



# North Eglinton Local Structure Plan

## Part 2: Explanatory Section

robertsday

LANDCORP

Partnering

Satterley

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## 1.0 Introduction

### 1.1 Introduction and Purpose

The North Eglinton Local Structure Plan has been prepared on behalf of LandCorp and Satterley Property Group to guide subdivision and development of part of Lot 9000 Pipidiny Road, Eglinton.

The North Eglinton Local Structure Plan fulfils the requirements of the City of Wanneroo District Planning Scheme No. 2 and the Alkimos Eglinton District Structure Plan for the preparation and approval of a local structure plan prior to the subdivision and/or development of land in the Urban Development Zone.

The Local Structure Plan has been prepared in accordance with the requirements of Part 9 of District Planning Scheme No. 2, the Alkimos Eglinton District Structure Plan and City of Wanneroo Local Planning Policy 4.2: Structure Planning.

### 1.2 Land Description

#### 1.2.1 Location and Context

The subject site is located on the north-east corner of the intersection of Marmion Avenue and Pipidiny Road, Eglinton. The site is approximately 45 kilometres north of the Perth city centre and approximately 20 kilometres north of the Joondalup city centre.

The site is situated within the Alkimos Eglinton District Structure Plan area in the North West Coastal Growth Corridor. The District Structure Plan area consists of 2,660 hectares of land and is expected to accommodate approximately 57,000 people (Figure 1).

The site is located in the north-eastern portion of the District Structure Plan Area. More specifically, the site is east of Marmion Avenue, west of the future freeway reserve, north of Pipidiny Road and south of a Bush Forever Site (Figure 2).



Figure 1: Regional Context Plan

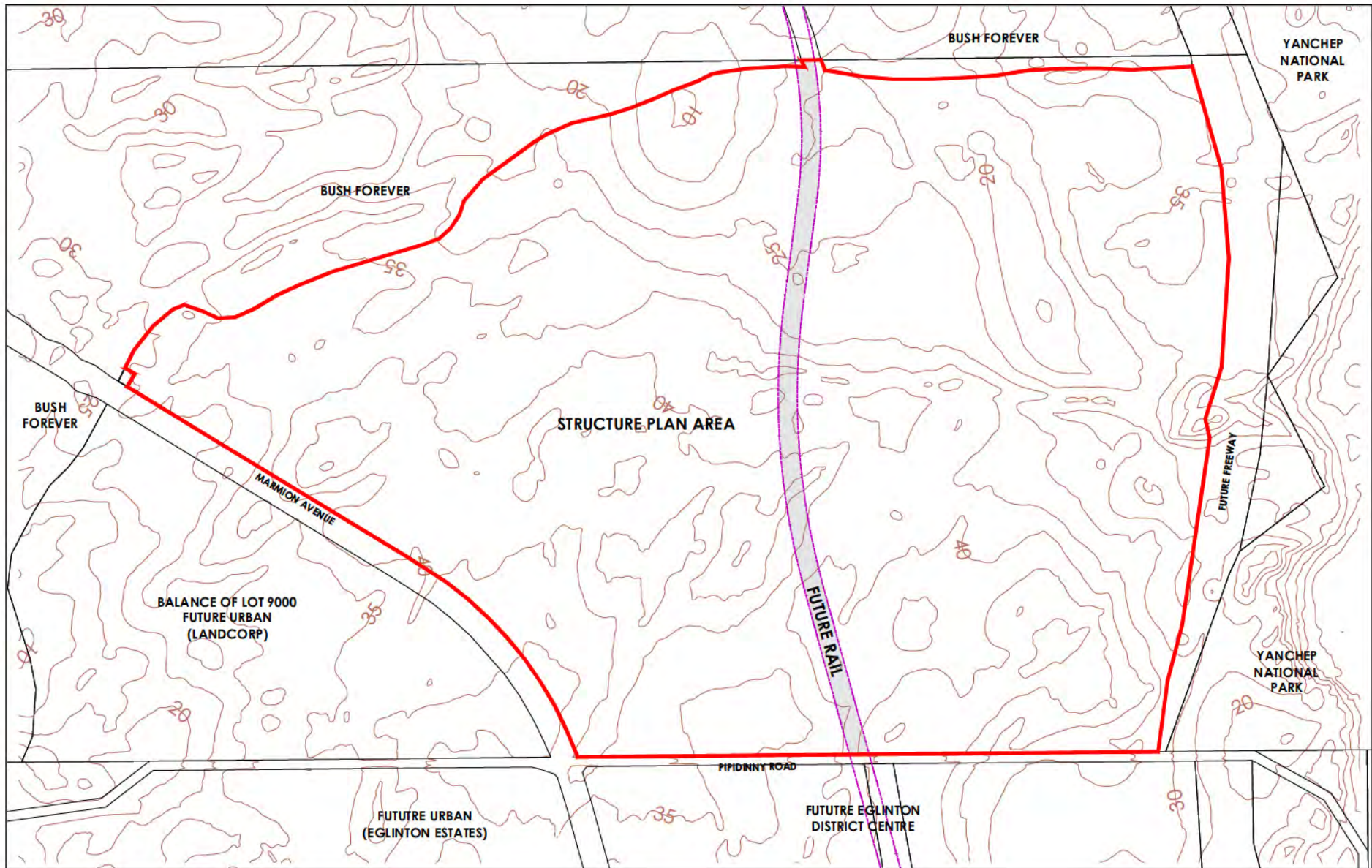


Figure 2: Site & Immediate Context



### 1.2.2 Area and Land Use

The structure plan area is approximately 241 hectares. The site is currently vacant, unutilised land and, with the exception of boundary fences, there are no existing structures present. Pipidinny Road is constructed and forms the southern boundary of the site, connecting Wanneroo Road to the east with land west of Marmion Avenue.

The surrounding land contained within the Alkimos-Eglinton District Structure Plan is also mostly vacant and has similar characteristics to the subject site. Structure Planning is currently underway for land located south of Pipidinny Road, which will ultimately become the Eglinton District Centre.

### 1.2.3 Legal Description and Ownership

The site containing the North Eglinton Local Structure Plan area is owned by the Western Australian Land Authority (LandCorp) and is described as Lot 9000 on Deposited Plan 61883, Certificate of Title Volume 2789, Folio 631 (Figure 3).

An extensive selection process culminated in the creation of a joint venture partnership between LandCorp and Satterley. Satterley is now managing and coordinating planning and design of the Local Structure Plan area on behalf of LandCorp.

### 1.3 Project Vision

To create an attractive, affordable and self-sustaining community that responds to the demands of the 21st century. The development will demonstrate leadership and innovation in delivering the best possible outcome for the site.

### 1.4 Project Team

The following multi-disciplinary project team has been engaged by LandCorp/Satterley to progress the preparation of the Local Structure Plan:

- Roberts Day – town planning and design;
- Emerge – hydrology and landscaping;
- Wood and Grieve Engineering – engineering;
- Transcore – transport;
- Strategen – environment;
- ENV – sustainability;
- Fireplan – bushfire protection;
- Douglas Partners – geotechnical;
- Taktics4 – economics/retail;
- Place Match – community development;
- Ethnoscience – heritage;
- Herring Storer – acoustics.

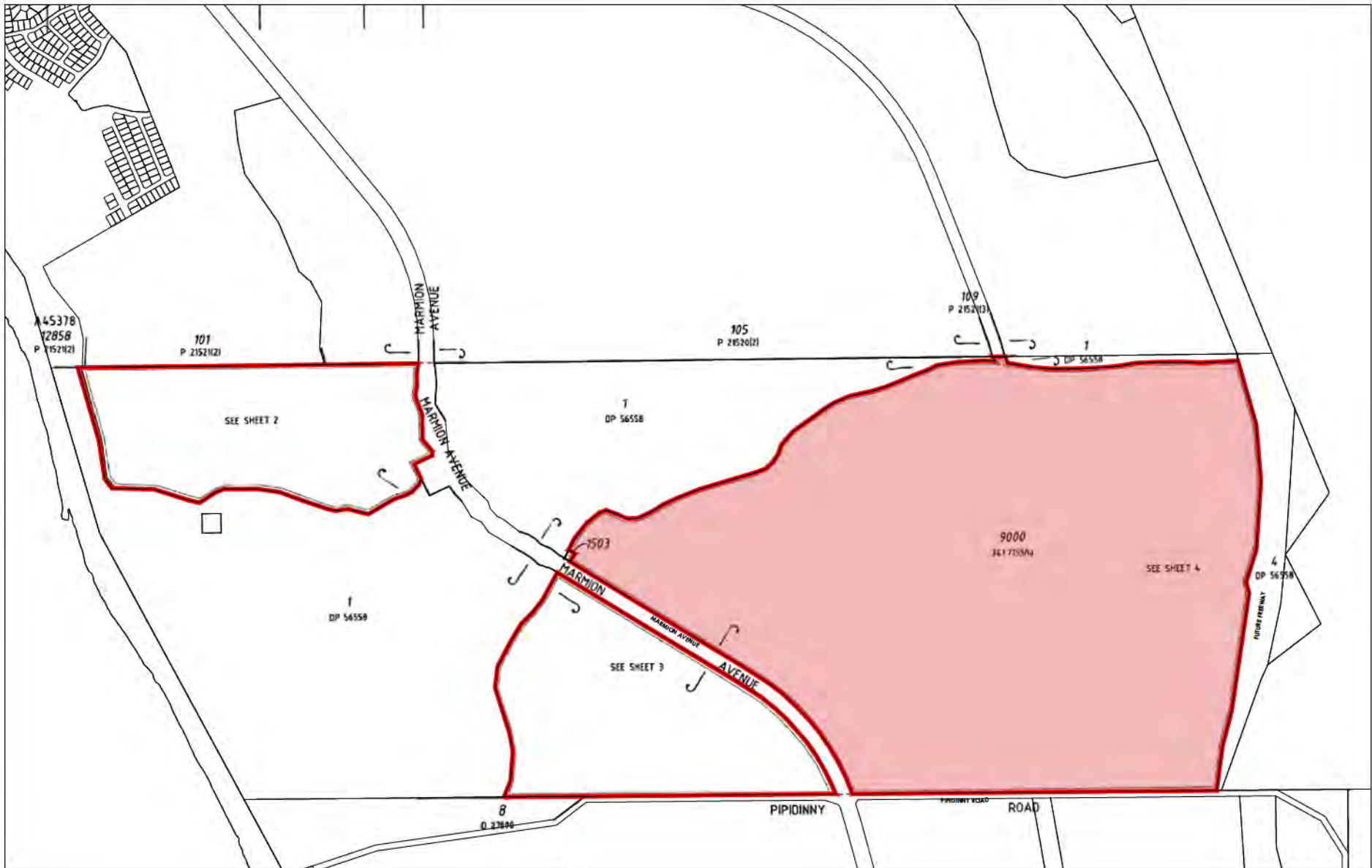


Figure 3: Extent of Lot 9000 and the North Eglinton Structure Plan area boundary.

## 2.0 Planning Background

### 2.1 State and Local Planning Framework

#### 2.1.1 Metropolitan Region Scheme

The majority of the site is zoned 'Urban' under the Metropolitan Region Scheme. A 'Railways' reservation for the future extension of the northern suburbs passenger rail divides the subject site. An amendment to the MRS is currently being progressed which proposes the realignment of the reservation through the site. The alignment is expected to be resolved imminently.

On the site's eastern boundary, a 'Primary Regional Road' Reserve is present for the future extension of the Mitchell Freeway and an 'Other Regional Roads' Reservation, being Marmion Avenue, forms the western boundary. A 'Parks and Recreation' Reserve abuts the site's northern boundary. Figure 4 shows the current MRS zones and reserves for the site.

#### 2.1.2 Directions 2031 and Beyond

Directions 2031 and beyond (Directions 2031) is the high level spatial framework and strategic plan for the Perth and Peel metropolitan regions. Directions 2031 provides a framework for the detailed planning and delivery of housing, infrastructure and services necessary for various growth scenarios presented within the document.

Directions 2031 identifies growth scenarios for low, medium and high-density rates of infill and Greenfield development. The growth scenarios have been modeled to determine the area of Greenfield land that will be required for a city of 3.5 million people.

Directions 2031 is supported by a series of Sub-Regional Strategies which provide information about the levels of expected population growth in individual local government areas. They also identify development opportunities and prospects for increased density within Greenfield areas, facilitating the housing targets outlined in Directions 2031.

The Local Structure Plan area is identified as Urban in Directions 2031. The Eglinton area is included within the Draft Outer Metropolitan Sub-Regional Strategy for Perth and Peel, details of which are provided below.

#### 2.1.3 Draft Outer Metropolitan Perth Sub-Regional Strategy

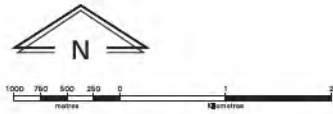
The subject site is located in the north-west sub-region of the Draft Outer Metropolitan Strategy. The north-west sub-region is expected to supply an extra 167,400 dwellings under the adopted 'Connected City' approach of Directions 2031; 141,700 of these dwellings are expected to come from greenfield sites within the City of Wanneroo. The draft strategy identifies the subject site and surrounding area as 'urban zoned undeveloped'.

#### 2.1.4 Liveable Neighbourhoods

Liveable Neighbourhoods was prepared by the Western Australian Planning Commission to implement the objectives of the State Planning Strategy and deliver the strategies and actions of Network City. As an operational policy of the WAPC, it guides the design and assessment of structure plans (regional, district and local), subdivision and development for new urban areas. Its aims include promoting the design of walkable neighborhoods; places that offer community and a sense of place; mixed uses and active streets; accessible and sustainable parks; energy efficient design; and a variety of lot sizes and housing types.



# METROPOLITAN REGION SCHEME MAP



## Legend

- subject area
  
- Reserved lands**
- parks and recreation
- railways
- State forests
- waterways
- primary regional roads
- other regional roads
- public purposes - detailed as follows:
  - HS High school
  - WSD Water Authority of WA
  
- Zones**
- urban
- urban deferred
- central city area
- rural
- private recreation
  
- Notice of delegation**
- bush forever area

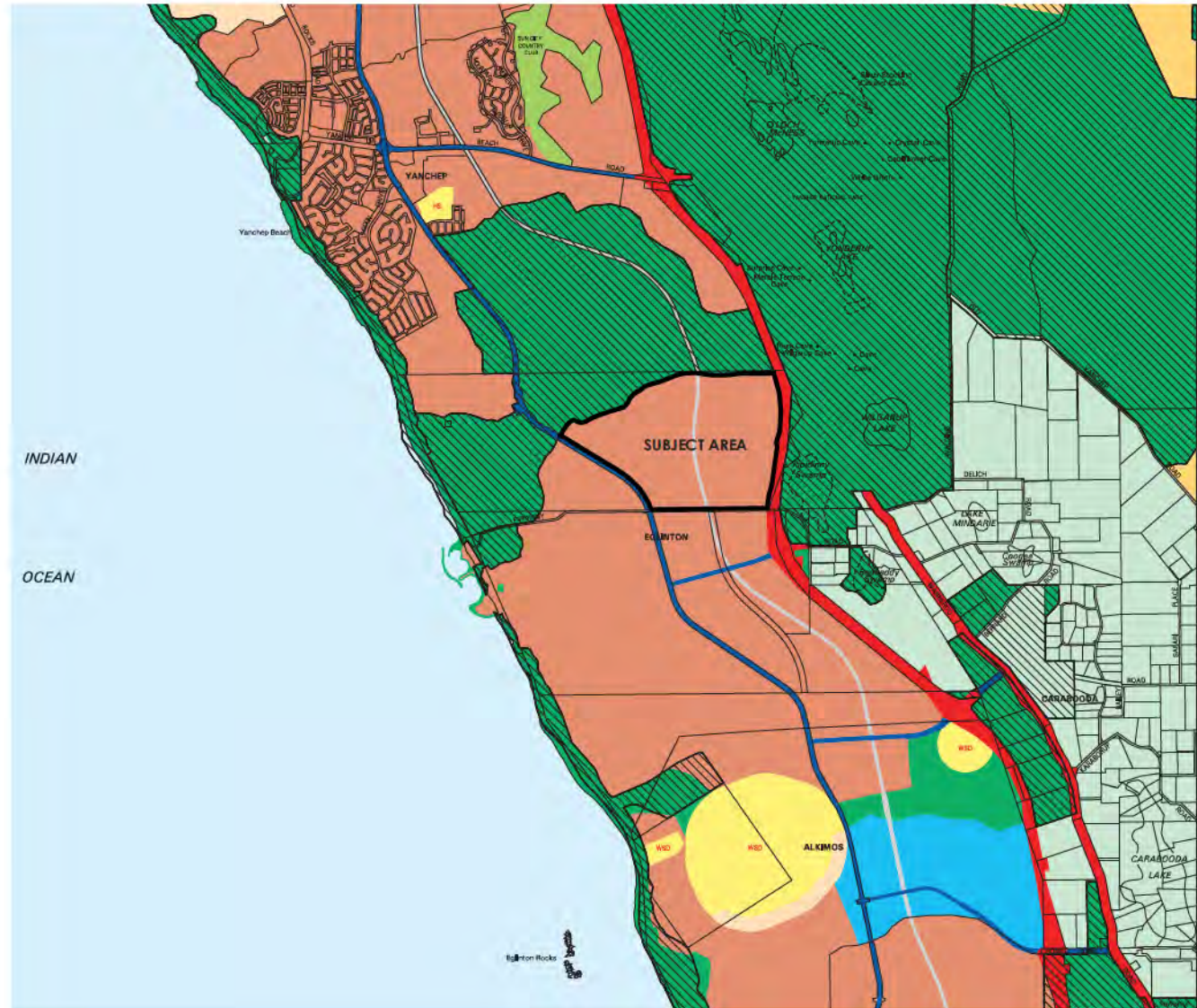


Figure 4: Current MRS Zoning

The key initiatives of Liveable Neighbourhoods are covered under eight design Elements. The implementation of each of these elements and the fulfillment of the overall principles of Liveable Neighbourhoods will be fundamental to ensuring that development of the structure plan area and the wider metropolitan region occurs in a thoughtful and sustainable manner. Application of the Liveable Neighbourhoods principles is therefore relevant to all levels of planning for the site from the proposed Structure Plan through to detailed lot and building design. Table 1 below identifies the eight design elements and how the design of the North Eglinton Local Structure Plan responds.

*Table 1: Liveable Neighbourhoods Compliance Table*

Design Element	Local Structure Plan Response
Community design	The design is based on a compact, walkable neighbourhood structure, consisting of a range of residential lot types, a mixed-use local centre, an interconnected road network, good access to public transport and well distributed parks with an integrated approach to urban water management.
Movement network	The design incorporates a safe and convenient interconnected road network consisting of neighbourhood connectors, local access streets and laneways to council's specifications. The proposed development encourages walking, cycling and increased patronage of proposed public transport services (bus, train) into, out of and throughout the site.
Lot layout	The design provides for: <ul style="list-style-type: none"> <li>• site-responsive lot design;</li> <li>• predominantly north-south and east-west lot orientation allowing for passive solar dwelling design;</li> <li>• development fronting streets and parks;</li> <li>• well dimensioned lots for efficient siting of dwellings;</li> <li>• diversity of lot types and housing choices, with densities ranging from R10 to R100, providing for single houses, grouped and multiple dwellings and mixed-use development.</li> </ul>
Public parkland	The design includes a network of well-distributed parks of different typologies, from areas incorporating retained vegetation and landform retention to formal urban plazas in and around the neighbourhood centre and near the Eglinton District Centre.
Urban water management	The integration of urban water management requirements into public open space is a key design element. The Local Water Management Strategy prepared by Emerge and Associates has informed the structure plan design.
Utilities	All required utility services can be extended to service new development.
Activity centres and employment	A mixed use Neighbourhood Centre is to be centrally located on the neighbourhood connector road. The neighbourhood centre is co-located with the combined primary school, high school, playing fields and community facilities sites. The neighbourhood centre provides for retailing and local offices, and other facilities serving the local community. The neighbourhood centre also provides opportunities for higher density housing.
Schools	As identified in the Alkimos-Eglinton District Structure Plan, the LSP provides for one K-12 special school and an additional primary school. The K-12 school is collocated with the mixed use neighbourhood centre and community facilities, and the second primary school located in the eastern portion of the site.

### 2.1.5 State Planning Policy 4.2: Activity Centres for Perth and Peel

This Policy aims to provide a flexible regulatory approach to enable appropriate commercial, residential, mixed business and retail redevelopment opportunities in activity centres. The policy also stipulates minimum and desired density targets within walkable catchments of existing and proposed centres.

To the south of the North Eglinton LSP area is the Eglinton 'District Centre', as identified in the Activity Centres Hierarchy. As the future District Centre is located directly south of Pipidiny Road, the North Eglinton LSP has a role to play in achieving the density targets of 20 dwellings per gross hectare (minimum) and 30 dwellings per gross hectare (desirable) within a 400 metre walkable catchment as stipulated in SPP 4.2. For this reason, larger 'superlots' with a higher R-Code range have been provided in the southern portion of the Local Structure Plan area. In addition, the design ensures a traditional, interconnected street network for the free flow of pedestrians, cyclists, public transport routes and vehicles into and out of the Eglinton District Centre.



### 2.1.6 State Planning Policy 5.4: Road and Rail Transport Noise and Freight Considerations in Land Use Planning

State Planning Policy 5.4 is aimed at increasing awareness of transport noise and its impact on amenity and quality of life for residents in close proximity to transport infrastructure. The policy therefore has objectives and implementation strategies to ensure that land use and transport planning are mutually compatible. The policy also establishes a standardised set of criteria to be used in the assessment of proposals affected by transport noise.

As the subject site is located adjacent to Marmion Avenue and the future freeway extension, and has a reservation for the future railway line within the site, due regard for this policy is essential to ensure the negative impacts of transport noise do not affect the proposed land uses. As the policy recommends that noise assessments in accordance with SPP 5.4 be carried out for the purposes of the policy at the responsibility of the developer, Herring Storer Acoustics was commissioned to perform this work (refer to their technical report in Part 3). The outcomes of this report and the implications for development are discussed in further detail within section 4 of this report. The acoustic report recommends noise management and mitigation measures consistent with SPP 5.4.

### 2.1.7 *Draft Planning for Bush Fire Protection Guidelines*

State Planning Policy No. 3.4 Natural Hazards and Disasters identifies the need to consider natural hazards during the statutory planning approval process.

In May 2010, the WA Planning Commission published the Planning for Bush Fire Protection Guidelines. These guidelines outline matters to be addressed at various stages of the planning process provide an appropriate level of protection from bush fires.

A Fire Management Plan for the subject land has been prepared by FirePlan WA and is included in Part 3; the implications are explained in Section 4.

### 2.1.8 *North West Corridor Structure Plan (1992)*

The North West Corridor Structure Plan supersedes 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 / 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 workforce, 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.

### 2.1.9 *City of Wanneroo District Planning Scheme No. 2*

The City of Wanneroo District Planning Scheme No. 2 reflects the zones and reservations that cover the land as depicted within the Metropolitan Region Scheme. The majority of the site is therefore zoned 'Urban Development', with the 'Railways', 'Primary Regional Road', 'Other Regional Road' and 'Parks and Recreation' Reserves ensuring consistency with the MRS (Figure 5).

### 2.1.10 *Heritage*

The site contains no heritage places, buildings or objects worthy of conservation or preservation as identified in the State Heritage Register and Council's Heritage List in accordance with section 5.2.2 of District Planning Scheme No.2. Additionally, there are no items contained on the Municipal Inventory pursuant to Section 45 of the Heritage of Western Australia Act 1990. Therefore, no additional controls have been stipulated in the preparation of the Local Structure Plan.

With relation to Aboriginal Heritage, an ethnographic survey has been conducted by Ethnoscience as is provided in Part 3. The report concludes that no areas of significance were identified. A search of the Department of Indigenous Affairs (DIA) site register identifies no ethnographic sites within the LSP area. The controls contained within the Aboriginal Heritage Act 1972 therefore do not apply to the development of the land. An Aboriginal Heritage Management plan may be required as a condition to subdivision approval outlining procedures to be followed if any suspected heritage sites are discovered during development works.

2.1.11 Alkimos Eglinton District Structure Plan

The subject land is contained within the Alkimos Eglinton District Structure Plan area. The District Structure Plan was adopted by Council in August 2010 following endorsement by the Western Australian Planning Commission.

The District Structure Plan provides a broad district level land use strategy defining the strategic planning framework for the project area. The District Structure Plan forms the framework for more detailed Local Structure Planning over the Alkimos Eglinton District, which will be developed to reflect changing planning trends, demographics, community needs and market demands.

This Local Structure Plan is consistent with the intent of the adopted District Structure Plan, with the general arrangement of land uses and infrastructure as depicted on the DSP Map, including proposed land uses, residential density targets, road hierarchy and linkages to surrounding existing and planned developments (Figure 6).

The Local Structure Plan design responds specifically to the District Structure Plan requirements through the provision of a Neighbourhood Centre, a K-12 school site, an additional primary school site, the provision of strong east-west and north-south secondary roads and social/pedestrian/cycle linkages. These elements of the Local Structure Plan design are discussed in further detail within section 4.

The District Structure Plan also requires that at the time of lodgement of a Local Structure Plan, the proponent provides supporting information to demonstrate how the objectives and strategies detailed in Part I of the DSP have been addressed and the supporting information utilised to guide and inform the Local Structure Plan design. A detailed table addressing this requirement has been prepared and is provided as section 7.

Figure 5: Current DPS Zoning



TOWN PLANNING SCHEME No.2



#### 2.1.12 *Local Planning Policy 3.8: Marmion Avenue Arterial Road Access*

The main objective of the policy is to strike a balance between the safe movement and flow of traffic on Marmion Avenue and the need for all modes of transport to enter, leave and cross the road. This balance is achieved through the assignment of intersection controls throughout the northern coastal growth corridor.

In relation to the North Eglinton LSP area, one full access intersection is assigned on the northern boundary of the site, being the intersection of a major east west Neighbourhood Connector (A). An additional left in left out is also permitted.

The design of the LSP includes one full access intersection on the entry road into the development. Traffic modelling has concluded that a left in left out intersection is not required. The design of the LSP is therefore consistent with the intersection controls as stipulated in LPP 3.8.

#### 2.1.13 *Local Planning Policy 4.2: Structure Planning*

Local Planning Policy 4.2 has been prepared to provide clarity on the types of issues to be addressed at various stages of the planning process. In addition, the policy details minimum requirements and assessment criteria for Local Structure Plans and therefore stipulates elements to be including on the Structure Plan Map, issues to be addressed in the explanatory report and required technical reports. The recent Draft Structure Plan Preparation Guidelines prepared by the WAPC also expands upon a similar set of criteria.

The North Eglinton Local Structure Plan has been prepared and structured to generally accord with both policies and includes commentary on relevant issues and relevant technical appendices.

#### 2.1.14 *Local Planning Policy 4.3: Public Open Space*

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

The purpose of this Policy is to:

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

Of direct relevance to the design and provision of POS the policy:

- Requires a minimum of 10% of the gross subdivisible area as public open space;
- Requires a minimum of 4% of the gross subdivisible area as active public open space; and
- Requires a minimum of 3% of the gross subdivisible area as public open space for conservation of significant natural assets.

The North Eglinton LSP has been prepared to accord with the provisions of LPP 4.3. Further discussion on the provision of POS and a detailed POS Schedule is provided at section 4 of this report.

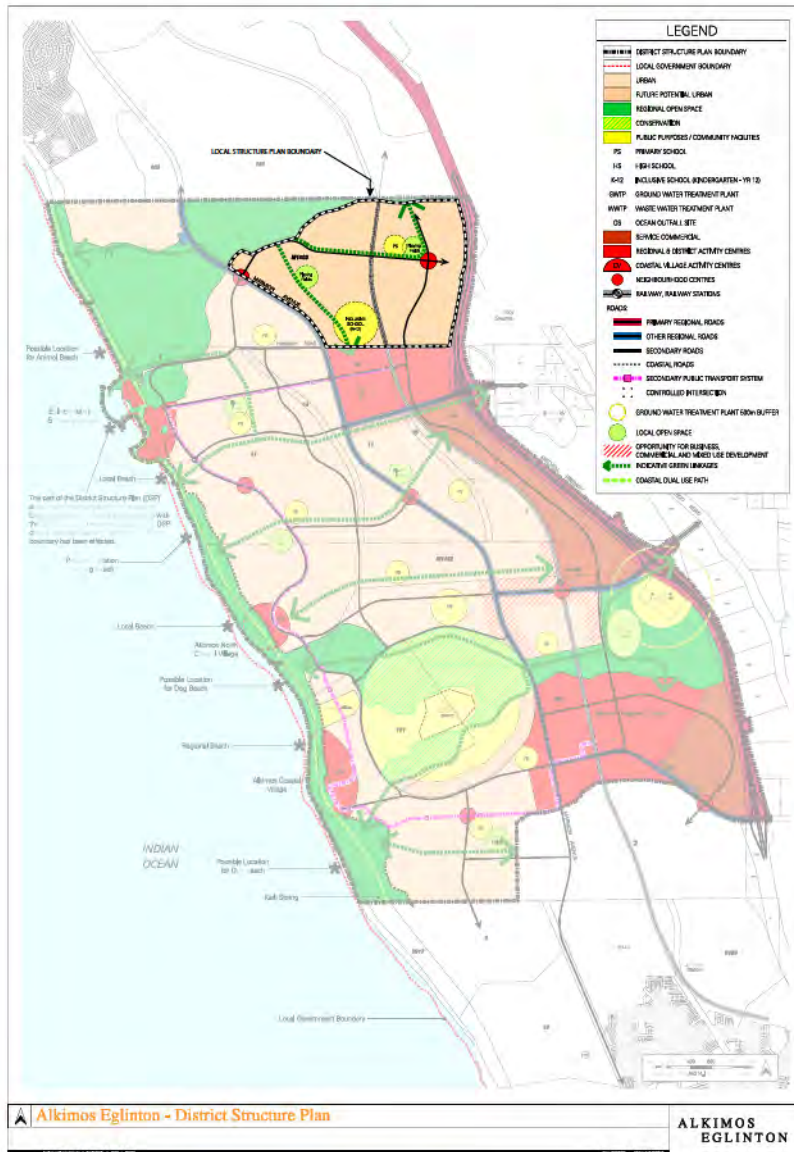


Figure 6: Alkimos Eglinton District Structure Plan

### 2.1.15 Draft Local Planning Policy 3.2: Activity Centres

Draft Local Planning Policy No. 3.2 supersedes the Centres Planning Policy created in 2000. The purpose of this Policy is to provide guidance on the planning and development of activity centres in the City of Wanneroo through district, local and centre structure plans, Local Development Plans and applications for planning approval.

Of direct relevance to the North Eglinton Local Structure Plan, the policy requires a Local Economic Strategy and a Local Community Development Strategy to be prepared and lodged with the Local Structure Plan. These reports are provided in Part 3. In addition, the draft policy also stipulates density requirements of 30 dwellings per site hectare within 800 metres of District Centres and 25 dwellings per site hectare within 400 metres of Neighbourhood Centres. The design of the LSP and the associated density ranges respond to the intent of the Draft Policy and are discussed in further details in section 4 of this report.

### 2.1.16 Draft Alkimos-Eglinton and Yanchep-Two Rocks Community Facilities Plan

The Draft Community Facilities Plan focuses on regional and district facilities required for the northern growth corridor. The plan identifies the required infrastructure for the rapidly growing population, and identifies their spatial distribution through a series of plans. The cost of this infrastructure is shared through the provisions of Draft Local Planning Policy 3.3 Northern Coastal Growth Corridor Developer Contributions, an interim policy until such time as the Developer Contributions Policy for Alkimos-Eglinton is finalised.

The provision of community facilities as identified in the Draft Community Facilities Plan has been discussed and agreed upon with the City of Wanneroo. The North Eglinton Local Structure Plan provides for the development of an indoor recreation centre, located within the neighbourhood centre and co-located with the high school, primary school and associated playing fields. The 9.8 hectare playing fields will be a shared facility and can be utilised by the wider population. The Local Structure Plan is therefore consistent with the Draft Community Facilities Plan.

## 2.2 Federal Legislation

The Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) recommends that proposed urban developments in areas which contain Nationally listed threatened species of ecological communities (matters of national environmental significance [MNES]) are likely to be significant under the Environment Protection and Biodiversity Conservation Act and should be referred to the Minister.

The protected matters database search tool indicates there is a likelihood of threatened plant and animal species being present on the site. A referral has therefore been submitted to SEWPaC to determine if the project constitutes a "Controlled Action." It is considered unlikely that the response to the referral will have a significant impact on the proposed North Eglinton Local Structure Plan, beyond minor design changes if required.





### 3.0 Current Site Conditions

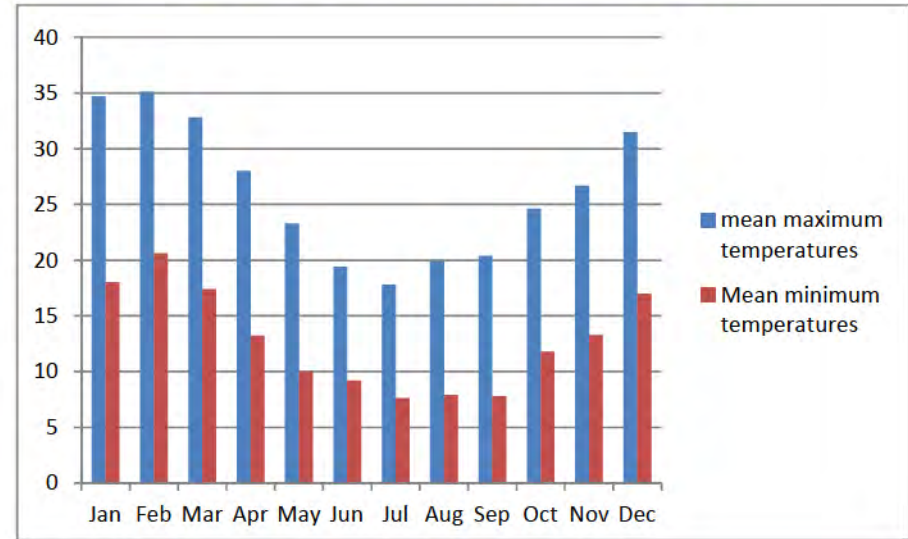
#### 3.1 Climate

The climate of this region is described as Mediterranean, similar to that of other coastal areas in the Perth Metropolitan region, with hot dry summers and mild wet winters.

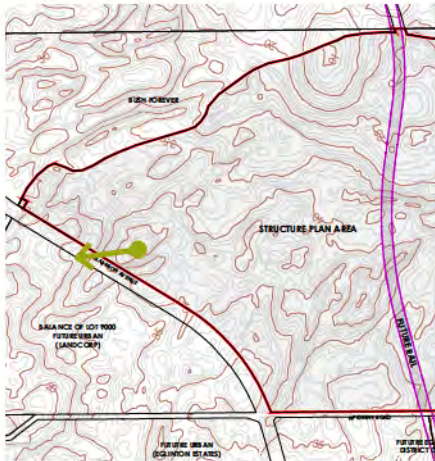
Winds are a very important feature of coastal environmental settings as they are a major determinant of landward sand migration, landforms and landscape. During summer, winds blow from the south-east in the morning and from the south-west in the afternoon with the local sea breeze. Winter is characterised by northwesterly storm winds that back around to the west and south-west, interspersed with calmer periods.

The nearest official meteorological weather station is the Gingin Aero station located approximately 22 kilometres away. Mean minimum and maximum temperatures are based on these records in Figure 7. The highest mean maximum temperature during 2011 was recorded in February at 35° C and the mean minimum temperature was recorded during July at 7.6° C.

Figure 7 : Mean monthly maximum and minimum temperatures for Gingin



Source: BoM 2012



## 3.2 Existing Environmental Attributes

### 3.2.1 Flora and Fauna

#### Flora and vegetation

Mapping undertaken by Heddle (1980) indicates vegetation of the project area is considered to be representative of the Quindalup Vegetation Complex No. 55—Coastal dune complex consisting mainly of two alliances: the strand and fore dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of *Melaleuca lanceolata*–*Callitris preissii* and the closed scrub of *Acacia rostellifera*.

A Level 2 spring flora survey was undertaken of the LSP area, and the adjacent land designated for Regional Open Space (ROS) by GHD from 21-24 September 2010. In total, sixteen vegetation types were recorded during the survey (refer to Part 3), with seven of these located within the LSP area.

- *Acacia rostellifera* and *Spyridium globulosum* dominant tall scrubland/shrubland
- *Lomandra maritima* dominant herbland in interdunal swales and flats
- Low heath – low shrublands on sand dune ridges and limestone capped areas with shallow soils
- *Banksia sessilis* dominant closed heath to tall shrubland.

A large proportion of the LSP area has been highly disturbed by recreational off road vehicles (four wheel drives and trail bikes), illegal dumping of rubbish and weed incursion. Native vegetation in this area has been severely altered and presence of aggressive weeds species was evident in a large abundance.

A large area in the south-east of the LSP area was also classified as Degraded to Completely Degraded due to recent/consistent fire regimes which have severely altered the vegetation structure. This area also has a dense cover of weed species.

Areas directly adjacent to Marmion Avenue on the western side were rated as Good to Degraded, except at the intersection of Marmion Avenue and Pipindinny road where the vegetation was characterised by disturbance from weed species which have displaced native shrubs, herbs and grasses. Subsequently this has decreased the species richness of endemic species.

Overall vegetation condition in the area proposed as ROS is in better condition than that proposed to be developed in the LSP area. The Local Structure Plan aims to retain large portions of the existing vegetation within Public Open Space (POS) areas where possible. Vegetation condition is represented in Figure 8.

No Threatened Ecological Communities or Priority Ecological Communities were recorded in the LSP area, although a number are evident within the proposed ROS area. These will not be impacted on by the proposed development.

Thirty three trees at five separate locations across the LSP and ROS areas were identified as significant according to criteria in the City of Wanneroo Tree Preservation Policy (2006). Most of these trees are *Eucalyptus gomphocephala*, with the remainder being a mix of *Eucalyptus marginata*, *Eucalyptus* sp., *Nutysia floribunda* and *Banksia attenuata*. The majority of the significant trees identified are located within the proposed ROS area and are therefore protected.

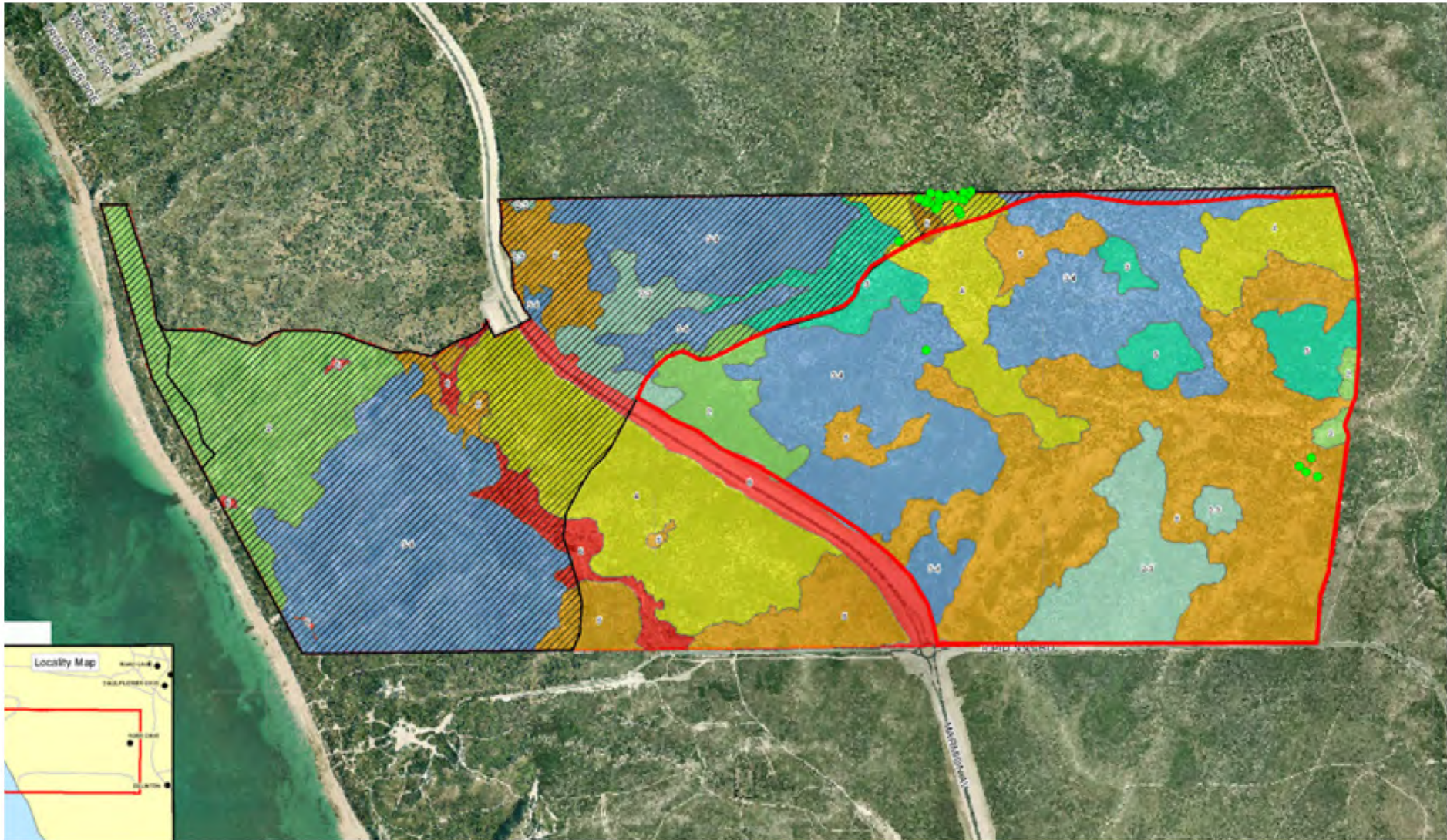
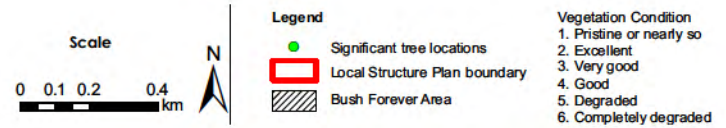


Figure 8: Vegetation Condition



No Declared Rare Flora (DRF) species or threatened EPBC listed flora species have been identified within the LSP area, although three different species of Priority flora were identified in the proposed ROS area which is not being developed.

### Fauna

Fauna surveys undertaken by RPS (2008) and Ecological (2011) have recorded two species of conservation significance as having the potential to occur within in the LSP area Table 2.

Table 2: Threatened fauna with the potential to occur in the area

Species	Wildlife Conservation Act 1950	EPBC Act 1999	Preferred habitat
Graceful sun moth (Synemon gratiosa)	Schedule 1	Endangered	Lomandra habitat, specifically Lomandra maritima
Carnaby's black cockatoo (Calyptorhynchus latirostris)	Schedule 1	Endangered	Acacia rostellifera and Spyridium globulosum Tall Open Shrubland to Closed Tall Shrub

Key fauna habitats within the LSP area include 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 and pasture.

Graceful Sun Moth (Synemon gratiosa) surveys were undertaken by Ecological in 2010 and 2011. During the 2011 survey a total of 24 individuals were observed across the entire Eglinton area (i.e. the LSP area, the proposed ROS, and the south Eglinton area). The occurrence of the Graceful Sun Moth was consistent with the occurrence of Lomandra maritima, a known breeding habitat. Topographic data recorded shows that moths were observed over a range of locations within the dune profile including mid and upper slopes, dune crests and saddles, but indicated a preference for upper slopes and dune ridges. Recorded locations of the Graceful Sun Moths observed during the 2011 surveys are shown in Part 3. It is noted that the Graceful Sun Moth is also the subject of the EPBC referral currently being assessed by the Commonwealth to confirm if the development is considered to be a controlled action.

Carnaby's Black Cockatoo (Calyptorhynchus latirostris) is endemic to the south-west of Western Australia. They mainly occur in uncleared remnant native eucalypt woodlands, especially those that contain Salmon gum, wandoo, and in shrubland or kwongan heathland dominated by Hakea, Dryandra, Banksia and Grevillea species (SEWPaC 2012). Current data on distribution of this species shows that there are numerous records along the Northern Swan Coastal Plain, including records in and around the LSP area (refer to Part 3). An EPBC referral has been submitted to the Commonwealth to confirm if the development is considered to be a controlled action.

A Vegetation and Fauna Management Plan is required to be prepared prior to the lodgement of subdivision applications to the satisfaction of the City of Wanneroo.

### 3.2.2 Landform/topography

The site is generally undulating with the majority of slopes varying from 1 in 3 (33%) to 1 in 50 (2%). Some areas have steeper slopes, typical of the Perth coastal dune system. The site has a highpoint at RL 53.0 in the south-east cell approximately halfway between the proposed railway reserve and future Mitchell Freeway. The site then generally falls in the north-west direction passing through a central low point of RL 16.0.

### 3.2.3 Geomorphology

Ground conditions comprise sand overlying limestone to varying depths. Limestone outcrops are at the surface along some ridges and it can be expected that areas of harder capstone will be encountered.

The LSP area is located within the Quindalup landforms and soils complex, described as dunes and beach ridges composed of calcareous sands (GHD 2011). The geological units found at the project area are therefore associated with two dune systems: older Spearwood dunes and newer calcareous Quindalup dunes.

Eight geological units occur in the study area and include the following soil complexes (McArthur and Bartle 1980):

- Spearwood Dune System:
  - Karrakatta Shallow Solis Phase (Kls)-brown and yellow/brown shallow sands and stony solis with limestone outcropping.
  - Karrakatta Sand Yellow Phase (Ky)-soils consisting of a grey-brown surface overlay passing into bright yellow sand with limestone outcropping usually within two meters of the surface.
- Quindalup Dune System:
  - Quindalup Oldest Dune Phase (Q1)-calcareous sands with organic staining to about 30 cm, overlying pale brown sand with definite cementation below one metre.

- Quindalup Second Dune Phase (Q2)- calcareous sands with organic staining to about 20 cm passing into pale brown sand, some cementation below one metre.
- Quindalup Third Dune Phase (Q3)-loose calcareous sand with little surface organic staining and incipient cementation at depth.
- Quindalup Youngest Dune Phase (Q4)-loose pale brown calcareous sand with no soil profile development.
- Quindalup Deep Sand Flat Phase (Qp)-dark grey-brown sand to about 50cm and then pale brown sand.
- Quindalup Shallow Sand Flat Phase (Qs)-shallow calcareous sands over limestone.

### 3.2.4 Groundwater and Surface Water

There are no wetland/water flows within the LSP area.

The regional groundwater flow direction is south-east towards the Indian Ocean at a gradient of 0.001. Groundwater levels beneath the site range from 0 m AHD –3 m AHD inland. Uneven topography associated with dune formations makes depth to groundwater highly variable. The base of the superficial aquifer occurs between 30–35 m below the natural ground surface level (RPS 2008).

There are no RAMSAR or Conservation Category Wetlands located within the LSP area. Pipidinny Swamp, a Conservation Category Wetland, is the closest wetland to the site, located approximately 500 metres to the east of the Local Structure Plan area.

### 3.3 Context and Constraints Analysis

#### 3.3.1 Movement Network

##### *Existing Road Network*

Marmion Avenue is covered by an Other Regional Roads reservation in the Metropolitan Region Scheme and is currently classified as a District Distributor A road in the Main Roads WA Functional Road Hierarchy. It is currently constructed as a single carriageway, two-lane, rural road (7.4m carriageway with 2m sealed shoulders). It has a posted speed limit of 80km/h in this area. The City of Wanneroo recorded weekday traffic flows of approximately 6900 vehicles per day (vpd) on Marmion Avenue south of Pipidinny Road in May 2012.

Pipidinny Road is classified as an Access Road in the Main Roads WA Functional Road Hierarchy. It is constructed as a single carriageway, two-lane, rural road (sealed width approximately 7m). The default 110km/h speed limit outside of built up areas applies. The City of Wanneroo recorded weekday traffic flows of approximately 330 vpd on Pipidinny Road east of Marmion Avenue in June 2009.

The Marmion Avenue / Pipidinny Road intersection has been constructed as a single-lane roundabout with a central island diameter of 40m and is designed to allow for future upgrading to a two-lane roundabout when Marmion Avenue is upgraded to dual carriageway in future.

The Wanneroo Road / Pipidinny Road intersection is a priority-controlled (i.e. give way) T-junction with a left turn deceleration lane on the southern approach on Wanneroo Road.

##### *Public Transport*

Bus Route No. 490 runs on Marmion Avenue from Clarkson Train Station to Yanchep and Two Rocks. This route provides an hourly service Monday to Friday with more frequent service (2 or 3 per hour) in the peak direction in AM and PM peak periods, hourly on Saturday and two-hourly on Sunday.

##### *Pedestrian and Cyclist Facilities*

The LSP area is currently outside the geographical limit of the Department of Transport's Perth Bike Map series (prepared in 2009). The 2m wide sealed shoulders on Marmion Avenue provide the only existing cycling facilities in this area.

##### *Changes to Surrounding Road Network*

Long-term road network planning for this part of the Metropolitan Region sees the Mitchell Freeway as the Primary Distributor road and Marmion Avenue as an Integrator Arterial (A) road. Eglinton Avenue (south of the Eglinton District Centre) will provide the closest freeway junction and the main east west road link in the Eglinton area. Pipidinny Road will not connect to the freeway. The Alkimos Eglinton District Structure Plan identifies the envisaged hierarchy of roads for this area.

### 3.3.2 Services/Infrastructure

All required utility services can be extended to service new development.

In terms of water supply, the development area is within the Water Corporation licence area and is ultimately supplied by potable water from the Carabooda Reservoir which is soon to be commissioned.

In terms of sewerage, the development area is within the Water Corporation licensed area and is serviced by the Alkimos Wastewater Treatment Plant.

It is anticipated that the power requirements for the North Eglinton estate development will necessitate a new HV connection from a nearby zone substation.

Existing gas infrastructure is located at Alkimos south of the North Eglinton Estate.

Section 4.7 summarises the servicing strategies and engineering issues associated with the proposed North Eglinton estate development. A more detailed Local Engineering Infrastructure Report is contained in Part 3.

### 3.3.3 Activity Centres and Employment

#### *Regional and District Context and Constraints*

The Brighton Neighbourhood Centre (anchored by a Coles supermarket) is currently the nearest existing activity centre, located 8.5km south of the North Eglinton LSP community.

The North Western growth corridor is forecast and planned to provide a significant number and range of activity centres accommodating a significant amount of retail floor space. The North Eglinton Local Structure Plan community is expected to have access to a range of activity centres including:

1. Regional Centre at Yanchep/Two Rocks (7.5km north of the NE community)
2. Regional Centre at Alkimos (4km south of the NE community)
3. District Centre at Eglinton (immediately south of the NE community)
4. District Centre at Yanchep (4.5km north of the NE community)

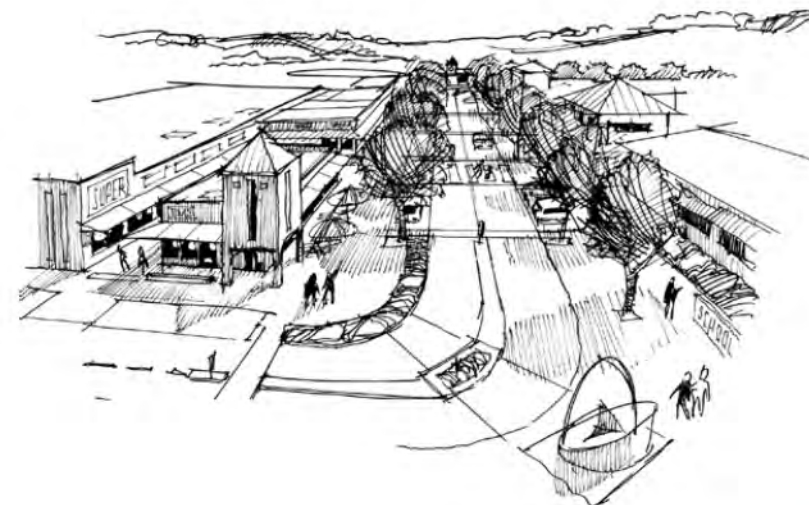




Figure 9: Activity Centres Regional & District Context

Commercial activity planned in the North Eglinton LSP area will trade in the shadows of these centres. Planning for these centres include:

Table 3: Regional & District Centres

Planned Centres		Characteristics
Regional Centres	Yanchep/Two Rocks	10km catchment Probable anchor tenants include Two x full line supermarkets Three x Discount Department Stores Over 100 shops (strategy suggests at least 50 shops)
	Alkimos	100,000sqm of total floor space including 60,000sqm of retail floor space full range of office, entertainment, education and health and community and recreation
District Centres	Eglinton	3km catchment Probable anchor tenants include Two x full line supermarkets One x Discount Department Stores 60 shops (strategy suggests at least 30 shops)
	Yanchep	50,000sqm of total floor space including 30,000sqm of retail floor space a range of office, entertainment, education and health and community and recreation

Draft Wanneroo Activity Centres Strategy (City of Wanneroo – August 2008)



The Yanchep District Centre on the corner of Marmion Avenue and Yanchep Beach Road is already commenced development with a single full line supermarket and 20 specialty shops providing 5,000sqm of retail floor space as the first stage of the ultimate District Centre offer.

The majority of targeted self sufficient employment opportunities will be expected to be accommodated in these centres with their diverse activity and employment potential.

The North Eglinton LSP area community will have equitable spatial access to a full range of Regional and District activities and employment opportunities at centres within typical urban catchments both north and south of their community. There is subsequently no need to provide for Regional and District activity and employment opportunities in the North Eglinton LSP area.

#### *Neighbourhood Context and Constraints*

The Alkimos-Eglinton District Structure Plan identifies two neighbourhood centres in the North Eglinton Local Structure Plan area:

1. A neighbourhood centre located on Marmion Avenue with an indication that centre could effectively straddle both sides of the Avenue.
2. A neighbourhood Centre at the intersection of a major north south and east west distributor route within 400 metres of the planned Freeway extension.

A review of the retail analysis completed for the district structure planning for the Western (Marmion Avenue) Neighbourhood Centre reveals:

- that it has the market potential to perform its role and function in its planned location given that it is centrally located and accessible from a full catchment to the east and west of the planned location;

- that the limited retail floor space afforded to a neighbourhood centre anchored by a single supermarket would not be able to be sustained if developed across both sides of Marmion avenue.

A review of the retail analysis completed for the Eastern (Freeway) Neighbourhood Centre reveals limited market potential for a commercially sustainable Neighbourhood Centre in the planned location due to:

- that the proximity of the Eglinton District Centre to the south,
- the limited catchment to the east created by the freeway,
- the limited catchment to the north created by the non residential land uses,
- the limited exposure and accessibility from the catchment immediately west.

The review prompted reconsideration of the neighbourhood centre location in the east and formed the basis for the retail needs and employment assessment contained in the Local Economic Strategy.

The preferred location for a neighbourhood centre network in North Eglinton includes:

- The Marmion Avenue Neighbourhood centre to be accommodated entirely on the western side of Marmion Avenue to better cater for the planned community catchment between the coast and Marmion Avenue.
- The relocation of the Eastern Neighbourhood Centre to a more central location and integrated with a diverse range of community activities to create a stronger hub of activity that serves the entire north Eglinton community.

These minor reconsiderations to the neighbourhood centre network in North Eglinton do not alter the overall activity centre structure planning at a district level. They simply produce a more commercially sustainable network of neighbourhood activity nodes to complement the higher commercial activity offering and that will be more relevant and valued by the communities they are intended to serve.

### 3.3.4 Regional and District Open Space

Three Bush Forever sites are located within a one kilometre radius of the Local Structure Plan area. One of these Bush Forever sites, No.289: Ningana Bushland, Yanchep/Eglinton, has been conserved as a result of Metropolitan Region Scheme Amendment 1029/33 and occupies approximately 182 hectares of land abutting the northern boundary of the Local Structure Plan area, zoned as Regional Open Space. The other two sites are Bush Forever Site 288: Yanchep National Park and adjacent bushland, east of the Local Structure Plan area, and Bush Forever Site 397: Coastal strip from Wilbinga to Mindarie.

Future areas of district open space for the immediate surrounding area are identified in the Alikimos Eglinton District Structure Plan and the draft Alkimos-Eglinton and Yanchep-Two Rocks Community Facilities Plan. The North Eglinton Local Structure Plan makes provision for a District Indoor Recreation Centre, consistent with the draft Community Facilities Plan and consultations with the City of Wanneroo. It is understood that district POS and district multipurpose hard courts are to be provided in the Eglinton District Centre, south of the Local Structure Plan area.

### 3.3.5 Road and Rail Noise

The structure plan area is affected by the following noise sources:

- Marmion Avenue, abutting the western boundary;
- the future Mitchell Freeway extension, abutting the eastern boundary;
- the future northern suburbs railway extension, through the middle of the site.

An Acoustic Assessment has been undertaken by Herring Storer and is included in Part 3. The assessment addresses the likely impacts of the above noise sources, and identifies appropriate design responses and mitigation measures, which have informed the structure plan designed, as explained in Section 4. A detailed Noise Assessment Report for noise sensitive land uses affected by Marmion Avenue, the Railway Reserve or the Mitchell Freeway Reserve will be prepared prior to the lodgement of subdivision applications to the WAPC (to the satisfaction of the Department of Environment Regulation) and based on the final lot layout and final earthworking levels.



Figure 10: Opportunities & Constraints

### 3.3.6 Land Use Buffers

The Alkimos Eglinton District Structure Plan identifies a future 132kV powerline extending through the structure plan area, adjacent to the eastern boundary. Western Power advises there is a 24 metre easement associated with the powerline, which restricts the use and development of the affected land. The Local Structure Plan proposes this easement be contained within the backyard of large (R10) lots and with POS.

The Regional Open Space abutting the northern boundary of the site is a Bush Forever site. The Local Structure Plan proposes as an interface treatment either areas of public open space or a road reserve of 20 metres in the western portion and 25 metres in the eastern portion. Provision is also made for linkages from the structure plan area into and through the Bush Forever site.

The Fire Management Plan in Part 3 identifies hazards associated with the adjacent Bush Forever areas and with POS within the Local Structure Plan where vegetation is to be retained and fire protection measures, including required separation distances between vegetation and houses.

Water Corporation has advised there are no land use buffers associated with bores located along Marmion Avenue.



2

## 4.0 Local Structure Plan

### 4.1 Masterplan

Figure 11 provides an indication of the likely development outcome facilitated by the Local Structure Plan and a summary of key design considerations. The masterplan design is subject to detailed refinement at subdivision stage.

A primary objective in the planning design for North Eglinton is to create residential areas with a distinctive character and identity with 'central places' which foster a sense of community belonging. The final design is a product of the convergence of the locational, landform and landscape features of the site with the project objectives of sustainability, walkability and an affordable range of lot/housing product.

The creation of an East/West and North/South movement framework which comprises tree lined streets and open space allows for the connectivity between the development and the; Eglinton District Centre, Bush Forever Reserve and west to the coast while preserving key areas of landform/vegetation retention. The integrated movement network is configured to allow safe and convenient pedestrian/cyclist access to the future facilities and services.

The design will facilitate the provision of a diverse range of lot sizes, which will subsequently facilitate a mix of housing types to cater for a wide range of emerging demographics. Higher densities are located adjacent to the Eglinton District Centre and areas of high amenity including the neighbourhood centre, public open space and public transport routes.

The key design objectives for North Eglinton are as follows:

- Vegetated highpoint retained as naturalistic parkland with lookout and ocean views for public enjoyment
- Retained vegetation and landform in POS that terminates important views and green links
- A memorable Neighbourhood Connector West - shady widened verges support walking, cycling, denser living and WSUD
- Neighbourhood Centre Green framed by mixed use as 'mini main street'
- Multi-purpose community and recreation centre on Civic Green as southern anchor
- Co-location of schools with active recreation and the neighbourhood centre
- Community garden
- Retained bushland pulled towards the neighbourhood centre via a 'Social Link' continuing to the district centre
- Typical cardinal orientation of blocks for maximum solar gain
- Neighbourhood Connector East – narrows somewhat and introduces a tree lines median for an altogether different character
- Typical neighbourhood gathering space at the heart of each 5-10 minute walkable catchment
- POS retaining dramatic natural landscape – highpoint dropping away to a bowl of mature trees
- Bush forever edge road reserve providing appropriate bushfire protection zone
- No build are and tree row highlight axial views between neighbourhood connector and highpoint (lookout) retained in POS
- Vegetation and landform retention in larger neighbourhood park
- Flared verge reinforces green link and provides WSUD opportunities
- Deeper lots comprising easement for 132KV overhead powerline
- Denser living around more urban green spaces within a 5-10 minute walk of future rail station and district centre



The North Eglinton estate will become a vibrant community comprising residential, community, commercial and cultural activities to service the future residents. Changing lifestyle demands, the need to address affordability, sustainability considerations and an objective to retain landform/vegetation have driven the urban structure. A new aesthetic in urbanity will be showcased incorporating tree lined streets, quality urban parks and a diverse range of housing options. The various design elements will come together to create an estate of intensity and substance that is distinct from surrounding projects.

Partnerships forged between the State Government, City of Wanneroo and Education Department will make achieving this vision possible.





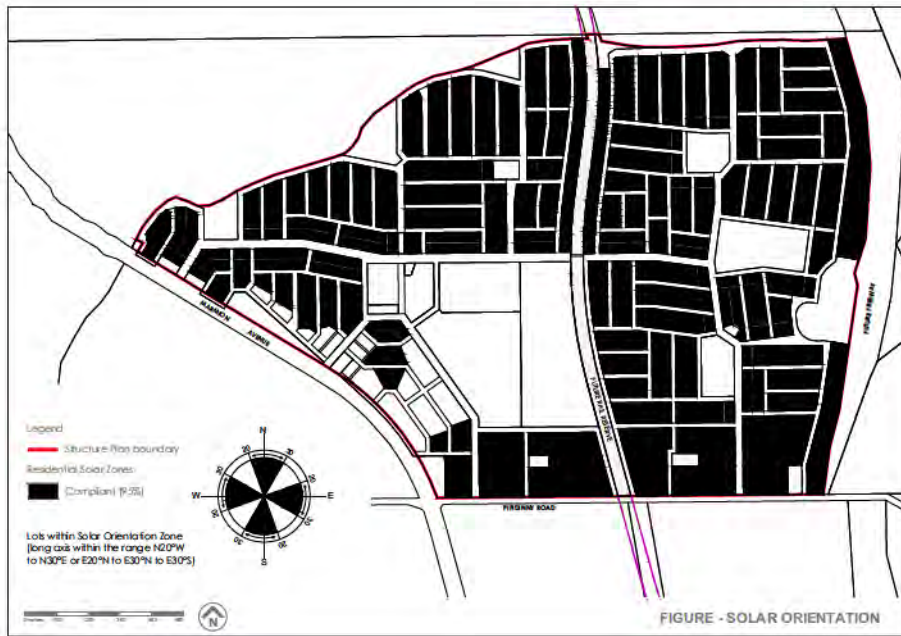


Figure 14: Solar Orientation

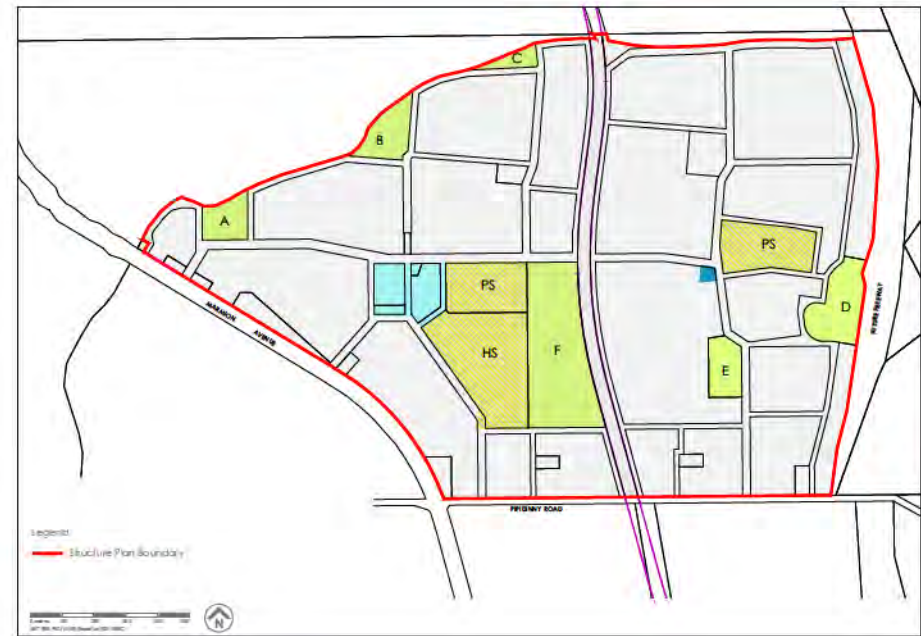


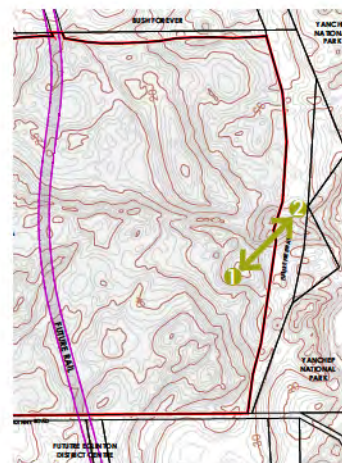
Figure 15: Open Space Network



## 4.2 Boundary Interface

The LSP Design has been configured to ensure an appropriate interface along the boundaries of the site as detailed below;

- Marmion Ave – Lots facing Marmion Ave and accessed via an access street within the Marmion Ave Road Reserve. There are no lots backing onto Marmion Ave
- Bush Forever Site - A road interface (20m or 25m Road Reserve) directly adjacent to the Bush Forever boundary or an area of Public Open Space or drainage.
- Freeway Reservation – Large residential lots are proposed adjacent to the freeway reservation in order to accommodate the easement (24m) associated with the 132KV transmission link.
- Pipidiny Road - Given the need to deliver an increased level of density adjacent Pipidiny Road due to the nearby Eglinton District Centre, direct lot access is not proposed.



1



### 4.3 Design Response - Eglinton District Centre

The Structure Plan proposes an increased density of development on the southern boundary of the site, adjacent the future Eglinton District Centre. A more detailed design study was undertaken for this area which explored a range of housing typologies that could be delivered in a manner that would be responsive to the proposed levels and solar orientation while achieving the required density standards. The design shown on the structure plan can deliver an appropriate density of development while demonstrating good solar orientation of built form for the various housing/lot typologies.

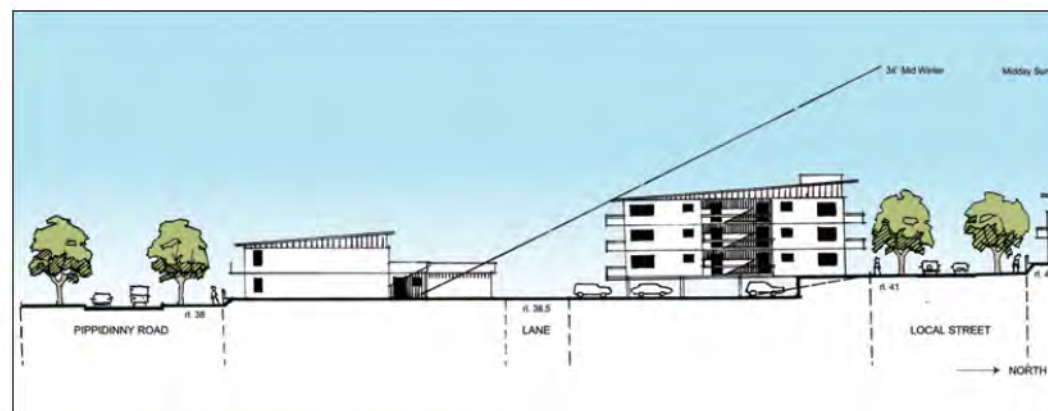


Figure 16: Indicative Section at Pippidiny Road TOD

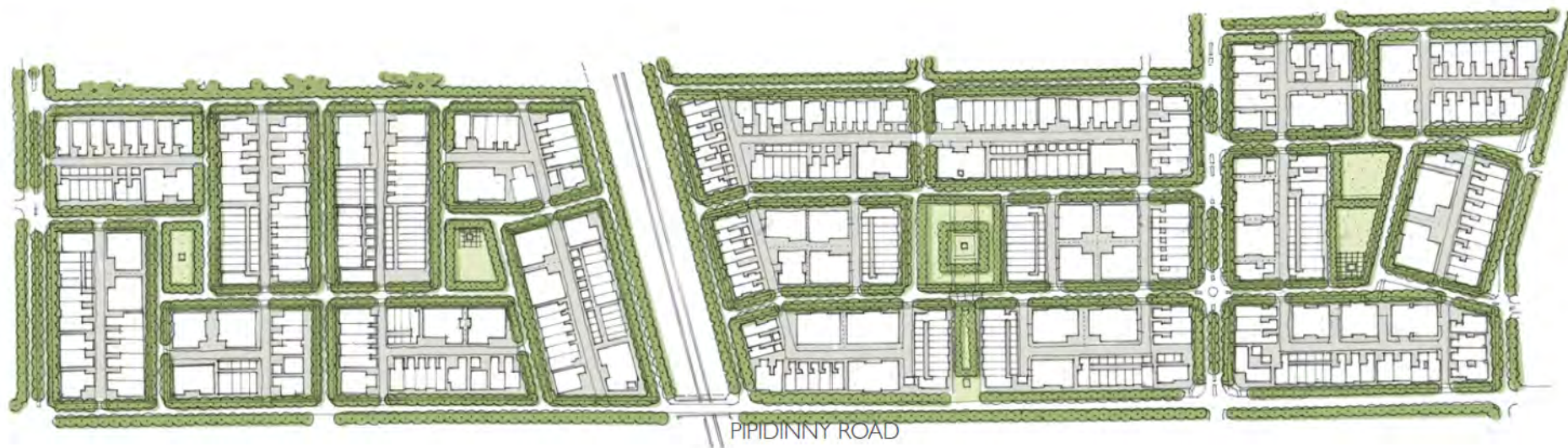


Figure 17

## 4.4 Land Use

Land use allocation within the Local Structure Plan area is consistent with the Alkimos Eglinton District Structure Plan. The Local Structure Plan area will be developed for primarily residential purposes and a range of complementary commercial/retail, educational, community and recreational uses. Table 4 identifies an indicative breakdown of land allocation.

*Table 4: Land Allocation*

LAND USE	AREA
Residential	131.1 ha
Neighbourhood Centre	1.3 ha
Mixed Use/Community	1.4 ha
Primary Schools x2	8.0 ha
High School/Inclusive School	8.5 ha
Public Open Space	26.1 ha
Roads	59.2 ha
Railway reserve	5.9 ha
Total	241.5 ha

### 4.4.1 Residential

The Local Structure Plan provides for a range of residential densities, consistent with the requirements of the Alkimos Eglinton District Structure Plan. Residential densities range from R10 to R100. The wide range of densities facilitates the provision of a diversity of lot sizes and housing types.

Higher densities will be provided in areas of high amenity, including within 400 metres of activity and community centres, around public open space and adjacent to the neighbourhood connector route.

Lower density (R10) lots are proposed adjacent the future freeway extension along the eastern boundary. The extra depth in these lots makes allowance for the future 132 kV power line easement to be contained within the lots.

### 4.4.2 Indicative Dwelling and Population Yields

#### *Dwelling Yield*

The dwelling yield target for the Local Structure Plan area, as detailed in Part I, is 3,406 dwellings.

The estimated dwelling yield for the structure plan area, based on the indicative masterplan, is 3,424 dwellings. The following table identifies an estimated breakdown of dwelling yields by density code.

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

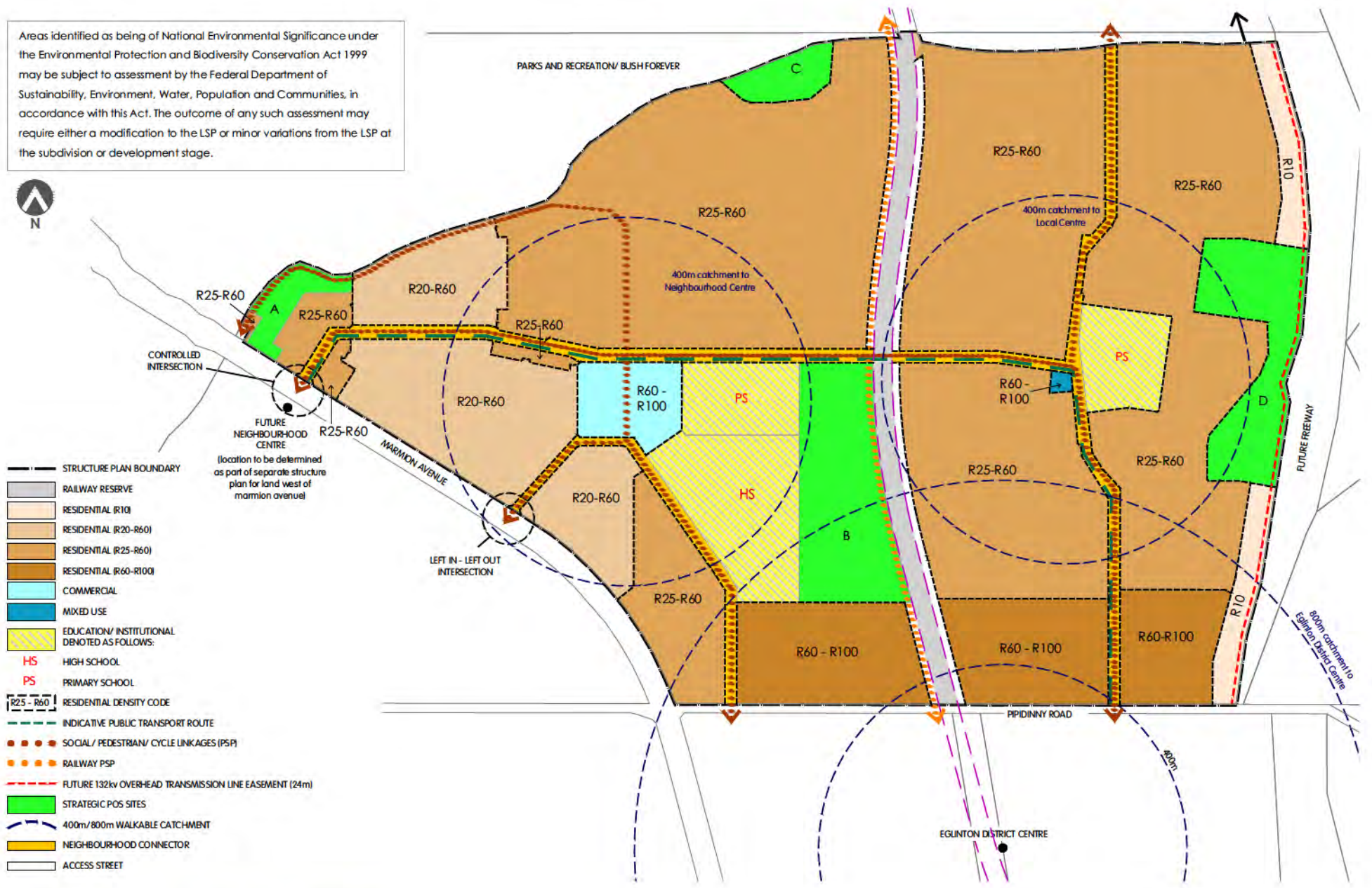


Figure 18: Suggested Residential Density Plan (REV M)

*Table 5: Indicative Dwelling Yield*

Residential Density Code	Estimated Dwelling Yield
Single house lots	
R10	43
R20	751
R25	981
R30	421
R40	391
R60	157
Grouped/Multiple Dwelling sites	
R30-R100	680
Total	3,424

Figure 18 shows indicative residential density codes for the Local Structure Plan area. As required by Part 1, a Residential Density Code Plan is to be submitted at the time of subdivision to the WAPC, indicating the density coding applicable to each lot within the subdivision. This is required to be consistent with the Structure Plan, and the density ranges and locational criteria contained in Part 1. The Residential Density Code Plan is to include a summary of the proposed dwelling yield of the subdivision.

Directions 2031 sets a target of 15 dwellings per gross urban zoned hectare of land in new development areas. Based on 227.1 hectares of land that will ultimately urban zoned (that is, excluding the 8.5 hectare high school site and 5.9 hectare railway reserve), this equates to a density target of 3,406 dwellings for the structure plan area.

Liveable Neighbourhoods sets a target of 22 dwellings per site hectare. Assuming an estimated 131.1 hectares of residential land, this equates to a target of 2,884 dwellings.

As identified in the Alkimos Eglinton District Structure Plan, and as required by Part 1 provisions, the following density targets are to be met at subdivision stage:

- i. a minimum average density of 30 dwellings per site hectare within 400 metres from the centre of district activity centres;
- ii. a minimum average density of 25 dwellings per site hectare within 400 metres from the centre of neighbourhood centres and along neighbourhood connectors supporting future public transport routes;
- iii. a range of densities in other locations in order to deliver housing diversity.

The Local Structure Plan and indicative masterplan make provision for these targets to be met at subdivision stage.

#### *Population and Demographics*

Assuming a household size of 3.0 (consistent with census data for the Wanneroo North West Statistical Local Area), a population of 10,272 is estimated for the structure plan area.

Based on projected population forecasts and 2011 ABS population data, the structure plan area is expected to be largely representative of household structures that currently reside in the City of Wanneroo. Although couple families with dependents will decrease slightly in proportion of the total population, this cohort will continue to be the most dominant household structure (declining from 42.5% to 39.3%), followed by couple families without dependents, which are forecast to increase substantially, from 25.5% of the overall population in 2011 to 31% in 2021. Lone person households (15.7%) and one parent families (10.5%) will decrease marginally when compared with City of Wanneroo population in 2011.

Figure 19: Public Open Space (POS) Summary

POS	SIZE <small>(ex verge)</small>	TYOLOGY
1	4200m <sup>2</sup>	Local
1a	3000m <sup>2</sup>	Local
2	1.90 ha	Neighbourhood Passive
3	3.53ha	Neighbourhood Passive
4	1.57ha	Neighbourhood Passive
5	5000m <sup>2</sup>	Local
6	7000m <sup>2</sup>	Local
6a	3000m <sup>2</sup>	Local
7	9.80 ha	Neighbourhood - Playing Fields
8	2500m <sup>2</sup>	Local Passive
9	1.40ha	Neighbourhood Passive
10	4100m <sup>2</sup>	Local - Entry Park
11	2.04ha	Neighbourhood
12	1.03ha	Local
12a	5100m <sup>2</sup>	Local
13	1.65ha	Neighbourhood
14	1300m <sup>2</sup>	Local
15	1000m <sup>2</sup>	Local - Town Square
16	2800m <sup>2</sup>	Local

Refer to Landscape Strategy for typology descriptions  
 Refer to LWMS for details regarding drainage areas, depths and volumes

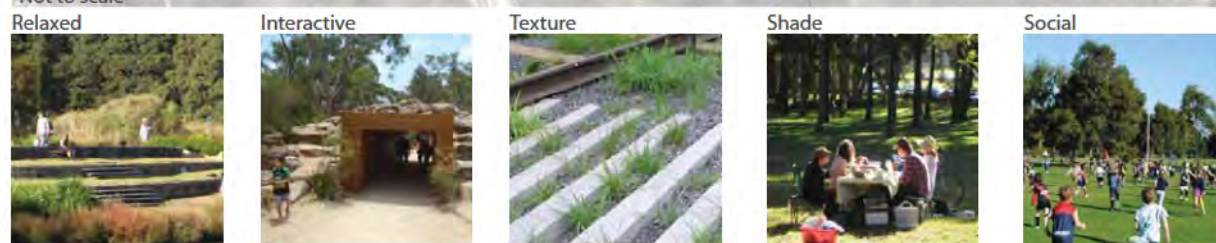
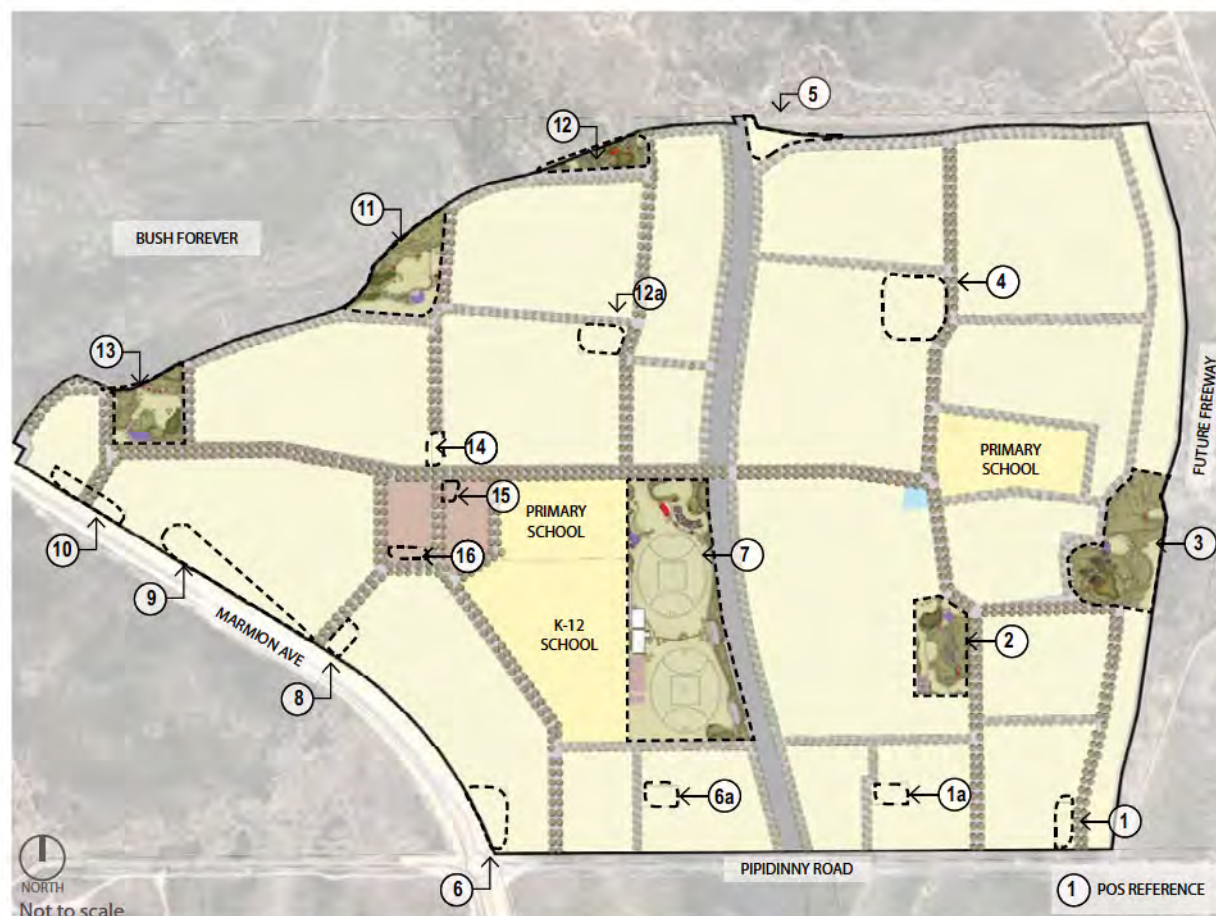


Figure 20: Landscape Master Plan



Play

Interactive



Respond to Landform



Connected



Organic



Social



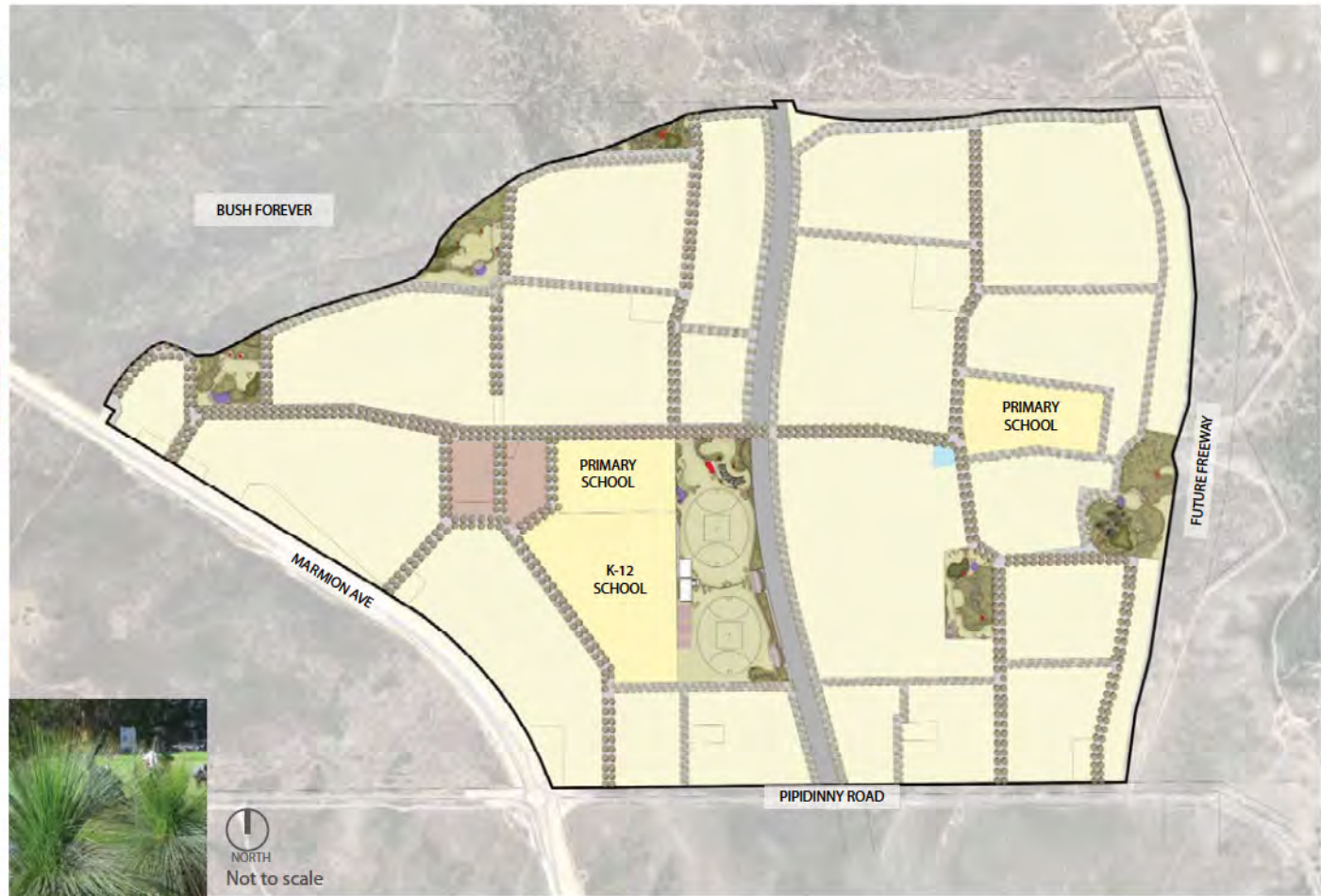
Relaxed




Shelter



Texture



  
 NORTH  
 Not to scale

The Overall Landscape Strategy is to provide a cohesive series of Public Open Spaces that is connected both physically and in character.

- Native vegetation and existing landform shall be retained where possible and have informed the design process.
- The POS areas shall cater for a variety of passive and active uses to suit a range of users and to cater to a broad demographic.
- An emphasis has been created on ease of access throughout the site and into surrounding areas for bikes and pedestrians.
- Materials, landform and planting shall reflect the natural environment of North Eglinton to create a unique sense of place.
- This site has 3 key connections which have informed the development of character precincts; providing connection to the Bush Forever site, connections to the coast and connections to the future Eglinton Town Centre

Figure 21: Landscape Influences

Precinct Character Summary;

- Coastal Influence
  - Dunal forms
  - Mounding vegetation
  - Timber, sand and local stone
  - Informal style, organic lines
  - Maximise views to coast
  - Coastal vegetation

- Bush Forever Influence
  - Bushland character
  - Copses of trees
  - Timber, local stone, and concrete
  - Graduating from informal-formal
  - Blur boundary of Bush Forever
  - Maximise views to the bushland and coast

- Urban Influence
  - Function influencing form
  - Increased formality with links to bushland and coastal themes
  - Local stone, gravel sand and concrete
  - Internal focus - schools, commercial centre, community garden and POS

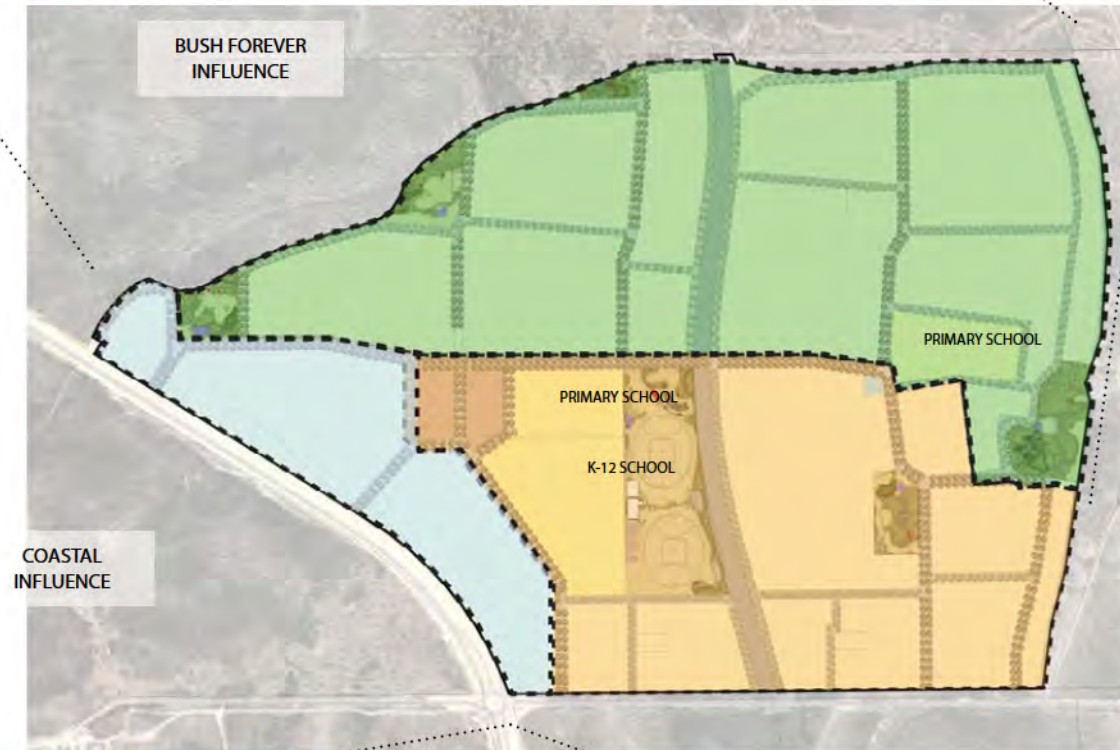
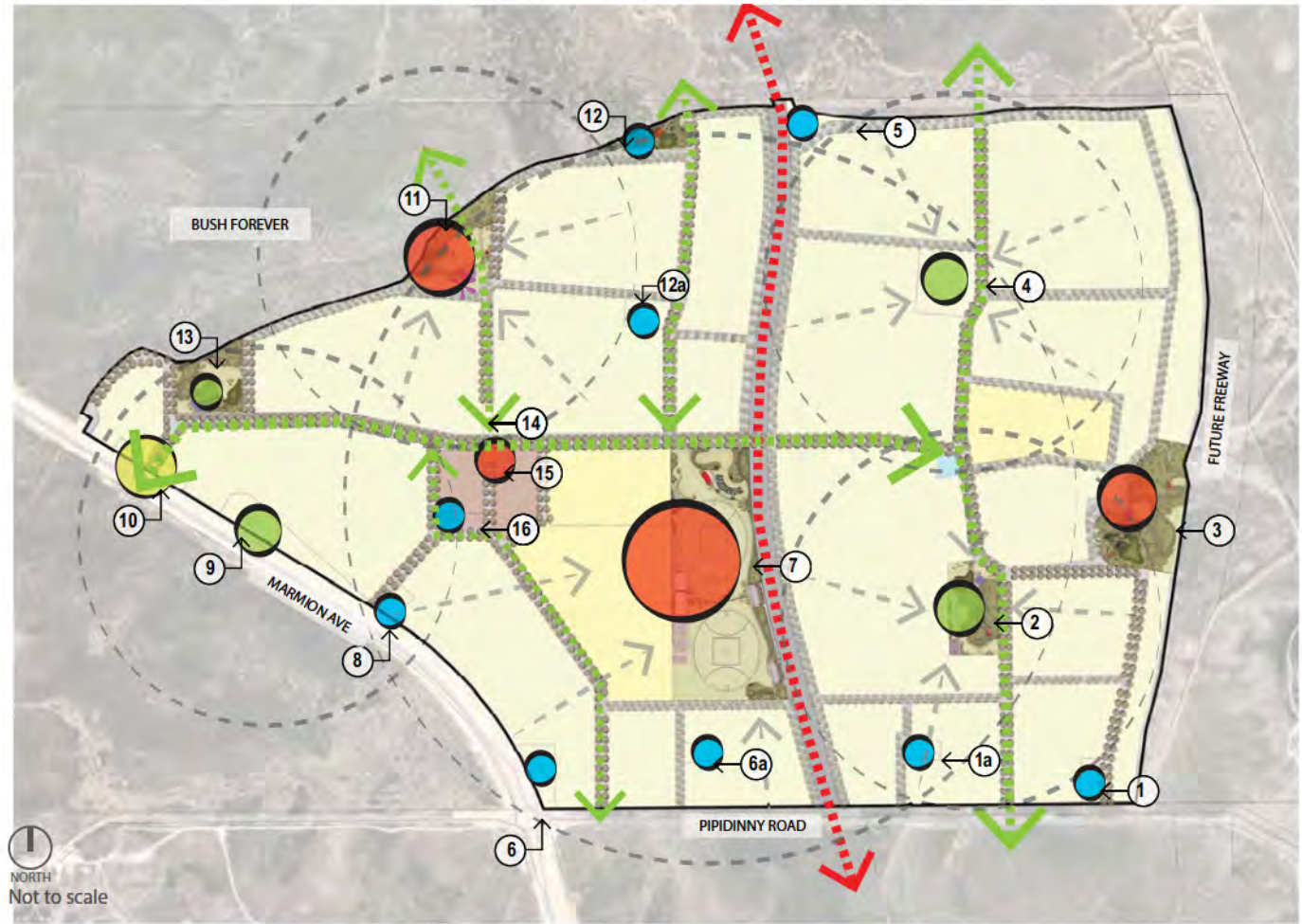




Figure 22: Landscape Strategy

Public Open Space Summary;

- **Entry Park**  
 Local park which defines the primary entrance into North Eglinton
  - Sculpture/signage
  - Seating and feature planting
  - Rocks swales
  - Path network
  
- **Local Park**  
 POS which caters for a 400m walkable catchment (5000m<sup>2</sup>-1.0ha)
  - Small turf pockets & native planting
  - Seating opportunities and bins
  - Small playground
  - Path network
  - Drainage (where applicable)
  
- **Neighbourhood Park**  
 POS which caters for a 800m walkable catchment (1.0-7.0ha)
  - Large turf areas and native planting
  - Picnic facilities and shelters
  - Large playground
  - Sports goals/nets (active only)
  - Path network
  - Drainage (where applicable)
  - Strategic areas of vegetation retention
  
- **Neighbourhood Park - Key Community Node**  
 Key community node/focal point to cater for entire North Eglinton community and attract visitors to the area
  - Community Centre/shops
  - Community garden
  - Playing fields



Relaxed



Play



Shelter



Planting



Key;

- Key Pedestrian Linkages with widened verges
- Railway Dual Use Path
- Walkable Catchments

Figure 23: Street Tree Master Plan



Agonis flexuosa - Peppermint Tree



Callistemon viminalis - Captain Cook



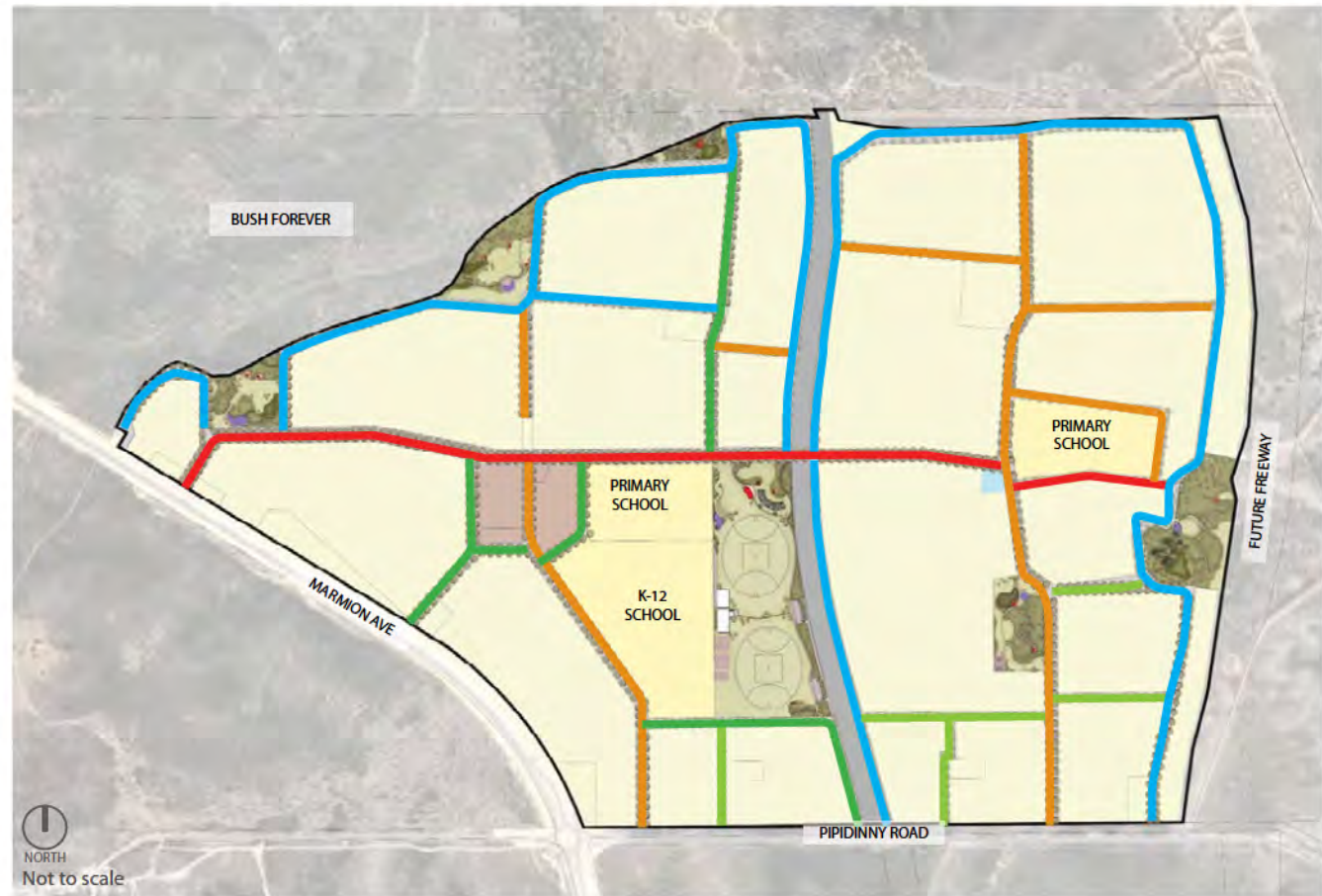
Corymbia ficifolia - Red Flowering Gum



Eucalyptus marginata - Jarrah



Eucalyptus wandoo



#### 4.4.3 Public Open Space and Landscape Strategy

The Local Structure Plan provides for a range of public open space types and sizes. Consistent with the requirements of Liveable Neighbourhoods and the City of Wanneroo Local Planning Policy 4.3: Public Open Space, a variety of POS is to be provided within the structure plan area that ensures a balance of sizes, types, functions and locations.

#### Liveable Neighbourhoods

A minimum of 10% of the gross subdivisible area will be provided as POS in accordance with Liveable Neighbourhoods and Local Planning Policy 4.3. Table 6 demonstrates that the minimum 10% POS requirement can be achieved at subdivision stage.

Preliminary calculations indicate a POS provision of approximately 12%. The 10% target is exceeded due to the provision of active playing fields (approximately 9.8 hectares), and the retention of vegetation and landform (including high points), where urban water management measures are not required or cannot be integrated.

POS calculations will be refined at the time of detailed subdivision design. As required by Part 1 provisions, an updated POS schedule demonstrating the provision of a minimum of 10% public open space, in accordance with the WAPC's Liveable Neighbourhoods, will be provided at the time of subdivision for determination by the WAPC, upon the advice of the City of Wanneroo.



Table 6: Calculation of Gross Subdivisible Area and Public Open Space Provision

Site area						241.48 Ha
<b>Deductions</b>						
Dedicated drainage	0.42 ha					
Reserve for Water and Sewerage	0.44 ha					
Neighbourhood Centre mixed use (50%)	0.65 ha					
Mixed Use centre (excl Indoor Recreation site)	0.70 ha					
High School + inclusive school	8.50 ha					
Primary Schools	8.00 ha					
Railway reserve	5.90 ha					
		24.61 ha				
Gross subdivisible area						216.87 ha
Public open space @ 10 per cent						21.69 ha
<b>Public open space contribution</b>						
May comprise:						
- minimum 80% unrestricted POS		17.35 ha				
- maximum 20% restricted use POS		4.34 ha				
						21.69 ha

Public open space contribution	Open Space Area (Nett)	Unrestricted	Unrestricted - Conservation	Restricted - Drainage (> 1:1)	Drainage 1:1 (not included in POS)
1	0.50 ha	0.30 ha		0.20 ha	
1a (Consolidated with POS 1)					
2	0.50 ha	0.35 ha		0.15 ha	
3	7.42 ha	2.05 ha	5.16 ha	0.21 ha	
4	1.31 ha	0.33 ha		0.98 ha	
5 (Consolidated with POS 4)					
6	0.53 ha	0.20 ha		0.33 ha	
6a (Consolidated with POS 6)					
7	9.80 ha	9.80 ha			
8	0.53 ha	0.35 ha		0.07 ha	0.11 ha
9	1.59 ha	1.51 ha		0.04 ha	0.04 ha
10	0.68 ha	0.55 ha		0.08 ha	0.05 ha
11	1.55 ha	1.12 ha		0.24 ha	0.19 ha
12	1.48 ha		0.81 ha	0.67 ha	
12A	0.50 ha	0.50 ha		underground storage	
13	1.78 ha	1.16 ha	0.53 ha	0.06 ha	0.03 ha
14	0.32 ha	0.32 ha			
15 (Consolidated with POS 16)					
16	0.81 ha	0.81 ha			
17	0.22 ha	0.22 ha			
Community Purposes Site (Indoor Recreation)	0.70 ha	0.70 ha			
	30.22ha	20.27 ha	6.50 ha	3.03 ha	0.42 ha
<b>SUB-TOTAL</b>			<b>Unrestricted = 26.77 ha</b>	<b>Restricted = 3.03 ha</b>	<b>Deduction = 0.42 ha</b>
<b>Total Public Open Space Provision</b>	<b>29.80 HA = 13.74%</b>				



Figure 24: POS Areas (RD1051C)

Table 7: Conservation POS Viability Assessment Table

Viability Factor	Category	Score	POS 2 (1.90ha)	POS 3 (3.53ha) <sup>v</sup>	POS 5 (0.50ha)	POS 9 (1.40ha)	POS 11 (2.04ha)	POS 12 (1.03ha)	POS 13 (1.65ha)
Size	Greater than 20ha	5							
	Greater than 10ha less than 20ha	4							
	Greater than 4ha less than 10ha	3							
	Less than 4ha	2	2	2		2	2	2	2
	Less than 1ha	1			1				
Shape	Circle, square or squat rectangle	3.5							
	Oval, rectangle or symmetrical triangle	3	3				3	3	3
	Irregular shape with few indentations	2.5		2.5	2.5				
	Long thin shape with large proportion of area greater than 50m wide	1.5							
	Long thin shape with large proportion of area less than 50m wide	1				1			
Perimeter to Area Ratio	Less than 0.01	4							
	Greater than 0.01 less than 0.02	3		3					
	Greater than 0.02 less than 0.04	2					2		2
	Greater than 0.04	1	1		1	1		1	
Vegetation Condition	Pristine	10x %= <sup>v</sup>							
	Excellent	8x %= <sup>v</sup>	3.71 (53%)	2.08 (26%)		2.48 (31%)			6.88 (86%)
	Very Good	6x %= <sup>v</sup>					5.16 (86%)		
	Good	4x %= <sup>v</sup>			4 (100%)		0.56 (14%)	3.56 (89%)	0.56 (14%)
	Degraded	2x %= <sup>v</sup>	0.94 (47%)	1.48 (74%)				0.22 (11%)	
	Completely Degraded	0x %= <sup>v</sup>				0 (69%)			

Viability Factor	Category	Score	POS 2 (1.90ha)	POS 3 (3.53ha)v	POS 5 (0.50ha)	POS 9 (1.40ha)	POS 11 (2.04ha)	POS 12 (1.03ha)	POS 13 (1.65ha)
Connectivity	Forms part of a Regional Ecological Linkage and is contiguous with a protected natural area greater than 4ha	5			5		5	5	5
	Not part of a Regional Ecological Linkage but contiguous with a protected natural area greater than 4ha	4.5							
	Forms part of a Regional Ecological Linkage and is within 500m of more than 2 protected natural areas having an area greater than 4ha	4							
	Not part of a Regional Ecological Linkage but within 500m of more than 2 protected natural areas having an area greater than 4ha	3.5	3.5	3.5		3.5			
	Forms part of a Local Ecological Linkage and is contiguous with a protected natural area greater than 4ha	3							
	Not part of a Local Ecological Linkage but contiguous with a protected natural area greater than 4ha	2.5							
	Forms part of a Local Ecological Linkage and is within 500m of more than 2 protected natural areas having an area greater than 4ha	2							
	Not part of a Local Ecological Linkage but within 500m of more than 2 protected natural areas having an area greater than 4ha	1.5							
	Forms part of a Regional or Local Ecological Linkage but is not within 500m of any protected natural areas having an area greater than 4ha	1							
			14.15	14.56	13.50	9.98	17.72	14.78	19.44



Figure 25: Vegetation Condition & POS



### *City of Wanneroo Local Planning Policy 4.3: Public Open Space*

The provision of POS within the structure plan area is consistent with the objective of Local Planning Policy 4.3 of ensuring “new POS areas provide a balance between:

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

The policy requires that:

- a minimum of 4% of the gross subdivisible area is allocated for active POS; and
- a minimum of 3% of the gross subdivisible area is provided as POS for the purposes of conservation and passive recreation.

Active playing fields of approximately 9.8 hectares are to be co-located with the co-located primary school and high school/inclusive, adjacent the neighbourhood centre. The playing fields represent 4.5% of the gross subdivisible area. In addition, other POS areas throughout the structure plan area provide opportunities for active recreation.

A total area of 6.5 hectares is identified as POS for the purposes of conservation and passive recreation. This represents 3.0% of the gross subdivisible area, meeting the requirements of Local Planning Policy 4.3. A viability assessment has been completed in accordance with the requirements of the policy (Table 7).

### *Strategic POS Sites*

The playing fields and four POS areas that achieve a viability assessment score of greater than 14 under Local Planning Policy 4.3 (refer to Table 7) are identified in Part I as Strategic POS Sites.



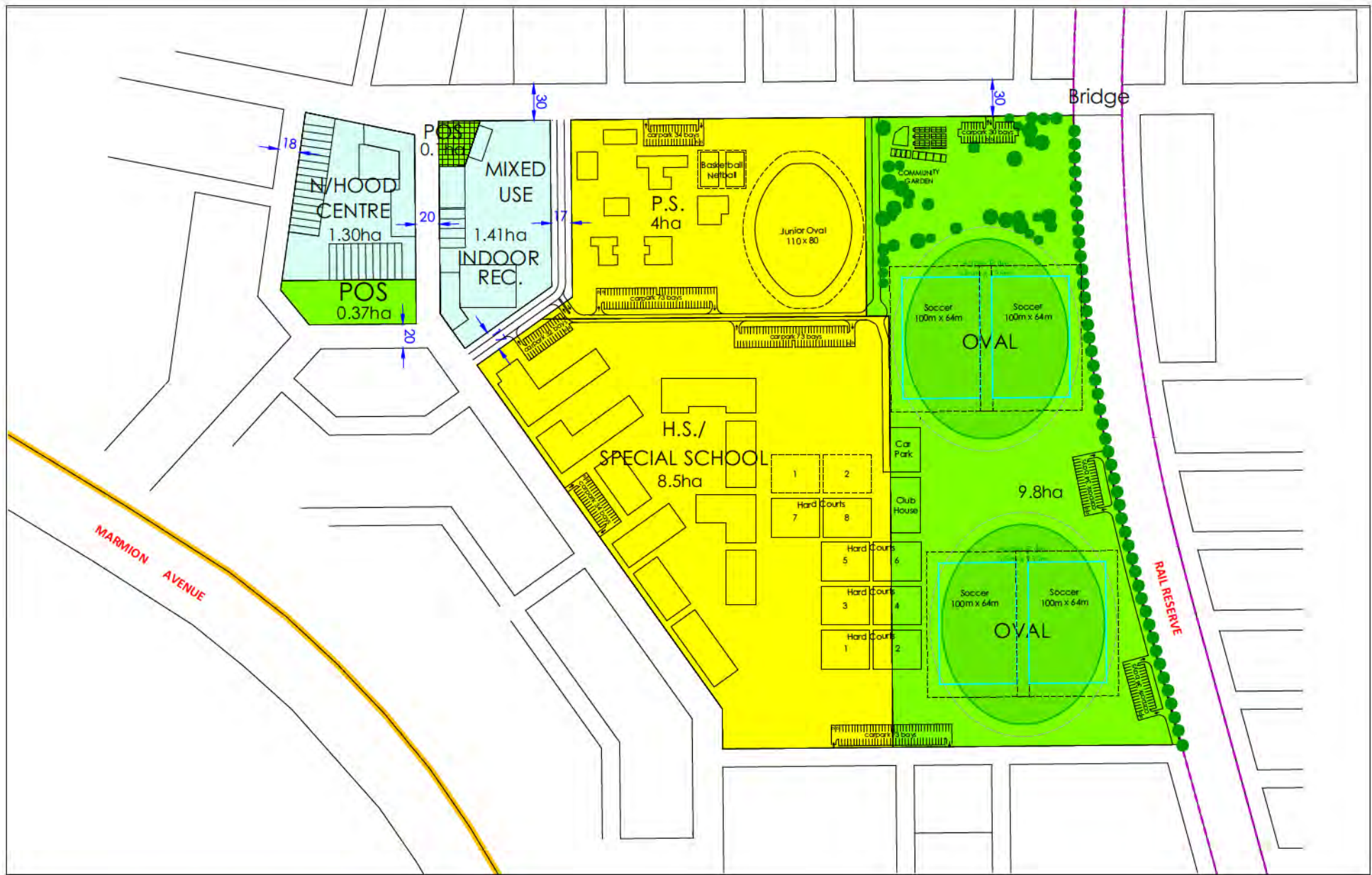


Figure 26: Indicative Neighbourhood Centre Layout

#### 4.4.4 Education Facilities

The Local Structure Plan makes provision for two primary schools and a high school, in accordance with the Alkimos Eglinton District Structure Plan.

The western school sites and playing fields are to be co-located with the neighbourhood centre to provide a central community focal point. Consistent with City of Wanneroo policies, the co-location of schools, playing fields and community facilities also results in land use efficiencies.

The project team undertook extensive pre-lodgement consultation with the City of Wanneroo and the Department of Education to reach in principle agreement on the land area and site layout requirements for the co-located primary school, high school/inclusive school and playing fields. Figure 26 shows the agreed site layouts.

#### 4.4.5 Community Facilities

Provision is made for community facilities in accordance with the Alkimos Eglinton District Structure Plan and the City of Wanneroo's draft Alkimos-Eglinton and Yanchep-Two Rocks Community Facilities Plan.

The Local Structure Plan allows for the provision of an indoor recreation centre in the Commercial zone adjacent the school site, as shown in Figure 19. Other community facilities, such as a community garden, could be located within the northern area of the playing fields.

From a community development perspective, the Local Structure Plan has been designed to leverage the site's natural assets including its proximity to the coast and significant surrounding vegetation, whilst also addressing site constraints, including the proposed rail line, freeway and power infrastructure on the eastern boundary. Notable community outcomes achieved in the plan, that are responsive to place based planning include:

- Civic, community and education facilities are co-located within the Neighbourhood Centre, rather than stand-alone locations.
- Community facilities are located adjacent to social/pedestrian/cycle linkages, proposed public transport hubs and open space.
- North Eglinton's coastal and bushland character and identity is well reflected through landscape design and indicative streetscape.
- Adequate and well located space has been provided for public spaces for cultural activities, events and festivals.
- The public realm will be of high quality, which includes public places, streets and parks, and these are functional, accessible, and integrated.

Part 3 includes a Community Development Plan (CDP), which provides the broad framework and guiding principles to achieve social and community outcomes and inform the development of detailed community strategies during project delivery and post occupancy. In doing so, the CDP:

1. Identifies community anchors within the LSP area as well as strategies to inject vibrancy into the project through activation of public spaces.
2. Provides strategic recommendations to enhance the LSP concept plan including access and linkages, community facilities planning and leveraging local identity.
3. Identifies place management strategies to facilitate purchasers and residents' active involvement in community life.
4. Details engagement, consultation and governance strategies to leverage existing stakeholders and networks to support activation in perpetuity.
5. Aligns with guiding principles and Community Development objectives outlined in the DSP and the City of Wanneroo's Community Facility Plan.
6. Supports LandCorp and Satterley's integrated approach to social, economic and environmental sustainability.

#### 4.4.6 Activity Centres and Employment

##### Neighbourhood Centre

Analysis of the retail needs for the North Eglinton Local Structure Plan area (refer to Part 3) indicates a demand for a single neighbourhood activity centre up to 3,750 square metres of total commercial floor space, comprising:

Table 8: Neighbourhood Centre Components

Activity Component	Floor space (sqm)
Supermarket	1,250
Specialty retail floor space (7-10 shops)	1,000
Total retail floor space	2,250
Office and/or community floor space	500
Mixed use	1,000
Total centre	3,750

##### Tactics 4

These centre components are derived using the following industry assumptions and commercial considerations and drivers.

The Neighbourhood Centre would derive the majority of its trade from the North Eglinton community. The North Eglinton community is expected to spend an average of \$6,500/person p.a. on convenience based goods that are typically purchased in stores attracted to neighbourhood centres, producing a total convenience goods spending capacity of \$63.2M p.a. generated by the North Eglinton catchment.



Figure 27: Catchment Area

The Eglinton District centre is expected to cater to a similar offer – especially in the short term – before it develops to its District retail offer. It will likely contain two full line supermarkets and will subsequently have an overlap with North Eglinton Neighbourhood Centre.

A smaller retail offer at a smaller neighbourhood centre trading to the same market may expect to provide a top up shopping experience for local residents and offer an alternative supermarket offer and provide a higher level of convenience than the District Centre.

Local office space linked to a small neighbourhood centre is typically 500 square metres. The Local Structure Plan also allows for a small mixed use component to complement the broader community facility and create a stronger level of activity diversity and to contribute toward the 'sense of place'. This mixed use area has the capacity to introduce a further 1,000 square metres of commercial, community activity at ground level opposite the retail component of the neighbourhood Centre. The exact nature of this activity may be determined according to market demand.

#### *Land Allocation*

A neighbourhood centre should be able to be designed on a parcel of land about three times the amount of floor space provided. This allows for car parking loading landscaping and the like.

The centre could therefore be comfortably developed on a regular shaped 1.0 Ha land parcel. This parcel must have sufficient depth to accommodate the depth of the supermarket operator together with rear loading and access. A supermarket operator of 1,500qm would prefer a building configuration of 30 metres deep by 50 metres wide sleeved behind 15 -20 metres deep speciality shops.

A typical site configuration may therefore contain a rectangular parcel of land measuring 80 metres deep by 125 metres wide.

#### *Staging and Timing*

It is unlikely that a centre of this size is able to be developed in stages. The supermarket is the key to the sustained commercial success of the centre. The centre is therefore likely to be developed only once the supermarket operator is able to be sustained. A supermarket would be unlikely to be sustained prior to the development and occupancy of at least half of the North Eglinton residential estate. However, there are a number of commercial reasons why an operator may decide to develop earlier. There should be no planning or timing restriction applied to the delivery of the centre and its components. The early delivery of the centre may contribute to the growth of the overall estate.

#### *Economic Impacts*

The centre will be unlikely to create any economic impacts to surrounding District and Regional centres. The successful performance of the centre requires it to capture only 25% of total convenience spending in the estate. Therefore three quarters of all convenience spending (not counting the discretionary spending) can still be expected to be captured at other higher order activity centres. There should therefore be no undue economic impacts caused to higher order centres from the location and components planned for the North Eglinton Neighbourhood Centre.

#### *Mixed Use Site*

In keeping with Liveable Neighbourhoods Principles, and the City of Wanneroo draft Local Planning Policy 3.2: Activity Centres, a corner shop has the potential to be provided near the primary school as the central focal point for the eastern cell of the estate. This is accommodated within a 2,000sqm 'Mixed Use' zoned site at the intersection of the east-west and north-south neighbourhood connectors in the eastern cell of the estate, adjacent to the second primary school.

The Local Economic Strategy notes that the commercial sustainability of corner shops is more closely linked to their operation than the catchment. It recommends that flexibility be considered in the delivery of this centre. This might entail enabling residential uses and/or a cafe as well as a local corner store. This flexibility will reduce the need to reassess the activity should the store be considered surplus to community needs in the future.

### Employment

The North Eglinton Neighbourhood Centre is expected to provide up to 125 positions including 90 retail jobs and 33 office jobs. The nature of the centre and the central proximity of the catchment mean that the office space is likely to be attractive to local residents and local businesses. The localised nature of the retail space suggests that the employment opportunities will be provided primarily for local residents. The nature of the retail jobs is also conducive to those in the labourforce that may be least mobile – including part time and second income jobs (where access to second car may be limited) and youth employment (with no access to a vehicle).

The employment opportunities in the North Eglinton Neighbourhood Centre are not extensive and represent less than 2% of the local labourforce. However, this is due to the close proximity of significant activity centres planned to also serve the North Eglinton community. Many of the employment opportunities required to achieve the self sufficiency targets will be available at the more diverse employment Eglinton District Centre and Regional Centres at Yanchep and Alkimos.

Evidence in newly developed areas suggests that up to 1 in 10 dwellings incorporates a home based business activity which employees at least one person. Therefore up to 340 dwellings may be expected to be operating home based businesses employing 340 persons.

Up to 1,000sqm of mixed use floor space at ground level could accommodate over 67 employment positions at an average of one job for every 15 square metres. There are also two primary schools and one high school planned for in the Local Structure Plan Area.

The North Eglinton LSP area community will have equitable spatial access to a full range of Regional and District activities and employment opportunities at centres within typical urban catchments both north and south of their community. There is subsequently no need to provide for Regional and District activity and employment opportunities in the North Eglinton LSP area.

The employment opportunities in the North Eglinton LSP are subsequently not extensive yet they still generate over 750 employment opportunities representing over 13% of the local employment opportunities to the self sufficiency targets.

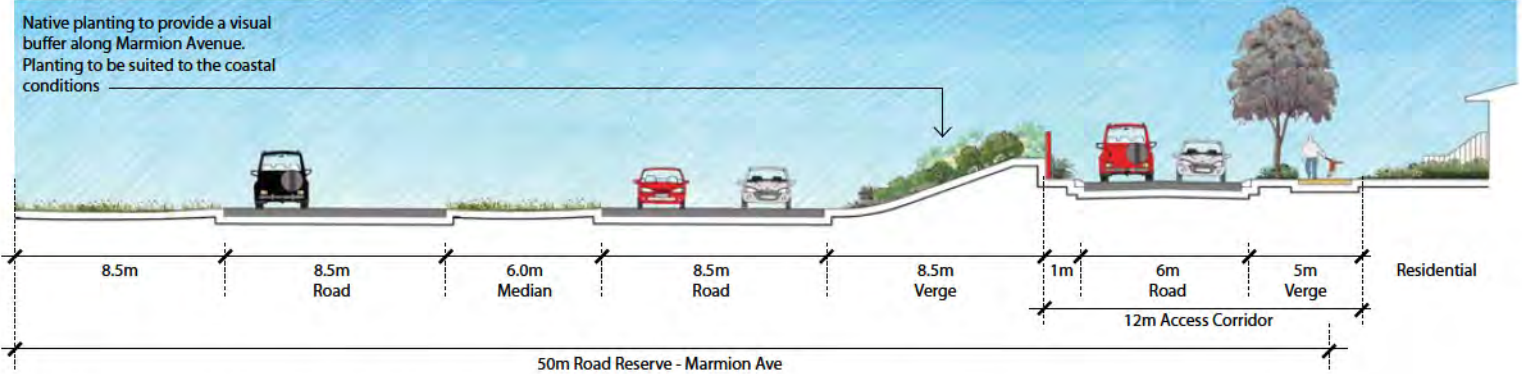
Table 9: Employment

Population	9,200	
labourforce generated	5,980	65%
	Employment	Employment Self Sufficiency
Neighbourhood Centre	125	2%
Home based	340	6%
schools	225	4%
Mixed use	67	1%
Total LSP employment	757	13%

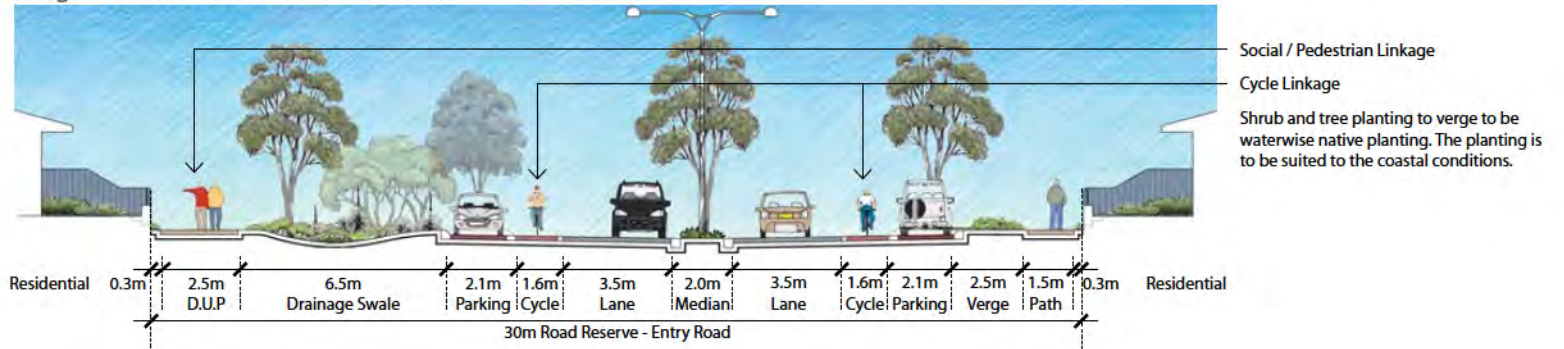
The balance of employment for the North Eglinton residents will be provided in the higher order centres in close proximity to North Eglinton especially the adjacent District Centre at Eglinton.

Figure 28: Streetscape Sections

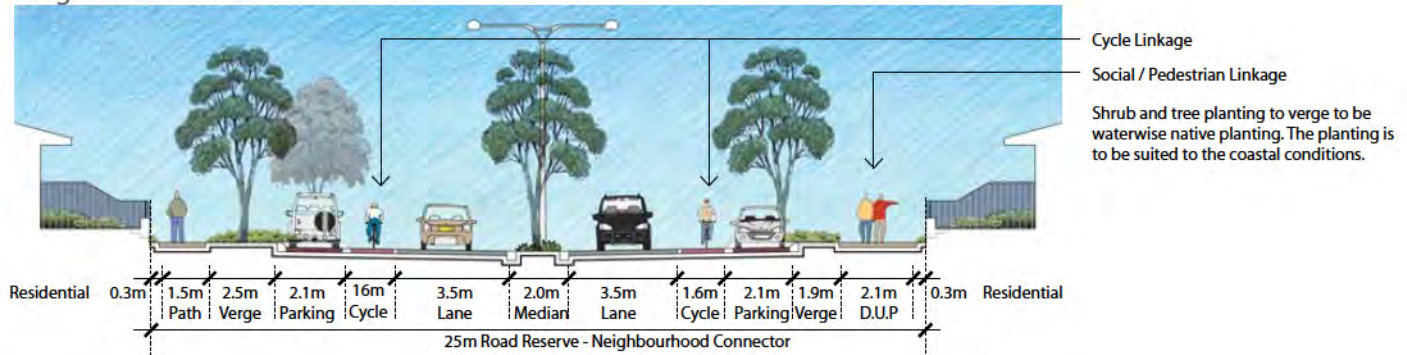
### Intergrator A - Marmion Ave



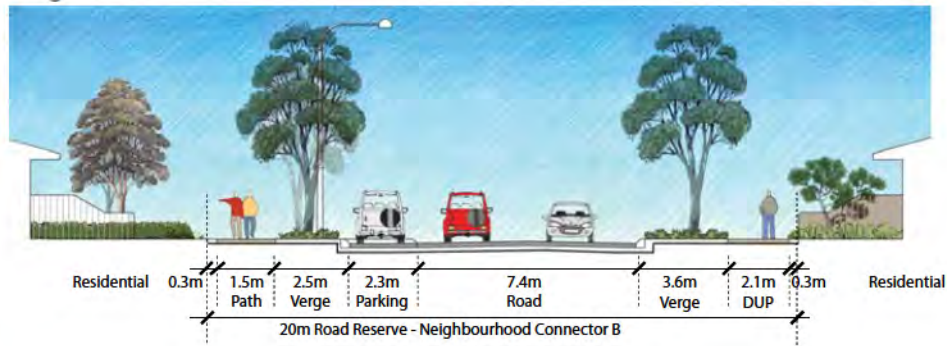
### Neighbourhood Connector A - 30m



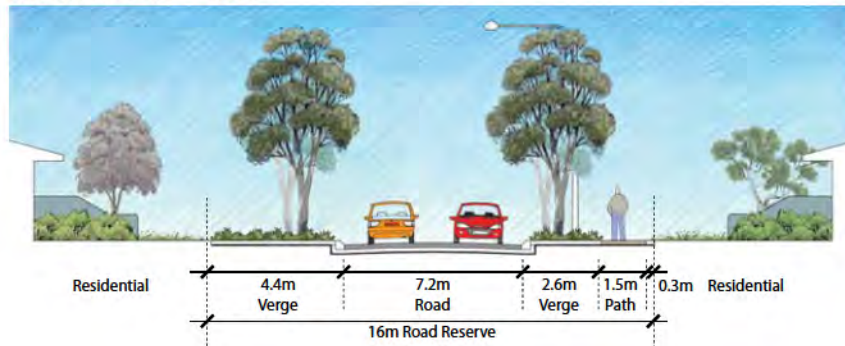
### Neighbourhood Connector A - 25m



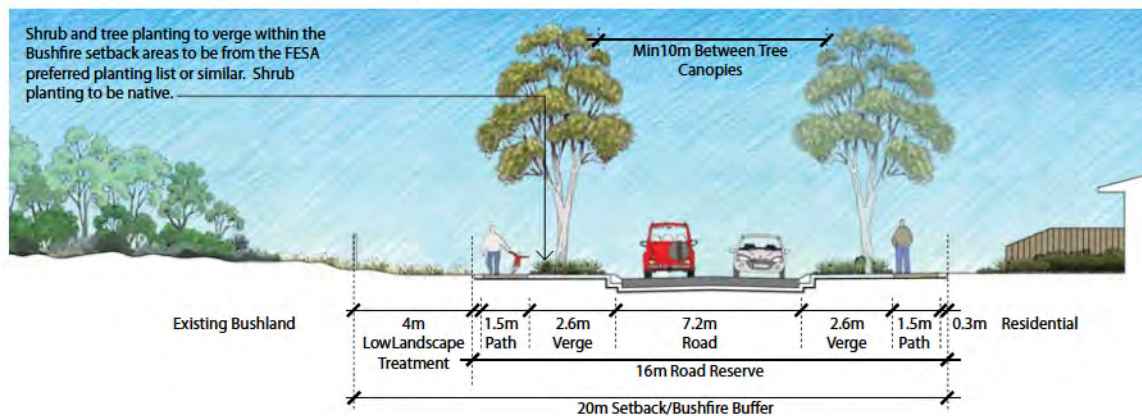




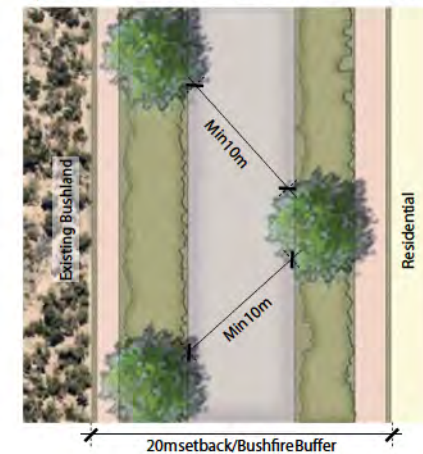
Access Street C - 16m

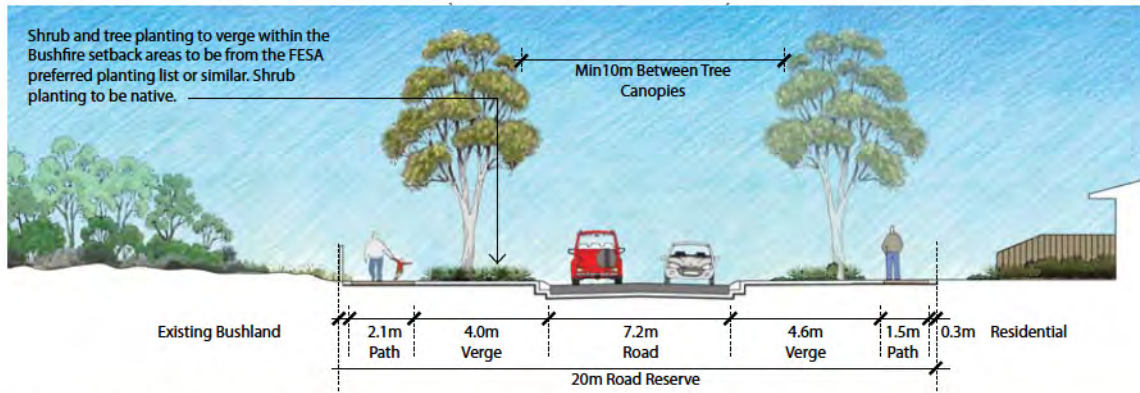


Access Street C (16m Road Reserve) with Bushfire Setback

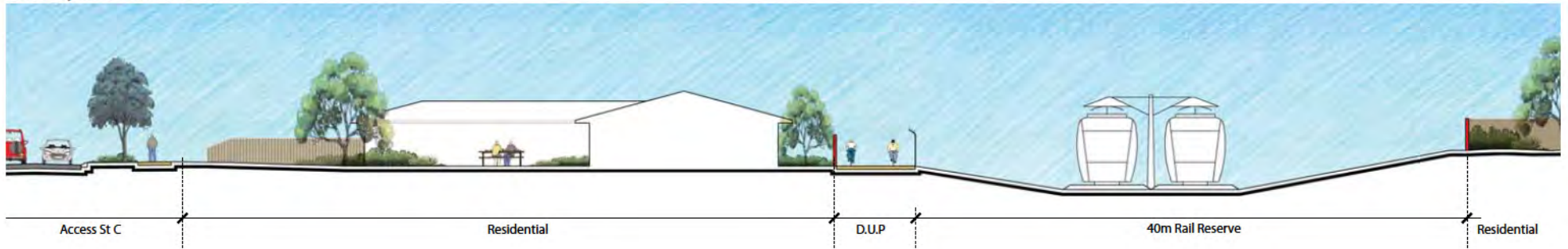


Typical Plan View of Bushfire Setback

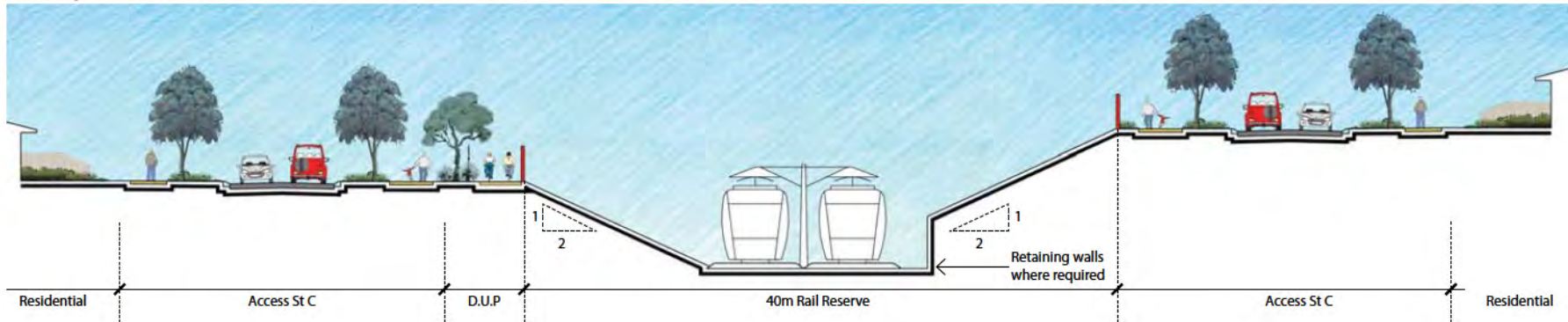




### Railway Interface North



### Railway Interface South



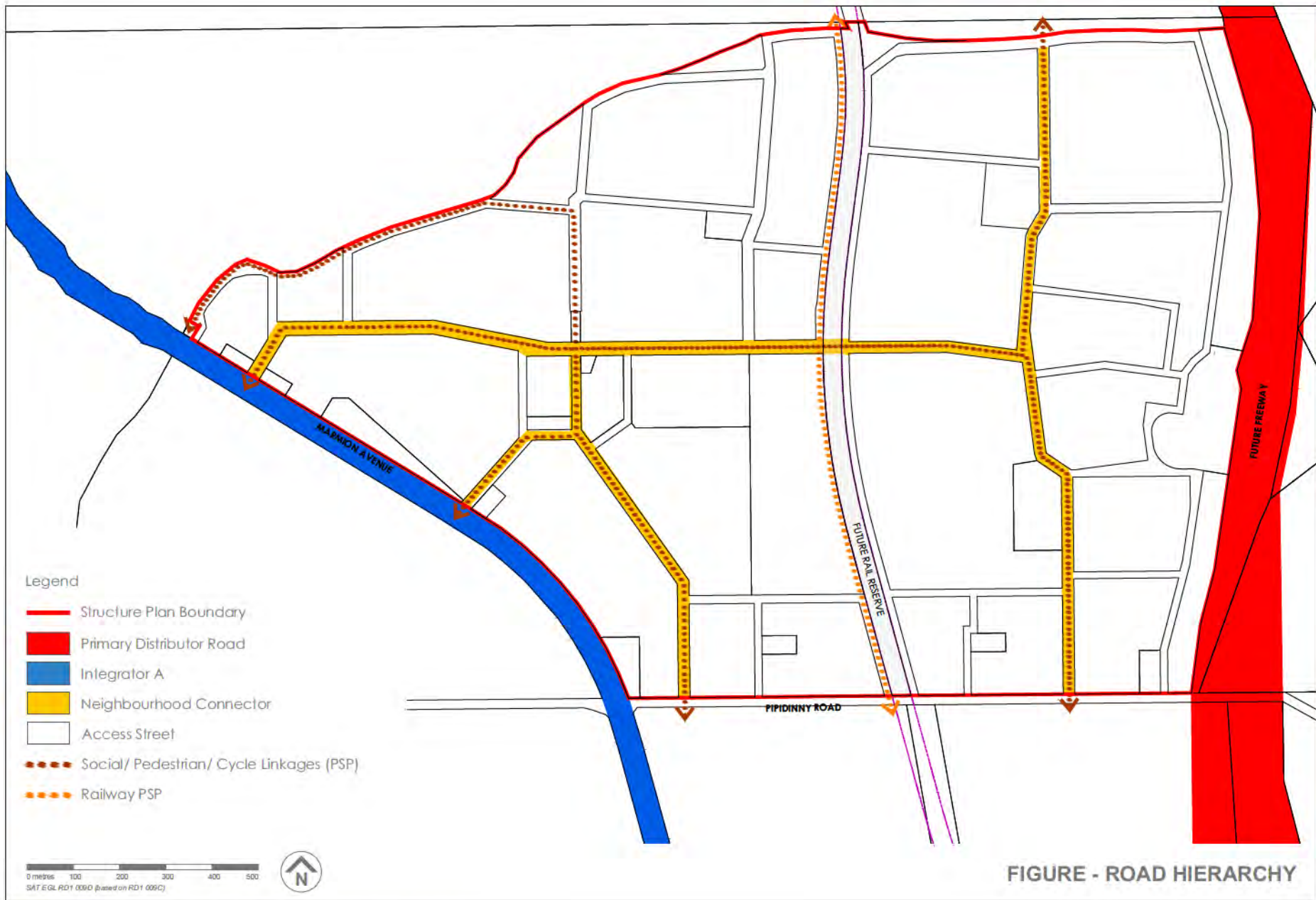


Figure 29: Road Hierarchy showing Pedestrian and Cycle Network

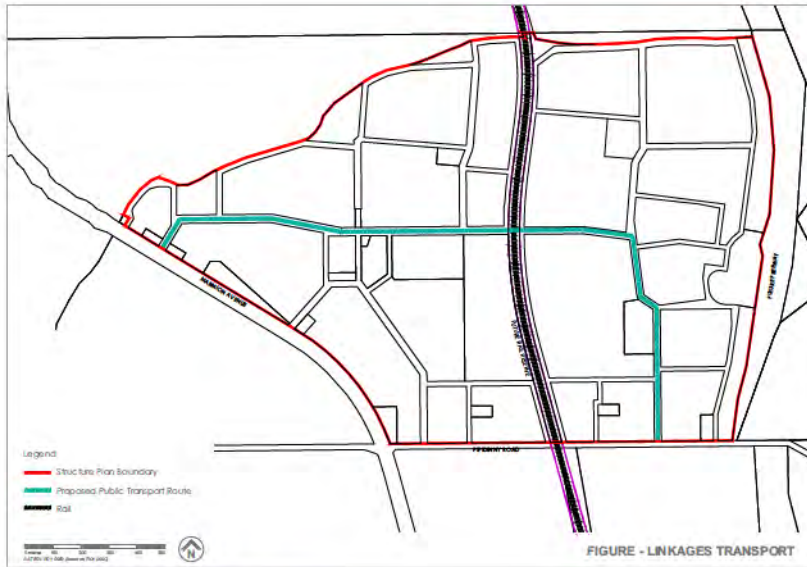


Figure 30: Linkages Transport

#### 4.5 Movement Network

The Local Structure Plan design incorporates a safe and convenient, interconnected road network consisting of neighbourhood connectors, local access streets and laneways. The proposed development encourages walking, cycling and patronage of proposed public transport services (bus, train) into, out of and throughout the site.

The road network of the LSP area has been designed based on WAPC Liveable Neighbourhoods guidelines to accommodate the future traffic flows that will be generated in this area.

As identified in Local Planning Policy 3.8: Marmion Avenue Arterial Road Access, access to the LSP area will be served by two signalised intersections on Marmion Avenue, one at the existing Pipidiny Road intersection and another further to the north, and a left in/left out intersection midway

between them. These intersections have been analysed for future traffic flows when the LSP area is fully developed and the analysis indicates that these intersections will operate satisfactorily during weekday AM and PM peak periods.

Roundabouts are recommended at several other intersections on Pipidiny Road and internal neighbourhood connector roads in the LSP area.

The proposed road network will accommodate a planned future bus route through the LSP area, which will provide satisfactory public transport access in future.

The proposed LSP also provides for a comprehensive network of shared paths and footpaths to encourage and facilitate non-motorised travel as well. This includes a commitment to the provision of a north-south 'Primary Shared Path' either adjacent to or within the railway reserve by the proponent and/or the PTA.

The proposed LSP also depicts two indicative connections to the north in the northeast of the LSP area – one road connection and one pedestrian connection. These connections are identified in the event that future planning for the area north of the LSP area requires the provision of road and pedestrian connections. These connections were provided at the request of the City of Wanneroo at the workshop dated 7th March 2012.

## 4.6 Urban Water Management

The Local Water Management Strategy (LWMS) for the North Eglinton Estate is included in Part 3. The LWMS has been developed in accordance with Better Urban Water Management (WAPC 2008), State Planning Policy 2.9 Water Resources (WAPC 2006) and Planning Bulletin 92 Urban Water Management (WAPC 2008).

The key principles of integrated water cycle management that have guided the water management approach at the North Eglinton Estate include:

- Considering all water sources, including wastewater, stormwater and groundwater;
- Integrating water and land use planning;
- Allocating and using water sustainably and equitably;
- Integrating water use with natural water processes;
- Adopting a whole of catchment integration of natural resource use and management.

The overall objective for integrated water cycle management for residential developments is to minimise pollution and maintain an appropriate water balance. The North Eglinton Estate LWMS design objectives seek to deliver best practice outcomes using a Water Sensitive Urban Design (WSUD) approach, including detailed management approaches for:

- Potable water consumption
- Flood mitigation
- Stormwater quality management
- Groundwater management.

The characteristics and environmental values of the site have guided the design criteria, which will achieve the design objectives for the key management areas discussed above.

The WSUD approach and measures that are proposed for the North Eglinton Estate include:

- Maintaining existing flow regimes by retaining all runoff within the site;
- Treatment of surface runoff prior to infiltration to groundwater;
- Bio-retention swales incorporated into road reserves high in the catchment;
- Bio-retention areas incorporated in POS areas;
- Major event flood storage requirements addressed by combination of roadside swales and POS areas;
- Co-location of flood storage areas with natural landforms and native remnant vegetation wherever possible;
- Adopting appropriate non-structural best management practices;
- Adopting a fit for purpose water use approach;
- Minimising use of both scheme and non-potable water.

The LWMS demonstrates that the design approach for the North Eglinton Estate LSP is consistent with a best practice WSUD approach, that the water management objectives for the site can be achieved within the spatial allocation of the LSP, and the requirements of the relevant State and local government policies and guidelines will be satisfied.

#### 4.7 Road and Rail Noise

An Acoustic Assessment of the Local Structure Plan undertaken by Herring Storer is included in Part 3. The Acoustic Assessment identifies the measures that should be implemented to mitigate noise impacts associated with Marmion Avenue, and the future railway and freeway extensions, in accordance with State Planning Policy 5.4. The assessment concludes that lots (typically the first row) adjacent Marmion Avenue, and the railway and freeway reserves are likely to require notifications on title advising of quiet house design requirements. To determine the lots affected, additional noise modelling will need to be undertaken at subdivision stage when the lot layout, ground levels and internal road network have been determined. This will inform detailed Noise Assessment Report for noise sensitive land uses affected by Marmion Avenue, the Railway Reserve or the Mitchell Freeway Reserve to be prepared prior to the lodgement of subdivision applications to the WAPC (to the satisfaction of the Department of Environment Regulation).

#### 4.8 Bush Fire Protection

A Fire Management Plan for the structure plan area has been prepared by FirePlan WA and is included in Part 3. The Fire Management Plan has been prepared in accordance with Acceptable Solutions detailed in Planning for Bush Fire Protection Edition 2 (2010). FirePlan WA has consulted with the City of Wanneroo Fire Officer in the preparation of the Fire Management Plan.

The area within the development site other than areas within public open space will be cleared so the fire hazard will be reduced to “Low” other than the vegetated areas of POS. The areas outside the development site will remain as “Moderate” until they are cleared for the Freeway Extension or developed for urban development.

The Bush Forever site, adjoining vegetation outside the site and vegetated public open space within the development are an ongoing threat to the development, however setbacks complying with Planning for Bush Fire Protection and AS 3959-2009 BAL rating will apply.

Bush fire issues that have been identified for this site and adjoining land area:-

- The site is vegetated with Woodland – Class B with a bush fire rating of “Extreme” and Scrublands - Class D with a bush fire rating as “Moderate”.
- The site is a Bush Fire Prone Area.
- Lack of access within adjoining areas restricts fire fighting strategies to existing major roads.
- Bush Forever site to the north is poorly managed and the landowner / managing authority should develop a fire management plan with a priority to improve fire access. The Developer has no responsibility for this land as it has been handed over to the State Government as a Bush Forever site.
- Bush fires in the adjoining vegetated areas may cause visibility problems to transport systems, exacerbate respiratory medical conditions and ember attack on dwellings within 100 metres of vegetation.



The following actions and works are to be undertaken in order to successfully implement the fire protection strategies of the Fire Management Plan:

- An external road system will separate the Lots from vegetation other than where the POS adjoins the Bush Forever site and along the eastern boundary. See Figure 2.
- Along the eastern boundary lots (R10 size) will be sufficiently large to have the required BAL rating setback to modified vegetation zone installed at the rear of the dwelling to comply with AS 3959-2009 BAL construction standards. Also a 32 metre power line easement is located between the dwellings and the proposed Freeway Reserve.
- All vegetated POS area will be managed so that bush fire fuels in vegetated areas greater than 1 ha will have bush fire fuels managed below 8tonnes/ha. This will initially be the responsibility of the Developer but in the long term will become the responsibility of the City of Wanneroo when the POS areas are vested with them.
- All road reserves adjoining POS vegetation and the Bush Forever site are to be managed to the Building Protection Zone standard detailed in Section 7.3.
- The Developer is to modify then manage road reserves that act as a setback between a dwelling and vegetation (Vegetated POS and Bush Forever site) to the Building Protection Zone Standard until the management of the road reserve is handed over to the City of Wanneroo.
- During staged land releases the Developer will maintain a 100 metre area around the stage to be released to the building protection Zone standard to avoid unnecessary increase in dwelling construction standards to as 3959-2009 BAL ratings.

## 4.9 Services/Infrastructure

No service corridors are proposed within the Mitchell Freeway reserve.

### 4.9.1 Roadworks

All roads will be designed to Austroad Standards and City of Wanneroo requirements. No roads will have a longitudinal grade steeper than 10% and flatter than 0.6%.

The major road through the development from Marmion Avenue will be a boulevard type road into the subdivision. The proposed profile of this road will be in accordance with the Liveable Neighbourhood 'Connector A' requirements, which is consistent with the District Structure Plan reporting. This road will be a single carriageway with a central median and pedestrian footpath.

Typically, road pavements will be constructed with asphalt finish with brick paving being used at some intersections to encourage a low speed environment. Road widths will vary from 6.0m for rear access lanes to 7.4 metres on through roads, except for the boulevard type roads. All roads will incorporate dual use paths or footpaths.

### 4.9.2 Stormwater

The Stormwater Management will be in accordance with the aim of Water Sensitive Urban Design, the design requirements of the Australian Rainfall and Runoff Guide and the requirements of the City of Wanneroo.

In general, runoff from individual lots will be managed through on site infiltration from local soakwells. Runoff from roadways and public areas will be managed via gullies/side entry pits and piped drainage system to infiltration sumps and basins located within the low areas of the landholding.

A drainage strategy has been prepared which documents the major drainage facilities required to service the development area. Refer to the Local Water Management Strategy.

The subdivisional development is divided into four major cells, each with separate catchments. The catchments that define the two northern cells can discharge into drainage basins at the natural low lying lands adjacent along the Bush forever boundary. Stormwater from the catchments to the southern side of the development will be contained on site via discharge into localised drainage infiltration basins, located at the boundaries of the cells.

All basins located at trapped low points will be designed to accommodate the 1 in 100 year storm volume as required by Council with no overflow.



#### 4.9.3 Water Supply

The development area is within the Water Corporation licence area and is ultimately supplied by potable water from the Carabooda Reservoir which is soon to be commissioned.

Water Corporation is currently undertaking design for a section of DN800 along Marmion Avenue. This is expected to be commissioned by mid-2013. The DN700 link from this main to existing distribution mains within Marmion Avenue further south will then follow.

Initial water supply for the area will be via DN500 and DN700 distribution water mains in Marmion Avenue extending from the pending distribution main to be constructed to Shorehaven referred above. Both mains are linked to the DN800 along Marmion and the Water Corporation's Carabooda Reservoir. A temporary water main along Marmion Avenue from Shorehaven may be installed to service initial stages in lieu of the ultimate distribution mains subject to Water Corporation modelling and approval.

To increase the capacity, a DN600 distribution main will ultimately be installed within the development to loop with future distribution mains to be installed parallel and adjacent the railway.

PVC water reticulation pipes will be installed within the proposed road reserves off the distribution mains to serve all lots within the development area. The area will be served to normal subdivisional standards as required by the Water Corporation.

Serviceability may affect maximum elevation of lots or may necessitate a booster pump station, however, modelling by Water Corporation to provide advice on such restrictions is yet to be completed.

#### 4.9.4 Sewerage

The development area is within the Water Corporation licenced area and is serviced by the Alkimos Wastewater Treatment Plant. Sewerage disposal for this development falls within two main distinguishable catchment areas.

The Water Corporation ultimate scheme design makes provision for the majority of the subject land to be serviced by the Alkimos Type 40 Pump Station (PS) 'V' which discharges into the future Yanchep Branch Sewer located to the west of Marmion Avenue.

Prior to the Yanchep Branch Sewer being extended in proximity to the subject land, a temporary strategy proposed by Water Corporation suggests servicing to be achieved by extending the pressure main from PS 'V' along Marmion Avenue into an existing DN600 gravity sewer adjacent the Alkimos Waste Water Treatment Plant (WWTP). The pressure main would be approximately 7km in length.

Water Corporation is proposing to install two staged pressure mains along Marmion Avenue to facilitate the discharge of sewerage from the Yanchep and Two Rocks WWTP's to the Alkimos WWTP prior to the Yanchep Branch Sewer being constructed. It is anticipated that the Yanchep Pump Station and the first of the two pressure mains to the Alkimos WWTP will be commissioned by July 2013. As an alternative or initial temporary strategy to the pressure main to the Alkimos WWTP referred above, Water Corporation are currently investigating the feasibility of injecting nominal flows into the initial pressure main along Marmion Avenue.

Minor catchments not serviced by PS 'V' fall toward future development areas to the west and south. Servicing these catchments would rely on adjacent development infrastructure or independent temporary pump stations may be necessitated.

#### 4.9.5 Power

It is anticipated that the power requirements for the North Eglinton Estate development will necessitate a new HV connection from a nearby zone substation. Based on the results of a feasibility study performed by Western Power it is expected that the Yanchep zone substation – located near the intersection of Wanneroo Rd and Romeo Rd – will require upgrades in order to provide the necessary infrastructure for this connection. It is noted that it may be feasible to provide power to some of the earlier stages of the development from the existing 22 kV HV overhead power line along Pipidiny Road, however the ultimate power load will require the installation of two new HV cables. These new 22 kV HV cables will be placed underground in the road reserve routed along Wanneroo Rd and Pipidiny Rd between the Yanchep zone substation and the North Eglinton Estate Site.

Within the estate the HV cables (either the new feeders or as an extension of the Pipidiny Road cable) will connect to several HV switchgear and transformers which will function to reduce the voltage to 240V – suitable for consumer usage. This HV equipment will be distributed throughout the estate. Power will then be reticulated from each transformer to lots via low voltage underground cables along the road reserve in each street in the estate. Some areas – namely the mixed use lot and high schools – will require a dedicated transformer placed on each site due to their high power requirements.

#### 4.9.6 Telecommunications

Provision will be made for NBN infrastructure in the form of conduits and pits – again installed in the road reserve within the estate – allowing NBN contractors to install the fibre network at a later date. The “backbone” of this system is formed with larger pits and 100mm conduits to house the Fibre Distribution Hub (FHD) equipment and fibre to these hubs. Smaller pits and 100mm to 23mm conduits will be installed along each street to allow the installation of fibre from the hub to individual lots.

#### 4.9.7 Gas

Existing gas infrastructure is located at Alkimos south of the North Eglinton Estate. According to ATCO Gas's latest design, an extension of a 225 OD high pressure gas main along Marmion Avenue from Leeway Loop to Yanchep Beach Road will be expected to be constructed as soon as August 2012. Once completed there may be potential for gas reticulation to service the development site. No detailed gas plan has been provided as part of this submission as design of any infrastructure will be carried out by ATCO Gas



#### 4.11 Sustainability Strategy

ENV Australia has prepared a Sustainability Strategy, included in Part 3. The Sustainability Strategy outlines the sustainability initiatives for the development and how these meet the objectives of the Alkimos Eglinton District Structure Plan.

ENV has also been commissioned to guide LandCorp and Satterley through the process of EnviroDevelopment™ accreditation. The aim is to seek accreditation for all six EnviroDevelopment™ 'Elements' and to be awarded at least four of these. It should be noted that EnviroDevelopment™ accreditation is not a statutory requirement of the City of Wanneroo or Alkimos Eglinton District Structure Plan.

The following table shows how the sustainability measures proposed in the District Structure Plan will be achieved through alignment with particular EnviroDevelopment™ criteria.

Table 10: Sustainability Measures

DSP Priority Sustainability Categories	Measures	EnviroDevelopment™ Element	EnviroDevelopment™ Actions (for LSP)
Community	Communications infrastructure to support home based work	Community	Provision of communication technology and wiring within dwellings (ED 6.4.4.1)
	Affordable housing initiatives for both sale and rent	Community	At least 10% of houses and land packages are affordable (ED 6.5.1.5)
	Indoor and outdoor spaces for Community and Social activity and interaction	Community	Provide local facilities and or community facilities (ED 6.5.1.2). An equitable distribution of visual amenity (ie. Landscaping, native bushland, green space) is provided within the development (ED 6.5.1.14)
	Early provision of essential services Community services structured around Alkimos and Eglinton District Centres, Coastal Villages, Neighbourhood Centres/Nodes, 'bus stop' nodes	Community	The following services / facilities will be provided within the North Eglinton development: <ul style="list-style-type: none"> <li>• Grocery/corner store (ED 6.7.2)</li> <li>• Chemist (ED 6.7.8)</li> <li>• Bank or cash machine (ED 6.7.15)</li> </ul> Access to public transport is provided such that 75% of dwellings are within 500 metres of a transport stop. Legible direction signage to public transport stops is provided at key locations (ED 6.4.3.2).
Water	Integrated primary and secondary transport network	Community	Access to public transport is provided such that 75% of dwellings are within 500 metres, of a transport stop. Legible direction signage to public transport stops is provided at key locations (ED 6.4.3.2).
	Water efficient fixtures and fittings in homes and other buildings Water efficient irrigation systems Xeriscaping	Water	Water use efficiency through fittings with higher WELS rating than mandated, rainwater tanks (ED 5.1.1) Irrigation will be delivered by the most water efficient system (eg. mulching, direct water application) (ED 5.1.2.2). Dedicated waterwise landscaping packages for private front gardens (ED 5.1.1).



## 5.0 Implementation and Planning Process

### 5.1 Indicative Staging of Development

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

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

Current estimates for development of the North Eglinton Local Structure Plan area indicate commencement in the second half of 2013 and development at the rate of 250 to 300 lots per year.

Figure 31 shows the indicative staging of development across the Local Structure Plan area.

### 5.2 Metropolitan Region Scheme and District Planning Scheme No. 2

The implementation of the Local Structure Plan does not require amendments to the Metropolitan Region Scheme or District Planning Scheme No. 2.

### 5.3 Planning Process

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

*Endorsement of North Eglinton Local Structure Plan*



*Subdivision Application*



*Preparation of Local Development Plans*



*Clearance of Subdivision Conditions*



*Creation of Certificate of Titles*



*Development Application/Building Licence*



Figure 31: Indicative Staging Plan

## 6.0 Pre-Lodgement Consultation

The following table summarises the outcomes of pre-lodgement consultation with the City of Wanneroo, government agencies and adjoining landowners.

Table 11: Pre-lodgement consultation

Agency	Date of Consultation	Summary of Outcomes
City of Wanneroo	7 March 2012	<ul style="list-style-type: none"> <li>• Neighbourhood centres: retail floorspace of 1,500-4,000sqm.</li> <li>• Use WAPC LSP Part 1 template.</li> <li>• Location of roads and centres is flexible, including bridge over rail.</li> <li>• Refer to CoW POS policy re: pocket parks, but area can be reduced in certain areas, e.g. high density areas.</li> <li>• Refer to CoW draft retaining wall policy. CoW keen to retain landform.</li> <li>• CoW encourages co-location of uses with schools, neighbourhood centres.</li> <li>• Refer to DSP re: cycle network.</li> <li>• Show potential road link north adjacent freeway through Bush Forever.</li> <li>• POS/drainage calculations as per Liveable Neighbourhoods.</li> <li>• Bush Forever interface: CoW encourages use of Bush Forever.</li> <li>• Refer to CoW policy re: Marmion Avenue access.</li> <li>• LSP report should identify discussions with Woodsome Management regarding interface with Eglinton District Centre to the south.</li> </ul>
	29 June 2012	<ul style="list-style-type: none"> <li>• CoW encourages community garden – should be linked to staging of facilities.</li> <li>• Nature Play a big focus for CoW – position paper being formalised to inform Policy for the Council.</li> <li>• Keith Griffiths Park, Discovery Park noted as good outcomes for nature play in CoW LGA.</li> <li>• CoW will work with WAPC to prepare Management Plan for Bush Forever to facilitate active use.</li> </ul>
	27 June 2012, 19 July 2012	<ul style="list-style-type: none"> <li>• Community Fire Manager advised the City does not support the use of setback in front of Lots as part of overall setback from retained vegetation mainly along the interface with bush forever site. Outcome not permitted to be used as part of overall setback; precedent has been set with other developers in the City.</li> </ul>
	20 July 2012	<ul style="list-style-type: none"> <li>• CoW advised that the preparation of an AHMP can be requested as a condition of subdivision approval in the LSP.</li> </ul>



Agency	Date of Consultation	Summary of Outcomes
Department of Education	2 March 2012	<ul style="list-style-type: none"> <li>• DoE confirmed the requirement for 2 primary schools and 1 high school on the subject site (east of Marmion Ave).</li> <li>• A primary school is required either side of the rail for DoE catchments.</li> <li>• The preference is for a high school site of 11 ha (to be purchased by DoE).</li> <li>• As per the DSP, Lot 2 has been earmarked for a potential 'inclusive' K-12 school for children with disabilities requiring special facilities. Such a school has been provided at Butler.</li> <li>• Co-location of primary school and high school is the preferred format for 'inclusive' schools.</li> <li>• Primary school sites should be 4 ha.</li> <li>• DoE support shared ovals.</li> <li>• A DoE-CoW liaison group has been established and meets regularly.</li> <li>• Midvale primary school is a good example of a "full service model", where community facilities (eg health, child care) are co-located (abutting) a school site. These community facilities are typically provided at every fourth school.</li> <li>• Locate schools away from the rail due to noise. The separation distance depends on the rail design/levels and noise contours.</li> <li>• School sites need to be free of any UXOs.</li> </ul>
City of Wanneroo and Department of Education	8 June 2012, 19 July 2012	<ul style="list-style-type: none"> <li>• Purpose of meetings was to discuss the composition and layout of the neighbourhood centre and schools/community facilities site.</li> <li>• There was general agreement on the proposed location and shape of the neighbourhood centre and schools/community facilities site.</li> <li>• Schools/community facilities layout: there was discussion about the preferred layout of the school sites, playing fields, hard courts, parking areas and community facilities. It was agreed some of these need to move around to get better connections between them.</li> <li>• DoEd agreed to: K-6 primary school site of 4 ha; adjacent 7-12 high school + inclusive school site of 8.5 ha; adjacent playing fields of 9.5-10 ha.</li> <li>• Education Support/Inclusive School: DoEd advised an area is required, should be located between the K-6 and 7-12 school sites (as facilities are shared), and should have its own vehicle access/circulation.</li> <li>• K-6 school oval and soccer pitch: CoW and DoEd advised these could be combined, freeing up space.</li> <li>• Indoor Recreation Centre: discussion regarding its location relative to the High School gym and its role in activating the neighbourhood centre main street. Morley Indoor Rec Centre was cited as a good example.</li> <li>• Hard courts: DoEd and CoW confirmed a total of 9 hard courts are required (PS = 1, HS = 8) with provision for 2 more in adjacent POS.</li> <li>• DoEd advised there is a state and federal government focus on 0-4 care facilities and 'out of school care'.</li> <li>• Community/health facilities: DoEd referred to Midvale school as a good example of co-locating child health and similar uses adjacent schools.</li> <li>• Early provision of schools: DoEd is happy to consider proposals for schools in shops or community buildings. Example: Dalyellup.</li> </ul>

Agency	Date of Consultation	Summary of Outcomes
Department of Planning	12 March 2012, 28 March 2012,  12 July 2012	<ul style="list-style-type: none"> <li>• Ensure LSP addresses employment self sufficiency targets.</li> <li>• Use DoP LSP Part 1 model provisions.</li> <li>• Neighbourhood centres can be moved from locations shown in DSP if supported by economic/retail analysis.</li> <li>• Refer to Liveable Neighbourhoods re 10% POS calculations, retained vegetation in POS.</li> </ul>
Public Transport Authority	6 March 2012	<ul style="list-style-type: none"> <li>• Details of rail levels provided.</li> <li>• PTA will only fund bridge crossings for MRS blue roads, plus existing roads such as Pipidinny Road.</li> <li>• Rail reserve alignment for MRS Amendment likely to be resolved around July.</li> </ul>
Statutory Workshop attended by: <ul style="list-style-type: none"> <li>• City of Wanneroo</li> <li>• Department of Planning</li> <li>• Department of Education</li> <li>• Public Transport Authority</li> <li>• Water Corporation</li> </ul>	3 May 2012	<p><u>Neighbourhood Centre</u></p> <ul style="list-style-type: none"> <li>• Retail floorspace can be moved around if supported by a Retail Sustainability Assessment.</li> <li>• If moved from Marmion Avenue, provide retail floorspace on LandCorp site west of Marmion Avenue to service western catchment.</li> <li>• Marmion Avenue Access</li> <li>• Consistent with CoW Marmion Avenue Access Policy.</li> <li>• Slip road for lots fronting Marmion Avenue can be accommodated in the Marmion Avenue road reserve. This has been done to the south.</li> <li>• CoW preference for housing to front Marmion Ave, rather than back onto.</li> </ul> <p><u>Engineering</u></p> <ul style="list-style-type: none"> <li>• Earthworks               <ul style="list-style-type: none"> <li>- Minimise impact on landform/earthworks – CoW keen to work with engineers – also LandCorp prefer to minimise retaining.</li> <li>- CoW retaining wall policy: 3m maximum, 1.5m to side of property.</li> <li>- Liaise Eglinton Estates regarding proposed levels south of Pipidinny Road.</li> </ul> </li> <li>• Servicing               <ul style="list-style-type: none"> <li>- No sewer infrastructure. Need to service via Marmion Avenue/Alkimos.</li> <li>- No water capacity. Third pipe?</li> </ul> </li> <li>• KV Powerline easement               <ul style="list-style-type: none"> <li>- 24m easement, 15 metre high poles - ability to move into Freeway reserve?</li> <li>- DoP have liaised with Main Roads and Western Power with no agreement.</li> </ul> </li> </ul>
Agency	Date of Consultation	Summary of Outcomes

Agency	Date of Consultation	Summary of Outcomes
		<p><u>Landscape / Interface Treatments</u></p> <ul style="list-style-type: none"> <li>• Noise Amelioration from Marmion Avenue – dependent on Acoustic Report.</li> <li>• Dual Use path along rail reserve to be located within reserve.</li> <li>• CoW would like to see east-west green link (DUP) through the site to the coast.</li> <li>• Bushfire separation – use road interface.</li> <li>• Railway Crossing</li> <li>• PTA will fund crossing for blue roads and existing roads, all other crossings funded by developer: Query mechanism with DoP.</li> <li>• Traffic study needs to justify crossing requirements.</li> <li>• Alkimos Eglinton DSP shows a crossing.</li> </ul> <p><u>School/community recreation sites</u></p> <ul style="list-style-type: none"> <li>• K-12 school is separate primary school and high school sites that are co-located. (K-6 primary school and 7-12 high school.)</li> <li>• Should be no road between schools and playing fields.</li> <li>• Sensitive uses adjacent rail corridor – acoustic report to determine layout.</li> <li>• Parking and traffic management around school site – need additional road possibly along rail corridor for set down, drop off.</li> <li>• PTA prefer a road between the playing areas and rail due to safety issues.</li> <li>• Positioning of the playing fields integral, CoW prefer collocation. 2 senior AFL and 1 soccer pitch required. This will enable reduction in school site areas.</li> <li>• CoW prefer playing fields to be co-located .</li> <li>• CoW would like to see indoor recreation site co-located with playing fields.</li> <li>• CoW sees the library being located in the district centre.</li> <li>• Community Facilities Plan endorsed by Council. DCP yet to be advertised but there will be a contribution in the interim.</li> <li>• Other community facilities could be co-located with schools, eg before- and after-school care facilities.</li> </ul> <p><u>POS</u></p> <ul style="list-style-type: none"> <li>• CoW 5,000m<sup>2</sup> minimum unless POS being used for a different function, i.e. retention of vegetation, landform, etc.</li> <li>• CoW liaising with DEC to enable access to, from and through Bush forever site to the north.</li> <li>• Detailed vegetation study required for assessment of POS location if retaining.</li> </ul> <p><u>Assessment of LSP</u></p> <ul style="list-style-type: none"> <li>• CoW LPP 4.2 currently in the process of amending policy. This will be consistent with WAPC policy. A revised template in line with WAPC policy on structure planning is also being worked on.</li> <li>• DoP will not be able to fully assess LSP prior to advertising.</li> <li>• Need to reach density targets in Liveable Neighbourhoods, DSP and Directions 2031. Revised density targets in D 2031 of 26 dwellings per site hectare (still a couple of months away for revised policy).</li> </ul>

Water Corporation	19 June 2012	<p><u>Sewer Reticulation</u></p> <ul style="list-style-type: none"> <li>• WC confirmed that the first stage of the Yanchep WWPS and PM has been fully designed and construction will commence shortly.</li> <li>• The additional DN300PM is unlikely to be constructed in the short/medium term and its impetus would be growth in Yanchep and Two Rocks areas and is independent of growth in Eglinton area</li> <li>• Increasing the size of the pending PM was discussed and not deemed viable due to significant cost increase, adverse operating efficiency and future complications with the variance in duplicate PM size.</li> <li>• WC to review PM design calculations to determine if there was any scope to inject a nominal flow rate into the DN375.</li> </ul> <p><u>Water Reticulation</u></p> <ul style="list-style-type: none"> <li>• Capacity unlikely to be available until Carabooda Reservoir and DN800 between Shorehaven &amp; Romeo Road commissioned.</li> <li>• Once a formal planning application is referred (ie LSP which is expected in July 2012), Water Corporation will engage with planning to undertake modelling of various scenarios to determine servicing alternatives.</li> <li>• There may be a requirement to fully fund DN700 and DN500 distribution mains from the proposed DN800 extending to Shorehaven to the first stage boundary.</li> <li>• The feasibility of temporary reticulation mains, potentially supplemented with storage tanks and a booster PS may be a possibility, would be considered as part of WC planning review.</li> <li>• Serviceability level at North Eglinton to be confirmed as part of the WC planning modelling.</li> <li>• LC to advise progress of appropriate zoning and earthworks of Romeo Road to facilitate planning of DN900 link main.</li> </ul>
	11 July 2012	<p><u>Bore Sites</u></p> <ul style="list-style-type: none"> <li>• Bore site locations can be on either side of Marmion Ave. It would be desirable if the bore collector main and all the bores were on the same side of the road. However, we do not yet have an agreed bore main alignment and the most practical bores sites seem to occur on both sides of Marmion Ave.</li> <li>• POS credit is a question that is best answered by the local authority. Understanding is that local authorities usually give POS credit for bore sites that are protected by easement and not fenced. Other than not wanting permanent works constructed within our easement area and that we maintain good access to the site we would not limit how the POS is used.</li> <li>• Residential land use in P3 WHPZ is acceptable.</li> </ul>
Agency	Date of Consultation	Summary of Outcomes

Western Power	13 July 2012	<p><u>Underground Power</u></p> <ul style="list-style-type: none"> <li>• Western Power advised of the expected infrastructure requirements to bring power to the Eglinton North estate.</li> <li>• The study is based upon the assumption of 2590 residential lots.</li> <li>• The existing HV power line along Pipidinny Rd may be used to supply 1 or 2 stages of the subdivision.</li> <li>• The estate will be supplied power from the nearest switchyard, being the Yanchep zone substation sited 7km away.</li> <li>• At least one new HV feeder must be installed from the zone substation to the Eglinton North development. An indicative cable route is provided.</li> <li>• Significant infrastructure upgrades must be performed within the Yanchep zone substation to provide a connection point any feeders.</li> <li>• A reminder is given that any local distribution substations within the development will require a provision of land to Western Power.</li> </ul>
Fire and Emergency Services Authority	12 July 2012	<ul style="list-style-type: none"> <li>• FESA letter dated 12 July 2012 advises: <ul style="list-style-type: none"> <li>- the risk of UXO contamination can be considered as absolute minimal to non-existent;</li> <li>- FESA UXO services has no objection to the proposed development of the subject land and as the referral authority for UXO would be prepared to advise the City of Wanneroo and the WAPC that no further UXO investigation, search or notification conditions will be necessary or required for this site;</li> <li>- an absolute guarantee that the area is free from UXO cannot be given and should suspected UXO be located during works, it must be treated as dangerous, not handled or moved and reported to police.</li> </ul> </li> </ul>
Department of Indigenous Affairs	13 July 2012	<ul style="list-style-type: none"> <li>• The DIA acknowledged that their Cultural Heritage Due Diligence Guidelines have been applied and exceeded in relation to this proposal and that the results of this work suggests there are no known cultural heritage values in the area requiring management.</li> <li>• DIA advised that AHMPs do not form part of the recommendations under the application of the Due Diligence Guidelines and are intended to manage known heritage values. They suggested that the value of an AHMP be considered in this case.</li> <li>• In their response, Ethnoscience informed DIA that CoW requires an AHMP and that this is to assist landowners, contractors and the local authority in the ongoing management of any currently unknown heritage values that may be found in the area.</li> <li>• The DIA enquired whether any consultation with the South West Aboriginal Land and Sea Council (SWALSC) has taken place. The AHMP will include provisions for consultation with SWALSC and other relevant stakeholders as required.</li> </ul>
Agency	Date of Consultation	Summary of Outcomes

<p>Woodsome Management, representing landowners adjacent to the structure plan area</p>	<p>6 June 2012</p>	<ul style="list-style-type: none"> <li>• The purpose of the meeting was to liaise with Woodsome Management, the project managers for the Eglinton District Centre to the south, and Cossill &amp; Webley, their engineers, regarding the status of planning for each site.</li> <li>• The LSP for the Eglinton Estates land 'hatches out' the District Centre as requiring further planning. An Activity Centre Structure Plan is required for the District Centre site.</li> <li>• Woodsome advised that their draft structure plan for the District Centre land will be subject to more detailed design in the next six months and is likely to be modified.</li> <li>• Woodsome noted our proposal to move the K-12 school further north into the North Eglinton site compared to what is shown in the District Structure Plan and understood why this is proposed.</li> <li>• Woodsome advised they are still reviewing the rail station land area requirements and levels. Aecom is undertaking a 'land take study' for the station.</li> <li>• Their rail levels are still preliminary only and there is scope to look at raising the levels, which means the rail levels at the southern end of the North Eglinton site could be raised, reducing the extent of cut required.</li> <li>• Woodsome raised the issue of well heads in Marmion Avenue and associated 300m buffers. The location of well heads in Marmion Avenue needs to be confirmed.</li> </ul>
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## 7.0 Alkimos Eglinton District Structure Plan Compliance

Table 12: District Structure Plan Compliance

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to prepare a Sustainability Strategy outlining the implementation path and measures that will be taken to achieve the sustainability objectives, in line with this DSP.	Complies	Sustainability Strategy has been prepared by ENV – refer Part 3 and Section 4.9 of the North Eglinton LSP
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.	Complies	To ensure best practise, a Local Water Management Strategy has been prepared by Emerge – refer Part 3 and Section 4.4 of the North Eglinton LSP
S 3 LSPs to conserve and enhance local biodiversity through design facilitating the retention of significant natural features in POS areas, road reserves, Social/Pedestrian/Cycle linkages or provide suitable justification otherwise.	Complies	LSP provides for: <ul style="list-style-type: none"> <li>Retention of very good - excellent vegetation in areas of POS</li> <li>Retention of landform in eastern POS</li> <li>Social/Pedestrian/Cycle linkages as specified in the DSP</li> </ul> Refer: <ul style="list-style-type: none"> <li>North Eglinton LSP Part 1 – Structure Plan</li> <li>North Eglinton LSP Part 2 - Sections 3.2 and 4.3</li> </ul>
S 4 LSPs to provide for Secondary, District, Neighbourhood and Local Activity Centres and employment corridors, generally as depicted on the DSP Map 1.	Complies	LSP provides for: <ul style="list-style-type: none"> <li>A centrally located neighbourhood centre</li> <li>Justification for the proposed location of the Neighbourhood Centre</li> </ul> Refer: <ul style="list-style-type: none"> <li>North Eglinton LSP Part 1 - Structure Plan</li> <li>North Eglinton LSP Part 2 – Sections 3.3 and 4.3</li> <li>Local Economic Strategy – Part 3</li> </ul>
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.	N/A	The North Eglinton LSP is located east of Marmion Avenue and therefore does not contain coastal nodes.
S 6 LSPs to investigate opportunities for effective waste management (reduction, reuse and recycling) in construction and domestic/ commercial consumption through alternative technologies, products and services.	Ongoing	<ul style="list-style-type: none"> <li>LSP waste management strategies are outlined in Sustainability Strategy – refer Part 3</li> </ul>

Community Development Compliance Table

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to prepare a Community Development Plan outlining the implementation path and measures that will be taken to achieve the DSP Community Development Objectives as outlined in Clause 7.5.	Complies	Community Development Plan has been prepared by Place Match – refer Part 3
S 2 LSPs to investigate and facilitate collaboration between the developers, City of Wanneroo, community-based organisations, local business, local residents and State Government agencies to explore community fostering and early delivery of services programs.	Complies	Refer to Community Development Plan – Part 3
S 3 LSPs to undertake facilities planning and make provision for community facilities that accommodate a range of uses to maximise civic participation and accommodate changing community needs and showcase leading practice sustainable building and landscape design.	Complies	Refer to Community Development Plan – Part 3
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: <ul style="list-style-type: none"> <li>• Provision for sites of a sufficient size, configuration and topography to accommodate the intended use.</li> <li>• Promotion of safe access by a range of transport modes.</li> <li>• Promotion of multiple use of school infrastructure by the broader community through co-location of facilities and partnerships with relevant authorities.</li> <li>• Sites for primary schools, whilst not shown on the DSP Map 1, need to be provided for at the LSP stage.</li> </ul>	Complies	<p>LSP provides for a K-12 special school site that is:</p> <ul style="list-style-type: none"> <li>• 8.5ha in size</li> <li>• located adjacent to a Neighbourhood Centre <ul style="list-style-type: none"> <li>- on major north-south and east-west Neighbourhood Connector streets</li> <li>- on a social/pedestrian/cycle linkage</li> </ul> </li> <li>• co-located with 9.8 hectares of playing fields for use of by the public</li> </ul> <p>LSP provides for an additional primary school site that is:</p> <ul style="list-style-type: none"> <li>• 4ha in size</li> <li>• On major north-south and east-west connector street</li> <li>• on a social/pedestrian/cycle linkage</li> <li>• located adjacent to POS that retains vegetation and landform</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 – Structure Plan</li> <li>• North Eglinton LSP Part 2 - Sections 4.3</li> </ul>
S 5 LSPs to make provision for private schools.	N/A	No requirement for private school sites in DSP
S 6 LSPs to investigate opportunities for co-location of educational facilities with other community, retail and recreational infrastructure.	Complies	K-12 special school site collocated with the proposed neighbourhood centre which includes and indoor recreation centre and playing fields.



DSP Strategies	Compliance	LSP Strategy
<p>S 7 LSPs to investigate opportunities to create synergies between civic and educational institutions, such as:</p> <ul style="list-style-type: none"> <li>• Extended hours activity/ creativity precincts around tertiary institutions;</li> <li>• Collaborative research between Government and Industry of initiatives in association with tertiary institutions;</li> <li>• Co-locating open space, performing arts venues and libraries with secondary or tertiary institutions;</li> <li>• Where appropriate, encouraging partnerships that enable joint provision and shared-use of infrastructure.</li> </ul>	Ongoing	Refer to Community Development Plan – Part 3
<p>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.</p>	Complies	The locations of the primary school and the K-12 special school have been discussed with the DET and the City, who provided their support.

#### *Economy, Employment and Activity Centres Compliance Table*

DSP Strategies	Compliance	LSP Strategy
<p>S 1 LSPs to develop Economic and Employment Strategies, in partnership with State and Local Government, which, 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.</p>	Complies	<p>LSP provides for:</p> <ul style="list-style-type: none"> <li>• Neighbourhood Centre – small commercial centre to service the local community collocated with an indoor recreation centre and a K-12 special school.</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.2</li> <li>• Local Economic Strategy – Part 3</li> </ul>
<p>S 2 LSPs to incorporate appropriate sites for employment nodes and corridors, in locations generally as depicted on the DSP Map 1.</p>	Complies	<p>LSP provides for:</p> <ul style="list-style-type: none"> <li>• Neighbourhood Centre zoned 'Commercial'</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.2</li> <li>• Local Economic Strategy – Part 3</li> </ul>
<p>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 Map 1.</p>	N/A	The Alkimos Eglinton DSP does not identify a regional, district or coastal activity centre on the North Eglinton LSP land.

DSP Strategies	Compliance	LSP Strategy
S 4 LSPs to make provision for a diversity of land uses within the Activity Centres, including higher density residential developments and employment generators.	Complies	<p>LSP provides for:</p> <ul style="list-style-type: none"> <li>• A range of land uses within the Neighbourhood Centre.</li> <li>• Increased density within and around the Neighbourhood Centre <ul style="list-style-type: none"> <li>- Increased density on the southern border of the LSP area within walkable distance of the Eglinton District Centre.</li> </ul> </li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan.</li> <li>• North Eglinton LSP Part 2 – 4.2</li> </ul>
S 5 LSPs to facilitate access to the Activity Centres by a variety of transport modes, especially public transport.	Complies	<p>LSP provides for:</p> <ul style="list-style-type: none"> <li>• The Neighbourhood Centre is to be located on future public transport routes allowing east-west movement through the LSP area.</li> <li>• Neighbourhood Centre is located on Neighbourhood Connector streets linking the LSP area to surrounding neighbourhoods.</li> <li>• Footpaths and cycleways are designed to link and pass through the Neighbourhood Centre. <ul style="list-style-type: none"> <li>- The Neighbourhood Centre is to be located at the convergence of two social/ pedestrian/cycle linkages.</li> </ul> </li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan.</li> <li>• North Eglinton LSP Part 2 – 4.2</li> </ul>
S 6 LSPs to accommodate generally the scale and allocation of retail, commercial, community service and associated floorspace as indicated in this DSP.	Complies	<p>LSP provides for:</p> <ul style="list-style-type: none"> <li>• A Local Centre designed to accommodate retail floor areas as provided in the DSP</li> <li>• Convenience shopping with ancillary retail and commercial.</li> <li>• Collocation of community and educational uses</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan.</li> <li>• North Eglinton LSP Part 2 – Sections 4.2</li> </ul> <p>* Local Economic Strategy – Part 3</p>
S 7 The size and function of centres to be consistent with the State's Policy on Activity Centres.	Complies	The size and function of centres are consistent with the State's Policy on Activity Centres.

Transport and Movement Compliance Table

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to provide for the Regional Road network to reflect the road alignments shown in the Metropolitan Region Scheme.	Complies	The LSP retains the alignment of Marmion Avenue and the future extension of the Mitchell Freeway as shown in the MRS.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - LSP Structure Plan</li> <li>• North Eglinton LSP Part 2 – Section 2.1</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
S 2 LSPs to identify neighbourhood connectors and major intersection points in locations generally in accordance with those depicted on the DSP Map 1.	Complies	LSP provides for: <ul style="list-style-type: none"> <li>• The location of major intersections and neighbourhood connectors as shown in DSP</li> </ul> Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan</li> <li>• North Eglinton LSP Part 2 – 2.1</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
S 3 LSPs to provide for integrated road, rail, bus, pedestrian and cycle access at key nodes within the development (Alkimos Town Centre, Eglinton District Centre, Activity (employment) Corridors), the three proposed Coastal Activity Centres and railway stations.	Complies	LSP provides connections to a permeable and safe movement and transport network, ensuring the creation of a highly accessible district centre to the south of the LSP land.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
S 4 LSPs to provide for the location of the three railway stations to integrate and activate the Alkimos Town Centre, Eglinton District Centre and park and ride/activity node located between the Regional and District Centres.	N/A	There is no railway station located in the North Eglinton LSP area.
S 5 LSPs design to optimise integration between the transport system and the land uses which it supports.	Complies	LSP provides for an integrated transport system connecting public transport, roads and pedestrian/cyclist facilities to: <ul style="list-style-type: none"> <li>• Activity centres and employment areas;</li> <li>• Higher density residential areas; and</li> <li>• Areas of community and recreational use.</li> </ul> Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 – LSP Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>

DSP Strategies	Compliance	LSP Strategy
<p>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.</p>	<p>Complies</p>	<p>A secondary transportation route connecting the local centre and the additional primary school site with the Eglinton District Centre/Railway Station allows for the following modes of transport:</p> <ul style="list-style-type: none"> <li>• Buses</li> <li>• Cyclists with a separated cycle lane</li> <li>• Pedestrians, with footpaths to both sides of the street</li> <li>• Private vehicles</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 – LSP Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
<p>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.</p>	<p>Complies</p>	<p>The LSP provides for a street network that:</p> <ul style="list-style-type: none"> <li>• provides a highly legible road hierarchy</li> <li>• adequate street connections to areas outside the LSP area</li> <li>• provides connections to Marmion Avenue in accordance with LPP 3.8 <ul style="list-style-type: none"> <li>- accommodates Pipidiny Road being a future connection to the Mitchell Freeway</li> <li>- accommodates a key east-west road linking the local centre, school sites and Marmion Avenue.</li> </ul> </li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - LSP Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
<p>S 8 LSPs to integrate higher densities and diversity of development near public transport stops, to maximise the convenience, efficiency and usage levels of public transport.</p>	<p>Complies</p>	<p>Higher R-Code density ranges and diverse development opportunities are provided within a walkable catchment of the future Eglinton District Centre and the proposed neighbourhood centre. In addition, higher densities are located along key north-south and east west public transport routes.</p> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>

DSP Strategies	Compliance	LSP Strategy
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.	Complies	LSP provides a highly permeable and safe movement and transport network for all modes of transport and incorporating key public transport routes designed to connect with the nearest railway station (ultimately Eglinton Railway station).  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
S 10 LSPs to define a robust walk/cycle network that will aim to: <ul style="list-style-type: none"> <li>• Encourage reduction in the private car dependency for residents.</li> <li>• Increase accessibility to employment and other urban activities.</li> <li>• Reduce adverse environmental impacts of transport.</li> <li>• Increase resource efficiency in a multi modal transport system.</li> <li>• Provide a healthy, safe and interesting lifestyle.</li> </ul>	Complies	The LSP incorporates an extensive and connected pedestrian and cycle network, including on-road cycle lanes, dual-use pathways and footpaths connecting major community facilities within the site and surrounding neighbourhoods.  <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
S 11 LSPs to design a road network which responds to the topography and environment of the project area, whilst recognising the need to facilitate an urban road framework that enables energy efficient housing orientation.	Complies	The LSP layout provides a framework to create streets which: <ul style="list-style-type: none"> <li>• reflect topographical change</li> <li>• provide flexible blocks for a range of housing types</li> <li>• create a predominance of housing lots which allow house designs to respond to solar orientation</li> </ul> Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - LSP Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>
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.	Complies	The LSP incorporates an extensive and connected pedestrian and cycle network, including: <ul style="list-style-type: none"> <li>• on-road cycle lanes and shared paths along all Neighbourhood Connector Streets.</li> <li>• footpaths to both sides of all local streets.</li> <li>• Dual-use pathways within major POS areas. Key destinations have been defined and included.</li> </ul> Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Transportation Strategy - Part 3</li> </ul>

DSP Strategies	Compliance	LSP Strategy
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.	Ongoing	Refer to North Eglinton Local Structure Plan Local Transportation Strategy prepared by Transcore (Part 3)
S14 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.	Complies	The LSP design incorporates appropriate interface measures between the railway reserve and adjoining land uses. A Noise Attenuation study has been prepared by Herring Storer and identifies the appropriate measures to ensure the amenity of future residents is not adversely affected by noise (Part 3).
S 15 Roads to be in accordance with Liveable Neighbourhoods.	Complies	The road cross-sections are in accordance with Liveable Neighbourhoods.

#### *Ecology, Public Realm and Open Space Compliance Table*

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to reflect the Regional Open Space reserved under the MRS, with a further area of 114ha to be preserved for conservation purposes within the Waste Water Treatment Plant buffer, generally as depicted on the DSP.	Complies	The 'Parks and Recreation' Reserve (Bush Forever) forming the sites northern boundary is protected as Regional Open Space as per the MRS.
S 2 LSPs to include an overall strategy for the provision and form of public realm including green linkages, active POS and passive POS including conservation areas, beaches and recreational facilities.	Complies	<p>LSP provides clear strategic direction for open space with a hierarchy of parks including:</p> <ul style="list-style-type: none"> <li>• Social/Pedestrian/Cycle linkage (active and passive POS with conservation areas)</li> <li>• Conservation (passive POS)</li> <li>• Playing Field (active POS)</li> <li>• Neighbourhood and Local Parks (active and passive POS)</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.2</li> </ul>

DSP Strategies	Compliance	LSP Strategy
<p>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.</p>	<p>Complies</p>	<p>POS areas are in accordance with the outlined policies. In particular, the LSP provides 10% of the gross subdivisible site area as POS with:</p> <ul style="list-style-type: none"> <li>• A Playing Field with multi-purpose oval and associated facilities, co-located with the K-12 school.</li> <li>• Neighbourhood and Local Parks interspersed across the development providing a mix of active and passive recreation areas.</li> <li>• All POS areas are accessible from surrounding public streets and many are located on the cycleway network. Environmental features, such as the landscape and vegetation quality/ types are well documented in the LSP and Appendices. POS areas have been located to retain these significant features.</li> <li>• All POS areas offer high levels of surveillance from adjacent public streets, public pathways and overlooking residences.</li> </ul> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 3.2</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> <li>• Local Environment Impact Assessment and Management Strategy – Part 3</li> </ul>
<p>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 landscaped responsive form of development or provide suitable justification otherwise.</p>	<p>Complies</p>	<p>6 local passive POS areas serve a conservation function comprising of approximately 11 hectares. These areas of POS are strategically located to conserve landform and native vegetation. The areas of significance have been identified and assessed through the Local Environment Impact Assessment and Management Strategy prepared by Strategen.</p> <p>The natural landform will be kept or reflected as much as possible through urban development.</p> <p>Refer:</p> <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 3.2</li> <li>• North Eglinton LSP Part 2 - Section 4.2</li> <li>• Local Environmental Impact Assessment and Management Strategy prepared - Part 3</li> <li>• Local Engineering Infrastructure Report – Part 3</li> </ul>

DSP Strategies	Compliance	LSP Strategy
S 5 LSPs to investigate and facilitate interlinking recreational areas, environmental reserves, landscaped streetscapes and local POS to provide 'stepping stones' from hinterland to the coast generally in accordance with the Social/Pedestrian/Cycle linkages shown on the DSP (Map 1) and the Guidelines in this DSP.	Complies	The LSP provides two Social/Pedestrian/Cycle linkages consistent with the DSP. The main east-west linkage connects Marmion Avenue with the local centre, k-12 and primary school site. Two additional north-south Social/Pedestrian/Cycle linkages provide connections to the bush forever site and the Eglinton District Centre.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 1 - LSP Structure Plan</li> <li>• North Eglinton LSP Part 2 - Section 4.3</li> </ul>
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:  <ul style="list-style-type: none"> <li>• Support for the development of the coastal nodes into Activity Centres</li> <li>• Community access and beachside facilities and focal points</li> <li>• Conservation values</li> <li>• Linkages</li> <li>• Dune stabilisation</li> <li>• Perpetual management</li> <li>• Recreation opportunities</li> <li>• Pedestrian access</li> <li>• Fauna habitat retention</li> </ul>	N/A	North Eglinton LSP site is located to the east of Marmion Avenue and therefore does not impact the coastal foreshore.
S 7 LSPs and / or FMPs to provide for a continuous foreshore shared path and identify appropriate locations for public beach access and facilities.	N/A	North Eglinton LSP site is located to the east of Marmion Avenue and therefore does not impact the coastal foreshore.
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 that they remain viable (as defined by the WALGA/ Perth Biodiversity Project's Local Government Biodiversity Planning Guidelines of the Perth Metropolitan Region, 2004).	Complies	Passive POS areas that serve an additional conservation function are outlined in the LSP.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.2</li> </ul>
S 9 Landscape plans for public spaces to utilise local indigenous plant species, or provide suitable justification otherwise, and their use to be encouraged in private landscapes.	Complies	Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.2</li> </ul>
S 10 LSPs to include a Vegetation Management Strategy, which will include, where appropriate, a vegetation survey, fauna survey, fauna habitat survey, highlight the areas of vegetation and habitat to be retained and highlight opportunities for existing vegetation to be retained in the landscape through measures such as local seed provenance and retention in public space.	Complies	A local Environment Impact Assessment and Management Strategy for the LSP area has been prepared by Strategen and is provided in Part 3.



DSP Strategies	Compliance	LSP Strategy
S 11 LSPs to provide for co-location, such as schools with public open space, and multiple uses, such as conservation and passive recreation, where practicable.	Complies	The LSP provides for playing fields with multi-purpose ovals and associated facilities to be co-located with the K-12 special school. Passive areas of POS are co-located with areas that serve an additional conservation function.  Refer: <ul style="list-style-type: none"> <li>North Eglinton LSP Part 1 - LSP Structure Plan</li> <li>North Eglinton LSP Part 2 - Section 4.2</li> </ul>

### Built Environment Compliance Table

DSP Strategies	Compliance	LSP Strategy
S 1 LSP and subdivision design to be robust and be able of being intensified over time.	Complies	The design allows for densification over time.  Refer: <ul style="list-style-type: none"> <li>North Eglinton LSP Part 2 - Section 4.2</li> </ul>
S 2 LSPs to prepare a Housing Diversity, Residential Yield and Density Analysis Plan allocating densities consistent with the City's Housing Strategy.	Complies	LSP provides R-code ranges, residential density and yield tables and thorough explanations addressing Housing diversity.  Refer: <ul style="list-style-type: none"> <li>North Eglinton LSP Part 1 – Structure Plan</li> <li>North Eglinton LSP Part 2 - Section 4.2</li> </ul>
S 3 LSPs to allocate higher residential density codings generally consistent with the DSP and in accordance with the criteria below: <ul style="list-style-type: none"> <li>A minimum average density of 50 dwellings per site hectare within 400 metres from the centre of regional activity centres;</li> <li>A minimum average density of 30 dwellings per site hectare within 400 metres from the centre of district activity centres;</li> <li>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;</li> <li>A range of densities in other locations in order to deliver housing diversity.</li> </ul>	Complies  N/A  Partially Complies  Complies  Complies	<ul style="list-style-type: none"> <li>The North Eglinton LSP provides for a density of 26 dwellings per site hectare over the entire LSP area.</li> <li>No regional activity centre on the subject site.</li> <li>The North Eglinton LSP provides higher density ranges of R40-R100 within 400m of the Eglinton District Centre, with an average of 30 dwellings per site hectare.</li> <li>The North Eglinton LSP provides locational criteria that ensure an average density of 25 dwellings per site hectare will be achieved within 400 metres of the Neighbourhood Centre and that higher densities are supported by public transport routes.</li> </ul> Refer: <ul style="list-style-type: none"> <li>North Eglinton LSP Part 2 - Section 4.2</li> </ul>

DSP Strategies	Compliance	LSP Strategy
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.	N/A	Part 1 establishes requirements for future LDPs and key site planning and building design considerations.  The Sustainability Strategy identifies energy efficiency requirements for housing to meet.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.9</li> <li>• Sustainability Strategy - Part 3</li> </ul>
S 5 LSPs to provide for energy-efficient development through appropriate subdivision design and R-Code variations.	Complies	Part 1 establishes requirements for future LDPs and key site planning and building design considerations.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP - Part 1 – Section 5.1</li> </ul>
S 6 LSPs to provide for built form that incorporates the opportunity for passive solar design, energy and water efficiency principles.	Complies	LSP establishes principles for energy and water efficiency.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.9</li> <li>• Local Environment Impact Assessment and Management Strategy - Part 3</li> </ul>
S 7 LSPs to allow for 'ageing in place' through the provision of a range of dwelling types, including those suitable for the elderly.	Complies	The LSP includes a range of lot and housing types facilitating a variety of choice and 'ageing in place'.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.2</li> </ul>
S 8 LSPs to develop and implement strategies for affordable housing product and to facilitate increased opportunities for home ownership.	Complies	The LSP is based upon a vision and commitment to provide affordable housing.  Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.2</li> </ul>
S 9 LSPs to provide for housing types in accordance with the City's Housing Strategy.	Complies	For detailed information on lot and housing types refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.2</li> </ul>

DSP Strategies	Compliance	LSP Strategy
<p>S 10 Local and Centre structure plans and/or Local Development Plan shall demonstrate how the scale and allocation of retail, commercial, community service and associated floor space will be delivered by:</p> <ul style="list-style-type: none"> <li>• Delivering a robust street network that can accommodate an increase in intensity of built form and use over time;</li> <li>• Providing a LDP table building design capable of multifunctional ground floor use and the provision of additional levels without the need for demolition; and</li> <li>• Enabling generational change to occur as a right in certain circumstances without the need for further planning approval.</li> </ul>	Complies	Part 1 establishes requirements for future LDPs and key site planning and building design considerations.

*Resources, Infrastructure and Services*

DSP Strategies	Compliance	LSP Strategy
S 1 LSPs to demonstrate how funding arrangements, including the endorsed Alkimos Eglinton Developer Contributions Plan, are to be implemented, in order to provide for the efficient and equitable delivery of infrastructure and services.	NA	The Alkimos Eglinton Developer Contributions Plan is yet to be endorsed by the WAPC. Local Planning Policy 3.3: Northern Coastal Growth Corridor Developer Contributions is an interim measure to ensure the appropriate contributions are provided.
S 2 LSPs to make provision for infrastructure and essential services to development areas.	Complies	All essential services are able to service the site. Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 - Section 4.7</li> <li>• Local Engineering Infrastructure Report – Part 3</li> </ul>
S 3 LSPs to investigate opportunities for communications infrastructure.	Complies	Provision will be made for NBN infrastructure in the form of conduits and pits in road reserves allowing NBN contractors to install the fibre network at a later date. Refer: <ul style="list-style-type: none"> <li>• North Eglinton LSP Part 2 – Section 4.7</li> <li>• Local Engineering Infrastructure Report – Part 3</li> </ul>
S 4 LSPs to explore opportunities and initiatives for energy efficiency.	Complies	Refer Sustainability Strategy – Part 3

### Staging

DSP Strategies	Compliance	LSP Strategy
<p>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.</p>	<p>Complies</p>	<p>A staging plan has been prepared to demonstrate that the LSP meets this strategy.</p> <p>Refer:</p> <ul style="list-style-type: none"> <li>North Eglinton LSP Part 2 - Section 5</li> </ul>

## 8.0 Summary of Technical Reports

### Local Environment Impact Assessment and Management Strategy (Strategen)

This environmental assessment report has been prepared in support of the North Eglinton Local Structure Plan (LSP) for Lot 2 Pipidinny Road, Eglinton. The site comprises a total area of approximately 242 hectares adjacent to designated Regional Open Space and is located approximately 50 kilometres north of Perth, in the City of Wanneroo.

The purpose of the assessment is to provide a summary of all technical reports undertaken on the site, in accordance with the City of Wanneroo Local Planning Policy 4.2, with the exception of the Bushfire assessment and Desktop Karst Survey which are being undertaken separately.

The Local Environmental Impact Assessment and Management Strategy therefore addresses the following environmental factors:

- climate;
- geology, soils, topography;
- hydrology;
- wetlands;
- acid sulphate soils;
- conservation areas;
- Aboriginal and European heritage;
- contaminated sites and unexploded ordinances;
- flora and vegetation, including significant trees;
- fauna.

A number of environmental considerations will require management at subdivision level. Overall environmental impacts during construction will be managed through the implementation of a Construction

Environmental Management Plan (CEMP). The CEMP will be prepared prior to subdivision taking place in the LSP area.

In order to protect fauna, fauna habitat and conservation values, a Fauna and Habitat Management Plan (FHMP) will also be prepared and implemented for the LSP area.

### Desktop Geotechnical Report (including Karst and Acid Sulphate Soils) (Douglas Partners)

This desktop report presents preliminary geotechnical comments regarding Lot 2 Pipidiny Road, Eglington.

The site is heavily vegetated. Sand was observed along the majority of the tracks. Limestone outcrops were generally observed as pinnacles (considered to be Tamala limestone) and as light grey laminated cemented sand (considered to be Safety Bay limestone).

A site classification "A" is anticipated, in accordance with AS2870, following suitable site preparation as determined by a geotechnical investigation.

Excavated Safety Bay sand and sand derived from Tamala limestone are considered suitable for use as structural materials.

Conventional earthmoving plants will be suitable for excavations, compaction, and cut and fill operations within the sand materials. Provisions for powerful excavation equipment, such hydraulic rock breakers fitted on powerful excavators for small excavations and heavy ripping, for instance D10 or D11 dozer are recommended for large excavation in limestone.

Safety Bay sand and sand derived from Tamala limestone are considered suitable for stormwater disposal via infiltration, with a typical permeability value (k) around  $5.0 \times 10^{-4} \text{ m/s}$ . Limestone is considered impervious at small scale and thus on site stormwater disposal using soakwells might not be suitable in areas of shallow limestone.

Published acid sulphate soil risk mapping indicates that the site is within an area depicted as "no known risk of acid sulphate soils occurring within 3 m of the natural soil surface". It should be noted that areas shown as "high to moderate risk of acid sulphate soils occurring with 3 m of the natural soil surface" are present approximately 1.5 km east of the site.

Karstic Features generally occurs with a geological unit described as Limestone (LS2), located 600 m east of the north eastern boundary of the site. Major cavities are thought to generally form at or near the water table level. Based on the Groundwater Atlas 2004, the groundwater level is approximately 9 m below the lowest part of the site.

Although the risk of major karst features affecting this development is considered to be low, the risk can be further reduced by proceeding with the following:

- Test pits;
- Observations during earthworks;
- Geophysical testing; and
- Boreholes

The above investigation approaches are further detailed in this report.

Some vegetation clearing may be required prior to any geotechnical investigation.

### Fire Management Plan (FirePlan WA)

The Fire Management Plan for North Eglinton Estate has been prepared in accordance with the Performance Criteria and Acceptable Solutions detailed in Planning for Bush Fire Protection Edition 2 guidelines (FESA and Department of Planning 2010).

The site is currently vegetated predominantly with Tall Open shrubland with some areas of heathland to Tall shrubland with small pockets of low open woodland. The site will be generally cleared with some areas of Public Open Space managed as Neighbourhood Parks (partially vegetated) including drainage swales. Pipidiny Road is located on the southern boundary and Marmion Avenue is located on the western boundary of the site. A Bush Forever site adjoins the proposed development to the north and a power line easement and future Freeway reserve is located on the eastern boundary.

The proposed road system within the site separates proposed dwellings and retained vegetation and along with the front setback of lots adjoin vegetation areas this will achieve the required separation between dwellings and retained vegetation. Where a road adjoining Public Open Space (POS) areas is 15 metres wide landscaping in the POS along with the setback within the lot will achieve the required separation.

To reduce the bush fire risk to proposed dwellings, a 20 to 25 metre setback to the Bush Forever site and POS areas will be managed to the Building Protection Zone standard detailed in the Fire Management Plan.

All dwellings within 100 metres of retained vegetation are to be constructed to AS 3959-2009 to specific Bushfire Attack Levels. All Lots within this 100 metres of retained vegetation are to have a Section 70A Notification place on the land Title advising that dwelling in this area must comply with AS 3959.

At each stage of Land release there must be two points of entrance and egress via public roads. The developer is required to install fire hydrants throughout the site in each stage of land release to the Water Corporation's No 63 Water Reticulation Standard and marked with road and pole markings. A low fuel zone of 100 metres (may be slashed to 50 mm or cleared as part of the next stage of land release) will be required so that dwelling standards will not be increased to AS 3959 standards unnecessarily.

A Fire Management Plan has been prepared for this development which meets the performance criteria and acceptable solutions detailed in Planning for Bush Fire Protection Edition 2 (FESA & Department of Planning 2010).

### Local Water Management Strategy (Emerge Associates)

The Local Water Management Strategy (LWMS) for the North Eglinton Estate has been developed in accordance with Better Urban Water Management (WAPC 2008), State Planning Policy 2.9 Water Resources (WAPC 2006) and Planning Bulletin 92 Urban Water Management (WAPC 2008). Water will be managed using an integrated water cycle management approach, which has been developed using the philosophies and design approaches described in the Stormwater Management Manual for Western Australia (DOW 2007). The key principles of integrated water cycle management that have guided the water management approach at the North Eglinton Estate include:

- Considering all water sources, including wastewater, stormwater and groundwater
- Integrating water and land use planning
- Allocating and using water sustainably and equitably
- Integrating water use with natural water processes
- Adopting a whole of catchment integration of natural resource use and management.

The overall objective for integrated water cycle management for residential developments is to minimise pollution and maintain an appropriate water balance. The North Eglinton Estate LWMS design objectives seek to deliver best practice outcomes using a Water Sensitive Urban Design (WSUD) approach, including detailed management approaches for:

- Potable water consumption
- Flood mitigation
- Stormwater quality management
- Groundwater management.

The first step in applying integrated water cycle management in urban catchments is to establish agreed environmental values for receiving waters and their ecosystems. The LWMS provides a comprehensive summary of the existing environment, based on a number of National and State policies and guidelines and site specific studies undertaken in and around the site. The characteristics and environmental values of the site have guided the design criteria, which will achieve the design objectives for the key management areas discussed above.

The WSUD approach and measures that are proposed for the North Eglinton Estate include:

- Maintaining existing flow regimes by retaining all runoff within the site
- Treatment of surface runoff prior to infiltration to groundwater
- Bio-retention swales incorporated into road reserves high in the catchment
- Bio-retention areas incorporated in POS areas
- Major event flood storage requirements addressed by combination of roadside swales and POS areas
- Co-location of flood storage areas with natural landforms and native remnant vegetation wherever possible
- Adopting appropriate non-structural best management practices
- Adopting a fit for purpose water use approach
- Minimising use of both scheme and non-potable water.

The LWMS demonstrates that the design approach for the North Eglinton Estate LSP is consistent with a best practice WSUD approach, that the water management objectives for the site can be achieved within the spatial allocation of the LSP, and the requirements of the relevant State and local government policies and guidelines will be satisfied.



## Local Engineering Infrastructure Report (Wood & Grieve Engineering)

### Earthworks

The site is generally undulating with the majority of slopes varying from 1 in 3 (33%) to 1 in 50 (2%). Some areas have steeper slopes, typical of the Perth coastal dune system. The site has a highpoint at RL 53.0 in the South-East cell approximately halfway between the proposed railway reserve and future Mitchell Freeway. The site then generally falls in the North-West direction passing through a central low point of RL 16.0.

Ground conditions comprise sand overlying limestone to varying depths. Limestone outcrops are at the surface along some ridges and it can be expected that areas of harder capstone will be encountered.

Due to the steep slopes, bulk earthworks will be required to provide acceptable lot levels and grades for roads. Bulk earthworks are also necessitated to suit existing or future levels of Marmion Avenue, Pipidinny Road and the Railway. The natural landform will be kept as much as possible whilst ensuring that no lots will have a steeper slope than 1 in 8 (12.5%) which is required by City of Wanneroo. Retaining walls will be adopted on most lots to provide level lots with walls being designed in accordance with the City of Wanneroo retaining wall policy.

An existing ridge which runs east west across the site will be kept, but reshaped and lowered to provide acceptable grades for lots. Preliminary modelling suggests that a balance of cut-to-fill can be achieved.

### Roadworks

Major road access to the subdivision will be via Marmion Avenue from the west. Road access from the south will be via Pipidinny Road.

All roads will be designed to Austroad Standards and City of Wanneroo requirements. No roads will have a longitudinal grade steeper than 10% and flatter than 0.6%

The major road through the development from Marmion Avenue will be a boulevard type road into the subdivision. The proposed profile of this road will be in accordance with the Liveable Neighbourhood 'Connector A' requirements which is consistent with the District Structure Plan reporting. This road will be a single carriageway with a central median and pedestrian footpath.

Typically, road pavements will be constructed with asphalt finish with brickpaving being used at some intersections to encourage a low speed environment. Road widths will vary from 6.0m for rear access lanes to 7.4 metres on through roads, except for the boulevard type roads. All roads will incorporate dual use paths or footpaths.

### *Stormwater*

The Stormwater Management will be in accordance with the aim of Water Sensitive Urban Design, the design requirements of the Australian Rainfall and Runoff Guide and the requirements of the City of Wanneroo.

In general, runoff from individual lots will be managed through on site infiltration from local soakwells. Runoff from roadways and public areas will be managed via gullies/side entry pits and piped drainage system to infiltration sumps and basins located within the low areas of the landholding.

A drainage strategy has been prepared which documents the major drainage facilities required to service the development area. Refer to the Local Water Management Strategy.

The subdivisional development is divided into four major cells, each with separate catchments. The catchments that define the two northern cells can discharge into drainage basins at the natural low lying lands adjacent along the Bush forever boundary. Stormwater from the catchments to the southern side of the development will be contained on site via discharge into localised drainage infiltration basins, located at the boundaries of the cells.

All basins located at trapped low points will be designed to accommodate the 1 in 100 year storm volume as required by Council with no overflow.

### *Water Supply*

The development area is within the Water Corporation licence area and is ultimately supplied by potable water from the Carabooda Reservoir which is soon to be commissioned.

Water Corporation is currently undertaking design for a section of DN800 along Marmion Avenue. This is expected to be commissioned by mid-2013. The DN700 link from this main to existing distribution mains within Marmion Avenue further south will then follow.

Initial water supply for the area will be via DN500 and DN700 distribution water mains in Marmion Avenue extending from the pending distribution main to be constructed to Shorehaven referred above. Both mains are linked to the DN800 along Marmion and the Water Corporation's Carabooda Reservoir. A temporary water main along Marmion Avenue from Shorehaven may be installed to service initial stages in lieu of the ultimate distribution mains subject to Water Corporation modelling and approval.

To increase the capacity, a DN600 distribution main will ultimately be installed within the development to loop with future distribution mains to be installed parallel and adjacent the railway.

PVC water reticulation pipes will be installed within the proposed road reserves off the distribution mains to serve all lots within the development area. The area will be served to normal subdivisional standards as required by the Water Corporation.

Serviceability may affect maximum elevation of lots or may necessitate a booster pump station, however, modelling by Water Corporation to provide advice on such restrictions is yet to be completed.

### Sewerage

The development area is within the Water Corporation licenced area and is serviced by the Alkimos Wastewater Treatment Plant. Sewerage disposal for this development falls within two main distinguishable catchment areas.

The Water Corporation ultimate scheme design makes provision for the majority of the subject land to be serviced by the Alkimos Type 40 Pump Station (PS) 'V' which discharges into the future Yanchep Branch Sewer located to the west of Marmion Avenue.

Prior to the Yanchep Branch Sewer being extended in proximity to the subject land, a temporary strategy proposed by Water Corporation suggests servicing to be achieved by extending the pressure main from PS 'V' along Marmion Avenue into an existing DN600 gravity sewer adjacent the Alkimos Waste Water Treatment Plant (WWTP). The pressure main would be approximately 7km in length.

Water Corporation is proposing to install two staged pressure mains along Marmion Avenue to facilitate the discharge of sewerage from the Yanchep and Two Rocks WWTP's to the Alkimos WWTP prior to the Yanchep Branch Sewer being constructed. It is anticipated that the Yanchep Pump Station and the first of the two pressure mains to the Alkimos WWTP will be commissioned by July 2013. As an alternative or initial temporary strategy to the pressure main to the Alkimos WWTP referred above, Water Corporation are currently investigating the feasibility of injecting nominal flows into the initial pressure main along Marmion Avenue.

Minor catchments not serviced by PS 'V' fall toward future development areas to the west and south. Servicing these catchments would rely on adjacent development infrastructure or independent temporary pump stations may be necessitated.

### Power

It is anticipated that the power requirements for the North Eglinton Estate development will necessitate a new HV connection from a nearby zone substation. Based on the results of a feasibility study performed by Western Power it is expected that the Yanchep zone substation – located near the intersection of Wanneroo Rd and Romeo Rd – will require upgrades in order to provide the necessary infrastructure for this connection. It is noted that it may be feasible to provide power to some of the earlier stages of the development from the existing 22 kV HV overhead power line along Pipidinny Road, however the ultimate power load will require the installation of two new HV cables. These new 22 kV HV cables will be placed underground in the road reserve routed along Wanneroo Rd and Pipidinny Rd between the Yanchep zone substation and the North Eglinton Estate Site.

Within the estate the HV cables (either the new feeders or as an extension of the Pipidinny Road cable) will connect to several HV switchgear and transformers which will function to reduce the voltage to 240V – suitable for consumer usage. This HV equipment will be distributed throughout the estate. Power will then be reticulated from each transformer to lots via low voltage underground cables along the road reserve in each street in the estate. Some areas – namely the mixed use lot and high schools – will require a dedicated transformer placed on each site due to their high power requirements.

### Telecommunications

Provision will be made for NBN infrastructure in the form of conduits and pits – again installed in the road reserve within the estate – allowing NBN contractors to install the fibre network at a later date. The “backbone” of this system is formed with larger pits and 100mm conduits to house the Fibre Distribution Hub (FHD) equipment and fibre to these hubs. Smaller pits and 100mm to 23mm conduits will be installed along each street to allow the installation of fibre from the hub to individual lots.

### Gas

Existing gas infrastructure is located at Alkimos south of the North Eglinton Estate. According to ATCO Gas's latest design, an extension of a 225 OD high pressure gas main along Marmion Avenue from Leeway Loop to Yanchep Beach Road will be expected to be constructed as soon as August 2012. Once completed there may be potential for gas reticulation to service the development site. No detailed gas plan has been provided as part of this submission as design of any infrastructure will be carried out by ATCO Gas following a subdivision design request submission.

### Local Transportation Strategy (Transcore)

This LSP area is anticipated to generate traffic flows of approximately 22,000 vehicles per day across the LSP boundaries.

The road network of the LSP area has been designed based on WAPC Liveable Neighbourhoods guidelines to accommodate the future traffic flows that will be generated in this area.

The future planning for Marmion Avenue assumes it will be upgraded to dual carriageway standard and the future traffic volumes adjacent to the LSP area modelled in this transport assessment are consistent with this road standard.

Access to the LSP area will be served by two roundabouts on Marmion Avenue (the existing Pipidinny Road roundabout and another roundabout further to the north) and a left in / left out intersection midway between them. These intersections have been analysed for future traffic flows when the LSP area is fully developed and the analysis indicates that both roundabouts and the intermediate intersection will operate satisfactorily during weekday AM and PM peak periods.

Roundabouts are recommended at several other intersections on Pipidinny Road and internal neighbourhood connector roads in the LSP area.

The proposed road network will accommodate a planned future bus route through the LSP area, which will provide satisfactory public transport access in future.

The proposed LSP also provides for a comprehensive network of shared paths and footpaths to encourage and facilitate non-motorised travel as well.

### Local Economic Strategy (Tactics4)

The Local Economic Strategy and Retail Needs Assessment for the North Eglinton Local Structure Plan conclude that:

- The North Eglinton community will be well served by District and Secondary Activity centres to the north in Yanchep and to the immediate south in Eglinton and Alkimos.
- The original District Plan indicated two neighbourhood centres in North Eglinton. However, a single neighbourhood activity centre servicing the entire north Eglinton community produces the most commercially efficient delivery of neighbourhood activity to the community.
- The Marmion avenue Neighbourhood Centre is still required for the district but should be accommodated entirely on the western side of Marmion Ave to better cater for the residential catchment between the coast & Marmion Ave.
- The Eastern Neighbourhood Centre initially planned for the eastern cell, should be relocated west to a more central location and integrated with a diverse range of community facilities to create a stronger community hub of activity that serves the entire North Eglinton catchment.
- The size and performance of this centre will be influenced by the proximity of the Eglinton District Centre to the immediate south of the Local Structure Plan area.
- These minor adjustments to the neighbourhood centre network in North Eglinton do not alter or negatively impact on the overall activity centre structure planning at a district level.
- The Neighbourhood Centre should therefore comprise as a minimum 3,750sqm of activity detailed in the following table, but this should not preclude a developer delivering an activity centre up to 4,000sqm in accordance with the DSP.

Small local supermarket	1,250 sqm
Specialty shops 7-10	1,000 sqm
Total retail	2,250 sqm
Office/community	500 sqm
Mixed use	1,000 sqm
Total	3,750 sqm

- The limited employment opportunities in the LSP area is balanced by the significant employment opportunities provided by the close proximity to four higher order centres.
- Schools, neighbourhood centre, home businesses and mixed use activity have the potential to create over 750 jobs representing 13% of the total labourforce residing in the North Eglinton community.
- The balance of employment for the North Eglinton residents will be provided in the higher order centres in close proximity to North Eglinton especially the adjacent District Centre at Eglinton.

## Local Community Development Strategy (Place Match)

Located 15km north of Joondalup in the City of Wanneroo, North Eglinton is one of the most exciting developments in the highly competitive northwest corridor, surrounded by Brighton, Trinity, Alkimos, Shorehaven and Amberton.

LandCorp and Satterley Property Group are working in partnership to create an attractive, affordable and self-sustaining community that demonstrates leadership in sustainability, urban design and delivery of affordable product in Western Australia. In line with the requirements of the Local Structure Plan (LSP), this Community Development Plan (CDP) provides the broad framework and guiding principles to achieve social and community outcomes and inform the development of detailed community strategies during project delivery and post occupancy. In doing so, the CDP:

1. Identifies community anchors within the LSP area as well as strategies to inject vibrancy into the project through activation of public spaces
2. Provides strategic recommendations to enhance the LSP concept plan including access and linkages, community facilities planning and leveraging local identity
3. Identifies place management strategies to facilitate purchasers and residents' active involvement in community life
4. Details engagement, consultation and governance strategies to leverage existing stakeholders and networks to support activation in perpetuity
5. Aligns with guiding principles and Community Development objectives outlined in the DSP and the City of Wanneroo's Community Facility Plan
6. Supports LandCorp and Satterley's integrated approach to social, economic and environmental sustainability.

## Demographic overview

Once complete, North Eglinton will become home to up to 7,500 people in approximately 3,000 homes. Based on projected population forecasts and 2011 ABS population data, the LSP area is expected to be largely representative of household structures that currently reside in the City of Wanneroo. Although couple families with dependents will decrease slightly in proportion of the total population, this cohort will continue to be the most dominant household structure (declining from 42.5% to 39.3%), followed by couple families without dependents, which are forecast to increase substantially, from 25.5% of the overall population in 2011 to 31% in 2021. Lone person households (15.7%) and one parent families (10.5%) will decrease marginally when compared with City of Wanneroo population in 2011.

## Community facilities

The LSP incorporates significant planned community infrastructure including:

- a neighbourhood centre,
- two primary schools and one secondary school incorporating a K-12 'inclusive school' with special facilities for children with disabilities,
- playing fields and multi-purpose hard courts,
- district indoor recreation centre,
- 10% public open space including 3% conservation areas, and
- strategic pedestrian and cycle linkages and a high frequency public train connecting North Eglinton (and Yanchep beyond) with the Perth metropolitan rail network.

Directly adjacent to the development on the southern border, and centred upon the proposed Eglinton Railway Station, is the Eglinton District Centre which will provide a focus for commercial and community activity, incorporating a district library, district community centre and 20,000sqm total floor space.

From a community development perspective, the North Eglinton concept plan has been well designed to leverage the site's natural assets including its proximity to the coast and significant surrounding vegetation), whilst also addressing site constraints, including the proposed rail line, freeway and power infrastructure on the eastern boundary. Notable community outcomes achieved in the plan, that are responsive to place based planning include:

- Civic, community and education facilities are located within the Neighbourhood Centre, rather than stand-alone locations.
- Community facilities are located adjacent to social/pedestrian/cycle linkages, proposed public transport hubs and open space
- North Eglinton's coastal and bushland character and identity is well reflected through landscape design and indicative streetscape
- Adequate and well located space has been provided for public spaces for cultural activities, events and festivals
- The public realm is of high quality which includes public places, streets and parks and these are functional, accessible, and integrated.

### Key community anchors

A number of site specific strengths and unique characteristics have been identified within the broader region to cultivate a sense of local identity and maximise the activation opportunities within the North Eglinton LSP area. Primary community activation zones identified within the LSP are summarised below:

	Primary Anchors	Secondary Anchors
Civic and commercial centre	<ul style="list-style-type: none"> <li>• Neighbourhood centre main street</li> <li>• District recreation centre</li> </ul>	<ul style="list-style-type: none"> <li>• Schools (primary, secondary, special needs)</li> <li>• Adjoining POS and proposed community garden</li> </ul>
Regional recreation zones	<ul style="list-style-type: none"> <li>• 1 x POS sites adjoining bush forever (north west boundary)</li> </ul>	<ul style="list-style-type: none"> <li>• POS site adjoining bush forever (eastern boundary)</li> <li>• 1x POS site adjoining bush forever (north west boundary)</li> </ul>
Neighbourhood recreation zones	<ul style="list-style-type: none"> <li>• 2 x POS sites (eastern portion of the site)</li> </ul>	
Entry statement / viewing platform	<ul style="list-style-type: none"> <li>• POS fronting Marmion Avenue (western boundary)</li> </ul>	

### Community development strategies

The CDP encompasses an extensive range of strategies to leverage North Eglinton's key community anchors and create a well connected, functional and cohesive community as the development grows. A selection of these strategies include:

#### *Civic and commercial centre*

1. Create the neighbourhood centre as the primary focal node – make all the strategic greenway links, public transport and cycle paths, lead to the Centre
2. Ensure core retail anchors (such as the supermarket) are located in the heart of the main street, and use alfresco and landscaping to soften the appearance
3. Ensure the recreation centre includes a combination of flexible spaces to support formal and informal learning, cultural production and exchange, social interaction and support, including spaces for group activities, art and cultural activities
4. Introduce community art into the space to enhance ownership from the community
5. Design the 'main street' between neighbourhood centre and recreational facility as a public space – blur the edges. Focus on amenity and comfort
6. Develop a management plan for multiple user groups of facilities within the centre
7. Utilise school premises for community halls and meeting spaces ensuring complementary uses to those contained in the Neighbourhood Centre. Examples uses include spaces to support school-aged holiday, before- and after-school programs, mother's groups, early childhood education programs
8. Establish a community garden in partnership with the local schools, and leverage opportunities for primary, secondary and special needs education programs.

#### *Recreation and activation*

1. Utilise POS to connect the community, ensure spaces are designed to leverage pedestrian and cycle movement through paths and trails
2. Consider Bush Forever zones as active and usable spaces. Work with WAPC, Department of Conservation and City of Wanneroo to develop an Establishment Plan over the adjoining Bush Forever site for the establishment of a conservation park for public use. Install a viewing decks, walkways and interpretive as appropriate
3. Nature Play – adopt a natural approach to recreation, providing opportunities for conservation education, whilst also meeting the community's need for general recreation spaces and amenities. Facilitate the development of relevant community groups such as bush conservation groups or family nature clubs providing opportunities for children and adults to interact with nature
4. Incorporate community developed artwork throughout the spaces. This may serve a dual purpose as a sitting spot or play zone
5. Leverage neighbourhood POS for community capacity building initiatives including exercise in the park, movie nights, community planting days
6. Build in permanent and temporary facilities for sport and recreation ensuring flexibility of the space at different times of the year and for different audiences



*Lifestyle and community development*

1. Ensure the timely provision of local training and education facilities to ensure adequate access to education amongst the local community
2. Implement a community arts program in the early stages of development resulting in community created artworks
3. Promote healthy lifestyles through recreational facilities, walk trails, bicycle paths and publicly accessible open space areas
4. Coordinate community engagement and community capacity building programs including purchaser and resident welcome nights, architectural and sustainable design seminars, smart garden workshops, social functions, walking and exercise groups
5. Implement a regular resident and purchaser communications and engagement initiatives in the early stages of the development
6. Develop a community portal and develop welcome packs for new residents to integrate them into the community physically and virtually.

*Place management and stakeholder engagement*

1. Understand management and maintenance needs for community infrastructure up front
2. Establish innovative Place Management structures with City of Wanneroo and appoint a Place Management / Community Development resource on site (in time)
3. Provide opportunities for effective input into the development of the Community Development Implementation Strategy by all key stakeholders and the community
4. Manage stakeholder expectations and effectively address any issues/concerns in a timely and responsive manner
5. Provide regular communication and feedback to the key stakeholders and community, and keep the stakeholders informed and updated on progress.

### Key outcomes

Place Match has developed a tailored, unique and authentic approach in response to the sites opportunities and constraints to guide the creation of a strongly networked and highly functional community that remain vibrant long after government and private sector investment is reduced.

The CDP will deliver the following key community benefits for North Eglinton:

1. The development of active, healthy and connected community which promotes a unique local identity and provides a variety of lifestyle choices
2. Community services and facilities cater for the diverse needs of the community, are integrated with surrounding uses and clustered to encourage shared and multiple uses
3. Strategic activation of public open space within the development through programming and infrastructure, as well as passive and active recreation
4. Healthy lifestyles through the widespread provision of recreational facilities, walk trails, bicycle paths and publicly accessible open space areas
5. Community capacity building – residents, community groups (and in time, workers) are encouraged to take stewardship of their community
6. Balanced delivery of commercial objectives and community outcomes to form a unique selling / living proposition for residents, visitors and workers.

### Local Heritage Strategy (Ethnoscience)

Ethnoscience was commissioned by Satterley Property Group (SPG) to undertake an assessment of the known and potential Aboriginal heritage values of the Eglinton North Estate (Lot 2 Pipidiny Road) and determine the need for an Aboriginal Heritage Management Plan (AHMP).

The assessment comprised desktop research consistent with the DIA's Cultural Heritage Due Diligence Assessment Guidelines (DIA 2011) and the City of Warreroo's Local Planning Policy 4.2 (Structure Planning), and included an archaeological inspection of the property.

The search of the Register of Aboriginal Sites found that no Registered Aboriginal Sites or 'Other Heritage Places' are located on the property. The nearest Registered site is Pipidiny Lake (sic Swamp) (DIA Site ID 17451) which is located to the east of the Study Area. This site will not be impacted by the proposed development as it not within the property and will be buffered from the development by the Mitchell Freeway reserve.

The Study Area is within the Alkimos Eglinton District Structure Plan (DSP) area which was surveyed by Australian Interaction Consultants (AIC) in 2006 (AIC 2006) and was also previously surveyed by O'Connor, Quartermaine and Bodney in relation to the proposed Eglinton housing development for LandCorp in 1990 (O'Connor, Quartermaine & Bodney 1990a). Other previous ethnographic and archaeological surveys carried out in the surrounding area include those undertaken in relation to the Yanchep Structure Plan (Macintyre & Dobson 1991; Quartermaine 1991); the Mitchell Freeway extension (O'Connor 1997; Harris & Heine 1997); the Marmion Avenue extension (Edwards 2008; McDonald & Coldrick 2008a); and the Eglinton Local Structure Plan area immediately to the south of Pipidiny Road (McDonald & Coldrick 2010). No ethnographic or archaeological sites have been identified within the Eglinton North study area as a result of any of these surveys.

No archaeological sites or cultural material was located during the site inspection which was carried out on 11th July 2012. This result is consistent with the results of previous archaeological surveys and predictive models which indicate that the potential for archaeological sites to occur in this area is low (see, for example, McDonald & Coldrick 2010; Edwards 2008; AIC 2006; Harris & Heine 1997; O'Connor, Quartermaine & Bodney 1990a; see also Tempus 2011; Thomson 2011).

However, there is some potential for burials to be located in the coastal dunes and there remains a very low potential for artefactual material to be located within the property, especially on the eastern margins where archaeological modelling predicts sites have greater potential to occur due to the proximity of the swamps.

As a result, it is recommended that an AHMP is prepared to assist the landowner, their contractors and the local authority in the on-going management of any currently unknown heritage values that in future may be found within the Eglinton North area.

### Recommendations

Based on the findings of the assessment, the following recommendations are made:

1. That the development of Eglinton North (Lot 2 Pipidinny Road) be allowed to proceed;
2. That the preparation of an Aboriginal Heritage Management Plan (AHMP) be made a condition of subdivision approval and be implemented prior to ground disturbance activities commencing; and
3. That consultation with relevant Aboriginal people and their representative bodies take place as required.

### Acoustic Assessment (Herring Storer Acoustics)

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

External	Internal
L <sub>Aeq</sub> (Day) of 60 dB(A); and	L <sub>Aeq</sub> (Day) of 40 dB(A) in living and work areas; and
L <sub>Aeq</sub> (Night) of 55 dB(A).	L <sub>Aeq</sub> (Night) of 35 dB(A) in bedrooms.

Firstly, we note that the noise modelling indicates that noise received at the closest residence to the extension of the Northern Suburbs Passenger Railway Line would comply with the above criteria. However, as the noise received at the first row of residence would exceed the "Noise Targets" as outlined in the policy. Therefore, Notification on Titles are required for those residential lots located adjacent to the Railway Line.

With regards to the Freeway, the 32 metre wide easement has been noted, thus the modelling indicates that noise received at the closest residence located adjacent to the Freeway would, for the majority of locations, comply with the "Noise Limits". Given the time frame for the extension of the Freeway, we believe that under the policy, the infrastructure provider would, at the closest residence, be required to achieve compliance with the "Noise Limits". Therefore, to comply with the requirements of SPP 5.4 the first row of residence would require Package A type "Quiet House", as outlined in Appendix D. It is also noted that where noise received at a residence exceeds the "Noise Targets", Notifications on Titles are required. However, at this stage of the development (ie Structure Plan) we do not believe that it is possible to determine the extent of the lots requiring Notifications,

as it dependent on a number of factors, such as final ground levels of lots. Therefore, it is recommended that additional modelling be undertaken at the Sub-divisional stage to determine to extent of the lots requiring Notifications and possibly amendments to the residence requiring “Quiet House” design.

The results of the acoustic assessment indicate that noise received at the ground floor level of residences located adjacent to Marmion Avenue could exceed the above acoustic criteria, with the level of exceedance in the worst case location being 6 dB(A). Thus for these residence, noise received at residences would exceed the “Noise Limits” criteria and notifications on Titles and a “Quiet House” design would be required for at least the first row of residence.

For residences located adjacent to Marmion Avenue, we do not believe that for the entire length of the development it would be practicable or desirable to construct noise barriers at the edge of the Marmion Avenue road reserve. Therefore, the following is recommended:

1. Where lots back on to Marmion Avenue, the construction of a 2.2 metre barrier wall is recommended. Locations are shown on Figure D1 attached in Appendix D.
2. Where possible, minor access streets be located between these roads and residential premises. This then allows the front of the residence to face the major roads and ensuring that the residence themselves provide a barrier to an outdoor living area located at the rear of the residence. Noise received at the outdoor living areas would then comply with the “Noise Target” as required under SPP5.4.

With the construction of a 2.2 metre high barrier, noise received at the ground floor would be reduced to below the “Noise Limit” criteria. Therefore, with regards to “Quiet House” design, the following would apply:

- Ground floor with barrier wall - Package A
- First floor with barrier wall - Package B+
- Residence fronting Marmion Avenue with access road - Package B

Information regarding “Quiet House” design Packages, as outlined in the Implementation Guidelines, is contained in Appendix E.

For the first row of residences adjacent to Marmion Avenue, notification of vehicle noise is to be stated on the Titles.

Note: To refine the “Quiet House” design requirements and the residence requiring Notifications, as for the Freeway, it is recommended that additional noise modelling be undertaken at Sub-divisional stage when lots ground levels and the internal road network have been determined.

### Sustainability Strategy (ENV)

Satterley Property Group and LandCorp (“JV”) are part of a joint venture program aimed at developing the North Eglinton area for the purposes of residential development. As part of the development, a number of initiatives will be adopted as a means of meeting the development objectives, which are listed below:

- Expedited Land Supply / Release;
- Design Excellence;
- Affordable Living; and
- Environmental Leadership.

As part of the goal of Environmental Leadership, ENV Australia has been commissioned to guide the JV through the process of EnviroDevelopment™ accreditation while simultaneously meeting the requirements of the Sustainability Strategy of the Alkimos Eglinton District Structure Plan (DSP). The aim is to seek accreditation for all six EnviroDevelopment™ ‘Elements’ and to be awarded at least four of these. As a means of reporting on the project objectives and the process undertaken for establishing management commitments, this report has been prepared to outline the sustainability initiatives for the development and for inclusion in the North Eglinton Local Structure Plan (LSP).

The following table shows how the sustainability measures proposed in the DSP will be achieved through alignment with particular EnviroDevelopment™ criteria. Not all EnviroDevelopment™ criteria are listed in the following table, many more are provided in the body of this document as sustainability initiatives, and this demonstrates that North Eglinton will excel with its overall Sustainability Initiatives for the LSP.

DSP Priority Sustainability Categories	Measures	EnviroDevelopment™ Element	EnviroDevelopment™ Actions (for LSP)
Community	Communications infrastructure to support home based work	Community	Provision of communication technology, wiring, HAN within dwellings (ED 6.4.4.1)
	Affordable housing initiatives for both sale and rent	Community	At least 10% of houses and land packages are affordable (ED 6.5.1.5)
	Indoor and outdoor spaces for Community and Social activity and interaction	Community	Provide local facilities (ED 6.5.1.2). An equitable distribution of visual amenity (ie. Landscaping, native bushland, green space) is provided (ED 6.5.1.14)
	Early provision of essential services  Community services structured around Alkimos and Eglinton District Centres, Coastal Villages, Neighbourhood Centres/Nodes, 'bus stop' nodes	Community	The following services / facilities will be provided within North Eglinton: <ul style="list-style-type: none"> <li>• Grocery/corner store (ED 6.7.2)</li> <li>• Chemist (ED 6.7.8)</li> <li>• Bank or cash machine (ED 6.7.15)</li> </ul> Access to public transport is provided such that 75% of dwellings are within 500 metres of a transport stop. Legible direction signage to public transport stops is provided at key locations (ED 6.4.3.2).
Water	Integrated primary and secondary transport network	Community	Access to public transport is provided such that 75% of dwellings are within 500 metres, of a transport stop. Legible direction signage to public transport stops is provided at key locations (ED 6.4.3.2).
	Water efficient fixtures and fittings in homes and other buildings	Water	Water use efficiency through fittings with higher WELS rating than mandated, rainwater tanks (ED 5.1.1)
	Water efficient irrigation systems		Irrigation will be delivered by the most water efficient system (eg. mulching, direct water application) (ED 5.1.2.2).
Xeriscaping	Waterwise landscaping packages for private front gardens (ED 5.1.1).		

DSP Priority Sustainability Categories	Measures	EnviroDevelopment™ Element	EnviroDevelopment™ Actions (for LSP)
Water	Water sensitive urban design to replenish superficial aquifer  Alternative water sources for irrigation and non-drinking water uses: <ul style="list-style-type: none"> <li>• Rainwater</li> <li>• Groundwater</li> <li>• Recycled</li> </ul>	Water	Waterwise landscaping packages for private front gardens (ED 5.1.1).  Use of drought tolerant species which have no irrigation requirements (ED 5.1.2.1).
	Recycled construction and demolition waste in road base and low grade concrete (kerbs, driveways etc)  Housing requiring proportion of lightweight materials  Concrete utilising low EE cement replacement materials (fly ash and blast furnace slag)	Materials	Materials with a reused and/or recycled component will be used wherever possible (ED 4.2.1).
Energy and Greenhouse	5 star energy efficient housing  Energy efficiency requirements for other buildings	Energy	All housing will be BCA 6 Star minimum, with many homes achieving 7 Star.  A range of appliances and fixtures which produce less GHGs promoted (ED 3.2.2).
	Greenhouse efficient hot water in homes and other buildings  Promote grid connected PV installation in homes  Require Green Energy purchase	Energy	Gas- boosted solar (ED 3.2.2).  Provision of solar power (through local rebate packages) (ED 3.2.1).  Greenpower purchasing.
Ecosystem Health	Conservation of existing significant environmental assets  Biodiversity based landscaping of public and private spaces	Ecosystems	Local vegetation communities will be planted (ED 1.4.4.12).  Habitat trees will be used within streetscape POS areas which provide biodiversity benefits (ED 1.4.4.14).  Where achievable, most landscaping plants will be locally native (ED 1.4.4.3).

DSP Priority Sustainability Categories	Measures	EnviroDevelopment™ Element	EnviroDevelopment™ Actions (for LSP)
	Community based bush regeneration and protection program	Ecosystems/ Community	Local environmental groups will be engaged for ongoing community-based environmental activities (ED 6.3.5).
	<p>Construction waste management controls and targets to minimise waste and re-use/recycle residuals</p> <p>Recycle organic wastes locally for use in parks and gardens</p>	Waste	<p>Site Waste Management Plan will guide pre-construction and construction phases (ED 2.2.1).</p> <p>Waste minimisation plans of sub-contractors will be adopted (ED 2.3.4).</p> <p>Onsite recycling facility will enable reuse and recycling of construction materials (ED 2.3.5).</p> <p>Use of materials which minimise and/or recycle packaging (ED 2.3.8).</p> <p>Vegetation debris will be recycled on site to the greatest extent possible (eg. landscaping or composting) (ED 2.2.6).</p>





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