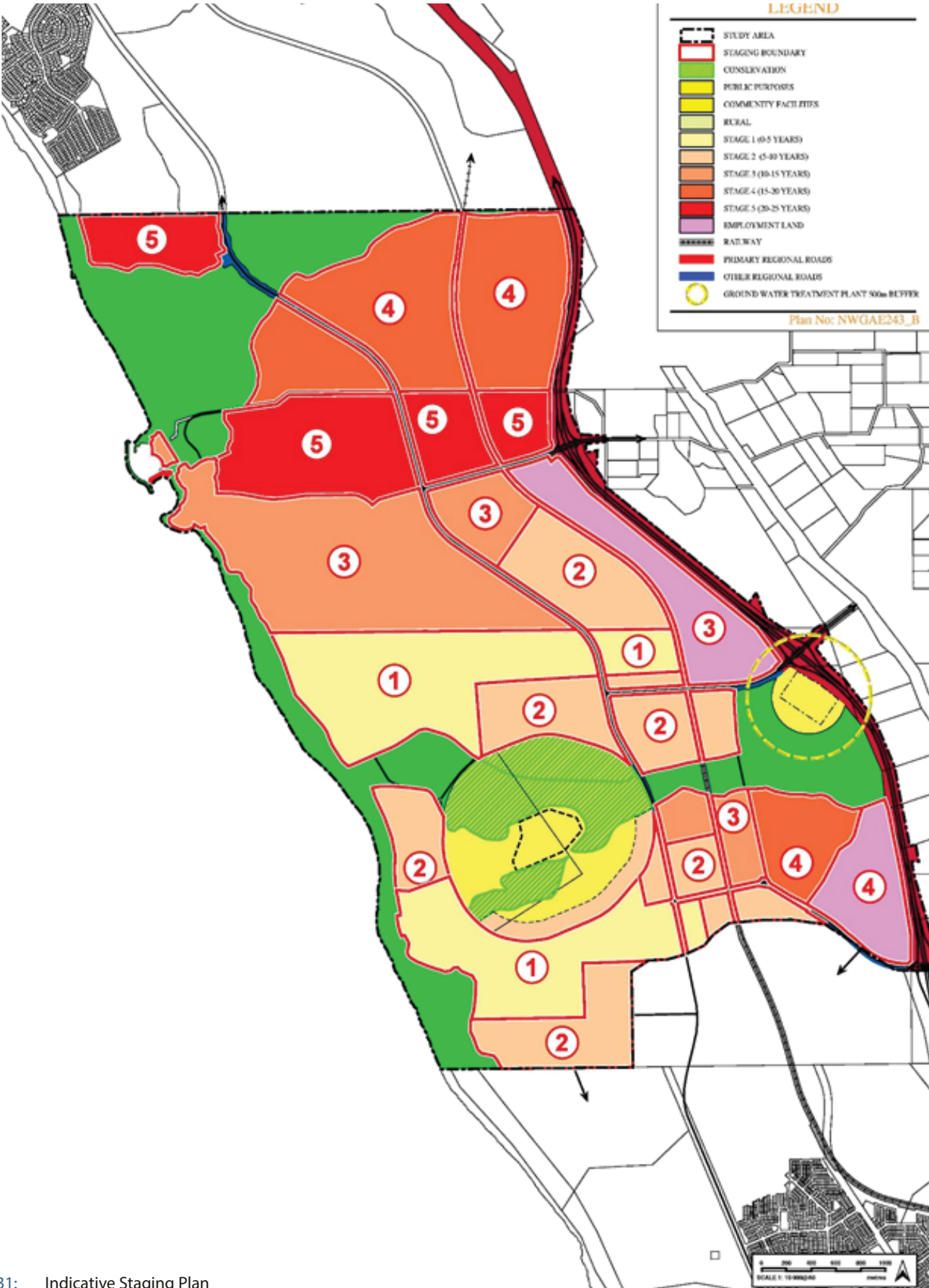


Figure 31: Indicative Staging Plan

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The current programmes for infrastructure provision are as follows:

18.2.1 Regional and District Roads

Capricorn Village Joint Venture is developing the Capricorn Project at Yanchep. As a part of this the JV proposes to pre-fund and facilitate the extension of Marmion Avenue from Butler to Yanchep.

The extension would comprise the 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 current programme for the road extension is to complete its construction by late 2007.

The JV is now finalising a pre-funding agreement with the Alkimos Eglinton landowners.

Main Road WA's programme for the extension of the Mitchell Freeway is to complete construction to Burns Beach Road by 2008. There is no current programme to extend the freeway beyond this. On this basis, therefore, Marmion Avenue would be available to provide district and regional road access for the development of the Alkimos Eglinton area until the freeway is constructed in the longer term.

18.2.2 Northern Suburbs Railway

The Public Transport Authority (PTA) is now preparing a programme to carry out the master planning for the extension of the railway to Butler. The planning should be completed by mid 2007. The PTA does not have a programme at this stage for any work beyond the master planning.

18.2.3 Wastewater Treatment

Water Corporation is planning and designing the first stage of the AWWTP. This is subject to a current assessment under Section 38 of the EPA Act. The Corporation's programme is for the Stage 1 plant to be operating by mid 2010. Any urban development within the Alkimos Eglinton area prior to this would need to include interim arrangements for wastewater disposal until the wastewater treatment plant was operating. These arrangements would probably comprise road tankering of the wastewater to the Beenyup WWTP.

18.2.4 Wastewater Conveyance

Water Corporation's programme for the Quinns Main Sewer is to construct it to the Alkimos WWTP by the time that the plant is operating in 2009/2010. The sewer would be available, therefore, to receive wastewater flows from the urban development of the southern part of the Alkimos area. Connections from the areas of development would be via a network of headworks infrastructure including pumping stations, pressure mains and gravity outfall sewers. These headworks would be funded by Water Corporation although pre-funding by developers may be required to service 'non-frontal' development.

Water Corporation does not have a programme to construct the Yanchep Main Sewer. This will be something generated by development within the northern part of Alkimos and the Eglinton area. Initial development, prior to construction of the main sewer, may need to include connections to the Alkimos WWTP via interim pressure mains and gravity outfall sewers. Interim headworks facilities would be funded by Water Corporation although, again, pre-funding by developers may be required.

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18.2.5 Water Supply

The Carabooda reservoir is programmed to be constructed by Water Corporation in 2007/2008. Initially this would be supplied by the trunk water main shown on Figure 29 which links the reservoir to the Neerabup groundwater treatment plant. The water main will initially function both as an inlet and outlet water main, supplying water from the reservoir to the Butler area.

Supply to the Alkimos area will be provided by another outlet water main in Romeo Road to be constructed, to suit the urban development programme, after 2008. Beyond this, the Water Corporation's programme is to construct the Eglinton groundwater treatment plant and additional outlet water mains by 2013. 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 Alkimos Eglinton prior to construction of the outlet water main in Romeo Road will need to be supplied from the existing system in Jindalee Butler, via the extension of distribution water mains in Marmion Avenue. These would be headworks funded by Water Corporation and may be required to be prefunded by developers for 'non-frontal' development.

18.2.6 Electricity, Gas and Telecommunications

In all cases the initial development of Alkimos Eglinton would be serviced via extensions to the existing electricity, gas and telephone networks within the Jindalee Butler area. This would include the extension of cables and pipelines in Marmion Avenue. The servicing authorities have no current programmes for these extensions which would be provided to suit the development demand.

The funding of the services extensions for 'frontal' development would be by the servicing authorities. For 'non-frontal' development the associated costs may need to be funded or pre-funded by developers subject to negotiations with the authorities.

18.2.7 Broadband Communications

Broadband communication services should ultimately be via optic fibre cables in Marmion Avenue connected through to the Perth central transmission/receiver facilities by the optic fibre cable link to Joondalup. For initial development the services may be provided by interim microwave (wireless) systems until it is economical to 'roll out' the cable.

Based on recent experience with other large urban development projects it is expected that the broadband system would be owned and operated by either licensed telecommunication carriers or the developers themselves. A strategy for the implementation of a broadband network could involve:

- Review of options and decisions regarding the ownership of infrastructure and services provision;
- Review options for telecommunications infrastructure and services models;
- Develop design specifications and implementation plans for staged infrastructure and services provision;
- Select infrastructure suppliers, carriers and service providers; and
- Institute formal contracts for infrastructure supply and services provision.

This strategy would preferably be implemented by developers in close consultation with both State and Local Government, to ensure that services infrastructure and provision is integrated at all levels. The formation of a 'Steering Committee' with participation from developers and government, particularly local government, would be a good first step in this process.

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18.3 INFRASTRUCTURE CONTRIBUTION ARRANGEMENTS

18.3.1 Infrastructure Funding

Funding arrangements which would apply for the provision of the infrastructure referred to in Section 18.2 are summarised as follows:-

Item	Funding Responsibility	Comments
Regional Roads (Mitchell Freeway)	Main Roads WA	State and Federal funds for land and construction.
District Distributor Roads	Developers	First stage; full earthworks and one carriageway to a rural standard.
	Local Authority	Final stage, second carriageway and upgrade to an urban standard.
Northern Suburbs Railway	State Government	Land and construction.
Wastewater Treatment	Water Corporation	To service development.
Wastewater headworks, sewers, over 300mm pumping stations, etc	Water Corporation	To service development.
	Developers	Prefunding of permanent/interim headworks for non-frontal development. Funding of temporary works, standard headworks contribution.
Water Supply Reservoirs and Treatment Plants	Water Corporation	To service development.
Water Supply Headworks	Water Corporation	To service development.
	Developers	Prefunding of permanent/interim headworks for non-frontal development. Funding of temporary works, standard headworks contributions.
Drainage	Developers	Local roads drainage collection, conveyance and disposal including land for disposal basins, swales or sumps.
Electricity Headworks	Western Power Corporation	Power generation, transmission lines and zone sub-stations including land.
Electricity Distribution	Developers	Included in 'Scheme Charges'.
Gas	Alinta	To service frontal development.
	Alinta/Developer	By agreement for non-frontal development.
Telephone	Telstra	To service frontal development.
	Telstra/Developer	By agreement for non-frontal development.

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Item	Funding Responsibility	Comments
Foreshore	Developer	Foreshore management Plan and associated foreshore works.
ROS	Appropriate Authorities	Other ROS developmental works
Recreational facilities	Developer/State and Local Government	District and Regional (part) recreational facilities
Pedestrian cycle paths	Developer / Council	Regional and District pedestrian cycle paths
District Community Facilities	Developer / Council	
Public Transport	Short term – Developer. Ultimately PTA.	District Public transport facilities and operation e.g. CAT service

The above provisions are as generally set out in WAPC Planning Bulletin 18, February 1997.

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18.3.2 Developer Contribution Schemes

In large development areas with multiple landownership the funding of engineering infrastructure, which is the responsibility of the developers, is often implemented via Developer Contribution Schemes (DCS). These normally apply to district distributor roads, arterial drainage and drainage disposal sites, the pre-funding of services headworks and temporary services headworks.

The DCS provides the basis for the apportionment of the infrastructure costs between the various landowners and can include details of works programmes, timings for payments, pre-funding arrangements between landowners, etc.

The need for a DCS for Alkimos Eglinton is less relevant. There are only a small number of different landowners and their landholdings are large in area. Formal DCS arrangements are not normally necessary under these circumstances where direct negotiation and agreements between adjacent landowners is the usual approach to cost sharing for engineering infrastructure.

Examples of this approach include:-

- The funding arrangements for the extension of Marmion Avenue, as proposed by the Capricorn Village Joint Venture, is for the cost of the section through Alkimos Eglinton to be shared by the landowners on an area of landholding basis (net of ROS regional road, railway and Public Purposes reserves). It is proposed that the details of the cost sharing will be embodied in a legal agreement between the landowners and the JV.
- The extension of Marmion Avenue will provide the opportunity to extend services, including gas, broadband, etc, within the road reserve through Alkimos Eglinton to Yanchep. The landowners' agreement for the road could be supplemented by a similar agreement to cost share these services, whether the costs are pre-funds or non-refundable costs.
- Other private agreements between the Alkimos Eglinton landowners could be for drainage disposal sites for joint catchments and the non-frontal funding of services headworks, water, wastewater, electricity, etc.

In all of the above cases and overall, it is considered that cost sharing arrangements can be appropriately managed and implemented through direct negotiations and legal agreements between the land owners and relevant agencies (eg. Council, Water Corporation).

To that effect, the proponents and the Council are currently preparing a legal agreement setting out the timing and responsibilities for the provision of infrastructure.

18.4 ENVIRONMENTAL PROTECTION AND BIODIVERSITY ACT 1999

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