

Notice of Local Traffic Committee Meeting

A Local Traffic Committee Meeting will be held in the Ballina Shire Committee Room, 40 Cherry Street, Ballina on **Wednesday 12 December 2018 commencing at 10.00am.**

Business

- Attendance & Apologies
- 2. Minutes of Previous Meeting
- 3. Deputations by Members of Public or Councillors
- Summary Report Recent Decisions of Council in Response to LTC Recommendations
- 5. Items to be Referred to Council
- 6. Items to be Referred to the General Manager's Delegate
- 7. Items for Traffic Engineering Advice
- 8. Information of the Committee
- 9. Regulatory Matters on Classified Roads (GM's Delegate)
- 10. Items Without Notice
- 11. Next Meeting

John Truma

John Truman

Group Manager

Civil Services

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- 1 Attendance & Apologies
- 2 Minutes of Previous Meeting
- 3 Deputations by Member of Public or Councillors
- 4 Summary Report
- 5 Items to be Referred to Council

1. Attendance & Apologies

2. Minutes of Previous Meeting

A copy of the Minutes of the Local Traffic Committee Meeting held on Wednesday 10 October 2018 were distributed with the business paper.

RECOMMENDATION

That Council confirms the Minutes of the Local Traffic Committee Meeting held on Wednesday 10 October 2018.

- 3. Deputations by Members of Public or Councillors
- 4. Summary Report Recent Decisions of Council in Response to LTC Recommendations

Nil Items

5. Items to be Referred to Council

Nil Items

6. Items Referred to General Manager's Delegate

6.1 Parking Regulation & Signage - Killen Falls Road, Tintenbar

Introduction

Council proposes to improve parking regulation and signage at Killen Falls Road. Tintenbar

Information

Following conflicts between increasing numbers of day visitors to the falls and adjacent residents (mainly traffic and parking related) Council engaged a consultant to carry out community consultation and recommend management actions for this area.

As part of the implementation of the recommendations, plans (see attachment) have been drafted for proposed upgrading of parking regulation and associated signage.

Separately, RMS has been requested to perform a Speed Zone Review of Killen Falls Drive regarding the proposed 50 kph speed zone and 10 kph shared zone.

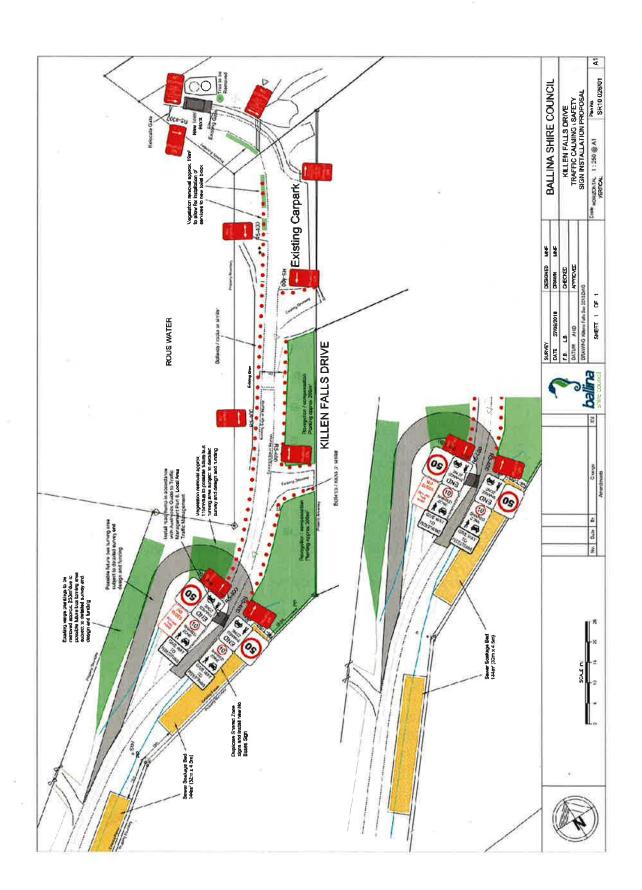
In the meantime, Council requests the Traffic Committee's concurrence for non-speed zone related regulation of parking and associated signage at this location.

RECOMMENDATION

The Committee support provision of parking regulation and signage at Killen Falls Drive in accordance with the attachment to this report.

Attachment(s)

1. Killen Falls Drive Parking Signage



Parking and Signage - Lake Ainsworth, Lennox Head 6.2

Introduction

Council requests the Committee's concurrence to proposed parking regulation in the Lake Ainsworth area.

Information

The area north of Lennox Head around Lake Ainsworth is being substantially reconfigured after a long period of consultation with stakeholders and includes closure of the Eastern Road. The proposed reconfiguration works will include a high pedestrian area through the Lake Ainsworth Holiday Park and further along Camp Drewe Road. Details of the works and proposed regulatory signage are shown on an attachment to this report. The Committee's approval is requested for the parking regulation and associated signage associated with the project.

As a separate, but associated matter, RMS have been formally requested to review speed zones in the area to reconcile speed zones with the proposed physical characteristics of the road, including the high pedestrian zone through the Lake Ainsworth Holiday Park.

In regard to the speed zone issue, the Eastern Road and Pacific Parade are currently posted as a high pedestrian 40kph and the Southern Road is currently posted as 50kph. When the Eastern Road is closed to traffic, parking and pedestrian activity is expected to increase along the Southern Road. especially where it traverses the Lake Ainsworth Holiday Park. Council's preference, subject to RMS Speed Zone Review outcome, is to make this a high pedestrian 40kph zone. The Southern Road works include Watts Profile speed humps to provide traffic calming and regulate speed to 40kph.

Camp Drewe Road is unposted beyond the 50km/hr zone. Currently this is an unsealed rural road, however once the Eastern Road is closed, through traffic to the Sport and Recreational Centre will be directed along Camp Drewe Road. Assessment of traffic volumes along Camp Drewe Road expects the number of movements to increase from 150-250 vehicles per day to 300-600 vehicles per day. This road is also to be sealed as part of the civil works and driver speeds are expected to increase.

Submissions have also been received from the community regarding the significance of wildlife crossing Camp Drewe Road. Specifically turtles breeding seasonally cross the road to nest and hatch. There is some community concern that the sealing will increase driver speed and may impact on road kill.

Civil Works on the project are well advanced and are expected to be nearing completion by the end of 2018.

RECOMMENDATION

The Committee approve the proposed parking regulation and associated signage shown on the attachment to this report.

Attachment(s)

1. Lake Ainsworth Parking Signage

6.3 Road Signage & Barriers - Proposed Epiq/Pacific Pines Supermarket, Lennox Head

Introduction

The proposed shopping centre at Epiq/Pacific Pines Estate, Lennox Head sits up to 5.7m below the adjacent perimeter public road levels. The proponent seeks approval of regulatory signage and barriers to minimise the risk of errant vehicles crossing the road verge and falling onto the shopping centre site.

Information

The Epiq/Pacific Pines Shopping Centre development was recently given development approval by the Joint Regional Planning Panel. The shopping centre sits in an excavated site to be supported by retaining walls up to 5.7 m below the design level of adjacent perimeter public roads. The site excavation is now complete and retaining wall construction is soon to commence.

The perimeter roads were originally part of completed Stage 1b Subdivision of Pacific Pines but were bonded and not constructed at Subdivision Certificate stage due to the support issues arising from the shopping centre site excavation (until retaining walls are constructed). The proponent is expected to complete construction of the perimeter roads around the shopping site as part of Stage 4 of Epiq/Pacific Pines development during the first half of 2019.

The proponent has engaged traffic consultant Bitzios to complete a safety barrier assessment for the roads and intersections bordering the north eastern corner of the supermarket site (see attachment to this report) to minimise the risk of errant vehicles crossing the road verge and falling onto the shopping centre site.

The proposed barriers and associated signage are detailed in Attachment 2 of the attached Bitzios report.

RECOMMENDATION

The Committee support installation of the proposed barriers and signage as detailed in Attachment 2 of the Bitzios report, attached to this report.

Attachment(s)

1. Epiq/Pacific Pines Shopping Centre Barrier and Signage Report - Bitzios

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- M; PO Box 5102 Q Super Centre Mermaid Waters QLD 4218
- (07) 5562 6377
- (07) 5562 5733 www.bitziosconsulting.com.au

Our Reference: P3398 001L

Your Reference:

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\$: Level 2, 428 Upper Edward Street
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- Sydney Office S: Studio 203, 3 Gladstone Street
- Newtown NSW 2042 M: Studio 203, 3 Gladstone Street Newtown NSW 2042
- P: (02) 9657 6202 F: (02) 9557 6219

22 February 2018

Newton Denny Chappelle Suite 1/31 Carrington Street Lismore NSW 2480

Attention: Josh Blackler

Sent via email: jplackler@newtordennychapelle.com.au

Dear Josh

RE: EPIQ SUPERMARKET SAFETY BARRIER DESIGN

1.0 INTRODUCTION

1.1. Site Location

Bitzios Consulting has been engaged by Clarence Property to complete a safety barrier assessment for the intersections bordering the north-eastern comer of the proposed Epiq Estate Supermarket, Lennox Head The site location is shown in Figure 1.1.



Source: Google Earth

Figure 1.1: Site Location

1.2. Scope

The scope of this barrier design includes the following:

- review of road cross sections including the required offsets to barrier systems;
- review of pedestrian facilities (i.e. crossings, fences) in proximity to the barrier systems;
- review of proposed end treatments for barrier systems; and
- review of sight lines within proximity to proposed barrier systems.

2.0 BACKGROUND

Significant earthworks are proposed between the northern and eastern sides of the proposed Epiq Estate Supermarket and Roads 6 & 9 of the Epiq Stage 1B development. On the northern and eastern sides of the proposed supermarket a retaining wall up to a height of 57m and a 4:1 batter slope leads to the road reserves above. Due to the significant change in level between road reserve and supermarket, preventative measures must be taken to minimise the risks of a vehicle exiting the roadway and dropping into the property below. Emphasis has been placed upon minimising this risk at the intersection of Road 6 and Road 9 where the risk is most significant. Figure 2.1 shows the location of the study section.

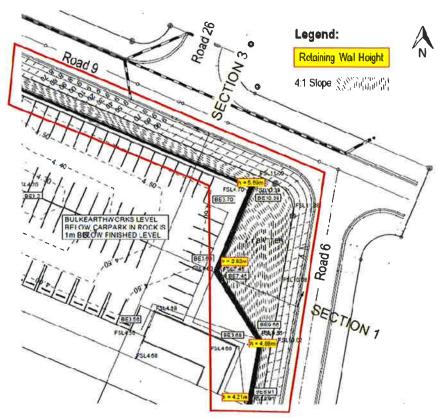
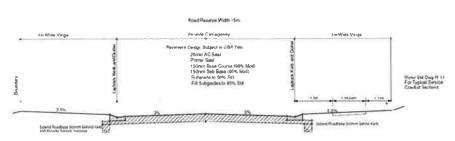


Figure 2.1: Bulk Earthworks

All roads are 'Local Street' road types in accordance with requirements outlined in Section D1 of the Northern Rivers Development & Design Manual (as per Chapter 3 of the Ballina DCP). A Type A 'Local Street' cross-section has been proposed with a posted speed of 50km/h servicing the future residential development in the Epiq Estate. Council approved development plans are shown in Altachment 1. Figure 2.2 shows the proposed Type A cross-section of the relevant intersecting roads.

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TYPICAL CROSS SECTION

Figure 2.2: Proposed Type A 'Local Street' Cross-section

3.0 PROPOSED TREATMENT

The recommended barriers and supplementary end treatments, pedestrian facilities, signage and line marking are detailed in Attachment 2. The following sections provide further detail regarding the recommendations.

3.1. Traffic Barriers

The traffic barriers recommended were assessed using the Austroads Guide to Road Design (AGRD) Part 6. Roadside Design, Safety and Barriers. At a posted speed of 50km/h, and as the verge width exceeds 3m, no traffic barrier is required on segments of Road 6 and 9 outside the immediate vicinity of any intersections.

The primary purpose of the proposed traffic barrier system is to prevent an errant vehicle that has lost control at one of the design intersections from crossing the verge, dropping into the supermarket below. The area of the proposed supermarket at most risk is an area of public car parking. As such, while the likelihood is expected to be very low, the severity of crash risk should a vehicle exit the roadway is extreme. It is therefore recommended that a rigid concrete barrier be provided on the south-west corner of the Road 6 and Road 9 intersection continuing on the southern side of Road 9 opposite the Road 9 / Road 26 intersection.

In accordance with AGRD Part 6, all barrier system components shall meet the required test level (TL), defined as "a set of conditions, defined in terms of vehicular type and mass, vehicular impact speed and vehicular impact angle that quantifies the impact severity of a matrix of tests". Considering safety barrier products approved by Roads and Maritime Service (RMS), a test level 3 (TL3) Single-Sided Type F Concrete Safety Barrier is deemed appropriate for this use. Technical drawings of this system are provided in Attachment 3, specifically noting that the barrier is 820mm tall and 500mm thick.

In accordance with the *NCHRP Report 350*, a TL3 system such as the Type F Concrete Barrier has been tested to contain up to 2000kg at 100km/h at an impact angle of 25 degrees. While the design speed of Roads 6, 9 and 26 are considerably lower than 100km/h vehicles may impact the crash barrier at a high angle, particularly opposite to Road 26. As such, a TL3 barrier is deemed necessary. The quantity of heavy vehicles using Roads 6, 9 & 26 is expected to be negligible indicating that a TL4 or TL5 barrier is not required. Signage and line marking is also proposed provide drivers advanced warning of the hazard and reduce speed (see Section 5).

AGRD Part 6 outlines that the rgid barrier must be placed directly adjacent to the back of the kerb line. It shall be noted that street lighting, in accordance with the Australian Guide to Road Design (AGRD) Part 6B: Roadside Environment, must be set back from the barrier a minimum of 1m or the dynamic deflection of the safety barrier.

3.2. Barrier End Treatments

RMS approved end treatments are required to be provided on the end of the crash barriers provided. A QuadGuard Steel Rail Crash cushion is recommended to provide protection at the ends of the proposed concrete crash barrier. In order to achieve the desired TL3 containment level in accordance with the NCHRP 350 a 6-bay (QS2406Y) system is required. Technical drawings of the recommended system are provided in Attachment 3. It shall be noted that end treatments are gating treatments and are designed only to prevent errant vehicles from striking the end of the proposed crash barriers.

3.3. Pedestrian Facilities

Fedestrian footpaths 1,35m wide are proposed on the southern side of Road 9 and the western side of the Road 6, Pedestrian ramps are also proposed on the southern approach to the Road 6 / Road 9 intersection. It is recommended that the pedestrian ramps be relocated so the extent of the ramps is a minimum of 1m south of the barrier end treatments on Road 6, Sight lines should be confirmed on-site prior to installing the ramp locations.

Pedestrian build-outs are a potential option to further improve sight lines and therefore safety for pedestrians crossing Road 6. However, these treatments create a narrowing of the road carriageway and as such cyclist safety is adversely impacted. It is instead proposed that an edge line extending 0.5m into the carriageway be provided in the vicinity of the pedestrian ramps along with a yellow 'No Stopping' line adjacent to the kerb line. This treatment encourages vehicles to slow and travel closer to the centre of the roadway. This in turn reduces the risk of a pedestrian being struck as they first step onto the roadway without adversely impacting cyclist safety. Further details of the line marking are specified in Section 5.

The provision of pedestrian fencing is required opposite to the proposed crash barrier location. The primary purpose of this fencing is to discourage pedestrians from crossing at locations where they may become stranded on the roadway, impeded from crossing by proposed crash barriers. As such, RMS approved verge fencing shall be provided on the northern side of Road 9 and the southeast comer of the Road 6 / Road 9 intersection, RO300-15 Type 1 Standard Verge Fencing is recommended to be used. This fencing shall be offset 0.3m from the back of the kerb. Provision of pedestrian facilities and fencing is detailed in Attachment 2 and fencing technical drawings are provided in Attachment 3.

In accordance with AGRD Part 6A a pedestrian barrier fence is required where the vertical drop adjacent to the pedestrian path is greater than 0.25m high. As such, RO800-15 fencing shall be provided on the road reserve boundary fronting the proposed supermarket site.

4.0 SIGHT DISTANCE

Sight lines at the Road 6 / Road 9 and Road 9 / Road 26 intersections were assessed in accordance with requirements outlined in the Austroads Guide to Road Design (AGRD) Part 4A: Unsignalised and Signalised Intersections. The intersections must provide sufficient approach sight distance (ASD), safe intersection sight distance (SISD) and minimum gap sight distance (MGSD). As advance warning and traffic calming is proposed, reaction time for all sight distance calculations are considered as 1.5 seconds

4.1. Approach Sight Distance

In accordance with AGRD Part 4A ASD shall be measured from driver eye height (1.1m) to the pavement level at the holding lines of Road 6 and Road 26, At a design speed of 60km/h an ASD of 64m is required. As shown in the long-sections and intersection plans of the development plans provided in Attachment 1, approaches to each intersection are straight and of a consistent gradient. As such, approach sight distance is sufficient,

4.2. Safe Intersection Sight Distance

The minimum sight distance to be provided on the major road at both intersections or SISD is measured from driver eye height (1.1m) to object height (1.25m) of a car on the minor road. As such, at 0.8m tall, the proposed concrete barrier is not deemed impact SISD. With the exception of a driver at very specific angles.

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the proposed pedestrian fencing is permeable and also not deemed to be an obstruction to SISD. Therefore, the recommended crash barrier and corresponding treatments are deemed to have no adverse impact of SISD.

In accordance with the Road 9 Long Section plan provided in Sheet C2 of Appendix A by Newton Denny Chapelle, in the future there will be a crest on Road 9 approximately 50m east of the Road 6 / Road 9 intersection. In accordance with AGRD Part 4A the required SISD for a design speed of 60km/h is 114m. As such, while this road will not initially be constructed achievable SISD on Road 9 east of the design intersection will be substandard with or without the proposed barrier treatments. As detailed in Section 5, provision of signage and line marking is recommended in order to mitigate the risk associated with insufficient sight distances.

4.3. Minimum Gap Sight Distance

Sufficient MGSD is required in order to allow a satisfactory gap to make turning manoeuvres at the intersections. In accordance with AGRD Part 4A, the maximum critical acceptance gap required at the intersections shall be 5 seconds. As such, at a design speed of 60km/h, MGSD of 83m is required. Figure 4.1 illustrates the achievable MGSD from each minor road, assuming there is no obstruction to sight lines due to the vertical alignment of Road 9. As previously stated, it is noted that sight distance east of the Road 6 / Road 9 intersection is limited to approximately 50m due to a crest in the proposed roadway.



Figure 4.1: Achievable MGSD

As shown in Figure 4.1, the recommended concrete barrier restricts MGSD to 60m west of the Road 6.7 Road 9 intersection. However, this is not considered to have adverse impacts on safety as:

- stop signs, warning signs and traffic calming recommended (see Section 5) are expected to increase
 driver awareness and reduce speed; and
- traffic volumes and therefore potential conflicts are expected to be low.

4.4. Pedestrian Crossing Sight Distance

Pedestrian sight distance requirements in accordance with AGRD Part 4A requires that sufficient crossing sight distance (CSD) should be provided between approaching vehicles and a pedestrian waiting to cross the road. Required CSD for the proposed pedestrian crossing south of the Road 6 / Road 9 intersection is 56m. This sight distance is achievable in both directions from the crossing noting that crash barriers are lower than specified driver and pedestrian eye height and pedestrian fences are semi-permeable. As such, sight lines to the north of the crossing are not obstructed by the recommended barriers and fencing.

SIGNAGE & LINE MARKING

5.1. Signage

The proposed intersections, pedestrian facilities and barriers have been assessed against Australian Standards, Manual of Uniform Traffic Control Devices (MUTCD) AS1742, with signage recommendations as

- all signs shall be provided as size 'A' unless otherwise specified in accordance with AS1742;
- a variant of the r9-60 sign, to read 'All Pedestrians', is to be located at both ends of the proposed crash barrier. The purpose of these signs is to instruct pedestrians to walk on the side of the crash barrier with the dedicated footpath and not walk on the road carriageway.
- a 'Stop' r1-1 sign shall be placed on the left side of the southern approach to the Road 6 / Road 9 intersection and the northern approach to the Road 26 / Road 9 intersection, 'Stop' signs are considered to be warranted over a. Give Way' treatment due to the sight line restrictions as a result of the crest in the road east of the Road 6 / Road 9 intersection and the proposed crash barrier;
- 'Staggered Side Roads Junctions', w2-8 (L) signs are to be located on Road 9 to the east and west of the design intersections. In accordance with AS1742,2 these signs give drivers advanced warning of the staggered intersections ahead;
- 'Watch for Entering Vehicles', w8-247 signs are to be located in conjunction with the w2-8 signs. As sight distance is partially restricted by safety barriers and fencing, the purpose of this signage is to make drivers more aware of vehicles potentially entering Road 9 from the side streets;
- a 'Hazard Marker (Bi-directional)' D4-2-3 sign is to be mounted on the concrete safety barrier facing vehicle travelling southbound on Road 26;
- the stop sign on Road 6 is to be mounted on the proposed concrete barrier; and
- unless otherwise stated, all signs are to be mounted on frangible, steel, 50mm stems unless street lighting poles are suitably located for mounting recommended signage.

Signage proposed is detailed in the intersection barrier design plans in Attachment 2.

5.2. Line Marking

The proposed intersections, pedestrian facilities and barriers have been assessed against the RMS Delineation Manual, with line marking recommendations as follows:

- a broken line (TB1) shall be provided at the minor approach of both intersections. This line marking provides separation between stopped vehicles and through traffic on Road 9:
- stop lines (TF) shall be used for the left side of Road 6 and Road 26 in conjunction with the corresponding 'Stop' signs in accordance with Section 6 of the RMS Delineation Manual, These stop lines shall be set back 0.5m from the proposed broken lines,
- in accordance with Section 4 of the RMS Delineation Manual, dividing lane lines (L3) shall be implemented on the centreline of Road 6 and 26 approaching Road 9, L3 lines shall also be implemented on the centreline of Road 9 in the vicinity of the design intersections;
- in accordance with Section 4 of the RMS Delineation Manual, T1 turn lines shall be provided as required for each right-turn movement of the Road 6 / Road 9 and Road 9 / Road 26 intersections;
- an edge line extending 0.5m into the carriageway shall be implemented on each side of Roads 6.9 and 26 in the vicinity of the design intersections and pedestrian ramps on Road 6. This line shall be a lefthand edge line (E1) in accordance with Section 4 of the RMS Delineation Guide.
- a second L1 edge line shall be implemented directly adjacent to the kerb in conjunction with the indented line. This line shall be yellow to indicate 'No Stopping'. The provision of the recommended edge lines is expected to:
 - improve achievable sight distances at Road 6 / Road 9 and Road 9 / Road 26 intersections;

- improve pedestrian sight lines and safety particularly at the proposed pedestrian ramp locations on Road 6;
- act as a form of traffic calming by narrowing the effective road carriageway width improving safety in the design area;
- discourages drivers from parking or stopping in any locations that would adversely impact safety.
- discourages drivers from stopping or parking illegally or in locations adversely impacting safety and
- not adversely impact cyclist safety
- all line marking, with the exception of the yellow 'No Stopping' lines, shall be white with an adequate degree of retro-reflectivity in accordance with Section 2 of the RMS Delineation Manual; and
- in accordance with Section 15 of the RMS Delineation Guide, white retro-reflective raised pavement markers (RRPMs) shall be provided at 12m intervals in combination with all proposed L3 lane lines.

The proposed line marking is detailed in Sheet 2 of the intersection barrier design plans in Attachment 2.

Yours faithfully

Adrian Bitzios
Principal Engineer

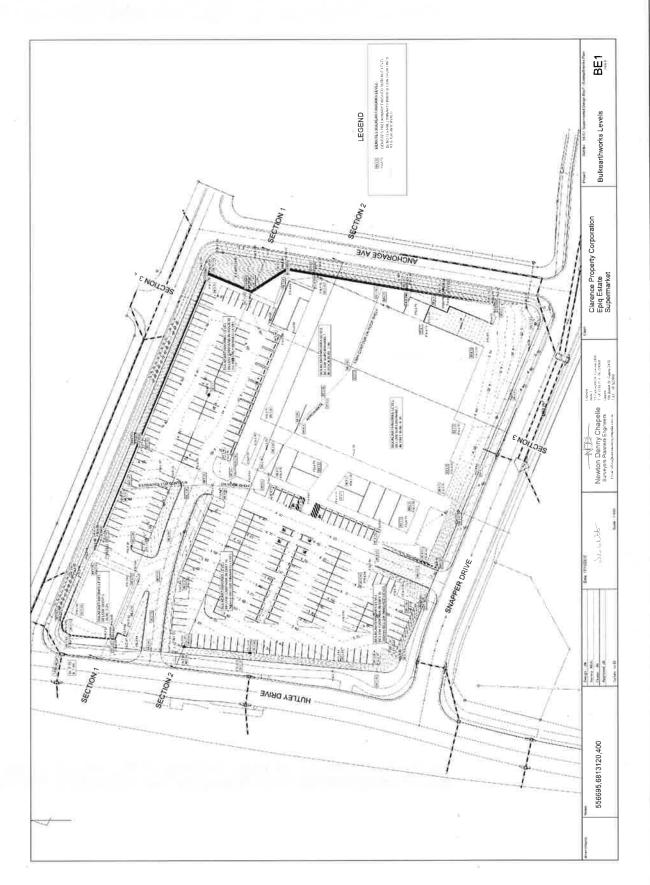
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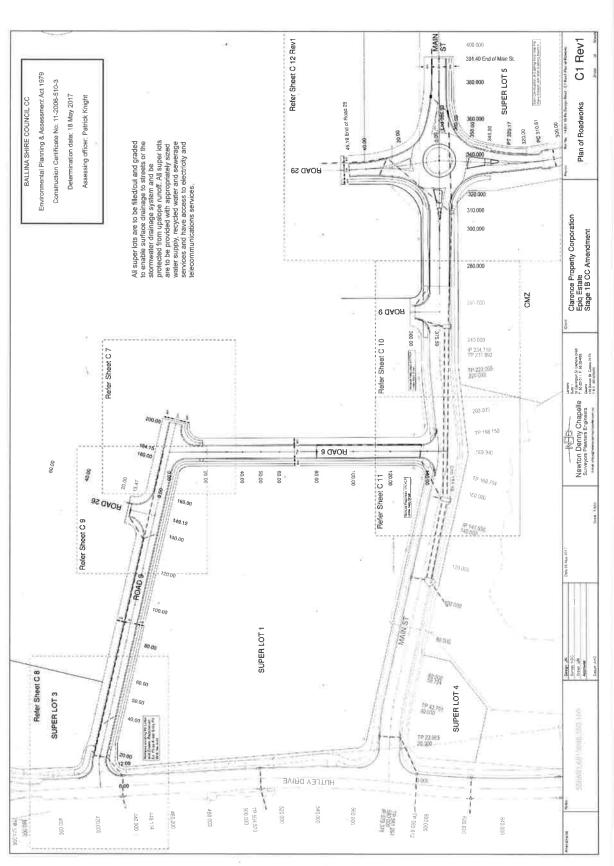
ATTACHMENT 1

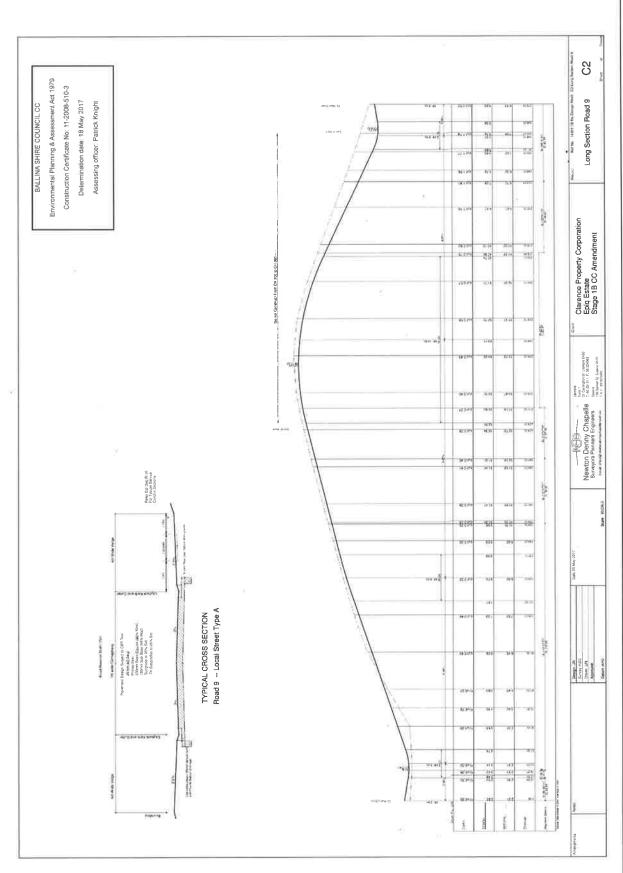
CONSTRUCTION PLAN

Road Signage & Barriers - Proposed Epiq/Pacific Pines Supermarket, Lennox Head

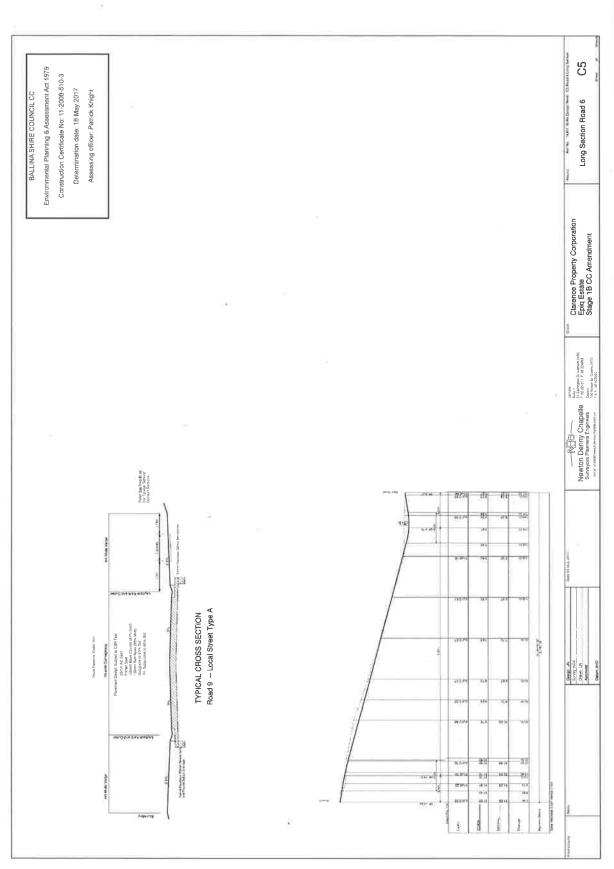


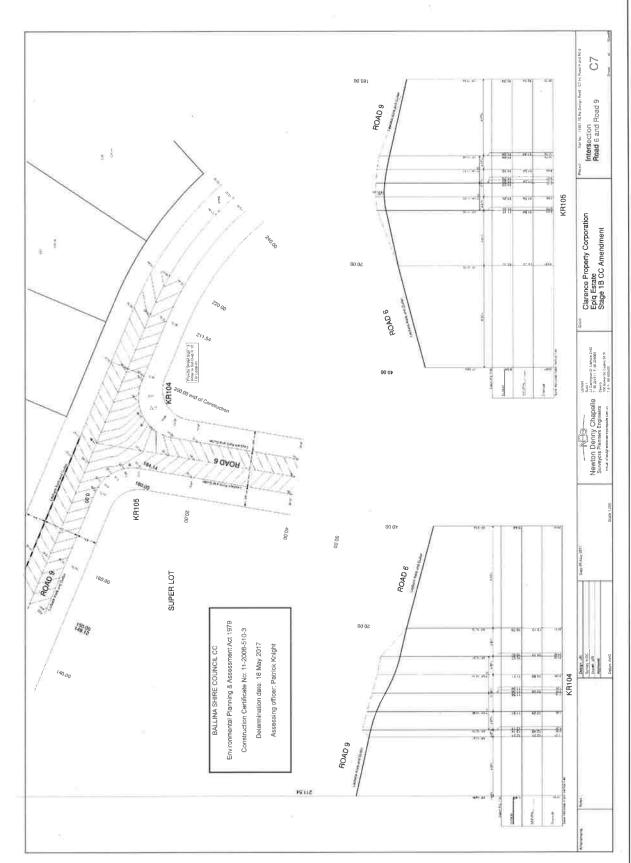
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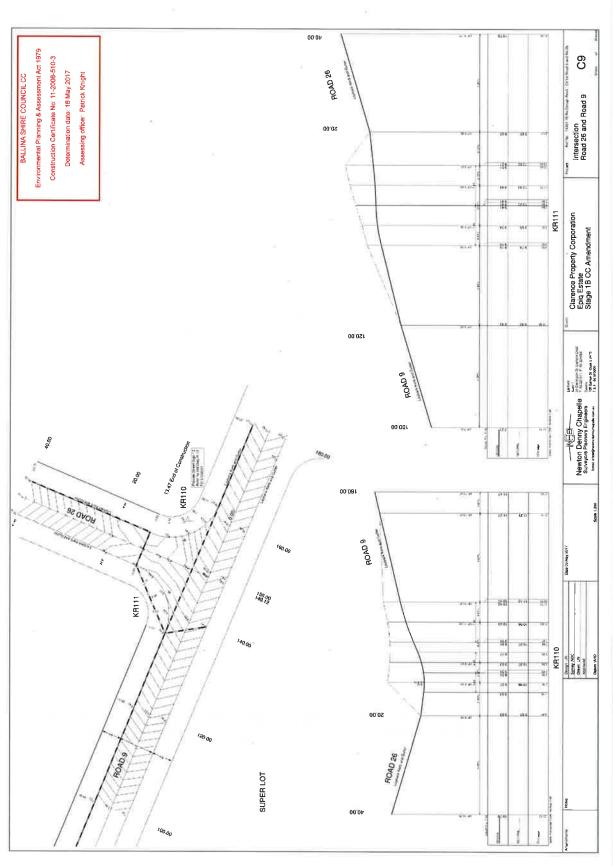


Ballina Shire Council 12/12/18





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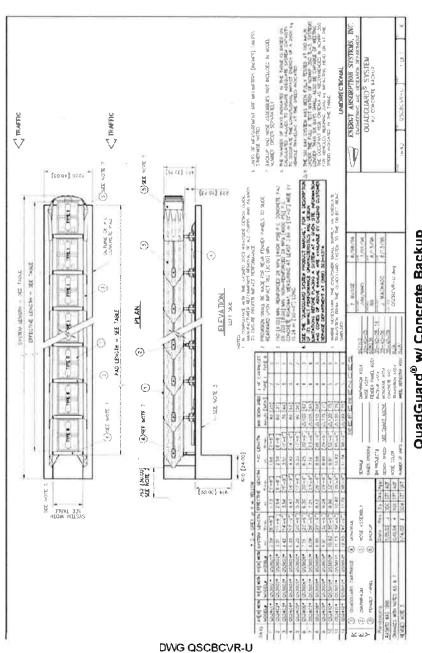
ATTACHMENT 2

PROPOSED INTERSECTION BARRIER DESIGN

Вітгіо

ATTACHMENT 3

TECHNICAL DRAWINGS



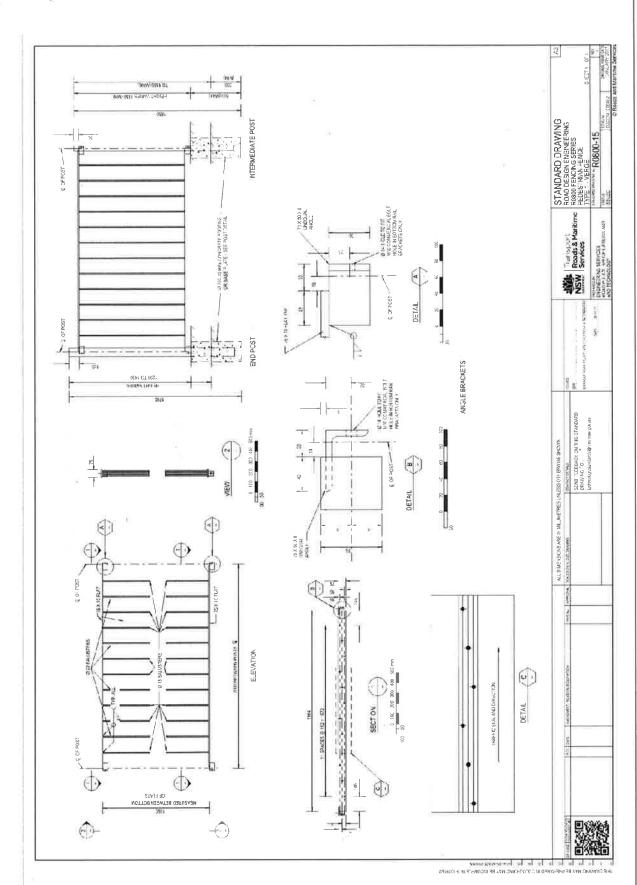
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- 6.4 Street Parking Arrangements New Ballina High School Cherry & Martin Streets, Ballina
- 6.4 <u>Street Parking Arrangements New Ballina High School Cherry & Martin Streets, Ballina</u>

Introduction

Parking regulation and associated signage in Cherry Street, Ballina is proposed to meet the requirements of the new Ballina Coast High School to be opened at start of the 2019 school year.

Information

The new Ballina Coast High School is due to be opened for the 2019 school year. The eastern side of Cherry Street adjacent to the school between Burnett Street and Swift Street has been reconfigured for school drop off/pick up purposes and disabled car parking at the southern end (see Department of Education site plan).

It has been difficult to obtain detailed plans of required parking zones and signage from the Department of Education. However from site inspections it is surmised that the following parking regulation and associated signage will be required:

- NO STOPPING from pedestrian crossing south of Burnet Street southwards to indented parking bay.
- NO PARKING, School Days, 8 9:30 am, 2:30 4 pm, with "School Drop off/Pick Up Zone" yellow plates above signs, from above NO STOPPING zone, southward for around 70 m.
- Disability Parking zone, southwards from above NO PARKING Zone for around 8 m to terminate at existing NO STOPPING sign/zone at Swift Street corner.

Martin Street adjacent to the High School has been reconfigured and shoulder sealed to facilitate angle parking, however the Department of Education has not requested any parking regulation or signage at this location.

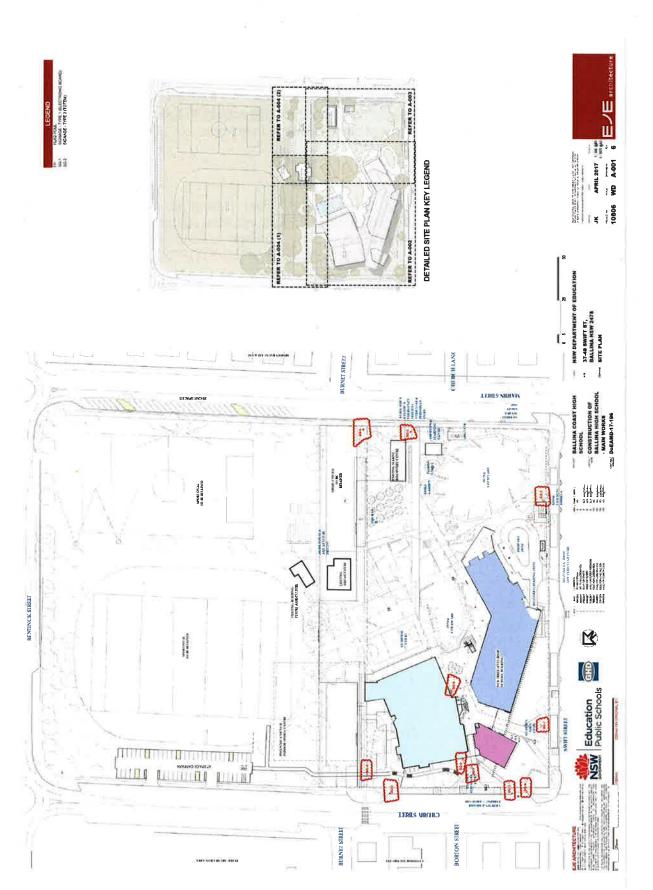
RECOMMENDATIONS

The Committee approve the following parking regulation and associated signage on the east side of Cherry Street, Ballina, adjacent to the new Ballina Coast High School:

- (a) NO STOPPING from pedestrian crossing south of Burnet Street southwards to indented parking bay.
- (b) NO PARKING, School Days, 8 9:30 am, 2:30 4 pm, with "School Drop off/Pick Up Zone" yellow plates above signs, from above NO STOPPING zone, southward for around 70 m.
- (b) Disability Parking zone, southwards from above NO PARKING Zone for around 8 m to terminate at existing NO STOPPING sign/zone at Swift Street corner.

Attachment(s)

1. Ballina Coast High School - Site Plan



6.5 Parking Issues - Short Street, East Ballina

Introduction

The presence of parked cars is preventing access to the northern leg of Short Street, East Ballina by garbage collection vehicles.

Information

The northern leg of Short Street, East Ballina is only 3m wide (see attachment) and the presence of parked vehicles staggered on either side of the street is preventing access by garbage collection vehicles. Garbage collection staff have requested provision of NO STOPPING on one side of the street.

RECOMMENDATION

The Northern side of the North Leg of Short Street, East Ballina be designated a NO STOPPING Zone and provided with a continuous edge of pavement yellow line.

Attachment(s)

1. Short Street, East Ballina



6.6 Lennox Head Masterplan - Trial One Way Street Proposal

Introduction

Council seeks approval to trial a one way street arrangement for Ballina Street and Park Lane in the Lennox Head CBD.

Information

Council conducted a review of options for the Lennox Head master plan in 2003 and after a public consultation process consultants provided a number of options for future CBD development, enhancement and beautification. One of the options provided for one way management of traffic through the CBD.

Public consultation has continued in subsequent years and a trial of the one way system has been proposed to ensure there are no significant adverse traffic impacts from adopting a one way system.

Council considered the matter at the meeting September 2018 and resolved:

270918/7 RESOLVED

(Cr Sharon Cadwallader/Cr Keith Williams)

That Council endorses the commencement of Phase 2 of the Lennox Village Vision: The Future of the Lennox Head Village Centre project as follows:

- Implement a trial one way traffic management arrangement in accordance with streetscape design concepts contained within the attached community engagement package, with other associated or consequential changes within the local road network
- The one way temporary arrangement is to operate for a minimum period of three months, with the operational period to be determined by the General Manager so as to optimise the gathering of traffic data for further assessment.
- The temporary one way traffic arrangement is to be based on the lesser cost option as described in this report.
- The General Manager is authorised to arrange for SIDRA traffic modelling to be undertaken to further inform the selection of future traffic management options within the centre.
- The information gathered from the trial one way traffic management arrangement and the modelling is to be reported back for the Council's further consideration.
- 6. The trial for 2018/19 is to be funded as follows:

Item	Amount (\$)
Existing Budget	3,100
Internal Reserve - Lennox Head Village Renewal	26,600
Internal Reserve – Strategic Planning Studies	12,300
Total Budget for 2018/19	42,000

- Council is to receive a further report on how the latest estimated cost of \$6.6m can be funded in the Long Term Financial Plan.
- 8. That Council receive a report on the Lennox Foreshore Master Plan.

FOR VOTE - All Councillors voted unanimously. ABSENT. DID NOT VOTE - Cr Eoin Johnston Attached to this report are the plans for the Lennox CBD one way trial. It is proposed to have parallel parking on both sides of Ballina Street between Byron Street and Rayner Lane and 60 degree parking on the west side and parallel parking on the eastern side between Rayner Lane and Park Lane. This is to provide a feel for the two different configurations of one way proposals.

The current proposal is for only trialing the traffic flows and no physical beautification works associated with the Lennox Head Masterplan are being undertaken at this time.

It is proposed that the trial runs from 1 March to 30 May 2019. Should the trial be successful it is proposed that the traffic arrangements could be kept in place and permanent infrastructure constructed.

This would require more formalisation of the proposal and would include concreting the blisters and installing bollards instead of the jersey kerbs through the parallel parking section.

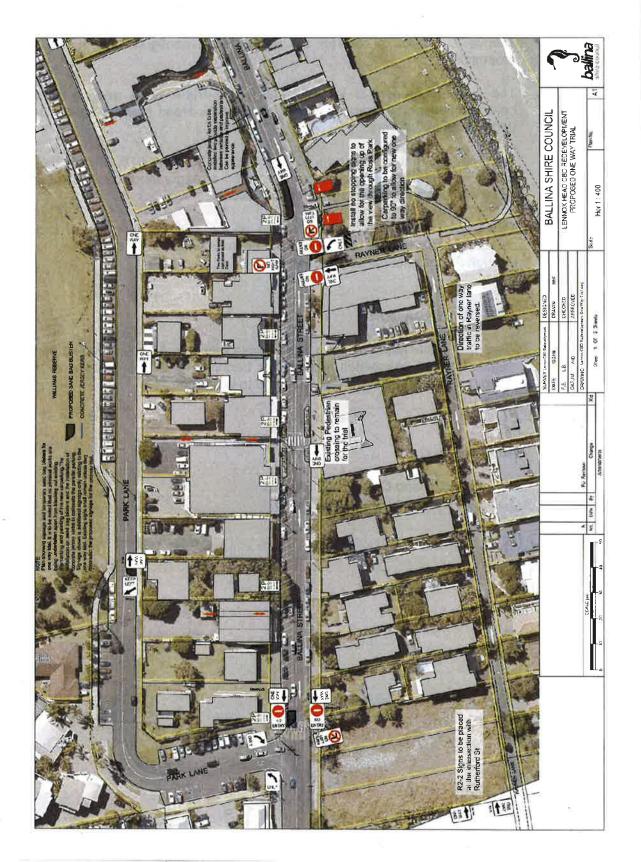
RECOMMENDATION

The Committee approve, for a three month trial period, the traffic and parking regulation and associated signage for Lennox Head CBD shown on plans titled "Lennox Head One Way" attached to this report.

Attachment(s)

- 1. Lennox Head One Way Sheet 1
- 2. Lennox Head One Way Sheet 2

Lennox Head Masterplan - Trial One Way Street Proposal



9.9

7. Items for Traffic Engineering Advice

7.1 Intersection - Tamarind Drive/Deadmans Creek Road, Cumbalum

Introduction

A local resident is concerned about the safety of this intersection and requests provision of street lighting to improve illumination at night.

Information

Resident's Issues

The Tamarind Drive/Deadmans Creek Road intersection was originally an intersection onto the then Pacific Highway managed by RTA/RMS. Since the opening of the Ballina Bypass the old highway (now Tamarind Drive) has been managed by Council. A local resident has made submissions to Council over a number of years regarding the safety of this intersection. Council staff has requested the Committee's technical advice on the matters raised in the resident's email of 25 September 2018. This email (sent to Committee Delegates separate to this agenda) requests installation of street lighting at the intersection and amongst other matters advises:

• "I write to advise that I have now personally witnessed 2 recent dangerous vehicle operation related situations when turning right from Tamarind Drive into Deadman Creek Road Cumbalum at night during heavy rain.

Despite being aware of the corner, and taking care, as a result of being "night blinded" by a passing truck, I was involved in the last one during the heavy rain last week and, from a stationary start, I under estimated the turn angle required and ended up 70% off the Deadman Creek road at the flood sign.

The other incident involved a car that stopped as it turned right to correct its incorrect entry approach in the rain as a second car approached from Lismore forcing it to take stop and take evasive action. Previously I was made aware of another near miss in the rain at night earlier in 2018 where a visitor missed the turn off in the dark when raining."

"The BHAG (Ballina Heights Action Group) has been campaigning for at least 4 years for this light with no success. It will take a serious accident sadly, and possibly a fatality. And the Coronal inquiry will find all the requests and data incorrectly risk assessed or ignored by the Shire. The Barrister for the deceased will have a field day suing the responsible authorities. The Shire is failing at it's duty of care, and by not even doing a cost estimate has no defencethat is strategically naïve in my experience."

The resident is a strong advocate for using a risk assessment approach to assess the need for street lighting at the intersection.

Intersection Context

Deadmans Creek Road and Ballina Heights Drive are the two accesses to the Ballina Heights/Cumbalum urban release area. Ballina Heights Drive intersects with Tamarind Drive (Old Pacific Highway) at the eastern Cumbalum Pacific Highway Interchange roundabout, 3.5 km north of the of the Ballina urban area. Deadmans Creek Road intersects with Tamarind Drive 830m further south towards Ballina. Ballina Heights Drive is the major arterial road for access to the Ballina Heights/Cumbalum urban release area and is planned to be extended as development proceeds and eventually link to proposed urban areas at Ross Lane.

Deadmans Creek Road provided the initial and only access to Ballina Heights in the initial period of development. Since the connection and extension of Ballina Heights Drive, there has been some debate in Council about the long term future of Deadmans Creek Road, having regard to residents requests to minimise the traffic volumes on The Ridgeway in Ballina Heights and to flood studies that suggest the formation of Deadmans Creek Road is impeding floodwaters and could be removed once the alternative access via Ballina Heights Drive is operable.

Options considered have included:

- close the section of Deadmans Creek Road connecting to Tamarind Drive (Tamarind Drive to Summerhill Crescent)
- convert this section to one way traffic only
- keep Deadmans Creek Road open, but due to its flooding impedance, lower its level across the floodplain to create a low level causeway
- impose a load limit to reduce volume of trucks reaching The Ridgeway.

The Tamarind Drive/Deadmans Creek Road intersection is located in a rural area. Its configuration provides channelised right and left turn lanes from Tamarind Drive (see aerial view attached). It is located on flat land where there is satisfactory sight distance from all directions. Recent traffic counts are:

- Deadmans Creek Road, Traffic Volume January/February 2017 -1,860 vpd.
- Tamarind Drive, Traffic Volume September 2017 10,928 vpd.

The accident record for the intersection in the NSW CrashLink database is summarised in the following table:

ID	Date	Street	Time	Degree	RUM	TU1 DIRN	TU1 MAN	TU2 DIRN	TU2 Man
718093	14/2/2010	Pacific Hwy	2145	Injury	13 Right Near	West	Turn Right	South	Proceed in lane
830432	18/2/2013	D'mans Ck Rd	0835	Non injury	31 Left Near	West	Veeri ng left	West	Wait turn left

Street Lighting Standards

In regards to the need for street lighting, Austroad Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings advises:

"In rural areas it is common not to illuminate a route, but intersection lighting may be used to indicate the presence of an intersection or to illuminate vehicle paths through a channelised treatment. This is particularly important if signage (directional, regulatory, or warning) or delineation is insufficient to provide clues to enable deceleration to a safe manoeuvering speed.

There are two basic lighting situations at intersections:

- Flag-lit used at minor rural intersections that are remote and do not have channelisation and compromise one or two luminaries specifically to indicate the presence of the intersection
- Normal used at intersections where more than one of the following apply:
 - High conflicting traffic volumes 0
 - Channelisation at the intersection 0
 - It would be difficult for drivers to readily identify in advance the general layout of the intersection or their desired route through the intersection
 - Significant crossing movements, especially by pedestrians or 0 cyclists (significant pedestrian movement across a road requires floodlighting of the facility)

Australian and New Zealand Lighting Standards are contained in AS/NZS 1158 and design details are covered in the Guide to Road Design Part 6B (Austroads9k)."

AS/NZS 1158.1.1:2005 advises:

ISOLATED INTERSECTIONS *"*3.5

3.5.1 Application

The provision of lighting at intersections on otherwise unlit roads, may be warranted in the interests of road safety.

Lighting of this type is sometimes referred to as 'flag lighting' since its purpose is to draw the attention of approaching motorists to the presence of the intersection from a sufficient distance away. Flag lighting is not intended to illuminate the intersection to the requirements of Table 2.1, however it is essential that care be taken not to create a glare source for motorists. The treatment required will depend on the nature of the site, as follows:

- (a) Intersections in outer urban and semi-rural locations where the approach roads are presently unlit.
- (b) Intersections that are geographically remote from urban development (e.g. rural site).

Flag lighting shall, where deemed necessary at a particular intersection, be provided in accordance with Clause 3.5.2.

If reticulated electricity is remote, the use of luminaries powered by solar panels should be considered.

3.5.2 Design Rules

7.1

- (a) For intersections of the type referred to in Clause 3.5.1(a), lighting complying with Clause 3.4 shall be provided at the intersection and at least two spans of lighting complying with Clause 3.2 shall be provided on each of the roads leading into the intersection
- (a) For intersections of the type referred to in Clause 3.5.1(b), the lighting provided may depend on the importance of the intersection as follows:
 - (i) If channelised to reduce the possibility of vehicular conflicts and provided with retroflective advanced warning and guidance signage, lighting may be deemed not to be necessary. If, because of high volumes or potential safety problems, lighting is deemed necessary, then the lighting provided shall comply with Clause 3.4.
 - (ii) If the intersection is not channelised and the traffic volumes are low, conventional road lighting techniques may not be warranted. For such applications one or two strategically placed luminaries shall be installed to highlight the location of the intersection for approaching traffic and to generally illuminate the limits of the traffic conflict area. The luminaries shall utilise lamps with a light output not greater than 16000 lm and shall be mounted at a height of not less than 7 m."

Risk Management Approach

Road authorities are guided by Austroads in their approach to risk management of road network crashes. The Austroads Guide to Road Safety Part 7 Road Network Crash Risk Assessment and Management (Austroads Pt 7) identifies a range of methodologies for identifying, analysing, evaluating/prioritising and treating road network crash risk. This risk management approach has been specifically developed for road networks and contains guidance for the steps in the road network crash risk assessment and management process.

In regard to identifying risks, Austroads Pt 7 advises that the insights provided by the Haddon Matrix have led to the safe systems approach being developed:

- safer speeds speed limits which are appropriate for the function and construction of the road, terrain, and adjoining land use
- safer vehicles vehicles which protect occupants through structural design, protective
 equipment and features designed to ensure use of protective equipment (e.g. seat belt
 reminders), with design features which reduce injuries to vulnerable road users, and which
 provide better conspicuity of the vehicle and signals (e.g. through high-mounted brake lights
 or daytime running lights)
- safer roads and roadsides treating sites with adverse crash histories or which have the
 potential to generate higher than average numbers of crashes, roll-out of cost-effective road
 improvements and mass action programs, providing safer roadsides.

Ballina Shire Council incorporated the safe systems approach into its "Road Safety Strategy 2014/15 – 2023/24". Key priorities of the strategy being:

PRIORITIES

- SRR1: Apply Safe Systems principles and better integrate land use planning and transport planning to improve safety for all road users.
- SRR2: Deliver a roads and roadside maintenance and construction program that minimises risk to all road users.
- SRR3: Improve the safety of vulnerable road users and encourage the uptake of more sustainable travel modes.
- SRR4: Manage the impact of heavy vehicles on the local road network.
- SRR5: Protect and increase funding streams for roads and roadside improvements.

Austroads Pt 7 advises that "When assessing risks for road trauma, blackspot analysis is typically used to identify locations with high levels of risk. Blackspot sites, lengths of road or areas with crashes over a minimum number per year are selected for inclusion in the analysis (for instance, three casualty crashes over a five year period may be used as a minimum for a site). A list of sites is produced which forms a 'short list' for more in depth assessment and consideration for treatment."

In part, Austroads Pt 7 gives the following guidance for prioritisation of risks:

6.2 Prioritising risks

One of the overall aims of risk management in the road safety context is to reduce trauma, and to do this in the most cost effective way. Given limitations on budgets, it is important to determine which interventions will produce the greatest savings in casualty numbers and severity. In many cases risks may be identified, the treatment of which would be at the expense of other more serious risks. As identified earlier, there are several sources of information relating to risk, including blackspot analysis, information from pro-active approaches (such as road safety audit), maintenance programs and public feedback. Each of these sources needs to be used in the process of prioritisation for later treatment.

Blackspots, routes and areas are perhaps the easiest of risks to prioritise, and there are well-established techniques available for this task. Other types of risk are more difficult to prioritise, although there is an emerging array of location-specific and network-level tools available.

6.2.1 Evaluation based on historic data

The most commonly applied technique to evaluate existing crash locations is to assess historical trends in data (including blackspot analysis and other techniques described in the previous section). This involves comparison with existing crash numbers (or crash rates, or the social cost of these crashes) over the network. However, evaluation also requires knowledge of expected reductions at the locations if they are treated. Predicted reductions in crashes from proposed treatments are calculated to provide input to a benefit cost analysis at each site. Sites can then be compared, and the most economically advantageous set of sites and interventions programmed for remedial work. For further discussion on this issue, see Appendix D, or for more detailed coverage, see Austroads (2004).

Austroads Pt 7 advises regarding treatment of risk:

When treating the risk associated with road trauma, there are a number of ways that authorities can decrease the level of risk. These include:

- reduction of exposure to the risk
- reduction in the likelihood of a crash (including the concept of a 'no surprises' environment)
- reduction in severity (e.g. creating a more forgiving road environment).

In terms of solutions to the risk related to exposure and consequences, remedial treatments could be viewed as:

- elimination remove the hazard
- substitution use a safer option
- engineering controls in terms of design modifications
- isolation where the hazard is removed from direct influence
- administrative controls including educational initiatives, speed limits, licensing, drink driving laws, or
- personal protective equipment for example vehicle improvements (air-bags, electronic stability control etc.).

Additionally, the Haddon Matrix and Safe System may be used to formulate countermeasures based on human, vehicle and road related issues (including speed), and how these can influence safety before, during and after a crash.

Of greatest relevance to most authorities is the effect on risk from changes to the road environment. Through the monitoring of engineering based measures, information exists on the level of reduction that can be expected from measures in different road environments.

Site Evaluation

Prior to writing this report, the site was inspected in vehicle (for all turning movements) and on foot in daylight and night conditions. Particular attention was paid to the Tamarind Drive northbound, right turn into Deadmans Creek Road movement (raised as a major concern in the resident's email of 25 September 2018). The movement area is relatively undefined due to the need to accommodate both right and left turns from their respective protected turn lanes on Tamarind Drive into the Deadmans Creek eastbound lane.

There is also a small horizontal curve east of the intersection that may confuse identification of the alignment of the eastbound lane. The lack of definition could lead to uncertainty in selection of the correct turning path.

Normally there is a Deadmans Creek Road centreline and edge lines on the turning splay to define the area, however a recent reseal has covered much of this delineation infrastructure (planned to be restored when linemarking contractor is available in December).

Improved delineation of this movement area would improve certainty regarding the correct path to be driven through the intersection.

A further site inspection was conducted with road design staff to explore options for improved delineation of the intersection, particularly at night for the right turn movement from Tamarind Drive.

The options for improved delineation of the turn movements (see attachment to report) include:

 Restoration of linemarking on Deadmans Creek Road centreline and intersection splay edges

- Provision of raised reflective pavement markers on the splay edges
- Provision of close spaced guideposts behind the north east splay
- Provision of a small painted median to better define and separate the left and right turn, turning paths from Tamarind Drive.

Discussion

Council has used the black spot analysis technique for assessing, prioritising and treatment of road network crash risks. This technique is generally based on historical data and in some cases on road safety audits. A significant number of high priority blackspots with high accident records have been identified and treated in recent years. The crash record at the Tamarind Drive/Deadmans Creek Road intersection does not indicate there is a high level of risk and high priority for treatment on this basis.

Whilst street lighting would improve illumination and vision for drivers at night at this intersection, it is considered it would not provide the delineation required to provide more certainty of correct turning paths in both daylight and night time conditions. If street lighting was to be provided, compliant with AS/NZS 1158.1.1:2005, it would also need to be compliant with Clauses 3.4 and 3.5 (in regard to illumination) and be provided at the intersection and at least two spans of lighting on each of the roads leading into the intersection. Given the size of the intersection, this form of street lighting would be very expensive. Minimalist "flag lighting" would not be compliant with the standard at this intersection (being a *Clause 3.5.1(a)* type intersection and having a channelised configuration).

Site inspections investigating the specific issue raised in the resident's email, being the right turn from Tamarind Drive, have identified that delineation of this movement can be significantly improved by restoring the pre-reseal linemarking, installation of raised reflective pavement markers (centreline and splays), provision of close spaced guideposts behind the north east splay and provision of a small painted median to better define and separate the left and right turn, turning paths from Tamarind Drive. This treatment would have only moderate cost and provide a significant benefit in both day and night conditions.

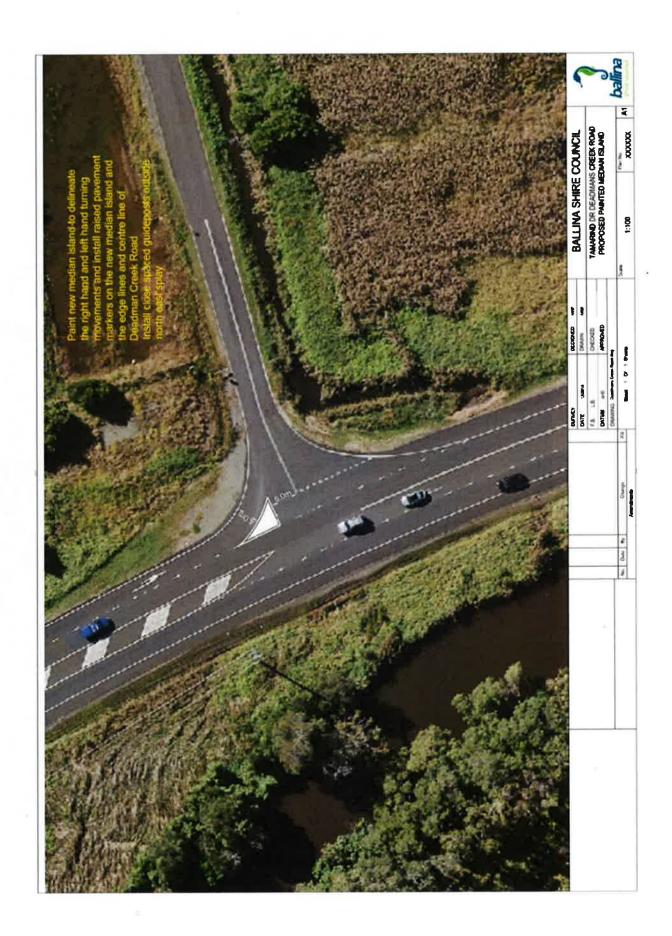
RECOMMENDATION

The Committee's technical advice is requested regarding the Tamarind Drive/Deadmans Creek Road intersection.

Attachment(s)

- 1. Tamarind Drive / Deadmans Creek Road Aerial View
- 2. Tamarind Drive / Deadmans Creek Road Delineation Proposals





8. Information for the Committee

8.1 Schedule of Outstanding Resolutions of the Committee

Introduction

List of outstanding resolutions from previous meetings of the Local Traffic Committee.

Information

Meeting Held 10 October 2018

10/18-7.2 Intersection - Tamarind Drive & Tintenbar Road, Tintenbar

Recommendation

The Committee recommended Council's design team be requested to investigate options to the intersection layout for consideration by the Committee at a future meeting.

Action to Date

Awaiting preparation of design options.

Meeting Held 13 December 2017

12/17-6.4 Pedestrian Crossings - Crane Street, Ballina

Recommendation

The Committee advise Ballina Primary School of the outcomes of the report and invite further discussion in respect of options that may be available to improve pedestrian safety at the intersection.

Action to Date

Ballina Primary School Principal has been advised. Discussions are likely to take place after commencement of the 2018 school year.

Meeting Held 11 October 2017

10/17-7.2 Request for One Way Traffic – Swift Lane, Ballina

Recommendation

The Committee endorses Council conducting community consultation regarding this proposal and the presentation of a further report to the Committee advising on the outcomes from the consultation.

Action to Date

Community consultation not yet commenced.

A series of inspections has been carried out and the volume of traffic and parked cars indicates that no regulation of traffic direction or parking is considered warranted.

Further Recommendation

No further action be taken.

Meeting Held 8 February 2017

Parking Issues in Lane Behind Santa Fe Motel, Between 2/17-7.1 Stewart and Gibbon Streets, Lennox Head

Recommendation

The Committee shares the concerns of residents and agreed to monitor and then review the situation when the duplex has been constructed.

Action to Date

Site being monitored

Meeting Held 8 October 2014

10/14-6.1 Review of Marked Pedestrian Crossings in Ballina Shire

Recommendations

- Crossings 3 (Links Avenue, Ballina), 4 (Bangalow Road, Ballina), 7, 8, 9 & 10 (Cherry Street, Ballina), 11 (Crane Street, Ballina) and 14 (River Street, Ballina West of Norton Street intersection) be prioritised for review in the 2014/15 period.
- 2. The review assess the warrant, signage, lighting, geometry, approaches, performance, traffic/safety issues, desirable improvements and other relevant issues for each crossing and recommend actions for retention, improvement, amendment or removal of each site assessed.
- A further report be provided to the Committee in regard to 3. outcomes of investigations from Point 1 above and that Council consider a target program date to complete the whole program.

Action to Date

Assessment of warrants for designated crossings in Ballina for 2014/15 completed and reported to Committee meeting 10 June 2015. Committee recommendation to remove a number of crossings submitted to Council meeting 25 June 2015 and recommendation rejected.

All pedestrian crossings in the Shire have been audited for compliance with the Australian Standard during 2015. They have had lines re-marked and signage replaced as required. The only pedestrian crossing that required any foliage trimming was in River Street mid-block between Grant Street & Moon Street and this was completed in September 2015.

RECOMMENDATION

The Committee notes the information in the report regarding the Schedule of Outstanding Resolutions.

Attachment(s)

Nil

- 9 Regulatory Matters on Classified Roads (GM's Delegate)
- 10 Items Without Notice
- 11 Next Meeting
- 9. Regulatory Matters on Classified Roads (GM's Delegate)

Nil Items

- 10. Items Without Notice
- 11. Next Meeting

Next meeting is scheduled for Wednesday 13 February 2019 at 10.00am.