105 Cooby Road, Tullimbar

Residential Subdivison Planning Proposal
Traffic Impact Assessment

Tullimbah Heights

19 August 2019

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1. INTRODUCTION

1.1 Background

Bitzios Consulting has been engaged by Tullimbah Heights Pty Ltd to prepare a traffic impact assessment for the proposed subdivision development located at 105 Cooby Road, Tullimbar (formally described as Lot 240 DP828854). The subject site location is provided in Figure 1.1.

Source: Nearmap

Figure 1.1: Subject Site Location

1.2 Proposed Development

The proposal consists of up to 105 standard residential lots accessed through the adjacent Tullimbar development site the north (DA0073/2018), and approximately 32 large environmental lots, five (5) of these large lots (greater than 4,000m^2) will have sole access from Cooby Road.

The concept development plans have been provided in **Appendix A** for reference.

1.3 Scope

The scope of this report is as follows:

- An estimation of the development's traffic generation
- A qualitative assessment of the expected development traffic impact
- An assessment of general traffic and service vehicle manoeuvring using AutoTURN software
- An assessment of the site access location and form
- Assessment of the public and active transport accessibility to and from the site.

2. EXISTING CONDITIONS

2.1 Road Network

Details of the road network surrounding the subject development site are shown in Table 2.1.

Table 2.1: Surrounding Road Network Details

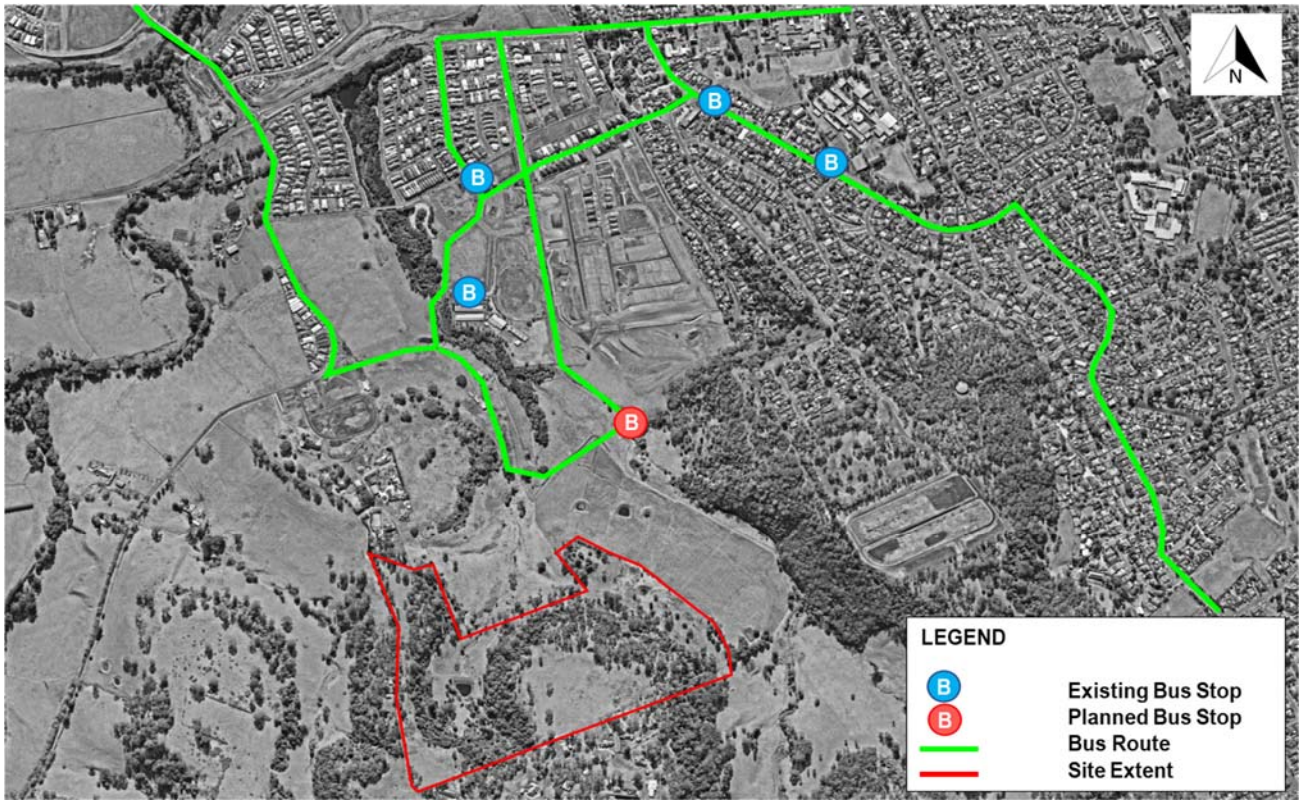
Road Name	Lanes	Speed Limit	Divided	Jurisdiction	Comments
Illawarra Highway	2	100km/h	No	Roads and Maritime Services (RMS)	*East-west arterial which provides access to Shellharbour and the greater area.*
Yellow Rock Road	2	50km/h	No	Shellharbour City Council	*Provides access to Illawarra Highway.*
Cooby Road	2	50km/h	No	Shellharbour City Council	*Provides access to the Yellow Rock Road to the north and for the larger Lots of the proposed development.*

2.2 Existing Road Safety Issues

Bitzios Consulting has previously identified road safety concerns at the Yellow Rock Road / Cooby Road intersection, as well as a number of locations along Cooby Road. The Cooby Road approach to the intersection has an unsafe grade and insufficient sight distance. As such, minimal development is proposed to take access from Cooby Road (i.e. in the order of five (5) large lots, generating in the order of three (3) peak hour trips).

2.3 Public Transport

Several existing bus stops are present in the area surrounding the proposed development. While it is noted that these bus stops are further than 400m walking distance, it is expected that some residents of the proposed dwellings could utilise services from these stops. The location of the surrounding bus stops relative to the proposed development is shown in Figure 2.1.



Source: Nearmap

Figure 2.1: Existing Bus Stop Locations

Several bus services are available from the existing bus stop locations identified above. The details of these services are summarised in Table 2.2.

Table 2.2: Bus Service Details

Route	Service	Weekday Frequency	Weekend Frequency
75	Stockland Shellharbour to Calderwood via Tullimbar	Hourly	N/A
76	Shellharbour Beach to Albion Park (Loop Service)	Hourly	Hourly
77	Shellharbour to Albion Park (Loop Service)	Hourly	2 Hourly

It is noted that with the completion of the Tullimbar Village Development, it is expected that additional bus routes will be provided through the area and as such public transport accessibility will improve. As per the masterplan for the area, a bus route is proposed to travel along Balmoral Parade and south into the rest of the Tullimbar Village development. It is expected that bus stops servicing these routes would be provided such that all dwellings in the Tullimbar Estate would be within 400m walking distance of a bus stop. As such, the proposed development is deemed to have adequate availability of public transport services.

2.4 Active Transport

Due to the area's regional location and surrounding land uses, minimal active transport facilities are present in the vicinity of the Tullimbar Village development. However, footpaths in the Tullimbar Estate and Tullimbar Village have and will continue to be provided in accordance with the relevant requirements of the Shellharbour City Council's (Council) Development Control Plan (DCP). As such, active transport facilities are expected to be provided in the future throughout the subdivision, connecting to adjacent subdivisions.

3. PROPOSED DEVELOPMENT

The planning proposal is for up to 137 low-density residential lots, which take access to the external road network via the development site to the north (DA0073/2018), as well as via driveway crossovers on Cooby Road. Concept development plans are provided in Figure 3.1, and attached at **Appendix A**.

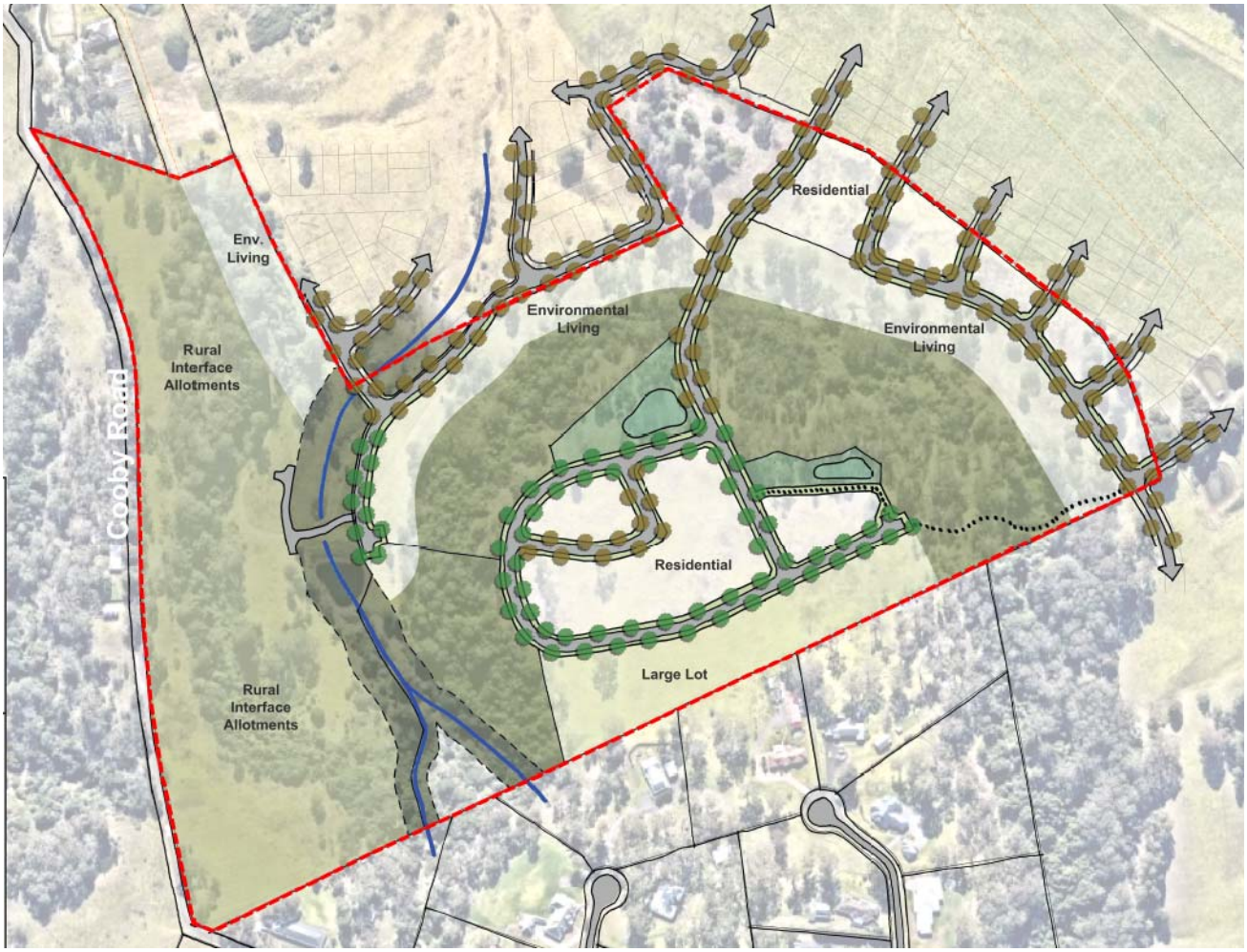


Figure 3.1: Concept Development Plan

4. TRAFFIC ASSESSMENT

4.1 Development Traffic Generation

The development traffic generation is based on a Roads and Maritime Services (RMS) study of low-density residential dwellings in Farmborough Heights, located west of Princes Highway approximately 15km from the subject site, which can be referred to in RMS' Guide to Traffic Generating Developments Technical Direction (2013). This study found that a peak hour trip rate in the order of 0.61 trips per dwelling is applicable. The expected net traffic generation for the development is shown in Table 4.1.

Table 4.1: Development Traffic Generation

Land Use	Quantity	Peak Trip Rate	Peak Trips
Low-Density Residential (internally accessed)	132 dwellings	0.61	81
Low-Density Residential (Cooby Road access)	5 dwellings	0.61	3
Total			**84**

As demonstrated in Table 4.1, the proposed development is estimated to generate in the order of 84 peak hour trips at the maximum development yield.

4.2 Development Traffic Distribution

Typical IN / OUT splits were adopted for the residential development with the resultant AM and PM distribution detailed in Table 4.2 below.

Table 4.2: Development Traffic Directionality

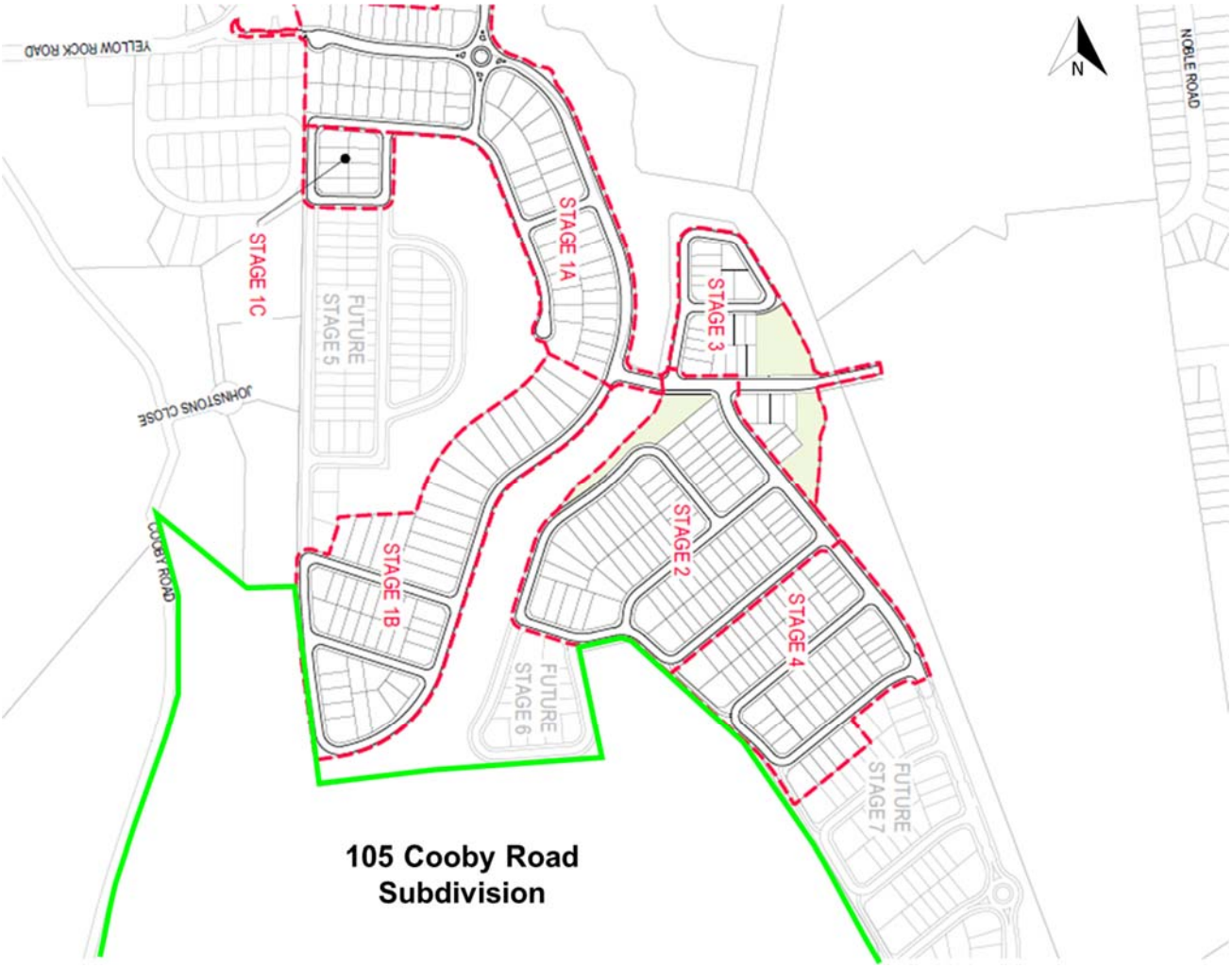
Land Use	AM Peak (%)		PM Peak (%)		AM Peak (veh/h)		PM Peak (veh/h)	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Residential	30%	70%	60%	40%	25	59	50	34

It is important to note that this does not include internal trips within the subdivision, however given that no ancillary land uses are proposed internal trips are considered negligible to the total traffic generation.

The distribution of the proposed development's traffic generation onto the surrounding road network considers a number of key routes which anticipates majority of all trips will have an origin / destination in the form of Illawarra Highway to the north. It is expected the remainder of all trips will have an origin / destination within the Tullimbar Village Centre.

4.3 Road Network Connectivity

Travel routes to / from the proposed development will be largely dependent on the connections with adjacent subdivision developments (i.e. Dahua subdivision works - DA0073-2018). The proposed adjacent road network, as prepared by Dahua and available within Cardno's traffic Impact Assessment from May 2018, is partially shown in Figure 4.1.



Source: Cardno Traffic Impact Assessment (17 May 2019) DA0073-2018

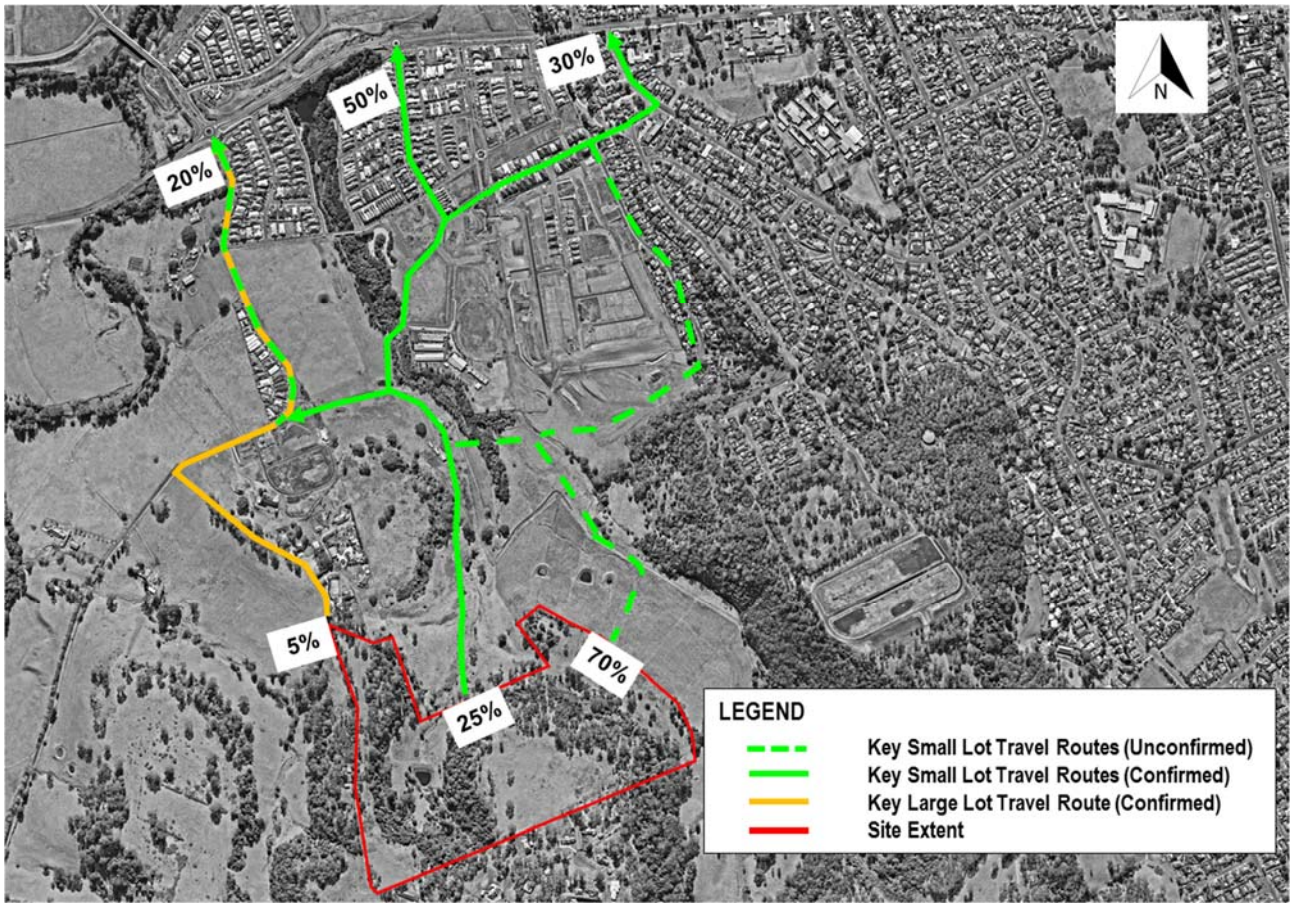
Figure 4.1: Proposed Adjacent Road Network – Dahua Group 2018

Based on a review of the available plans for the adjacent site, the Tullimbar Village Centre Structure Plan (2006) and Council's DCP – Part 6 (2016), the key travel routes are expected to include:

- Trips to / from Tullimbar Village Centre via Broughton Avenue (route constructed)
- Trips to / from Illawarra Highway via Broughton Avenue (partially constructed / link not confirmed)
- Trips to / from Illawarra Highway via Aurelan Terrace and Yellow Rock Road (not confirmed or constructed)
- Trips to / from Illawarra Highway via Sophia Street / Church Street (route constructed).

The potential travel routes are shown in Figure 4.2. The traffic generated by the large lot residential on Cooby Road will travel to/from Illawarra Highway and Tullimbar Village Centre via Yellow Rock Road. The traffic generated by the small lot residential will likely travel along a number of routes dependent upon the origin/destination.

There will be a number of dedicated and pass-by trips which access the Tullimbar Village Centre. These trips are expected to travel to/from or through the Tullimbar Village Centre via Broughton Avenue. The trips that do not pass-by the Tullimbar Village Centre are expected to travel to / from Illawarra Highway via either Yellow Rock Road or Sophia Street / Church Street.



Note: Provided distribution percentages are indicative only. Traffic flows will be subject to the final road network layout to/from the Illawarra Highway.

Figure 4.2: Key Travel Routes

Potential key travel routes, other than Yellow Rock Road, are largely dependent on the final road network layout of adjacent planning proposals. The above routes consider the proposed subdivision staged layout and road network connections within the adjacent Dahua Group Tullimbar Village project.

It is recommended that further collaboration with adjacent land owners and Council regarding current Tullimbar planning documents and proposed subdivision layouts be undertaken to establish a road network structure plan that ensures interconnectivity and efficiency of the future road network in the area.

5. SITE LAYOUT

5.1 Internal Road Network

It is recommended that carriageways and pathways are designed in accordance with Council's DCP Section 5 – *Greenfield Subdivisions Table 5.1 Characteristics of street types*. The road hierarchies and design requirements relevant to this planning proposal are provided in Table 5.1.

Table 5.1: Road Hierarchy Summary

Street Type	Lots	Traffic Capacity	Design Speed	Cross Section	Footpath
Access Place	30 lots	300 vpd	40 km/h	Verges: 3m Carriageway: 6m	Not required
Access Street	150 lots	1,500 vpd	40 km/h	Verges: 3.5m Carriageway: 8m	1.2m wide

5.2 Geometric Design

5.2.1 Intersection Spacing

The Shellharbour Subdivision Design Code Specification D1.17.5f stipulates the minimum centre-line spacing of 40m between intersections. All intersections within the proposed development appear to meet or exceed this requirement.

However, collaboration with adjacent land owners and Council is required to determine the location and form of adjacent subdivision intersections in proximity to the proposed development. Should connections with adjacent road networks result in a 'four-way' intersections, it is recommended that they are designed to allow for the provision of roundabouts as part of the ultimate configuration. This will promote lower vehicle speeds and maintain efficiency within the road network, resulting in an appropriate road environment.

5.2.2 Traffic Calming

Traffic calming devices are required in accordance with AMCORD guidelines to manage vehicle speeds and ensure safety for all road users. Noting that traffic calming must be provided at straight sections of 'Residential' road no more than 150m apart in accordance with AMCORD, it is recommended that traffic calming is implemented in the locations as specified in Figure 5.1.

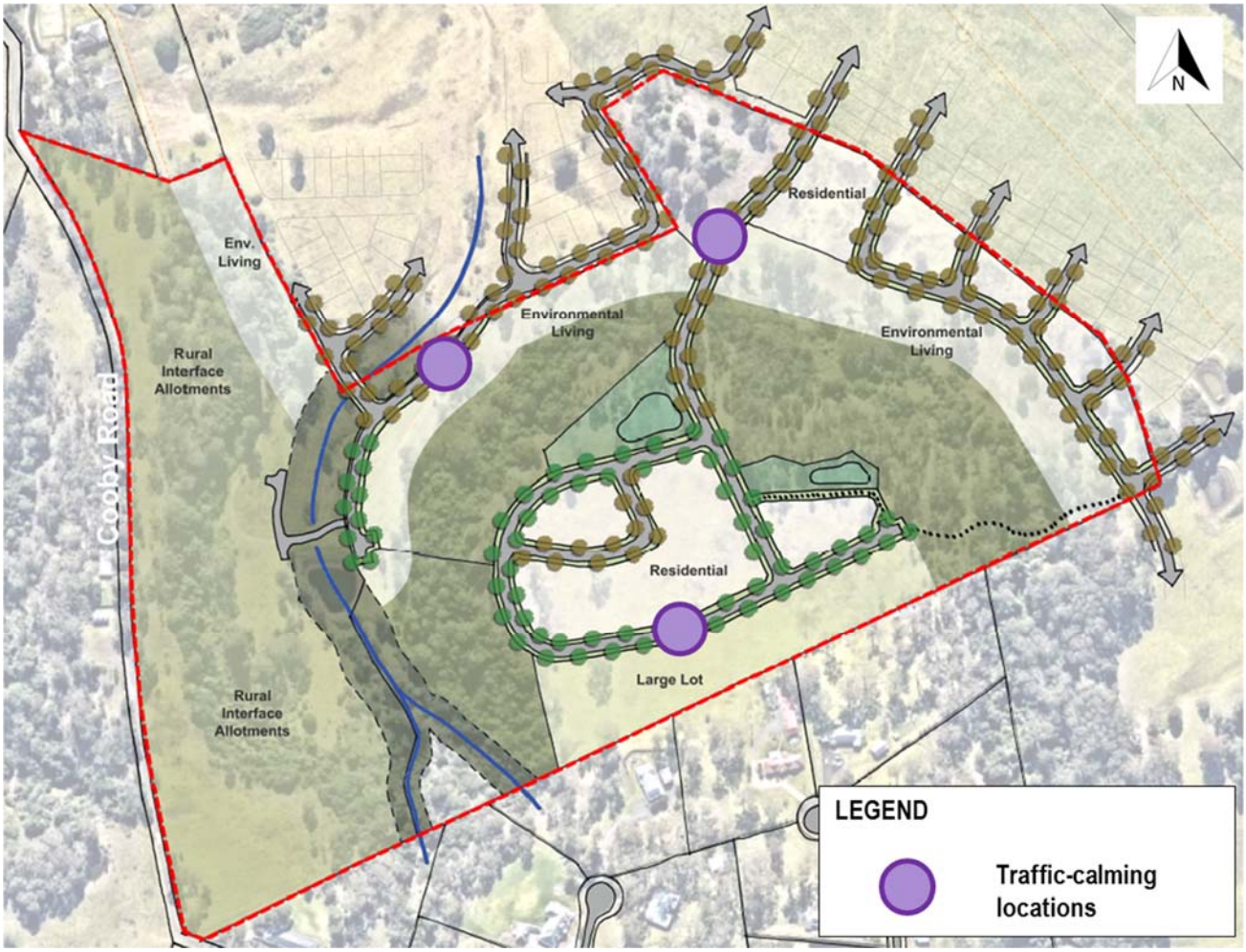


Figure 5.1: Potential Traffic Calming Locations

5.2.3 Residential Driveway Design

It is recommended that residential driveways are designed in accordance with AS2890.1:2004 Off-Street Car Parking, as follows:

- Residential driveways shall have a minimum width of 3m
- Residential driveways shall have a maximum grade of 25%.

5.2.4 Service Vehicle Access

It is recommended that a 12.5m Heavy Rigid Vehicle (HRV) is able to circulate the site. This provision will allow access to construction, removalist and refuse collection vehicles. On-site manoeuvrability shall be confirmed in DA stage.

6. CONCLUSION

The key findings from this traffic impact assessment for the planning proposal of 105 Cooby Road, Tullimbar, are as follows:

- The proposed development consists of up to 132 standard residential lots with access internal to the subdivision and up to five (5) large lots with access off Cooby Road
- The proposed development is expected to generate in the order of 84 peak hour trips at the maximum development yield
- All intersections within the proposed development appear to meet or exceed the minimum spacing requirement is accordance with the Shellharbour Subdivision Design Code
- It is recommended that traffic calming is implemented no more than 150m apart in accordance with AMCORD
- It is recommended that residential driveways are designed in accordance with AS2890.1:2004 Off-Street Car Parking
- It is recommended that a 12.5m Heavy Rigid Vehicle (HRV) is able to circulate the site.

Based on the above assessment, it is concluded that there are no significant traffic or transport impacts associated with the proposed development to preclude its approval and relevant conditioning based on relevant transport planning grounds.

Appendix A: Concept Development Plans

95 COOBY ROAD

Concept Layout Plan

NOTES:
1. All base digital data provided by NSW LPI.
2. Plan is subject to detailed design & survey.
3. Plan is subject to approval by responsible authority.

Client:	Land Owner
Plan No:	044.CBR.002.04
Version:	04
Date:	30 July 2019
Scale:	1:2,000 @ A2

Urbanco
"WeWork" 100 Harris Street PYRMONT NSW 2009
PO Box 546 PYRMONT NSW 2009
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urbanco

NOTES

1. BASE DIGITAL DATA SOURCED FROM NSW LPI AND NEARMAP.
2. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN
3. LAYOUT INDICATIVE ONLY. FINAL YIELD SUBJECT TO DETAILED DESIGN, SURVEY & ASSESSMENT BY COUNCIL.

Residential Lot Mix Table		
Range (size)	Count	(%)
300-349	36	34%
350-449	36	34%
450-549	17	16%
550-749	14	13%
750-1000	2	2%
Total	105	

ROAD LOCATIONS IN ACCORDANCE WITH ADJOINING DEVELOPMENT

TIE IN TO EXISTING CREEK ALIGNMENT

ROAD 01
ROAD 02
ROAD 03
ROAD 04
ROAD 05
ROAD 06
ROAD 07
ROAD 08
ROAD 09
ROAD 11

1 DP1048565
2 DP1048565
17 DP1168920
25 DP111195
11 DP1046042
13 DP1046042
14 DP1046042
22 DP1046042
23 DP1046042
17 DP1168920

LEGEND

LOT TYPE	YIELD
PROPOSED RESIDENTIAL LOT	105
PROPOSED ENVIRONMENTAL LIVING LOT	32

- SITE BOUNDARY
- PROPOSED PUBLIC OPEN SPACE (301 & 302)
- PROPOSED PARK
- CONCEPTUAL A.P.Z. LOCATION
- PROPOSED FIRETRAIL
- INDICATIVE BUILDING ENVELOPE (10m x 15m)
- CONCEPT O.S.D. LOCATION
- PROPOSED VEGETATION REMOVAL
- ECO CONSTRAINT - HIGH
- ECO CONSTRAINT - MEDIUM
- HOLLOW BEARING TREE
- CONCEPTUAL RIPARIAN CORRIDOR
- OPEN CHANNNEL
- EXISTING CONTOURS (2m INTERVAL)

30 15 0 30 60 90
SCALE IN METRES AT ORIGINAL REDUCTION RATIO
1:1500 @ A1

CONCEPT LAYOUT PLAN
AND SELECTED SITE CONSTRAINTS
PROPOSED SUBDIVISION OF LOT 240 DP828854
105 COOBY ROAD, TULLIMBAR

REF: ISC00004 C01-B
DATE: 24.07.18

FOR DISCUSSION

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