

GLENFIELD DISTRICT ACTIVITY CENTRE VISION & LOT 9000 CHAPMAN ROAD ACTIVITY CENTRE STRUCTURE PLAN

Prepared By



NOVEMBER 2014 (REV 6.0)

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Greater Geraldton
Local Planning Scheme No. 5.

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

14 OCTOBER 2014

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

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19 OCTOBER 2030

REVISION HISTORY

Version	Date	Prepared By	Approved By	Date Approved
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TABLE OF MODIFICATIONS

Modification No.	Description of modification	Date endorsed by council	Date endorsed by WAPC
Modification 1	Modifications as per Council Recommendations		

EXECUTIVE SUMMARY

Purpose

This Activity Centre Structure Plan (ACSP) has been prepared for a portion of Lot 9000 Chapman Road, Glenfield. The land the subject of this ACSP comprises approximately 12 hectares located 11 kilometres north of Geraldton town centre and is midway between Geraldton town centre and Oakajee Industrial Estate. The ACSP area is within the Geraldton northern coastal urban growth corridor.

This ACSP provides the planning framework to guide and facilitate the development of approximately 12 hectares of land for commercial and residential purposes and has been prepared in accordance with the provisions of the City of Greater Geraldton Local Planning Scheme No. 5 (Greenough).

The ACSP forms part of the overall Glenfield Activity Centre Precinct. The boundary of the Glenfield Activity Centre Precinct has been largely determined by the planning of the Glenfield Beach Local Structure Plan 2012 and the Glenfield Structure Plan combined with discussions with the local authority. It is envisaged that the Glenfield Activity Centre Precinct will be a vibrant and exciting gateway to the community of Glenfield, as well as being an employment centre. The Activity Centre will cater for the daily and weekly needs of visitors and residents living in Glenfield and the surrounding communities. This will be achieved through provision of a wide range of services and activities, including commercial, mixed use, community, bulky goods, residential and light/service industry.

The ACSP design provides for integration with adjoining land comprising the Glenfield Activity Centre Precinct. In particular, the ACSP proposes an east-west "main street" connecting the Glenfield Beach Local Structure Plan area with the Glenfield Structure Plan on the eastern side of Chapman Road. The proposed ACSP will therefore form the core hub commercial area of the Glenfield Activity Centre Precinct. The ACSP will likely contain commercial sensitive land uses that cannot be located within the wastewater treatment plant odour buffer. A general zoning of 'Commercial' within the ACSP provides flexibility for future development. The spatial layout of commercial land uses in the proposed ACSP 'Commercial' zone can be further considered in a Detailed Area Plan (now referred to as 'Local Development Plan'). A 'Residential R60' area in the northern portion of the ACSP is proposed which provides for a mixed use of medium density residential within the ACSP. The R60 could potentially provide for aged accommodation (i.e. retirement village).

Structure Plan Summary Table

Item	
Total area covered by the structure plan	12.09 hectares
List of land uses proposed by structure plan	
- Residential	1.6 hectares ¹
- Commercial	9.1 hectares ¹
Estimated number of dwellings	100
Estimated population	230
Number of high schools	Nil
Number of primary schools	Nil
Estimated commercial floor space (if appropriate)	22,500m ² GFA
Estimated employment provided (no. of jobs)	400
Number and area of public open space	
- Piazza	Approx. 500m ²

¹ The stated areas excludes roads

TABLE OF CONTENTS

PART ONE (STATUORTY SECTION)

PART TWO (EXPLANATORY SECTION)

PART 2A – GLENFIELD ACTIVITY CENTRE VISION

1	GLENFIELD ACTIVITY CENTRE VISION	1
1.1	ACTIVITY CENTRE PRECINCT BOUNDARY	1
1.2	BACKGROUND	2
1.3	EXISTING LAND USES	3
1.4	ACTIVITY CENTRE PRINCIPLES	3
2	TOWN PLANNING FRAMEWORK.....	4
2.1	GERALDTON REGION PLAN 1999	4
2.2	DRAFT NORTHERN GERALDTON DISTRICT STRUCTURE PLAN.....	4
2.3	GREATER GERALDTON STRUCTURE PLAN 2011	4
2.4	LIVEABLE NEIGHBOURHOODS	4
2.5	CITY OF GREATER GERALDTON LOCAL PLANNING SCHEME NO. 5 (GREENOUGH)	5
2.6	CITY OF GREATER GERALDTON LOCAL PLANNING STRATEGY (GREENOUGH)	5
2.7	GLENFIELD STRUCTURE PLAN.....	5
2.8	CITY OF GREATER GERALDTON RETAIL & SERVICES STRATEGY	6
2.9	COMMERCIAL ACTIVITY CENTRES STRATEGY	6
3	ECONOMIC & SOCIAL CONTEXT.....	7
3.1	POPULATION GROWTH.....	7
3.2	DISTRICT CENTRE CATCHMENT DEMOGRAPHIC	7
3.3	ECONOMIC DRIVERS	7
3.4	ACTIVITY CENTRE NETWORK CONTEXT	8
4	ACTIVITY CENTRE PRECINCT	9
4.1	LAND USES.....	9
4.2	ACCESSIBILITY & MOVEMENT	10
4.3	PLACE-IDENTITY	14
4.4	BUILT ENVIRONMENT	15
5	URBAN DESIGN FRAMEWORK	17
5.1	OPTIMAL LAND USE MIX	17
5.2	URBAN DESIGN PRINCIPLES	20
5.3	KEY NODE, ENTRY STATEMENTS & LANDMARKS	21
5.4	STREETSCAPES	22
5.5	PUBLIC ART	23
5.6	PUBLIC SPACES	23
5.7	LANDSCAPING	25

5.8	SUSTAINABILITY	26
5.9	CRIME PREVENTION THROUGH URBAN DESIGN	27
5.10	BUILDING HEIGHT AND SITE COVERAGE	28
5.11	BUILDING SETBACKS AND PARKING	30
6	PRECINCT LAND USES	32
6.1	PROPOSED LAND USES	32
6.2	HOUSING DENSITY	33
6.3	COMMERCIAL ASSESSMENT	33
7	CAPITAL IMPROVEMENTS	35
7.1	SITE WORKS	35
7.2	SERVICE INFRASTRUCTURE	36
7.3	LANDSCAPING, ENTRY STATEMENTS & PUBLIC ART	36
8	IMPLEMENTATION AND STAGING	37
8.1	STATUTORY REQUIREMENTS	37
8.2	STAGING	37

PART 2B – LOT 9000 CHAPMAN RD ACTIVITY CENTRE STRUCTURE PLAN

9	LOT 9000 ACTIVITY CENTRE LSP	39
9.1	BACKGROUND	39
9.2	LOCATION	39
9.3	STRUCTURE PLAN BOUNDARY	39
9.4	LANDOWNERSHIP	40
9.5	EXISTING LAND USE	40
9.6	LOT 9000 ACTIVITY CENTRE STRUCTURE PLAN	40
10	SITE CONDITIONS & ENVIRONMENT	41
10.1	TOPOGRAPHY	41
10.2	GEOLOGY AND SOILS	41
10.3	ACID SULFATE SOILS	42
10.4	HYDROLOGY	42
10.5	VEGETATION AND FLORA	43
10.6	FAUNA	46
10.7	EPBC ACT REFERRAL (CARNABY COCKATOOS)	47
10.8	POTENTIAL SITE CONTAMINATION	47
10.9	INDIGENOUS AND EUROPEAN HERITAGE	47
10.10	UNEXPLODED ORDNANCE (UXO) SURVEY	48
10.11	ACTIVITY CENTRE PRINCIPLES	49
11	CENTRE CONTEXT	50
11.1	REGIONAL CONTEXT	50
11.2	LOCAL CONTEXT	50
12	MOVEMENT	52
12.1	REGIONAL PERSPECTIVE	52
12.2	PUBLIC TRANSPORT	52
12.3	PEDESTRIAN MOVEMENT	53
12.4	CYCLING MOVEMENT	54
12.5	VEHICLE MOVEMENT AND ACCESS	54

12.6	PARKING	55
13	ACTIVITY	56
13.1	LAND USE AND DIVERSITY	56
13.2	RETAILING	57
13.3	EMPLOYMENT	58
13.4	DWELLINGS	58
13.5	AGED PERSONS ACCOMMODATION	58
14	URBAN FORM	59
14.1	URBAN STRUCTURE AND BUILT FORM	59
14.2	STREET INTERFACE	59
14.3	PUBLIC SPACES	60
14.4	LANDSCAPING	61
14.5	KEY NODES, LANDMARKS AND VIEW LINES	61
15	RESOURCE CONSERVATION	62
15.1	ENERGY AND WATER CONSERVATION	62
15.2	DOBLY CREEK FLOODPLAIN	62
16	IMPLEMENTATION	63
16.1	STATUTORY REQUIREMENTS	63
16.2	COLLABORATIVE WORKING	63
16.3	STAGING	63
16.4	DETAILED AREA PLANS	64
16.5	EFFECTIVE USE OF CONDITIONS	64
16.6	PLANNING OBLIGATIONS AND INCENTIVES	64

FIGURES

APPENDICES

APPENDIX 1	GLENFIELD BEACH COMMERCIAL ANALYSIS
APPENDIX 2	ENVIRONMENTAL ASSESSMENT REVIEW
APPENDIX 3	TRAFFIC IMPACT ASSESSMENT
APPENDIX 4	TRANSPORT ASSESSMENT
APPENDIX 5	ENGINEERING SERVICING REPORT
APPENDIX 6	CONCEPTUAL CROSS SECTION OF ACTIVITY CENTRE
APPENDIX 7	LOCAL WATER MANAGEMENT STRATEGY

TECHNICAL APPENDICES INDEX

Appendix No.	Document Title	Approval Required or Supporting Document only	Approval Status	Approval Agency
1	Glenfield Beach Commercial Assessment	Supporting Document	N/A	N/A
2	Environmental Assessment Review	Supporting Document	N/A	N/A
3	Traffic Impact Assessment	Supporting Document	N/A	N/A
4	Transport Assessment	Supporting Document	N/A	N/A
5	Engineering Servicing Report	Supporting Document	N/A	N/A
6	Conceptual Cross Section Activity Centre	Supporting Document	N/A	N/A
7	Local Water Management Strategy	Approval Required	Approved	Department of Water

PART ONE (STATUTORY SECTION)

PART ONE (STATUTORY SECTION)

1. STRUCTURE PLAN AREA

This Structure Plan shall apply to portion of Lot 9000 Chapman Road, Glenfield as shown on the Activity Centre Structure Plan Map (Plan 1).

2. STRUCTURE PLAN CONTENT

This Structure Plan comprises the:

- a) Part 1 – Statutory section;
- b) Part 2 – Non-statutory (explanatory) section; and
- c) Appendices – Technical reports and supporting plans and maps.

3. INTERPRETATION AND RELATIONSHIP WITH THE SCHEME

Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in the City of Greater Geraldton Local Planning Scheme No. 5 (Greenough) (the 'Scheme').

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

Pursuant to clause 5.17.12.2 of the Scheme, if a provision of this Structure Plan is inconsistent with a provision of the Scheme, then the provision of the Scheme prevails to the extent of the inconsistency.

Pursuant to clause 5.17.12.3 of the Scheme, the provisions this Structure Plan apply to the land as if its provisions were incorporated into the Scheme and it is binding and enforceable in the same way as corresponding provisions incorporated into the Scheme.

Part 2 of this Structure Plan and the Appendices are to be used as a reference only to clarify and guide interpretation and implementation of Part 1.

4. OPERATION

In accordance with clause 5.17.12.1 of the Scheme, this Structure Plan shall come into operation when it is endorsed by the WAPC pursuant to clause 5.17.10.2 of the Scheme.

5. LAND USE & SUBDIVISION REQUIREMENTS

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

5.1 LAND USE PERMISSIBILITY

Land use permissibility within the Structure Plan area shall be in accordance with the corresponding zone or reserve under the Scheme, with the exception of the following:

- a) In the 'Commercial' zone the land use 'Place of Worship' is an "A" use.

5.2 WASTEWATER TREATMENT PLANT (WWTP) ODOUR BUFFER

No subdivision or development of sensitive land uses (as defined by SPP 4.1 State Industrial Buffer and the Environmental Protection Authority's Guidance Statement No. 3 "Separation Distances between Industrial and Sensitive Land Uses") is permitted prior to further odour modelling required to determine an appropriate WWTP odour buffer to the satisfaction of the WAPC.

Before determining any application for planning approval the local government must have due regard for:

- a) The provisions of SPP 4.1 State Industrial Buffer.
- b) The provisions of the Environmental Protection Authority's Guidance Statement No. 3 "Separation Distances between Industrial and Sensitive Land Uses".
- c) Whether the proposal is compatible with the WWTP facility.
- d) Advice and recommendations of the relevant waste water provider.

5.3 PUBLIC OPEN SPACE

A public open space schedule, for the 'Residential' area, shall be provided at the time of subdivision for determination by the WAPC, upon the advice of the local government.

5.4 CONDITIONS OF SUBDIVISION APPROVAL

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

- a) Public Open Space Landscape and Management Plan;
- b) Local Area Integrated Transport Plan and
- c) Urban Water Management Plan.

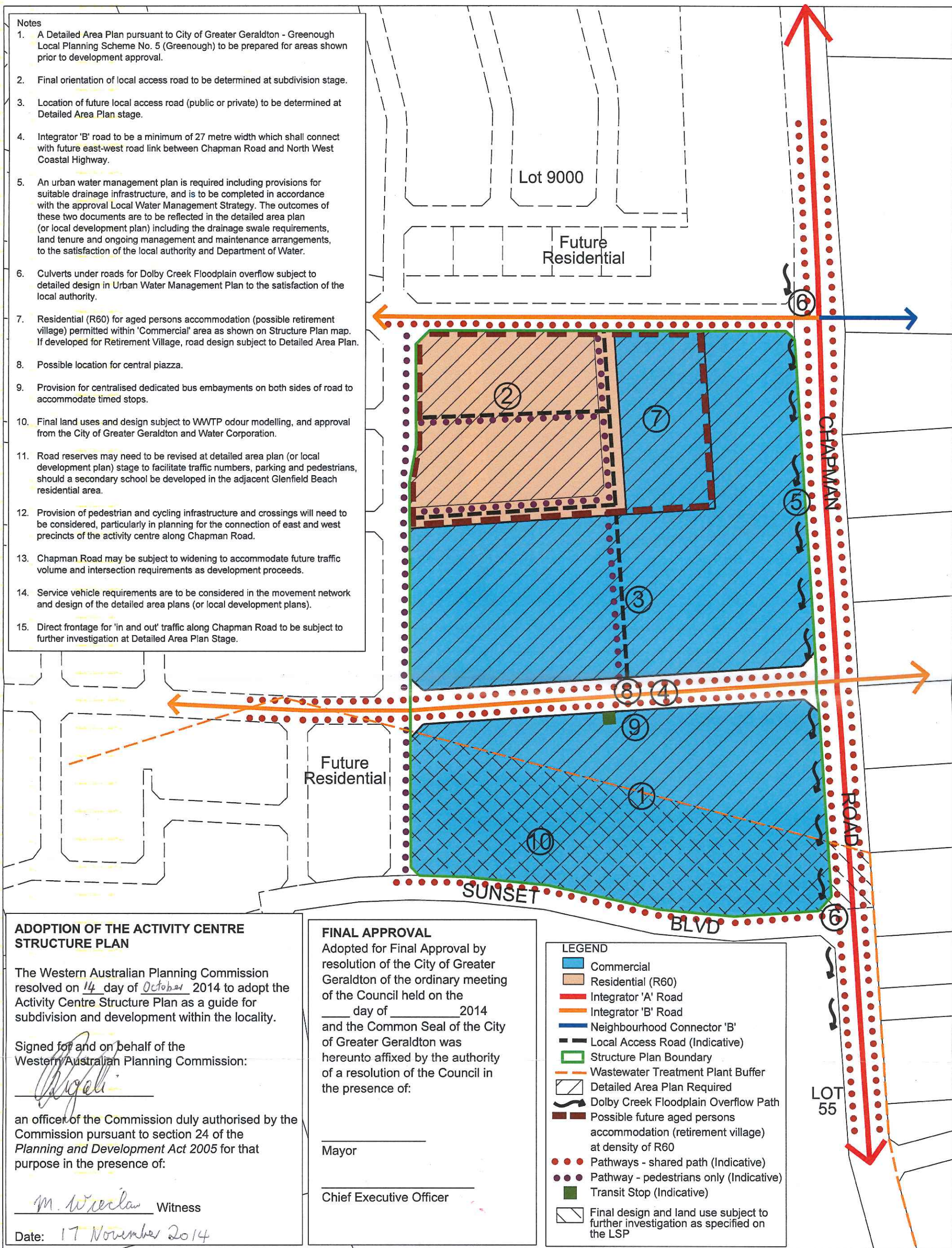
5.5 DOLBY CREEK FLOODPLAIN (OVERFLOW PATH)

An urban water management plan is required including provisions for suitable drainage infrastructure. This is to be completed in accordance with the approved Local Water Management Strategy, and outcomes reflected in the detailed area plan (or local development plan) proposals to accommodate Dolby Creek Floodplain overflow path, to the satisfaction of the local authority and the Department of Water.

6. DEVELOPMENT REQUIREMENTS

Prior to any subdivision and/or development Detailed Area Plans shall be prepared and approved in accordance with Clause 5.17.15 of the Scheme for all land within the Structure Plan area.

- Notes
1. A Detailed Area Plan pursuant to City of Greater Geraldton - Greenough Local Planning Scheme No. 5 (Greenough) to be prepared for areas shown prior to development approval.
 2. Final orientation of local access road to be determined at subdivision stage.
 3. Location of future local access road (public or private) to be determined at Detailed Area Plan stage.
 4. Integrator 'B' road to be a minimum of 27 metre width which shall connect with future east-west road link between Chapman Road and North West Coastal Highway.
 5. An urban water management plan is required including provisions for suitable drainage infrastructure, and is to be completed in accordance with the approval Local Water Management Strategy. The outcomes of these two documents are to be reflected in the detailed area plan (or local development plan) including the drainage swale requirements, land tenure and ongoing management and maintenance arrangements, to the satisfaction of the local authority and Department of Water.
 6. Culverts under roads for Dolby Creek Floodplain overflow subject to detailed design in Urban Water Management Plan to the satisfaction of the local authority.
 7. Residential (R60) for aged persons accommodation (possible retirement village) permitted within 'Commercial' area as shown on Structure Plan map. If developed for Retirement Village, road design subject to Detailed Area Plan.
 8. Possible location for central piazza.
 9. Provision for centralised dedicated bus embayments on both sides of road to accommodate timed stops.
 10. Final land uses and design subject to WWTP odour modelling, and approval from the City of Greater Geraldton and Water Corporation.
 11. Road reserves may need to be revised at detailed area plan (or local development plan) stage to facilitate traffic numbers, parking and pedestrians, should a secondary school be developed in the adjacent Glenfield Beach residential area.
 12. Provision of pedestrian and cycling infrastructure and crossings will need to be considered, particularly in planning for the connection of east and west precincts of the activity centre along Chapman Road.
 13. Chapman Road may be subject to widening to accommodate future traffic volume and intersection requirements as development proceeds.
 14. Service vehicle requirements are to be considered in the movement network and design of the detailed area plans (or local development plans).
 15. Direct frontage for 'in and out' traffic along Chapman Road to be subject to further investigation at Detailed Area Plan Stage.



Plan No.: 14511-19
Revision: REV.G

Scale: 1:2500@A3

0 25 50 75

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ACTIVITY CENTRE STRUCTURE PLAN
LOT 9000 CHAPMAN ROAD
GLENFIELD

PLAN 1

DATE DRAWN: 14/11/2014 FILE: 120902 Glenfield District Structure Plan.dgn
DRAWN BY: CdeL V DATUM: AHD
CHECKED BY: JEP H DATUM: MGA94 (50)

TOWN PLANNING
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PART TWO (EXPLANATORY SECTION)

PART 2A

GLENFIELD ACTIVITY CENTRE VISION

PART 2A - GLENFIELD ACTIVITY CENTRE VISION

1 GLENFIELD ACTIVITY CENTRE VISION

1.1 ACTIVITY CENTRE PRECINCT BOUNDARY

The subject site is situated within the locality of Glenfield, which is approximately 11 km north of the Geraldton Town Centre. The site is midway between the Geraldton Town Centre and proposed Oakajee Industrial Estate. **Figure 1 – Location Plan** provides an overview of the subject site in relation to surrounding land use and environment.

The boundary of the Glenfield Activity Centre Precinct has been largely determined by the planning of the Glenfield Beach Local Structure Plan 2012 and the Glenfield Structure Plan combined with discussions with the local authority. The boundary is broadly defined by a 400m radius centred on the future 'four-way intersection' between Chapman Road and a future east-west road linking Chapman with North West Coastal Highway. This east-west road has been identified and planned in the Glenfield Beach Local Structure Plan 2012. The Precinct boundary generally follows existing cadastral property boundaries. **Figure 2 – Glenfield Activity Centre Precinct Boundary** shows the area of the proposed activity centre precinct.

The Glenfield Beach Local Structure Plan proposes a 12 hectare site set aside for a future District Activity Centre. The rationale for the setting aside of an area of approximately 12 hectares includes:

- The future District Commercial Centre will require at least 8.0 – 10.0 hectares for ultimate capacity retail floor space and car parking as per Liveable Neighbourhoods for a 'District Centre'. The centre will also provide for other non-commercial uses such as community purpose site/s, landscaping, drainage infrastructure and open space;
- Land is proposed adjacent to the District Commercial Centre for future medium density (i.e. R60) dwellings. Sufficient land will need to be planned to accommodate this land use within the 12 hectare site. Thus the 12 hectare site will not be all 'Commercial' land use but will contain a substantial component of residential land use;
- The steep parabolic dune topography of the site requires sufficient area to be able to earthwork the site to create a practical site (preferably as level as possible) for the future district commercial centre built form;

- The site is located adjacent to Chapman Road (i.e. good accessibility and commercial exposure). The location of the site is also consistent with the general location for the future District Centre as identified in the Glenfield Structure Plan and the City of Greater Geraldton Commercial Activity Centres Strategy; and
- The Glenfield Beach Local Structure Plan shows the 12 hectare site being separated potentially by roads (i.e. including Neighbourhood Connectors) so that the District Commercial Centre site can be developed independently from the “main residential estate”, yet be fully integrated.

On the eastern side of Chapman Road, the Activity Centre Precinct boundary follows existing cadastral boundaries to include the ‘Mixed Use/Residential R80/Activity Centre’ and ‘Residential R60’ areas identified in the Glenfield Structure Plan. These high density areas are within the 400m walkable catchment for the Activity Centre. The Precinct boundary to the south terminates at the southern boundary of Lot 55, which would generally be the limit for the 400m walkable catchment.

This vision document comprises of the following key components:

- An economic study of the precinct to determine the district centre’s requirements and the catchment as well as a suitable mix of land uses;
- Conceptual master planning identifying key components of the future District Activity Centre;
- Development of a framework for the future of the Glenfield District Centre.

The **Glenfield Activity Centre Vision** section of this report forms the basis for the preparation of an Activity Centre Structure Plan for the 12 hectare site in the SW corner of Lot 9000.

The **Lot 9000 Chapman Road Activity Centre Structure Plan** section of this document contains the proposal for the Glenfield Beach Activity Centre Structure Plan.

1.2 BACKGROUND

Several strategic and statutory documents, including the Glenfield Structure Plan 2011, the Draft Northern Geraldton District Structure Plan and the Commercial Activity Centres Strategy, have identified for District Commercial Centre to be located on Lot 9000 Chapman Road. This vision document was requested by the City to establish a framework for planning and developing the activity centre to achieve the best outcome for the Glenfield community.

1.3 EXISTING LAND USES

The land on the western side of Chapman Road is currently undeveloped englobo land. On the eastern side of Chapman Road and beyond up to the North Coastal Highway there are existing rural residential properties generally ranging 2 hectares in area. These rural residential properties are zoned 'Development' zone and fall within the Glenfield Structure Plan. Further to the west of the Precinct is the wastewater treatment plant, with a portion of the Precinct within Lot 9000 and Lot 55 affected by the odour buffer.

1.4 ACTIVITY CENTRE PRINCIPLES

This document takes into account the planning principles set out in the Western Australian Planning Commission State Planning Policy 4.2 Activity Centres for Perth and Peel, and Liveable Neighbourhoods (Element 7 - Activity Centres). Within the Activity Centre Hierarchy for the City of Greater Geraldton the centre type is identified – District Centre. The vision for the Glenfield Activity Centre Precinct is based on the following key principles:

- Activity centres are community focal points. They include a range of activities such as non-retail commercial, retail, service businesses, higher density housing, entertainment, tourism, civic/community, medical services and small light industry.
- The size and diversity of a District Activity Centres varies according to a retail needs assessment.
- Activity centres should be distributed based on hierarchy in order to meet different levels of community need and enable employment, goods and services to be accessed efficiently and equitably by the community.
- The activity centre hierarchy system should be applied as part of a long-term and integrated approach by public authorities and private stakeholders to the development of economic and social infrastructure.
- Successful activity centres contribute to the achievement of sub-regional employment self-sufficiency targets and improve land efficiency, housing variety and support centre facilities.
- Activity centres provide sufficient development intensity and land use mix to eventually support high-frequency public transport.
- Access to activity centres should be by maximised and modes such as walking, cycling and public transport should be encouraged whilst reducing private car trips.
- Development around activity centres should be based upon legible street network and quality public spaces.
- Activities that generate high numbers of trips should be concentrated within activity centres.

2 TOWN PLANNING FRAMEWORK

STATE & REGIONAL PLANNING

2.1 GERALDTON REGION PLAN 1999

The Geraldton Region Plan provides a regional framework, consistent with the *State Planning Strategy*, to assist in planning decisions for the growth of Geraldton over the next 20 – 30 years. The Plan includes the Greater Geraldton Structure Plan 1999, which identifies areas for future urban development. Drummond Cove/Glenfield is included as one of the areas identified in the Structure Plan to accommodate future urban growth (refer to **Figure 3 – Greater Geraldton Structure Plan**), subject to development proposals being consistent with coastal planning principles and policy.

2.2 DRAFT NORTHERN GERALDTON DISTRICT STRUCTURE PLAN

The Draft Northern Geraldton District Structure Plan was prepared in 2004/2005 to provide a district structure plan for the northern part of Geraldton. The Glenfield Activity Centre Precinct is identified for future urban development (refer to extract **Figure 4 – Draft Northern Geraldton Structure Plan**). The Structure Plan is in a draft state only and has not been endorsed by WAPC.

2.3 GREATER GERALDTON STRUCTURE PLAN 2011

The 2011 Greater Geraldton Structure Plan is intended to be used in conjunction with the 1999 Geraldton Region Plan, but is an update of the 1999 Greater Geraldton Structure Plan. **Figure 5 – Greater Geraldton Structure Plan 2011** shows the Glenfield Activity Centre Precinct as being identified for 'Urban' use. Although the wastewater treatment site odour buffer has not changed from the 1999 Geraldton Region Plan, the position of the Water Corporation is outlined in Section 4.1 of this report.

2.4 LIVEABLE NEIGHBOURHOODS

Liveable Neighbourhoods has been prepared to guide the sustainable development of communities. It addresses both strategic and operational aspects of structure planning and subdivision for both 'greenfield' and urban infill sites. The Glenfield Activity Centre Precinct has been prepared taking into consideration the planning principles and policies of Liveable Neighbourhoods, which are discussed throughout the report.

LOCAL PLANNING

2.5 CITY OF GREATER GERALDTON LOCAL PLANNING SCHEME NO. 5 (GREENOUGH)

The Glenfield Activity Centre Precinct is currently zoned under the City of Greater Geraldton Local Planning Scheme 5 (**Figure 6 – Local Zoning**) as follows:

Land	Zoning under LPS 5
Lot 9000	'Development'
Landholdings eastern side of Chapman Rd	'Development'
Lot 55	'Development'

The 'Development' zone is considered an appropriate zoning to facilitate development in accordance with an approved local structure plan. This would be similar for the land on the eastern side of Chapman Road contained within the Glenfield Structure Plan which is zoned 'Development'. Structure planning is required prior to any subdivision and/or development occurring within the Precinct under a 'Development' zone.

2.6 CITY OF GREATER GERALDTON LOCAL PLANNING STRATEGY (GREENOUGH)

The Local Planning Strategy was endorsed by the WAPC in September 2008 to guide future development within the former Shire of Greenough. The Strategy identifies that further urban development is recommended to occur at Drummond Cove/Glenfield.

2.7 GLENFIELD STRUCTURE PLAN

The Glenfield Structure Plan (**Figure 7**) guides land use planning for the portion of Geraldton's northern growth corridor on the eastern side of Chapman Road. A portion of the Glenfield Structure Plan falls within the Glenfield District Activity Centre Precinct.

The Glenfield Structure Plan proposes a range of densities and land uses. In order to facilitate the Structure Plan, the land was zoned 'Development' which allowed for the flexibility required as part of the design and planning process. The Structure Plan identifies both a future District Activity Centre on the western side of Chapman Road within Lot 9000 and a future east-west road link from North West Coastal Highway through towards the coast.

2.8 CITY OF GREATER GERALDTON RETAIL & SERVICES STRATEGY

In 1996 a commercial study was undertaken by Council to produce a strategic planning framework to guide future retail and commercial development. A District Centre was identified as being required to service future urban development in the northern coastal corridor. The location and need for a District Centre, as shown indicatively in Figure 7, was based on a high growth scenario.

2.9 COMMERCIAL ACTIVITY CENTRES STRATEGY

The Strategy provides guidance for commercial development in the City of Greater Geraldton. The intent of the document is to distribute commercial activity in a strategic sense and reflects the WAPC State Planning Policy Activity Centres for Perth and Peel. The Strategy identifies the need for a District Centre in Glenfield locality to support the future population growth north of Geraldton. The report further outlines key elements of the Commercial Activity Centres Strategy as it relates to the proposed Glenfield District Activity Centre and this will be further discussed.

3 ECONOMIC & SOCIAL CONTEXT

3.1 POPULATION GROWTH

The *Geraldton Commercial Activity Centres Strategy* (2013) forecasts a high population growth rate scenario for Geraldton, with an increase from around 40,000 residents in 2006 to 100,000 residents by 2031, with an annual growth rate of 5%. Based on the large number of approved structure plans, the majority of this growth (approximately 63%) is expected to occur in the northern parts of Geraldton. A more conservative estimate for population growth with an average annual growth rate of 1.5%, which would see growth to around 50,000 residents by 2031. This low growth scenario is more closely aligned with the WAPC's *WA Tomorrow Forecasts*.

The current population of the suburbs (Glenfield, Drummond Cove, Sunset Beach and Waggrakine) surrounding the proposed Glenfield District Activity Centre Precinct is 4,471 residents. The estimated population growth within these suburbs alone is approximately 12,900 people.

3.2 DISTRICT CENTRE CATCHMENT DEMOGRAPHIC

The **Appendix 1 - 'Glenfield Beach Commercial Analysis' 2012** report discusses the socio-economic characteristics of the Glenfield District Activity Centre Precinct catchment in detail. The existing low resident population in the catchment area provides limited data to analyse the socio-economic demographics of the catchment area. However, based on current data of the average median household size and average household income for the current population (and of Geraldton), it is anticipated that the catchment demographic can support demand in line with State demographic averages for a district centre catchment. The projected expenditure on goods and services in Glenfield District Activity Centre is not expected to be different to the rest of the City.

3.3 ECONOMIC DRIVERS

The primary industries of employment in Geraldton in order are retail trade, health care/social assistance, construction, education/training, public administration/safety and accommodation/food services, transport, manufacturing, mining and agriculture/fishing. The first six primary industries of employment are population driven. Growth in these industries is therefore dependent on population growth.

Key projects that will drive investment in the region leading to increased population growth include Oakajee Mid West Development Project, Square Kilometre Array, National Broadband Network and Mid West Energy Project (Southern Section) Augmentation – New Facilities Investment (Western Power).

3.4 ACTIVITY CENTRE NETWORK CONTEXT

A site has been identified in the town planning framework for a future District Activity Centre on Lot 9000 Chapman Road (refer to Figure 1) consistent with the City's Commercial and Activity Centres Strategy. The current distribution of commercial activity is predominantly based in the Geraldton CBD. Currently there are no District Centres established outside of the CBD as the population base has not been sufficient to support the level of floor space associated with a District Centre. However by 2031, it is expected that population growth will be high enough to support the establishment of two District Centres in the north and south parts of Geraldton.

The 'Main Trade Area' for the Glenfield Activity Centre Precinct is generally a 6 kilometre radius around the centre, which generates 75% of the centre demand (refer to **Figure 8 – Main Trade Area**). Staging of development for the Glenfield Activity Centre Precinct will be dependent on the population growth within main trade area surrounding structure planned suburbs. The indicative staging of development for the Centre will be discussed in detail further in this report.

The performance of the Glenfield Activity Centre Precinct will be subject to population growth within its main trade area, as well as the influence of Primary and Secondary Catchment Competitors in terms of customer demand leakage to other competitors. The Primary Catchment Competitors are those activity centres present within the main trade area and presently include Sunset Neighbourhood Centre, Bluff Point Neighbourhood Centre and 440 Roadhouse (local centre). The Secondary Catchment Competitors include Geraldton CBD, Rangeway Neighbourhood Centre and Wonthella Neighbourhood Centre.

4 ACTIVITY CENTRE PRECINCT

An overall conceptual masterplan has been prepared for the Glenfield District Activity Centre Precinct to assist in outlining a vision for development within the Precinct. **Figure 9 – Glenfield Beach District Activity Centre Precinct Conceptual Masterplan** illustrates the vision for the Precinct.

It is envisaged that the Glenfield Activity Centre Precinct will be a vibrant and exciting gateway to the community of Glenfield. The Activity Centre will cater for the daily and weekly needs of visitors and residents living in Glenfield and the surrounding communities. This will be achieved through provision of a wide range of services and activities, which in turn will promote Glenfield as an attractive place to live, work and play.

4.1 LAND USES

Successful activity centres are characterised by a mix of uses, providing ready access to a range of shopping, residential, civic uses and other local services in close proximity to each other. These places have an everyday rhythm which derives from the mixture of activities one finds there, including local shops, cafes and grocery stores.

The combination of these land uses together with dwellings will create human activity throughout day and night, and subsequently benefit its safety, economic functioning and appeal.

As part of this document an economic study including suitable land uses was undertaken to inform the right mix of uses to cater for the future community. These will be discussed in more detail further on in this report.

Land Uses within Wastewater Treatment Plant (WWTP) Odour Buffer

The Water Corporation has revised the odour buffer requirement for the Glenfield wastewater treatment plant (WWTP) as shown on Plan 1. Sensitive land uses are not permitted within the WWTP odour buffer, however, other compatible commercial land uses, such as bulky goods showrooms, retail outlets (non-food related) etc may be permitted.

It is recommended that no subdivision or development of “sensitive land uses” be permitted within the WWTP odour buffer prior to further odour modelling required to determine an appropriate WWTP odour buffer.

The definition of “sensitive land uses” should have the same meaning as that stated in Clause 2.3 of the Environmental Protection Authority *Guidance for the Assessment of Environmental Factors – Separation Distances between Industrial and Sensitive Land Uses* No. 3 June 2005, which states:

"Land uses considered to be potentially sensitive to emissions from industry and infrastructure include residential developments², hospitals, hotels, motels, hostels, caravan parks, schools, nursing homes, child care facilities, shopping centres, playgrounds, and some public buildings. Some commercial, institutional and industrial land uses which require high levels of amenity or are sensitive to particular emissions may also be considered "sensitive land uses". Examples include some retail outlets, offices and training centres, and some types of storage and manufacturing facilities. Residential development in a planning sense can also mean subdivision."

Non-sensitive land uses, that are permissible under the Scheme, for instance within the 'Commercial' zone, may be considered within the WWTP odour buffer, where it can be demonstrated that the proposed land use is compatible within the WWTP odour buffer.

4.2 ACCESSIBILITY & MOVEMENT

Accessibility is not only seen as the ease with which a location may be reached from other locations but also, the ability for interaction or contact with sites of economic or social opportunity. Accessibility is determined by three factors:

- Geographic location – spatial accessibility in relation to target locations and by the transportation facilities available to reach those destinations;
- Social factors – through knowledge and information as well as the perceived image of a mode of transport; and
- Economic factors – the use of transport and communication facilities is usually associated with some monetary cost.

Pedestrian

Walkability is the extent to which the built environment encourages walking by providing pedestrians a safe, comfortable, convenient and appealing travel corridor. Attributes typically associated with 'walkable' areas have high street intersection density, good mixed use, medium to high density, and is proximate to public transport.

Diagram 1 – Pedestrian Walkability Conceptual Framework outlines key elements to achieving an integrated urban environment that is pedestrian friendly. The vision of the Glenfield Activity Centre Precinct is to create an environment which addresses this framework through the incorporation of these design principles.



Example of a distinctive pedestrian walkway within a town centre

The benefits of promoting a walkable Precinct include increased social capital, decreased dependence on automobiles, increased health levels, more equitable transportation, and decreased environmental impact from transportation. When travel distances are shortened, transport modes such as walking and bicycling become more viable, thus increasing accessibility for individuals who may not have access to vehicle transport or choose to walk.

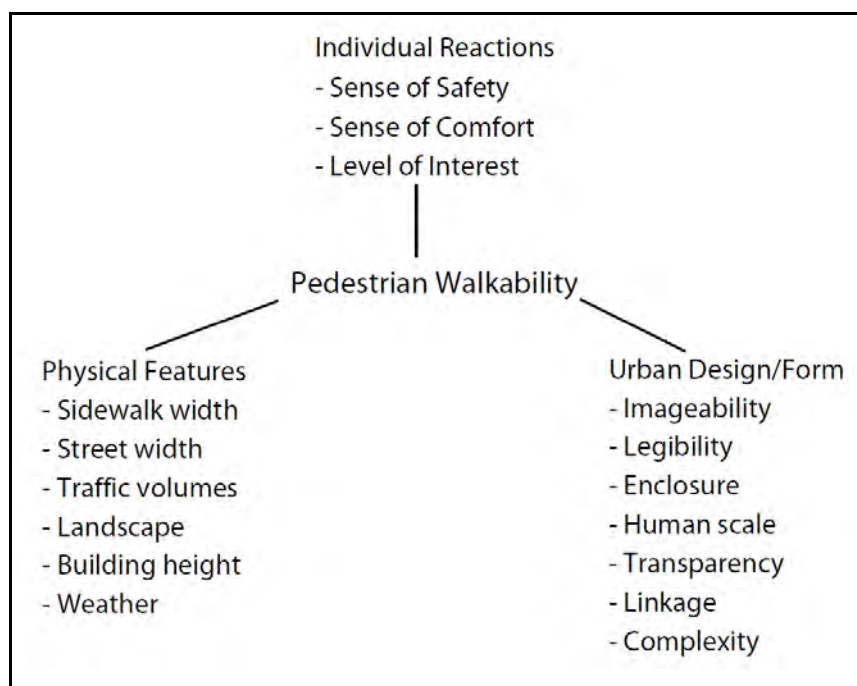


Diagram 1. Pedestrian Walkability Conceptual Framework

The movement of people and goods is essential to maintaining a prosperous, sustainable community. In order to ensure accessibility and movement within the Glenfield Activity Centre Precinct a variety of transport modes available will be promoted to ensure ease of reaching each destination, these include:

- bus stops located around the centre of the Precinct including a centralised terminus;
- convenient bicycle parking facilities;
- well connected bicycle/pedestrian paths at suitable grades for users; and
- adequate vehicle parking for those who drive.



Example of integration of pedestrian and bicycle paths

Roads

A **Traffic Impact Assessment (Appendix 3)** was undertaken to analysis the existing and proposed road network and the overall performance of these roads in the context of the proposed development. The traffic analysis showed that the proposed road network in the Glenfield Activity Centre Precinct should be capable of accommodating all future traffic volumes expected from the activity centre, background traffic and surrounding future urban development in Glenfield.

Adequate provision for roads will involve infrastructure improvements throughout the Precinct to link with surrounding transport infrastructure. At some point in the future Chapman Road will serve as a public transport rapid transit route. Accordingly, adequate planning and infrastructure will need to be provided in the Precinct to accommodate for this mode of transport and this will need to be considered in more detail as part of structure planning.

Until the east-west road linking Chapman Road to North West Coastal Highway is constructed (identified as a future road link in the Glenfield Structure Plan), Chapman Road will be the major road accessing the Precinct. Road links will be provided into the Glenfield Beach Structure Plan to allow for movement and increased permeability to the Precinct from residential development in Glenfield Beach.

The future 'Integrator B' road within the Precinct as shown in **Figure 10 - Road Hierarchy** is part of an important future public road connection between North West Coastal Highway and the coast. Not only does this road provide the envisaged link to the coast as identified in the Glenfield Structure Plan, but it also serves as a secondary emergency access in the Glenfield Beach Local Structure Plan.

Indicative road cross sections for the Precinct are provided in **Figure 11a.1 and Figure 11a.2- Conceptual Road Cross Sections**. These are conceptual at this stage, however, it does identify the general function of these roads in the Precinct and in future structure planning. The detailed design of roads within the Precinct would be undertaken at the subdivision and development stage.

The proposed conceptual cross sections shown in Figure 11a.1 and 11a.2 vary the Liveable Neighbourhoods cross sections for the respective road types, however for clarification, the indicative variations are in response to specific local conditions and City requirements as discussed with the local authority. The exact width of road reserve required for the various road types and infrastructure to be placed within road reserves will be determined at the detailed subdivision and/or development stage.

4.3 PLACE-IDENTITY

A good place is accessible to all the senses and engages the perceptions of its inhabitants. The Glenfield Activity Centre Precinct will provide clear entrance statements which present its own unique local identity in that it contributes to a sense of arrival and sense of place. Widely used methods to promote 'place activation' include the use of entry statements, public art, use of consistent colours/materials in design of buildings, signage and street furniture. These will be incorporated in the Precinct to assist in creating a welcoming interface and animating spaces for the enjoyment of locals, workers and visitors.



Geraldton Foreshore public art work example



HMAS Sydney II Memorial sculpture example



St Francis Xavier Cathedral landmark example

4.4 BUILT ENVIRONMENT

The Glenfield Activity Centre Precinct will become the civic and physical heart of development in Glenfield, with a combination of 'main street' and enclosed retail environments. Users of the Precinct should feel safe and comfortable carrying out their activities whilst being sheltered from weather. The architecture of buildings should reflect the local character and scale of Geraldton, however, given its location as a 'greenfield site', opportunity for more expressive and contemporary built form (including increases to building height) may be considered by Council at the development stage. To assist towards achieving appropriate standards of built form complementary to the Precinct vision, Precinct Design Guidelines are recommended to be prepared for development within the Precinct. These will not be addressed at this structure planning stage, however, is recommended to be completed prior to development approval.

The Glenfield Activity Centre Precinct vision advocates an emphasis on the human-scale design of buildings and spaces as they create people friendly environments. This means having a scale of building that is comfortable for people on the street.



Example of main street Geraldton showing active frontages, urban street furniture, features to encourage pedestrian use (i.e. coverings, wide pavements & different use of materials) and low speed environment for vehicles

Human scale refers to a size and articulation of building elements that match the size and proportions of humans and equally important, correspond to the speed at which people walk. Building details, pavement texture, street trees and street furniture are all physical elements contributing to human scale.

Semi-public attachments, such as front entry spaces, verandahs, balconies, bay windows and porches can facilitate this. Medium density development works well when constructed at similar heights to mature shade trees on the street. On buildings over two storeys (i.e. possibly for mixed use developments), the level of architectural detail required at the ground floor should be increased to add interest and depth to the pedestrian environment.

Human scale can also be defined by human speed. Often building and signage design built for the rapid speed of cars is generally bulky and overwhelm the senses. Instead, small scale signs and other small-scale elements which are more proportional to the human body, rather than monumental are preferable for the pedestrian speed.



Example of activated shop front

It is important that shopfronts at ground level provide for activated frontages with attractive window displays, with limited blank walls, obscure window paintings and reflective glazing. The building typology, including building height, site coverage, setbacks and parking, for the Glenfield Activity Centre Precinct will be further discussed in the report.

5 URBAN DESIGN FRAMEWORK

5.1 OPTIMAL LAND USE MIX

To ensure a vibrant and exciting gateway for all ages the following land-use principles are encouraged:

- Higher residential densities adjacent to or within close proximity to the retail centre to encourage centre diversity, viability and vitality;
- Reinforce centre's edges by encouraging residential development on the centre's periphery;
- Provide for weekly shopping needs, leisure and entertainment needs;
- Built form to be consistent with the neighbourhood character of the centres and the largely local function;
- High standards of residential amenity, making provision for sustainable urban design outcomes and a variety of housing styles and types to meet diverse community needs;
- Sheltered outdoor public spaces located on major pedestrian access routes, having a community focus and are overlooked by adjoining development, and are suitable for use by children and adults;
- Create an image and character of the centre which enhances commercial viability and attracts investment;
- Provision of parking areas to improve accessibility and encourage movement of pedestrians past retail outlets;
- The centre to develop optimal retail activity patterns, with strategically located anchor stores and specialty shopping between;
- Promoting mixed-use development that allows greater flexibility for investors.



(Left) Example of good mixed use built form



(Right) Example of land mark built form on corner street

Within the Glenfield Activity Centre Precinct a mix of land uses is envisaged that reflects the primary function of the District Activity Centre status. **Figure 11b – Conceptual Land Use Plan** shows the indicative general land use assembly for the Precinct, which will be confirmed at structure planning stage. A greater focus of commercial land uses is recommended for the western side of Chapman Road, while the inclusion of a greater focus of medium density residential is recommended for the eastern side of Chapman Road. This is consistent with the Glenfield Structure Plan.

Commercial tenancies are envisaged for both sides along the frontage of Chapman Road to take advantage of commercial exposure as well as drive-by traffic commuting between the northern suburbs of Geraldton and the rest of the urban area. However, 'main street' development is not envisaged along Chapman Road due to expected high volumes of traffic. Instead, pedestrian oriented 'main street' development is envisaged to be concentrated around the section of the future 'Integrator B' east west road which passes through the retail core area on Lot 9000.



Example of a centre with well articulated built form and character

The primary focus of the Glenfield Activity Centre Precinct in the short and long term is population driven providing for the daily and weekly needs of residents, and providing population driven primary industries of employment.

The ability of the Glenfield Activity Centre Precinct to be competitive in the long term is contingent on the successful activation of the area a high amenity, well activated District Centre. The planning principles that are key to creating a commercially viable and well activated centre will be further discussed in this report.

A broad mix of land uses have been identified for Glenfield Activity Centre Precinct in the initial and ultimate stages, which will assist in activating the centre through integration of a variety of activities including commercial, bulky goods and light service industry.

These land uses can accommodate a variety of convenience and comparison retail floorspace as market demand increases, and other uses such as offices, medical, childcare etc. Such uses have the ability to attract a broad set of users including residents, workers, visitors and firms.

The diverse mix of land uses for Glenfield Activity Centre Precinct will create opportunities for extended hours of activity within the centre. Residential development promotes activity throughout the day and after business hours.

Mixed with the activity generated by commercial uses, residential development will support the vitality and security of the centre. Wherever possible, a vertical and horizontal mixing of residential and commercial land use is encouraged to promote after business hours activity and surveillance.

5.2 URBAN DESIGN PRINCIPLES

The following general urban design principles apply to the Glenfield Activity Centre Precinct:

- Ensure that the visual and physical presentation particularly along Chapman Rd reinforces the regional significance of the activity centre precinct through contemporary urban design and landscaped themes;
- Providing clear, safe and improved pedestrian connections into the centre for all user groups, taking into consideration the special access needs of all persons with disability groups;



Example of built form which encourages pedestrian activity through use of verandahs and awnings

- Range of traffic calming devices including carriageway reduction, raised and other pedestrian crossings, wide medians as pedestrian refuges and the ultimate provision of a controlled four-way intersection (i.e. signal lights) to replace an interim roundabout at the cross road epicentre of the Precinct;
- Create a slower speed environment (50kph) on Chapman Rd within the Precinct;
- Create traffic calming measures along the proposed main street road off Chapman Rd to make it a safer and more convenient pedestrian environment and enhance its potential as a shopping strip and community meeting place;

- Building façades should be designed to a human-scale, for aesthetic appeal, pedestrian comfort and compatibility with the design character of the district. Particularly in areas of high pedestrian activity, activated building frontages, preferably with weather protection (i.e. awnings) to promote centre vitality and pedestrian amenity;
- Where possible car parking and service areas are to be situated to the rear of the site and screened from prominent view by built form or landscaping;
- Water sensitive urban design principles to be incorporated within built form.

5.3 KEY NODE, ENTRY STATEMENTS & LANDMARKS

Certain areas within the Precinct will attract a higher level of pedestrian movement and people interaction. These include the Precinct major retail shopping node and epicentre of the Precinct. In promoting a sense of place and identity, entry statements and landmarks are proposed at key strategic locations in and around the Precinct. Carefully designed entry statements and landmarks in the form of buildings and/or public art with landscaping can promote visual cues and the creation of 'gateway' entry points to the Precinct. **Figure – 12 - Key Nodes, Entry Statements and Landmarks** shows indicatively the placement of entry statements/landmarks in and around the Precinct to define 'gateways'.



Landmark architectural features on street corner building

5.4 STREETSCAPES

Streets are viewed no longer simply as a conduit to connect people with places, they also have several other important functions including space for parking, utilities and services, biodiversity and a place for social interaction. The priority of these functions will vary based on the context of the street. Successful streets mesh their movement function with placemaking. These can be through design innovations such as use of vegetation plantings (including street trees), seating furniture, street art, lighting and traffic calming. Collectively these elements contribute positively to the public realm.



Example of safe pedestrian friendly crossing within activity centre

The creation of open tree lined streetscapes should be encouraged within the Precinct to promote place making and sense of identity. Trees also provide biodiversity, screening and protection from climate. The streets within the Precinct should be pedestrian friendly by encouraging pedestrian activity through the use of well defined pathways, street furniture, artwork, shelter, refuge islands, designated crossing points, traffic calming and kerbless crossing points. It is important that urban furniture such as flag poles, signage, pavement types, bollards, seats, bins and light fittings are designed with consistency (i.e. colours, style and materials) to enhance a sense of place.



Example of activity centre with quality built form which reinforces sense of place

5.5 PUBLIC ART

In creating interesting and activated public places, provision of public art is encouraged to be used throughout the Glenfield Activity Centre Precinct to help create a sense of ownership and place. To highlight pedestrian walkways, artwork should be used, such as sculptures and mosaics on pathways. The local community (i.e. schools and art groups) could be engaged and play an active role in providing art works for the Precinct.



Example of public art work within a coastal node to promote sense of place

5.6 PUBLIC SPACES

Areas for the public to congregate, eat outdoors, sit and contemplate are encouraged throughout the Glenfield Activity Centre Precinct, particularly within retail areas. A piazza is an ideal public space for such passive uses. Piazzas do not necessarily have to be large to be functional. Small well located and designed landscaped piazzas can contribute significantly to place making. The size and scale of a piazza within the Precinct will be determined at the more detailed development stage, however a small piazza is provided for in the Precinct Conceptual Masterplan centred around a primary retail shopping area.



Example of tree lined piazza which provides an attractive and orderly environment for pedestrians



Example of a small piazza within the public realm

5.7 LANDSCAPING

Both 'soft and 'hard' landscaping is integral to well designed places that offer appeal, sense of security and sense of place and identify. 'Soft' landscaping throughout the Glenfield Activity Centre Precinct should consider native plantings which can contribute to local biodiversity. Non-native species can also be considered where these are easy to maintain, hardy and contribute to the consistency of the landscaping design. Water sensitive design should be a mandatory requirement for all landscaped areas in the Precinct given the limited availability of water resources in Glenfield.



(Above) Example of attractive landscaping within a car parking area of an activity centre

(Below) Examples of quality urban water sensitive landscaping using native species



'Hard' landscaping, such as paving materials, retaining, public art and street furniture should be durable, of high quality and require limited maintenance. Concepts of territorial reinforcement is recommended in the Precinct to differentiate between public and private space and different modes of transport. For instance, use of low landscaping, different materials/patterns for roads, parking areas and pedestrian pathways to delineate transition from public roads to private spaces. Well designed landscaping can contribute towards creating a safer environment for all users.

5.8 SUSTAINABILITY

All new development in the Glenfield Activity Centre Precinct is recommended to be designed to maximise passive solar principles for heating and cooling, ventilation and energy conservation. Orientation of buildings can play a key role in achieving sustainable building design outcomes, such as allowing for cooling breezes and access to natural light. However in Geraldton, consideration is also given to the predominant strong southerly winds which requires specific building design and orientation to provide protection from the weather. The creation of 'wind tunnels', particularly as a result of building orientation and placement of buildings, should be avoided wherever possible.



(Above) Use of architectural design techniques and colours to provide variety for building facades

Elements for good building design include, but are not limited to:

- Materials and colour for roofing to reflect rather than absorb solar radiation;
- Protection from weather/climate for pedestrians;
- Natural cross-ventilation to reduce air conditioning needs;
- Use of low energy lighting and controls;
- Thermal mass in commercial and residential development to promote temperature stability;
- Provision of adequate shading of north facing windows; and
- Provision of building insulation with a minimum thermal resistance value of R1.5.

5.9 CRIME PREVENTION THROUGH URBAN DESIGN

Perception of safety and security for all users is paramount towards creating a successful activity centre. A safe environment can be promoted through Crime Prevention through Urban Design (CPTED) principles, which considers aspects such as surveillance, pedestrian activation, maximising connections and sense of ownership by all users of the space.



Example of open, well lit civic area which provides perception of safety and security for users

The Glenfield District Activity Centre Precinct will be a new 'greenfield' development and there is opportunity to apply CPTED principles in the design and layout of the Precinct. The concept of CPTED is to design out opportunities for crime and anti-social behaviour and create safer, more attractive spaces. Specific CPTED principles recommended for the Glenfield Activity Centre Precinct include:

- Maximising through building design, orientation and street layout opportunities for passive surveillance (and providing 'perceived surveillance') from commercial and residential development;
- Maximising passive and perceived surveillance from buildings and spaces through provision of unobstructed visual sight lines. This includes selective design of 'soft' and 'hard' landscaping, such as low shrubs in front of ground floor windows, trees that don't obscure lighting and design of plantings to prevent creation of pedestrian 'blind spots';
- Illumination of pedestrian access routes to and from public transport and main activity centres;
- Encouragement of traffic permeability to enhance natural surveillance of streetscapes;
- Promoting active pedestrian streetscapes through location of streetscape aesthetics, public spaces and design elements to encourage safer pedestrian movement (e.g. well delineated pedestrian routes, crosswalks and landscaped island refuges); and
- Well designed landscaping and selective choice of building materials and surface treatments to discourage opportunities for graffiti.

5.10 BUILDING HEIGHT AND SITE COVERAGE

The height of commercial, residential and mixed use buildings throughout the Precinct is envisaged to be predominately single and two storey, with some landmark sites up to five storey in height. Prescriptive building heights will not be set to provide for flexibility, with development based on its merit.

As a minimum it is desirable for most corner or 'book end' sites to be at least two storey in height to provide definitions in built form contributing towards enhanced passive surveillance, centre legibility and sense of place. **Figure 13 - Conceptual Building Heights** provides a conceptual 3D representation of the built form for the Precinct. A conceptual cross section is provided in **Appendix 6** to illustrate the proposed scale of development.



(Above) Examples of typical height of commercial buildings within a district activity centre, however higher buildings may be considered for the Glenfield Activity Centre at development stage

Residential development shall be in accordance with the relevant R-Code under the Residential Design Codes of Western Australia. Specific Residential Design Guidelines may be prepared following structure planning to guide residential development in being consistent with the built form objectives of the Centre, including architectural style, colours, materials, setbacks and landscaping.

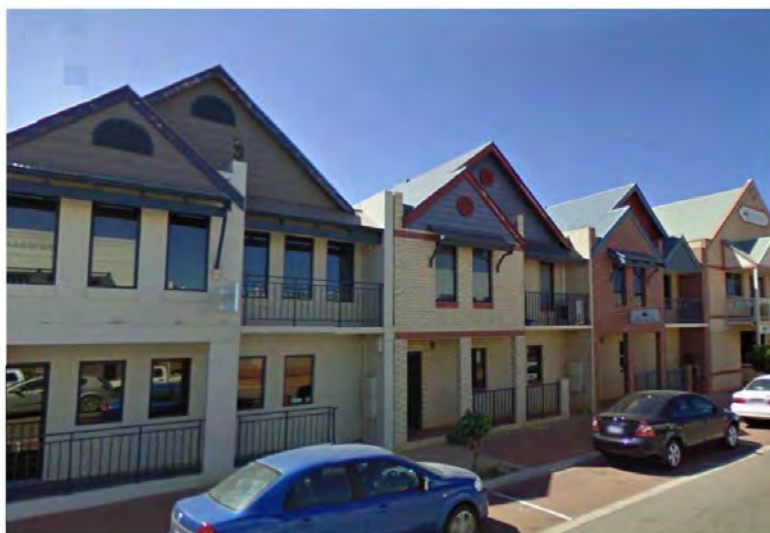
In general for commercial development, approximately one third of the site contains the building footprint with the remaining two thirds of the site comprising vehicle access/parking, service areas, landscaping and infrastructure requirements.

For the Precinct most commercial development will reflect this proportion of site coverage. However, consideration should be given to ensure that there is not an oversupply of vehicular parking, which can detract from the amenity of the Centre. An oversupply of parking leads to large unsightly vacant hard stand areas, which is also an inefficient use of commercial land.

5.11 BUILDING SETBACKS AND PARKING

For commercial frontages at ground floor in the 'main street' area of the Glenfield Activity Centre Precinct, a nil setback should be encouraged for all development. Awnings should be provided for all new development at ground level, particularly adjacent to corner truncations to provide protection from the weather for pedestrians.

Figure 14 – Streets with Zero Front Setback shows the general area where nil setback for commercial development is encouraged to achieve the desired 'main street' built form environment. The front setback for all other commercial and residential development within the Precinct shall be in accordance with the local authority town planning scheme.



Example of buildings with zero setback to street

Provision of adequate safe and convenient parking is fundamental to ensuring the commercial viability and accessibility of development within the Precinct. Ultimately the Glenfield District Activity Centre will become a destination and therefore it is important that planning consider the long term parking needs of the centre and the community.

Shortage of parking will have an adverse impact on the commercial viability of the centre. Excess provision of parking will create unattractive areas of vacant 'hardstand' which will detract from the amenity of the centre and create opportunities for anti-social behaviour after business hours.

A balance therefore needs to be achieved, to which should involve the careful design and integration of land uses utilising reciprocal parking and access and consideration of reduced parking demand due to proximity to public transport.

Parking requirements for commercial and residential land uses will need to consider the relevant provisions of the local authority town planning scheme. Consideration should also be given to provision of on-street parking for visitors and customers using the centre. **Figure 15 – Streets with On-Street Parking** provides an indication for roads which should have provision for on-street parking based on the conceptual design.

In achieving a balanced outcome of parking supply versus demand, consideration should be given at the development stage to complimentary uses within the Precinct. For example, a visitor might park in the Centre to go shopping at various retail outlets/supermarket, visit a medical centre and have a meal.

In addition, clustering of uses makes it more accessible by public transport and therefore initial demand for parking can often be reduced. Therefore each use does not generate the need for a separate parking bay (as would be provided by traditional parking rates).

These matters can be considered by the City at the development approval stage. Provision of on-street parking in the Precinct will be subject to local structure planning and preparation of Detailed Area Plans (now referred to as 'Local Development Plan').

6 PRECINCT LAND USES

6.1 PROPOSED LAND USES

The primary land uses proposed within the Glenfield District Activity Centre Precinct are outlined in Table 1 as follows:

Table 1. Glenfield District Activity Centre Precinct Land Uses

Land Use	Description	Approximate Gross Floor Area (GFA)	Estimated Employment
Commercial	Supermarket, discount department store, medium format and boutique retail shopping, offices, consulting rooms, medical centre, tavern/liquor store, fast food outlets, cafés, restaurants, service station etc	22,500m ² GFA	250 jobs
Community	Child Care, Civic uses	750m ² GFA	15 jobs
Bulky Goods	Showrooms and large format retail	10,000m ² GFA	50 jobs
Mixed Business		14,000m ² GFA	90 jobs
Residential	Diversity of Single, Grouped and Multiple Dwellings of both conventional and specialty accommodation (i.e. Single Bedroom)	Approx. 145,000m ² (Gross Urban) or Approx. 830 dwellings	-
Light Service Industry	Light and Service Industry	64,000m ² GFA	155
Estimated Total Employment			560

6.2 HOUSING DENSITY

The Glenfield Structure Plan identifies the residential density on the eastern side of Chapman Road within the Precinct as Residential R80 and R60. On the western side of Chapman Road the residential land use within the Precinct is R60. This density of residential development provides opportunity for medium density housing to take advantage of close proximity to commercial, retail, civic/community, professional and medical services.

It also recognises the future planning for Chapman Road to be a major public transit route. The proposed R60 and R80 residential density will encourage the provision of diverse accommodation, including single bedroom dwellings, double bedroom dwellings, villas, townhouses etc. This in turn creates options for affordable housing and diversity of dwelling types.

6.3 COMMERCIAL ASSESSMENT

As part of the preparation of the Glenfield District Activity Centre Precinct Vision, a Commercial Assessment was undertaken to inform planning of the Centre. The 'Glenfield Beach Commercial Analysis' 2012 (Appendix 1) considers the local and regional context of the Centre, the social and economic context including population projections for retail supply and demand needs, Centre performance and recommendations for staging of development. For further details the 'Glenfield Beach Commercial Analysis' should be read in conjunction with this report.

The Glenfield District Activity Centre Precinct will ultimately become the major commercial area to service the urban growth areas north of Geraldton. As previously stated, the main key economic drivers for the initial and subsequent staging of development for the Centre is capital and infrastructure investment projects and population growth, both in the Glenfield area and other northern urban growth areas.

It is likely that the main retail and commercial core of the Glenfield District Activity Centre, located on Lot 9000, will grow in various stages as shown in Table 2. The development of the main retail and commercial core on Lot 9000 as outlined in Table 2 will likely drive further commercial, light/service industrial, mixed use and residential development with the Precinct as demand for supply of these services and uses increase with population growth.

Table 2. Glenfield District Activity Centre Precinct – General Performance Indicators

Floorspace Type	Development Scale and Timing		
	Neighbourhood Centre – Stage 1 (2016) m ² GFA	District Centre – Stages 2 – 3 (2021) m ² GFA	District Centre – Stages 4 (2031) m ² GFA
Shop (Convenience)	3,500m ²	7,000m ²	12,500m ²
Shop (Comparison)	1,225m ²	2,450m ²	4,375m ²
Retail Shop (Convenience)		150m ²	150m ²
Retail Shop (Comparison)			2,400m ²
Entertainment		500m ²	500m ²
Office		1,000m ²	1,825m ²
Health/Welfare/ Community			750m ²
Residential (Dwellings)		40	60
Total GFA	4,725m ²	11,100m ²	22,500m ² See Note 1

Notes:

1. Estimated 20,000m² GFA within Lot 9000 and 2,500m² on Lot 55)

Table 3. Population triggers for new floorspace/staging of development

Year/Stage of Centre Development	Glenfield Beach (No. of households)	Balance of Main Trade Area (No. of households)	Balance City of Greater Geraldton (No. of households)	Total (No. of households)
2011	-	7,365	9,775	17,140
2016 (Stage 1)	430	9,441	12,074	21,945
2021	860	12,090	15,008	27,958
2026 (Stage 2)	1,930	14,646	17,084	33,660
2031 (Stage 3)	2,360	20,049	20,776	43,185

(Source: Pracsys Modeling, 2012)

7 CAPITAL IMPROVEMENTS

7.1 SITE WORKS

Roads & Streetscapes

The existing road network will require upgrading and there will be a need for construction of new roads. Chapman Road will require upgrading within the boundaries of the Glenfield Activity Centre Precinct to provide for suitable vehicular turning areas, median treatments for signage, landscaping and pedestrian access and intersection treatments (i.e. roundabouts and future signal lights). Figure 10 shows the proposed hierarchy and function of roads within the Glenfield Activity Centre Precinct.

Improvements to Chapman Road to support the Precinct as an activity centre would also include a signalised intersection in the long term with provision of a roundabout in the interim. The upgrading to a signalised intersection would most likely occur once the majority of the Glenfield District Activity Centre Precinct has been developed.

New roads and upgrading of existing roads within the Precinct will support improved and more efficient transport connections through the Precinct. Planning for these roads would be subject to detailed planning in the Precinct including structure planning and subdivision. Indicative road cross sections are provided in Figure 11a for proposed new roads and upgrades to existing roads in the Precinct.

It is recommended that streetscape design guidelines be developed for the Glenfield District Activity Centre Precinct which will inform development initiatives to establish streetscape and other public space improvements. For instance, the Guidelines can include design aspects such as alternative/coloured street pavements in selected locations throughout the Precinct when undertaking road construction or upgrades.

Earthworks

There are no significant topographical constraints on the eastern side of Chapman Road for future development within the Glenfield District Activity Centre Precinct. Topographical constraints exist on the western side of Chapman Road including the parabolic dune system which will require significant earthworks for commercial development. Preliminary engineering investigations for development on Lot 9000 indicate that a suitable site for the District Activity Centre can be provided through the creation of a two-tiered site. The conceptual cross section (in Appendix 6) illustrates how the site can be developed within the topographical constraints on the western side of Chapman Road. A similar approach could be used for development on Lot 55 to the south of Lot 9000.

Bus Terminus

To provide for integration of the District Activity Centre with a future public rapid transit route using Chapman Road, planning for the design and construction of a future bus terminus in the proposed piazza is required at the local structure planning and subdivision stage.

7.2 SERVICE INFRASTRUCTURE

Preliminary engineering investigations for the development of the District Activity Centre on Lot 9000 indicates that services such as sewer, power, water, telecommunications can be provided to the Glenfield District Activity Centre Precinct subject to extension of existing servicing infrastructure to the south of the Precinct.

7.3 LANDSCAPING, ENTRY STATEMENTS & PUBLIC ART

A consistent landscape and streetscape design should be considered as vital to the creation of sense of place through the Precinct. It is recommended that a landscaping strategy, including entry statement treatments and incorporating public art be prepared for the Precinct. Landscape design guidelines should also be prepared for the whole of the Precinct to coordinate landscaping initiatives as part of development to achieve consistency and desired streetscape outcomes.

8 IMPLEMENTATION AND STAGING

8.1 STATUTORY REQUIREMENTS

The existing 'Development' zone under the City of Greater Geraldton Local Planning Scheme No. 5 (Greenough) supports land use and development standards for future development within the Precinct. The 'Development' zone requires the preparation of Activity Centre Structure Plan/s prior to subdivision and development of the various landholdings within the Glenfield Activity Centre Precinct.

The Activity Centre Structure Plan/s will set out the spatial plan, strategy and framework to achieve the desired development outcomes of the Glenfield District Activity Centre Precinct Vision. Activity Centre Structure Plans should be prepared in accordance with the Commercial Activity Centres Strategy and State Planning Policy 4.2.

8.2 STAGING

Figure 16 - Indicative Staging Plan shows a conceptual staging plan for the Glenfield District Activity Centre Precinct based on the concept masterplan. The staging plan follows the commercial evolution of the Centre from the commercial analysis undertaken for the District Activity Centre (Table 2).

The multiple landowners within the Precinct, particularly those on the eastern side of Chapman Road, are most likely to wait for the developer of Lot 9000 to extend major infrastructure services up from the south, as part of Stage 1 (neighbourhood centre) development.

The staging of development is likely to pivot around this first stage of development on Lot 9000 which would contain a Neighbourhood Centre. Alternatively or in addition, staging of development could also be undertaken through collaboration of multiple landowners, thereby removing or reducing dependency on development occurring within Lot 9000.

Notwithstanding, it should be noted that staging areas as shown in Figure 16 (and those respective areas included in Tables 1 – 3) for land on the eastern side of Chapman Road and southern side of Sunset Boulevard (western side of Chapman Road) is indicative only and subject to landowners obtaining structure plan approval and development approval.

The indicative staging of land as shown in Figure 16 should not be construed as representing the manner of staging (or timing of development) for those areas. The plan merely provides an example of how development of the proposed District Activity Centre could be staged at this level of planning.

PART 2B

LOT 9000 CHAPMAN ROAD ACTIVITY CENTRE STRUCTURE PLAN

PART 2B - LOT 9000 CHAPMAN ROAD ACTIVITY CENTRE STRUCTURE PLAN

9 ACTIVITY CENTRE STRUCTURE PLAN

9.1 BACKGROUND

Several strategic and statutory documents, including the Glenfield Structure Plan 2011, the Draft Northern Geraldton District Structure Plan and the Commercial Activity Centres Strategy, have identified for a District Centre to be located on Lot 9000 Chapman Road. This Activity Centre Structure Plan is required under City of Greater Geraldton Local Planning Scheme No. 5 (Greenough) (LPS 5) prior to any subdivision/development occurring within a 'Development' zone. This Lot 9000 Activity Centre Structure Plan ("the Lot 9000 ACSP") follows on from the initial planning principles and considerations set out under the Glenfield Activity Centre Precinct Vision (Part 1 of this report).

9.2 LOCATION

The subject site is situated within the locality of Glenfield, which is approximately 11 km north of the Geraldton Town Centre. The site is midway between the Geraldton Town Centre and proposed Oakajee Industrial Estate. **Figure 17 – Location Plan** provides an overview of the subject site in relation to surrounding land use and environment.

9.3 STRUCTURE PLAN BOUNDARY

The boundary of the Lot 9000 ACSP has been largely determined by the planning of the Glenfield Beach Local Structure Plan 2012. **Figure 18 - Lot 9000 Activity Centre Structure Plan Boundary** shows the area of the proposed district activity centre on Lot 9000.

The Glenfield Beach Local Structure Plan proposes a 12 hectare site for inclusion in an Activity Centre Structure Plan. The rationale for the setting aside of an area of approximately 12 hectares includes:

- The future District Commercial Centre will require at least 8.0 – 10.0 hectares for ultimate capacity retail floor space and car parking as per Liveable Neighbourhoods for a 'District Centre'. The centre may also provide for other non-commercial uses such as community purpose site/s, landscaping, drainage infrastructure and open space;

- Land is proposed adjacent to the District Commercial Centre for future medium density (i.e. R60) dwellings. Sufficient land will need to be planned to accommodate this land use within the 12 hectare site. Thus the 12 hectare site will not be all 'Commercial' land use but will contain a substantial component of residential land use;
- The steep parabolic dune topography of the site requires sufficient area to be able to earthwork the site to create a practical site (preferably as level as possible) for the future district commercial centre built form;
- The site is located adjacent to Chapman Road (i.e. good accessibility and commercial exposure). The location of the site is also consistent with the general location for the future District Centre as identified in the Glenfield Structure Plan and the City of Greater Geraldton Commercial Activity Centres Strategy; and
- The Glenfield Beach Local Structure Plan shows the 12 hectare site being separated potentially by roads (i.e. including Neighbourhood Connectors) so that the District Commercial Centre site can be developed independently from the "main residential estate", yet be fully integrated.

9.4 LAND OWNERSHIP

The Lot 9000 ACSP area is contained within a single land parcel in ownership of North Bay Developments Pty Ltd. The legal description of Lot 9000 is set out as follows:

Lot	Plan	Volume	Folio	Area (ha)
9000	56904	2735	688	12.09*

* This area forms part of the overall Lot 9000 land which has a total area of 126.74 hectares.

Figure 19 – Aerial View shows the cadastral boundaries of the lots that form the LSP area.

9.5 EXISTING LAND USE

The portion of Lot 9000 Chapman Road is currently undeveloped englobo land. Various tracks have been cleared through the existing vegetation to provide access through the property for fire services.

9.6 LOT 9000 ACTIVITY CENTRE STRUCTURE PLAN

The proposed Lot 9000 Activity Centre Structure Plan is shown in **Plan 1** Lot 9000 Activity Centre Structure Plan). This plan constitutes the statutory plan pursuant to Clause 5.17 of the City of Greater Geraldton Local Planning Scheme No. 5 (Greenough), required for a 'Development' zone.

10 SITE CONDITIONS & ENVIRONMENT

10.1 TOPOGRAPHY

The main topographical feature within the structure plan boundary is a tall parabolic dune system which presently runs north – south through the middle of the development site. On the western side of the dune, there is a slope which drops steeply into a floodplain, which partially contains Casuarina woodland. In general, the elevation of the land at Chapman Road is 3.0 AHD which gradually increases to the base of the dune system (4.5 AHD). There is a rise of approximately 30 degree angle to a maximum height ranging 20.0 – 24.0 AHD at the peak of the dune, which then slopes to a lesser degree down to the west on an approximate 15 - 20 degree slope to the valley on the coastal side the dune at approximately 3.0 AHD. **Figure 20 – Topography Plan** shows the general topographical features of the development site. As discussed in section 7.1 there are no significant topographical challenges which would impede development of the site. Appendix 6 shows an indicative cross section as to how the existing parabolic dune could be cut and graded to create a site for the future district centre.

10.2 GEOLOGY AND SOILS

The majority of the development site comprises the following soil landscape subsystems as described in **Appendix 2 – Environmental Assessment Report ‘Glenfield Beach – Local Structure Plan’** (RPS, 2012):

Soil Landscape Subsystem	Description
<i>Tamala Limestone 221ta_3Ysp</i>	Level or gently undulating yellow sandplain – well drained yellow sand
<i>Tamala Limestone 221Ta_5Tb</i>	Grey Brown Sands – well drained grey-yellow/red calcium sand and loamy fine sand
<i>Northampton System 225No_2Anl</i>	Recent Alluvium – well drained massive sandy soils

The sandy soils provide for suitable drainage and land capability for development of a district centre. Limestone cropping is likely to be encountered as part of earthworks, and will need to be removed accordingly.

10.3 ACID SULFATE SOILS

With the exception of the lower lying area on the eastern side of the parabolic dune, the development site is categorised as 'Low' risk acid sulfate soils within 3 metres of the surface. The area on the eastern side of the parabolic dune forms part of the greater Dolby Creek 'Rum Jungle' floodplain to the north (adjacent to Chapman Road). This is the only area known to potentially contain acid sulfate soils within 3 metres of the surface. Regional acid sulfate soils mapping categorises the alluvial deposits of the 'Rum Jungle' floodway as having 'Moderate – High' risk of acid sulfate soils occurring within 3 metres of the surface.

Acid sulfate soils pose no unacceptable risks to development if left undisturbed, which includes filling over the site. Development of the District Activity Centre within the subject land will require re-modeling of the parabolic dune to create a site that is suitable for the District Centre development. In this instance, the areas mapped as 'High to Moderate Risk' will be filled (i.e. 2.0 metres and greater), with the exception of a 'channel or swale' which will be developed parallel to Chapman Road at the front of the District Activity Centre to allow for floodwater overflow from the north.

Excavation proposed within the mapped areas categorises as 'High – Moderate Risk' for the floodplain overflow drainage infrastructure will likely require further investigation as to whether an Acid Sulfate Soils Management Plan would be required.

Should any of the road upgrading, servicing or drainage infrastructure be planned within areas potentially containing ASS, an acid sulfate soils investigation would be carried out to inform any required acid sulfate soils management plan prior to works being undertaken. The investigation would be carried out in accordance with DEC (2009) Identification and Investigation of Acid Sulfate Soils guidelines. DEC requires investigation where proposed earthworks will disturb natural soils or sediments of volumes greater than 100m³, or groundwater dewatering is required at the site. This will be subject to further investigation as part of any preliminary site assessment.

10.4 HYDROLOGY

Groundwater

Based on information from the Department of Water, the groundwater generally flows in a westerly direction towards the coast. The groundwater levels across the development site are generally greater than 10 metres below natural ground level, with some variations due to topography. The average hydraulic gradient for the site is approximately 0.001 in summer and 0.0002 in winter. Groundwater testing undertaken by JDA (2007) indicates the quality of the groundwater is poor due to saline encroachment. Unless the groundwater undergoes some form of treatment (such as "shandyng"), groundwater from the superficial aquifer is not considered to be suitable for irrigation purposes. In this instance, scheme water is likely to be the main water source for the project.

Surface Water

There are no natural expression of surface water within the development site, however a portion of the site (eastern portion adjacent Chapman Road) is within the Dolby Creek floodplain. There are no interdunal wetlands or sumplands. The pre-development catchment area contains mostly coastal vegetation with 100% pervious surfaces.

Natural drainage of the development site is divided into a western and eastern catchment. However, infiltration at source is the dominant hydrological characteristic in the pre-development catchment.

The floodplain within the development site forms part of the southern most section of the Dolby Creek 'Rum Jungle' floodplain. Typically the 'Rum Jungle' floodplain receives floodwaters during and following major storm events (i.e. 1:50 or 1:100 year ARI events) or high rainfall events. Flood water modeling in *Dolby Creek Flood Study* (AECOM, September 2012) indicates that a 1:100 year ARI event would cause an overflow over Glenfield Beach Drive of Dolby Creek to the north.

The majority of water flowing within the Dolby Creek floodplain originates from upstream and discharges into 'Rum Jungle' floodplain. At district level, the 'Rum Jungle' floodplain is considered important as it provides a significant area for the disposal of stormwater. Allowance for a floodplain overflow as part of any development earthworks is further discussed in this report to ensure that the southerly flow of floodwater can be managed.

Wetlands

There is currently no wetland mapping available for Geraldton. The subject site contains a portion of the southern most part of 'Rum Jungle'. Well to the north the area within 'Rum Jungle' contains a naturally formed alluvial flat, which is seasonally water logged dampland maintained by rainfall and surface water drainage via Dolby Creek and seepage from the coastal dune system. However, in this southern most part of 'Rum Jungle', seasonal waterlogging is less frequent as the floodwaters generated to the north move south at a slow velocity dissipating along the journey. Accordingly the Structure Plan provides for development in the southern portion of Lot 9000, subject to provision of Dolby Creek overflow path.

10.5 VEGETATION AND FLORA

The Geraldton Regional Flora and Vegetation Survey (GRFVS) was endorsed by the EPA as a key information source to provide a regional context for land use planning and environmental impact assessment. A total of (5) vegetation communities that were mapped in the GRFVS were identified in the Glenfield Beach survey area. These included one coastal dune, one foredune, one estuarine, one riparian and one back dunal community. The Estuarine vegetation community is one of the most restrictive vegetation communities of the GRFVS area and occupied approximately 12.97ha (6.8%) of the native vegetation in the Glenfield Beach survey area. However, this vegetation community is well represented in other areas, for instance at the mouth of Chapman River, at Rudds Gully near Devlin Pool and along the edge of Greenough River near the river mouth.

An initial Level 1 Survey and subsequent Level 2 Terrestrial Flora and Vegetation Survey were conducted by Matiske Consulting Pty Ltd ("Matiske") for the subject land. The Level 1 Survey occurred in late March 2011 and the Level 2 Spring Survey was carried out on 30th August and 1st September 2011. Matiske advised that the Level 2 Survey was conducted in prime flowering period and after decent rainfall for spring.



(Above) View of subject site from Chapman Road western verge

(Below) View of typical coastal heath vegetation found on subject site



The predominant vegetation communities relevant to the development site were defined and mapped as being the following:

- Low open shrubland of *Acacia rostellifera* and *Lycium ferocissimum* over *Rhagodia baccata* subsp. *dioica*, *Ptilotus divaricatus* subsp. *divaricatus*, *Threlkeldia diffusa*, *Acanthocarpus preissii* and *Spinifex longifolius* on low back dunes.
- Low forest of Swamp Sheok (*Casuarina obesa*) over *Threlkeldia diffusa* in swales; and

- Low open woodland of *Eucalyptus camadldulensis* subsp. obtuse and *Casuarina obesa* over weeds on riparian areas.

The results of the Level 2 Flora & Vegetation Survey undertaken by Mattiske indicate the following:

- No Threatened or Priority Flora species were recorded upon the subject site.
- No Threatened or Priority Ecological Communities were recorded upon the subject site.
- The vegetation condition of the subject site ranges from 'Good' to 'Degraded'.

For further details as to the flora and vegetation description of the subject site, the Mattiske 2011 Level 2 Survey Report can be found in Appendix 4 of the RPS, 2012 report contained in Appendix 2. There are no significant vegetation and flora constraints for development.



North view of subject site from western verge of Chapman Road



East view of subject site from top of dune ridge

10.6 FAUNA

A Level 1 Terrestrial Fauna Survey was undertaken by MJ & AR Bamford Consulting Ecologists ("Bamford"), including a field survey of the subject site on the 4th, 5th & 6th April 2011. The main habitat types identified within the subject land are:

- Hind dune/swale system on sandy soil with occasional underlying limestone;
- Sheok woodland on seasonally inundated clay; and
- Eucalypt woodland on clay/gravelly soil.

Graceful Sun-Moth

The Graceful sun-moth (*Synemon gratiosa*) is listed as Endangered in the *WA Wildlife Conservation Act* and the *EPBC*. It was not found in the database search and its presence at this coastal location is likely to be influenced by the availability of suitable food plants.

The timing of the early April 2011 field survey was too late for the peak activity period of adult moths to be observed, however the larvae of the Graceful Sun-Moth feed exclusively on two species of *Lomandra* (*L.hemaphrodita* and *L.maritima*) and neither was found on the subject site, despite extensive searching by Bamford.

Specifically *Lomandra maritima* is a host plant for the Graceful sun-moth. The Spring 2011 Level 2 Vegetation and Flora Survey by Mattiske did not record any *L.maritima* within the subject land. From these observations, Bamford concludes that it is highly likely that the species would not rely to any significant degree on the subject land, given the general absence of *Lomandra*. Accordingly, no specific habitat protection is required to be planned for within the Structure Plan.

Carnaby's Black Cockatoo

The early April 2011 Fauna Survey by Bamford identified that the species was not observed and there was no evidence during the survey to indicate that birds had recently visited the subject land. A further site visit on 11 July 2011 was carried out to collect detailed information about potential Carnaby's Black Cockatoo nesting trees on the subject site. Only 20 out of 58 trees were identified as being large enough (i.e. tree trunk diameter at breast height > 500mm) to be potential nesting trees for the birds. All of these were located well to the north within 'Rum Jungle' and Dolby Creek outside areas of proposed development within the District Activity Centre. Accordingly, no specific habitat protection is required to be planned for within the Structure Plan.

Other Fauna

Fauna habitats of potential significance tend to be those that are both rare across the landscape and that are important for significant species and/or for biodiversity. The 'Rum Jungle' area has been noted in previous environmental reports for the subject site (i.e. Cardno, 2006) as being known habitat for the South Western Carpet Python. The loss of habitat within the Structure Plan area is not significant for fauna species and accordingly existing vegetation within the development area can be considered for removal.

10.7 EPBC ACT REFERRAL (CARNABY COCKATOOS)

In April 2012, the proposed Glenfield Beach Project was referred to the Australian Government Department of Sustainability, Environment, Water, Population and Communities under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and registered as [EPBC Act referral 2012/6359]. On 21 May 2012 the proponent was notified under Section 75 of the EPBC Act that the proposed action is not a controlled action.

10.8 POTENTIAL SITE CONTAMINATION

RPS conducted a search of the DEC's Contaminated Sites Database on 21 September 2011. No matches were recorded for the subject land or adjacent lands. The subject site is predominantly remnant vegetation and dunes with contamination being unlikely to be present. A site inspection indicates the presence of uncontrolled tipping activities of domestic refuse in 'Rum Jungle'. The rubbish and debris illegally dumped in 'Rum Jungle' will be removed by the developer as part of the clearing of the site to allow for earthworks.

10.9 INDIGENOUS AND EUROPEAN HERITAGE

Indigenous Heritage

A search of the Department of Indigenous Affairs (DIA) Aboriginal Heritage Inquiry System indicates there are no registered Aboriginal Heritage sites of significance. Notwithstanding, it is important to note that the database of heritage sites held by the DIA is not comprehensive and there exists the potential for unknown sites of Indigenous heritage significance to be located inside or within close proximity to the subject land. Archaeological monitoring is recommended for any eventual excavation works as part of subdivision and development. The process for protecting Indigenous heritage sites and considering proposals that may impact a known site is set out under the *Aboriginal Heritage Act 1972*. The Act protects all Aboriginal sites in WA whether they are known to the DIA or not.

European Heritage

There are no places or sites of cultural significance within the subject site area under the City of Greater Geraldton Municipal Heritage Inventory and State Heritage Register.

10.10 UNEXPLODED ORDNANCE (UXO) SURVEY

The development site is located within a former WWII military training area, WA UXO Register N 91 'Smuggler's Cove'. This former range area has been identified by FESA as one of the most used anti-tank, artillery and mortar training areas in the Geraldton region during WWII.

The newer subdivision areas of Drummond Cove located to the north and north west of Glenfield Beach were initially subjected to an extensive Magnetometer search action by the former UXO Unit (Policy and Emergency Services) in the early to mid 1990s, with a moderate amount of fragmentation and other evidence being recovered from both high explosive artillery and mortar that had impacted the site. Two pound (2lb) anti-armour projectiles were also located during an assessment survey just north and east of Drummond.

In 2006, UXO surveys were undertaken by Bactec Pty Ltd over an area of approximately 18.9ha covering Glenfield Beach Stages 1 – 3 in the northern portion of the development site. Fragments of exploded ordnance were found, however no actual explosive or unexploded ordnance were located. These surveys were undertaken prior to the construction of lots within Ocean Heights Estate. The surveys focused on a 100% search of the designated areas for objects with the equivalent mass of a 20mm projectile or equivalent ferrous object as determined by FESA.

In addition to these surveys, a 10% electromagnetic Field Validation Survey was also completed for any items of Exploded Ordinance confirming any previous military targeting use. Overall 15 impact areas were surveyed with no Exploded or Unexploded Ordinance uncovered.

As part of subdivision/development within the Lot 9000 District Activity Centre structure plan area, it is recommended that further UXO surveys be undertaken. For instance, as a minimum a UXO Field Validation Search be undertaken in slashed lane widths of 2.0m – 2.5m separated by no more than 20m apart prior to any site works.

10.11 ACTIVITY CENTRE PRINCIPLES

The Activity Centre Structure Plan is informed by the planning principles under Western Australian Planning Commission State Planning Policy 4.2 'Activity Centres for Perth and Peel' and Liveable Neighbourhoods (Element 7 - Activity Centres). Within the Activity Centre hierarchy for the City of Greater Geraldton, as indicated in the Commercial Activity Centres Strategy the centre type for the development site is identified as 'District Centre'.

The objectives for the Lot 9000 ACSP are based on the following key design principles:

- Activity centres are community focal points. They include a range of activities such as non-retail commercial, retail, service businesses, higher density housing, entertainment, tourism, civic/community, medical services and small light industry.
- The size and diversity of a District Activity Centres varies according to a retail needs assessment.
- Activity centres should be distributed based on hierarchy in order to meet different levels of community need and enable employment, goods and services to be accessed efficiently and equitably by the community.
- The activity centre hierarchy system should be applied as part of a long-term and integrated approach by public authorities and private stakeholders to the development of economic and social infrastructure.
- Successful activity centres contribute to the achievement of sub-regional employment self-sufficiency targets and improve land efficiency, housing variety and support centre facilities.
- Activity centres provide sufficient development intensity and land use mix to eventually support high-frequency public transport.
- Access to activity centres should be by maximised and modes such as walking, cycling and public transport should be encouraged whilst reducing private car trips.
- Development around activity centres should be based upon legible street network and quality public spaces.
- Activities that generate high numbers of trips should be concentrated within activity centres.

11 CENTRE CONTEXT

Activity centres are developed and maintained in a manner that is sensitive to the needs, assets and deficiencies of the surrounding community while respecting local historical patterns, precedents and context. Activity centres are an integral part of the broader urban environment and cannot be considered in isolation.

Depending on the scale and purpose, activity centres are potentially able to serve both local district and a broader regional catchment. Understanding the physical, social and economic context is vital for forming a mutually supportive relationship with the surrounding community, which in turn adds to the centres success. In developing the Lot 9000 ACSP, consideration is given to its regional and local context.

11.1 REGIONAL CONTEXT

Analysis of the broader context of the activity centre is important in determining its relationship with other locations providing employment, recreation, services and high-frequency public transport locations. Understanding the regional context can also provide insight to potential impacts on the activity centre hierarchy.

The planning framework within which a centre structure plan will operate is vital for identifying relevant aspects of state, regional and local policies. This provides a measure of the centres performance against key policy objectives. The statutory framework for the proposed Lot 9000 ACSP is discussed in section 2.0 of this report.

The activity centre hierarchy defines a centres anticipated function and transport accessibility. This will inform the level and type of development a centre should accommodate. The proposed ACSP on Lot 9000 is located within the hierarchical framework as outlined in the City's Commercial Activity Centres Strategy, whereby it forms part of the Glenfield District Activity Centre.

The catchment area considers the population area the centre will serve, and from where the centre will attract visitors and customers. The 'main trading area' of the Glenfield Beach District Activity Centre is generally within a 6km radius of the District Centre location, as shown in Figure 8.

11.2 LOCAL CONTEXT

Understanding the local context of the activity centre provides important information about the people who live around, work within and visit the centre. The analysis of this information indicates how well the centre meets the commercial, social and community needs of its catchment area how the centre will evolve over time and what improvements can be made in the future.

The proposed Lot 9000 ACSP forms part of a future urban growth area as outlined in the Glenfield Structure Plan and Glenfield Beach Local Structure Plan (refer to Section 2.0). The Glenfield District Activity Centre is expected to evolve over time as the main trading area population grows through urban expansion and development.

For Lot 9000, the 'Development' zone is appropriate to facilitate development in accordance with an approved activity centre structure plan. This would be similar to the land on the eastern side of Chapman Road contained within the Glenfield Structure Plan, which is zoned 'Development'. Structure planning is required prior to any subdivision and/or development occurring within the portion of Lot 9000 proposed for District Activity Centre (Figure 18).

Defining the area of an activity centre is essential. Centre boundaries must match the intended role and function to accommodate sufficient growth and deliver appropriate land use diversity. As discussed in 9.3, the boundary of the Lot 9000 ACSP area has been defined as part of the structure planning for Glenfield Beach urban development.

The area set aside of approximately 12 hectares, supported by additional land to the south and east (refer to Figure 2), is of sufficient size, to accommodate commercial development to fulfill the function and role of the Glenfield District Activity Centre under the statutory planning framework.

Future planning proposals and growth predictions will be enhanced by understanding key economic, employment and social trends within a centres catchment area. These have been discussed under Section 3.0 and in general, the staging of development and assembly of land uses will largely be influenced by population growth and socio-demographic factors.

As part of local context analysis, consideration should be given to the natural, historical and cultural features of the area which all contribute to the identity of a place. Place identity can also be reinforced by capitalising on unique elements such as topographical features, view lines and focal points. In this instance, there are no distinguishable defining characteristics of the site's location, other than its proximity to the coast and 'Rum Jungle'.

There will be a need for the Glenfield District Activity Centre on Lot 9000 to integrate with future urban development to the north and west (i.e. provision of good transport linkages) and this will be further discussed in the report. The Glenfield District Activity Centre will also form a 'gateway' into the Glenfield Beach Local Structure Plan.

12 MOVEMENT

The spatial layout of an activity centre must be supported by a well balanced network of transport alternatives such as walking, cycling and public transport. Emphasis should be place on establishing and maintaining a well connected street network that is integrated with the surrounding area.

12.1 REGIONAL PERSPECTIVE

A centre's position in relation to strategic roads will determine how it is serviced and its ability to capitalise on the 'movement economy' of passing trade. Centres are best located off or visible from arterial roads. The Glenfield District Activity Centre Precinct Vision identifies location ideal for landmark developments.

The use of gateways influence also how people interpret a centre and its function. In order to attract people and businesses gateways should be welcoming, appropriately scaled and recognisable. Sites suitable for 'Landmark' developments should be identified to reinforce entryways to activity centres. For instance, Chapman Road will serve as the main road accessing the Glenfield District Activity Centre and as such, there should be landmark developments at entry points fronting Chapman Road. The other major road is the future east-west link road as identified under the Glenfield Structure Plan connecting North West Coastal Highway with Chapman Road, then extending further west towards the coast. Within the proposed Lot 9000 ACSP, landmark development sites are further discussed in Section 14.5.

12.2 PUBLIC TRANSPORT

Public transport will reduce the car dependency and lead to a more efficient use of land within the centre. The attractiveness, efficiency and convenience of public transport infrastructure plays an important role in the success of this travel mode over others.

Frequent services that meet travel demand and connect to major destinations are necessary for providing a quality transit system. Key features that provide a viable option to the private car include reasonable waiting times and comprehensive services for off-peak and weekend travel. Infrastructure should match the scale and frequency of use. Planning should ensure that facilities are safe, easy to access and highly visible. Well designed, high quality interchange facilities create a positive perception of public transport.

The proposed ACSP promotes public transport as a sustainable mode of transport through its recognition of Chapman Road as a future public transit route and conceptual provision (in the Vision document) of a bus terminus within a proposed piazza at the retail core of the Glenfield Beach District Activity Centre Precinct. Convenient and safe interchange points are provided to allow for smooth transition and integration between travel modes and transport hubs. Further detailed planning will be required at the subdivision and development stage to provide for a bus terminus within a central piazza. The proposed public transport bus route/infrastructure servicing the Lot 9000 District Activity Centre and its integration with surrounding land is outlined in Figure 7 of Appendix 4 – Transport Assessment.

12.3 PEDESTRIAN MOVEMENT

Within an activity centre the most common and sustainable mode of transport is walking. Groups of activities within walking distance of each other are vital to it providing a concentrated focus of people. This can also be essential to replace short car trips within the 400m walkable catchment area. As such the quality, choice and directness of the pedestrian routes become important. The planning and development of activity centres should therefore place more emphasis on walking.

Pedestrians typically prefer to take the most direct route between attractions. Directness and a choice of routes between places are more likely delivered by a fine-grained network of streets and paths. Within the proposed ACSP pedestrian networks provide for direct route linking compatible land uses with opportunity for provision of priority measures at road crossings. For instance, the Integrator 'B' road is recommended with a minimum width of 25 metres to provide opportunity for pedestrian median refuge islands and wide pedestrian friendly pavement on either side of the road.

Pedestrians should be given priority over traffic in centres. Walking routes should be safe, networked, well signposted and connected to key destinations. Walking in activity centres should be encouraged by providing networks of wide footpaths, pedestrian zones and mid-block links (i.e. laneways and arcades). It is also important that pedestrian networks have a legible layout and enable people to have a clear, accurate image of the place.

The proposed ACSP pedestrian network is shown in **Figure 21 – Pathway Network** and reflects these concepts. The delivery of a quality pedestrian network on the ground is subject to more detail design, such as 'hard' and 'soft' landscaping treatments and use of colours and materials for construction of pedestrian network infrastructure.

12.4 CYCLING MOVEMENT

The planning and development of activity centres should also make greater provision to encourage cycling for centre employees and visitors. Cycling as a viable mode of transport requires a comprehensive network that connects the centre safely and conveniently with other local destinations. This can be facilitated by the creation of cycle and dual use paths and the creation of cycle lanes on connecting road networks (refer to Figure 21). 'End of Trip' facilities, such as showers, change rooms and locker facilities should be provided within commercial and community developments to cater for and promote cycling. Standards to ensure the supply of adequate cycle parking for public and private use should be adopted and mandated as part of the development control process.

The ACSP seeks to incorporate all of these elements that encourage cycling to and within the District Activity Centre. The cycling network is closely linked with the provision of pedestrian network infrastructure through the provision of Dual Use Pathways. Dedicated cycle lanes within road reserves can be further considered at the subdivision stage. End of trip facilities and cycle parking infrastructure are considerations at the development stage.

12.5 VEHICLE MOVEMENT AND ACCESS

Despite a need to reduce car use, activity centres still need to provide vehicle access for operational and mobility purposes. A balanced approach to vehicle movement and access requires:

- A greater sharing of the road with different modes of travel.
- A permeable road network that provides greater choice of movement.
- Lower traffic speeds through control mechanisms.
- Fewer and safer points of conflict between vehicles and pedestrians.
- Special mechanisms at intersections that provide priority to pedestrians, cyclists and public transport.

Traffic side effects such as noise, fumes and safety can have an adverse affect on centre amenity. A balance is needed between vehicular access and traffic impact minimisation. Key vehicular routes, capacity and safety issues can be address through a traffic assessment. The **Appendix 4 - Transport Assessment** provides an outline for proposed roads, pedestrian, cyclist and public transport infrastructure within the ACSP. The Transport Assessment shows that the proposed road network should be capable of accommodating all future modes of transport including vehicles, pedestrians, cyclists and public transport (bus). The proposed road network has capacity to accommodate all future traffic volumes expected from the activity centre and surrounding ultimate future urban development in Glenfield (as per the current and proposed structure plans to the west and east).

Traffic Management can contribute to planning objectives by supporting well connected transport networks, discouraging single occupancy trips, reducing speeds and improving the attractiveness of the centre. The Glenfield District Activity Centre Precinct Vision identifies key parking locations to support universal access routes and encourages freight deliveries to be located via rear laneway access behind buildings. Wherever possible, to enhance the amenity of the Centre, vehicle movement and access should be designed to allow for parking areas and areas for deliveries to be located at the rear of buildings.

Opportunities and proposed locations for direct frontage for vehicular movement for 'in and out' traffic along Chapman Road is unknown at this and will be subject to further detailed planning at the Detailed Area Plan (or Local Development Plan) stage. This will need to be discussed with the local authority and consideration by the City will be given on a case by case basis subject to its merits and supported by a traffic impact study.

12.6 PARKING

Parking has a major influence on how people choose to travel to activity centres. This may be even more significant than public transport provisions in determining means of travel. Car parking also takes up a large amount of space, can detract visually, reduces densities and causes physical separation of centres from surrounding communities.

Based on the conceptual masterplan for Lot 9000 (as shown in Figure 9) a preliminary assessment under LPS 5 indicates approximately 780 parking bays would be required for Lot 9000. This has been determined whereby proposed commercial uses are assessed and treated in isolation. Approximately 800 parking bays have been provided for in the concept plan parking areas shown. The final number of parking bays that would need to be provided would be determined at the development approval stage.

A Centre Car Parking Strategy could be considered that adopts upper limits on parking for broad classes of development and provides spaces in accordance with universal access principles, as well as on street parking can be considered as part of Detailed Area Planning, once commercial floor space and uses have been identified. In this instance, an optimal provision of car parking can be provided, without necessarily planning for a surplus of parking, which could potentially occur if proposed commercial uses are assessed and treated in isolation (refer to Section 5.11).

Where street parking is considered desirable, such as within the walkable catchment, parking should be well integrated with the urban form and not detract from pedestrian amenity or the streetscape. Short stay parking that serves the centre as a whole should be given priority, rather than parking that serves individual developments.

The provision of car parking can be given further consideration at the detailed design stage and/or Detailed Area Planning stage of development. This would take into consideration the requirements of LPS 5 and if considered appropriate, any prepared and adopted Car Parking Strategy for the Centre.

13 ACTIVITY

By influencing the location, scale, density, design and mix of land uses, the proposed ACSP can assist in reducing the need for vehicular travel, make it safer and easier for social interaction and encourage employment, shopping, leisure facilities and services by encouraging public transport, walking and cycling. For instance, in the conceptual master plan (Figure 9) the proposed access and arrival points for the anchor tenants are of prime importance as these will draw people in to the centre and assist in activating the other tenancies.

13.1 LAND USE AND DIVERSITY

The proposed ACSP has an appropriate mix of uses that encourage vibrant, diverse and safe interaction. The ACSP commercial land uses (as proposed in Figure 9) integrate into the broader urban environment of the proposed adjoining Glenfield Beach urban development by introducing complementary land use diversity into the conventional retail dominated and specialised centres. This includes the provision of a Residential (R60) area and 'hard edge' interface with future residential planned uses to the west in the Glenfield Beach Local Structure Plan.

The proposed land uses within the Lot 9000 ACSP (as shown conceptually in Figure 9) include:

Land Use	Description	Approximate Gross Floor Area (GFA)
Commercial	Supermarket, discount department store, medium format and boutique retail shopping, offices, consulting rooms, medical centre, tavern/liquor store, fast food outlets, cafés, restaurants, service station etc	20,000m ² GFA
Community	Child Care, Civic uses	750m ² GFA
Residential	Diversity of Single, Grouped and/or Multiple Dwellings of both conventional and specialty accommodation (i.e. Single Bedroom)	Approx. 16,700m ² (Gross Urban) or Approx. 60 dwellings

The 'Glenfield Beach Commercial Assessment' (Pracsys, 2012) demonstrates the optimal land use mix and Gross Floor Area staged over time to deliver retail sustainability/retail needs for the urban growth areas in Glenfield and north of Geraldton.

The ACSP envisages character areas that are useful for organising land uses and buildings, and aiding legibility. The ACSP provides for 'main street' development through provision of an 'Integrator B' road. Along this road commercial development can be centred around a piazza which provides opportunity to group mixes of commercial uses that are complementary (refer to Figure 9).

The identification of this character area avoids any adverse effects of amenity (noise, pollution, traffic etc) created by placing conflicting uses in close proximity. The ACSP proposes no conflicting land uses, such as 'Light/Service Industry' and 'Bulky Goods' which are located further south on Lot 55 in the Glenfield District Activity Centre Precinct Vision.

A general zoning of 'Commercial' within the ACSP provides flexibility for future development. The spatial layout of commercial land uses in the proposed ACSP 'Commercial' zone can be further considered in a Detailed Area Plan (DAP).

Land Uses within Wastewater Treatment Plant (WWTP) Odour Buffer

The Water Corporation has revised the odour buffer requirement for the Glenfield wastewater treatment plant (WWTP) as shown on Plan 1. Sensitive land uses are not permitted within the WWTP odour buffer, however, other compatible commercial land uses, such as bulky goods showrooms, retail outlets (non-food related) etc may be permitted.

Part One includes provisions stating that no subdivision or development of sensitive land uses be permitted within the WWTP odour buffer prior to further odour modelling, and approval from the City of Greater Geraldton and Water Corporation. Part 4.1 provides further information in regards to separation distances and sensitive land uses.

13.2 RETAILING

Retailing is a key function of an activity centre, it is however, important to encourage a variety of land use diversity. For connectivity and flexibility to be achieved, activity centres need to be designed in a way that accommodates various retail formats with the ability to change and adapt over time.

The proposed ACSP provides commercial land to enable key anchor stores to be developed, including a discount department store and/or supermarket. These are major travel generators which would make the Glenfield District Activity Centre a destination.

Pedestrian routes connecting key sites within an activity centre will attract the highest pedestrian activity and should maximise the extent of street facing retail frontage. The envisaged 'Main Street' development either side the piazza would have the highest concentration of pedestrian activity in the ACSP. Subsequently, the built form along this strip should reflect pedestrian oriented development. This will be further discussed in 14.1 and 14.2.

13.3 EMPLOYMENT

Activity centres should be promoted as employment hubs. This will provide opportunities to attract and retain staff, to establish business knowledge sharing and service clusters, more efficient use of infrastructure and promote population density to support public transport services.

The proposed ACSP provides opportunity for diverse types of employment, for example, retail, medical, office, professional and other service-sector businesses. Employment intensive uses are major generators of travel. The ACSP locates large businesses or employment clusters in accessible places within easy walking distance from the future public transport bus terminus in the piazza.

The commercial land uses are also within walking distance from neighbouring residential areas, which could compliment the establishment and growth of home businesses. There is flexibility also in the ACSP layout to provide opportunity for small-scale and home-based businesses and live-work housing in the northern residential (R60) portion of the ACSP. The built form design of dwellings within the ACSP should therefore be robust and flexible to be able to accommodate changes of use, address parking and neighbouring residential amenity.

13.4 DWELLINGS

Residential development within the walkable catchment of activity centres is necessary to build a sense of community, stimulate pedestrian movement and encourage passive surveillance outside normal business hours. It provides walkable access to jobs, shopping, leisure and services, improving social inclusion and promoting more sustainable development patterns.

Centre living appeals to households beyond the nuclear family so a provision of a range of residential dwellings should address the housing needs of a diverse community. The proposed ACSP provides for a diversity of housing types to suit affordability, singles, families, disabled and the elderly through the provision of an R60 density, which allows for smaller dwelling accommodation. Mixed use development is envisaged on the eastern side of Chapman Road in accordance with the Glenfield Structure Plan and Glenfield District Activity Centre Precinct Vision.

13.5 AGED PERSONS ACCOMMODATION

The ACSP provides for flexibility to create opportunity for a possible future retirement village in the area shown on the Structure Plan map. The density of residential development is proposed to be R60 and could accommodate up to 100 dwellings.

If a retirement village or aged persons accommodation site were developed within the area shown on the ACSP, it is likely that the local access roads within the ACSP would need to be either removed or varied to accommodate the aged persons residential development. This would be subject to Detailed Area Planning prior to development.

14 URBAN FORM

Activity centre built form should incorporate height at key points while respecting human scale and solar access. A layout of definitive public streets and spaces and the preservation of natural assets will enhance the structure of the activity centre. Activities within the centre including their role and scale can be enhanced by shape scale and expression defined in the urban form. Public and private outdoor spaces can also be given definition and character by the urban form that influence them. In short, the urban form is the most recognisable physical attribute of an activity centre. The following discusses these principles for the proposed Lot 9000 ACSP.

14.1 URBAN STRUCTURE AND BUILT FORM

Physical layout influences how people travel to and through a centre. Physical layout also influences how land uses can evolve to form precincts or accommodate new uses. The type and design of buildings must reflect the location and role of the centre. This is achieved through height, scale, orientation, materials and texture. The built form will also affect the attractiveness and comfort of the street environment, by framing the internal landscape and views and providing weather protection to pedestrians.

Within the proposed ACSP proposed streets connect key land uses to the surrounding community. The well formed structure of small walkable blocks offers more choice of access than larger impermeable blocks. Within the ACSP the nature and design of buildings should complement the local aesthetic and environment as they frame public areas and create view lines. Desire to maximise floor space should be balanced against height, bulk and proportion controls, as well as providing for functional open space.

The ACSP advocates developing buildings for long life spans, by designing to be flexible in terms of occupancy and change of use over time. This will result in the centres ability to evolve and adapt with changing economic and social conditions. Consideration should be given to preparation of Built Form Design Guidelines, or addressed as part of Detailed Area Planning, prior to any development approval.

14.2 STREET INTERFACE

The significance of street interface is most important at ground floor or street level where the interaction between buildings and pedestrians are most prevalent. The interest of an urban street is derived from the architectural detail, texture and colour and includes windows, doorways, vistas and people generally coming and going.

Within the ACSP large separations between buildings and uses are avoided by the efficient use of space between the buildings (refer to Figure 9). Abutting buildings are preferable with frontages addressing streets and public spaces. Street function and widths that allow for density and human scale can be complemented by building alignments, orientation and setbacks.

Building articulation is envisaged in the ACSP at the public interface where buildings should incorporate contrasts and expression to avoid monotony. This can be achieved by variations in depth, height, colour and texture as well as the presence and style of windows and doors.

At ground level buildings should contain activities that passively or actively contribute to the public realm. The opportunity to introduce outward facing uses within the large traditional shopping centres is encouraged over blank walls, so too is added weather protection such as awnings and eaves. These can be addressed as part of the preparation of Built Form Design Guidelines and/or Detailed Area Planning, prior to any development occurring.

14.3 PUBLIC SPACES

Urban living brings more emphasis on the quality of open spaces and facilities. Parks, piazzas, squares and streets all influence the character and function of an Activity Centre.

Given the extent of earthworks required to prepare the site for commercial development, vegetation cannot be retained where possible. New plantings using species native to the area will need to be undertaken as part of any new development. A Landscaping Strategy should be prepared in this regard as part of any development approval.

Street furniture and paving should be of a high quality and easy to maintain. The proposed ACSP uses physical form and activity patterns to influence how people orientate and navigate the centre.

The conceptual spatial layout of the Centre provides for street scale, view lines and character areas useful in centre orientation. Landmark buildings, street art, human scale signage and road intersection treatments are further examples of visual cues which can be refined at the DAP and/or development stage.

The proposed ACSP has considered design aspects to protect public spaces from adverse climate effects such as prevailing winds. The spatial layout in Figure 9 provides for opportunities to capitalise on positive natural aspects such as summer breezes and winter sun, whilst offering protection from extreme weather conditions.

Streetscape amenities enrich and support public spaces and these include:

- Benches
- Bins
- Planters
- Trees
- Street lights
- Fountains
- Public art

Consideration should be given to the type, unification and sustainability of these amenities in any future development within the ACSP. In addition, mechanical plant and service areas should be well sited and designed to minimise visual and acoustic impacts on public spaces and dwellings.

Lighting should be adequate to make a place feel safe without becoming overpowering. These details to building design can be considered as part of any DAP or Built Form Design Guidelines.

14.4 LANDSCAPING

Well designed spaces that deliver appeal through a sense of place, identity and security, can be achieved through 'soft' and 'hard' landscaping. Soft-landscaping throughout the centre should consider native planting, contributing to local biodiversity.

Non-native species can be considered where they are easy to maintain, hardy and contribute to the consistency of the landscaping design. Water sensitive design is paramount for all landscaped areas in the centre.

Hard-landscaping, such as paving, retaining walls, public art and street furniture should be durable, of high quality and require limited maintenance. The concept of territorial reinforcement is recommended in the centre to differentiate between public and private spaces and differing modes of transport. For example, the use of low landscaping, different materials/patterns for roads and the use of parking areas and pedestrian pathways to delineate transition from public roads to private spaces. Well designed landscaping can contribute towards creating a safer environment for all users.

14.5 KEY NODES, LANDMARKS AND VIEW LINES

Certain areas within the proposed ACSP will attract a higher level of pedestrian movement and people interaction. These include the major retail shopping node and 'main street' areas of the ACSP. In promoting a sense of place and identity, entry statements and landmarks should be located at key strategic places in and around the ACSP.

Entry statements and landmarks in the form of buildings and/or public art with landscaping can promote visual cues and the creation of 'gateway' entry points to the Activity Centre. Figure 12 provides an indication of where these can be located subject to further detailed design.

15 RESOURCE CONSERVATION

Innovate design and management policies within the Activity Centre Structure Plan will ensure environmentally sustainable outcomes. The efficient use of urban land through sustainable development principles avoids wasteful infrastructure and misuse of resources. Well designed activity centres deliver sustainable development, higher densities and the efficient use of energy, water and other resources.

15.1 ENERGY AND WATER CONSERVATION

Reducing car travel and incorporating buildings that are better climate controlled are key features in Activity Centres that reduce overall energy consumption. Economies of scale can produce significant energy efficiencies so to can renewable energy technologies such as solar panels. Construction materials can absorb, store and later transmit heat helping buildings avoid extremes in temperature. Generally heavyweight materials have high thermal mass giving buildings a moderate internal temperature all year round.

Wind and solar energy, building design and orientation are all factors contributing to energy conservation and renewable energy infrastructure. The proposed ACSP encourages incorporation of innovations in technology and design that enhance these factors. As part of any proposed development, the City may consider incentives for the developer to include green energy sources. Changes in climate patterns have seen many areas of the state receive less rainfall. This increases the stress on existing water sources and applies to the Glenfield locality where water resources are limited. Landscaped areas should be designed to maximise water efficiency. This can be achieved through the use of 'waterwise' plants.

Water Sensitive Urban Design principles can manage stormwater from roads and open space and incorporate other integrated water systems. This can be further considered as part of preparation of an Urban Water Management Strategy at subdivision and development stage. Built form design guidelines could consider the setting of design controls for water efficient measures such as rainwater collection and reuse in landscaping area and buildings incorporating water saving installations.

15.2 DOLBY CREEK FLOODPLAIN

A Local Water Management Strategy has been prepared (**Appendix 7**) which addresses the issue of floodplain management. As part of the LWMS, a drainage corridor of approximately 10 metres in width will be required along the eastern boundary of the Activity Centre Structure Plan area. This corridor will accommodate Dolby Creek Floodplain overflow path as modelled in the LWMS. An Urban Water Management Plan will be required, including provisions for suitable drainage infrastructure. This is to be completed in accordance with the approved LWMS, and outcomes reflected in the Detailed Area Plan (or Local Development Plan) proposals.

The accommodation of the Dolby Creek Floodplain overflow path (as provided for in Plan 1), will be to the satisfaction of the local authority and Department of Water. It is anticipated that the approximate 10m wide drainage corridor will be secured in perpetuity via an easement to the local authority and that no development, other than necessary vehicular/pedestrian access crossings, will be permitted within the drainage corridor.

16 IMPLEMENTATION

The timely delivery of the Activity Centre Structure Plan can be achieved by the application of a combination of strategic actions and statutory planning tools.

16.1 STATUTORY REQUIREMENTS

The 'Development' zone under the City of Greater Geraldton Local Planning Scheme No. 5 (Greenough) provides opportunity (through structure planning) for land use and development standards for future development within the Lot 9000 Activity Centre Structure Plan. This Activity Centre Structure Plan for Lot 9000 fulfills the requirement under LPS 5 for the preparation and approval of an activity centre structure plan prior to subdivision and/or development.

The Activity Centre Structure Plan sets out the spatial plan, strategy and framework to achieve the desired development outcomes and will guide in the preparation and approval of detailed area plans (now referred to as 'Local Development Plan'), subdivision and development applications.

16.2 COLLABORATIVE WORKING

Collaborations between the developer, the City and state government agencies is vital in developing the Glenfield District Activity Centre. Working relationships during the plan development stage should continue and grow, sharing responsibility in the delivery of the plan.

The proposed ACSP provides flexibility for utility services and community services while promoting maximum use of public infrastructure such as roads. For instance, upgrades to Chapman Road are likely to be required in addition to accommodating service infrastructure extensions from the south. Preliminary discussions with service providers as part of the preliminary engineering investigations indicate that adequate servicing infrastructure can be provided to the ACSP area to facilitate development of the ACSP.

16.3 STAGING

A clearly defined staging strategy will facilitate delivery of the plan by identifying specific tasks and responsibilities that are matched to a manageable and realistic timeframes.

Figure 16 – Indicative Staging Plan shows conceptually how stages of development could unfold for the Glenfield District Activity Centre. It in no way should be construed that this is the final staging plan for the District Activity Centre as staging is subject to many factors, including participation and timing of development by other landowners.

The staging plan follows one scenario of possible commercial evolution of the Centre from the commercial analysis undertaken for the District Activity Centre (refer to Tables 2 and 3). It is envisaged that the District Centre could likely first be developed as a Neighbourhood Centre of approximately 4,500m². The Stage 1 (Neighbourhood Centre) would include an anchor supermarket with possibly a service station, liquor store, shops and food outlets.

Further development of the Centre, as the population grows, could lead to additional development [Stages 2 – 3] which could include specialty shops, a medical centre, café, medium format retailer, food outlets and community/child care centre.

The final stage, once population growth provides a trigger, could include development of a second supermarket or discount department store, with additional specialty stores, offices, food outlets (including restaurant) and entertainment. The triggers for these stages are potentially outlined in Table 3 in Section 6.3 of the report.

Further investigations and discussions with the City of Greater Geraldton in regards to funding of key development infrastructure will be necessary to ensure timely delivery of key infrastructure.

16.4 DETAILED AREA PLANS

Detailed Area Plans (DAPs) (now referred to as 'Local Development Plan') will be required for specific areas of the ACSP, to work towards achievement of a better built form and design outcome. DAPs will provide the mechanism to enable planning and coordination of key design elements, such as development setbacks, access and parking, areas for landscaping, building orientation and building envelopes. A DAP shall be required to be prepared and approved for those sites as identified in the ACSP prior to any development.

An Urban Water Management Plan will be required at the DAP or Local Development Plan stage to ensure that the final urban form and drainage structure reflects environmental requirements as well as the final Local Water Management Strategy.

16.5 EFFECTIVE USE OF CONDITIONS

The City should make use of planning conditions at the development approval stage to implement the objectives of the ACSP. Where justified, planning conditions may be used, for example to ensure compliance with design standards and controls and impose reasonable financial contributions.

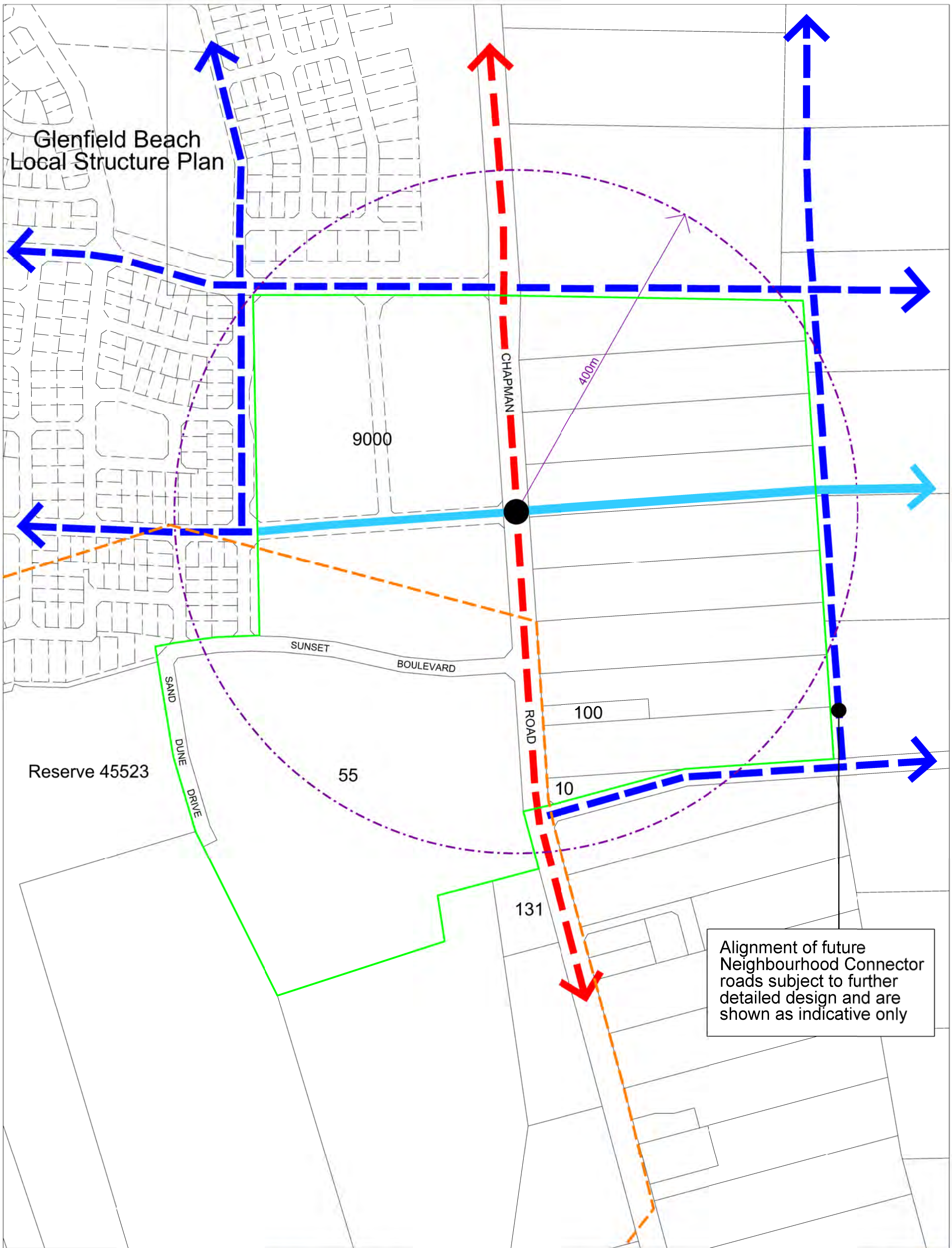
16.6 PLANNING OBLIGATIONS AND INCENTIVES

Obligations secured through the development control process can prescribe the nature of development or secure a development contribution towards the reasonable costs of shared public infrastructure or to mitigate and adverse affects of externalities. In accordance with the usual regulatory controls, acceptable obligations should be fairly and reasonably related in scale and kind to the proposed development.

The City should allow a flexible approach to planning of the Glenfield District Activity Centre to foster innovation and response to the market. Options to allow plot ratio, density or height variations in exchange for say, greater use mix or enhanced public amenity should be explored at the development stage to achieve desired built form outcomes.

FIGURES





Alignment of future Neighbourhood Connector roads subject to further detailed design and are shown as indicative only

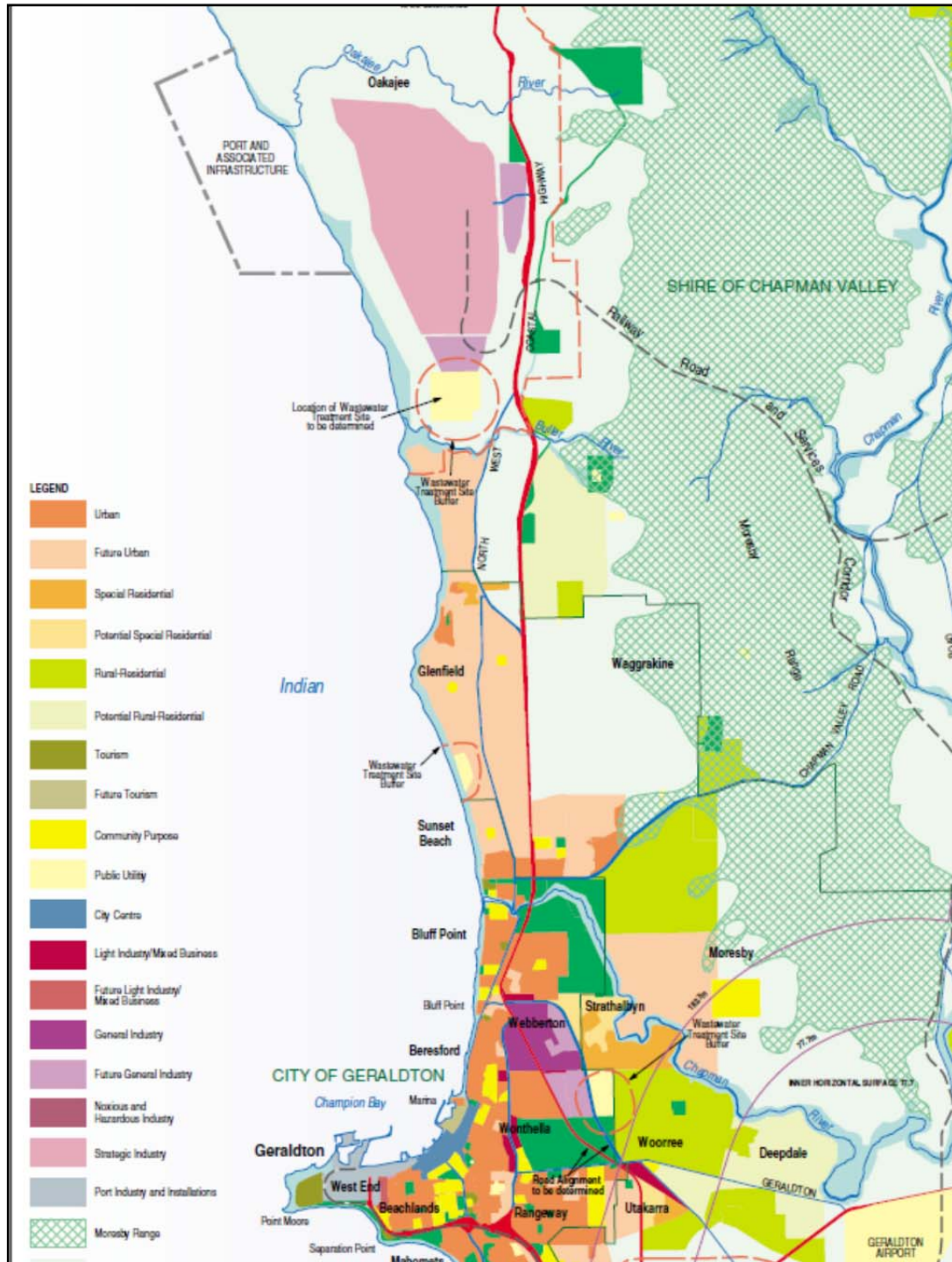


Figure 3 Greater Geraldton Structure Plan 1999 which identifies Drummond Cove/Glenfield as future urban with a designated wastewater treatment site buffer between Sunset beach and Glenfield

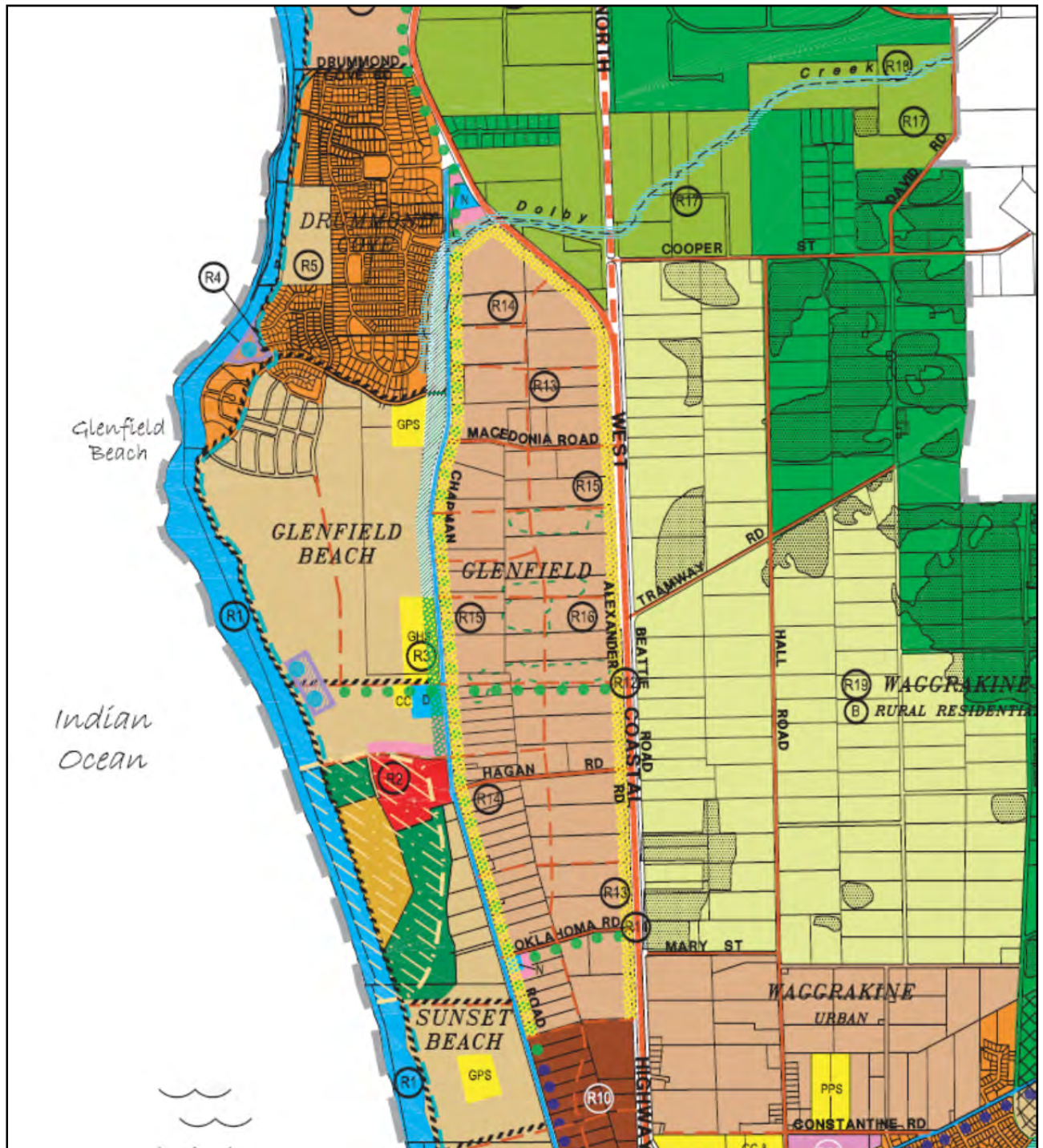


Figure 4 Draft Northern Geraldton District Structure Plan 2004 showing the context of the subject site

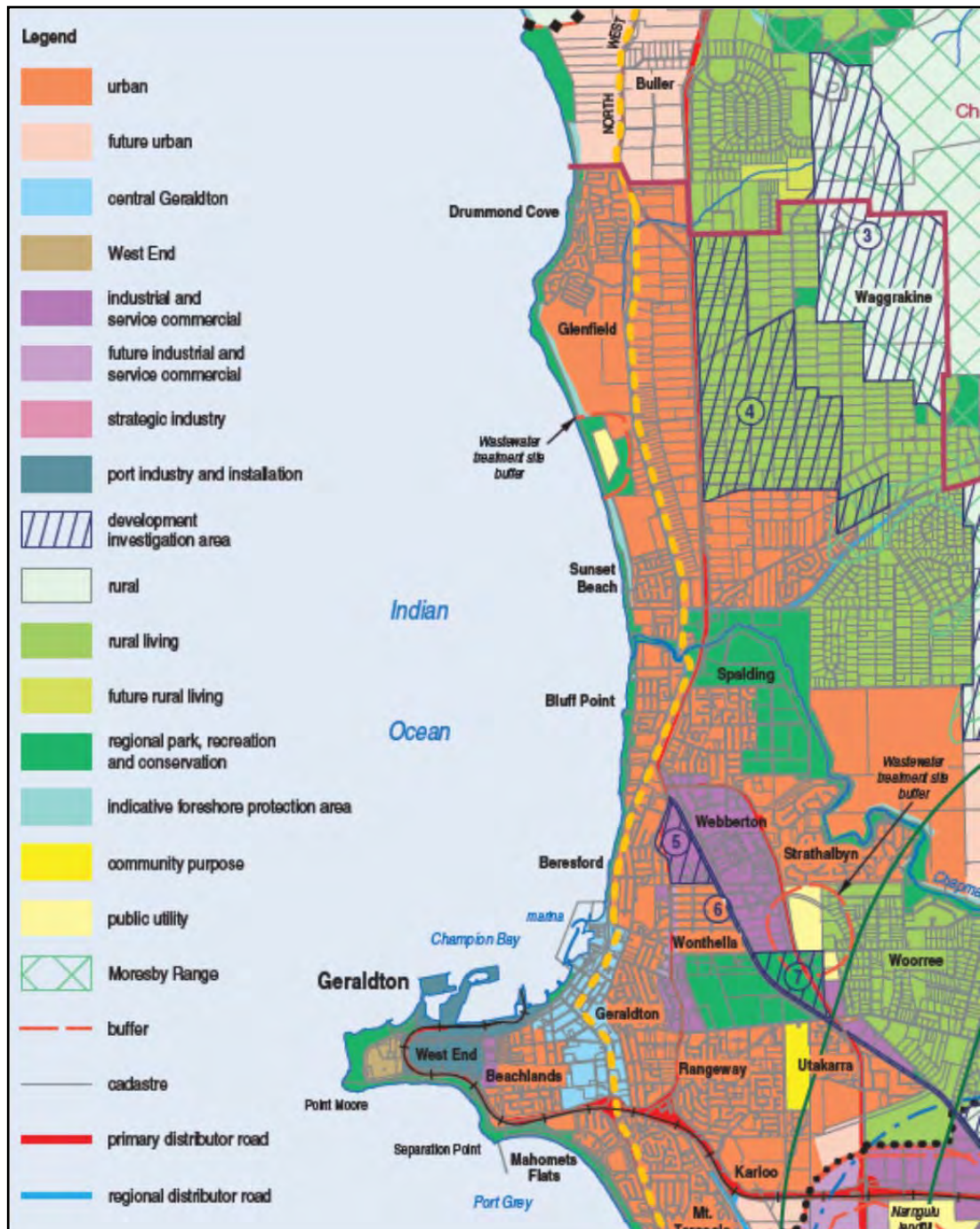


Figure 5 Greater Geraldton Structure Plan 2011 which identifies the subject site as 'Urban' with an indicative foreshore protection area and retention of the wastewater treatment site buffer to the south as per the 1999 Greater Geraldton Structure Plan

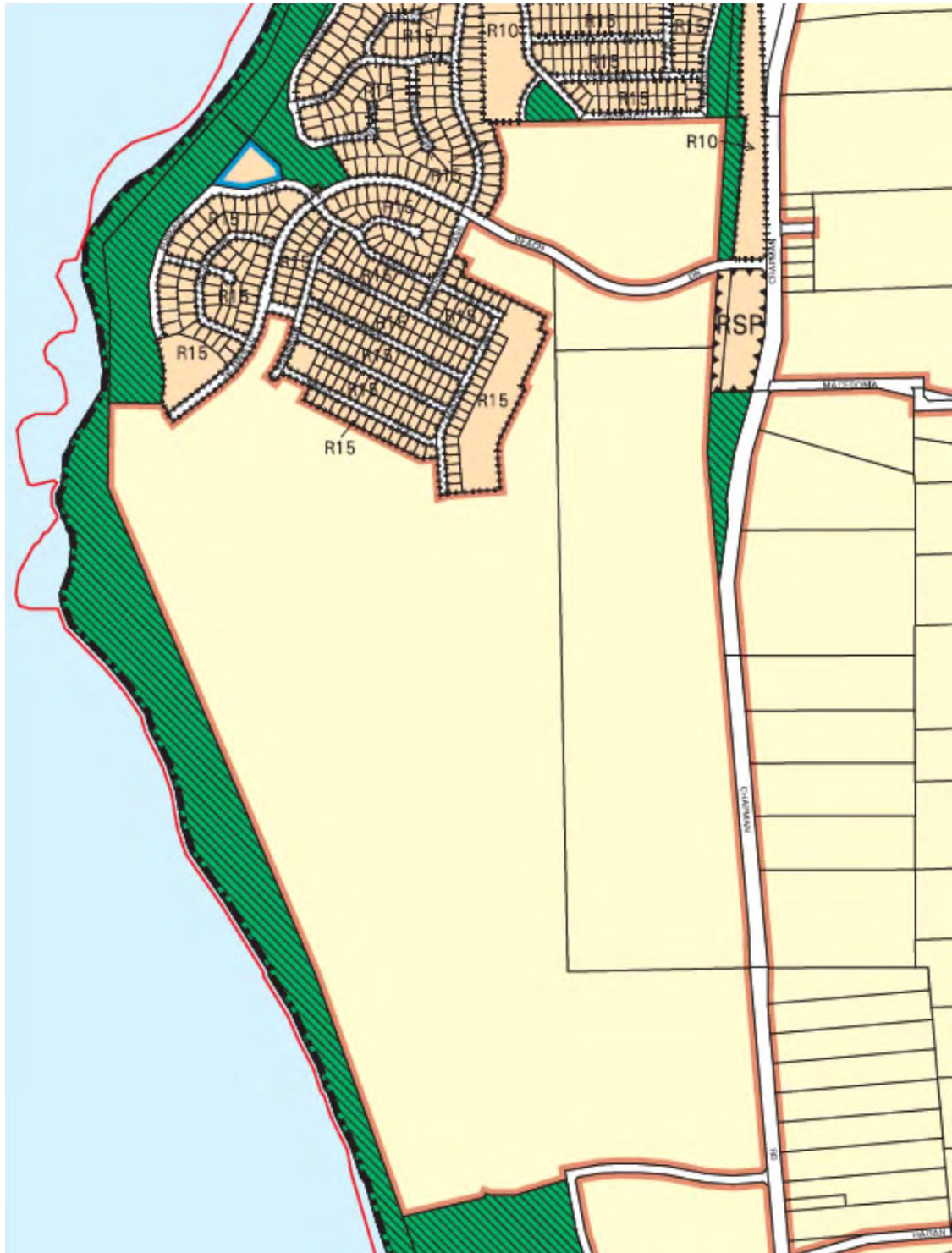


Figure 6 Zoning of the subject site under City of Greater Geraldton Local Planning Scheme No. 5

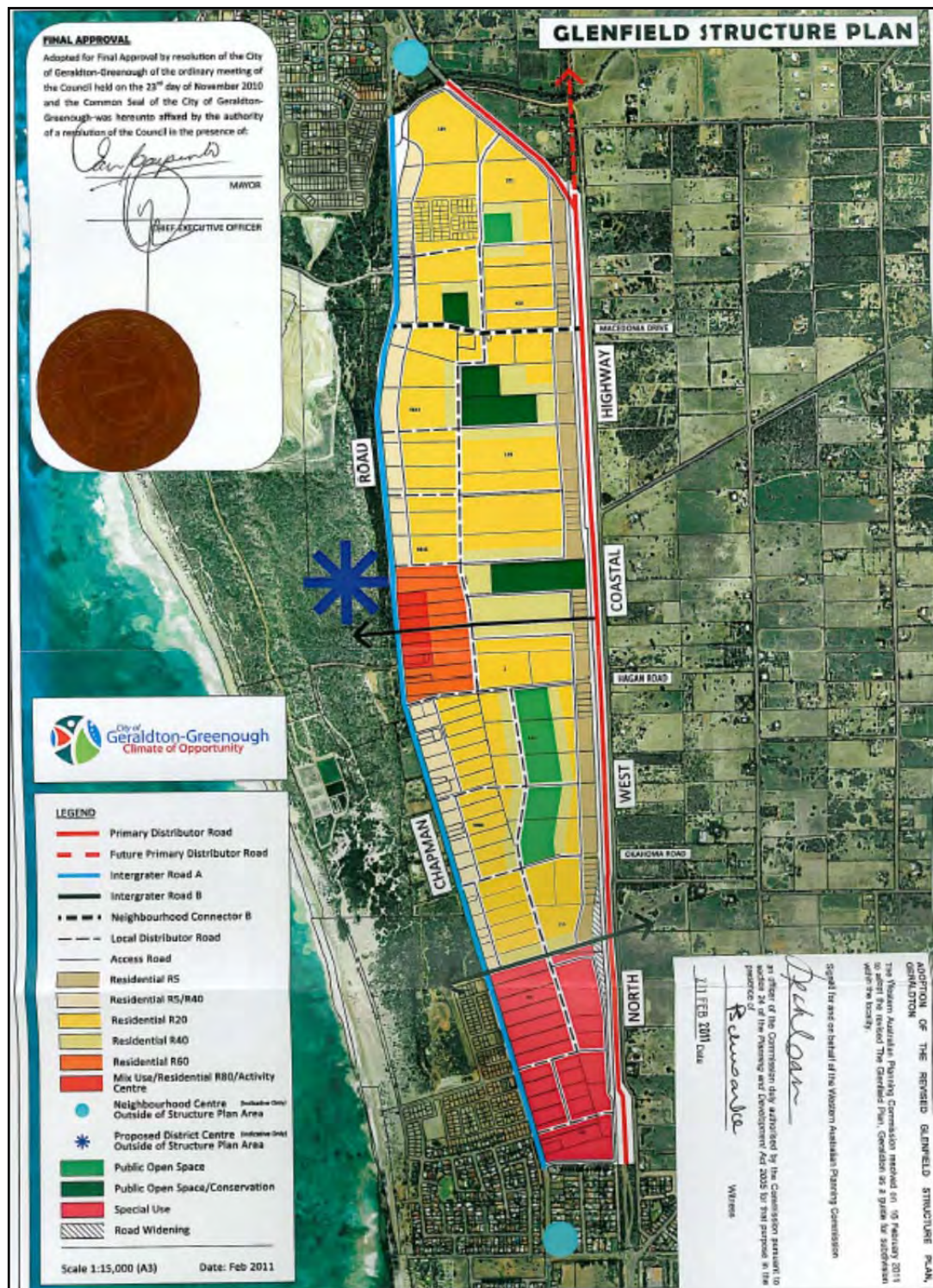


Figure 7. Glenfield Structure Plan 2011 showing proposed location of future District Activity Centre and land uses on eastern side of Chapman Road with future major east-west road connection from North West Coastal Highway towards the coast



Figure 8 – Main Trade Area



Centre Gross Floor Areas (Approximate)

- Commercial 22,500m²
- Bulky Goods 10,000m²
- Community 750m²
- Mixed Use 14,000m²
- Total 47,250m²

Legend

- Commercial
- Residential (R60)
- Bulky Goods
- Community
- Mixed Use
- Light Service Industry
- Residential
- Waste Water Treatment Plant Buffer
- Subject Site



Plan No. : 14511-17

Revision : REV.3

Scale : 1:3000@A3

0 30 60 90

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FIGURE 9
GLENFIELD DISTRICT
ACTIVITY CENTRE PRECINCT
CONCEPTUAL MASTERPLAN

DATE DRAWN: 20/12/2013 FILE: 120831 Activity centre precinct plan hand sketch_Rev1.dgn
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CHECKED BY: JP H DATUM: MGA94 (50)

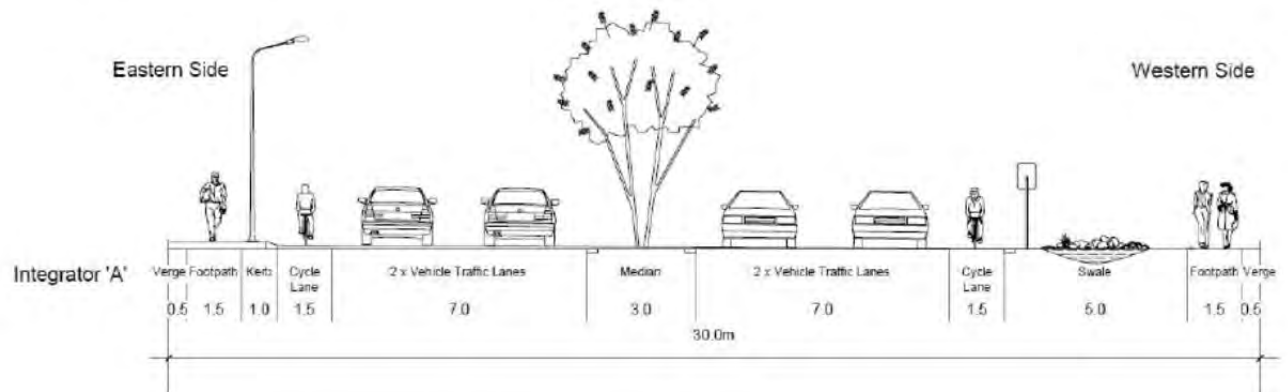
TOWN PLANNING

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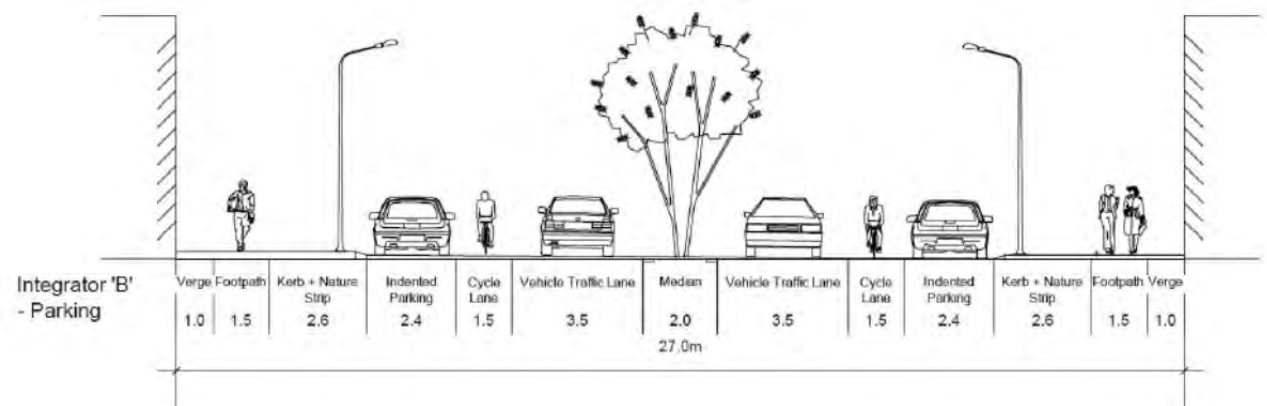


Figure 10. Road Hierarchy for Glenfield District Activity Centre Precinct (Source: AECOM, 2012)

Indicative Cross Section for Integrator 'A' (Chapman Road)



Indicative Cross Section for Integrator 'B' (Main Street) – Parking



Indicative Cross Section for Integrator 'B' (Main Street) – Bus Services

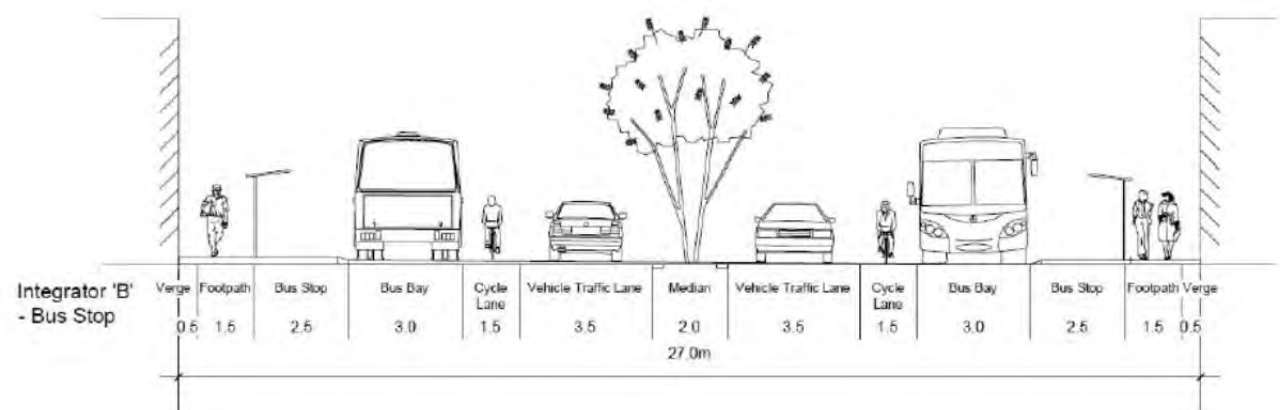
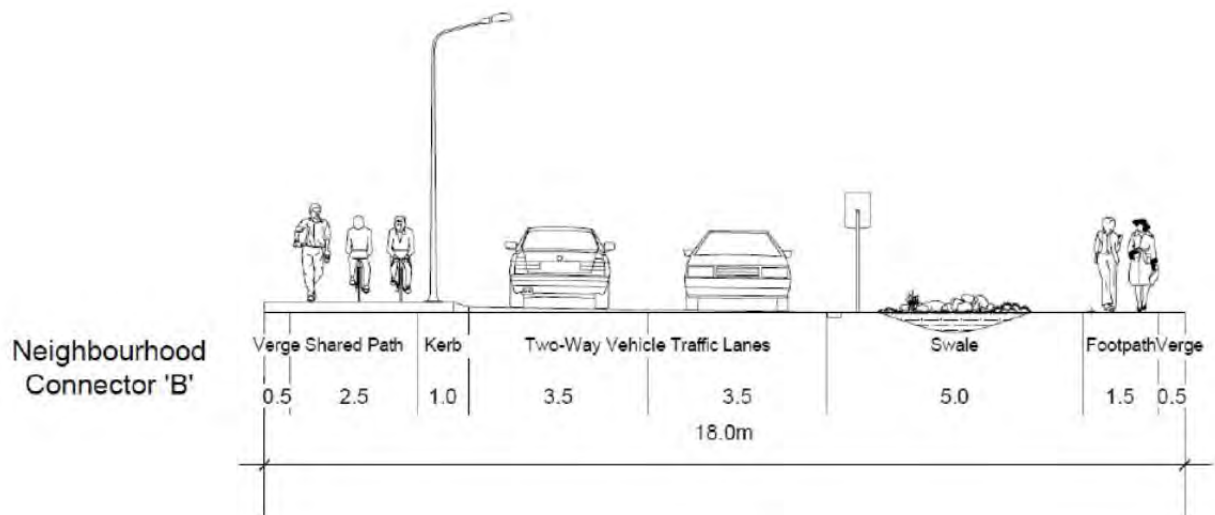


Figure 11a.1 Conceptual Road Cross Sections – Integrator 'A' & Integrator 'B'

Indicative Cross Section for Neighbourhood Connector 'B'



Indicative Cross Section for Local Access Road

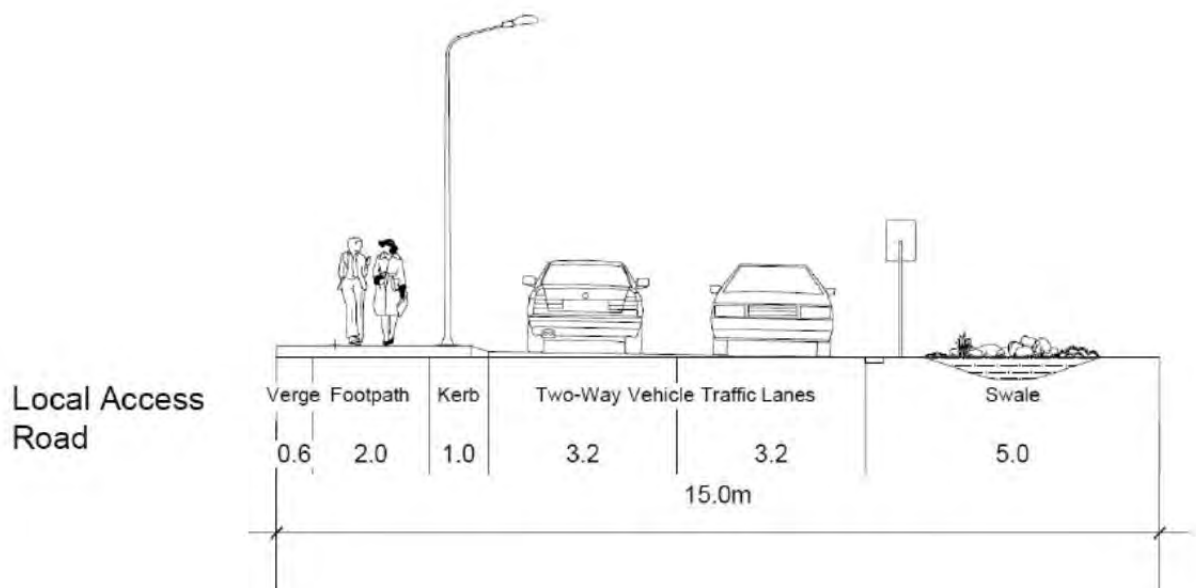
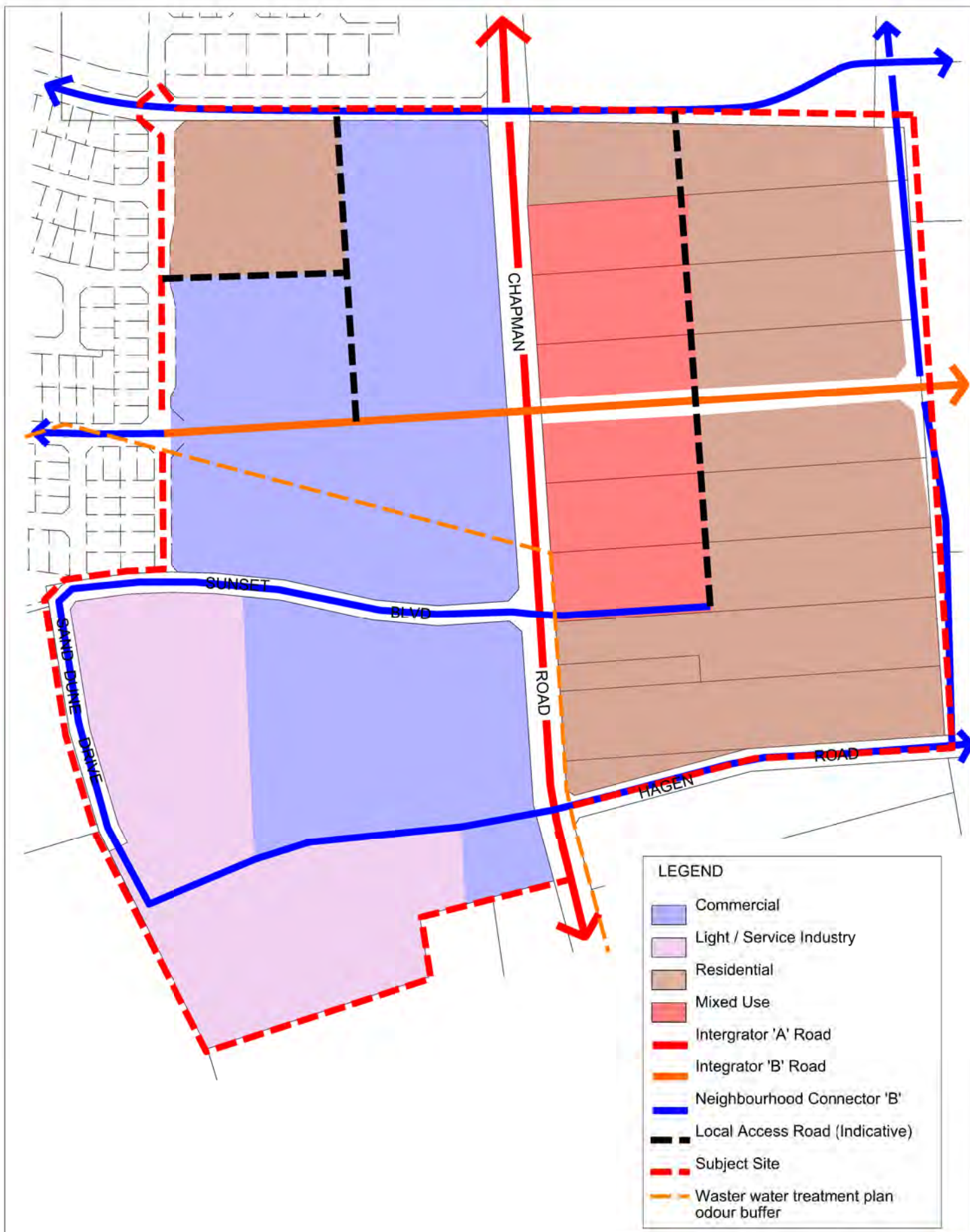


Figure 11a.2 Conceptual Road Cross Sections – Neighbourhood Connector 'B' & Local Access Road



CONCEPTUAL LAND USE PLAN FIGURE 11B

Plan No. : 14511-24
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Scale : 1:4500@A4

0 45 90 135

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DATE DRAWN: 20/12/2013
DRAWN BY: CdeL
CHECKED BY: JEP
FILE: 120906 Figure 11B Land Use Plan
V DATUM: AHD
H DATUM: MGA94 (50)



KEY NODES, ENTRY STATEMENTS
& LANDMARKS

FIGURE 12

Plan No. : 14511-25

Revision : REV.2

Scale : 1:4500@A4

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DATE DRAWN: 20/12/2013 FILE: 120907 Figure 12 Key nodes, entry statement.dgn
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CHECKED BY: JEP H DATUM: MGA94 (50)





STREETS WITH ZERO FRONT SETBACK FOR COMMERCIAL BUILDINGS

FIGURE 14

Plan No. : 14511-21
Revision : REV.2
Scale : 1:4500@A4

0 45 90 135

100m
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DATE DRAWN: 20/12/2013 FILE: 120903 Figure 14 Streets with zero front setback.dgn
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Plan No. : 14511-20

Revision : REV.1

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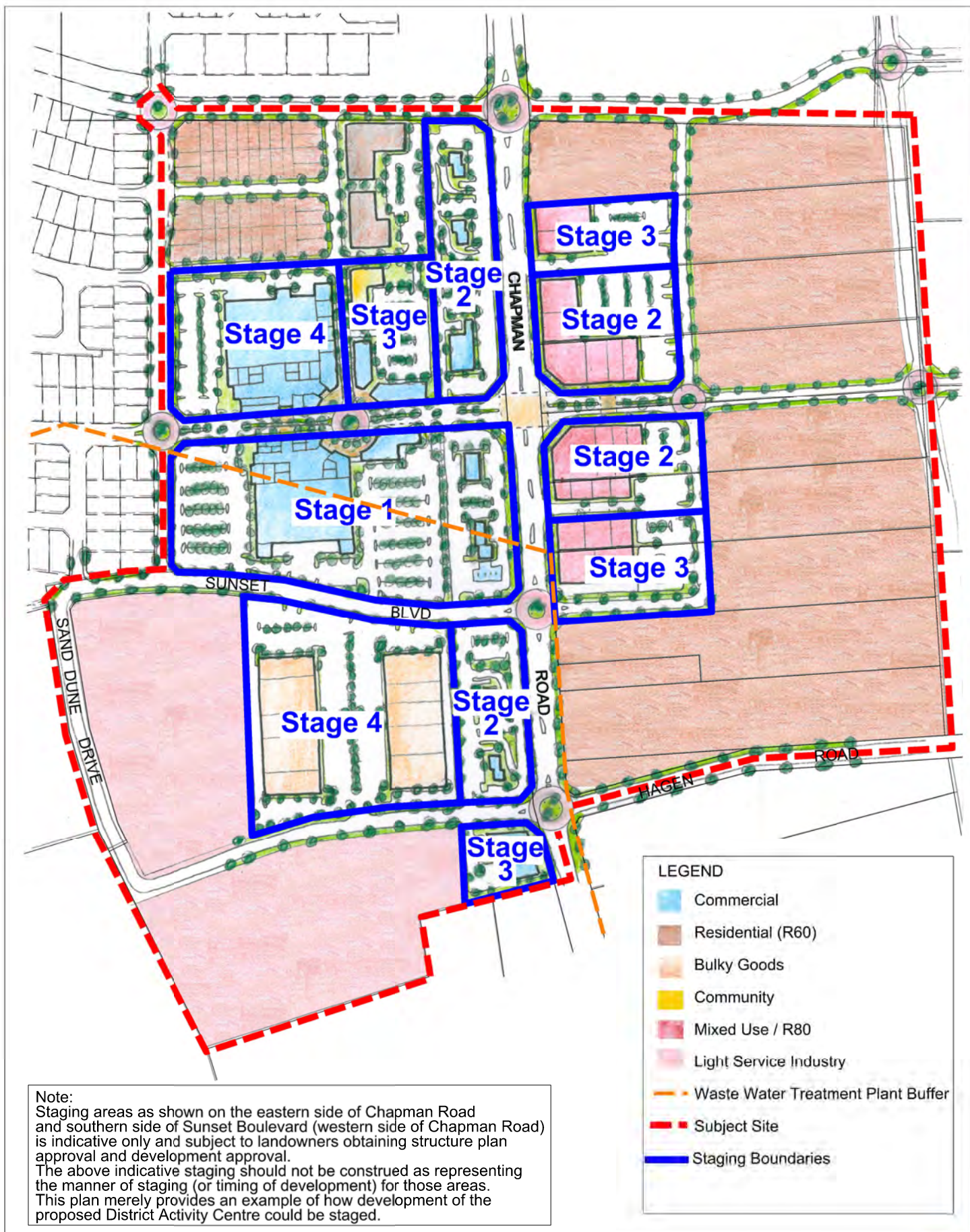
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STREETS WITH ON-STREET PARKING FIGURE 15

DATE DRAWN: 20/12/2012 FILE: 120903 Figure 15 Streets with on-street parking.dgn
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CHECKED BY: JEP H DATUM: MGA94 (50)



INDICATIVE STAGING PLAN

FIGURE 16

Plan No. : 14511-23

Revision : REV.3

Scale : 1:4500@A4

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100m
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DATE DRAWN: 20/12/2013 FILE: 120906 Figure 16 Indicative Staging Plan.dgn
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Figure 17 - LOCATION PLAN

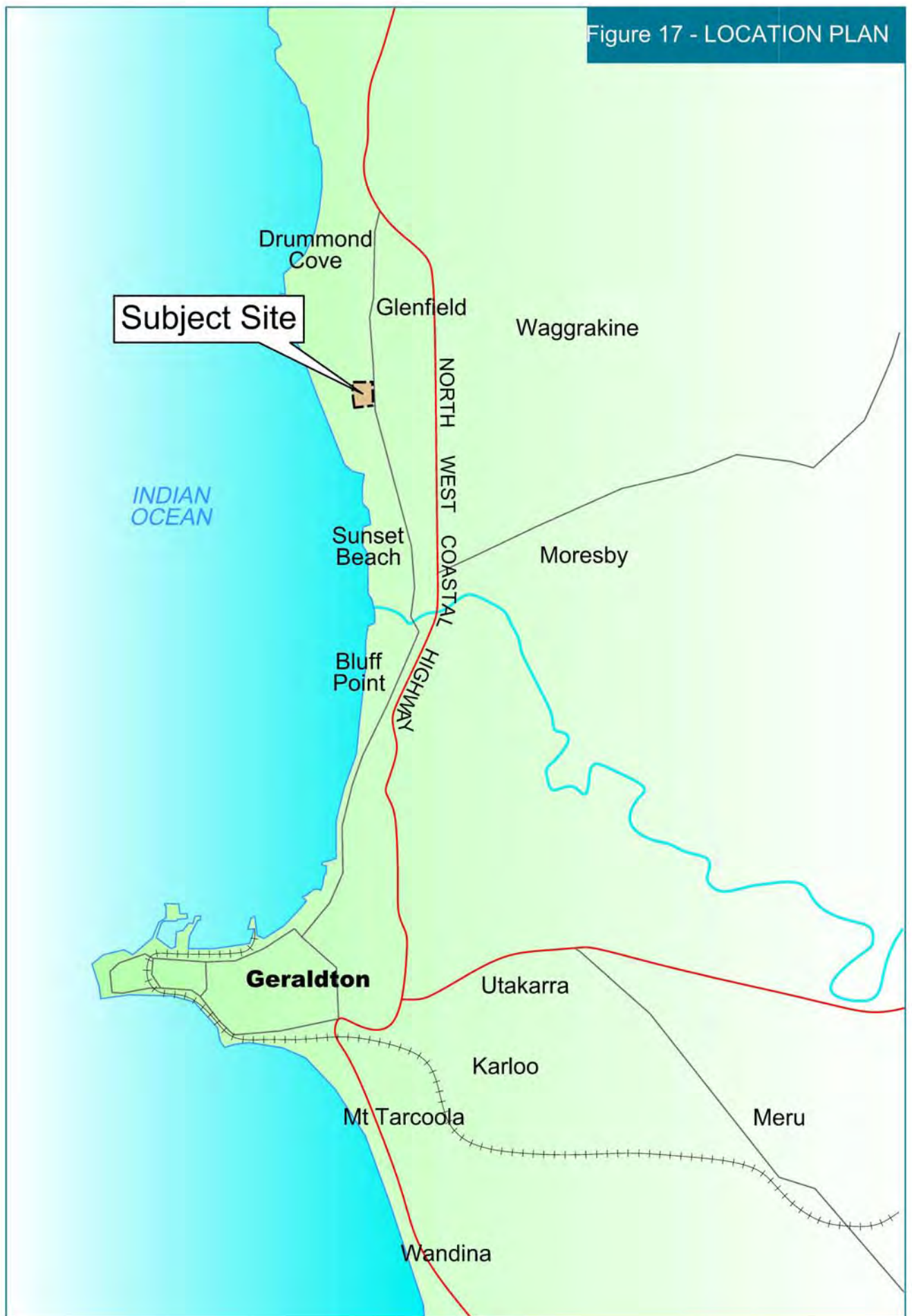


Figure 18 - LOT 9000 ACTIVITY CENTRE
STRUCTURE PLAN BOUNDARY

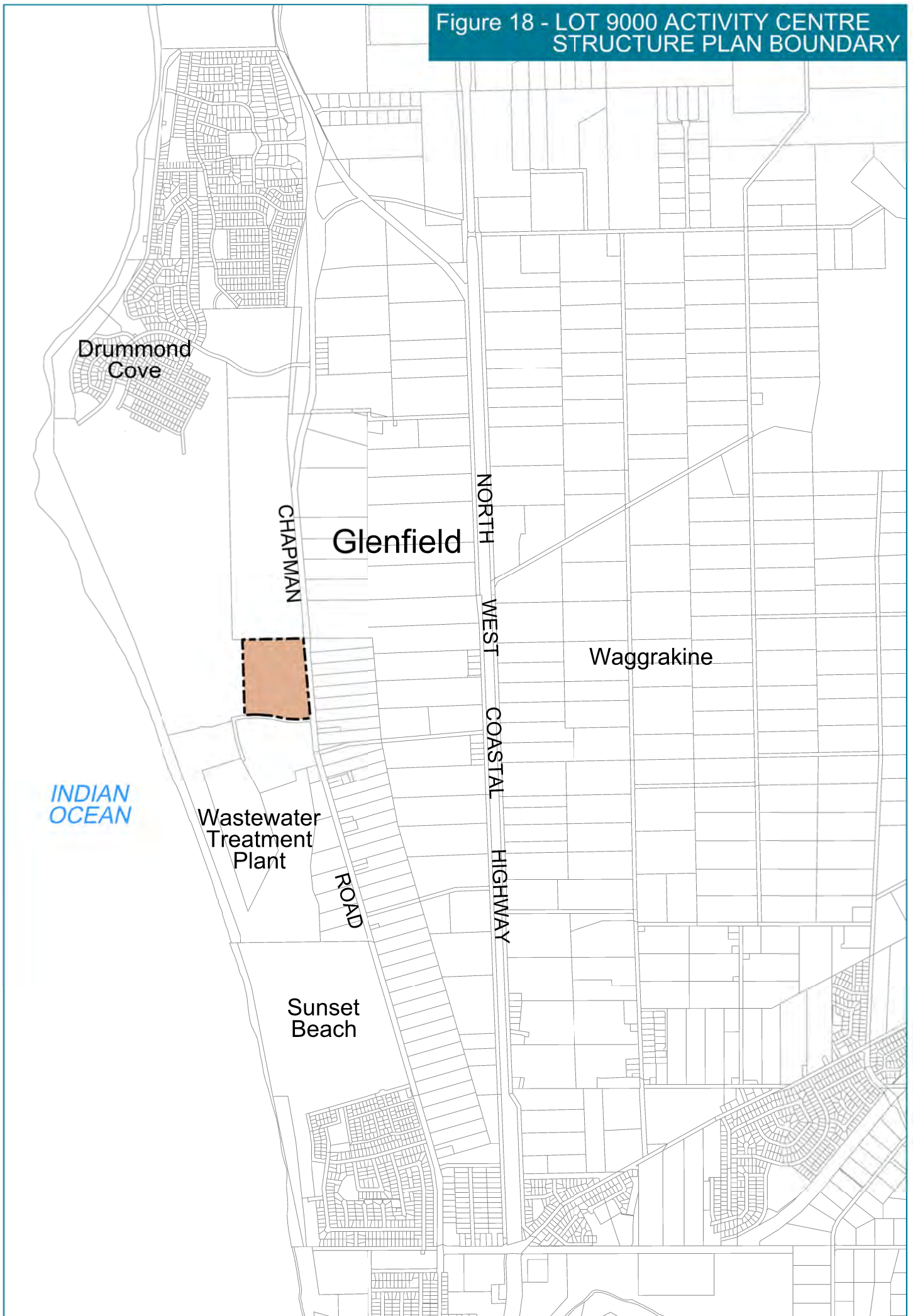
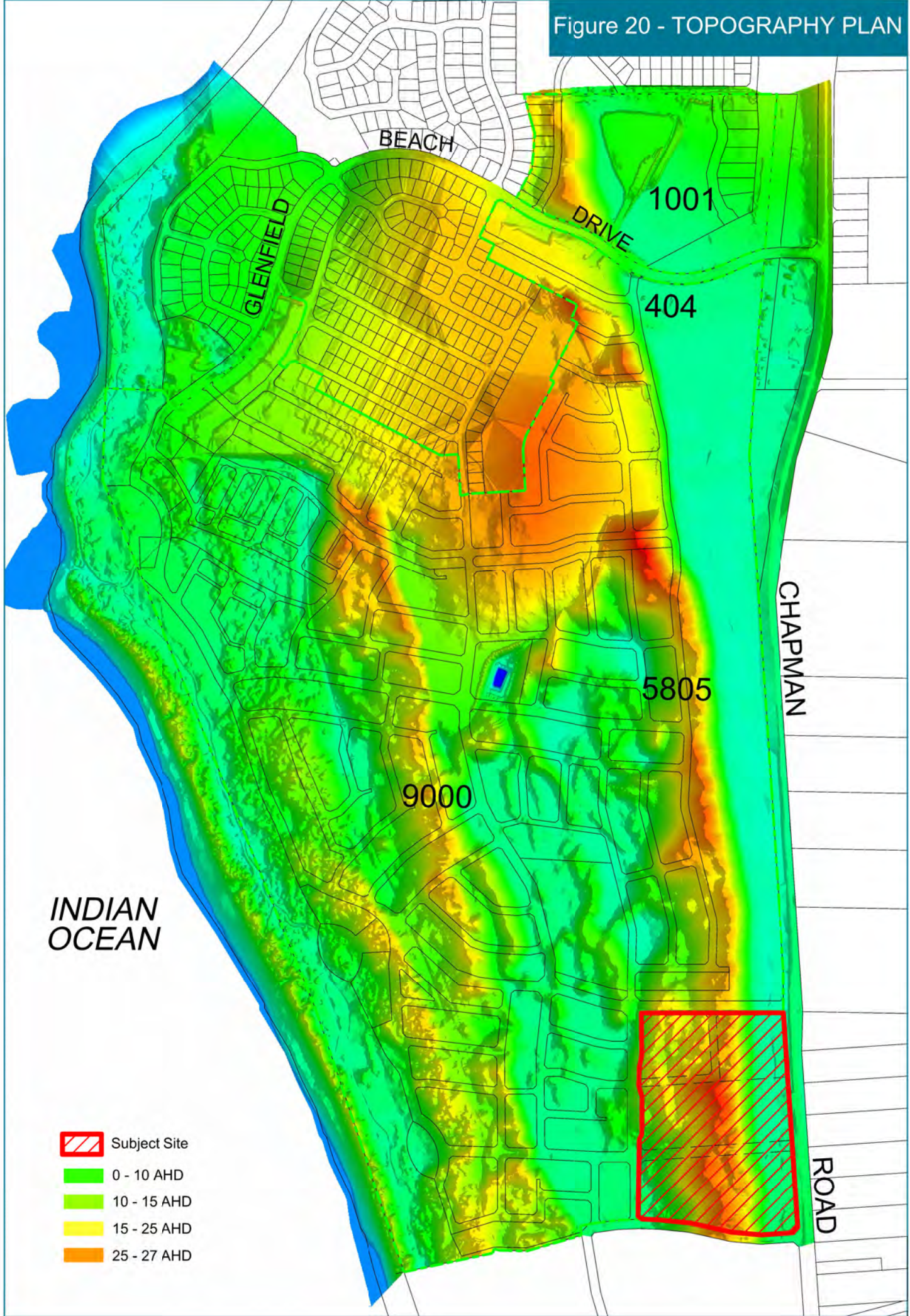
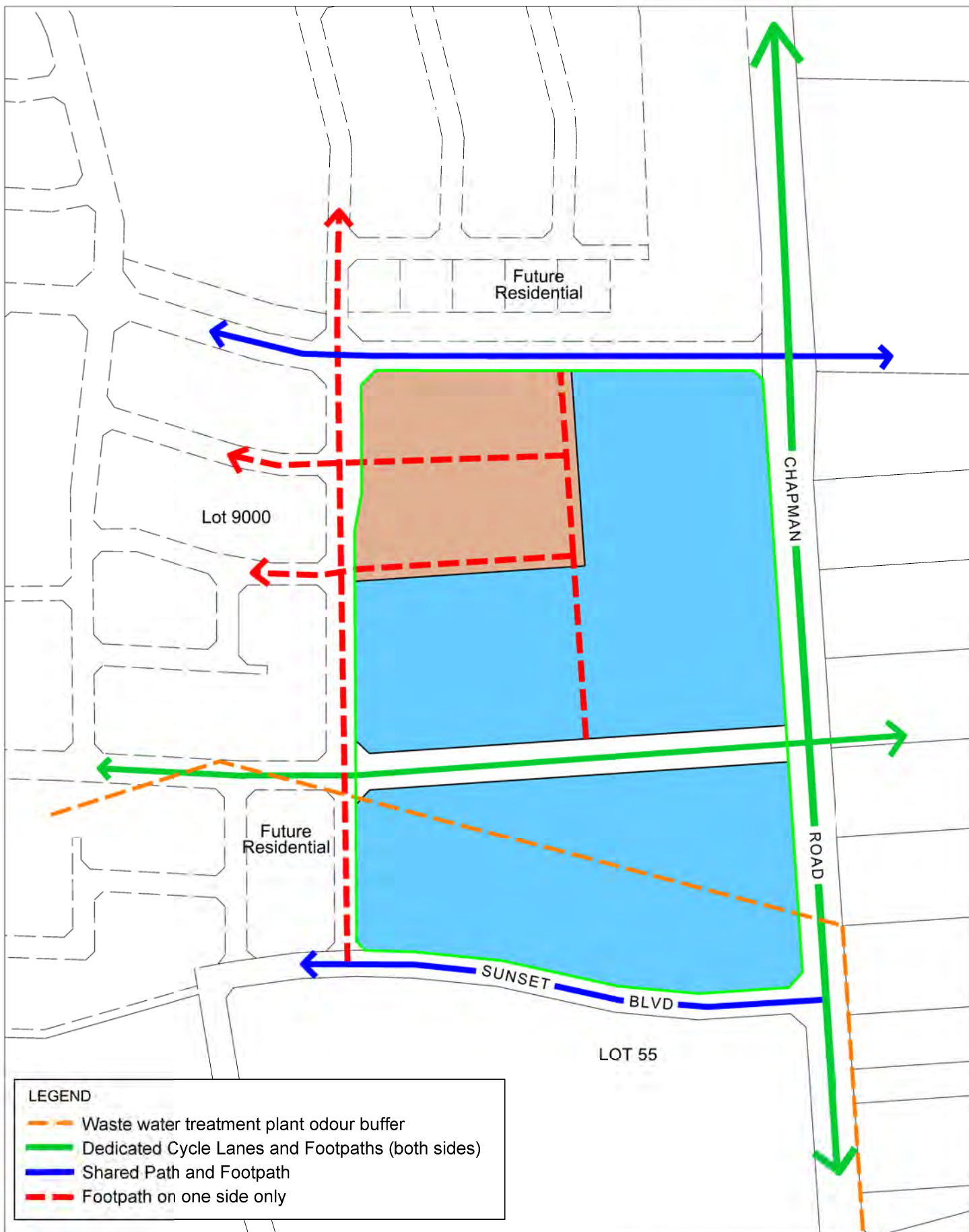


Figure 19 - Aerial View



Figure 20 - TOPOGRAPHY PLAN





LEGEND

- Waste water treatment plant odour buffer
- Dedicated Cycle Lanes and Footpaths (both sides)
- Shared Path and Footpath
- Footpath on one side only

INDICATIVE PATHWAY NETWORK GLENFIELD ACTIVITY CENTRE GLENFIELD

Figure 21

Plan No. : 14511-45

Revision : REV.0

Scale : 1:3500@A4

0 35 70 105

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DATE DRAWN: 20/12/2013 FILE: 131220 INDICATIVE PATHWAY NETWORK 14511-45.dgn
DRAWN BY: CdeL V DATUM: AHD
CHECKED BY: JP H DATUM: MG84 (50)

APPENDICES

APPENDIX 1

GLENFIELD BEACH COMMERCIAL ANALYSIS

APPENDIX 2

ENVIRONMENTAL ASSESSMENT REVIEW

APPENDIX 3

TRAFFIC IMPACT ASSESSMENT

APPENDIX 4 TRANSPORT ASSESSMENT

APPENDIX 5

ENGINEERING SERVICING REPORT

APPENDIX 6

CONCEPTUAL CROSS SECTION OF ACTIVITY CENTRE

APPENDIX 7

LOCAL WATER MANAGEMENT STRATEGY