PART 2

EXPLANATORY REPORT

Butler Jindalee
District Structure Plan

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Cossill & Webley – Project Engineers

Bruce Aulabaugh – Traffic Consultant

McNally Newton – Landscape Architects

Shrapnel Urban Planning – Retail Strategist

Bowman Bishaw Gorham – Environmental Consultants

MacroPlan Australia – Economists

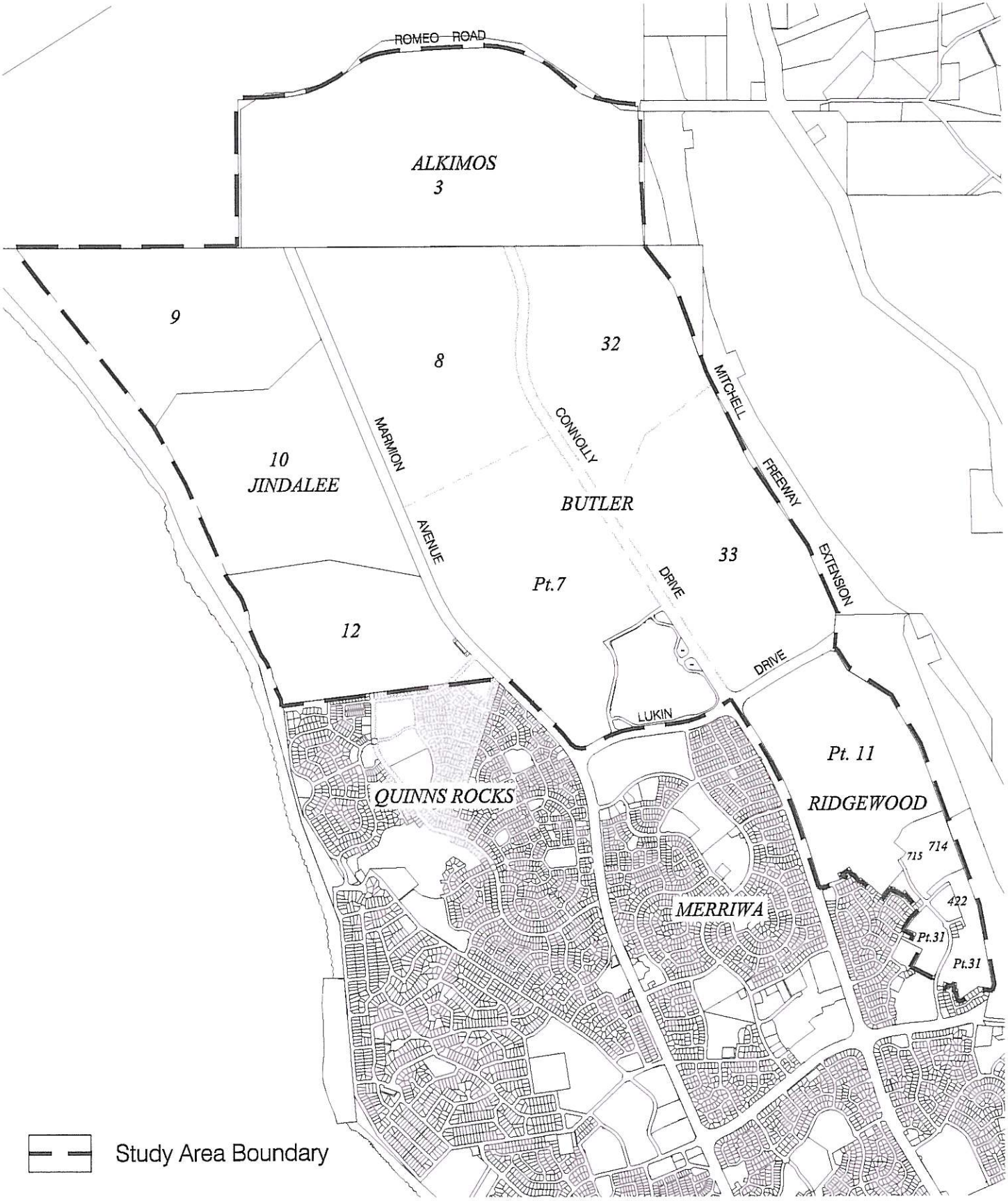
1.0 PURPOSE OF DISTRICT STRUCTURE PLAN

The purpose of this Plan is to describe a district landuse structure for the Brighton/Butler/Jindalee locality (Refer Figure No.1) area based upon the findings and outcomes of the Butler Charrette attended by all stakeholders, the Department for Planning & Infrastructure, the City of Wanneroo and other government agencies. The District Structure Plan is derived directly from the Preliminary Charrette District Structure Plan (Figure 9) adopted by the Department for Planning & Infrastructure following the completion of the workshops.

This Report will synthesise all relevant information prepared before, during and post Charrette by the Brighton Joint Venture consultants and public agencies including the Department for Planning & Infrastructure and Local Authorities.

This is a non-statutory document providing the overall district context for the planning of this area. It can be considered as the "Explanatory Report" section of the existing Butler Ridgewood Agreed (Local) Structure Plan endorsed pursuant to DPS 2 (copy included in Technical Appendices). The primary purpose of this document will be to:

- Serve as the district context within which ongoing amendments to the statutory Butler Ridgewood Agreed (Local) Structure Plan can occur;
- Serve as the Explanatory Report section of a possible separate Part 1 Statutory Document being prepared by the City of Wanneroo;



STUDY AREA
FIGURE 1

- Serve as the district context to the preparation of Agreed (Local) Structure Plans for landholdings not currently in the Butler Ridgewood Agreed (Local) Structure Plan boundary;
- Provide the planning background to support immediate amendments to the Metropolitan Region Scheme to accommodate interalia new Important Regional Road reservations and the new railway alignment;
- Input to a review of the South West Corridor Structure Plan;
- Input to a review of City of Wanneroo Retail Strategy.

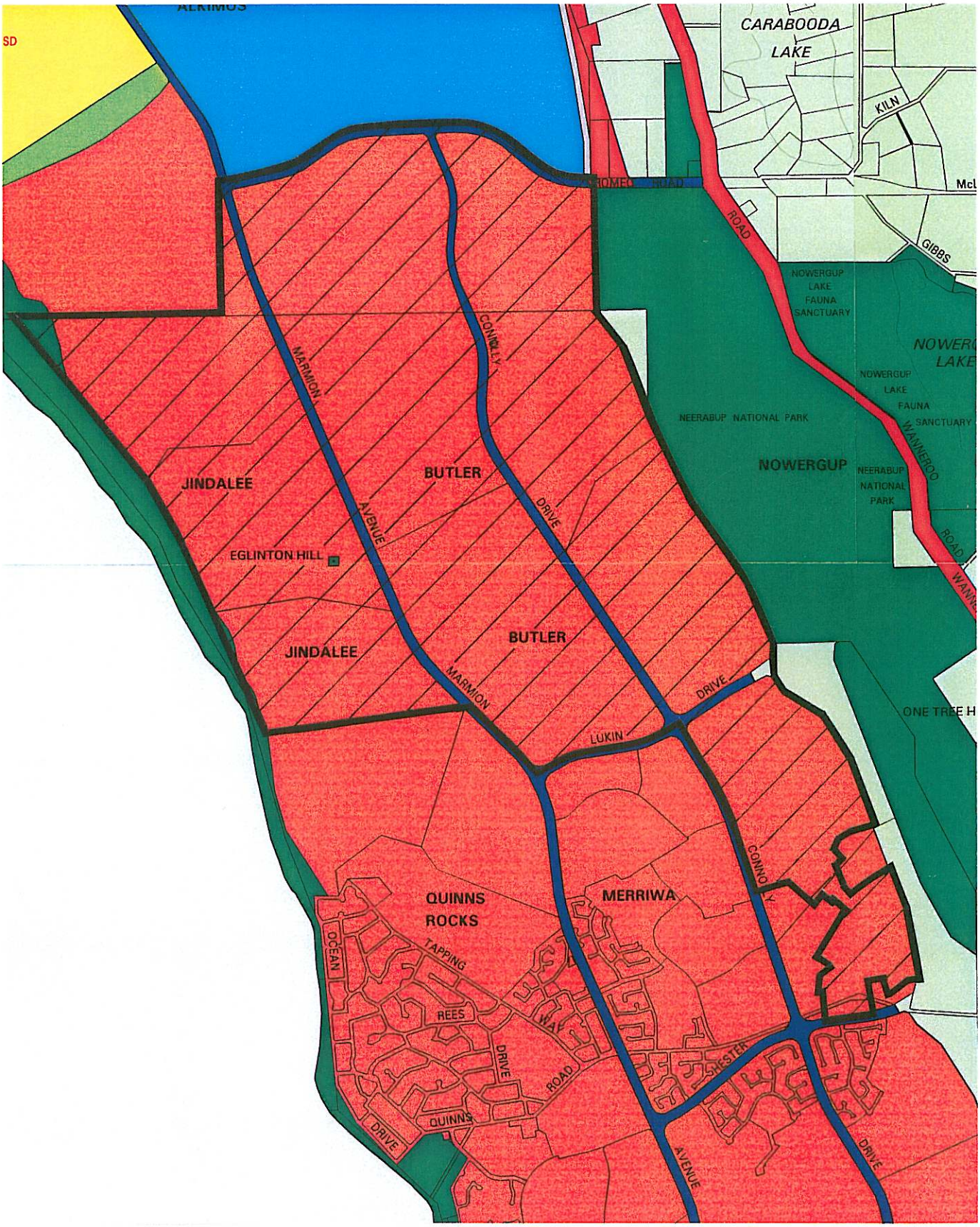
Importantly it should be read in conjunction with the Charrette Outcomes Report and its supporting technical studies which provide some of the detail referenced in this document, particularly with respect to the Charrette.

2.0 STUDY AREA

This District Structure Plan covers the study area examined during the Charrette, which generally covers that land bounded by Romeo Road, the Coast, south through the Ridgewood locality and through to the Mitchell Freeway (refer Figure 1). All of the land is zoned Urban under the Metropolitan Region Scheme with Marmion Avenue, Connolly and Lukin Drives reserved as Important Regional Roads (refer Figure 2).

Most of the undeveloped Study Area land is owned by the Butler Joint Venture with the exception of:

- Lot 12 Marmion Avenue – Carine Nominees
- Lot 10 Marmion Avenue – EDC



STUDY AREA / METROPOLITAN REGION SCHEME

FIGURE 2

- Lot 8 Romeo Road – Northern Corridor Developments

All landowners within the Study Area participated in the Brighton Charrette and were in general agreement with the outcomes.

Importantly, this district analysis is undertaken within a Subregional framework which also emanated from the Charrette exercise. Areas within the Subregion outside of this study area will need to be subject to separate district structure planning assessment, consistent generally with the Subregional framework described herein.

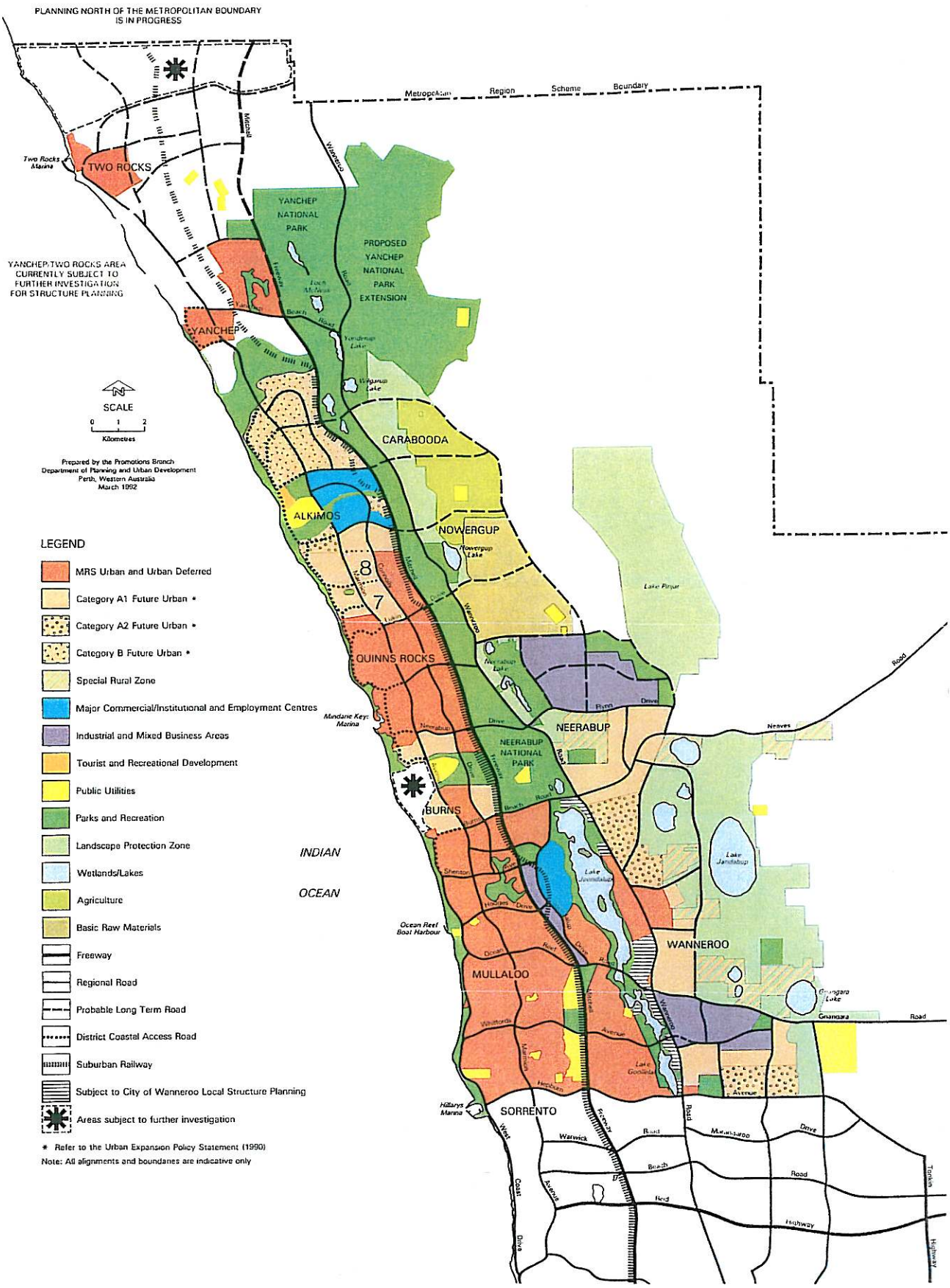
3.0 NORTH WEST CORRIDOR STRUCTURE PLAN (1992)

This Structure Plan covering the North West Corridor (refer Figure 3) and including the subject land was adopted by the Commission in 1992 following the adoption of Metroplan in 1990.

Relative to the subject land it:

- Designated future Urban areas and provided a rationale for ongoing MRS amendments;
- Established the primacy of Marmion Avenue and Connolly Drive in their current alignments;
- Provided Freeway access points at Lukin Drive and Romeo Road;
- Maintained the future rail alignment in the Mitchell Freeway reserve.

It is, unfortunately, widely accepted that the Structure Plan failed in its promise to deliver key economic, social and environmental outcomes,



NORTHWEST CORRIDOR STRUCTURE PLAN

FIGURE 3

especially those relating to local employment generation, environmental sustainability and access to services and infrastructure. These key issues arising from the implementation of this Plan were examined at the Jindalee Charette where the following observations were made:

Employment Self Sufficiency

The North West Corridor Structure Plan promised employment self sufficiency of 60%, however, the actual level is little more than 20%. This has placed major pressure on existing transport infrastructure generating unacceptable environment and social costs with accompanying major implications for urban form.

Urban Form

Existing corridor growth of the type perpetuated by the North West Corridor Structure Plan characterises many of the worst aspects of urban sprawl, including homogenous suburban development, little choice in the variety of housing type and facilities and rigidly segregated land uses. These contribute to a limited sense of community and place, high levels of car dependence and consequent environmental impacts through greenhouse gas emissions and poor public transport accessibility off the main routes.

Development Pressures

Given appropriate zonings and large landholdings there is significant development expectations for this corridor. Early and binding decisions on fundamental issues such as future alignment of transport infrastructure are needed to match these development expectations.

Public Transport Planning

Transport planning in the corridor was last reviewed comprehensively in 1992 as part of the North West Corridor Structure Plan. There is a need to examine the costs and benefits involved in bringing the railway alignment into the corridor north of Lukin Drive. This was a key issue in the Butler Charrette. The rail option was examined in detail, including alignment technologies, the relationship between rail and town centres and station spacings.

4.0 THE METROPOLITAN CENTRE'S POLICY STATEMENT (SPP NO.9)

The principle purpose of this Department of Planning & Infrastructure Policy is to provide a broad regional planning framework to co-ordinate the location and development of retail and commercial activities in the metropolitan region. It establishes a hierarchy of well located centres including regional and district centres. Appendix 3 of that document depicts the location of these centres.

Most relevant to the study area it indicates the Butler district centre to be located generally on the corner of Lukin and Connolly Drives.

The Charrette process and the District Structure Plan however identified the preferred location for the District Centre to be on Marmion Avenue, Jindalee (in the Brighton Estate), at the intersection of a new east-west road running from the Freeway to the beach (Brighton Boulevard) and Marmion Avenue. Importantly the SPP No.9 allows for the refinement of the location of such centres under Clause 4.2.4 where it states that:

> "Local Planning Strategies and District Structure Plans should accurately define the new centres which will be required for the new urban areas"

It may still be appropriate to modify Appendix No.3 to reflect the new location of the Butler district centre promoted in this District Structure Plan."

5.0 BUTLER RIDGEWOOD AGREED (LOCAL) STRUCTURE PLAN

The Butler Ridgewood Agreed (Local) Structure Plan was adopted by the Department for Planning & Infrastructure following endorsement by the Local Authority in June 2002 and further ongoing amendments are currently in progress. The Structure Plan operates pursuant to the District Planning Scheme as the major statutory planning instrument controlling land use and development. It applies zonings and R Codes to all of the Brighton Joint Venture Landholdings and is subject to ongoing amendments in general compliance with the District Structure Plan.

6.0 LIVEABLE NEIGHBOURHOODS POLICY

As the driving planning force behind all structure planning of this area since 1996 it is worth considering some of the main principles of the Liveable Neighbourhood's document in order to gain a better understanding of the Butler Jindalee District Structure Plan.

Neighbourhood Structuring Approach

Liveable Neighbourhoods seeks to integrate land uses within a network of interconnected streets designed for all users (Figure 4a). Neighbourhood centres are located at the intersection of major streets to provide for retail exposure. Large parks and standard sized schools are located between neighbourhoods so that walking access is not compromised.

Town Structure

The town structure is compact and well defined. It should consist of a clustering of highly interconnected neighbourhoods, which are mutually supportive of existing and future neighbourhood centres and the town centre.

Neighbourhood Structure

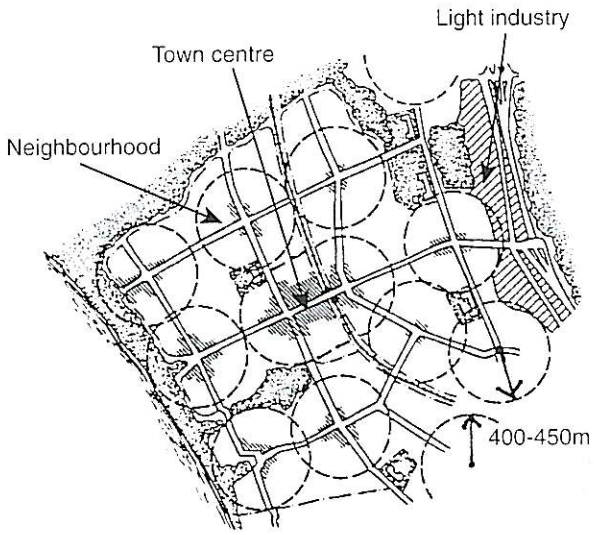
A neighbourhood (Figure 4b) is typically defined as a 400 to 450 metre radius catchment with a shop or shops supplying daily needs, or another type of community focus at its centre (usually taking five minutes to walk along streets to the centre).

Walkability of the Town Centre

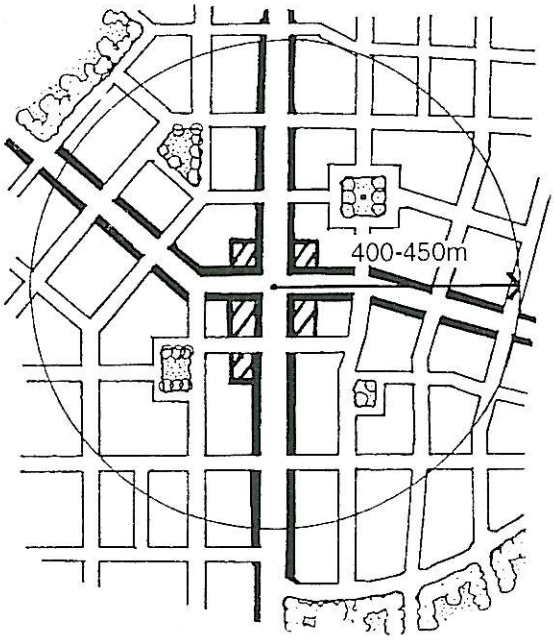
Walking is the most energy efficient mode of travel. This choice is to be facilitated via an interconnected street network that enables pedestrian's choice of routes at intersections, and accessibility to a wide range of community facilities in an attractive and safe environment (Figure 4c).

Walkability to Community Facilities and Public Transport

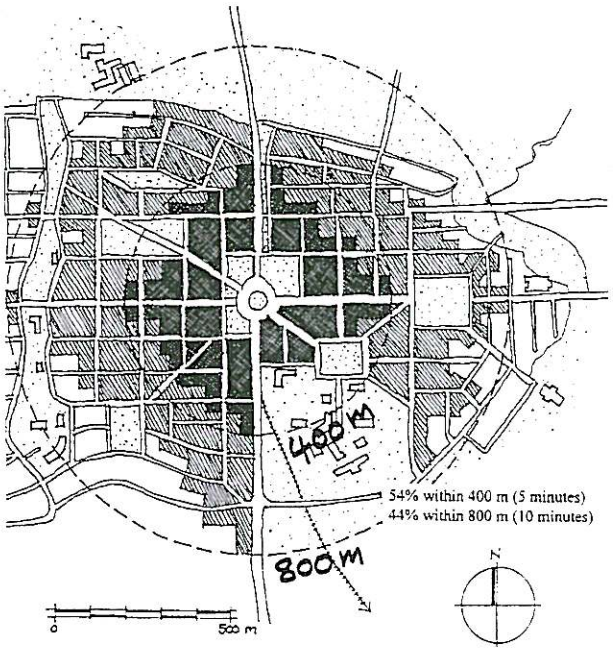
As a measure of efficiency, at least 60% of the dwellings in a neighbourhood should be within a 400 metre walk of a neighbourhood



(A) DISTRICT STRUCTURE AND TOWN CENTRE



(B) NEIGHBOURHOOD



(C) WALKABLE CATCHMENT

centre or bus stop, or an 800 metre walk of a railway station or bus terminus.

Site Responsive Design – Character and Identity

Local identity should be complemented or created by responding to site features, context, landscape and views.

Environmentally and Culturally Responsive Design

Key environmental and cultural features should be identified and protected within the design.

The District Structure Plan and the Charrette process strives to satisfy these Liveable Neighbourhood objectives at a District level providing a district framework for more detailed neighbourhood structuring at the Local Structure Plan and Subdivision level.

7.0 THE JINDALEE ENQUIRY BY DESIGN WORKSHOP (1996)

The fundamentals of the Butler/Brighton Charrette were established in 1996 through the Jindalee Enquiry By Design Workshop conducted by the Department for Planning & Infrastructure. The purpose of this exercise was to undertake a comparative analysis of potential urban forms to inform, test and measure the Liveable Neighbourhoods community design code which was then under preparation.

The 1996 exercise developed proposals based on the new regional planning model with the clustering of neighbourhoods around a town centre, anchored at one end by a rail station and at the other by a major arterial road. Three designs at a regional scale including both the Brighton

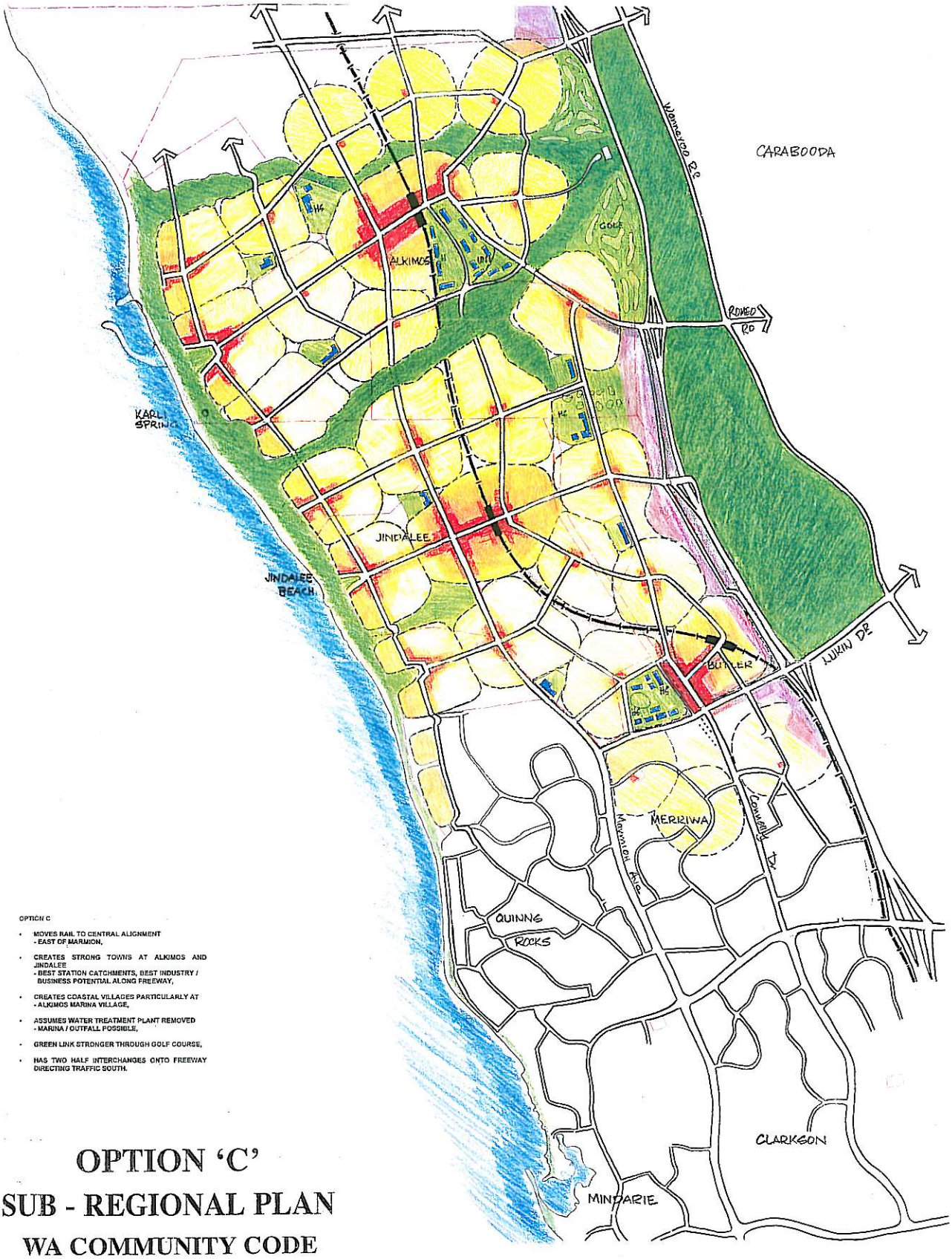
and Alkimos areas were drawn and evaluated based upon alternative alignments for extensions to the northern suburbs rail line.

Detailed plans were developed based on the preferred subregional option (refer Option C at Figure 5) which featured a rail alignment central to the corridor and measurements were undertaken to compare the performance of the Liveable Neighbourhoods approach with a conventional design approach reflected in the North West Corridor Structure Plan 1992.

The results indicated the potential of a Liveable Neighbourhoods approach to better perform in terms of employment self sufficiency, retail distribution and accessibility, environmental performance in terms of greenhouse gas production and solar orientation and access to public transport. Many of the principles and practices identified and derived from the Jindalee workshop were included in Edition 1 of Liveable Neighbourhoods published in December 1997.

Essential elements of the Option C Sub Regional Plan include:

- The movement of the rail line to a more central position in the development corridor, slightly to the east of the proposed Marmion Avenue alignment.
- Strong town centres at Alkimos and Jindalee (now Brighton) incorporating the best station catchments and best industrial and business land use potentials along the Freeway.
- Three coastal villages.
- The assumption that the sewerage treatment plant is relocated to an (unspecified) alternative site.
- The green link between Neerabup National Park and the coast.



OPTION C

- MOVES RAIL TO CENTRAL ALIGNMENT
  - EAST OF MARMION,
- CREATES STRONG TOWNS AT ALKIMOS AND JINDALEE
  - BEST STATION CATCHMENTS, BEST INDUSTRY / BUSINESS POTENTIAL ALONG FREEWAY,
- CREATES COASTAL VILLAGES PARTICULARLY AT
  - ALKIMOS MARINA VILLAGE,
- ASSUMES WATER TREATMENT PLANT REMOVED
  - MARINA / OUTFALL POSSIBLE,
- GREEN LINK STRONGER THROUGH GOLF COURSE,
- HAS TWO HALF INTERCHANGES ONTO FREEWAY DIRECTING TRAFFIC SOUTH.

OPTION 'C'
SUB - REGIONAL PLAN
WA COMMUNITY CODE

- An additional half diamond interchange onto the Freeway (Brighton Boulevard) directing traffic to the coast.

A copy of the Town and Neighbourhood Detailed Structure Plan which was refined from Option C (which covers all of the existing study area north of Lukin Drive) is reproduced at Figure 6.

8.0 BUTLER CHARRETTE (AUGUST 2001)

8.1 Introduction

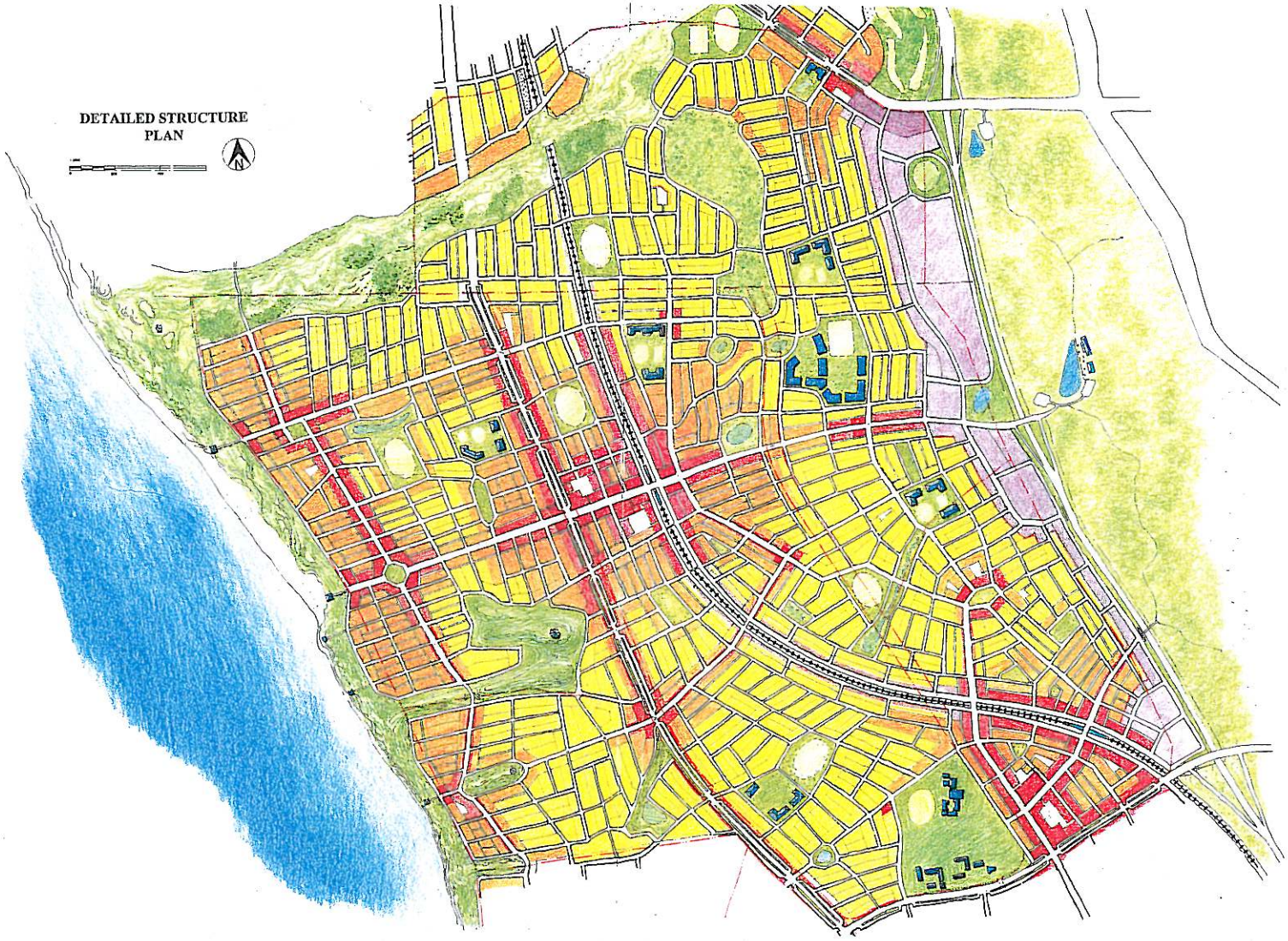
The aim of the Butler Charrette was to once again test different Liveable Neighbourhood scenario designs for their levels of performance in terms of social, economic and environmental criteria. The benefits which can accrue from liveable neighbourhood's structure planning using a transit orientated, mixed use approach are numerous and were extensively canvassed at the Charrette Outcomes including the following;

Transit orientated design

Encourages a greater mix of uses, and higher densities of development around town centre railway stations and major bus interchanges and is likely to result in greater patronage of the public transit system, and less reliance on the private car.

Mixed use development

The closer that different uses are to each, the more likely people are to walk between them rather than using a car, thereby saving money, reducing greenhouse gas emissions, and the need for road and car-



JINDALEE ENQUIRY BY DESIGN - TOWN AND NEIGHBOURHOOD

FIGURE 6

parking infrastructure. Adjacent uses do need to be compatible with each other.

Generation of local employment

Creates local employment provides jobs for more people who are unable and do not wish to travel long distances for work, as well as provides support for other local businesses and services. It also reduces the requirements for massive road infrastructure to cope with needs for city centre commuters.

The Butler Charrette consisted of two separate week long workshops involving the relevant stakeholders. Land use options were once again evaluated using Liveable Neighbourhoods criteria. From a land use planning point of view and using triple bottom line performance indicators the following key land use issues were addressed:

- Preferred railway line alignment north of Lukin Drive;
- Railway station spacings and roles;
- Hierarchy and locations of key District (and Regional) Centres including Butler, Brighton, Alkimos and Eglinton;
- Other employment areas (Business/Mixed Use etc);
- Function and alignment of key arterial routes including Marmion Avenue, Connolly Drive, proposed Brighton Boulevard, Lukin Drive and Romeo Road;
- Neighbourhood structure and Liveable Neighbourhoods;
- Residential land use and densities;

- School sites;
- District recreation and open space;
- Conservation, environment and sustainability.

Three key outcome Land Use Plans were produced. These were:

- The preferred Sub Regional Plan (see 8.2); and
- The Butler Jindalee "Detailed Plan" (see 8.3)
- The Preliminary Butler Jindalee District Structure Plan (see 8.4)

8.2 The Sub Regional Plan

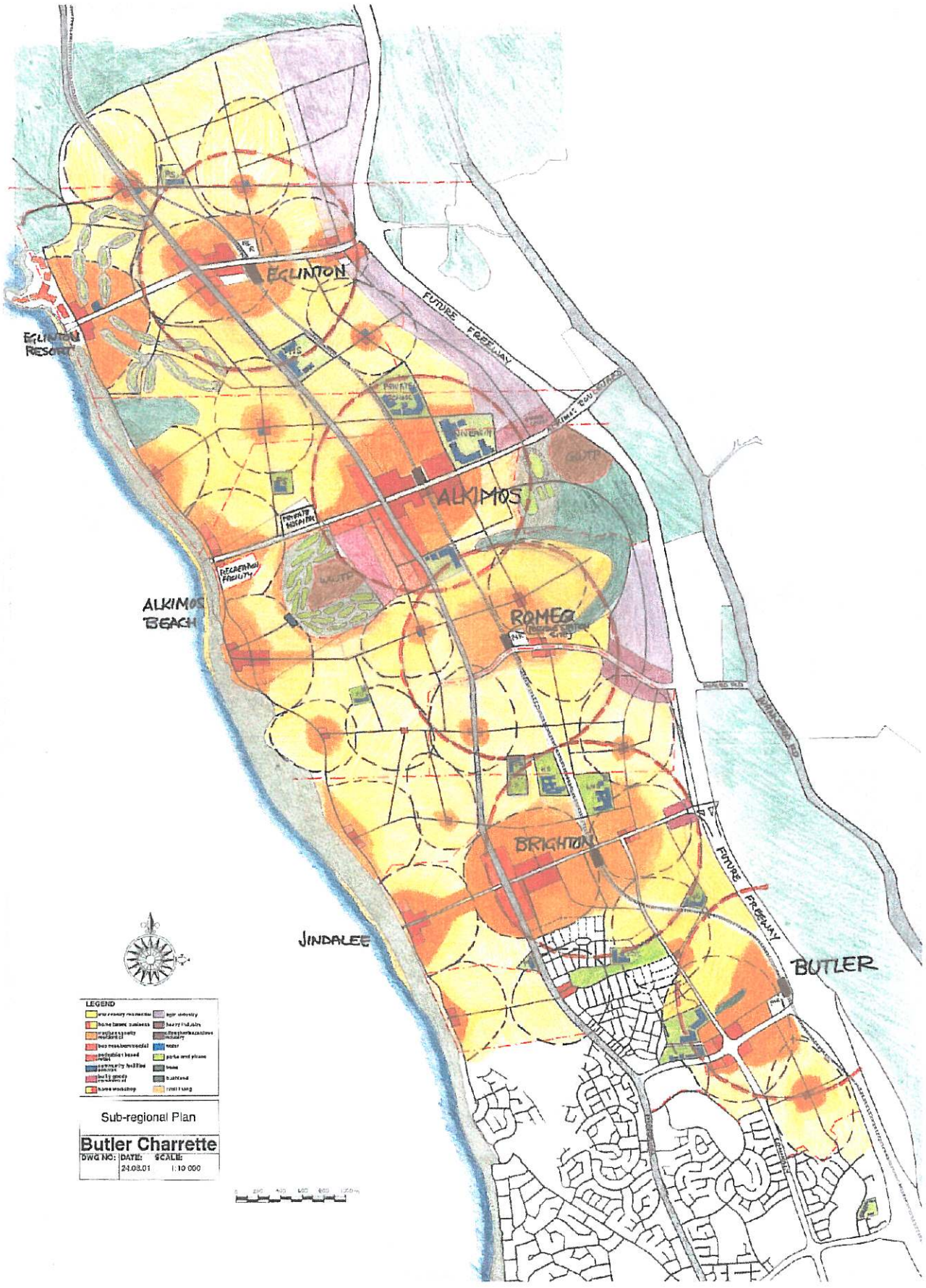
The Sub Regional Plan which placed the Butler Jindalee Detailed Plan in context is reproduced at Figure 7. The key design rationale which emerged from the Charrette to support the Sub Regional Plan included the following:

Town Centres

The Brighton Centre on Marmion Avenue is the preferred District Centre location over Lukin Drive, Butler. Full-sized towns with supporting neighbourhoods are proposed at Brighton, Alkimos and Eglinton. The stations at Brighton, Alkimos and Eglinton have been identified for integration into pedestrian orientated mixed-use town centres.

Rail Line Alignment

The central corridor alignment provided a full 800m walkable catchment for rail stations and anchors for town centres.



SUB REGIONAL PLAN 2001

FIGURE 7

Park and Ride Stations

Intermediate stations are proposed at Butler and Romeo Road. These stations have been designated "park and ride" although a significant walk-on patronage was anticipated at Romeo Road.

Alkimos

Alkimos remains the regional centre, about 3km north of the Brighton town centre with the parabolic dune system and wastewater treatment plan providing the southern constraints to the town's containment. A new location is proposed centred on Alkimos Drive with direct Freeway access.

Marmion Avenue

North of the Brighton town centre, Marmion Avenue has been proposed for realignment further to the east to provide direct access to Alkimos town centre.

Connolly Drive

Connolly Drive is terminated as an arterial road at Lukin Drive. North of this point it is reclassified as a major neighbourhood connector to better integrate into the local street network.

Coastal Villages

East-west routes from Brighton, Alkimos and Eglinton lead directly to the main coastal villages of Jindalee, Alkimos Beach, and the Eglinton Resort.

Wastewater Plant Buffer

Non-residential uses, such as light industrial and commercial, are proposed within the buffer of the wastewater treatment plant adjacent to Alkimos town centre.

8.3 The Butler Jindalee "Detailed Plan"

At the first workshop the Sub Region Plan was refined into a more detailed concept covering the Brighton District for testing and evaluation. It was referred to as the "Detailed Plan" and is reproduced at Figure 8. This Plan is important as it forms the basis of many of the assumptions made concerning urban form and in particular residential density allocations.

Although superseded it is worth restating the design rationale that supported this plan as the overall key components between the "Detailed" Plan and the Butler Jindalee District Structure Plan remain the same. The key design rationales were as follows;

Residential Densities

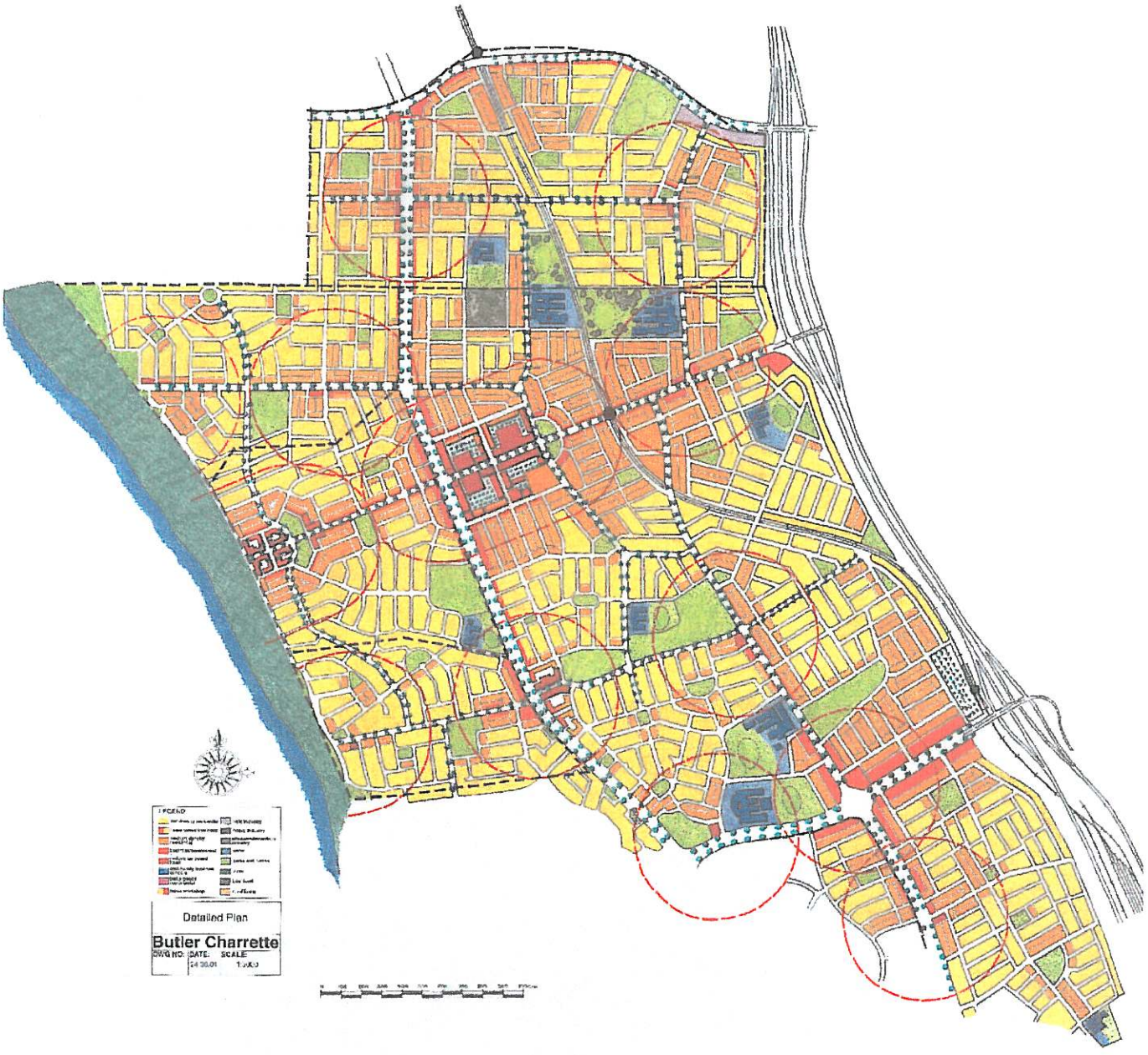
Forms the basis of many assumptions made concerning densities and the comparative yield between a conventional approach and a Liveable Neighbourhood Outcome. Reference to this Plan indicates those areas where higher densities (R40-R60) are encouraged.

Brighton Town Centre

The Brighton Town Centre should be a traditional Main Street design with speciality shops sleeving into supermarkets and a discount department store. Large car parks are located within the town blocks that are approximately 200m square. The rail is in a full depth cutting (6m) to enable direct and at-grade access to the Main Street.

Neighbourhood Centres

Neighbourhood centre locations are based on Liveable Neighbourhood principles and respond to the movement economy network of



BRIGHTON DETAILED PLAN 2001

FIGURE 8

neighbourhood connector streets that have good business exposure to a higher volume of passing pedestrian and vehicular traffic.

Viability

The physical integration of the rail station and Main Street town centre provides a context for the surrounding street blocks to accommodate compatible mixed uses and medium density small lot housing. The density of households in the town and supportive neighbourhoods is vital for the economic viability of both the town centre and neighbourhood centres.

Impact of Rail

The rail alignment allows the delivery of short to medium land supply targets in the Brighton subdivision. The rail reserve in residential areas should be 16.6m and within a cutting of 2-3m for noise attenuation. To limit the number of single loaded streets, residential lots should back onto much of the rail line.

Access to Brighton

A 'stretched diamond' interchange on the future Freeway enables direct vehicular access to the Brighton Town Centre along Brighton Boulevard. The northern half of the 'stretched diamond' connected to Romeo Road to the west and the proposed access east to Wanneroo Road.

Access to Butler

A full diamond intersection was planned to the east of the Butler park and ride station. Lukin Drive is an ideal employment context for commercial and home-based business opportunities.

Marmion Avenue and Lot 3

The new north-south route of Marmion Avenue through Lot 3 provided a 'workable' rectangular shaped development parcel west of Marmion Avenue.

Schools

High schools and primary schools are located at the edge of the 400m walk to neighbourhood centres and the 800m walk to a rail station to enable optimum walking catchments around business centres and public transport stops. Teenage students have the opportunity to walk to High School on streets that connect directly from the rail stations to the High Schools.

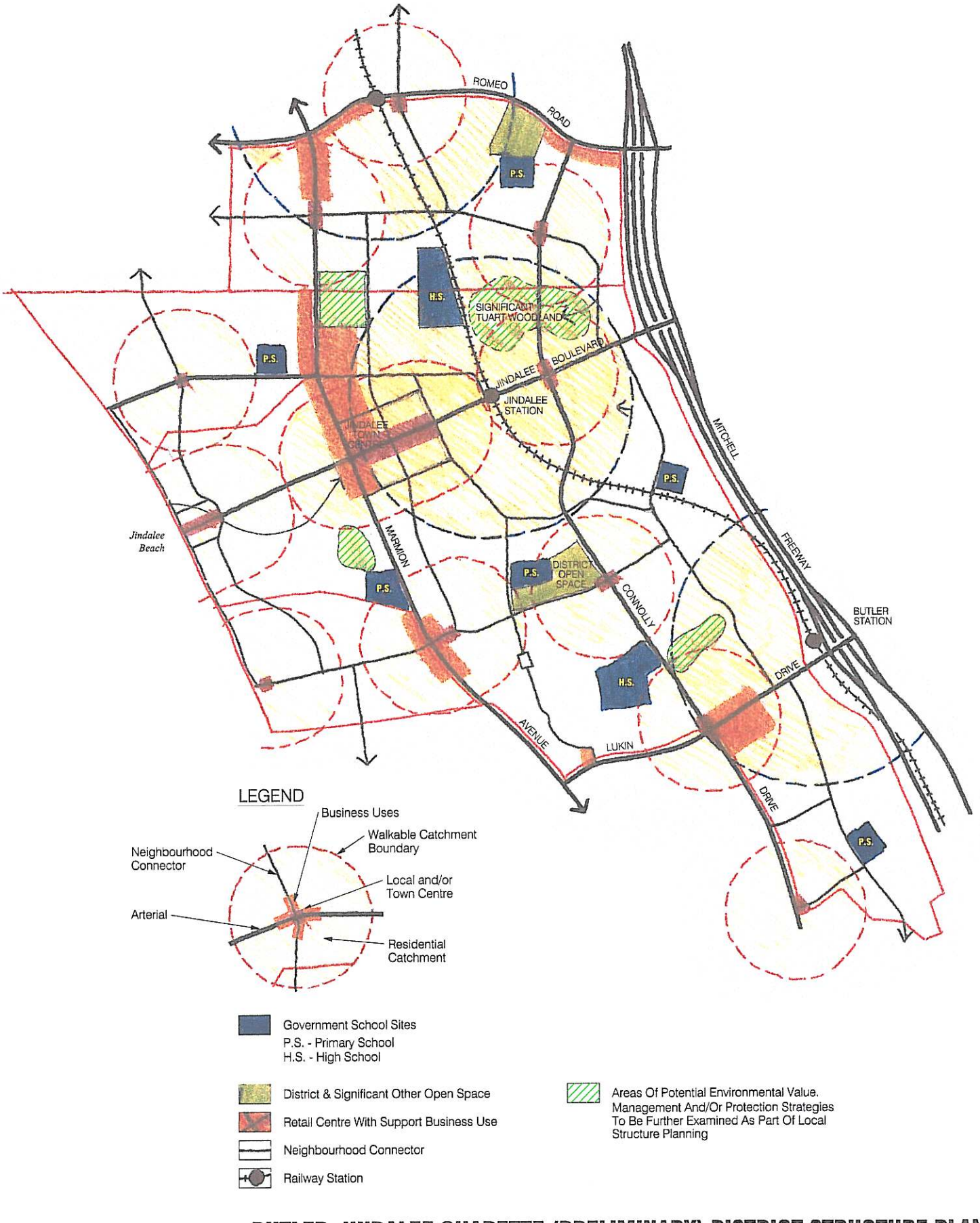
Open Space and Conservation

Identified key open space locations together with a local park based on the details shown.

8.4 Preliminary Butler Jindalee District Structure Plan

The "Detailed Plan" at Figure 8 was subsequently re-evaluated at a second series of workshops and further refined to the point where it provided the basis for a Charrette District Structure Plan reproduced at Figure 9 and subsequently this District Structure Plan.

This Charrette Preliminary Plan is the basis of the District Structure Plan and was in fact initially advertised in this document as the District Structure Plan. Submissions received during the advertising period relate to this Charrette Plan which has been modified in response to the submissions as requested by Council, to the final District Structure Plan at Figure10.



BUTLER-JINDALEE CHARETTE (PRELIMINARY) DISTRICT STRUCTURE PLAN

FIGURE 9

8.5 Post Charrette Outcomes

Following the Charrette process the Commission indicated the following would occur to ensure implementation of the findings, commitments and agreements reached during that process. These were as follows:

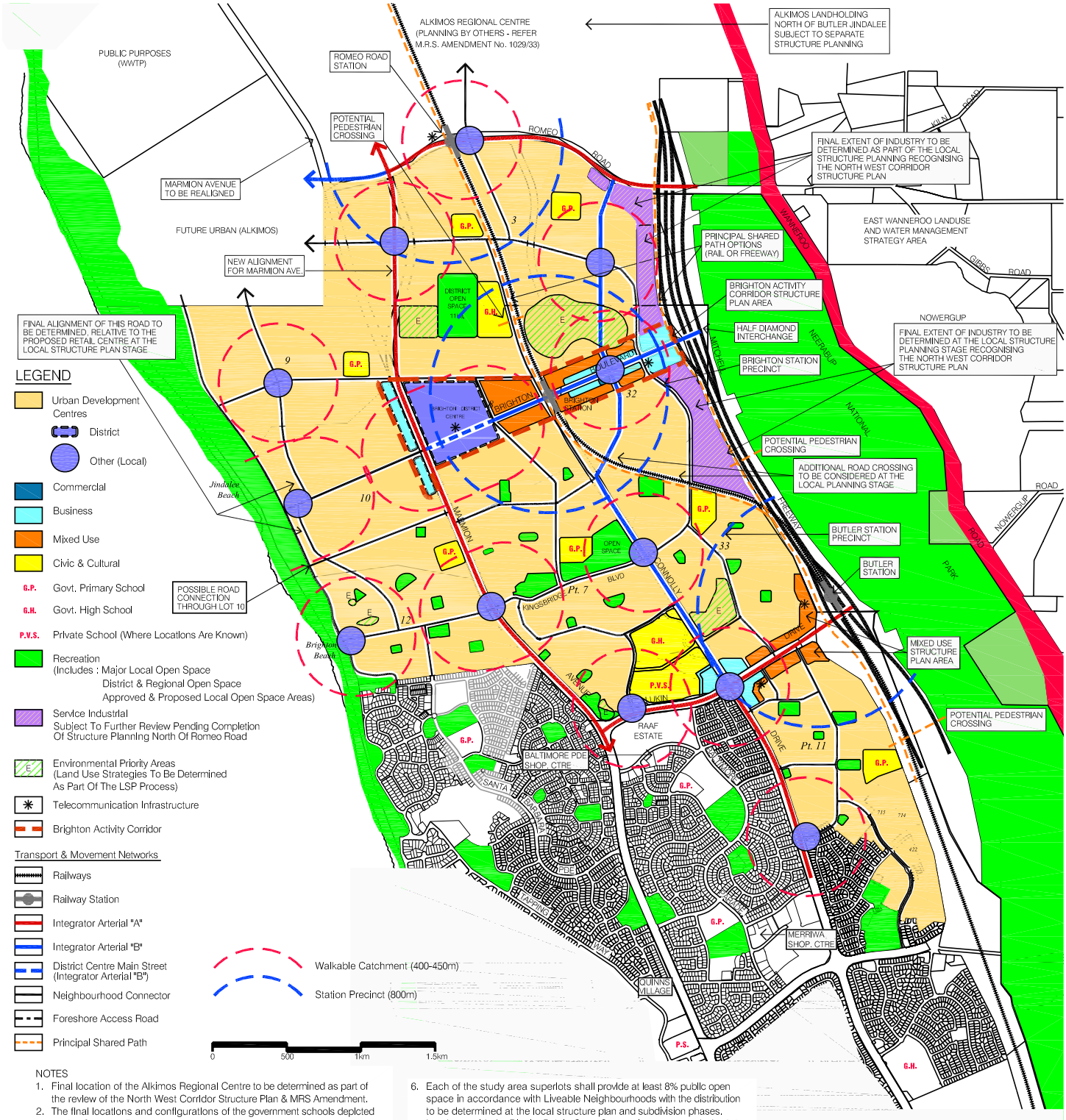
1. Production of an Outcomes Report on the proceedings and the findings (now released).
2. Preparation of an Implementation Strategy and actions.
3. Preparation of a District Structure Plan for the Brighton/Butler area.
4. Ongoing governance framework.
5. North-West Corridor Structure Plan update including infrastructure review for urban areas.
6. Revision of infrastructure sharing arrangements.

This particular document represents the District Structure Plan referred to at Point 3 above.

9.0 DESCRIPTION OF DISTRICT STRUCTURE PLAN

9.1 Introduction

The Preliminary Structure Plan produced as the final outcome to the Charrette is at Figure 9. Many of the findings and descriptions included in this document are drawn from inputs to the workshops, extracts from post charrette reports (which have been produced as inputs into the Outcomes report) and from subsequent detailed studies and reports prepared by the Brighton Project Team.



NOTES

1. Final location of the Alkimos Regional Centre to be determined as part of the review of the North West Corridor Structure Plan & MRS Amendment.
2. The final locations and configurations of the government schools depicted on this Structure Plan will occur at the local structure planning stage through landowner consultation with the Department of Education and Training and the Department for Planning & Infrastructure. Locations depicted are notional and approximate to reflect catchment requirements.
3. Further study will be required to identify appropriate pedestrian/cycle crossing locations once final levels along the rail are known.
4. All Centre retail floorspace allocations to be determined through reference to the Metropolitan Centres Policy, the City Of Wanneroo Retail Strategy and the Shrapnel Urban Planning Retail Assessment included within the District Structure Plan report.
5. Concerning public open space this Structure Plan depicts;
   - Regional Open Space
   - The nominated District Open Space site
   - Major local open space areas
   - Other local open spaces either approved or proposed as part of lodged subdivision plans.
6. Each of the study area superlots shall provide at least 8% public open space in accordance with Liveable Neighbourhoods with the distribution to be determined at the local structure plan and subdivision phases. Land set aside for District Public Open Space will count towards the 8% requirement.
7. The Structure Plan nominates a Brighton Activity Corridor, extending from the Mitchell Freeway to Marmion Avenue, encompassing the Station and District Centre Precinct. This area will require a separate amendment to the Butler Ridgewood local structure plan which pursues an adaptable and flexible urban framework to facilitate higher residential densities and mixed use development once the railway and other major transit infrastructure is in place.
8. The structure plan nominates a Mixed Use Area extending from the future Butler Station, along Lukin Drive to Connolly Drive. This area will require a separate amendment to the Butler Ridgewood local structure plan to establish the extent of mixed use development, residential densities and built form provisions to ensure appropriate development in close proximity to the station.

BUTLER-JINDALEE DISTRICT STRUCTURE PLAN

The adopted District Structure Plan, which forms the basis of this Report, is included at Figure 10 and as a foldout at the rear of this Report. The reader is also referred to the Charrette Outcomes report reproduced by the Department for Planning & Infrastructure covering this Study Area.

9.2 Population and Density Criteria

9.2.1 Background

To achieve appropriate sustainability outcomes and sufficient catchment to support the new railway stations in line with Transit Patronage Report targets, higher overall target population densities to those in conventional forms of urban development are critical.

Two urban form scenarios were therefore evaluated at the Charrette. These were a "no change" scenario (i.e. perpetuation of North West Corridor conventional Structure Plan principles) and the "Transit and Liveable Neighbourhoods" scenario. A summary of the overall findings is included in Table No.1.

The Transit and Liveable Neighbourhoods scenario assessment was based generally on the urban form principles and recommended density allocations depicted on the "Detail Plan" reproduced at Figure 8. It is important these principles are understood when reading Table No.1 and interpreting the principles embodied in this District Structure Plan.

9.2.2 Density Principles and Framework

Section 8.0 of this Report identifies the need for further work to produce a Planning Framework to develop and implement agreed sustainability targets including housing densities through the Local Structure Plan and subdivision stages. The basic principles of such a framework in terms of housing densities and land use planning which reflect the Charrette outcomes are that increased housing and population densities should generally be encouraged in the following situations:

(i.) Within and as part of the current District Centres including mixed use forms of development, grouped/multiple development to R60, and smaller cottage/home business lots as transitional uses;

(ii.) Generally smaller single lots set within a robust street network around the main centres to support the centres and provide opportunity for land use change over time;

(iii.) The same principles of encouraging higher densities on a smaller more local scale around the larger Village Centres;

(iv.) Increased densities around the railway stations in line with the Commissions D.C. 1.6 Policy - Development Near Metropolitan Railway Stations. This will apply predominantly to the Brighton station and not as intensely at the Butler "park and ride" which has less potential to support commercial development and act as a neighbourhood foci;

(v.) Increased densities adjacent the mixed use/mixed business areas along the integrator arterials mainly around Lukin Drive and Brighton Boulevard;

(vi.) Mix of residential and tourist uses in a medium to high density mixed use format at the main Jindalee Beach and other similar activity nodes;

(vii.) Opportunistic precinct based medium density housing to create streetscape diversity, greater product mix and lifestyle choice, generally:

- Near and around local parks and schools
- Coastal locations
- Random local street locations
- R40/R60 group housing sites as appropriate

These are the main density related framework criteria which are reflected on the Detailed Plan and the District Structure Plan and are the basis of the comparison of population (density) yields at Table 1. These principles may form the basis of more definitive work particularly in the preparation of performance indicator principles.

Importantly, detailed planning must be robust and flexible, particularly in terms of the lot and street block designs in order to facilitate increasing density over time which will flow from both the construction of key infrastructure including the district centre, the railway and freeway and from the longer term maturing of the marketplace and the locality generally of the area.

9.2.3 Density Comparison

Although a very indicative comparison Table No.1 was derived by applying those principles outlined above and two different lot yield per hectare figures for the entire Study Area, comprising around 1100ha. It provides a quick comparison of the two potential outcomes with respect to target lot numbers, average lot sizes and population. It is a very broad and general summary for comparison purposes only and not an absolutely accurate yield assessment.

Table No. 1 – District Land Use Density Summary

Type of Urban Form	Total Area	Lots/DU Yield	Av Lot Size	Population @ 2.6/DU	Gross Density DU/Gross ha
Liveable Neighbourhood Transit Scenario	1100ha	15404	400m²	40,000	14
Conventional	1100ha	11220	500m²	30,000	10

Based on the above table in very broad terms the Liveable Neighbourhoods/Transit outcome can at the upper end deliver an additional 4000 lots and 10,000 people in the Study Area compared to the conventional design approach. This does require however a higher gross lot density of 14 lots/gross ha (compared to the current 10 lots/ha) and a lower average lot size of around 400m² to achieve these targets. It also assumes very efficient street networks, minimal amounts of public open space, efficient land allocation to drainage, no additional land given over to educational establishments such as a TAFE or private schools, and many other land use initiatives aimed at efficiently utilizing the land resource.

These very broad figures have now been further refined as inputs to the alternative density scenarios assessed in the Retail Strategy and Transport Study. These documents partition the Study Area into 58 land use precincts where major non residential land use areas (based on the District Structure Plan) were excluded (for better accuracy) and residential yields determined based on the two density scenarios above.

Both the Retail Strategy and the Transport Study are reproduced in the Technical Appendix and discuss the relative impact of the two approaches.

Realistically the across the board increase in overall density to around 14du/gross ha will only be achieved over time as the market matures and responds to a greater acceptance of smaller lots and more critically as density development or redevelopment occurs over time (10-50 years) as part of the development and maturing of the Centres. It is not a figure which will be achieved immediately particularly outside of the main centres. This Structure Plan recognizes the need to accommodate such potential even if not realized immediately.

It is worth noting that each new phase of Brighton is seeing an overall increase in single lot densities and yields as the market better understands and comes to demand more small lot product. Based on current subdivision approvals densities are now around 14du per nett area and 12du per gross area.

9.3 Centres and Retail Floorspace

9.3.1 Centre Locations

District Centre

There has always been provision for a District Centre within the Study Area. As mentioned earlier the Metropolitan Centre Study allows for a 22,000m² retail nla centre located (indicatively) on the corner of Lukin Drive and the Freeway, but subject to detailed structure planning. The Charrette recommended that this District Centre be shifted to the intersection of Brighton Boulevard and Marmion Avenue to become the major centre south of Romeo Road. Provided the rail is extended in a timely manner the synergy between the rail and the town centre should be able to catalyse

more intensive urban development in the whole area south of Romeo Road.

In purely retail terms, given the floorspace allocation, this Centre is anticipated to support two supermarkets and a discount department store along with a large range of specialty shops, offices, other business uses and civic uses. Its location on Marmion Avenue, the main existing regional transit route through the corridor, will also provide an appropriate environment for the early development of the first stages of this centre. The same opportunities are not afforded by Lukin Drive given the timing of construction of the section between Connolly Drive and the Freeway is questionable given the timing and construction of the Freeway.

It is also important to consider the town centres at a sub-regional level. The Sub-Regional Plan (Figure 7) indicates Alkimos as the principle centre, with Brighton/Jindalee the secondary centre and Eglinton a third in scale. It should also be noted that the Alkimos town centre has been shifted north of the main dune and could become a 20-50,000m² retail centre, however, may not become the large centre previously envisaged if the Brighton/Jindalee centre is successful and grows to its full potential.

The location of the Alkimos Regional Centre has not been finally identified, though this will occur as part of the process of the Alkimos-Eglinton Metropolitan Region Scheme Amendment (1029-33) and the review of the North West Corridor Structure Plan (NWCSP). Both processes will need to factor in the Brighton District Centre location on Marmion Avenue. Notwithstanding these ongoing processes, for the purposes of the Butler-Jindalee Centres Strategy Study undertaken by Shrapnel Urban Planning the location of the Regional Centre is as identified in the NWCSP.

In summary the new Brighton District Centre location is preferred for a range of reasons including:

- Potential synergies with the Brighton rail station.
- Location on an integrator arterial which will develop in the early stages of corridor development.
- Location on the intersection of two major integrator arterials linking to the Freeway.
- Proximity to the coast and Jindalee Coastal Node.
- Its central location within the overall District Structure Plan and subsequent improved residential catchment and better opportunities for integration into the adjacent urban fabric.
- Opportunities for complementary mixed business and mixed uses on Marmion Avenue.
- Creation of improved employment opportunities given these locational advantages and potential for earlier staging.
- Excellent opportunities for a main street based centre along Brighton Boulevard as part of the Brighton Activty Centre.

It was generally agreed at the Charrette that the area of Lukin Drive, between Connolly and the Freeway, presented other longer term opportunities for employment based activities. These will include some retail uses but of a smaller scale to the Brighton centre with opportunity for a medium sized supermarket together with a range of specialty retail but more focus on mixed and service businesses. It was acknowledged that the amount of land available for residential in the Butler town centre station catchment is already limited by the Freeway reserve, existing schools and the large limestone hill outcrop. It was seen that Lukin Drive

would ultimately support a range of mixed uses once it could be connected to the Freeway.

Neighbourhood/ Local Centres

In adopting a Liveable Neighbourhoods structure the District Structure Plan identifies, based on catchment and road network, the preferred location for neighbourhood and local centres as the walkable catchment foci. Based on the neighbourhood structuring principles of Liveable Neighbourhoods the sites nominated are the preferred location for activity nodes which form the focus of neighbourhoods based on walkable catchments.

Status, role and function of these centres in tandem with the district centre will vary according to their relative locations and will range from small home stores through to more substantial village centres. Examples of the latter include the Brighton/Marmion Avenue Centre and the future Jindalee beach node which is likely to develop in a manner similar to Cottesloe beach.

The relative hierarchy of these Centres is shown on the Structure Plan to reflect the findings of the Centre Strategy Study and comprises:

- Neighbourhood Centres (1500m^2 -5000m^2 nla); and
- Local Centres (250m^2-1500m^2 nla).

Butler Jindalee Centres Strategy Study

The role, status and size of all Centres has been examined as part of this District Structure Plan process by Shrapnel Urban Planning. The results are included in a separate report included in the Technical Appendix.

The key conclusions are as follows:

(i.) Confirms the appropriateness of the various centre locations as derived from the Charrette process and included on the District Structure Plan.

(ii.) Establishes a new hierarchy approach to Neighbourhood/ Local Centres with eight categories varying in character, land use mix, scale and retail floorspace size.

(iii.) Adopts the low (conventional lot) scenario for retail floorspace calculation purposes to establish a "bottom line" allocation scenario.

(iv.) Suggests a general 25 percent increase in floorspace allocations if high lot yield scenario can be achieved uniformly throughout the Study Area.

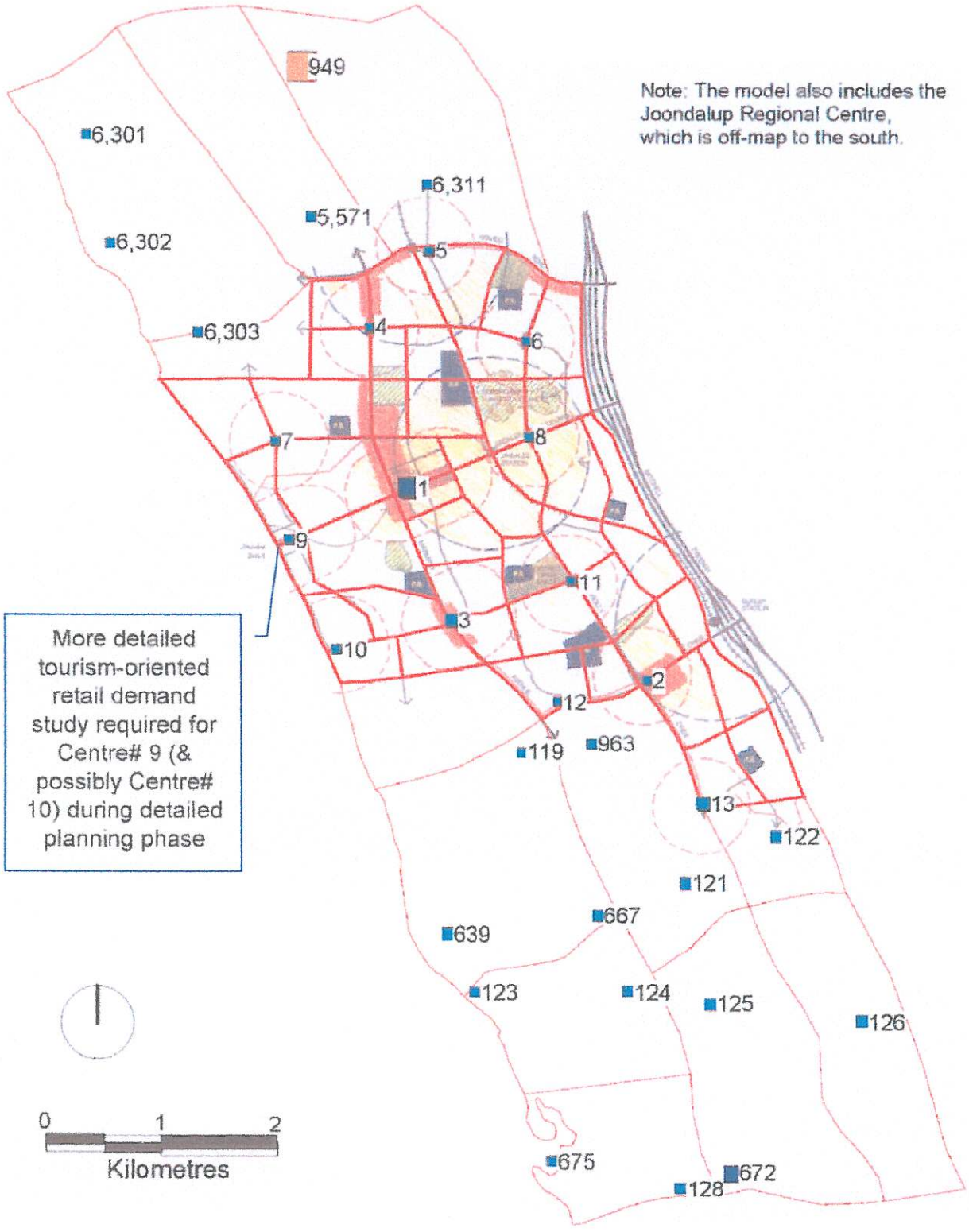
(v.) Advocates flexibility in applying the suggested floorspace "limits" to each centre in view of the dynamic nature of a Liveable Neighbourhood approach and likely achieval of higher densities in specific areas over time.

(vi.) Confirms a floorspace allocation between 22,500m^2 (standard densities) and 28,000m^2 (Liveable Neighbourhood's Densities) for the Brighton Town Centre.

(vii.) Allocates the following local centre hierarchies (refer Table No.2):

- Local – 3 (250-600m^2) Centres 5, 6, 7 10 and 13
- Local – 4 (600-1500m^2) Centres 2, 4, 8, 11 and 12
- Neighbourhood – 1 (1500-3500m^2) Centre 9 (Jindalee Beach)
- Neighbourhood – 3 (4,500-6,500 sqm) Centre 3 (Brighton Village)

Figure 11 indicates the pattern of centre locations and their "baseline" retail floorspace allocation (at conventional densities) is depicted in Table No.2.



PATTERN OF CENTRES

SOURCE : SHRAPNEL URBAN PLANNING

FIGURE 11

Table No.2

CentID	Name	Class	FDG_SQM	NFD_SQM	SHF_SQM
1	BRIGHTON TC	DISTRICT	8,500	14,000	22,500
2	BUTLER	LOCAL	300	1,200	1,500
3	MARMION STH	NHOOD	3,000	2,000	5,000
4	ROMEO-W	LOCAL	300	500	800
5	ROMEO	LOCAL	200	100	300
6	ROMEO-E	LOCAL	200	200	400
7	JINDALEE-N	LOCAL	300	200	500
8	BRIGHTON-E	LOCAL	400	600	1,000
9	JINDALEE BCH	LOCAL	1,000	2,000	3,000
10	JINDALEE-S	LOCAL	150	200	350
11	BUTLER-C	LOCAL	350	600	950
12	LUKIN	LOCAL	350	600	950
13	BUTLER-S	LOCAL	300	200	500
119	DUNCOMBE	LOCAL	350	150	500
121	MERRIWA-S	NHOOD	2,800	1,200	4,000
122	BP RIDGEWOOD	LOCAL	175	75	250
123	QUINNS-S	LOCAL	175	75	250
124	ANCHORAGE-N	LOCAL	350	150	500
125	AINSBURY	NHOOD	2,000	1,000	3,000
126	CLARKSON-E	NHOOD	1,000	2,000	3,000
128	ANCHORAGE-S	NHOOD	1,400	600	2,000
600	JOONDALUP-R	CITY	20,000	65,000	85,000
639	QUINNS-C	NHOOD	1,000	500	1,500
667	TAPPING WAY	NHOOD	1,313	726	2,039
672	CLARKSON-D	DISTRICT	12,500	16,300	28,800
675	MINDARIE KEYS	LOCAL	350	150	500
949	ALKIMOS-R	CITY	12,000	28,000	40,000
963	MERRIWA-N	LOCAL	350	150	500
5571	ALK-C	LOCAL	250	50	300
6301	ALK-NW	LOCAL	250	50	300
6302	ALK-W	LOCAL	250	50	300
6303	ALK-SW	LOCAL	250	240	490
6311	ALK-E	LOCAL	250	50	300
9211	QUINNS-N	LOCAL	350	150	500
Total			**72,713**	**139,066**	**211,779**
Primary Area Only			**15,350**	**22,400**	**37,750**
Balance Area			**57,363**	**116,666**	**174,029**

Source: Shrapnel Urban Planning

For the full detail of the Retail Strategy (April 2004) the reader is referred to the Technical Appendix.

9.4 Traffic and Transport

This section is in three parts. Section 9.4.1 establishes the broader intent of the traffic and transport networks by summarising the findings of the TTM Consulting (Jim Higgs) Report produced for the Brighton Charrette Outcomes Report. It describes the desired transport and traffic engineering outcomes of the new planning and design approach and makes a series of implementation recommendations.

Section 9.4.2 builds upon this objectives orientated description by TTM Consulting by summarizing the Traffic Modelling and Road Network Planning Strategy Report prepared by ERM and included in full in the Appendix .

Section 9.4.3 summarises the Bus/Pedestrian Study also included in the Appendix.

9.4.1 Transport and Traffic – Charrette Outcomes

The TTM Traffic Report acknowledged the following main initiatives:

- Realignment of the railway line through the study area, with stations at Lukin Drive, Brighton Boulevard and Romeo Road.
- New major integrator arterial interchange with Freeway to be known as Brighton Boulevard.
- Retention of both Connolly and Marmion Avenue's reserves subject to;
  - Minor realignment of the northern portion of the Marmion Avenue reserve.

- Realignment of Connolly reserve to allow for railway alignment.

- Retention of Lukin Drive and Romeo Road as arterials linking to the Freeway.

The conclusions from the modeling were as follows:

- Four lane cross sections mid block should be adequate for Marmion Avenue, Connolly Drive, Lukin Drive and Brighton Boulevard.
- Two lanes are adequate for Connolly Drive north of Lukin Drive.
- Volumes on Marmion Avenue adjacent the Brighton town centre will not require full control over access and speed limits consistent with the commercial area environment will be suitable.
- Service roads with short transitions to suit the commercial environment are appropriate in these areas.
- Brighton Main Street traffic volumes between 12,000-18,000 vehicles per day will enable an appropriate Main Street environment to develop.

The traffic analysis indicated that the current roles and alignments of the arterial network indicated on the District Structure Plan are efficient with traffic volumes that will facilitate the need for development to no more than 4 lanes (Detailed design implications are addressed in the ERM Report in the Appendix and the reader is referred to that report for more detail).

From a planning perspective it is important to understand the Charrette outcomes with respect to the intended future role of these roads. This was generally as follows:

- *Marmion Avenue*

Planned as an integrated arterial with frontage wherever possible and vehicle access provided by either service roads or via side streets. Frontage use for a range of business activities was imperative if jobs and local services to be provided. Traffic lights (coordinated with major bus stops) to facilitate at grade pedestrian crossings. Alignment remains on the MRS alignment as far as the northern end of Lot 10 then deviated northward towards Alkimos. This realignment puts more land on the beach side of Marmion Avenue and results in better land use planning.

- *Connolly Drive*

Connolly Drive is at present planned as a dual carriage way in a 60 metre reserve up to Lukin Drive. North of Lukin Drive a substantially reduced scale should reflect its new alignment, the anticipated reduced volumes and the opportunity to create a 60km per hour speed environment with maximized land use integration. The alignment veers slightly to the east of the current MRS alignment to accommodate the railway line and a local centre on Brighton Boulevard.

- *Brighton Boulevard*

The proposed main east-west route connecting to the regional beach to the Freeway. A narrower integrator arterial of mostly two lanes plus parking and a small median as it runs through the heart of the areas pedestrian precincts (i.e the station, town centre and Jindalee beach). It should be developed as a shady tree lined slow speed environment. Importantly, it should also be noted there are several neighborhood connector scale streets running directly to the coast from land east of

Marmion Avenue. These connections are important as they add both value and perceived lifestyle benefits to the more inland areas.

- *Romeo Road*

Future large scale, low intensity, industrial/car based business precinct as it is well outside the station catchments. In addition it has the potential to begin to develop well before the Freeway is built because of its existing connection to Wanneroo Road.

- *Lukin Drive*

One of the main Freeway links for the study area and an ideal opportunity for mixed business type uses. Four lanes are recommended in the 60 metre reserve that presents an ideal opportunity for the excess reserve to be used for innovative frontage management techniques to maximize the opportunity for mixed business and employment based land use opportunities. Also provides the main linkage to the park and ride station at Butler.

- *Major Pedestrian Crossings*

Whilst previous planning including the Wanneroo District Scheme made provision for grade separated crossings for pedestrians on the major routes including Marmion Avenue and Connolly Drive, such a uniform approach is not advocated under Liveable Neighbourhood principles and not in this District Structure Plan. Wherever the opportunity exists pedestrians should be encouraged to cross safely at grade to encourage walkability.

Primary opportunity for this arrangement will exist at traffic light controlled intersections, particularly those occurring as part of a local or district centre such as the Brighton First Stage Village Centre on Kingsbridge Boulevard and Marmion Avenue and the future Brighton District Centre further north.

9.4.2 ERM Traffic Modelling and Road Network Planning

Against the strategic background emanating from the Charrette and to support the District Structure Plan, ERM have prepared a Traffic Modelling and Road Network Planning Study, which is included in full in the Technical Appendix.

The Report reviews the NW Corridor Structure Plan, the Butler-Brighton Charrette Outcomes Report (WAPC, July 2002) and existing traffic modelling reports for the area. It also presents new traffic modelling with full documentation of model inputs (e.g. trip generation) and model outputs (e.g. traffic volumes).

The Report addresses the ultimate development scenario (full build out) using the NW Corridor land use as compiled for the St. Andrews Access Study (BSD, July 2002). The land use scenario was considered to be the best available to yield a robust traffic forecast (i.e. high side forecast). Land use in the Butler-Jindalee District was taken from the Butler – Brighton Charrette Outcomes Report.

The Outcomes Report included a "Liveable Neighbourhood and Transit" land use schedule and a "Conventional" land use schedule with lower density of development. These scenarios assumed approximately 17,000 dwellings and 13,000 dwellings respectively for the district study area. Both

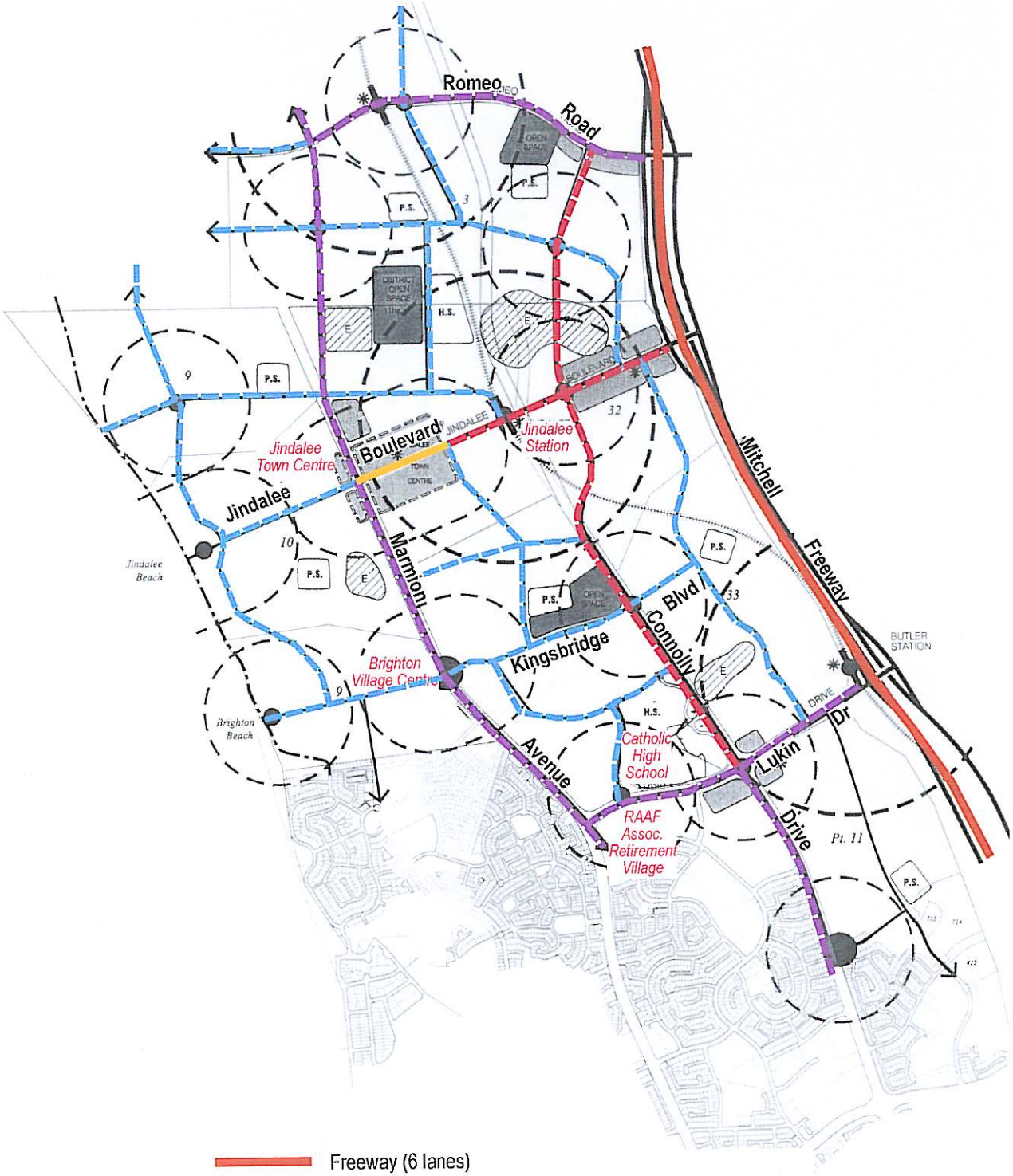
land use scenarios were tested in the traffic modelling because there is some uncertainty regarding the development density that will finally be achieved in the district.

Key Findings of this study are:

The proposed district road network is fundamentally based on the NW Corridor Structure Plan. The Butler-Jindalee District Structure Plan road network has however been amended as follows (refer Figure 12):

- The east-west capacity has been increased by the addition of Brighton Boulevard, between Lukin Drive and Romeo Road; and
- The excess north-south capacity is reduced (north of Kingsbridge Boulevard) by downgrading Connolly Drive to a 2-lane boulevard with direct property access.

Estimated daily traffic (veh/day) and volume to capacity (v/c) ratios for the arterial road network are summarized in the following table for the ultimate development stage.



DISTRICT LEVEL ROAD HEIRARCHY

SOURCE : ERM

FIGURE 12

Table 4.10: Estimated Daily Traffic Volumes and V/C ratios

	'LN + Transit' Scenario		'Lower Density' Scenario	
Road Name	Veh/day	V/C	Veh/day	V/C
Marmion Avenue				
• North of Lukin Drive	34195	0.98	31235	0.89
• North of Kingsbridge	35435	1.01	34425	0.98
• North of Brighton Blvd	34160	0.98	32160	0.92
Connolly Drive				
• North of Lukin Drive	14795	0.74	12380	0.62
• North of Kingsbridge	13550	0.68	12025	0.60
• North of Brighton Blvd	8095	0.81	7165	0.72
Mitchell Freeway				
• North of Lukin Drive	82620	0.62-0.92*	79380	0.66-0.88*
• North of Brighton Blvd	78100	0.65-0.90*	76280	0.64-0.88*
Lukin Drive				
• East of Marmion	17185	0.49	15100	0.43
• East of Connolly	19990	0.57	17750	0.51
Brighton Blvd.				
• East of Marmion	8515	0.57	6985	0.47
• East of Rail	12970	0.65	10390	0.52
• East of Connolly	16380	0.84	13710	0.69
Romeo Road				
• East of Marmion	19180	0.55	17125	0.49
• East of Connolly	22810	0.63	21320	0.61

*V/C ratios based on a daily capacity range (i.e. 90,000-120,000 veh/day for 6 lane freeway)

The modelling results show that the traffic in the "Liveable Neighbourhoods and Transit" scenario is higher by approximately 10-15% across the network, but is still within the planned ultimate road capacity.

On a daily traffic basis only Marmion Avenue is projected to be at capacity (ie. v/c = 1.0). However, Marmion Avenue is expected to have a P.M peak hour v/c ratio of 0.93 indicating that it will have adequate

capacity at ultimate traffic levels (Refer to Chapter 4 of full Report for an explanation of peak hour versus daily traffic forecasts and v/c ratios).

In conclusion, ERM traffic modelling demonstrates that the proposed District Structure Plan road network has capacity that meets or exceeds the ultimate forecast traffic demand. This result is consistent with previous traffic modelling by Sinclair Knight Merz and TTM Consulting.

Finally, additional traffic modelling is underway to determine the road network staging requirements at interim year stages (ie. year 2011, 2021, 2031). The results of that work will be presented in a supplementary report.

9.4.3 Bus Routes and Pedestrian/Cycle Networks

A full Report is included in the Technical Appendix. Plans showing the bus routes which were identified through discussions with Transperth as shown at Figure 13.

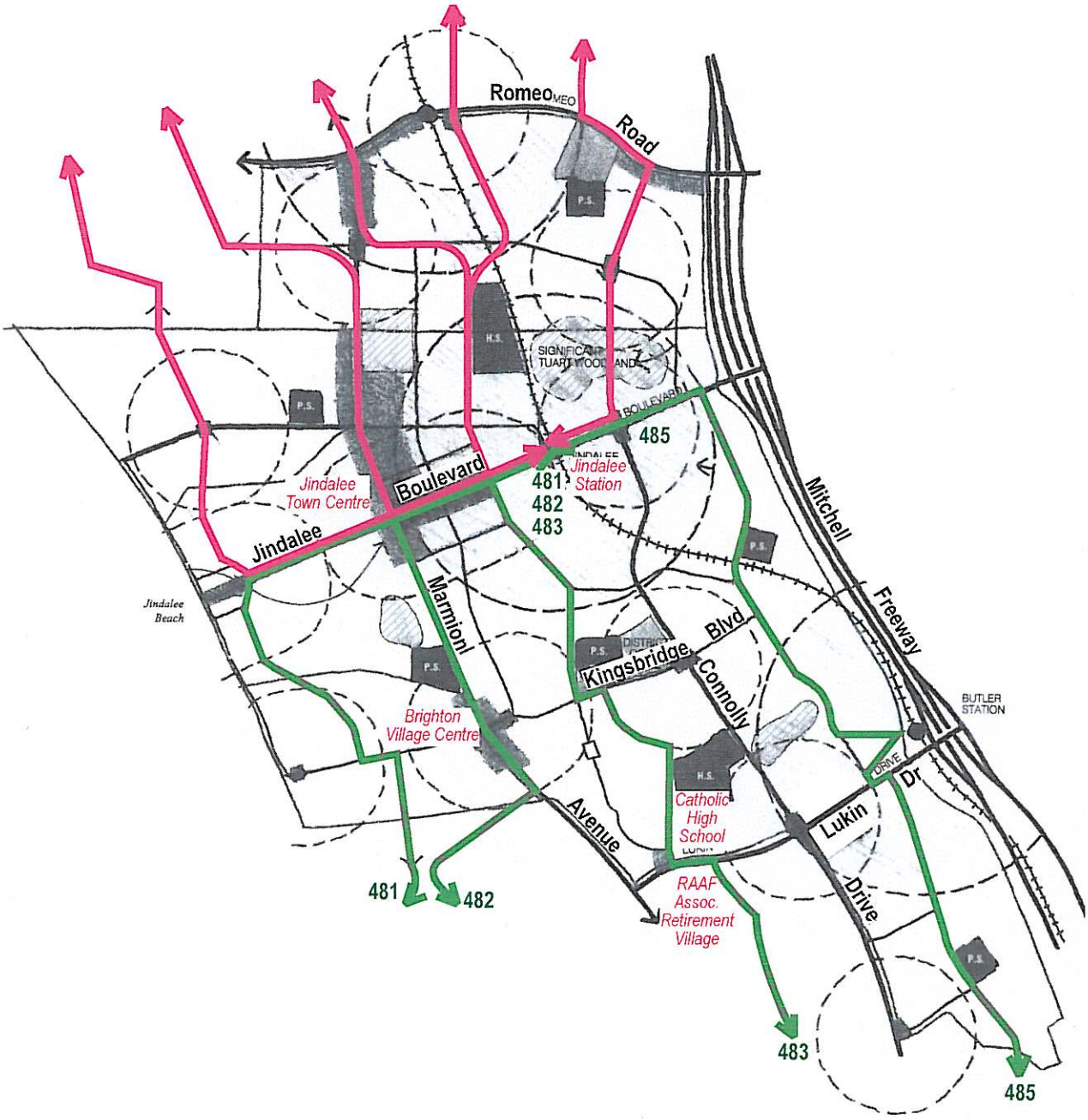
- *Bus Routes*

The southern routes (481, 482, 483, 485) will provide extensive coverage between the Clarkson Station and Brighton Station. The northern routes which are very preliminary will require adjustment to suit final Local Structure Plan detail. These will provide extensive coverage between Brighton Station and Alkimos.

- *Pedestrian and Cycle Network*

Three distinct types of facilities are proposed being:

- Local shared paths



Northern Bus Routes - Connecting Jindalee Station to next northern town centre (Alkimos/Eglinton)

Southern Bus Routes - Connecting Jindalee Station to Clarkson Centre and rail station

BUS ROUTE PLANNING

SOURCE : ERM

FIGURE 13

- On road cycle lanes
- A principal shared path

These are depicted at Figure 14.

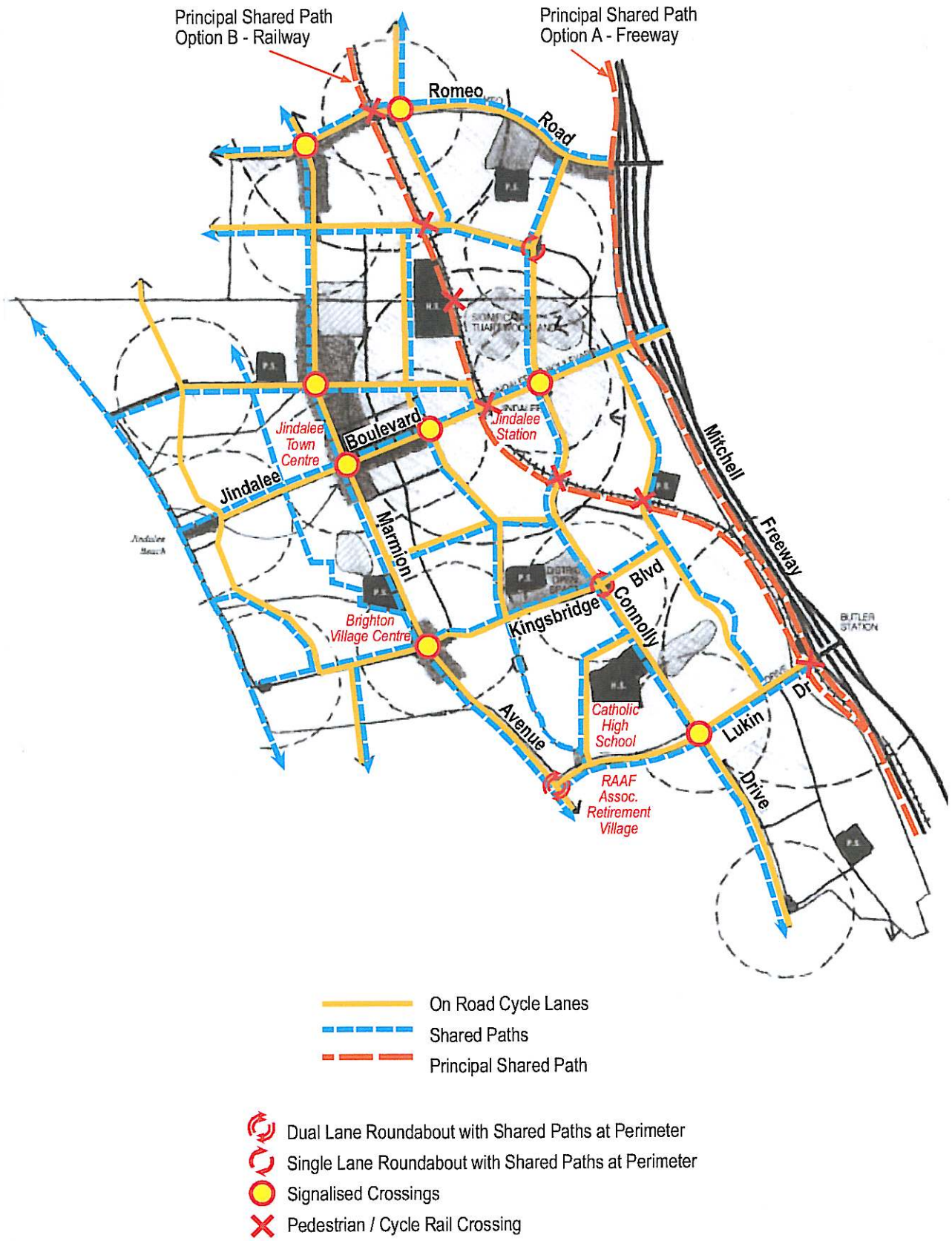
The local shared paths are 2.5m to 3.0m in width provided on the coastal access roads, and neighbourhood connectors. The on road cycle lanes are typically a 1.5 metre street space on the neighbourhood connectors and arterial roads operating at 60km/hr or less. At 70km/h the space increases to 2.0 metres. The only principal shared path is on the Freeway.

10.0 RAILWAY

10.1 Railway Alignment

A key land use outcome of the 1996 Enquiry by Design workshop was the merit in diverting the rail line from the Freeway at Lukin Drive to better service the urban areas north of that point. To assist in further examining this issue as part of the 2001 Enquiry by Design the Department for Planning & Infrastructure commissioned the Brighton Transit Alignment Options Report prepared by Sinclair Knight Merz. This report posed a number of alternative alignments and rail type scenarios to assist in Charrette deliberations and selecting the preferred rapid transit option (both technology and alignment).

This comprehensive report, available as a separate document, concluded that from a public transport servicing and accessibility point of view, all of the non Freeway alignment options had merit. It encouraged the Charrette participant in selecting the preferred alignment to consider:



PEDESTRIAN / CYCLE NETWORK

SOURCE : ERM

FIGURE 14

- Ability to integrate communities within the region.
- Public transport accessibility provided both within the region and from the existing metro rail system.
- Timing and staging of construction for cost.

Supplementing this report Sinclair Knight Merz also produced the Brighton Transit Patronage Forecasting Study which examined target trip rates and patronage ratios for the new stations. These figures were fundamental in completing the transit based analysis of the District Structure Plan.

Using the above information and a range of other criteria, economic, social and environmental, the Charrette analysed two alignment options being the original Freeway Alignment option as currently provided in the MRS and "Option 4" which involved diverting the rail inland after Lukin Drive with major town centres at Brighton and Alkimos (the latter relocated slightly north of the parabolic dune) and minor centres of Butler and Eglinton.

The new rail alignment allows a delivery of short to medium land supply targets in the Brighton subdivision. The Charrette found that the rail reserve in residential areas should typically be 16.6 metres wide and within a cutting of 2-3 metres for noise attenuation (refer Figure 15 produced at Charrette). To limit the number of single loaded streets residential lots may back onto the railway line or road crossings of the rail will need to be grade separated for safety reasons.

Using Transit based assessment criteria "Option 4" became the preferred option and forms the basis of the District Structure Plan. Importantly, local structure planning will need to recognize the alignment and proximity of

INDICATIVE RAILWAY CROSS-SECTION

SOURCE : D.P.I.

FIGURE 15

the rail to residential uses, particularly where the rail leaves the freeway. Measures will be required to ensure the rail does not generate unacceptable levels of nuisance from noise and vibration to residences.

10.2 Railway Stations

One of the key features of the new alignment is location, role and spacing of the railway stations. Five stations are proposed at an optimum average of 2km spacing. This places the stations such that each has a good one kilometer radius walk or catchment of urban development that can be relatively dense and diverse. Each station abuts a strong east-west street to ensure good access, good exposure and an efficient bus interchange.

Four stations are associated with town centres whilst the fifth at Romeo Road will be based on residential custom and park and ride (considerable residential density would need to occur to justify this particular station). The Butler station would also have substantial park and ride capacity in recognition of its limited walkable catchment and the extensive conventional suburban development in nearby Quinns and Merriwa.

The Structure Plan identifies both the stations and the 800m station precincts pursuant to WAPC Policy No. DC 1.6 Development near Metropolitan Railway Stations. Whilst this remains a Liveable Neighbourhood's Structure Plan, subdivision and development within these precincts should aim toward satisfying these D.C. Policy requirements.

Importantly specific and more detailed Station Precinct Plans must be prepared for each station precinct (this includes Butler, Brighton and Romeo Road Stations) as part of the Local Structure Plan process.

11.0 ECONOMIC AND EMPLOYMENT INITIATIVES STRATEGIES

11.1 Introduction

A major Charrette objective was the creation of a context for local employment creation to move closer towards 60% employment self sufficiency target in the original North-West Corridor Structure Plan and reduced car based travel. The key objective was to move towards providing sufficient employment to match the growth in the resident workforce that will be created by residential development in the Brighton district.

The Brighton Charrette acknowledged that overall employment provided in the corridors of Perth has not generated sufficient jobs for the growing resident workforce, resulting in increasingly unsustainable reliance on long distance commuting. The north west suburbs have developed as dormitory suburbs with the ratio of jobs to resident workforce more than halved in the north west corridor between 1961 and 1991 falling from 75% to under 36%. By 1991 this corridor was performing worse than any other corridor and well below the job self sufficiency average of 55% for all the corridors in the Perth metropolitan region.

The Charrette acknowledged that employment is moving substantially toward part time, casual and low paid jobs with a marked complimentary shift to enterprising households that rely on members engaged in multiple employment. These enduring trends mean that if jobs are not found locally there will almost inevitably be substantial long term involuntary unemployment, lower real household incomes, reduced personal wealth and increasing social problems in outer metropolitan areas.

An objective in formulating the Butler Jindalee District Structure Plan was a realistic approach to capturing self sufficient employment to achieve over 60% local job self sufficiency and within about 8km's of where those people will live.

Based on the Butler Jindalee District Structure Plan, the Employment Assessment prepared by Derek Kemp of Prosperous Places identified employment and land & space requirements based on 17,000 households in the District Centre catchment (Note: this catchment extends beyond the District Structure Plan boundary, hence the apparent discrepancy in household/lot numbers within Table 1).

11.2 Employment Budgets

An employment self sufficiency in excess of 60% would require the provision of over 12,400 jobs in the sub region. The Sub Regional Structure Plan developed at the Charrette is actually targeted at achieving some 17,000 jobs resulting in job self sufficiency of over 80%. Not all these jobs may suit the skills of the resident workforce. Some new residents will continue to work outside the area and there will still be cross community with some local jobs taken by people resident outside the study area.

It is anticipated that the following number of new jobs could be provided in the sub regional area subject to suitable, well located, affordable premises being developed:

Table No. 3 – Job Creation

JOBS	**PEOPLE**
Office employment	960
Industrial employment	115
Storage warehouse distribution employment	105
Home based business employment	4,380
Graduated home based business employment	1,690
Retail employment (including personal services)	1,600
Population driven public sector employment (locally located)	2,070
Total local employment (53% job self sufficiency)	**10,920**

In addition the Prosperous Places Employment Study identifies other sources of employment that could be attracted to this portion of the north west corridor including:

- A major car industry complex
- Local government administration
- A private hospital
- A conference centre
- A corporate university
- Private schools
- TAFE or public university campus
- Agricultural business services
- Tourist based activities

Further significant potential also exists at the nearby Flynn Drive industrial area.

In summary Derek Kemp concludes that the sub region has the potential to provide over 17,000 jobs and achieve over 80% employment self sufficiency through:

1. Private sector jobs provided for in the Brighton study area (8,850 – 43% job self sufficiency)
2. Population following public sector jobs - 2,070 (increases to 53% job self sufficiency).
3. Other regional employment opportunities – 4,500 jobs (increases to 75% job self sufficiency.
4. Flynn Drive integrated employment area, 1,060 (resulting in 83% job self sufficiency.

In other words, the potential flowing on from the Sub Regional Plan and the District Structure Plan from an employment point of view is enormous when compared to the failures being experienced under the older planning regime embodied in the North West Corridor Structure Plan.

11.3 Demand for Space at Integrated Business Centres

At the Charrette, the land and floor space that should be provided to accommodate all the demand for 'footloose', small, service sector activities and the 'population–driven' demand projected to be generated by mature suburbs was estimated. Residential lots are expected by the developers to be 'sold out' by the year 2016, and accordingly, the space requirements will need to accommodate the level of employment and business demand within the following 10 years.

Most of this space is best located in Integrated Business Centres that synergistically combine 'superior locations' for different types of activities. The development of these Business Centres will need to be staged

according to the increase in demand as population and 'footloose' activities are attracted into the area. Initial planning should provide for not less than 50% of the required floor space being developed in the proposed Integrated Business Centres. Additional land should be set aside to enable the eventual development of the balance of the total floor space, if the desired local employment outcomes are to be achieved.

The identified employment-related floor space requirements should be allocated to the centres according to the size of the population and number of households in the respective centre catchments.

The following distribution of employment-related floor space is desirable:

- Butler 12% (2,574 households)
- Brighton 58% (12,960 households)
- Jindalee Beach 4% (1505 households)
- Alkimos 27% (5,066 households)

The Brighton figure above includes households at Alkimos South that would also be in the catchment of the Brighton centre. The Alkimos figure does not include the complete (northern) catchment for the Alkimos centre.

The following office floorspace should be provided in affordable, small business/office premises in each of the proposed major centres with provision for the requisite site areas:

- Butler (Lukin) 3,550m² nfa requiring 8,000m² net site area (nsa)
- Brighton 17,200m² requiring 40,000m² nsa
- Jindalee Beach 1,200m² nfa requiring 2,750m² nsa

- Alkimos 8,000m² nfa 18,500m² nsa – for the southern part of the Alkimos catchment

The indicative floorspace for the Brighton Town Centre includes space to be provided in the local centre currently under construction on the Marmion Avenue/Knightsbridge Boulevard corner, to meet the requirements of the first stages of residential development.

Industrial/storage space in flexible, small-scale commercial/light industrial premises needs to be provided as follows:

- Butler 3,000m² nfa requiring 7,800m² nsa
- Brighton 14,200m² nfa requiring 37,000m² nsa
- Jindalee Beach 1,000m² nfa requiring 2,600m² nsa
- Alkimos 6,600m² nfa requiring 17,200m² nsa – for the southern part of the Alkimos catchment.

Again, the indicative floorspace for the Brighton centre includes space to be provided in the local centre currently under construction on the Marmion Avenue/Knightsbridge Boulevard corner, to meet the requirements of the first stages of residential development.

Some 'land banking' will be necessary to enable the provision of an appropriate range of suitable space to meet the growing demand when the residential population grows, the development matures and otherwise 'footloose' activities are attracted to Brighton. Land banking at individual centres will be important to enable the provision of sufficient space of each type in appropriate business settings at the proposed Integrated Business Centres as Brighton matures as a business location and

employment destination temporary uses of the 'land banked' sites should be considered to 'hold' these for longer term needs.

11.4 The Brighton Local Employment Generation Strategy

The broad purpose of this Section has been to outline the economic and employment potentials and benefits from a Liveable Neighbourhoods approach to regional and district structure planning. In partnership with this is the need for more detailed Employment Generation Strategies which detail specific initiatives to be pursued by each developer in attracting employment as part of the development of their land.

Clearly such strategies will vary depending upon the size and location of the land parcel and the nature of land uses included therein. For example the coastal superlots such as Lot 12 are predominantly residential in character whereby most employment opportunities will be provided on other landholdings within the Structure Plan area, particularly those comprising the large centres and business precincts.

It is therefore a specific requirement of both the Department for Planning & Infrastructure and the City of Wanneroo that each developer should prepare an Employment Generation Strategy for their landholding, preferably at the Local Structure Plan phase. Such a document has already been prepared for the Brighton Joint Venture land and is included in the Appendix. Similarly the owners of Lot 12 participated in this exercise and prepared a more comprehensive document as a prerequisite to their Local Structure Plan approvals.

Within the District Structure Plan study area therefore it remains for the owners of Lot 10 Marmion Avenue and Lot 3 Romeo Road to prepare Strategies.

12.0 EDUCATION AND SCHOOL SITES

The District Structure Plan identifies the preferred location for public high schools and public primary schools based on Education Department criteria. It is acknowledged there is scope for refining both the size, location and distribution of these schools based on more detailed local structure planning exercises. Further, it is acknowledged that a significant number of private schools at all levels will be introduced into this area which similarly will impact upon the location of the public schools and careful local planning will need to be adopted to ensure the optimum outcome is achieved.

As part of the consultation process the Butler Jindalee Structure Plan was referred to the Education Department for comment. The Plan considered by the Department was the Preliminary Charrette Structure Plan at Figure 9 which provided for six primary schools and two high schools named as follows (for identification purposes):

- Ridgewood Primary (in the locality of Ridgewood)
- Butler High (on Connolly Drive)
- South Jindalee Primary (on Marmion Avenue)
- Butler Primary (abutting public open space)
- East Butler Primary (near the railway line)
- North Jindalee Primary (between the coast and Marmion Avenue)
- Alkimos High (west side of the railway line)
- East Alkimos Primary (south of Romeo Road)

The need for a further Primary site was identified by the Department for Lot 3 east of Marmion Avenue. This has been included in the District Structure Plan and is referred to as Alkimos Primary. The full text of the Education Department's response is included in the Technical Appendix.

Importantly, the position of all school sites on the District Structure Plan is notional, reflecting catchment requirements. Final locations must be determined as part of the Local Structure Plan and subdivision stages by individual landowners in association with the Department for Employment & Training and the Department for Planning & Infrastructure.

13.0 ENVIRONMENTAL SUSTAINABILITY

For detail on the physical environmental opportunities and constraints presented by Lots 7, 8, Part 11, 32 and 33 Butler, the reader is referred to the Bowman Bishaw Gorham reports included in the Technical Appendices. The constraints and opportunities described in this document were taken into consideration during preparation of the District Structure Plan.

(It should be noted that there was a significant error under Section 4.0 of the BBG Report where Floristic Community Type 26A was inadvertently described as being gazetted as endangered and specially protected under the State Wildlife Conservation Act and the Commonwealth Environmental Protection Biodiversity Conservation Act. This is incorrect and the future treatment of these areas needs to be resolved as part of the ongoing local structure plan and/or subdivision processes.)

The overarching environmental priority in this Structure Plan is the need to achieve sustainable triple bottom line urban form outcomes. It is the premise upon which Liveable Neighborhoods is based and underpins the Liveable Neighbourhoods Transit based planning approach for the Brighton Structure planning process. The urban form proposed as part of the District Structure plan maximises sustainability, particularly when compared to more conventional forms of subdivision. The high levels of employment self sufficiency coupled with walkability, for example, promote less car travel, assisting greatly in meeting greenhouse gas performance targets.

These improved environmental performance levels achieved through promoting sustainable urban form will arise in part as a result of the following urban design initiatives:

- Overall increased housing and population densities based on walkable catchments.
- Permeable urban form using an interconnected grid street network.
- Active interfaces with major roads.
- Target local employment at 60% self sufficiency with well located centres and support areas.
- Centralised railway line/station locations to improve walkable catchment performance levels.
- Encouraging local employment orientated activities on major roads.
- Integrating mix land used with strong main street pedestrian friendly design themes.
- Protection of key natural habitat areas.
- Timely provision of key commercial, recreation and community infrastructure.

These initiatives result in:

- A significant reduction in car dependence and subsequent reduction in greenhouse gas emissions.
- Increasing public transport patronage from 8% to 15%.
- Deferring the need for the Freeway extension from 2015 to 2020.
- Achieve and exceed employment self sufficiency targets.

Staging is a key factor in understanding how the provision of services, infrastructure and employment will occur within the District Structure Plan area over time. In this regard a preliminary staging plan is included in the Appendix relevant to the Joint Venture landholding.

The City has indicated it may expand this concept into a more tangible planning framework to develop and implement agreed sustainability targets through the Local Structure Plan, subdivision and development stages. The Department of Environmental Protection has also suggested that performance indicator targets also be considered. Clearly this is a complex exercise which should be undertaken pursuant to the objectives and strategies outlined in the Structure Plan with reference to the criteria outlined in Section 9.2. Preparation of such a framework should be a joint separate exercise between the developers, the City the Department for Planning & Infrastructure and the Department of Environmental Protection, balancing the need for higher densities with commercial realities and reasonable development time frames.

14.0 OPEN SPACE AND ENVIRONMENT

14.1 Natural Areas and Environment

Within this land use framework and acknowledging sustainability objectives it is desirable and appropriate to protect specific areas of higher environmental or natural landscape value.

The District Structure Plan identifies the following natural environment opportunities;

(i) Protection of the prominent Eglinton Hill and Trigg point on Lot 10.

(ii) Potential for preservation of areas of *Melaleuca Huegellii – Melaleuca Acerosa* (26A Community). It should be noted this is not a gazetted/listed Threatened Ecological Community but local planning may provide an opportunity for preservation of some areas. One area on Marmion Avenue has been set aside already by the Brighton Joint Venture. The known populations are indicated generally on the Structure Plan.

(iii) A wide Coastal Foreshore Reserve is already in place and this will be increased in the north western corner of the plan to ensure protection of Carly's Spring, an important natural and Aboriginal heritage area located on the coast just north of Lot 9.

(iv) Individual subdivisions adjacent the Coastal Foreshore Reserve will be required to prepare Foreshore Management plans as a Condition of Subdivision approval.

(v) An area of local bush land comprising representations of Dryandra heathland and Banksia woodland is proposed for retention in the northwestern most neighbourhood on Marmion Avenue adjacent the

future 11.0ha District Open Space area. This bush block will provide summer and autumn feeding areas for Carnaby Cockatoos.

(vi) An area of established Tuart woodland to the north east can be sensitively integrated into any detailed subdivision proposals to maximize retention of parts of this area. This potentially comprises a combination of local open space opportunities, landscape features or individual specimen retention. It is an issue for detailed resolution at the local structure plan and/or subdivision stage.

A key challenge in this corridor will involve balancing the protection of areas of natural bushland against urban sustainability objectives, particularly the need to increase the overall dwelling unit yield to support the rail and walkable catchments.

Those areas with environmental significance where careful detailed planning is required, are indicated on the District Structure Plan as "Areas of Potential Environmental Value" (E) where conservation/land use strategies should be determined as part of the Local Structure Plan and/or subdivision processes.

14.2 District Open Space Strategy

The need for District Open Space within the Butler locality has been recognized in most local structure planning undertaken for this area over the last 15 years. One of the first documents to identify the need was the Clarkson Butler Revised Planning Strategy (1989) produced by the State Planning Commission which identified "a regional park and recreation" site as being desirable in the proximity of Lukin Drive between Marmion Avenue and Connolly Drive.

Following this initiative the original Lot 7 Local Structure Plan prepared by Mitchell Goff & Associates for LandCorp, the then owners of Lot 7, and endorsed by the City of Wanneroo, recommended a 6 hectare site be set aside between the proposed government high school and the proposed primary school on Lukin Drive to collocate a District Open Space facility. A subsequent subdivision saw the creation of this lot (Lot 12675) and its transfer to Council to be held for District Open Space purposes.

The City of Wanneroo, the Department for Planning & Infrastructure and the Joint Venture as part of the Butler Jindalee District Structure Plan identified the ongoing need for the provision of District Open Space within the Butler locality, but reviewed its location and identified an alternative preferred site further to the north.

The reason behind relocating the District Open Space was:

1. The desire of both the Department of Education & Training and the Roman Catholic Education Commission to pursue self contained recreation options at the Lukin Drive site.
2. The difficult elongated shape, topography and access problems associated with attempting to develop Lot 12675 as a stand alone lot.
3. The inadequacy of 6 hectares for district recreational purposes if developed as a stand alone site.
4. The shift of the District Centre from Lukin Drive to Marmion Avenue and loss of synergy.
5. The need for residential uses and increased densities in the Butler Station catchment.

Alternative sites were therefore reviewed. Initially the preference was for a site on the corner of Connolly Drive and Kingsbridge Boulevard, however,

this has now been identified as a major Local Open Space area due to size constraints. A more suitable and less constrained site was identified by the City of Wanneroo further to the north straddling Lot 8 and Lot 3 Marmion Avenue. The reasons for selecting this 11 hectare lot were as follows:

1. Recognition of the nature of the distribution of regional sporting facilities in Wanneroo, being Joondalup (The Arena), Kingsway and the proposed Regional Facility at Alkimos.
2. The relatively unconstrained nature of the site in terms of topography.
3. Proximity and access to the proposed Brighton District Centre and Brighton Station.
4. Location predominantly outside of the Brighton Station catchment.
5. Its co-location with a government high school site allowing for the development of joint facilities.
6. Its relationship with environmental priority areas on Marmion Avenue and east of the railway line.
7. The potential for this site to perform a role in a pedestrian corridor stretching from the freeway through to Marmion Avenue.

It is also important to recognize that this, insofar as the Joint Venture landholding is concerned, this represents relocated district open space and will form the basis of a land exchange between the City and the Joint Venture partners.

14.3 Local Open Space Strategy

Insofar as recreation and open space is concerned it is the primary role of this District level Structure Plan to identify the location and role of district and regional spaces whilst the provision of local open spaces must be addressed by individual proponents as part of the Local Structure Plan and subdivision processes.

This is the approach which is being successfully implemented at Brighton. For reference purposes the District Structure Plan depicts those local open spaces which have or are in the process of being created.

There are some key principles which have emerged as part of this local open space process which should continue to be adopted throughout the Structure Plan area. These are as follows:

(i) Local Open Space to be provided at a minimum rate of 8% of the gross subdivisible area where subdivision applications are lodged pursuant to Liveable Neighbourhoods;

(ii) The creditable area is to be calculated by reference to Policy R4 of Element 4 of the Liveable Neighbourhoods Policy;

(iii) Unless otherwise agreed with the Department for Planning & Infrastructure and the City of Wanneroo each superlot (refer Figure No.1) is to be self contained in its provision of local open space. That is, an oversupply in one superlot cannot be offset elsewhere.

(iv) No dwelling should be more than 400 metres walking distance from a park.

(v) The provision of local open space areas must also comply with the criteria outlined in the City of Wanneroo's Public Open Space Planning Policy.

15.0 MOBILE TELEPHONE BASE STATION

The City has adopted a Local Planning Policy to facilitate a well planned network of mobile telephone base stations throughout the City.

Based on this Policy the District Structure Plan allocates five potential sites for such telecommunications infrastructure at major activity nodes including:

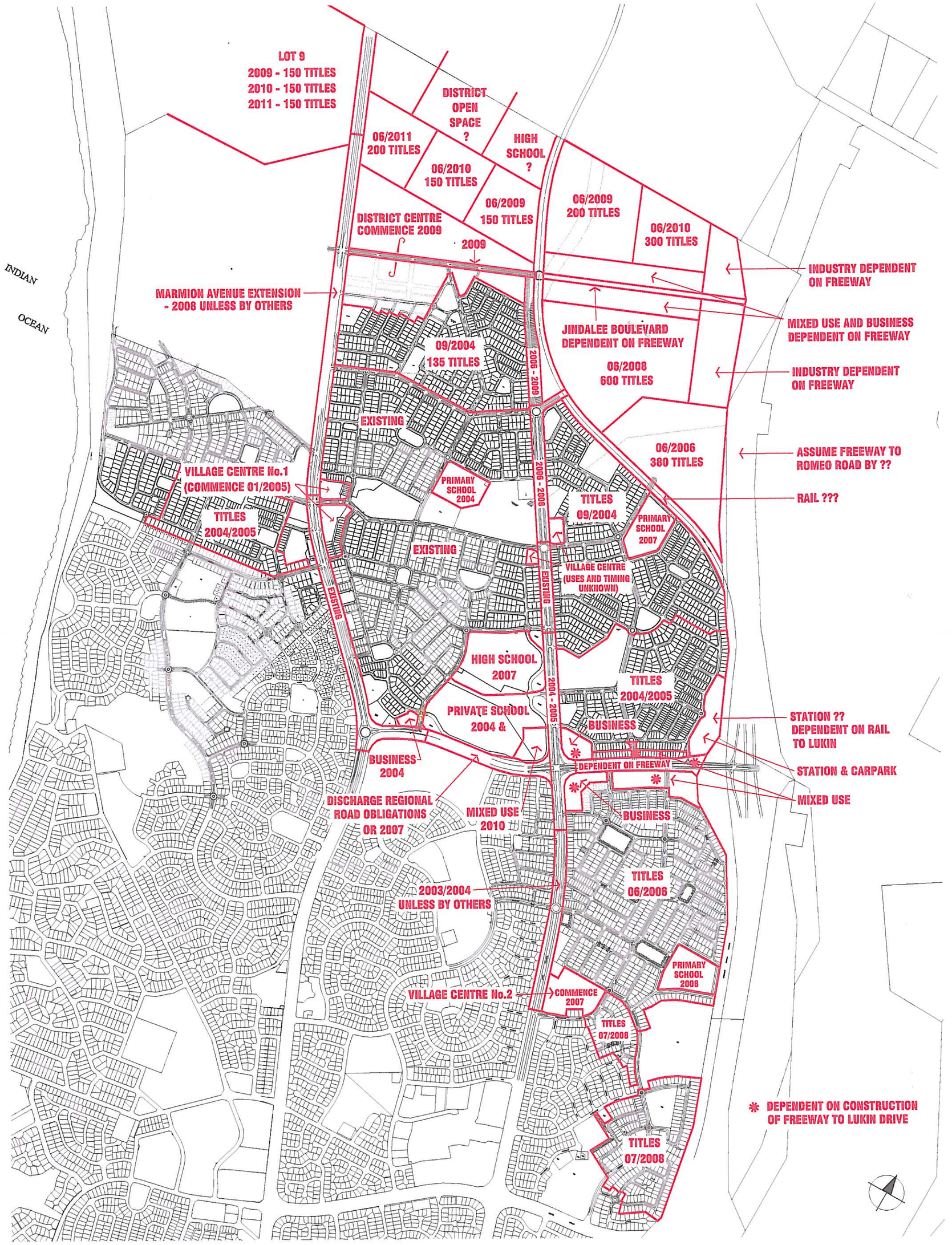
- Butler Park and Ride Station
- Butler Centre (Corner of Lukin and Connolly Drive)
- Brighton District Centre
- Brighton Boulevard Mixed Use/ Business Precinct
- Romeo Road Station

16.0 IMPLEMENTATION

The immediate priority with respect to the District Structure Plan is to facilitate the timely approval of further subdivision stages within the Structure Plan generally from the south to the north. The District Structure Plan offers the planning rationale to support such approvals in tandem with ongoing amendments to the operational Part 9 Brighton Local Structure Plan operating pursuant to DPS 2.

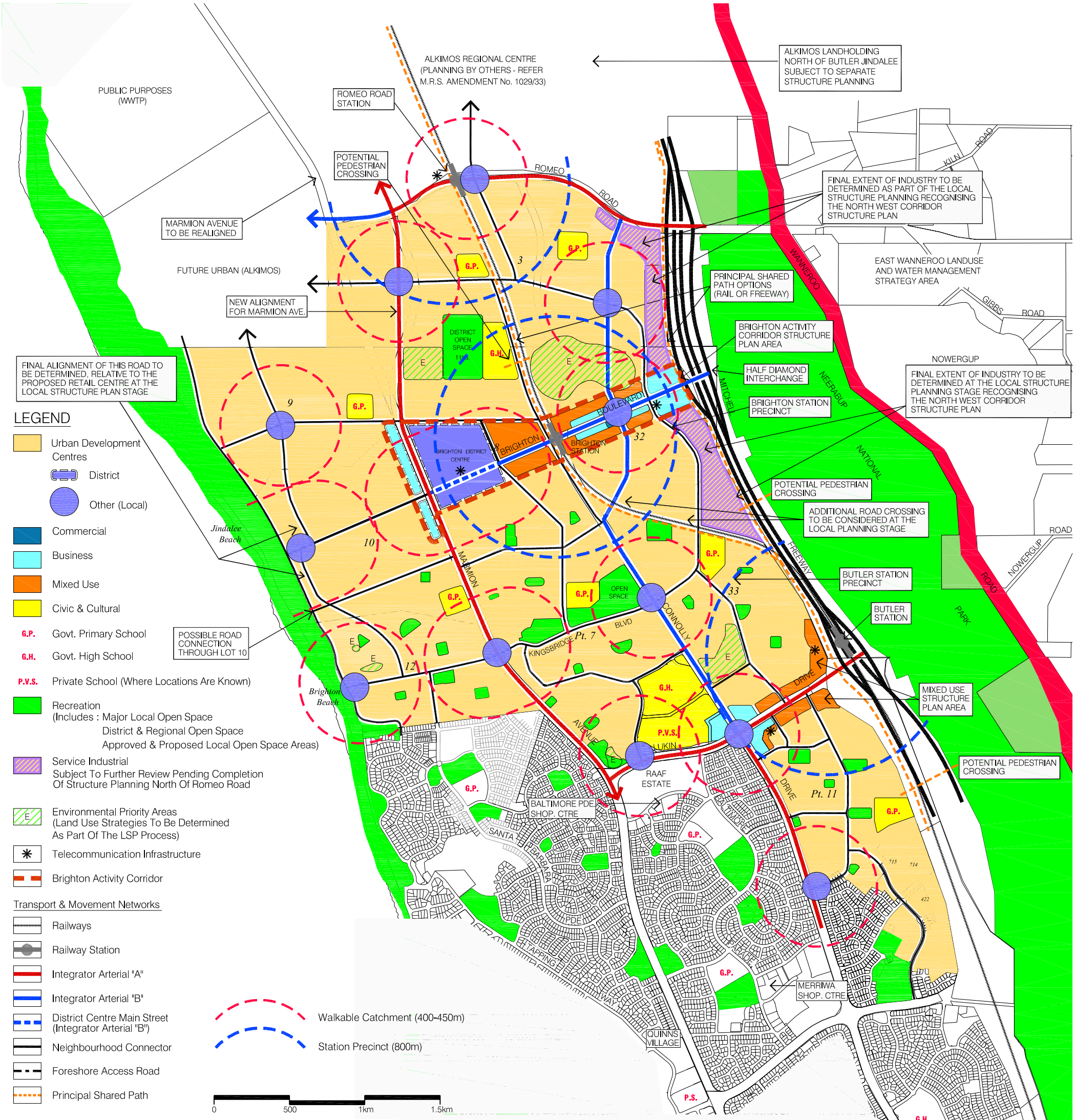
This Structure Plan also forms the basis of ongoing amendments to the Metropolitan Region Scheme to affect key components of the implementation strategy particularly with respect to the new Railway alignment and alignment alterations to Marmion Avenue and Connolly Drive.

An appropriate amendment should also be made to the Metropolitan Centres Policy to firmly designate the new location of the Brighton District Centre on Marmion Avenue, and to the City of Wanneroo Centres Strategy.



NOTIONAL STAGING STRATEGY - BRIGHTON

FIGURE 16



NOTES

1. Final location of the Alkimos Regional Centre to be determined as part of the review of the North West Corridor Structure Plan & MRS Amendment.
2. The final locations and configurations of the government schools depicted on this Structure Plan will occur at the local structure planning stage through landowner consultation with the Department of Education and Training and the Department for Planning & Infrastructure. Locations depicted are notional and approximate to reflect catchment requirements.
3. Further study will be required to identify appropriate pedestrian/cycle crossing locations once final levels along the rail are known.
4. All Centre retail floorspace allocations to be determined through reference to the Metropolitan Centres Policy, the City Of Wanneroo Retail Strategy and the Shrapnel Urban Planning Retail Assessment included within the District Structure Plan report.
5. Concerning public open space this Structure Plan depicts;
   - Regional Open Space
   - The nominated District Open Space site
   - Major local open space areas
   - Other local open spaces either approved or proposed as part of lodged subdivision plans.
6. Each of the study area superlots shall provide at least 8% public open space in accordance with Liveable Neighbourhoods with the distribution to be determined at the local structure plan and subdivision phases. Land set aside for District Public Open Space will count towards the 8% requirement.
7. The Structure Plan nominates a Brighton Activity Corridor, extending from the Mitchell Freeway to Marmion Avenue, encompassing the Station and District Centre Precinct. This area will require a separate amendment to the Butler Ridgewood local structure plan which pursues an adaptable and flexible urban framework to facilitate higher residential densities and mixed use development once the railway and other major transit infrastructure is in place.
8. The structure plan nominates a Mixed Use Area extending from the future Butler Station, along Lukin Drive to Connolly Drive. This area will require a separate amendment to the Butler Ridgewood local structure plan to establish the extent of mixed use development, residential densities and built form provisions to ensure appropriate development in close proximity to the station.

PLAN 1 - BUTLER-JINDALEE DISTRICT STRUCTURE PLAN