

Traffic Master Plan

South Urunga Urban Release Area



GeoLINK
environmental management and design

PO Box 119
Lennox Head NSW 2478
T 02 6687 7666

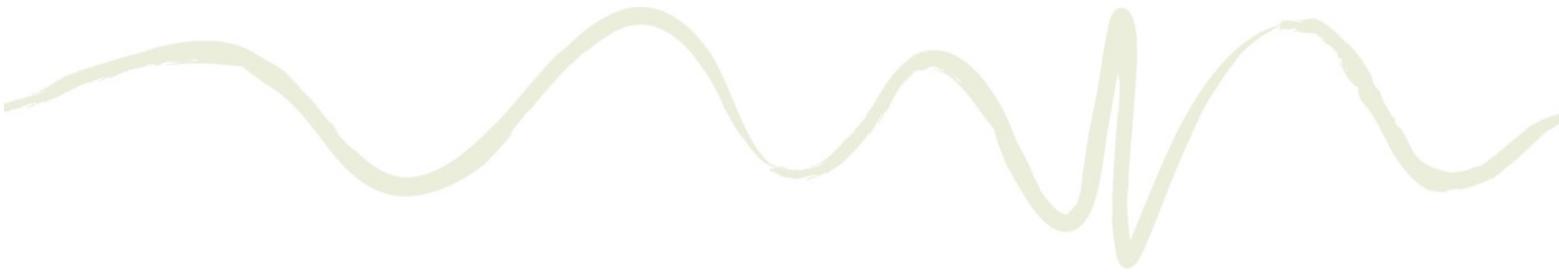
PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666

PO Box 1267
Armidale NSW 2350
T 02 6772 0454

PO Box 229
Lismore NSW 2480
T 02 6621 6677

info@geolink.net.au

Prepared for: Bellingen Shire Council
© GeoLINK, 2020



<i>UPR</i>	<i>Description</i>	<i>Date Issued</i>	<i>Issued By</i>
3296-1010	First issue	13/12/2019	Michelle Erwin
3296-1012	Second issue	28/04/2020	Michelle Erwin
3296-1016	Third issue	11/12/2020	Michelle Erwin

Table of Contents

1.	Introduction	2
1.1	Background	2
1.2	Objectives	3
1.3	Scope	3
2.	Existing Infrastructure	4
2.1	Giinagay Way	4
2.2	Access	4
2.3	Pedestrian and Cycle Networks	5
2.4	Public Transport	5
3.	Future Development	8
3.1	Assessments	8
3.1.1	Traffic Impact Assessment	8
3.1.2	Intersection Modelling	8
3.1.3	Safe Systems Assessment	8
3.1.4	Road Safety Audit	9
3.2	Major Roads	9
3.3	Hierarchy	9
3.4	Intersections	10
3.5	Subdivisions	12
3.6	Speed Zones	12
3.7	Entry Statement	14
3.8	Pedestrian and Cycle Networks	14
3.9	Public Transport	16
4.	Summary	19

Tables

Table 1.1	Development Areas	2
-----------	-------------------	---

Figures

Figure 3.1	Possible location for entry statement, south of Main Road	14
Figure 3.2	Extract from Figure 4, Appendix H of Council's PAMP (GHD, 2016)	15

Illustrations

Illustration 2.1	Existing Road Network	6
Illustration 3.1	Future Road Network	17

1. Introduction

1.1 Background

GeoLINK was engaged by Bellingen Shire Council (Council) to prepare a traffic master plan for the future development of the South Urunga Urban Release Area (SUURA). The site is situated to the south of the town of Urunga and includes land zoned under the Bellingen Shire Council Local Environmental Plan (LEP) 2012 as:

- E2 (environmental conservation)
- E3 (environmental management)
- RU1 (primary production) and
- R1 (general residential).

Table 1.1 lists all the lots within the SUURA, their area, an estimate of the developable area, approved lots and potential future lot yield.

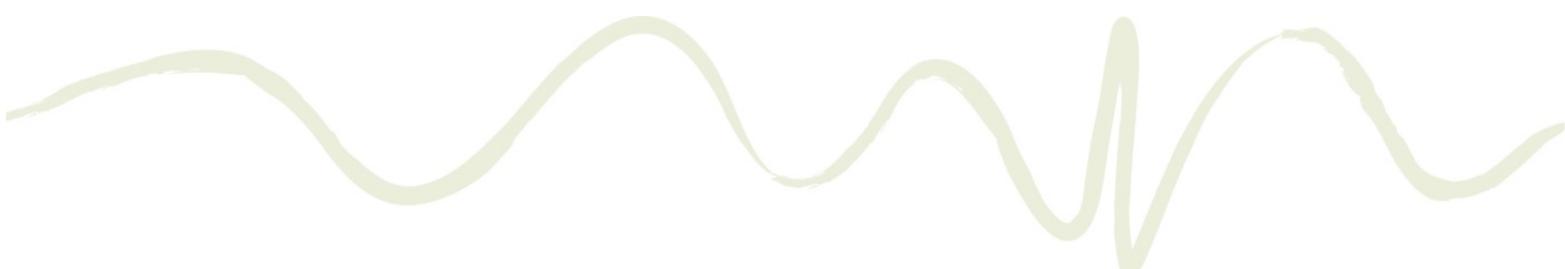
Table 1.1 Development Areas

Lot No.	Development Title / Address	Total Lot Area (ha)	Gross Developable Area (ha)*	Existing Approved Lots	Ultimate Lot Yield**
Lot 1 DP 500561	Brigalow Caravan Park	2.44	1.2	21	21
Lot 2 DP 500561		1.04			
Lot 101 DP 1172655	3995 Giinagay Way	0.89	2.6	22	55
Lot 172 DP 755552		2.25			
Lot 1 DP 604508	Urunga Heights (Stage GL1)	7.11	7.11	1	65
Lot 10 DP 568549	4000 Giinagay Way	0.39	0.39	1	6
Lot 2 DP 604508	3978 Giinagay Way	0.45	1.6	2	30
Lot 3 DP 604508		2.33			
Lot 4 DP 604508		0.62			
Lot 1 DP 1211272	7982 Giinagay Way	1.49	0	0	0
Lot 10 DP 1159473	3948 Giinagay Way	23.88	0.2	1	3
Lot 20 DP 1259737	Urunga Heights (Stages 1A, 1B, 1C, 2, 3, SL1 and SL2)	86.05	32.0	270	270 (1A, 2 & 3)
Lot 3 DP 513358		4.82			18 (1B & 1C)
Lot 4 DP 513358	4062 Giinagay Way	4.08	0.8	1	11
Lot 253 DP 46013	Railway Street	66.04	0	0	1
TOTAL		204 ha	47 ha	319 lots	502 lots

* Approximate

** Based on existing DAs or 70% of gross developable area divided by 500m², as appropriate

The SUURA is shown on **Illustration 1.1**.



1.2 Objectives

Council has recognised that the future growth within the SUURA will result in additional traffic and road user needs, and that the existing road and pedestrian/cyclist networks may not be suitable to accept the future loading.

The objectives of this master plan are to:

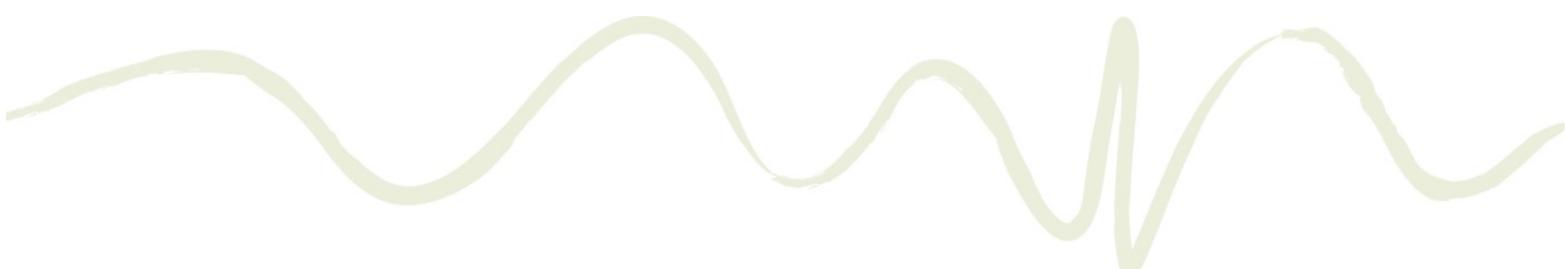
- Increase safety for all road users;
- Improve efficiency and avoid congestion;
- Minimise impact on residence;
- Reduce reliance on private motorised vehicles; and
- Improve pedestrian and cycling connections.

1.3 Scope

The SUURA comprises a collection of lots with varying potential for future subdivision and development, as demonstrated in **Table 1.1**. All future development will result in an increase in traffic and a need for various traffic infrastructure provisions and upgrades. This master plan aims to provide guidance for the design of future development within the SUURA in terms of traffic, transport and access.

As all development potential fronts Giinagay Way, this plan will primarily focus on this road between Hungry Head Road to the south and the township of Urunga to the north.

It is important to note that in order to create safe, liveable, inclusive communities, traffic impacts of new developments must not be considered solely in isolation. Traffic, transport and access matters should be considered in the early stages of every development proposal as part of a holistic assessment of constraints and opportunities.



2. Existing Infrastructure

2.1 Giinagay Way

The SUURA extends approximately 1,400 m along Giinagay Way, from the southern boundary of Lot 10 DP 1159473 to the northern boundary of Lot 4 DP 513358. With the exception of Lot 253 DP46013 which has official access via Railway Street, all lots within the SUURA currently gain access, either directly or indirectly, from Giinagay Way.

Giinagay Way may be classed as a distributor or collector road, collecting and carrying traffic between separate urban areas and arterial roads. It is a two-lane two-way road with 3.5 m traffic lanes and sealed shoulders approximately 3.0 m wide on each side. Prior to the recent Warrell Creek to Urunga Pacific Highway Upgrade, Giinagay Way formed part of the Pacific Highway. Since the upgrade and effective bypassing of Urunga, Giinagay Way no longer forms part of the state route between Sydney and Brisbane and is now a secondary/service road.

Transport for NSW (TfNSW, formerly RMS), have advised that Giinagay Way is a classified (State) road (being part of the Old Pacific Highway HW10) under the Roads Act 1993 (Roads Act). Bellingen Shire Council (Council) is the roads authority for all public roads (other than freeways or Crown roads) in the local government area pursuant to Section 7 of the Roads Act. TfNSW is the roads authority for freeways and can exercise roads authority functions for classified roads in accordance with the Roads Act. Any proposed works on a classified (State) road will require the consent of TfNSW. Consent is generally provided under the terms of a Works Authorisation Deed (WAD).

Within the Bellingen Shire Local Government Area (LGA), Giinagay Way currently carries traffic between the Pacific Highway interchanges at Waterfall Way (~5.5 km north) and Ballards Road (~3.5 km south), and the local township of Urunga. It continues south through the Nambucca Shire LGA to the Nambucca Heads interchange.

Prior to the upgrade, the Pacific Highway in the vicinity of the SUURA experienced an annual average daily traffic (AADT) volume between 10,000 and 14,000 vehicles per day (in both directions). Since the upgrade, traffic volumes on Giinagay Way have dropped to around 1,750 vehicles per day including between 6.5% and 10.5% heavy vehicles .

The speed zone within the SUURA is currently 80 km/h for the majority of its length. At the northern end of the SUURA, approximately 15 m south of the boundary between Lots 3 and 4 DP 513358 on the approach into Urunga, the speed limit drops to 50 km/h as indicated by signage (including advance warnings) and painted pavement markings. There is a permanent speed camera located between Ranger Street and Hillside Drive, approximately 630 m north of the change in speed zones.

2.2 Access

Most of the lots comprising SUURA currently have frontage and direct access to Giinagay Way, via a simple rural driveway. One exception is Lot 253 DP46013 which fronts Railway Lane and has indirect access from Giinagay Way via Lot 1 DP 1211272 and Lot 2 792596.

Although neither Lot 1 nor Lot 2 DP 500561 has frontage to Giinagay Way, they have indirect access via a short (100 m) section of road reserve known as 'Main Road'. Lot 2 extends from the end of this road reserve with a short (40 m) battle-axe handle, and Lot 1 is accessed via a right-of-carriageway easement over Lot 2.

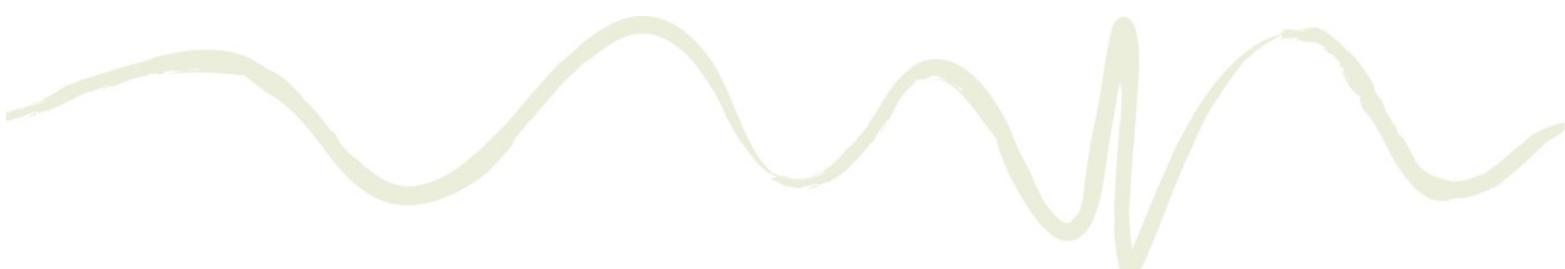


Illustration 2.1 shows the existing road network and features within the SUURA.

Illustration 2.2 shows the existing driveways and intersections within the SUURA.

The intersection of 'Main Road' and Giinagay Way, along with the site access for other lots within the SUURA is shown **Appendix A**.

2.3 Pedestrian and Cycle Networks

There is currently very little provision for pedestrians and cyclists within the SUURA. However, there is also very little demand for such facilities in this area. There are currently several footpaths (<2.0 m) and shared paths (>2.0 m) within the Urunga town centre, north of the SUURA. These are somewhat disconnected in places and generally of insufficient width to act as shared facilities for both pedestrians and cyclists.

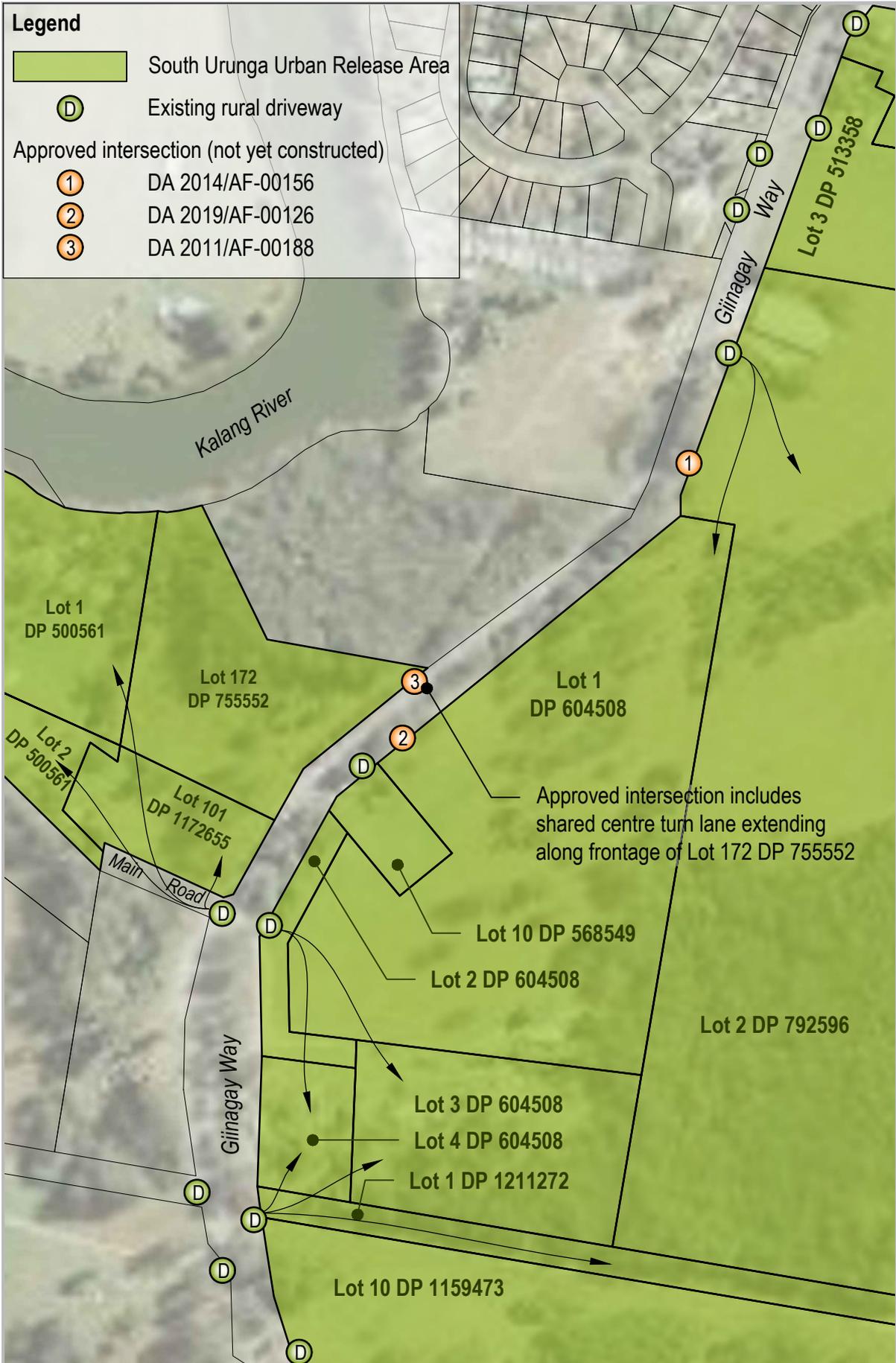
2.4 Public Transport

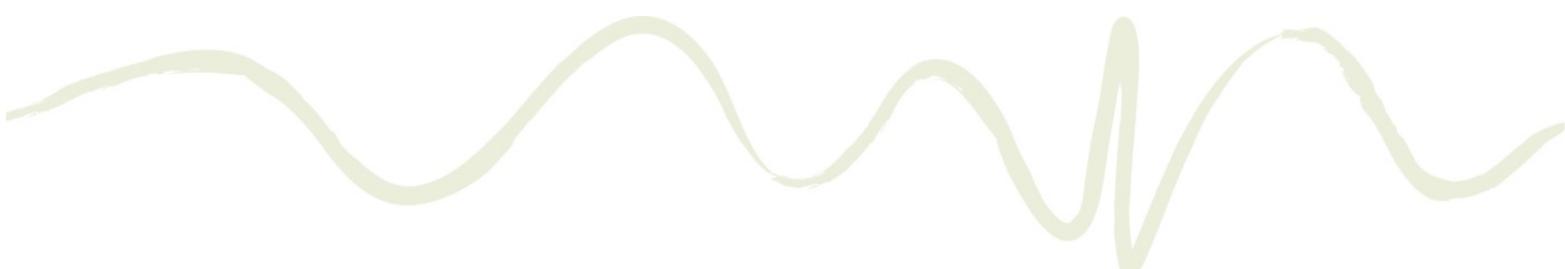
The nearby township of Urunga and the surrounding areas are currently serviced the following public transport options:

- Local taxi services (e.g. Urunga Taxis and Bellingen Taxis);
- Carpool (an online ride sharing service);
- Regional bus services (currently operated by Busways, providing six services per weekday and two on Saturdays between Macksville, Nambucca Heads, Valla Beach, Urunga, Bonville, Toormina and Coffs Harbour. A similar number of daily services are also provided between Macksville, Nambucca Heads, Valla Beach, Urunga, Raleigh and Bellingen.
- Interstate coach services (e.g. Greyhound Australia and Premier Coaches, both of which offer a daily service between Sydney and Brisbane – and beyond – stopping at Urunga and many other regional towns and centres. The coach services connect with intercity train services.

The regional bus services noted above travel along Giinagay Way through the SUURA, with the closest bus stop located north on Giinagay Way between Ranger Street and Hillside Drive.







3. Future Development

3.1 Assessments

3.1.1 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) in accordance with the current version of the Austroads *Guide to Traffic Management Part 12: Traffic Impacts of Developments* is to be carried out for all proposed developments likely to generate traffic. The scale of the TIA will be dependent on the scale of the proposed development. In general, the TIA shall address:

- Existing conditions (roads, intersections, pathways, public transport, road users, parking provisions, asset condition etc.)
- Details of the proposed development;
- Spatial limit of traffic impact;
- Expected traffic generation (including justifications for rates used)
- Expected modal split;
- Expected approach and departure directions;
- Public transport routes, connections and facilities;
- Pedestrian and cyclist routes, connections and facilities;
- Parking requirements and provisions;
- Construction traffic; and
- Impact-mitigating treatments.

The existing access driveways servicing each lot will require considerable upgrade works commensurate to the ultimate expected traffic volumes for each manoeuvre at the intersection. Each proposed development will require an intersection on Giinagay Way servicing the new lots. Refer to **Section 3.4** for more detail regarding intersections, including access driveways.

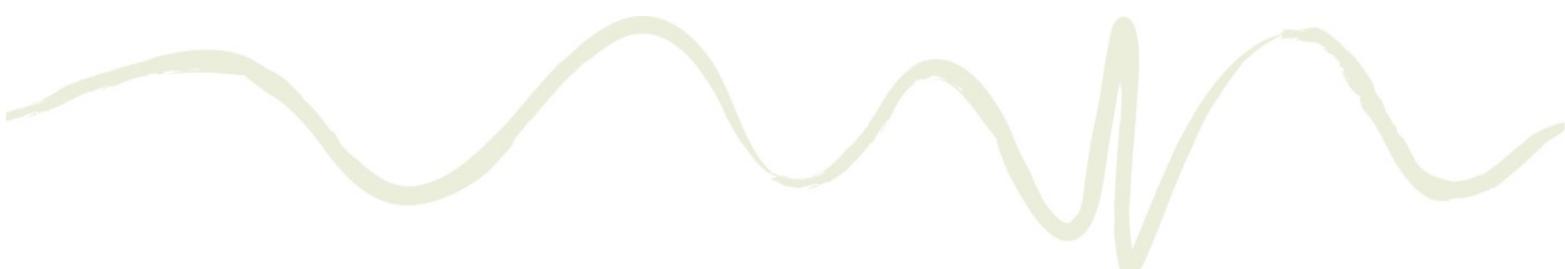
3.1.2 Intersection Modelling

Modelling of any proposed intersections or intersection upgrades on Giinagay Way must be undertaken to maintain a high level of efficiency. Software such as Sidra Intersection is to be used to demonstrate that all traffic movements are expected to be within acceptable level of service (LoS) during the anticipated peak hour(s), with minimal delays for through and turning traffic.

Sensitivity analysis shall be carried out for any assumed or uncertain variables, such as the adopted traffic generation rates, directional splits, per cent heavy vehicles etc.

3.1.3 Safe Systems Assessment

The 'Safe System' approach is an internationally-recognised holistic methodology that accepts humans make mistakes and have physical frailty. As such, 'forgiving' road transport system is necessary such that the transport system – including all road elements such as roads, roadside infrastructure, vehicles and speeds – does not result in death or serious injury because of errors on the roads. Essentially, the safe system principles recognise that human error in the road environment is inevitable and that road infrastructure must accommodate this error and minimise the consequences. The aim is to eliminate any crash resulting in a fatality or serious injury (FSI) by making safer roads, vehicles, road users and speeds.



The Safe System Assessment (SSA) framework was developed by Austroads to facilitate the incorporation of safe system objectives in all road infrastructure and traffic management projects. An SSA is a proactive tool within the framework which uses a matrix to ensure consistent consideration of major crash types and prompts an assessment of crash severity, road user exposure and crash likelihood as they apply to each crash type. It can be carried out on a wide variety of project types and at any stage across the lifespan of a project (planning, design, operation and maintenance). However, an SSA is most effective at the feasibility and preliminary design stages of a project. It can be used to compare and rank different design options for the same project, however cannot be used to compare different projects. The depth of assessment and analysis in an SSA shall reflect the project size, complexity and risk of FSI crashes.

3.1.4 Road Safety Audit

Depending on the size and type of the proposed development, a road safety audit (RSA) undertaken by an independent and suitably-qualified team of auditors might be warranted.

RSAs are an integral part of the safe system approach. An RSA is a formal examination of future road or traffic projects (or existing roads) carried out from the perspective of all road users, aiming to identify deficiencies in the design (or existing infrastructure) that may be rectified to increased safety and/or decrease crash potential. The benefit of conducting an RSA is that the risk of crash occurrence and the severity of crashes can be reduced. RSA can be carried out at several stages, including feasibility, preliminary design, detailed design and pre-opening (i.e. immediately post-construction). An early RSA can result in significant improvements in terms of safety with little to no additional cost.

3.2 Major Roads

All development within the SUURA will result in an increase in traffic on Giinagay Way, with nearly 500 new lots created, each expected to generate traffic. This will be a significant rise in traffic volumes when compared to current traffic flows. However, Giinagay Way was formerly the Pacific Highway and has carried much higher traffic volumes in the past. As such, Giinagay Way will not require significant upgrades beyond routine maintenance and repairs.

Minor upgrades to cater for the change in land use within the SUURA will be required, as triggered by the residential development, including appropriate intersection treatments (e.g. widening, roundabouts, channelised turn lanes, kerbing etc.), profiling the verge, landscaping and construction of a shared path (refer **Section 3.8**).

Although Giinagay Way will change from being a relatively low volume rural road to an urban collector road, it will remain an important movement corridor within the local area, providing access to Urunga from surrounding areas and further afield. Thus, within the South Urunga area, Giinagay Way will need to meet the needs of both through traffic and local traffic generated by the adjoining development. Any changes to Giinagay Way resulting from the future development must consider the needs of the through traffic, primarily tourist and commuter traffic from the south heading into Urunga and vice versa. The interaction of the through traffic and local traffic must also be considered, particularly at intersections and regarding design speeds (refer **Section 3.6**).

3.3 Hierarchy

Different roads serve different functions, including provision of property access, routes for pedestrians, cyclists and public transport, and accommodating through-traffic unrelated to the adjacent land uses.

Many roads perform several functions, but mixing competing functions can negatively impact efficiency, amenity and safety. A road hierarchy aims to appropriately define the function of a roadway in line with the objectives for that roadway, to facilitate suitable design of the road environmental and minimise conflicts between incompatible functions.

A well-formed road hierarchy will reduce overall impact of traffic by ensuring land uses and activities that are incompatible with traffic flow are restricted from routes where traffic movement should predominate and preserving areas where through-traffic is discouraged.

Although the development outcomes likely to be associated with the SUURA will result in an increase in traffic on Giinagay Way, there will be no change to the existing road hierarchy. Giinagay Way will remain a collector/distributor road within the hierarchy of road classifications. This functional classification describes a moderate-capacity road which serves to move traffic from local streets and urban localities to arterial roads; for example, from the subdivisions proposed within the SUURA to the Pacific Highway or to nearby townships. Although it is not unusual for collector/distributor roads to provide direct property access, providing direct access and carrying larger volumes of traffic are competing functions. For safety and efficiency, the traffic volume of a road should be inversely proportional to the number of properties with direct access onto the road. For example, a local street within an urban subdivision will carry very little traffic while providing access to many properties. Conversely, a higher order road such as Giinagay Way should limit direct property access and prioritise traffic flow.

Thus, there are to be no additional property accesses servicing single residential lots within the SUURA on Giinagay Way. Any proposed lots with road frontage to Giinagay Way must provide vehicular access via an alternative road (i.e. dual road frontage).

3.4 Intersections

Existing and ultimate access to each lot is provided below including details of works required to provide an acceptable property access.

Table 3.1 Lot Accesses

<i>Lot No.</i>	<i>Development Title / Address</i>	<i>Current access</i>	<i>Ultimate Access</i>
Lot 1 DP 500561	Brigalow Caravan Park	BAL and BAR (Main Road)	New roundabout approximately located at the existing intersection of Giinagay Way and 'Main Road';
Lot 2 DP 500561			
Lot 101 DP 1172655	3995 Giinagay Way		
Lot 172 DP 755552			
Lot 1 DP 604508	Urunga Heights (Stage GL1)	Rural driveway via Lot 20 DP 1259737	Via Urunga Heights Stg. GL1 (and thus utilising the new roundabout)
Lot 10 DP 568549	4000 Giinagay Way	Rural driveway	
Lot 2 DP 604508	3978 Giinagay Way	Rural driveway via Lot 2 DP 604508 and Lot 1 DP 1211272	
Lot 3 DP 604508			
Lot 4 DP 604508			
Lot 1 DP 1211272	7982 Giinagay Way	Rural driveway	Unchanged
Lot 10 DP 1159473	3948 Giinagay Way	Rural driveway	Unchanged

Lot No.	Development Title / Address	Current access	Ultimate Access
Lot 20 1259737	Urunga Heights (Stages 1A, 1B, 1C, 2, 3, SL1 and SL2)	Rural driveway	CHR and CHL at new intersection
Lot 3 DP 513358		Rural driveway	
Lot 4 DP 513358	4062 Giinagay Way	Rural driveway	Unchanged
Lot 253 DP 46013	Railway Street	-	Via Urunga Heights Stg. 1A

BAL = Basic left turn treatment

CHL = Channelised left turn treatment

BAR = Basic right turn treatment

CHR = Channelised right turn treatment

New intersections (or upgrades to existing access points) to service proposed traffic-generating developments must be designed in accordance with the relevant current Austroads Guidelines giving consideration to the following for a minimum ten-year design horizon:

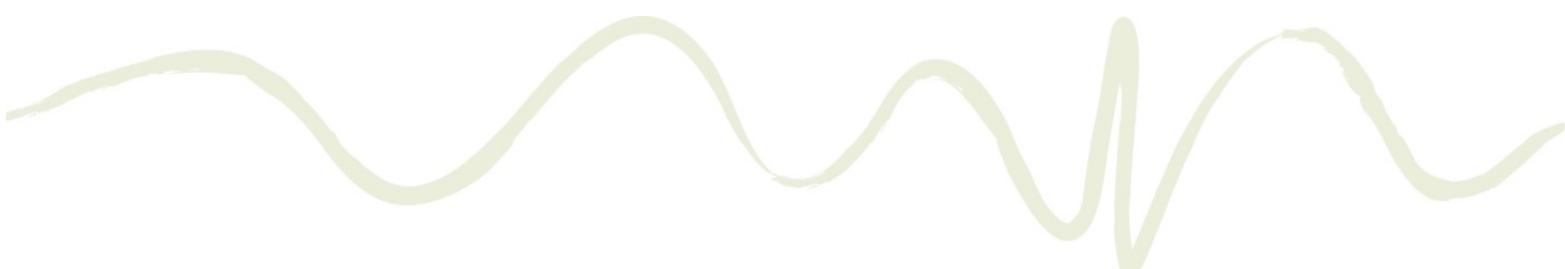
- Traffic generated by the proposed development, including composition and likely directional splits;
- Traffic on Giinagay Way, accounting for future traffic associated with other future developments;
- Interaction with other nearby intersections or property accesses;
- Safe intersection sight distance (SISD);
- Level of service and delays for each movement;
- Intersection upgrades (e.g. roundabout);
- Turning treatments (e.g. basic, auxiliary or channelised turn lanes);
- Acceleration lanes;
- Geometry (e.g. length of acceleration and turn lanes, tapers and lane widths)
- Deflections through roundabouts;
- Public transport and construction/heavy vehicle requirements;
- Provision for pedestrians and cyclists, including those with special mobility requirements; and
- Signage (advance warning and intersection) and linemarking.

The type of intersection treatment required for each proposed development will depend heavily on the speed environment on Giinagay Way.

Discussions with TfNSW and consideration of potential options has led to a preferred option of a roundabout located at the existing intersection of Giinagay Way and Main Road, providing direct access to the portions of SUURA west of Giinagay Way and Urunga Heights Stage GL1. Future development on Lot 10 DP 568549 and Lots 2 to 4 DP 604508 will also utilise this roundabout via the internal road network of Urunga Heights Stage GL1.

Introduction of a roundabout at this location will require a speed reduction from 80 km/h to 60 km/h (or 50 km/h, to be determined by TfNSW). It will also provide an ideal site for an entry statement, as discussed further in **Section 0**.

It is noted that development on Lot 101 DP 1172655 and Lot 172 DP 755552 approved under development application (DA) numbers 2007/AF-00265 and 2011/AF-00188 includes the proposed construction of a median turning lane (i.e. a central shared/two-way right turn lane). Such turning lane treatments have been used throughout Australia and in other countries with mixed results. As they are not commonly seen in NSW, the presence of the two-way right turn arrows may confuse some road users. Although this intersection treatment can function well under the right conditions, a detailed assessment would be required to demonstrate that the opportunity for these lanes to be used incorrectly is minimised, thus reducing the risk of head-on collisions between vehicles sharing a single lane and travelling in opposing directions. As such, it is recommended that this type of turning treatment be carefully and thoroughly assessed with other, more commonly used options considered prior to construction within the SUURA.



3.5 Subdivisions

Most subdivisions will involve an internal network of roads providing access to each new allotment. The configuration of the road network will need to consider the resulting lot orientation, frontage width and access grades. Since the new roads will become public roads, the design of the network (hierarchy) and road geometry must comply with the relevant standards and guidelines, including Council's *DCP 2017 Chapter 3 – Subdivision*.

The road network within a subdivision must provide a high level of connectivity for motorised and passive traffic. This includes providing safe linkages for pedestrians and cyclists to the wider pathway networks and to desirable locations within the subdivision such as parks, open space and bus stops. Consideration must also be given to limiting the volume of through-traffic on local streets with the aim of improving the amenity for residents and encouraging walking and cycling in neighbourhoods.

The design speed within subdivision will generally be 50 km/h. The design of road network elements should reflect this and passively encourage motorists to travel within the sign-posted speed limit. Reliance on speed humps should be avoided, instead using the road geometry (cross-sectional width, horizontal curves etc.) to set the speed environment. Long, straight, wide stretches of road should also be avoided.

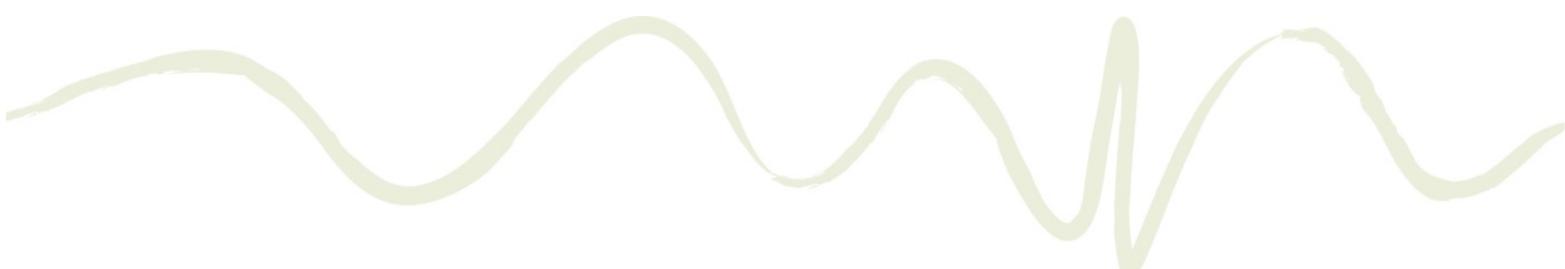
Vehicular traffic from several of the development areas including South Urunga Stage GL1 and Brigalow Caravan Park will join the wider road network via a possible future roundabout as discussed in **Section 3.4**.

3.6 Speed Zones

In accordance with the NSW *Speed Zoning Guidelines* (v4.0, RMS, 2011), *'the fundamental principle in setting speed limits for a particular length of road is that the established speed limit should reflect the road safety risk to the road users while maintaining mobility and amenity.'* As previously established, the road users on Giinagay Way within the SUURA currently mainly comprise through traffic heading from the south into Urunga with a proportion of local traffic generated by the rural landholdings within the South Urunga area. The ultimate development potential of the SUURA as expected within the next ten years will see an increase in traffic on the subject section of Giinagay Way from the current 1,750 vehicles per day up to 6,000 or more vehicles per day. Thus, ultimately the majority of the road users on Giinagay Way within the SUURA will be local traffic and the key function of this section of the road will be to service the residents of the SUURA.

In setting speed limits, the principles of the Safe System must be considered i.e. to reduce the incidence of FSI crashes (refer **Section 3.1.3**). The relationship between vehicle speed and crash severity is unequivocal and the setting of speed limits as per the NSW is now based on this approach so that avoiding death and serious injuries becomes a priority.

The current speed zone within the majority of the SUURA is 80 km/h, changing to 50 km/h approximately 55 m south of the northern boundary of the area.



A speed zone review by TfNSW is to be requested with the aim to extend the existing 50 km/h speed zone by approximately 800 m south. A change in speed zone is required to reflect the changes in road use and the increased roadside activity (shared path) and specifically to achieve the following:

- Provide a safe environment for cyclists and pedestrians utilising the future shared path.
Given that the total travel distance from the Urunga town centre and several destinations is less than 2.5 km, it is highly likely – and desirable – that many future residents of SUURA will walk or cycle along the future shared path into Urunga.
- Allow for safe, efficient, appropriately sized and appropriately located intersections.
At 80 km/h, the most appropriate access point for future development might not be physically achievable and/or may prohibit logical access to other developments within SUURA.
- Increase safety commensurate to the ultimate traffic environment on Giinagay Way.
The road environment of Giinagay Way is currently rural and open. However, with the expected development of the SUURA, the road environment can be expected to become increasingly urban.

Timing of the speed reduction needs to be carefully considered. Although it would be usual to undertake the speed zone review once the development is underway and the changes in the traffic environment are evident, there are several justifications for lowering the speed zone prior to works commencing on the various developments within the SUURA. These include:

- The intersection treatment required to meet the specifications of the Austroads Guidelines for a major road with a design speed in excess of than 70 km/h are much greater than the requirements for an intersection with a major road design speed equal to or less than 50 km/h. As such, the length of the turn lanes required (and indeed the necessity to provide turn lanes) for new intersections on Giinagay Way to service future development will likely interact with each other. This situation is known to cause weaving and can result in confusion for road users, which carries a high potential for resultant collisions.
- Given that the stopping distance required for a vehicle at 80 km/h is significantly longer than that required for a vehicle travelling at 50 km/h under the same conditions, the sight distance requirements at intersections within an 80 km/h design speed zone are likely to be prohibitive to the provision of safe intersections at key locations required to provide access to future development within SUURA.
- Maintaining an 80 km/h speed zone until after development is complete will result in unnecessary expense and use of resources constructing needlessly large, over-engineered intersections.
- Lowering the speed limit by construction commencement will provide a greater level of safety during the construction period, which will involve a significant increase in the percentage of heavy vehicles travelling to and from the SUURA on Giinagay Way. It is noted that there will be periods of roadwork on Giinagay Way while new intersections are under construction, which will likely include traffic control and 40 km/h roadwork speed zones.
- It can be expected that current regular motorists utilising Giinagay Way will take several months to adjust to the lower speed zone. Thus, waiting until after development is complete to change the speed limit may result in a crash between a new resident travelling at the sign-posted 50 km/h and a habitual driver travelling at 80 km/h. The proposal to lower the speed limit prior to construction will also ensure that all new residents of the future development areas become accustomed to the 50 km/h speed zone.

It is noted that reducing the speed from 80 km/h to 50 km/h for a length of 800 m will result in an additional travel time of 21.6 seconds, and reducing the speed from 80 km/h to 60 km/h for a length of 800 m results in an additional 12 seconds of travel time.

3.7 Entry Statement

An entry statement is an element of landscape work designed to mark and design the 'entry' to a property or precinct. There is an opportunity for the installation of an entry statement or 'urban gateway' towards the southern extent of the SUURA . Such treatments provide form and functional, with the following benefits:

- Sense of arrival;
- Connection to the community;
- Recognition of local environment;
- Opportunity to showcase local and/or indigenous art; and
- Indication of a change (decrease) in speed zone.

For the SUURA, the entry statement could be combined with the change in speed zone, at a location approximately 50-100 m south of Main Road. Any entry statement is to be in keeping with Council's signage plan.



Figure 3.1 Possible location for entry statement, south of Main Road

3.8 Pedestrian and Cycle Networks

New developments and subdivisions are to be designed to encourage physical activity and reduce the reliance on private motor vehicles. They should also connect people to parks, sports fields, community facilities, commercial centres and other desirable destinations.

It has been identified within Council's *Bellingen Shire Pedestrian Access and Mobility Plan and Bike Plan (PAMP)*(GHD, January 2016) that several improvements to the existing pedestrian, cycle and shared path networks within the LGA are required, and augmentation of the existing network in the vicinity of Urunga is ranked as a high priority. The *PAMP* recommendations include construction of a 2.5 m wide concrete shared path on the eastern side of Giinagay Way from Main Road in the south (within SUURA) and extending into Urunga, connecting future residents within the SUURA with various destinations in Urunga and beyond.

The extent of the new shared path as recommended in the *PAMP* is congruent with the extent of the majority of development likely to occur within the SUURA.

In accordance with Council's *Development Control Plan [DCP] 2017 Chapter 3 – Subdivision* and Council's *PAMP*, all new subdivisions proposing a new public road shall provide a 2.5 m wide concrete footpath across the street frontage (i.e. Giinagay Way) and on one side of all new public roads, at the developer's expense and in accordance with Council's design standards. In lieu of a 2.5 m wide concrete path, a 2.8m wide asphalt path would also be acceptable.

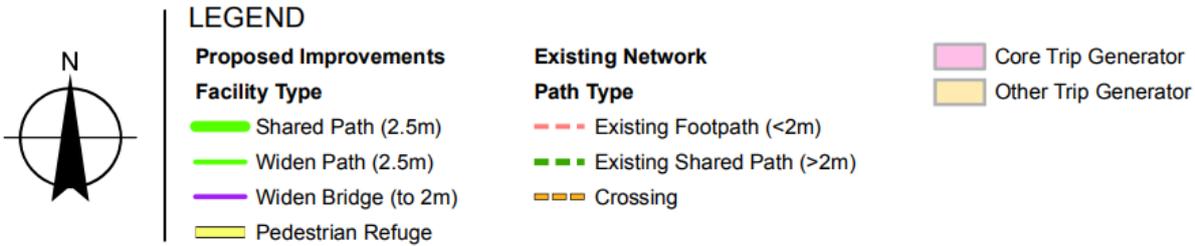
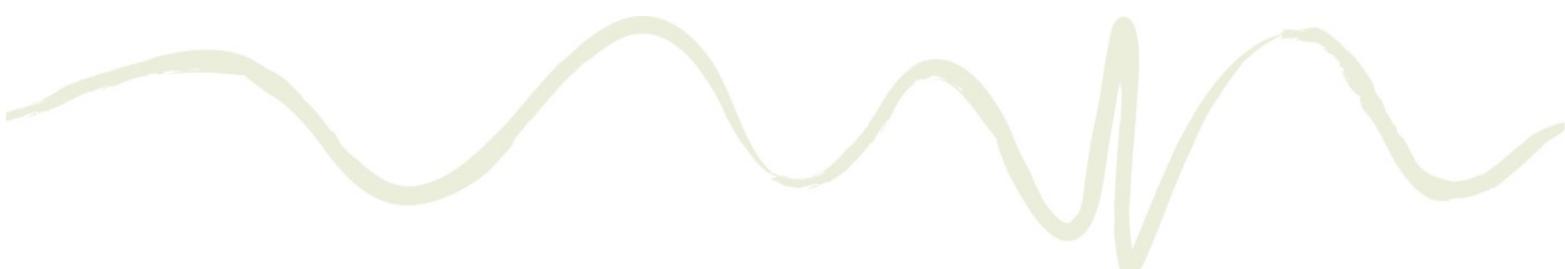


Figure 3.2 Extract from Figure 4, Appendix H of Council's PAMP (GHD, 2016)



3.9 Public Transport

Provisions for public transport are to be incorporated into the design of any new subdivision within the SUURA to reduce the reliance on private motor vehicles and increase accessibility for all residents. This shall include, but not be limited to:

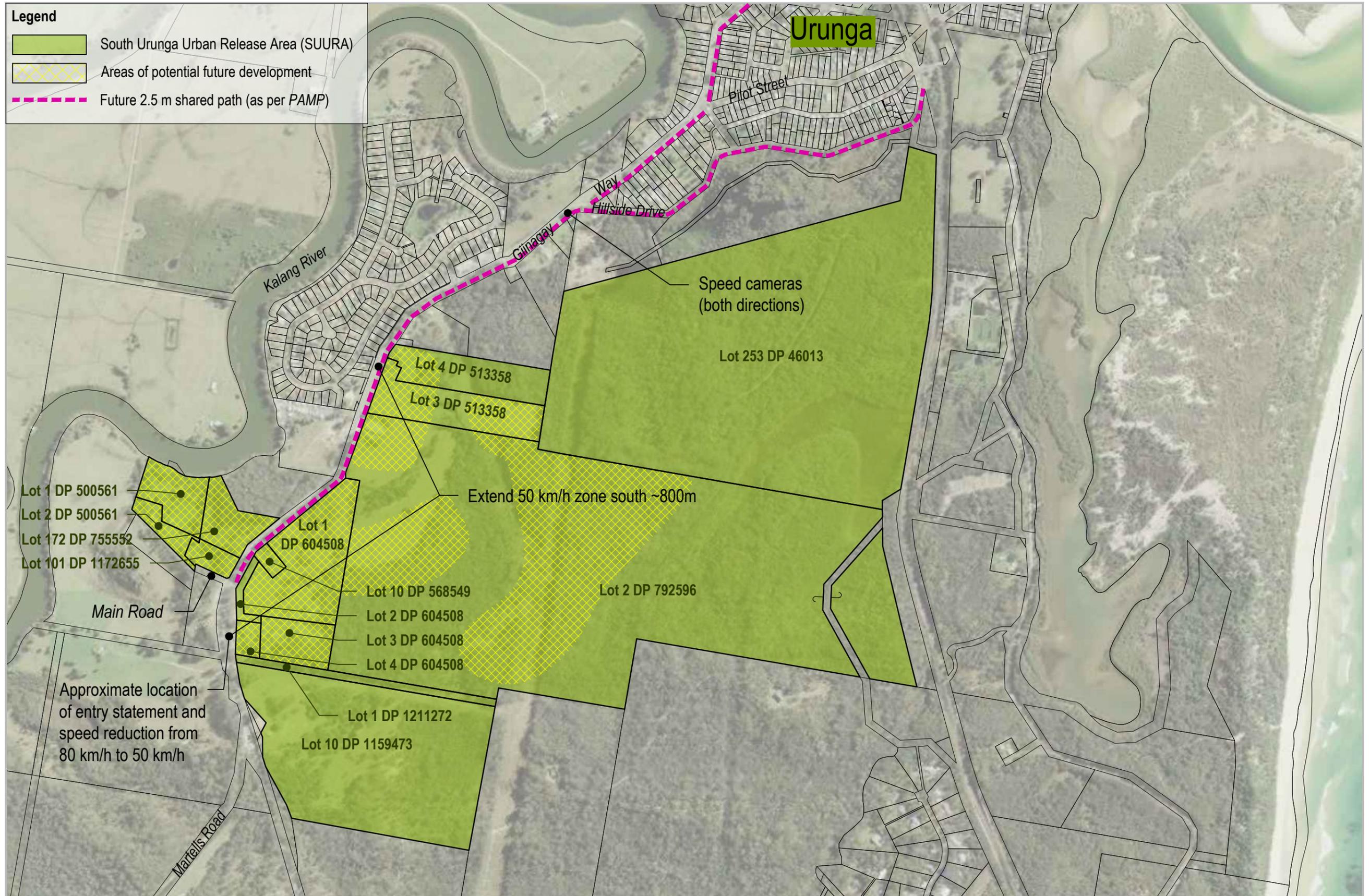
- Connection to desirable destinations;
- Appropriate road widths along likely bus routes;
- Bus bays; and
- Accessible bus stop shelters; and
- Ensuring a maximum 400 m walkable route from each proposed residential lot to a bus stop.

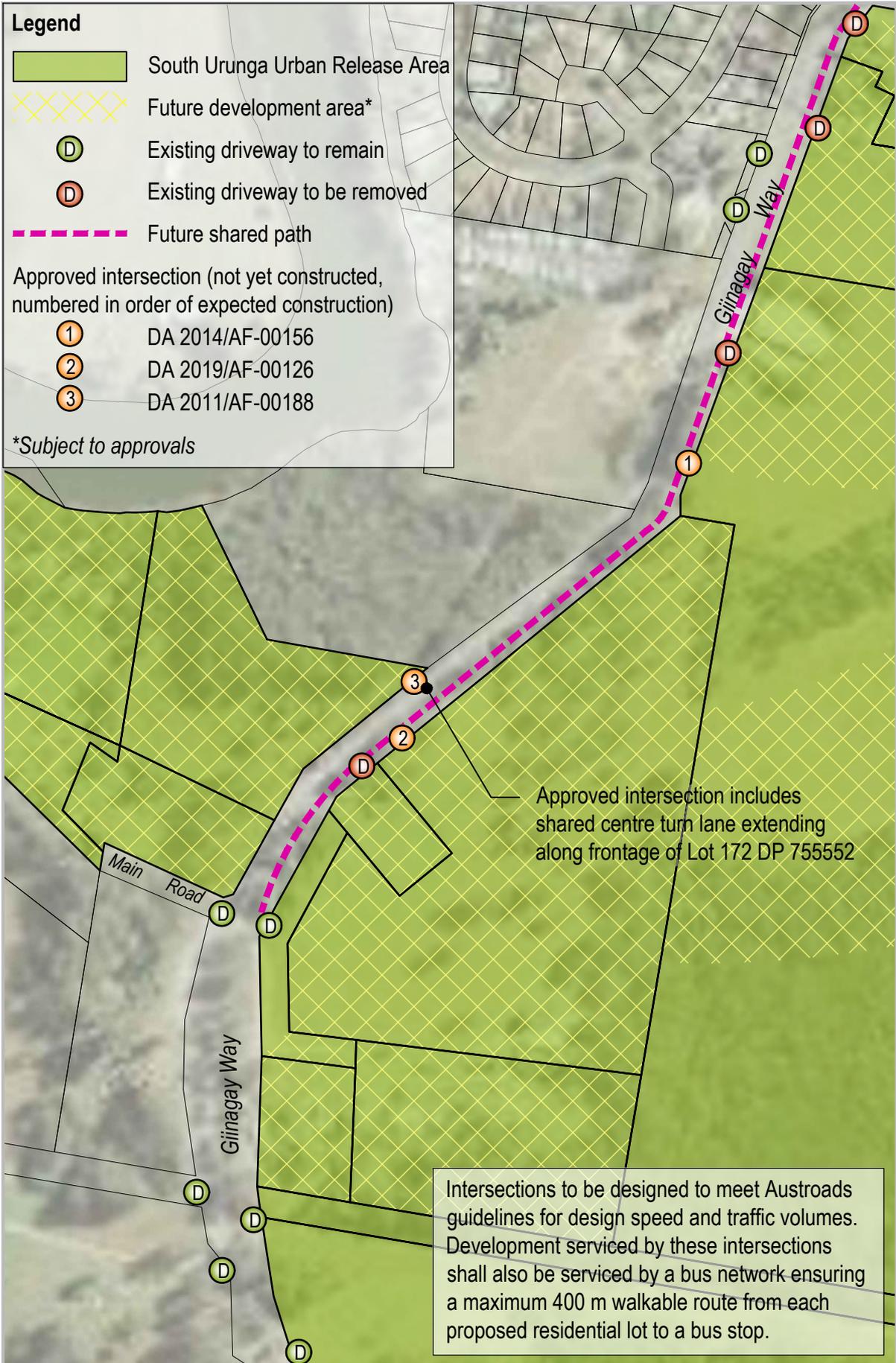
This will primarily relate to the subdivision known as Urunga Heights, comprising Lots 1 and 2 DP 792596, Lot 3 DP 513358 and Lot 1 DP 604508. The design of this subdivision shall identify a looped designated bus routes and demonstrate the proposed infrastructure can accommodate a daily bus service(s) without impacting negatively on safety or efficiency.

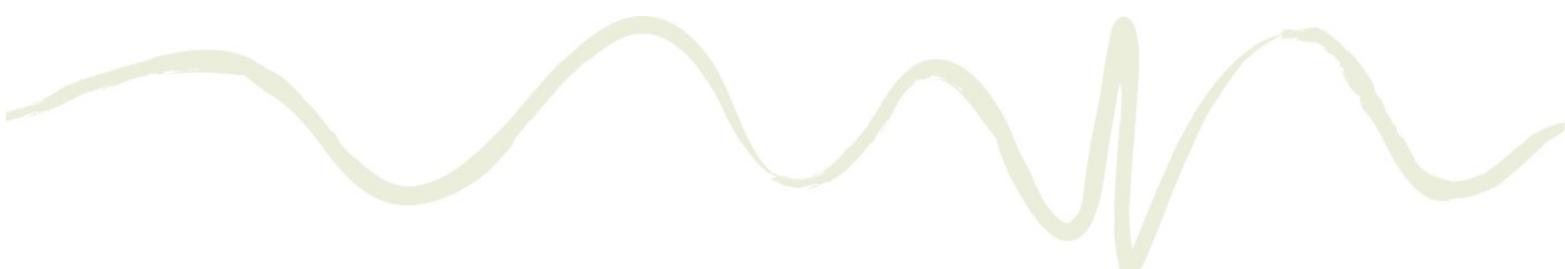
Local bus service routes will need to change over time as new lots are developed and released to ensure connectivity.

Illustration 3.1 shows the necessary upgrades to the SUURA road network to accommodate the expected future development.

Illustration 3.2 shows the ultimate access arrangements along the Giinagay Way corridor within the SUURA, including approved intersections, existing and potential property accesses, and active and public transport facilities.







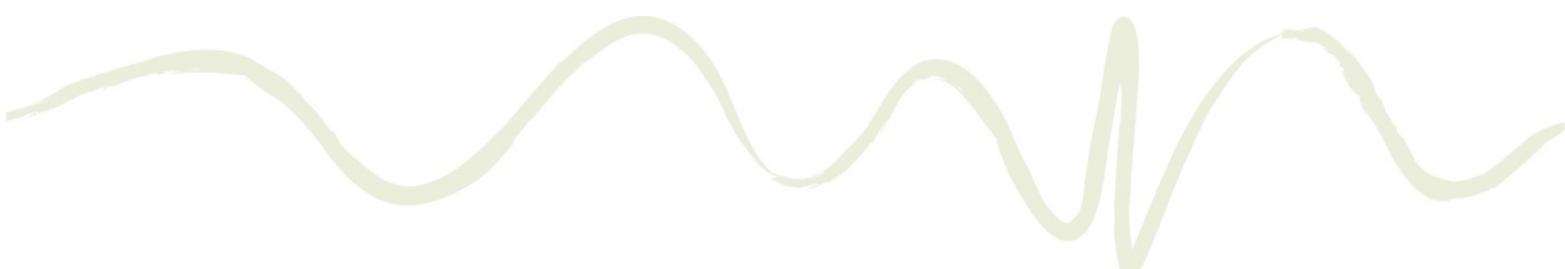
4. Summary

Future development within the SUURA will need to consider traffic and access as part of each development application for approval. It is important to note that in order to create safe, liveable, inclusive communities, traffic impacts of new developments must not be considered solely in isolation. Traffic, transport and access matters should be considered in the early stages of every development proposal as part of a holistic assessment of constraints and opportunities. The following improvements to the road network must be undertaken as part of the urban growth within the SUURA:

- Extend the existing 50 km/h speed zone currently north of the SUURA by approximately 800 m south. Timing of the speed zone reduction is critical for safety and is to be completed prior to the commencement of subdivisional construction works.
- Any new intersection required to access proposed future development must be carefully assessed and designed, considering appropriate traffic generation rates, interaction with other nearby intersections/driveways (existing and future), sight distance, turning treatments and provision for public transport, pedestrians and cyclists. New private driveway accesses onto Giinagay Way within the SUURA are to be prohibited.
- Consideration should be given to carrying out independent road safety audits or safe system assessments, as appropriate, for the overall SUURA.
- Provision of a min. 2.5 m wide shared path and associated facilities extending from Main Road into the Urunga township in accordance with Council's *Bellingen Shire Pedestrian Access and Mobility Plan and Bike Plan* [PAMP] (GHD, January 2016). This should be combined with provision of additional shared paths within Urunga and the surrounding area to maximise the available opportunities for non-motorised or electrical (in the case of electric bikes) travel.
- Amend the local bus service route to include a loop within the proposed future development known as *Urunga Heights* and allow walkable access for all SUURA residents – no greater than 400 m in length – to an accessible bus shelter.
- Commission and construct an entry statement south of Main Road to mark the 'arrival' within the new residential area and reinforce the speed limit reduction.

Additionally, the following actions must be undertaken by the developer with each proposed development within the SUURA:

- Each proposed development application must include a comprehensive Traffic Impact Assessment in accordance with the Austroads Guidelines.
- Consideration should be given to carrying out independent road safety audits or safe system assessments, as appropriate, at various stages of the planning and design process.
- Construct pedestrian, cyclist or shared paths as appropriate within each development, providing a at a minimum a 1.2 m wide path on one side of all new public roads, in accordance with Council's *Development Control Plan* [DCP] 2017 Chapter 3 – *Subdivision* and Council's *PAMP*.
- All developments with frontage to the eastern side of Giinagay Way must construct a min. 2.5 m wide shared path along the Giinagay Way road frontage, in accordance with Council's *PAMP*.
- Provide a bus route, bus bays and accessible bus stops as required to ensure all future residents of the SUURA can safely access a bus stop within 400 m of their property. Consideration for alternative transport (e.g. carpooling, electric cars etc.) should also be considered
- Internal subdivision road networks are to provide a high level of connectivity for vehicles, pedestrians and cyclists. The layout of internal roads must consider limiting through-traffic on local streets and reduce the reliance on private motor vehicles by design. Passive traffic calming to encourage low speeds is also necessary.
- Assessment of the access to the proposed development area must include intersection modelling and analysis in accordance with the Austroads Guidelines.
- All roads, intersections, parking areas, paths and associated works are to be designed and constructed in accordance with the relevant Australian Standards, Austroads Guidelines and Council's development specifications.
- Median turning lane (i.e. a central shared/two-way right turn lane) should be thoroughly assessed with other, more commonly used options considered prior to construction within the SUURA.



Copyright and Usage

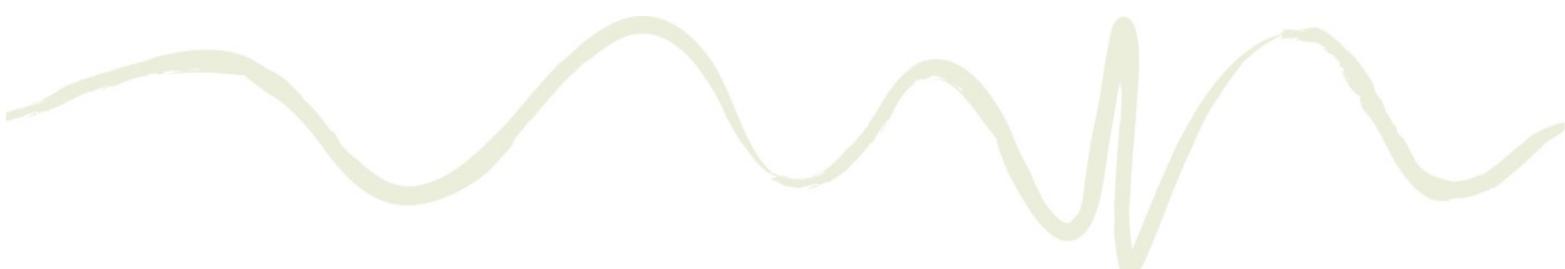
©GeoLINK, 2020

This document, including associated illustrations and drawings, was prepared for the exclusive use of Bellingen Shire Council. It is not to be used for any other purpose or by any other person, corporation or organisation without the prior consent of Bellingen Shire Council. GeoLINK accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

The information provided on illustrations is for illustrative and communication purposes only. Illustrations are typically a compilation of data supplied by others and created by GeoLINK. Illustrations have been prepared in good faith, but their accuracy and completeness are not guaranteed. There may be errors or omissions in the information presented. In particular, illustrations cannot be relied upon to determine the locations of infrastructure, property boundaries, zone boundaries, etc. To locate these items accurately, advice needs to be obtained from a surveyor or other suitably-qualified professional.

The dimensions, number, size and shape of lots shown on drawings are subject to detailed engineering design, final survey and Council conditions of consent.

Topographic information presented on the drawings is suitable only for the purpose of the document as stated above. No reliance should be placed upon topographic information contained in this report for any purpose other than that stated above.



Appendix A
Existing Property Access Points



Access to Lots 1 and 2 DP 500561



Access to Lots 1 and 2 DP 500561



Access to Lot 4 DP 513358



Access to Lot 3 DP 513358



Access to Lot 1 DP 792596



Access to Lot 2 DP 792596, via Lot 1 DP 792596



Access to Lot 10 DP 568549



Access to Lots 2 and 3 DP 604508



Access to Lot 4 DP 604508, Lot 1 DP 1211272 and Lot 10 DP 1159473, and indirect access to Lot 253 DP 46013