



AMENDMENT NO. 11

TO THE

CAPRICORN COASTAL VILLAGE

AGREED STRUCTURE PLAN NO. 44

Structure Plan Ref: WANN/2016/44-11

RECORD OF AMENDMENTS MADE TO THE CAPRICORN COASTAL VILLAGE

AGREED STRUCTURE PLAN NO. 44

Amendment No.	Summary of the Amendment	Amendment Type	Date approved by WAPC
1.	Minor modifications including: relocation of Aged Care Facility, increase in the size of the southern primary school site to 4 hectares, replace western area of POS with R10 density housing, other minor road and density coding variations.	Minor	24 January 2006
2.	Minor modifications including; reconfiguration of sections of the local road network; incorporation of new residential mixed use and child care sites; modifications to areas of Public Open Space and other minor density coding variations.	Minor	11 March 2006
3.	Major modifications to the Structure Plan design generally north of Lindsay Beach Boulevard including; road alignment, lot configuration, density and location of Public Open Space. Modification to Structure Plan boundary.	Major	21 August 2007
4.	Minor modification to provision relating to boundary walls.	Minor	31 August 2010
5.	Minor modifications including; local road network and open space in the north-east area; Centre Zone boundary; zoning of school sites; and retail floorspace provision.	Minor	30 November 2010
6.	Major modifications to the structure plan design including increasing densities near the Coastal Node, creation of larger Public Open Space area to protect natural high and grove of mature trees.	Major	15 April 2013
7.	Minor amendment to allow 'Take Away Food Outlet' as a 'D' discretionary use in the 'Mixed Use' zone.	Minor	17 October 2012
8.	Minor amendment to vary the minimum open space requirements in the Residential Design Codes for R20-R40 coded lots.	Minor	10 August 2015

9.	Modification to the Structure Plan design in the area bounded by Torepango Drive, Parktree Avenue, future Primary School and adjoining future POS area, including altering the road layout and removing a small public open space area. Modification to the Structure Plan design in other areas shown as hatched on Plan 1 by simplifying street and lot layout and applying a blanket density code range from R25 to R40 (including locational criteria).	Major	10 August 2015
10.	Modification to the Structure Plan boundary and Neighbourhood Centre boundary to include land previously subject to Capricorn Neighbourhood Structure Plan No. 54. Modification to the Structure Plan design by removing street block detail and road network within the amendment area and Centre Zones; applying a blanket density code range from R25 to R40; and consolidation of Plans 1, 2 & 3 into one Structure Plan figure.	Major	11 April 2016
11.	Modification to the Structure Plan design and boundary to include land formerly subject to Capricorn Neighbourhood Centre Agreed Structure Plan No. 54 and area notated as 'Future ASP', including removing street block detail and road network; reallocation of residential density coding (R30, R40 & R60); consolidation of retail component to proposed commercial zone and identification of mixed use sites; provision of additional POS; and changes to the zoning consistent with the requirements of the Planning and Development (LPS) Regulations 2015.	Major	

**AMENDMENT NO. 11 TO THE
CAPRICORN COASTAL VILLAGE AGREED STRUCTURE PLAN NO. 44**

The City of Wanneroo, pursuant to its District Planning Scheme No. 2, hereby amends the above Agreed Structure Plan by:

1. Replacing Existing Plan 1 – Structure Plan with Proposed Plan 1 – Structure Plan.
2. Modifying the Structure Plan design and boundary to include land formerly subject to Capricorn Neighbourhood Centre Agreed Structure Plan No. 54 and area notated as 'Future ASP'.
3. Removal of street block detail and road network.
4. Reallocation of residential density coding (R30, R40 & R60).
5. Consolidation of the retail component to proposed commercial zone and identification of mixed use sites.
6. Provision of additional POS.
7. Changes to the zoning identified on Plan 1 and various references in Part 1 consistent with the requirements of the Planning and Development (LPS) Regulations 2015.

PART 1

AMENDMENT NO. 11 TO THE CAPRICORN COASTAL VILLAGE AGREED STRUCTURE PLAN NO. 44

PART 1: ~~STATUTORY~~ **IMPLEMENTATION** SECTION

2.0 STRUCTURE PLAN CONTENT

This Structure Plan comprises the:

- a ~~Statutory~~ **Implementation** section (Part 1);
- b Explanatory section (Part 2):
 - Volume 1 - Structure Plan explanatory section
 - Volume 2 - Technical Appendices

4.0 OPERATION DATE

This Structure Plan comes into operation when it is endorsed by the Western Australian Planning Commission (WAPC) pursuant to section 16 of the *Planning and Development Act 2005*.

~~5.0 RELATIONSHIP WITH THE SCHEME~~

~~In accordance with clause 9.8 of the Scheme:~~

- ~~a The provisions, standards and requirements specified under Part 1 of this Structure Plan shall have the same force and effect as if it were a provision, standard or requirement of the Scheme. Part 2 of this Structure Plan is for explanatory purposes only, in order to provide a descriptive analysis of the Structure Plan.~~
- ~~b In the event of there being any inconsistencies or conflict between the provisions, standards or requirements of the Scheme and the provisions, standards or requirements of this Structure Plan, then the provisions, standards or requirements of the Scheme shall prevail.~~

5.0 ZONES, RESERVES & RESIDENTIAL DENSITY CODES

The Structure Plan Map (Plan 1) delineates and depicts the zones, reserves and residential density codes applicable to the land according to the legend thereon.

~~The zones, reserves and residential density codes designated under this Structure Plan apply to the land within it as if the zones, reserves and residential density code were incorporated in the Scheme.~~

All provisions, standards and requirements applicable to the zones, reserves and density codes in the Scheme shall apply, ~~unless specific provision is made to the contrary in this Structure Plan.~~

6.0 RETAIL NETT LETTABLE AREA

The maximum permitted retail floor space for the **Commercial Zone identified in the Structure Plan shall not exceed 4,500m² (NLA).**

7.5 Commercial Zone

Objectives

The Commercial Zone is intended to accommodate retailing, entertainment, professional offices, business services and residential uses commensurate with the scale of a Neighbourhood Centre. Development of single residential dwellings is not encouraged within the Commercial Zone.

No subdivision or development should be commenced or carried out in the Commercial Zone until a Local Development Plan (LDP) has been prepared and adopted pursuant to Part 6, Clause 47 of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

8.3 Public Open Space

- The provision of public open space shall be in accordance with the Agreed Structure Plan. ~~The first stage of subdivision shall ensure that a suitable area of open space is provided.~~
- ~~Indicative areas of open space depicted in the Centre Zone areas will be subject to refinement through the subsequent Centre Zone Structure Plans.~~ A minimum 10% open space allocation will be required across the entire Local Structure Plan area ~~following the detailed refinement of open space provision in each of the Centre Zones.~~

8.5 Local Development Plans

LDPs shall be prepared and implemented by the City of Wanneroo pursuant to Part 6, Clause 47 of the *Planning and Development (Local Planning Schemes) Regulations 2015*, prior to subdivision and development of:

- Lots smaller than 260m²;
- Lots with direct boundary frontage to an area of POS;
- Lots deemed to be bushfire prone as identified in the Bushfire Management Plan;
- Lots deemed to be impacted by noise as identified in the Noise Assessment;
- Lots with rear-loaded vehicular access;
- Lots within the 'Commercial' zone;

- Aged Care Site; and
- Mixed Use sites adjacent future Marmion Avenue establishing design criteria that facilitate intensification, adaptable and generational change of use.

LDPs being prepared and approved for lots comprising one or more of the above site attributes shall address the following as a minimum, where necessary:

- i. Surveillance of POS;
- ii. Vehicular access and garage locations for rear-loaded lots;
- iii. Vehicular and pedestrian access, parking and service areas;
- iv. Building height;
- v. Setbacks;
- vi. Distribution of land uses;
- vii. Adaptable dwelling design that can facilitate intensification and generational change of use;
- viii. Fire management; and
- ix. Noise management.

The Aged Care Site is proposed to be developed as a single entity, and therefore it is considered more appropriate that the overall design is considered on its merits through the preparation and implementation of an LDP or development application.

9.0 Residential development

The Structure Plan Map (Plan 1) ~~Plan 2~~ defines either the Residential Density Code or the Residential Density Code range that apply to specific areas within the Structure Plan.

Where the Structure Plan Map (Plan 1) ~~Plan 2~~ prescribes a Residential Density Code Range, a Residential Density Code Plan is to be submitted at the time of subdivision to the WAPC and shall indicate the Residential Density Coding applicable to each lot within the subdivision and shall be consistent with the Structure Plan and the Residential Density Ranges identified on the Structure Plan Map (Plan 1) ~~Plan 2~~ and the locational criteria contained in Clause 10.1.

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

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

A Residential Density Code Plan is not required if the WAPC considers that the subdivision is for one or more of the following:

- i. the amalgamation of lots;
- ii. consolidation of land for “superlot” purposes to facilitate land assembly for future development;
- iii. the purposes of facilitating the provision of access, services or infrastructure; or
- iv. land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential.

9.1 Locational Criteria

For areas identified as having a Residential Density Code range on the Residential Density Code Plan, the allocation of residential densities shall be in accordance with the following criteria:

- a) R25-R40 Range
 - i. an average density code of R25 shall generally be provided for all residential lots.
 - ii. medium densities of R30 or R40 shall generally be provided for residential lots accessed by a rear laneway and/or lots directly fronting or adjacent to areas of POS.

This Structure Plan Amendment is prepared under the provisions of the City of Wanneroo District Planning Scheme No. 2

IT IS CERTIFIED THAT THIS STRUCTURE PLAN AMENDMENT NO. 11 TO THE CAPRICORN COASTAL VILLAGE AGREED STRUCTURE PLAN NO. 44

WAS APPROVED BY

RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON

.....

Signed for and on behalf of the Western Australian Planning Commission

.....

an officer of the Commission duly authorised by the Commission pursuant to section 24 of the *Planning and Development Act 2005* for that purpose, in the presence of:

..... Witness

..... Date

..... Date of Expiry

PART 2 - EXPLANATORY REPORT

AMENDMENT NO. 11 TO THE

CAPRICORN COASTAL VILLAGE AGREED STRUCTURE PLAN NO. 44

1.0 INTRODUCTION

The proposed amendment primarily relates to area subject to the Capricorn Neighbourhood Centre Agreed Structure Plan No. 54 (ASP 54) and the area notated as 'Future ASP' as notated on the Capricorn Coastal Village Agreed Structure Plan No. 44 (ASP 44). Currently, the subject land is identified as falling within 'Centre Zone' boundaries in ASP 44 and ASP 54 is the relevant Centre Zone structure plan for the 'Neighbourhood Centre' and 'Residential Frame' components of the subject land. There is no operational structure plan over land notated as 'Future ASP'. The primary purpose of this amendment is to include the land within ASP 54 and the area notated as 'Future ASP' within ASP 44, resulting in the revocation of ASP 54.

Amendment No. 2 to ASP 44 and Amendment No. 10 ASP 54 lodged with the City of Wanneroo in April 2015 sought the removal of residential components from ASP 54 to be included in ASP 44. Proposed amendments 2 & 10, in addition to this amendment (Amendment No. 11) will see all land formerly subject to ASP 54 now included within ASP 44 and as such, the need for ASP 54 will now 'fall away'. This will enable all residential components within the Capricorn Yanchep Estate to be subdivided and developed consistent with the overall structure plan, with development control for the neighbourhood centre (land proposed as 'Commercial' under ASP 44) controlled via a Local Development Plan (LDP).

1.1 WORKSHOP

The proposed amendment is being lodged following the successful workshopping of a preferred concept plan over the former neighbourhood centre site and mixed-use corridor. The workshop was held on 16 April 2015 and was attended by representatives from the City of Wanneroo, Department of Planning, landowner group and the project consultant team. Given the maturing of the Capricorn Yanchep Estate, it was seen as an opportune time to review the planning for the Neighbourhood Centre and Mixed-Use Corridor, which was previously planned and designed by other consultants around a vision of a reconfigured and divided Two Rocks Road ('Couplet') under ASP 54 (December 2005).

During the workshop three main sessions were held (including a site visit) to establish the key principles for the location, design and development of these areas that have ultimately led to the proposed amendments to ASP 44 & ASP 54.

Extensive discussion, abundant ideas and wide-ranging topics and suggestions were discussed and interrogated during the workshop.

2.0 PROPOSAL

The proposed amendment seeks to include the subject land within the overall ASP 44 and as such, revoke ASP 54. As agreed at the workshop, the amendment specifically proposes the following:

- Consolidation of land subject to ASP 54 and land notated as 'Future ASP' into one Structure Plan (ASP 44);
- Updating the road network and distribution of land uses to reflect an amended Two Rocks Road proposal (i.e. removal of the Two Rocks Road 'Couplet');
- Consolidation of the retail components of the planned Neighbourhood Centre;
- Redistribution of residential densities taking into consideration the planned location of the retail components of the Neighbourhood Centre;
- Introduce the requirement for a LDP to guide development of the Neighbourhood Centre; and
- Facilitate intensification, adaptable and generational change of use of the two Mixed-Use sites adjacent future Marmion Avenue.

2.1 REMOVAL OF TWO ROCKS ROAD 'COUPLET'

Former planning for the Neighbourhood Centre and Mixed-Use Corridor was designed around a vision of a reconfigured and divided Two Rocks Road ('Couplet') to separate north and south bound lanes with central built form. It was agreed at the workshop that the 'couplet' was no longer considered to be the appropriate outcome for Two Rocks Road, nor the Neighbourhood Centre. The proposed amendment provides for the reduction in road reserves through the removal of the Two Rocks Road 'Couplet' to provide a more intimate, pedestrian-friendly environment dominated by built form and landscaping.

A technical note has been prepared by Flyt to consider the traffic and transport impacts of the proposed amendment (refer to attached). The main focus of the technical note has been on the revised traffic forecasts for Two Rocks Road and the City-Coast Connector, and determining appropriate road cross sections and reserve widths to accommodate the revised forecasts. The proposed amendment results in a very modest increase in traffic volumes (equating to approximately 1.5%). Forecast traffic volumes suggest Two Rocks Road should be constructed to a four lane dual carriageway standard, with verges and a median of sufficient width to permit turning lanes in advance of intersections. With respect to the City-Coast Connector, this road should be constructed to a two-lane divided standard.

2.2 CONSOLIDATION OF RETAIL COMPONENT

Currently, retail components within the Capricorn Yanchep estate are contained within ASP 54 separate to residential components which are to be subdivided and developed consistent with the overall ASP 44. The consolidation of the Neighbourhood Centre, in addition to the two identified Mixed-Use sites, will strengthen the corridor and result in a more viable retail and mixed-use precinct. The form of development within the 'Commercial' zone can then be guided by a more flexible LDP.

2.3 REQUIREMENT FOR LOCAL DEVELOPMENT PLAN

Given the proposed consolidation of the Neighbourhood Centre ASP 54 into the broader ASP 44, residential components will be subdivided and developed consistent with the overall ASP 44 and require that development within the 'commercial' zone is, instead, guided by a more flexible LDP.

With regards to the Aged Care Site (or Senior Living Precinct as identified under ASP 54), ASP 54 notes that it is considered more appropriate that the overall design is considered through a development application for the site. As such, ASP 54 does not include any significant level of detail in regards to provision/requirements for the site. Consistent with the intent under ASP 54, the provision for an aged care site is still provided under ASP 44 (through zoning of the site as 'Residential R40' corresponding with the City's scheme zones). It is therefore appropriate to include a provision within the overall ASP 44 to require that a LDP (or development application) is required for the site.

2.4 FORMER MIXED-USE CORRIDOR

The proposed amendment seeks to include land notated as 'Future ASP' within ASP 44 to also enable the land to be subdivided and developed consistent with the overall structure plan. The proposed amendment provides a framework for development along the proposed City-Coast Connector which comprises more appropriate and specific designations for commercial and residential zones or land use. The mixed-use zoning / land use designation is rationalised to two corner sites adjacent to future Marmion Avenue to strengthen the connection of the corridor to the future City Centre, allow for gradual growth of commercial, adaptable residential or a combination of both uses over time consistent with the vision for this corridor.

The amendment also proposes a more responsive/meandering alignment of the City-Coast Connector extending east and west. As such, there is the ability to offset the road within the designated corridor to increase lot depth and developable land on the southern end of the eastern extension and maximise tree retention. Pedestrian linkages between the City-Coast Connector and existing/planned residential areas will also be enhanced, taking into

consideration the location of existing PAWs. The City-Coast Connector and other east-west roads rise or meander in and around dunes to then reveal the ocean views so the anticipation and sense of arrival here is important.

2.5 PROPOSED ZONING AND RESIDENTIAL DENSITY

Zoning

The proposed amendment seeks to zone the subject land predominately 'Residential' in addition to a portion of land zoned 'Commercial' and 'Mixed Use' and land identified as POS.

The 'Residential' zoned land has been developed as a high-amenity, residential area with a range of densities in recognition of its location on the western side of Two Rocks Road and framed by mature trees. Generally, residential zoned land east of Beachside Parade is envisaged as grouped/multiple dwelling development. The identification of this land as 'Residential' takes into consideration the location and likely end use, in lieu of a blanket 'Mixed Use' designation and adaptable building requirements as original envisaged.

The 'Commercial' zone has been identified for a portion of land west of Beachside Parade to accommodate a range of commercial/retail uses. The proposed commercial zoning, in addition to the two proposed 'Mixed Use' sites, where a combination of uses or transition from one use to another can occur, will facilitate the growth of the precinct as an economically-sustainable local employment area.

Density

The proposed amendment seeks to zone the majority of the subject land 'Residential' with density codes ranging from R30 to R60. The proposed density coding is generally consistent with the designation of this portion of land under ASP 54 as 'Residential - R40' and 'Residential – R60'.

A dwelling yield comparison of the previously projected dwelling yields for the wider ASP 54 and Mixed Use Corridor ('Future ASP' area) has been undertaken to ensure there is no nett loss in the number of dwellings projected in this area as a result of the redistribution of land uses and density. As demonstrated in the table below, the proposed design provides for R30, R40 & R60 density with a resulting comparable total number of projected lots/dwellings.

Whilst it is acknowledged that there are portions of land identified for higher-density development that are now proposed at a lower density under this amendment, the amendment still provides for a comparable density outcome. Of note is the portion of land to the east of Two Rocks Road which is currently coded R60 under ASP 54, but is proposed to be coded R30

under this amendment. This noticeable decrease in density can be attributed to the consolidation and relocation of the planned Neighbourhood Centre resulting in the site no longer adjacent to an activity centre or an area of high amenity and therefore R60 density can no longer be justified in this location. The redistribution of densities under this amendment has been in direct response to the proposed redesign.

DENSITY COMPARISON TABLE			YIELD COMPARISON TABLE	
	Existing Area (ha)	Proposed Area (ha)	Existing (based on R-Code average lot size)	Proposed (based on R-Code average lot size)
R60 ¹	2.8762	5.0908	191	311 ³
R40	7.6554	11.2732	347	462 ³
R40 Alternative ²	5.7384	N/A	260	N/A
R30	-	0.8971	-	27 ³
TOTAL	16.27	17.2611	798	800

¹Includes commercial and mixed use zoned land

²Assumes R40 density code where no density code applicable under 'future ASP area'

³Assumes approx 90% of residential site areas are developable.

3.0 PUBLIC OPEN SPACE

The original theming of the Capricorn development was that of a coastal village and the concept was to create east/west 'greenways' bringing the coastal vegetation up into the streets, particularly on key wider streets, using a combination of retained ridgelines in POS areas, wide swales or special lots.

It is the intent to also retain the trees that line this existing road for instant maturity. The existing 1000 year old Grass tree (and others) are proposed to be retained and form an integral part of the design of the Neighbourhood Centre and planned residential areas.

The active and passive aspects of the POS areas have been considered in the preparation of the Overall POS Strategy Plan. This takes into consideration the need to retain topography and vegetation in the passive parks as mentioned above and the need for active space and formalised play for the community.

POS 17 and 18 are intended to be more passive with paths and seating whilst POS 14 is the perfect location for a neighbourhood park with excellent facilities for formalised play and all round family enjoyment. POS 20 is also an active park, with space for family cricket and some formal play but also with some drainage function.

The possible location of a village centre POS is desirable to provide a more formal, hardscape 'square' to the village centre with the possibility of community shade structure, and areas where potentially cafes or a tavern could spill out into the space beneath large transplant trees.

The amendment results in a total of 27.5723 ha of POS representing approximately 13.28% in accordance with WAPC policy, the majority of which has already been vested with the City of Wanneroo. The public open space provision includes the allocation of land for passive purposes and areas of formal/active public open space, which may incorporate drainage, where necessary. The table below provides further details of the POS provision in the across the Structure Plan area.

Table 1: POS Types

Site	Total Area (ha)	1:10 Drainage Swales (50%) (ha)	Adjusted Open Space (ha)	Type of Open Space
1 (inc. Cultural & Civic Centre)	0.1510 0.3010		0.1510 0.3010	Local Park (active)
2	0.7765	0.1841	0.6845	Local Park (active)
3	0.1924		0.1924	Landscape Protection (Passive)
4	3.3422	1.2800	2.7022	Active Open Space (Active)
	1.2057		1.2057	Linear Space (Passive)
6	0.3323		0.3323	Local Park (Passive)
7	0.6588		0.6588	Local Park (Active)
8	0.3825		0.3825	Local Park (Active)
9	0.7854		0.7854	Local Park (Active)
10	1.9819	0.1911	1.9819	Landscape Protection (Passive)
11	0.4496		0.4496	Linear Space (Passive)
12	1.7359	0.7934	1.3392	Local Park (Active)
13	0.8419	0.5110	0.5864	Local Park (Active)
14	3.5	0.1722	3.5	Landscape Protection (Passive)/Local Park (Active)
15	0.2103		0.2103	Urban Space (Passive)
16	0.1120	0.1600	0.0320	Urban Space (Passive)
17	0.8398		0.8398	Landscape Protection (Passive)
18	0.5460		0.5460	Landscape Protection (Passive)
19	0.2121 0.2572		0.2121 0.2572	Urban Space (Passive)
20	0.9354 0.5026	0.2694	0.8007 0.2332	Local Park (Passive)
21	0.4941		0.4941	Local Park (Passive)

22	0.1867		0.1867	Urban Space (Passive)
23	0.1429		0.1429	Urban Space (Passive)
24	1.4269	0.5436	1.1551	Local Park (Passive)
25	7.4529	0.2450	7.3304	Landscape Protection (Passive) / Active Open Space (Active)
26	0.2650		0.2650	Urban Space (Passive)
27	0.5545		0.5545	Urban Space (Passive)
28	0.1415		0.1415	Urban Space (Passive)
29	0.0817		0.0817	Urban Space (Passive)
Total	28.8952 29.7002	4.3498	26.7203 (12.83%) 27.5723	
Net Subdivisible Area	207.69		13.28% POS Provision	

4.0 REVOKATION OF ASP 54

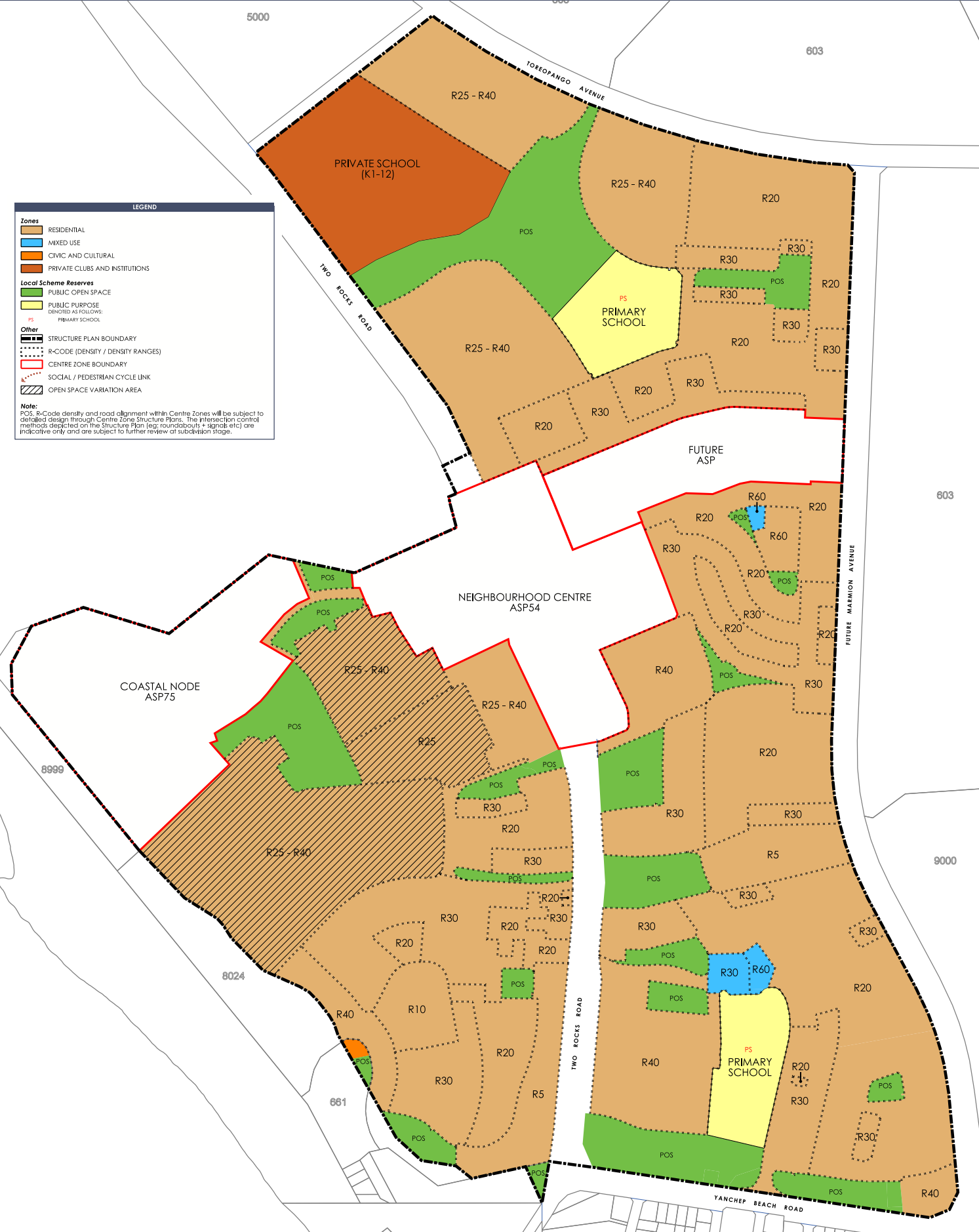
The proposed amendment seeks to include the subject land within the overall ASP 44 and as such, revoke ASP 54. A thorough review of ASP 54 has been undertaken to ensure that all necessary requirements have been transferred over to ASP 44. Generally, the majority of the requirements of ASP 54 such as height/setbacks etc. are required to be satisfied through the application of the R-Codes or preparation/implementation of LDPs. However, ASP 54 also includes built form guidance that wouldn't typically be included in a structure plan or addressed through the R-Codes. These matters relate to edge conditions, climate responsive design, fencing etc.

With the release of the Planning and Development (Local Planning Scheme) Regulations and Structure Plan framework, structure plans are to no longer determine built form. If guidelines on built form are required for specific sites within the structure plan area, local planning policies or LDPs are to be prepared. In this instance, we propose that these built form matters are addressed through a LDP as outlined under 8.5 'Local Development Plans' as matters that require addressing on an LDP.

5.0 CONCLUSION

This amendment would enable the residential components of ASP 54 to be subdivided and developed consistent with the requirements of the overall Structure Plan (ASP 44). This would then remove the need for a centre zone to dictate the form of development which can, instead, be guided by a more flexible LDP. The City's Scheme facilitates the preparation of an LDP, and this approach is supported by SPP 4.2.

PLAN 1- STRUCTURE PLAN (EXISTING)



LEGEND

Zones

- RESIDENTIAL
- MIXED USE
- CIVIC AND CULTURAL
- PRIVATE CLUBS AND INSTITUTIONS

Local Scheme Reserves

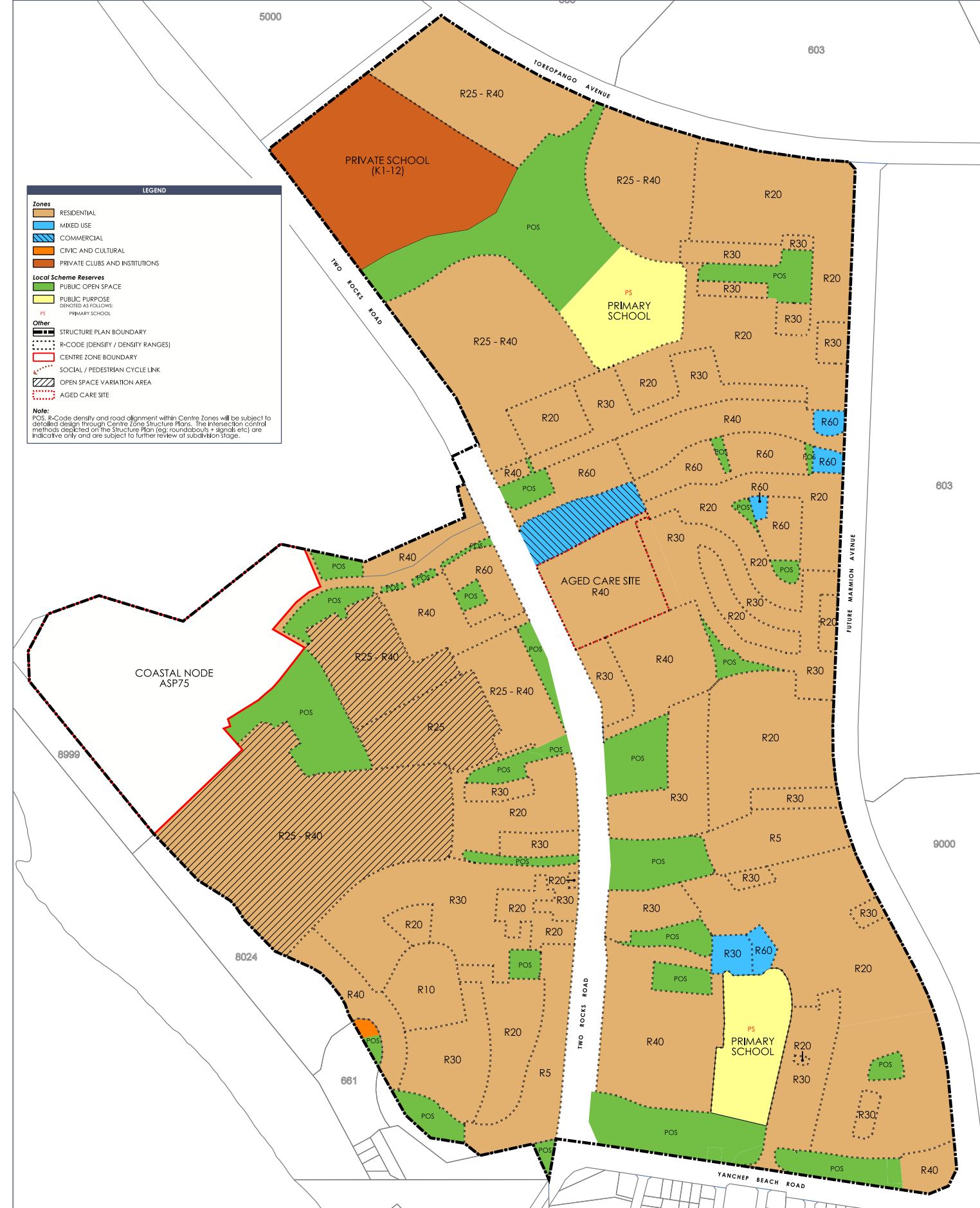
- PUBLIC OPEN SPACE
- PUBLIC PURPOSE DERIVED AS FOLLOWS:
 - PRIMARY SCHOOL

Other

- STRUCTURE PLAN BOUNDARY
- R-CODE (DENSITY / DENSITY RANGES)
- CENTRE ZONE BOUNDARY
- SOCIAL / PEDESTRIAN CYCLE LINK
- OPEN SPACE VARIATION AREA

Note: POS, R-Code density and road alignment within Centre Zones will be subject to detailed design through Centre Zone Structure Plans. The intersection control methods depicted on the Structure Plan (eg: roundabouts + signals etc) are indicative only and are subject to further review at subdivision stage.

PLAN 1- STRUCTURE PLAN (PROPOSED)



LEGEND

Zones

- RESIDENTIAL
- MIXED USE
- COMMERCIAL
- CIVIC AND CULTURAL
- PRIVATE CLUBS AND INSTITUTIONS

Local Scheme Reserves

- PUBLIC OPEN SPACE
- PUBLIC PURPOSE DERIVED AS FOLLOWS:
 - PRIMARY SCHOOL

Other

- STRUCTURE PLAN BOUNDARY
- R-CODE (DENSITY / DENSITY RANGES)
- CENTRE ZONE BOUNDARY
- SOCIAL / PEDESTRIAN CYCLE LINK
- OPEN SPACE VARIATION AREA
- AGED CARE SITE

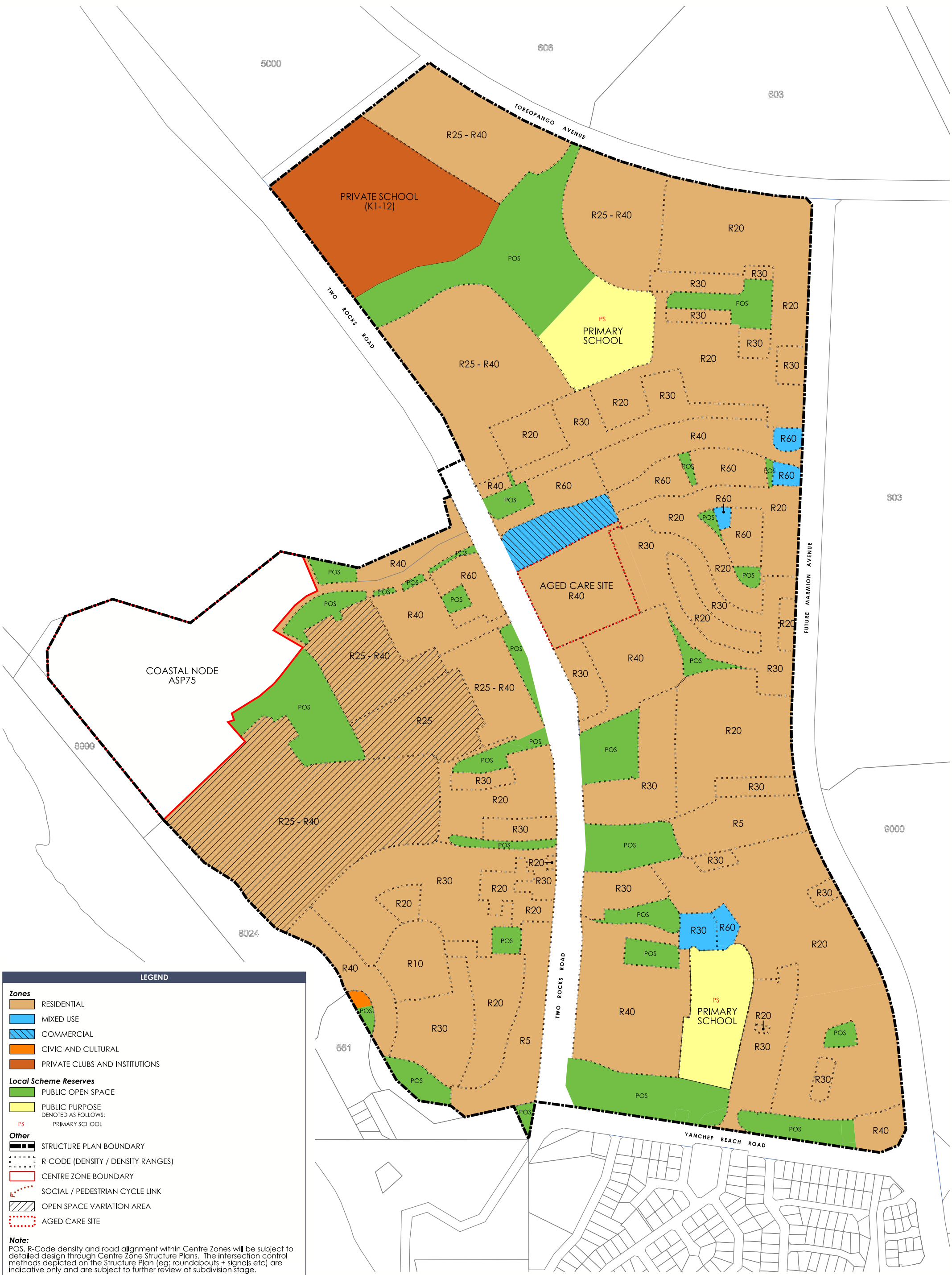
Note: POS, R-Code density and road alignment within Centre Zones will be subject to detailed design through Centre Zone Structure Plans. The intersection control methods depicted on the Structure Plan (eg: roundabouts + signals etc) are indicative only and are subject to further review at subdivision stage.

EXISTING AND PROPOSED STRUCTURE PLAN AMENDMENT
 Capricorn Coastal Village ASP 44 Amendment No.11
 Yanchep

Scale: 1:10,000@A3
 Date: 23 June 2016
 Project: 14/024/081B

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LEGEND

Zones

- RESIDENTIAL
- MIXED USE
- COMMERCIAL
- CIVIC AND CULTURAL
- PRIVATE CLUBS AND INSTITUTIONS

Local Scheme Reserves

- PUBLIC OPEN SPACE
- PUBLIC PURPOSE DENOTED AS FOLLOWS:
PS PRIMARY SCHOOL

Other

- STRUCTURE PLAN BOUNDARY
- R-CODE (DENSITY / DENSITY RANGES)
- CENTRE ZONE BOUNDARY
- SOCIAL / PEDESTRIAN CYCLE LINK
- OPEN SPACE VARIATION AREA
- AGED CARE SITE

Note:
POS, R-Code density and road alignment within Centre Zones will be subject to detailed design through Centre Zone Structure Plans. The intersection control methods depicted on the Structure Plan (eg: roundabouts + signals etc) are indicative only and are subject to further review at subdivision stage.

PLAN 1 STRUCTURE PLAN
 Capricorn Coastal Village ASP 44 Amendment No. 11
 Yanchep

0m 40 80 120m
 s: 1:7,500@A3
 d: 23 June 2016
 p: 14/024/080B

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LEGEND	
	STRUCTURE PLAN BOUNDARY
	PUBLIC OPEN SPACE
	PUBLIC OPEN SPACE REFERENCE NUMBER (REFER TO TABLE 1)
	CENTRE ZONE BOUNDARY

PUBLIC OPEN SPACE PLAN
 Capricorn Coastal Village ASP 44
 Yanchep

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Technical Note 81113-191-FLYT-TEN-0001

PROJECT Capricorn Yanchep Amendment 11 to Agreed Structure Plan 54 – Traffic Assessment

Date Issued 13/06/16

1. INTRODUCTION

This Technical Note has been prepared by Flyt to assess the traffic-related impacts of the Capricorn Yanchep Preliminary Concept Plan – Neighbourhood Centre and Mixed Use Corridor, prepared by Taylor Burrell Barnett (TBB) in response to the Capricorn Yanchep Local Structure Plan workshop held in April 2015.

The study area focuses on the future Capricorn Yanchep Neighbourhood Centre, including Two Rocks Road and the City-Coast Connector which links the Neighbourhood Centre with the Yanchep City Centre to the east and to the coastal node to the west.

This traffic assessment is particularly concerned with revised traffic forecasts for Two Rocks Road and the City-Coast Connector, and determining appropriate road cross sections and reserve widths to accommodate the revised forecasts.

Flyt has not undertaken new traffic modelling for this assessment, instead completing a desk top study of previous district and local level traffic models, and a comparison of currently proposed development yields to those used in past models.

2. BACKGROUND

The Capricorn Neighbourhood Centre Structure Plan (hereafter referred to as ASP 54) was prepared by a previous project team and was endorsed by the WAPC in 2005. The original design philosophy for the Neighbourhood Centre included separating the northbound and southbound lanes of Two Rocks Road to form paired couplets. The paired couplets were at the time considered integral to achieving the vision for a pedestrian friendly main street.

Following the appointment of a new project team, representatives from Local and State Government, Project Consultants, and the Landowners were brought together in April 2015 for the Capricorn Yanchep Local Structure Plan workshop. The purpose of the workshop was to consider the future planning and design intent for the Neighbourhood Centre and Mixed Use Corridor, together with the ultimate design and configuration of Two Rocks Road.

Agreed outcomes of the workshop included:

- ▶ consolidation of retail uses on the eastern side of Two Rocks Rd at the intersection to the City-Coast Connector;
- ▶ reduction in road reserves for Two Rocks Rd and City-Coast Connector to provide a more intimate, pedestrian friendly environment;
- ▶ a more site responsive and meandering alignment of the City-Coast Connector; and

- ▶ replacing the Two Rocks Road paired couplets with a dual carriageway.

Subsequent to the workshop TBB prepared a Preliminary Concept Plan which is reproduced in Figure 1. TBB are also progressing a Structure Plan Amendment, consistent with the concept plan.

Figure 1 Preliminary Concept Plan (source: TBB)



As part of the Structure Plan amendment process, the City of Wanneroo (CoW) has requested the completion of a traffic assessment to consider the forecast traffic volumes, future road reserve widths and capacity of Two Rocks Road (without a couplet) and the City-Coast Connector.

This Technical Note constitutes the traffic assessment.

3. PREVIOUS TRAFFIC MODELLING

Since 2006 at least 5 different traffic models have been developed, local area and district level included, for the Capricorn Neighborhood Centre and wider area. These traffic models are described in Table 1.



Table 1 Description of Traffic Models

Description	Project Title	Model Details	Platform
SKM April 2006	St Andrews District Structure Plan Transport Report	District level model covering entire Yanchep-Two Rocks area. Through traffic derived from ROM. Produced daily traffic forecasts. District road network does not include Toreopango Avenue. Paired couplet for Two Rocks Road not modelled.	EMME/2
Aulabaugh May 2006	Transport Planning for Capricorn Local Structure Plan	Local area model, used sub-area of SKM district level model for through traffic and for external trip origin/destination distribution. PM peak hour model, output converted to daily volumes using peak hour proportion of 8.8%. Although traffic volume figures included Toreopango Avenue (to provide context), there was no Toreopango Avenue link in the district level modelling.	QRS II
Maunsell April 2007	Capricorn Village Couplet	PM peak hour microsimulation model to demonstrate operation of signalised intersections between Two Rocks Road couplets and City-Coast Connector (then called East-West Employment Boulevard). Used sub-area of Aulabaugh's 2006 local area model to determine demands. Model did not produce forecasts.	Q Paramics
Aulabaugh May 2008	Traffic and Movement Network Report – St Andrew's Local Structure Plan (Aulabaugh) and Capricorn Village Centre Structure Plan Supplementary Note to Access and Parking Assessment (SKM)	District level model covering entire Yanchep-Two Rocks area. Through traffic derived from ROM. Produced daily traffic forecasts. District road network does include Toreopango Avenue. Paired couplet for Two Rocks Road not modelled.	EMME/2
Aulabaugh July 2014	Capricorn Coastal Node Structure Plan: Updated Traffic Forecast	PM peak hour district model using the existing North West Corridor Ultimate Development PM Peak Hour Model (NWC Model) developed in conjunction with the CoW. Includes Yanchep-Two Rocks District Structure Plan road network outside of Capricorn Village Local Structure Plan area. Includes couplet and development yields current to 2014.	Unknown

Traffic forecasts for Two Rocks Road and the City-Coast Connector as output from the previously developed models are summarised in Table 2.

Table 2 Daily Traffic Forecasts for Two Rocks Road and City-Coast Connector

Model	Forecast Volumes (vpd)			
	Two Rocks Road		City-Coast Connector	
	South of CCC	North of CCC	West of TRR	East of TRR
SKM April 2006	20,000	25,000	6,000*	13,000 – 15,000
Aulabaugh May 2006	22,185	24,980	4,150 – 6,490	8,315
Aulabaugh May 2008	17,500	18,500	NA	NA
Aulabaugh July 2014	20,161 – 21,032	25,602	5,438	8,354 – 11,042

Note: * Volume of 12,000 vpd originally forecast, later revised to 6,000 vpd in the St Andrew’s Transport Planning Study Final Report – March 2007

There is a high degree of consistency between the forecast traffic volumes for the City Coast Connector. The discrepancies in the forecasts for Two Rocks Road can be attributed in part to the role and function of Torepango Avenue, which will provide a connection between Two Rocks Road and the Freeway via the Yanchep City Centre. Forecast traffic volumes along Two Rocks Road are generally lower where the Torepango Avenue connection is accounted for in the modelling.

In addition, the local area modelling undertaken by Aulabaugh in 2006 and 2014 included the paired couplet along Two Rocks Road through the Neighbourhood Centre. All district level modelling maintained Two Rocks Rad as a single link. Intersections with one-way roads have greater capacity than those with two-way roads. Signalised intersections with one-way roads tend to have shorter cycle times due there being fewer conflicting movements. These factors could cause Two Rocks Road travel times to be less and therefore forecast volumes to be higher in the paired couplet configuration than if it were modelled as a single link.

To assess the relevancy of the most recent traffic modelling, undertaken by Aulabaugh in 2014, the land use inputs were compared with the development yields of the Preliminary Concept Plan (dated December 22 2015). Flyt found that development yields presented in the Concept Plan represent a 1.5% increase over the land uses used for the Aulabaugh 2014 modelling. This is a very modest increase and will not make a material difference to forecast traffic volumes.

Flyt has found that the most recent modelling undertaken by Aulabaugh in 2014 forms the most robust basis for considering the traffic volume impacts of the Concept Plan.

4. IMPACT OF CONCEPT PLAN CHANGES ON FORECAST VOLUMES

The Preliminary Concept Plan includes the following modification to ASP 54:

- ▣ retail uses are consolidated on the eastern side of Two Rocks Rd at the intersection to the City-Coast Connector;
- ▣ the paired couplet along Two Rocks Road through the Neighbourhood Centre is replaced with a dual carriageway;

- ▣ the road reserves for Two Rocks Rd and the City-Coast Connector are reduced to provide a more intimate, pedestrian friendly environment; and
- ▣ the alignment of the City-Coast Connector has been modified to meander.

The possible impact of each of these changes to forecast traffic volumes is discussed in Table 3.

Table 3 Possible Impact to Forecast Traffic Volumes

Modification	Possible Impact
Consolidation of retail land uses to the east of Two Rocks Road	Zone connectors for retail land uses in local area models were previously located between paired couplets. Relocation of these zone connectors to the east of Two Rocks Road could see small increases to traffic along City-Coast Connector to the east of Two Rocks Road. No change expected to Two Rocks Road.
Removal of paired couplet	Removal of paired couplet will have negligible impact on road length, but could cause longer intersection delays, thereby increasing travel time. Increased travel time would make the route less attractive, thereby reducing forecast volumes.
Reduction of road reserves	No impact on forecast traffic volumes as long as required number of lanes can be accommodated.
Modified alignment to City-Coast Connector	No impact to forecast traffic volume unless significant increase in road length which would increase travel times and therefore reduce traffic volumes.

The range of predicted traffic volumes along Two Rocks Road and the City-Coastal Connector associated with the Preliminary Concept Plan are shown in Table 4. Forecasts are presented in daily volumes and peak hour flows (where the previous modelling has assumed PM peak hour proportions of 8.8% of daily traffic). These volumes also take into account the role and function of Torepango Avenue.

Table 4 Traffic Forecasts for Two Rocks Road and City-Coast Connector

Two Rocks Road (TRR)		City-Coast Connector (CCC)	
South of CCC	North of CCC	West of TRR	East of TRR
18,000 - 20,000 vpd	19,000 - 23,000 vpd	5,500 vpd	9,000 - 11,000 vpd
1,590 - 1,760 vph	1,670 - 2,020 vph	480 vph	790 - 970 vph

5. APPROPRIATE ROAD TREATMENT

Typically, roads that carry less than 7,000 vpd can do so within a single two-lane road. Volumes between 8,000 and 15,000 vpd require a small median (either painted or constructed as an island) to separate each lane of traffic and to provide storage for right turning vehicles. Forecast volumes between 15,000 and 30,000 vpd require two lanes of travel in each direction, separated by a median.

5.1 Two Rocks Road

Two Rocks Road, with forecast volumes between 18,000 and 20,000 vpd south of the City Coast Connector, and between 19,000 and 23,000 vpd north of the City-Coast Connector, should be constructed to a four lane dual carriageway standard, with verges and a median of sufficient width to permit turning lanes in advance of intersections.

An appropriate cross section would be:

- ▣ >5m verge;
- ▣ 3.5m turn lane (otherwise additional verge);
- ▣ 1.5m cycle lane;
- ▣ 2 x 3.3m traffic lanes;
- ▣ 6m median;
- ▣ 2 x 3.3m traffic lanes;
- ▣ 1.5m cycle lane;
- ▣ 3.5m turn lane (otherwise additional verge); and
- ▣ >5m verge.

5.2 City-Coast Connector

The City-Coast Connector, with forecast volumes of between 9,000 and 11,000 vpd east of Two Rocks Road, should be constructed to a two-lane divided standard. Any on-street parking should be provided along one-way service roads.

An appropriate cross section would be:

- ▣ >4.5m verge (10.5m where 3.5m one-way service lane with 2.5m parking required);
- ▣ 1.5m cycle lane;
- ▣ 3.5m traffic lane;
- ▣ 6m median;
- ▣ 3.5m traffic lane;
- ▣ 1.5m traffic lane;
- ▣ >4.5m verge

6. CONCLUSIONS

Flyt completed a desk top study of the district level and local area traffic modelling undertaken for the Yanchep Capricorn area.

Flyt found that the most recent modelling undertaken by Aulabaugh (in 2014) forms the most robust basis for considering the traffic volume impacts of the Concept Plan. Development yields presented in the Preliminary Concept Plan represent only a 1.5% increase over the land uses used for the Aulabaugh 2014 modelling. This is a very modest increase and will not make a material difference to forecast traffic volumes.



Traffic volumes of between 18,000 and 20,000 vpd are forecast for Two Rocks Road south of the City Coast Connector, and between 19,000 and 23,000 vpd to the north. These volumes warrant a four lane divided standard for Two Rocks Road.

The City-Coast Connector, with forecast volumes of between 9,000 and 11,000 vpd east of Two Rocks Road, should be constructed to a two-lane divided standard