

Development: Residential Subdivision

Site Address: 54 Pullen Street Woolgoolga.

Prepared for: Precise Planning

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1 Introduction

1.1 Scope

This Traffic Impact Assessment forms part of development application to City of Coffs Harbour Council for a residential subdivision comprising 20 Torrens title lots at 54 Pullen Street Woolgoolga.

This report assesses the impact of the proposed subdivision on the operation of the local transport network infrastructure relevant to the site and includes assessment of requirements for residential subdivision in Coffs Harbour DCP 2015. The report has been undertaken in accordance with Austroads Guide to Traffic Management Part 3, Traffic Studies and Analysis

2 Existing Conditions

2.1 Location

The proposed development is located at No 54 Pullen Street Woolgoolga. The property is on the north side of Pullen Street approximately 500m west of the Solitary Islands Way roundabout intersection.

The real property description of the land to be developed is Lot 12 DP 1059040. The lot has area of approximately 3Ha and is relatively flat and clear of vegetation. The property is zoned R2 Low Density Residential, R5 large Lot residential and C2 Environmental Conservation (Woolgoolga Creek).

The property has two sections of frontage to Pullen Street as shown below. The subject lot currently includes a single driveway access to Pullen Street.



Locality – 54 Pullen Street Woolgoolga (City of Coffs Harbour GIS)

2.2 Existing Road Network

Solitary Islands Way

Solitary Islands Way is a two-lane road serving as a sub-arterial road parallel to the Pacific Highway. The road provides transport connection from the Pacific Highway South Woolgoolga Interchange and the industrial and residential development south of Woolgoolga to residential areas and services located in Woolgoolga. Solitary Islands Way north provides similar access for the schools and residential villages north of Woolgoolga.

Solitary Islands Way had previous function as a State Highway (Pacific Highway SH10) which carried traffic volumes in the order of 16,000 vehicles per day. The road generally provides one traffic lane in each direction with kerbside parking lanes through the Woolgoolga town centre. Solitary Islands Way has a posted speed limit of 50km/h through urban Woolgoolga.

Pullen Street

Pullen Street is a key road transport link between Solitary Islands Way and the residential and rural properties west of Woolgoolga. The road also provides primary access to the Woolgoolga Woolworths supermarket with car park access directly off Pullen Street close to the Solitary Islands Way roundabout.

Pullen Street forms the western leg of the Solitary Islands Way roundabout which interchanges with Solitary Islands Way/Pullen Street and Clarence Street, a primary road access to Woolgoolga CBD.

Pullen Street is a two way 2-lane urban road partially constructed with kerb and gutter and footpath on the northern side. Pullen Street is speed zoned 50km/h from the roundabout to west of the proposed development site.

Adjacent the development site Pullen Street comprises 7.4 m wide bitumen spray seal with edge line marking to two 3.5 m wide lanes with broken centre line marking.

No kerb and gutter or footpath is on the frontage of the property and only one short section on the south side of the road.

2.3 Existing Traffic Volumes

The Transport for NSW (RMS) Pacific Highway Upgrade Sapphire to Woolgoolga Planning and design documents show that traffic volumes on the old Pacific Highway (Solitary Islands Way) at Woolgoolga prior to the Pacific Highway Bypass were in the order of 15,000 – 18,000 vehicles per day.

Post by-pass volumes on the old Pacific Highway (Solitary Islands Way) have seen around a 50% decrease in daily traffic with a substantial decrease in heavy vehicle traffic. This results in significant capacity within the Solitary Islands Way and connecting road network to accommodate increases in traffic from on-going residential development.

The Woolgoolga North West Urban Investigation Area Transport & Planning Report (Ason Group Sept 2020) was commissioned by City of Coffs Harbour Council and included an assessment of existing and future operation of the Solitary Island Way/ Clarence Street/ Pullen Street roundabout.

The report includes peak hour traffic count data (2020) for the roundabout and projected peak hour turning movements (2040) taking into account background growth and traffic generation from development identified in the Coffs Harbour Local Growth Management Strategy.

Pullen Street is shown to carry the following traffic in the 2020 peak hours at the roundabout:

AM	260 vph eastbound	197 vph westbound
PM	265 vph eastbound	346 vph westbound

Nil projected traffic growth on Pullen Street was estimated for the 2040 peak hours.

3 The Proposed Development

3.1 Development Description

The proposal is for creation of 20 Torrens title residential lots with single road access off Pullen Street.

The subdivision concept layout and access road configuration is shown in Appendix A of this report. The proposal comprises an 8.0m wide perimeter road with direct access to properties predominantly on one side only. The road ends in a 24 m diameter cul-de-sac head.

A 55 m long combined gravel footpath, cycleway and emergency access is proposed from the Cul-de-sac head to Pullen Street. This is to have a locked gate and bollards to prevent car access and allow pedestrians and bicycle access.

All proposed lots will have vehicular access to the new access road apart from proposed Lot 19 which will utilise a relocated existing driveway access.

The proposed intersection on Pullen Street will include pavement widening and channelisation in accordance with City of Coffs Harbour Development Specifications. Additional pavement widening and footpath construction will be undertaken for the property frontages.

4 Traffic Impact Assessment

4.1 Development Traffic Generation

Traffic generation for the proposed residential development can be derived from Transport for NSW (RMS) Technical Direction TDT 2013/04a Guide to Traffic Generating Developments Updated traffic surveys.

TD 2013/04a provides updated rates for low density development in regional areas.

Daily vehicle trips = 7.4 per dwelling

Weekday average evening peak hour vehicle trips = 0.78 per dwelling.

Weekday average morning peak hour vehicle trips = 0.71 per dwelling.

City of Coffs Harbour development specification suggest a traffic generation rate of 10 per day per dwelling for planning purposes. Using the more conservative traffic generation rate for this development, traffic generation will be:

Daily Vehicle trips = 10 per dwelling = **200 trips per day**

Weekday peak hour vehicle trips = 1 per dwelling = **20 trips per hour**

4.2 Directional Distribution

Given that the proposed development is at the western end of the residential catchment the likely traffic distribution on Pullen Street will be 80% eastbound and 20% westbound with the majority of peak hour traffic departing the subdivision to the east and returning from the east.

4.3 Development Traffic Impact Assessment

The traffic data in the Woolgoolga North West Traffic & Planning Report shows that 2040 PM peak hour volumes will still be in the order of over 600 vehicles per hour. Section 5.1 SIDRA Intersection Analysis of the Ason Group report shows that the 2040 roundabout level of service will remain at 'A' for the AM peak and 'B' for the PM peak.

The impact of an additional 16 – 20 vehicles per hour from the proposed subdivision will have no impact on Level of Service at the Solitary Islands Way / Pullen Street roundabout.

The estimated 2040 traffic volumes on Pullen Street at the Solitary Islands Way roundabout includes traffic generation from Woolworths and the residential areas closer to Solitary Islands Way. A very conservative estimate of traffic on Pullen Street adjacent the proposed development would be to take one third of the estimated traffic at the roundabout, say 200 vehicles per hour.

With peak traffic generation from the proposed development only around 20 vehicles per hour, the proposed development will be adequately serviced by a standard local road 'T' intersection with Pullen Street.

	Pullen Street				Proposed Access Road	
	Eastbound	Left turn in	Westbound	Right turn in	Left turn out	Right turn out
PM	100	2	100	8	8	2

Estimated Peak Hour intersection turning movements with development at Pullen Street

SIDRA intersection analysis using these traffic volumes show that the proposal will have no impact on levels of service on Pullen Street and the intersection will operate at Level of Service A (see SIDRA movement summary Appendix B).

No traffic delay or vehicle queuing will occur on Pullen Street as a result of the proposed residential subdivision road access.

4.4 Road Safety and Amenity

Transport for NSW Crash data (2018 – 2022) shows that there are no significant intersection or mid-block crashes on Pullen Street in the vicinity of the subdivision proposal with only a single minor crash recorded at the Solitary Islands Way roundabout (Appendix C).

Sight Distance requirements for vehicles at Intersections include:

- approach sight distance (ASD)
- safe intersection sight distance (SISD)
- minimum gap sight distance (MGSD).

The critical sight distance assessment for the subdivision access road will be safe intersection sight distance (SISD) and minimum gap sight distance (MGSD) for the proposed intersection at Pullen Street.

The deGroot & Benson engineering design report for the proposed subdivision includes an assessment of sight distance criteria at the proposed intersection against the requirements of Austroads Guide to Road Design (AGRD) Part 4A Safe Intersection Sight Distance (SISD) and minimum gap sight distance parameters (MGSD) for sealed roads.

Table 3.1 – Sight Distances for proposed Tee intersection

Tee Intersection Sight Distances				East	West	North		
Approach Leg, from the								
Type (P=primary, S=secondary)				P	P	S		
Design speed	V	(kmph)		50	50	40		
Approach grade (+ve is uphill)	a	(%)		3.5	-3.5	5.5		
Reaction time	Rt	(s)		2	2	2		
Decision time	Dt	(s)		5	5	5		
Gap acceptance time	ta	(s)		5	5	5		
Obstruction				Bend in road	Crest	Bend in road		
Sight Distances for Cars								
Decel	d	(m/s ²)		0.36	0.36	0.36		
Stopping sight distance	SSD	(m)		52.7	58.1	37.4	Eye	Feature
Approach Sight Distance	ASD	(m)		52.7	58.1	37.4	Height	Height
Sight Distance Available		(m)		>250	95	106	1.1	0
Safe Intersection Sight Distance	SISD	(m)		94.4	99.7	70.7		
Sight Distance Available		(m)		>250	104	106	1.1	1.25
Minimum Gap Sight Distance	MGSD	(m)		69.4	69.4	55.6		
Sight Distance Available		(m)		>250	100	106	1.1	0.65
Sight Distances for Trucks								
Decel	d	(m/s ²)		0.29	0.29	0.29		
Stopping sight distance	SSD	(m)		58.1	66.4	40.5	Eye	Feature
Approach Sight Distance	ASD	(m)		58.1	66.4	40.5	Height	Height
Sight Distance Available		(m)		>250	110	106	2.4	0
Safe Intersection Sight Distance	SISD	(m)		99.7	108.0	73.8		
Sight Distance Available		(m)		>250	121	106	2.4	1.25
Minimum Gap Sight Distance	MGSD	(m)		69.4	69.4	55.6		
Sight Distance Available		(m)		>250	116	106	2.4	0.65

Note: For the primary through road, SISD should be provided if possible. For the terminating secondary road ASD is required.

The deGroot & Benson assessment shows that Safe Intersection Sight Distance (SISD) and Minimum Gap Sight Distance (MGSD) can be achieved for cars and trucks on all legs of the proposed intersection.

The deGroot & Benson report also demonstrates that a driveway at Lot 19 can also achieve Safe Intersection Sight Distance for both directions.



Pullen street sight distance from proposed intersection – west



Pullen street sight distance from proposed intersection – east

4.5 Public Transport, Pedestrian and Cycle access

The proposed subdivision development will provide good connectivity from the new residential lots to footpath on Pullen Street. Provision is also made for cycle access from the subdivision to Pullen Street.

The area is serviced by school buses and a town bus service to the Pullen Street – Moore Street intersection which is approximately 400m from the proposed subdivision.

The latest bus route map for the area is included in Appendix D of this report showing current bus services to Pullen Street.

5 Coffs Harbour City Council DCP 2015

The following summarises assessment of the proposed development against the relevant sections of Coffs Harbour City Council DCP 2015.

C1.1 Subdivision - general design requirements

1. Lots are to be of regular shape and comprise a suitable frontage to depth ratio to enable future development that is responsive to the lands characteristics.

Complies.

2. Subdivisions are not to comprise an access handle where more than two access handles will directly adjoin. Two access handles are only permitted to adjoin where they are in reciprocal right of carriageway arrangement.

Complies.

3. Road networks, subject to topographic constraints, are to be based on a grid pattern to encourage pedestrian connectivity.

Complies.

4. Road hierarchy, layout and construction shall be designed in accordance with Council's Development Specifications.

Complies. The proposed 8.0m wide perimeter road will include footpath on one side and 4.0m wide verges in accordance with Table 2.5 of *Councils Development Specifications Geometric Road layout*. The perimeter road has residential access and on street parking demand prominently on one side only so has adequate traffic capacity and reserve width to cater for road users and provision of services.

5. Intersections off collector, or higher order roads are to be rationalised where practical.

Complies.

6. Pathways are to be provided as an accessible integrated network of walking and cycling routes for safe and convenient travel.

The development proposal includes a footpath and cycleway connection to Pullen Street.

7. Subdivisions comprising steep land shown on the Steep and Highly Erodible Land Map are to be designed so that smaller lots are located on north facing slopes and larger lots are located on south facing slopes.

NA

8. Subdivisions are to be designed to integrate with existing or proposed development on adjacent sites.

Complies.

9. Threshold and pavement treatments are to be designed to create an attractive streetscape.

Complies.

10. The use of cul-de-sacs in the design of subdivisions should be minimised.

Complies. The proposed cul-de-sac is relatively short and is appropriate for the characteristics of the land.

C1.2 SUBDIVISION - DESIGN REQUIREMENTS FOR CERTAIN RESIDENTIAL ZONES

1. Subdivision proposals are to demonstrate that development can be accommodated on the resulting lot(s) in accordance with the Density Map and relevant built form controls contained within this Plan.

Complies

2. Where a common driveway serves more than two resulting lots, the driveway is to be sealed with a minimum width of 4.5 metres at the street frontage, continuing at this width to a depth of six metres, and thereafter at a minimum width of three metres. The driveway is to be constructed prior to the issue of Subdivision Certificate.

Complies.

3. Where a common driveway serves more than two resulting lots, an adequate area is to be provided at the public road frontage within common property for required services (postal, metering, etc.).

Complies

4. The width of any access handle for a battle-axe lot is not to be less than four metres, containing a minimum 3 metre wide sealed driveway, for the entire length of the access handle.

Land subdivision complies.

5. The public road frontage of any resulting lot is not to be less than four metres, except for where requirement (6) of this control applies.

Complies

6. The public road frontage of any lot fronting a cul-de-sac is not to be less than 10 metres, with a driveway being located to one side of the road frontage to provide for visitor car parking and to maintain streetscape integrity.

Complies

6 Conclusion/Recommendations

1. A residential subdivision development comprising 20 Torrens title residential lots and new local road access to Pullen Street is proposed at 54 Pullen Street Woolgoolga.
2. This Traffic Impact Assessment shows that the site at 54 Pullen Street Woolgoolga is suitable for development of the proposed residential subdivision and can meet the requirements specified in Coffs Harbour City Council DCP.
3. The subdivision concept layout comprises an 8.0m wide perimeter road with direct access to properties predominantly on one side only. The access road will connect to Pullen Street via a new standard urban 'T' intersection configuration.
4. With peak traffic generation from the proposed development only around 20 vehicles per hour the proposed development will be adequately serviced by a standard local road 'T' intersection with Pullen Street.
5. Assessment of likely intersection traffic volumes shows that the proposal will have no impact on levels of service on Pullen Street and the intersection will operate at Level of Service A. No traffic delay or vehicle queuing will occur on Pullen Street as a result of the proposed residential subdivision road access.
6. Sight distance in each direction at the proposed Pullen Street intersection can meet Austroads SISD and MGSD requirements.
7. The proposed subdivision layout will provide good footpath and cycleway connection from the residential lots to Pullen Street.
8. The area of the proposed development is serviced by school buses and a town bus service to the Pullen Street – Moore Street intersection which is approximately 400m from the proposed subdivision.

7 References

Transport for NSW (RMS) Guide to Traffic Engineering Developments

Austroads Guide to Traffic Management Parts 3, 4A and 12.

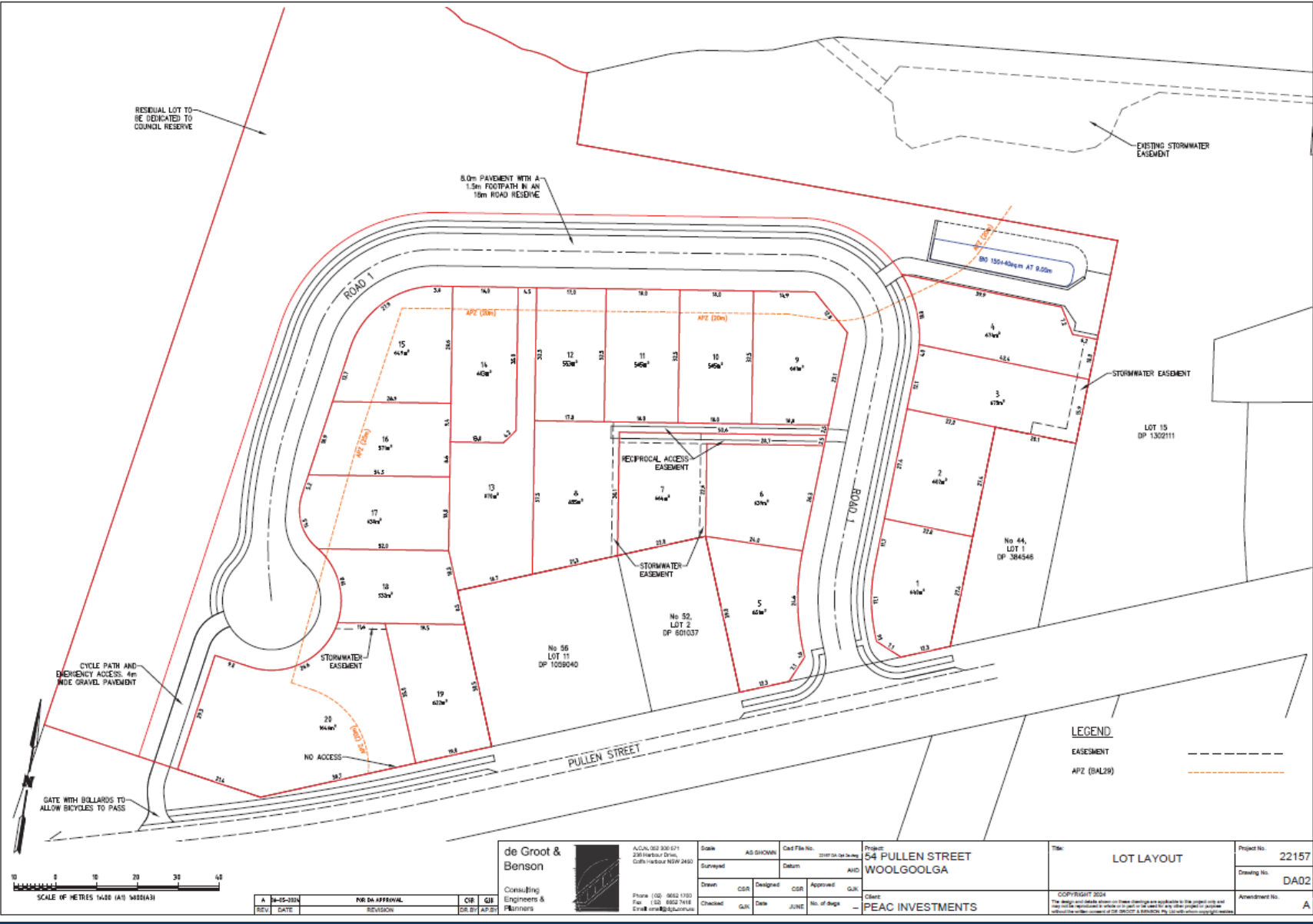
Coffs Harbour City Council DCP 2015

Coffs Harbour City Council Development Specifications

Woolgoolga North West Urban Investigation Area Transport & Planning Report (Ason Group Sept 2020)

deGroot & Benson Engineering Design Report – 54 Pullen Street Residential Subdivision

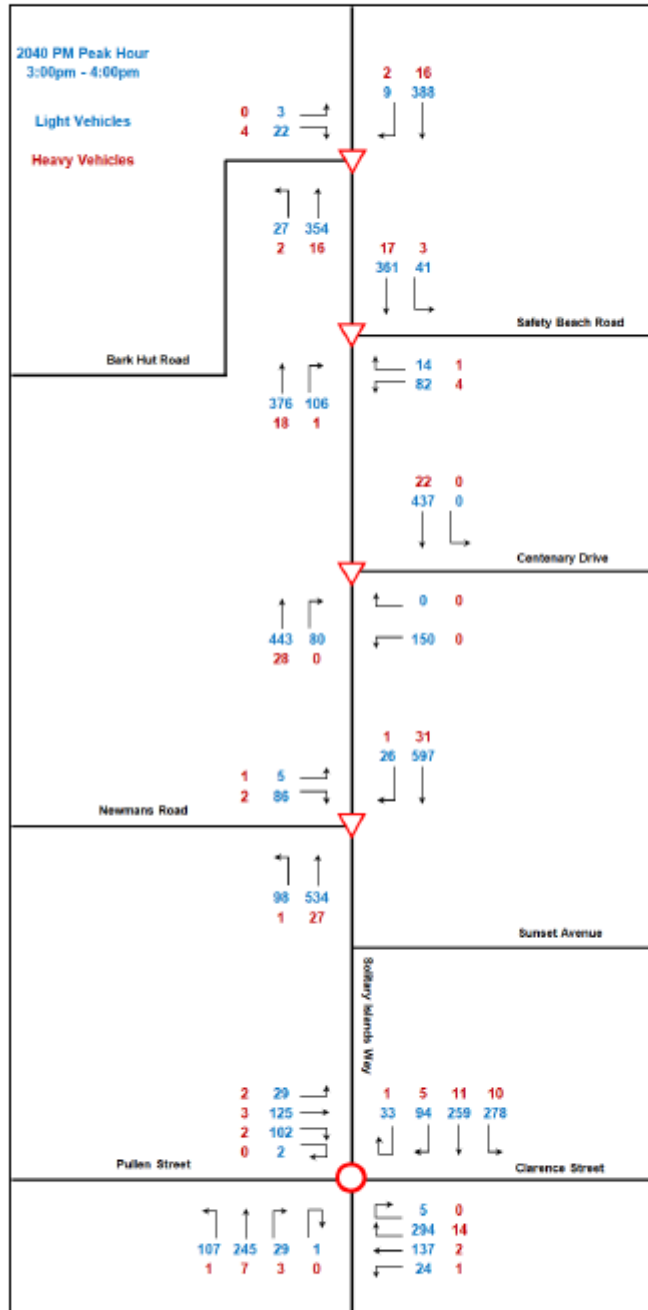
Appendix A – Proposed Development Plan



Appendix B – Pullen Street Traffic Data summary and SIDRA Intersection Analysis



Figure 16: Base 2040 PM Peak Hour Traffic Volumes



MOVEMENT SUMMARY

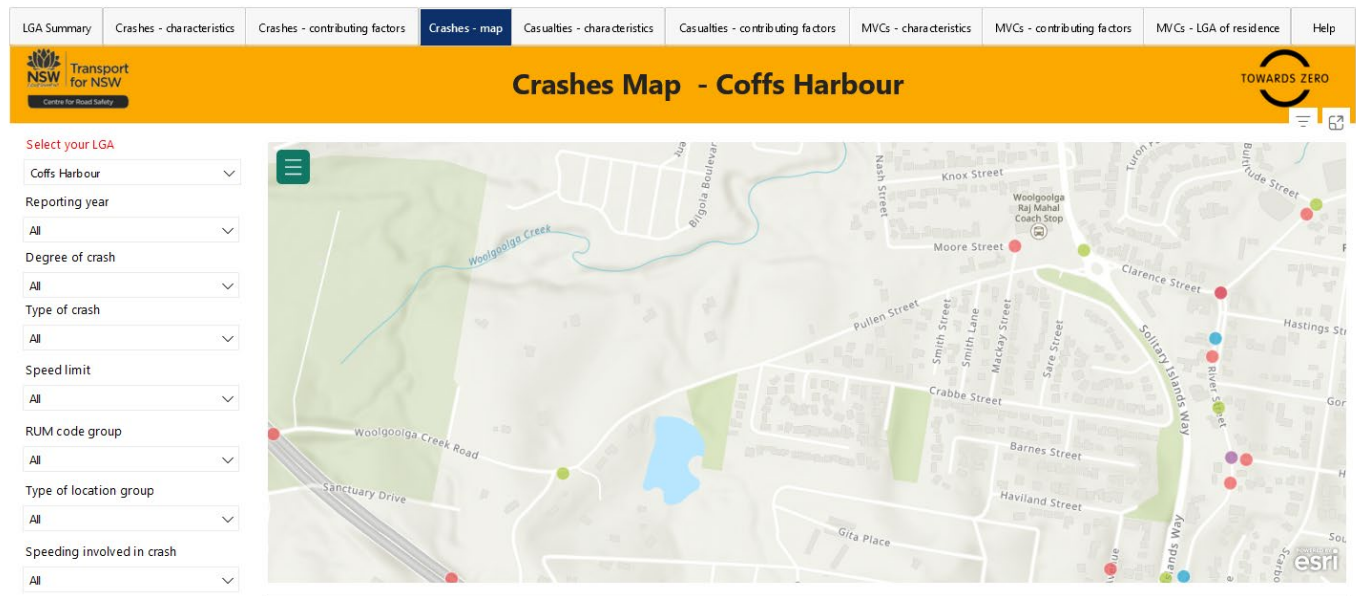
Site: 101 [Site1]

54 Pullen Street Woolgoolga
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		per veh	km/h
East: Pullen Street											
5	T1	105	1.0	0.060	0.0	LOS A	0.1	0.4	0.04	0.04	49.7
6	R2	8	1.0	0.060	4.9	LOS A	0.1	0.4	0.04	0.04	47.8
Approach		114	1.0	0.060	0.4	NA	0.1	0.4	0.04	0.04	49.6
North: New Access Road											
7	L2	8	1.0	0.008	3.7	LOS A	0.0	0.2	0.19	0.44	43.2
9	R2	2	1.0	0.008	4.3	LOS A	0.0	0.2	0.19	0.44	42.6
Approach		11	1.0	0.008	3.8	LOS A	0.0	0.2	0.19	0.44	43.0
West: Pullen Street											
10	L2	2	1.0	0.055	4.6	LOS A	0.0	0.0	0.00	0.01	49.0
11	T1	105	1.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.01	49.9
Approach		107	1.0	0.055	0.1	NA	0.0	0.0	0.00	0.01	49.9
All Vehicles		232	1.0	0.060	0.4	NA	0.1	0.4	0.03	0.05	49.5

Appendix C – Transport for NSW Crash Data

LGA view - crashes map



Appendix D – Bus Route and Timetable



Route 393 Coffs Harbour to Woolgoolga via Park Beach Plaza & Moonee Beach										
Saturday										
map ref	Route Number	393	393	393	393	393	393	393	393	393
G	Park Ave opp Little St	am	am	am	pm	pm	pm	pm	pm	pm
H	Park Beach Plaza Coffs Harbour	7:35	9:35	11:35	1:35	3:35	5:35	7:35	9:35	11:35
V	Moonee Creek Rd	7:47	9:47	11:47	1:47	3:47	5:47	7:47	9:47	11:47
U	Opp Emerald Beach Service Station	8:01	10:01	12:01	2:01	4:01	6:01	8:01	10:01	12:01
T	Hearn Lake	8:08	10:08	12:08	2:08	4:08	6:08	8:08	10:08	12:08
S	Nightingale St after Market St	8:15	10:15	12:15	2:15	4:15	6:15	8:15	10:15	12:15
R	Woolgoolga Woolworths	8:21	10:21	12:21	2:21	4:21	6:21	8:21	10:21	12:21
		8:26	10:26	12:26	2:26	4:26	6:26	8:26	10:26	12:26
Sunday & Public Holidays										
map ref	Route Number	393	393	393	393	393	393	393	393	393
G	Park Ave opp Little St	am	am	pm	pm	pm				
H	Park Beach Plaza Coffs Harbour	9:35	11:35	1:35	3:35	5:35				
V	Moonee Creek Rd	9:47	11:47	1:47	3:47	5:47				
U	Opp Emerald Beach Service Station	10:01	12:01	2:01	4:01	6:01				
T	Hearn Lake	10:08	12:08	2:08	4:08	6:08				
S	Nightingale St after Market St	10:15	12:15	2:15	4:15	6:15				
R	Woolgoolga Woolworths	10:21	12:21	2:21	4:21	6:21				
		10:26	12:26	2:26	4:26	6:26				