



# **Greg Alderson & Associates**

Chartered Professional Engineers and Scientists

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## **Traffic Management Plan Falls Festival 2018/19 at North Byron Parklands, Yelgun, NSW**

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## Table of Contents

1.0	Introduction.....	4
1.1	Project brief .....	4
1.2	Relevant standards, specifications and guidelines .....	4
	Definitions.....	4
1.3	Site location.....	5
1.4	Event description.....	6
1.5	Event Calendar.....	7
1.7	List of conditions .....	7
1.7.1	B4 – Traffic management and parking .....	7
1.7.2	C9 – Transport Management Plan .....	8
1.7.3	C10 – Traffic Control Plan .....	8
1.7.4	C45 – Car Parking Management.....	9
1.7.5	C46 – Access for Emergency Vehicles.....	9
1.7.6	C47 – Pedestrian Access from Day Parking Area .....	9
1.7.7	C48 – Disabled Access .....	9
1.7.8	C51 – Emergency Evacuation Plans.....	9
2.0	Sixth Medium Trial Event .....	10
2.1	Observations from previous Falls Festivals at the site .....	10
2.2	Traffic Management Approach for the Falls Festival 2018/19 .....	11
1.3	Temporary Bus Bay Brunswick Heads .....	12
1.4	Stacked parking and camping.....	12
3.0	Traffic impact modelling .....	15
4.0	Contingencies and emergency evacuation .....	15
5.0	Monitoring for traffic management during the festival .....	16
6.0	Risk assessment .....	16
7.0	Copies of the traffic management plan .....	20
8.0	Audit checklist .....	20
9.0	Responsible organisations contact persons and signatures.....	22
10.0	Approval condition compliance summary table.....	22
11.0	Chain of command .....	23
12.0	Conclusions and recommendations .....	24
	REFERENCES.....	25
	APPENDIX A – Event and camping plan.....	27
	APPENDIX B – Traffic control plans .....	28

## 1.0 Introduction

Greg Alderson and Associates (GAA) have been engaged by *Look up and Live Pty Ltd* to update the Traffic Management Plan from previous events for the Falls Festival Byron at North Byron Parklands in Yelgun that is to be held during the New Year's period of 2018/19. The festival will be held from 31 December 2018 to 2 January 2019. Camper bump in will commence on Saturday 29 December 2018, allowing an additional day for arrivals of camping patrons compared to previous events. The camping areas close in the afternoon of 3 January 2019.

Following on from the Traffic Evaluation Report observations and recommendations for last years Falls Festival, it is proposed to implement the following traffic improvements for this years event:

- Gates will be open from 29 December to allow an additional day for camping patrons to arrive before the event commences;
- Contingency TCP is included for managing queueing incident that may have the potential to impact the Pacific Motorway.

Importantly, the number of event patrons is capped at 25,000 which is the same as last years event.

## 1.1 Project brief

The aim of the Traffic Management Plan (TMP) is to prescribe traffic management and control procedures for the Falls Festival at Yelgun, in order to satisfy the conditions of consent as set out in Project Approval by the Minister for Planning and Infrastructure, dated 24 April 2012 and in accordance with recent modifications to the consent. In conjunction with this Traffic Management Plan a Traffic Monitoring Protocol will be developed by our office. These documents will set out data collection methods in order to provide sufficient data to assess future and potentially larger events at the event site.

## 1.2 Relevant standards, specifications and guidelines

This TMP will be prepared in accordance with the following standards, specifications and guidelines:

- Guide to Traffic and Transport Management for Special Events Version 3.4
- RMS Traffic Control at Worksites manual
- Australian Standards (in particular AS1742)
- Quality Assurance specifications
- Austroads Guide to Traffic Management

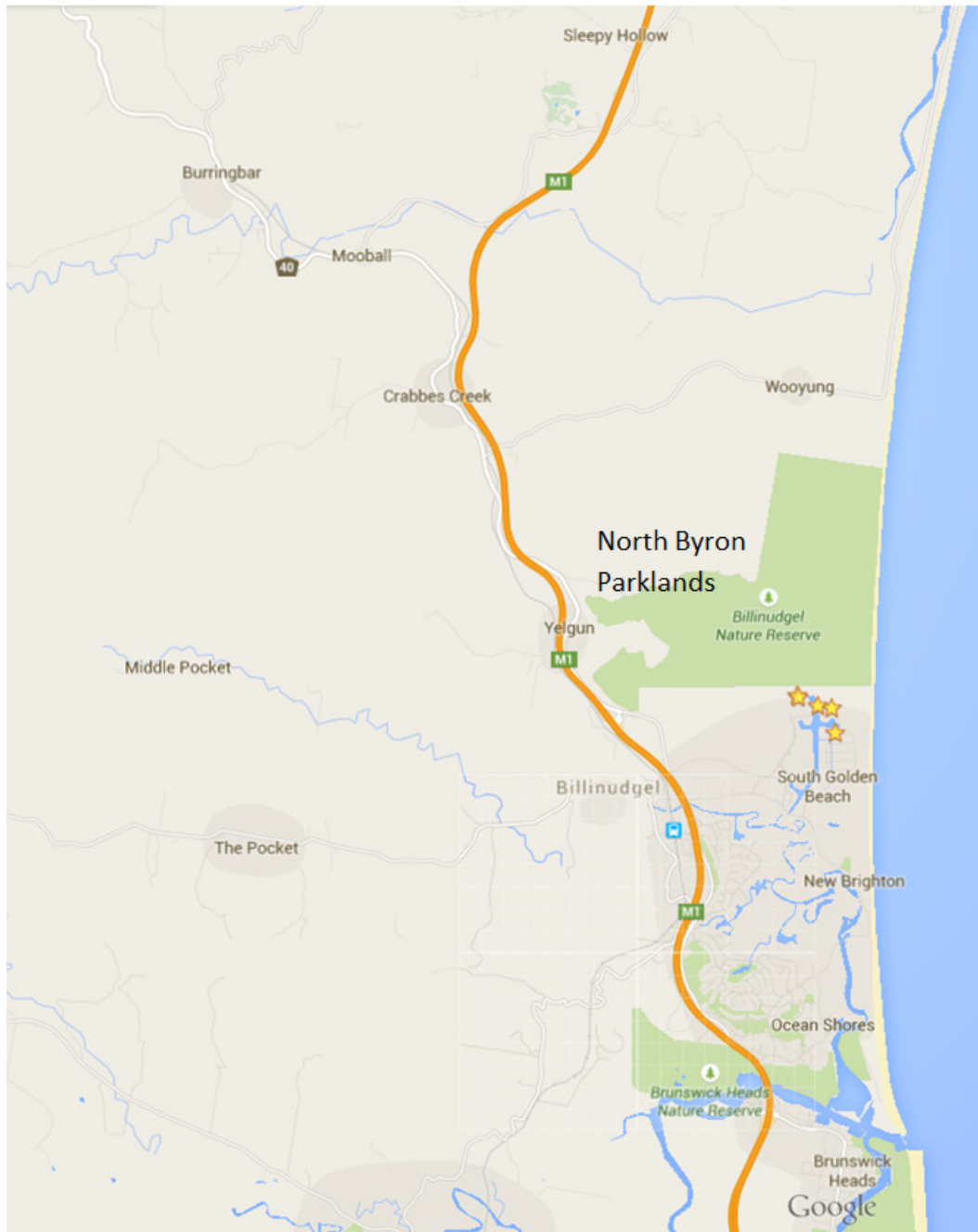
## Definitions

<b>AADT</b>	Average Annual Daily Traffic; average traffic volume per day after application of correction factors
<b>ADT</b>	Average Daily Traffic; average traffic volume per day, based on a limited survey period, typically 1 week.
<b>Peak Flow Rate</b>	Hourly volume of vehicles during busiest part of assessment period
<b>Background Traffic</b>	Traffic composition as would typically exist without superposition of event traffic
<b>Heavy Vehicle</b>	For the purposes of this report; anything other than a pedestrian, cyclist, motorbike or car

## 1.3 Site location

The subject site is formally known as Lots 46, 402-404, 410 DP 755687; Lots 10, 12, 14 DP 875112; Lots 2, 12 DP 848618; Lot 101 DP 856767; Lots 30-31 DP 880376; Lots 101-102, 107 DP 1001878; Lot 1 DP 1145020, Tweed Valley Way and Jones Road, Yelgun. The southernmost entry to the site is located at approximately 1km to the North from the Yelgun Interchange and Yelgun Rest Area.

**Figure 1** below depicts the location of the site with respect to its locality.



**Figure 1 - Site locality, Source of map: Google Maps 2015**

## 1.4 Event description

The Falls Festival Byron is a music and arts festival that will be held at North Byron Parklands from 31 December 2018 until 2 January 2019.

Falls Festival operates in such a way that it is held at two other locations in the same period, so that artists can be transported between event locations. In that format it has been held successfully at Marion Bay in Tasmania and Lorne in Victoria for over 25 years.

The Falls Festival was held at North Byron Parklands for the first time during the 2013/14 New Year's Eve period and held each year since that date. All festivals were a success from a traffic engineering perspective with no major impacts on the public roads during peak arrival periods.

Although the event days are 31 December 2018 until 2 January 2019, the campgrounds will open on 29 December 2018 and close on 3 January 2019. At previous years events, the gates were open on 30 December, so this year camping patrons will be able to arrive a day earlier if they choose to purchase the appropriate ticket. We expect this to be a very effective measure to reduce the likelihood of any significant queuing incidents on Tweed Valley Way.

Three types of tickets, plus a camping ticket will be sold for this event and are summarised in Table 1.

As compared to previous years, separate tickets will be required to be purchased to camp on the site. This TMP has been based on the assumption the number of campers and flow rates remains similar to previous years. Festival Management will monitor sales of camping tickets to confirm this assumption remains true. If not, contingency plans should be put in place.

With the additional day being available for camping patron arrivals early on 29 December, it is anticipated that peak arrival rates for camping vehicles will be lower than last year. The planned arrival profile is:

- Saturday 29 December – 18.5% of camping patrons
- Sunday 30 December – 65% of camping patrons
- Monday/ Tuesday/ Wednesday – 16.5% of camping patrons
- Thursday 3 January - Egress

**Table 1 - Overview of ticket types**

<b>Ticket name</b>	<b>Arrival dates</b>	<b>Festival entry dates</b>	<b>Departure date</b>	<b>Anticipated number of tickets</b>
<b>3 Day Festival Ticket</b>	29, 30 and 31 Dec	31 Dec – 2 Jan	3 Jan	22,500
<b>2 Day Festival Ticket</b>	31 Dec or 1 Jan	31 Dec – 1 Jan or 1 Jan – 2 Jan	2 or 3 Jan	2,250
<b>1 Day Ticket</b>	31 Dec or 1 Jan or 2 Jan	31 Dec or 1 Jan or 2 Jan	1, 2 or 3 Jan	250
<b>Camping Ticket</b>	Applies as additional ticket to all above			

The Falls Festival will function as the sixth approved 'Medium Trial Event' with an anticipated maximum patronage of 25,000 people with an additional 3,000 staff, stallholders, contractors and guests. The fifth column in Table 1 depicts the anticipated number of ticket holders of each ticket type based on information provided to our office by festival management. Validity of this TMP and associated traffic control plans is subject to compliance with these attendance numbers.

## 1.5 Event Calendar

The festival schedule can be summarised as follows:

Saturday 29/12/18	Camp grounds open day 1
Sunday 30/12/18	Camp grounds open day 2
Monday 31/12/18	Event day 1
Tuesday 1/1/19	Event day 2
Wednesday 2/1/19	Event day 3
Thursday 3/1/19	Campground closure, camper departure

Car pass sales are used to control arrival days of patrons. For previous years, typically 60% of car passes are sold for 30 December and the remaining 40% for 31 December. For the 2018/19 event Festival Management will monitor sales of camping tickets to confirm the distribution of camping tickets remains similarly or better distributed across the days for camper arrivals. It is likely that there will be a better distribution with the additional day being made available for camping.

Some campers may depart on Wednesday night but the majority of campers would leave the site on the Thursday, which is the day that the camping area will close.

## 1.7 List of conditions

The following is an overview of the consent conditions that have been provided to this office detailing the various conditions that are relevant to the festival traffic operation and are thus relevant to this TMP. This TMP is therefore formally responding to those conditions of consent.

A Condition Compliance Summary Table is provided later in this document, summarising what conditions are complied with and in which section of this report they are addressed.

### 1.7.1 B4 – Traffic management and parking

1. A minimum Level of Service D is to be maintained at the Yelgun interchange and along Tweed Valley Way.
2. Queue lengths on the link road between Tweed Valley Way and Yelgun interchange are to be limited to a maximum of 70m.
3. Queue lengths on the northbound off-ramp must not extend more than 210m from the Give Way yield line.
4. No car parking is to occur on the land to the South of Yelgun Creek. Should this area be required for car parking in the future to accommodate larger events, the proponent must demonstrate that patrons can access vehicles south of the creek line in a risk free manner for events up to and including 100 year ARI flood event for the Director General's approval.

5. The southern car park (south of Jones Road and north of Yelgun Creek) may only be used if the event is to cater for more than 20,000 patrons.

## **1.7.2 C9 – Transport Management Plan**

Although the Condition nominates a “Transport” Management Plan we have retained the name “Traffic” Management Plan.

A Transport Management Plan (TMP) having regard to the *“Guide to Traffic and Transport Management for Special Events”* and the *Environmental Health and Safety Management Manual* is to be prepared for each event at least 60 days prior to the event. The TMP must be submitted to the Local Traffic Committee for endorsement and then to the Director-General and RWG prior to the commencement of each event.

The TMP must include, but not be limited to:

- a) A copy of the approved Traffic Control Plan;
- b) Management of traffic during ‘bump in’ and ‘bump out’ and event days;
- c) Details of how local traffic movements past the site will be given priority and in particular, ensuring that residents of Jones Road can access their properties;
- d) Details of how substantial queuing capacity will be provided on-site, thus avoiding queuing on Tweed Valley Way and the Yelgun interchange off-ramps;
- e) Details of how event organisers will facilitate efficient processing and inspection of event patron vehicles within the site;
- f) Details of demand management strategies to reduce car dependency for attending events, such as promoting the use of public transport by providing suitable connectivity at adjacent townships, airports and railways, promoting use of bicycles, ticket pricing incentives for carpooling, management of parking supply and the like; and
- g) Measures to address and respond to the outcomes of a Performance report required under Condition B7 including updating Plans for subsequent events.

## **1.7.3 C10 – Traffic Control Plan**

A Traffic Control Plan (TCP) for each event must be prepared by a suitably qualified and RMS accredited Work Site Traffic Controller, at least 60 days prior to the event. The TCP must be submitted to the Local Traffic Committee for endorsement and then to Council for approval prior to commencement of each event.

The TCP must address the following matters:

- a) Be designed in accordance with the requirements of the RMS’s Manual, Traffic Control at Work Sites Version 2, and the current Australian Standards, Manual of Uniform Traffic Control Devices Part 3, ‘Traffic Control Devices for Works on Roads’.
- b) The regulation of traffic must be authorised under the *Roads Act 1993* and the use of traffic control devices authorised under the *Road Transport (Safety & Traffic Management) Act 1999*.
- c) Reduced speed zones approved by the RMS.
- d) Special Event Clearways approved by the RMS.
- e) Appropriate signage to prohibit parking in the surrounding road network and in the Yelgun rest area.



- f) A Traffic Incident Management Plan that details a range of approved contingency measures capable of avoiding significant impacts on the level of service. The contingency plan must be fully documented and include emergency contact names and phone numbers.
- g) Measures to address and respond to the outcomes of the Performance report required under Conditions B7, including updating Plans for subsequent events.

The TCP must be designed to achieve the following performance during bump in/out and event days:

- a) All movements at the Yelgun interchange including merges and diverges need to operate at Level of Service C or better for delay;
- b) The level of service for local traffic and through traffic on the Tweed Valley should not fall below
- c) Level of Service D;
- d) Queue lengths on the link road between Tweed Valley Way and the Yelgun interchange must be limited to a maximum of 70 metres;
- e) The end of traffic queues on the interchange ramps must not be within 210 metres of the start of the ramp;
- f) On site queuing is not to extend onto the Pacific Highway or the Tweed Valley Way; and
- g) There is to be no impact on through traffic travel times of the Pacific Highway.

#### **1.7.4 C45 – Car Parking Management**

The proponent shall ensure that vehicles parking on the site are distributed in such a way that areas least affected by potential flood waters are utilised first.

#### **1.7.5 C46 – Access for Emergency Vehicles**

The proponent shall ensure that a satisfactory passage for emergency vehicles is provided to the site for all event types during the event, including bump-in and bump-out times.

#### **1.7.6 C47 – Pedestrian Access from Day Parking Area**

- (1) The pedestrian access way from the day parking area to the event site is to be appropriately illuminated to achieve at least 0.2lux at ground level. The pedestrian access is to be patrolled regularly by security staff to ensure that patrons do not stray from the approved thoroughfare.
- (2) The pedestrian access way from the day parking area to the event site is to be clearly signed at regular intervals providing appropriate directions, detailing the remaining distance to the event site, and outlining the need for patrons to stay within the designated area.

#### **1.7.7 C48 – Disabled Access**

Disabled access to, within and from the site must be in accordance with AS1428.1 (2009), or the most recent version.

#### **1.7.8 C51 – Emergency Evacuation Plans**

Emergency evacuation plans for flooding and bushfires must be available on site under the control of the site/event manager. This plan is to be located at each stage, at all exits from the site and at the site office. A copy is also to be given to all security personnel and patrons.

## 2.0 Sixth Medium Trial Event

The NSW Planning Assessment Commission granted consent in September 2017, for an extension to the trial period at North Byron Parklands for an additional 20 months until August 2019.

This is the Sixth year in the (extended) five-year trial period for North Byron Parklands (NBP) as an event site. This year, approval exists for one large trial event up to 32,500 which was held in July 2018, one medium trial event (anticipated to be up to 25,000 patrons) and one small trial event (up to 15,000 patrons). Falls 2013/14 was the first medium trial event to be held at the site and was held around New Year's 2013/14. Falls 2018/19 is the sixth medium trial event and is to be held around New Year's 2018/19.

### 2.1 Observations from previous Falls Festivals at the site

From a traffic engineering perspective, Falls Festival Byron 2017/18 had many successes, with highlights including reductions in illegal parking at the Yelgun Rest Area and fewer pedestrian movements on the Tweed Valley Way. There were two minor failures in regard to the given Key Performance Indicators (KPI's). A higher peak flow on the first arrival day than has been experienced before led to queuing from the site and onto the Tweed Valley Way. This also resulted in a LOS less than C for 1-2 hours during the peak ingress period on Saturday the 30<sup>th</sup> of December.

As a result, the KPI table from 2017/18 was constructed as below.

**Table 2 - KPI Table**

Description	Criterion	KPI met (Y/N)				
		Saturday	Sunday	Monday	Tuesday	Wednesday
Maximum queue length on northbound off ramp	210m from start of diverge	Y	Y	Y	Y	Y
Maximum queue length on southbound off ramp	210m from start of diverge	Y	Y	Y	Y	Y
Minimum Level of Service on Yelgun Interchange	C	Y	Y	Y	Y	Y
Minimum Level of Service along Tweed Valley Way	C	N	Y	Y	Y	Y
Maximum queue length on Link Road	70m	Y	Y	Y	Y	Y
Maximum queue length on Pacific Motorway	0m	Y	Y	Y	Y	Y
Maximum queue length on Tweed/Brunswick Valley way other than turning lanes	0m	N	Y	Y	Y	Y

Probable factors contributing to the observed traffic issues were:

- Higher ratio of day 1/day 2 car pass sales than previous years
- Higher total number of festival patrons than previous years
- First arrival day being a Saturday providing opportunity for concentrated peak ingress period
- Reduced vehicle occupancy (2.29ppv for FFB2017 compared to 2.4ppv for FFB2016)

Methods recommended for consideration in the Traffic Evaluation Report for reducing the opportunity for queueing on the Tweed Valley Way for future events include:

- Reduce the ratio of day 1/day 2 car pass sales
- Introduce more granular car pass ticketing (i.e. car passes for arrival before 1pm/after 2pm) in order to spread the arrival distribution across the day
- Separate pick-up/drop-off traffic arrivals by utilising Gate D
- Provide incentives for increased vehicle occupancy (i.e. added value for 4+ person vehicles)

It would also be appropriate to have available contingency Traffic Control Plans in case queueing occurs again, to ensure safe traffic management.

## 2.2 Traffic Management Approach for the Falls Festival 2018/19

During previous Falls Festivals, it was observed that during the holiday period, background traffic volumes on Tweed Valley Way and Brunswick Valley Way did not increase significantly. Although traffic volume increases on the Pacific Motorway were monitored, correlation with increases on Tweed Valley Way and Brunswick Valley Way was minimal.

During previous Falls Festivals, traffic controllers were placed on standby to manage any congestion that may occur during arrivals. Generally no issues have been observed, however contingency traffic management was implemented on Tweed Valley Way during the queuing incident on Saturday 30 December 2017, along with internal traffic contingency measures including on site queuing utilising a carpark “snake”.

This year the queueing observed in 2017 is likely to be prevented from occurring by opening the site one day early for camping arrivals. If an incident occurs there is a documented contingency TCP that would be implemented. In addition to this, the RMS traffic operations centre stationed at St Helena would be contacted and they may implement electronic warning signage on the permanent signs on the motorway and at Ewingsdale Road to warn motorists approaching the area on the motorway.

Traffic controllers are implemented at Gate C during the camping departure day with the successfully trialed 2-lane departure. In addition, at FFB18 a trial will be undertaken providing additional departures of camping vehicles via Gate A and Jones Road. This will be monitored at the time and with traffic counters.

At last years event, the Levels of Service on Tweed Valley Way were satisfactory during departures, and particularly for northbound vehicles there is capacity for a higher departure rate. This will be monitored again this year including during the trial departures from Jones Road.

This year, traffic controllers are proposed to be used on the public road:

- at Gate C during the 2-lane camping departure;
- at Jones Road for managing heavy vehicle arrivals;
- at Jones Road to trial the additional camping departures;
- Gate D is not planned to be used during the event this year.

A reduced speed zone on Tweed Valley Way is proposed from approximately 540m south-east of Yelgun Road to 100m north of Jones Road. Free flow vehicle speeds on Tweed Valley Way are relatively high, in particular on the downhill section from Jones Road towards Gate B. Reducing the speed limit at the site frontage will improve safety with respect to traffic leaving the site as well as

traffic queued in the right turn lane on Tweed Valley Way. This reduced speed zone is continued to Jones Road similarly as was done during previous festivals for service vehicles entering and exiting Jones Road.

A no stopping zone is proposed on Tweed Valley Way and Brunswick Valley Way from Shara Boulevard in the south to the Byron Shire boundary in the north. The purpose of this is two-fold:

- Eliminate parking by patrons not familiar with the area on Tweed Valley Way which is a high speed road;
- Improve tools to manage trespassers, in particular from the north.

Similar to recent Splendour in the Grass and Falls events at North Byron Parklands, patrons travelling along the Pacific Motorway will be encouraged to exit the Motorway at Pottsville and at Brunswick Heads to alleviate pressure on Yelgun Interchange. Experience with previous events has shown that this method is particularly effective for campers who are not as familiar with the local road network as local day patrons.

## **1.3 Temporary Bus Bay Brunswick Heads**

The Traffic Control Plan, includes a plan for Temporary Bus Bay Park Street, Brunswick Heads. The purpose of this plan is to provide a safer bus stop for the expected increase in bus patronage due to the Falls Festival.

It is proposed that the Park Street bus stop will also be utilised by the Falls Shuttle bus service. The implementation of the temporary bus bay plan includes:

1. Falls Festival intends to provide a security guard at this bus stop to ensure crowd control and to keep the footpath adjacent to the bus stop passable.
2. Falls Festival will also provide a clean-up team to service this area. This would ensure that the bus stop area remains clean and tidy so that the Brunswick Community and Council are not left with a clean-up problem as a result of the additional bus patronage due to the festival.
3. Water filled barriers, as per the Temporary Bus Bay Plan, are proposed to provide added safety for patrons. The need for these barriers is because the footpath at the location of the bus stop is raised and there is a garden bed, both of which reduce the available footpath space for persons waiting for buses.

This plan has been prepared to address a request from local shop keepers in Park Street that sought to have additional facilities for the increased bus patronage as a result of the similar festivals in the past.

## **1.4 Stacked parking and camping**

It is proposed to carry out stacked camping and parking at the Falls Festival Byron. This method has been tried and tested at the Falls & Splendour festivals in Byron. A schematic figure of this arrangement is depicted in Figure 2.



**Figure 2 - Stacked camping and parking**

The process of stacked parking and camping is as follows.

As camper vehicles arrive, they are directed to a certain area, where they will be parked behind the car in front of them and parallel to vehicles besides them. The patrons then set up their tent next to their car. An aisle is kept free between two rows of tents for pedestrian and firefighting purposes.

After the patrons have parked their car, it will not be physically possible to leave the campgrounds in their own car before the car in front of them has done so. Thus, there will be no private car traffic generation by 2 and 3 day campers during event days. Private car traffic generation by campers resulted in significant traffic volumes during the festival days of a previous Falls festival. This issue has thus been resolved.

Charter buses will be sourced by festival management to ensure sufficient transport capabilities are available during the festival, in particular for day trippers to Pottsville, Brunswick Heads and Byron Bay. We understand that in recent years, additional bus trips are scheduled for Brunswick Heads and less trips for Byron Bay to alleviate the congestion at Byron Bay and improve the economic benefits to local business in Brunswick Heads.

Internally, as the separation between car parking and camping has been removed (as is depicted in Figure 3), there is increased flexibility for directing traffic flows through the site. Any congestion due to ticketing issues or wet weather can thus be more easily negated.

It should be noted that this system of stacked parking and camping fundamentally differs from the combined parking and camping that caused the congestion during SITG 2013. During that festival, there was insufficient infrastructure in place to direct traffic flows and also the camping and parking was ad-hoc, not structured. The proposed structured parking/camping system for the coming Falls Festival at Byron has been tried and proven at the Falls festival in Lorne for years and also for the FFB16 and SITG16.

Festival management will liaise with the NSW Police to encourage drug searches to occur after vehicles have been parked in order to prevent any hold ups during peak arrival periods. Ticketing by mobile ticketing stations also occurs after vehicles have been parked.

Lastly, we have been informed that the stacked parking/camping system is likely to improve patron experience on the campers departure day. Patrons will better understand that they cannot leave the site until the vehicle in front of them has left, thus enhancing acceptance of delays.

In summary the benefits of the structured stacked parking/camping system are as follows:

- Elimination of private vehicle traffic generation by day trippers during the festival;
- More efficient use of space;
- Improved convenience for campers, having the tent set up next to their car;
- Improved patron experience during the departure day.

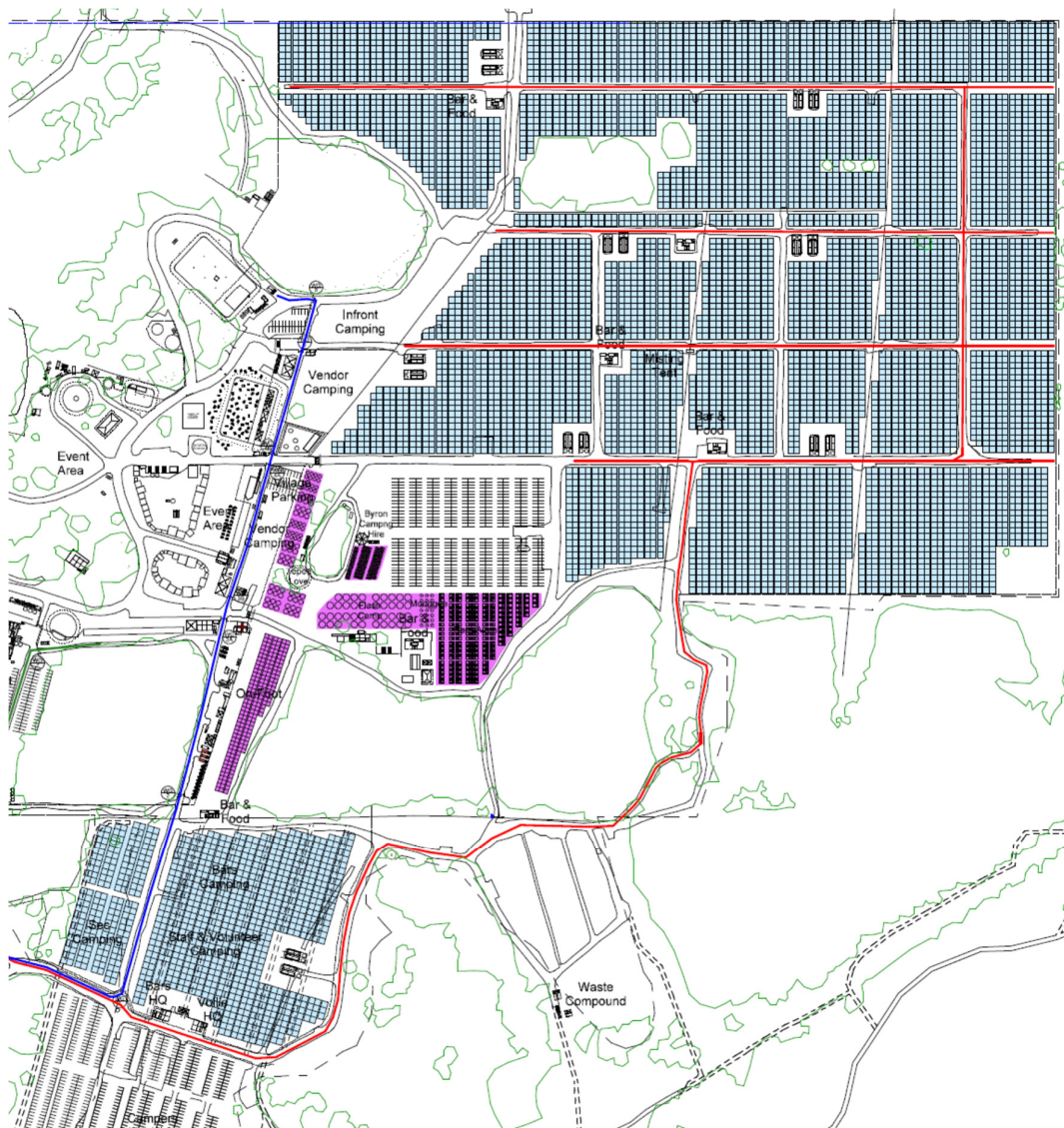


Figure 3 - Stacked parking/camping marked in blue



## 3.0 Traffic impact modelling

No traffic impact modelling has been undertaken for the 2018/19 event.

The upgrading of the Link Road intersection during 2016 has relieved the major bottleneck for traffic arriving at the festival site. The recent Falls and Splendour in the Grass events resulted in no known traffic KPI breaches or traffic safety issues around the Link Road, and therefore no impacts on the Pacific Highway. (the queuing at recent events has impacted Tweed Valley Way only).

Observations during camping arrivals at last years Falls Festival resulted in some concerns regarding the peak arrival period. With the same number of patrons this year, but with an additional day for camping arrivals, the existing intersection arrangements and traffic control plans are considered sufficient. In addition there is a documented contingency TCP included.

If due to the traffic volumes the Spine Road would experience congestion, the following mitigation measures could be employed:

- Use southern car park for a snake or for temporary parking during a peak;
- Close southbound traffic on Spine Road and create a 2-lane one-way northbound situation during peak ingress using cones or bollards. Sufficient staff and material are to be present on site to instigate this if required.

Based on the previous modelling carried out for this event, the public road network has the capacity to cope with the traffic scenarios modelled for this event. The Spine Road would need to be monitored closely during the peak ingress period to be able to enact mitigation measures if the Spine Road reaches capacity.

## 4.0 Contingencies and emergency evacuation

North Byron Parklands has constructed roads within the site which are above various flood levels. North Byron Parklands has machinery, such as a large tractor, to tow vehicles which may have broken down on the internal road system. The Falls staff will be trained in the need to keep the internal roads clear, and if necessary arrange a contra flow situation, to temporarily pass a broken down vehicle.

Any contingency measures carried out by relevant authorities are to ensure the safety of any persons associated with the cause of the contingency measures to be needed to be carried out, as well as the efficient operation of the road network. It is paramount that queuing on the Pacific Motorway, Tweed Valley Way and Brunswick Valley way be prevented at all times.

As the Police have the authority to take control of the site in an emergency the Traffic Control Plan will then be overridden as the Police see fit.

As part of good management of the operation of this Traffic Control Plan, it is necessary that all relevant staffed be adequately briefed on the possibility of the need to evacuate the site in an emergency.

In the case of bushfire and flooding there is some warning time that is available to the Police, to give them the opportunity to prepare to evacuate the site.

Also, as the site has its major entry and exits points south of Jones Road, it will be necessary for the appointed traffic control staff to be on duty during and emergency evacuation, to quickly and efficiently move patrons through the site to the exit points.

The evacuation strategy by the Police is to take into account time of day, site occupancy and suitability of access roads. If the site is full and the call for evacuation is made by the Police, orderly egress commencing with the day patrons, followed by the campers, will be necessary.

The draft emergency evacuation plan for fire, nominates that patrons congregate in “assembly points” and from there the whole site would then be evacuated. This would be at the discretion of the LEMO Police Controller.

The draft emergency evacuation plan for the fire addresses different evacuation scenarios. In instances where evacuation by vehicle is available, evacuation is to the various entry/exit points. In instances where vehicle evacuation of the site is not appropriate, emergency assembly locations within and adjoining the site are nominated for site occupants to assemble under supervision.

Emergency vehicle access is available from Gate C, Gate D, Jones Road and Wooyung Road.

Although no traffic controllers are required to manage traffic under normal conditions, traffic controllers would need to be on call to assist in managing queues during any queuing on the public road that may occur as a result of unforeseen circumstances. Back of queue warning vehicles would need to be available to warn inbound vehicles on the public road of any queues ahead. It is the responsibility of the festival management to ensure the public road is monitored and potential queuing is predicted in advance of any queuing appearing.

## **5.0 Monitoring for traffic management during the festival**

Traffic monitoring is required to provide input for the annual performance report under the current approval for the site.

It is proposed to install classified traffic counters at the locations listed below, at least two weeks before the Festival. These counters will be used to gain a confirmation of the background traffic levels, and then the increase that can be attributed to the Festival.

- North bound off ramp at Yelgun;
- South bound off ramp at Yelgun;
- Tweed Valley Way to the North of Jones Road;
- Tweed Valley Way between Yelgun Road and Billinudgel Road;
- Brunswick Valley Way opposite the Yelgun Rest Area
- Spine Road

On-site surveys will need to be carried out to estimate the vehicle occupancy for camper vehicles. Data on the use of any bus services is to be provided by Festival Management after the event so that mode-share calculations can be carried out.

## **6.0 Risk assessment**

A risk assessment for the traffic operation of this festival is described in this chapter. The risk assessment is set up such to identify potential risks to public health as a result of the festival traffic operations. The key performance indicators (KPI's) as defined by the development approval are aimed to reduce the likelihood of occurrence by requiring management of traffic queue growth and level of service.



Additional risk reducing measures such as contingency plans and creating a temporary low speed environment at high risk locations are part of the traffic management tools recommended in this Traffic Management Plan.

Lastly, there are risks due to hazards that might occur that are outside the control of the event management or traffic controllers. These hazards would include extreme weather conditions and crashes on the public road due to drivers' negligence. In order to reduce the risk effect of these hazards, risk mitigating strategies are recommended in this risk assessment.

It is noted that it is the combined responsibility of festival management and government authorities to ensure that there is sufficient funding available and personnel in place for adequate implementation of the traffic control plans, infrastructure and risk mitigation measures.

The risk assessment proposed in this report is provided as a guide. We recommend that after all relevant staff, consultants and contractors been engaged, that a risk management meeting is held prior to the event. During this risk management meeting a final risk assessment shall be established which would be included in the event management manual. This risk management meeting shall include:

- NBP General Manager
- Falls Byron General Manager
- Event Traffic Manager
- Traffic Engineer
- Traffic Control Manager
- Police representative
- Ambulance representative
- RFS representative
- RMS representative
- Council representatives (BSC and TSC)

The classification of risks for the purpose of this risk assessment is depicted in 4 and associated definitions are provided in Table 2.

Figure 4 - Risk classification matrix

		LIKELYHOOD OF OCCURANCE			
		1. Very likely (could happen anytime)	2. Likely (could happen sometime)	3. Unlikely (could happen, but only rarely)	4. Very Unlikely (could happen but probably never will)
CONSEQUENCE	A. Death or permanent disability	1	1	2	3
	B. Long term illness or serious injury	1	2	3	4
	C. Medical attention or several days off work	2	3	4	5
	D. First aid needed	3	4	5	6

Table 2 - Risk definitions

Risk Class	Time Frame for Corrective Action	Role/Responsibility
Class 1 – Extreme risk	Immediate action required	Senior management – Executive
Class 2 – Very high risk	Immediate action required	Senior management
Class 3 – High risk	Immediate action required	Senior management
Class 4 – Medium risk	Close-of-business of current day	Management responsibility must be specified
Class 5 – Low risk	Within 24 hours	Manage by routine procedures
Class 6 – Very low risk	Within 48 hours	Manage by routine procedures

The risk assessment is provided below.



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RISK ASSESSMENT												
Activity	Hazard description	Direct consequence	Potential indirect consequence	Initial Risk Rating			Method for risk mitigation	Responsible person formitigation implementation	Person responsible for ensuring sufficient funding to enact mitigation	Residual Risk Rating		
				L	C	Risk Class				L	C	Risk Class
Traffic control on public road	Traffic controller hit by car	Injury or death	Traffic congestion and queue growth	3	A	2	Ensure proper implementation of traffic control plan	Traffic control manager	Festival General Manager	4	A	3
							Ensure TC staff compliance with WHS regulations and other relevant legislation	Supervisors and overseers	Festival General Manager			
On-site vehicle processing	Insufficient rate at which vehicles are processed	Traffic congestion and queue growth	Collision on public road	2	A	1	Ensure sufficient staff for vehicle processing	Parking manager	Festival General Manager	4	A	3
							Ensure adequate equipment to enable staff to process vehicles safely and efficiently	Parking manager	Festival General Manager			
							Enactment of snake in southern car park to create additional vehicle storage	Event traffic manager	Festival General Manager			
							Traffic controllers on public road to control back of queue	Traffic control manager	Festival General Manager			
Patron arrival, departure and additional festival traffic generation throughout event	Higher patron arrival flow than anticipated	Traffic congestion	Collision on public road	2	A	1	Traffic management plan to allow for sufficient contingency	Traffic Engineer	Festival General Manager	4	A	3
							Contingency plans available for enactment if needed	Traffic Engineer and traffic control manager	Festival General Manager			
							Queue warning vehicle implementation	Traffic control manager	Festival General Manager			
	More concentrated arrival peak than anticipated	Traffic congestion	Collision on public road	2	A	1	Traffic management plan to allow for sufficient contingency	Traffic Engineer	Festival General Manager	4	A	3
							Contingency plans available for enactment if needed	Traffic Engineer and traffic control manager	Festival General Manager			
							Queue warning vehicle implementation	Traffic control manager	Festival General Manager			
	Crash on critical intersection or traffic lane	Injury or death	Traffic congestion and queue growth	3	A	2	Secure crash site	Police	NSW Police Force	4	A	3
							Provide required aid to persons involved	Emergency services	NSW Ambulance Service			
							Manage traffic at crash site	Police	NSW Police Force			
							Manage back of queue	Traffic control manager	Festival General Manager			
	On-site crash	Injury or death	Traffic congestion and queue growth	2	A	1	Ensure adequate on-site road network	NBP General Manager	NBP shareholders	3	C	4
							Ensure sufficient visibility through corners	NBP General Manager and Event Traffic Manager	NBP shareholders and Festival General Manager			
							Ensure low speed environment	Event traffic manager	Festival General Manager			
							Prevent occurrence of sudden stopping	Event traffic manager	Festival General Manager			
							Secure crash site	Police	NSW Police Force			
							Provide required aid to persons involved	Emergency services	NSW Ambulance Service			
							Manage traffic at crash site	Police	NSW Police Force			
	On-site vehicle break down	Traffic congestion and queue growth	Collision on public road	2	A	1	Remove vehicle from traffic lane	Event traffic manager	Festival General Manager	4	B	4
							Enactment of snake in southern car park to create additional vehicle storage	Event traffic manager	Festival General Manager			
							Traffic Management Plan to include low speed zones in high risk areas	Traffic Engineer	Festival General Manager			
							Traffic controllers on public road to control back of queue	Traffic control manager	Festival General Manager			
	Queue on motorway, motorway off ramp or arterial road	Traffic congestion and queue growth	Potential back of queue crash	3	A	2	Contingency plans available for enactment if needed	Traffic Engineer and traffic control manager	Festival General Manager	4	A	3
							Queue warning vehicle implementation	Traffic control manager	Festival General Manager			
	On-site fire or bush fire	Panic by drivers	Potential collisions on site and public road	2	A	1	Fire prevention by site planning, vegetation maintenance and crowd control	NBP General Manager and Event Manager	NBP shareholders and Festival General Manager	2	D	4
							Fire identification and fighting	RFS and Event manager	RFS and Festival General Manager			
	Severe wind, rain and/or hail	Sudden stop of traffic flow and uncontrolled placing of vehicles on traffic lane and road shoulder	Collision	2	A	1	Monitor weather and issue sever weather warnings to staff, contractors and patrons	Event manager	Festival General Manager	3	B	3
							Queue warning vehicle implementation	Traffic control manager	Festival General Manager			
							VMS text to be changed to warn drivers of severe weather and traffic congestion	Traffic control manager	Festival General Manager			



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## **7.0 Copies of the traffic management plan**

Copies of the Traffic Management Plan, after signature by the relevant persons nominated in the plan, shall be forwarded to the following authorities as a reference should there be any need for contact, such as in the case of an emergency.

- NSW Police Force,
- The local RMS office at Grafton,
- The NSW Ambulance Service,
- The Rural Fire Service, and
- Byron Shire Council.

## **8.0 Audit checklist**

Any Traffic Controllers shall complete the TCP Audit Check list as included in this report, before the start of the Festival and immediately prior to the closure of the Festival. The aim of this audit is to ensure that all the requirements of the TCP have been in place for the full duration of the event.

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AUDIT CHECKLIST				
Date:		Time:		Auditor:
Office/Company:			Site Supervisor:	
Location:				
Nature of Activity:				
Duration of Activity:				
Road Configuration:				
1	Provision for Activity	YES	NO	N/A
1.1	Has an approved TCP been provided			
2	<b>Implementation</b>			
2.1	Are all signs & devices installed in accordance with TCP?			
2.2	Are there any contradictory, distracting or superfluous signs or markings?			
2.3	Are signs suitably placed with regard to:			
2.3.1	Sight distance			
2.3.2	Motorists approaching at high speed			
2.3.3	Queue lengths			
2.3.4	Visibility, shade, light glare?			
2.4	Are all signs displayed appropriate for the current conditions?			
2.5	Are there any damaged or defective signs?			
2.6	Have the needs of pedestrians been considered?			
2.7	Have the needs of cyclists been considered?			
2.8	Are safety barriers required?			
2.9	Are safety barriers installed correctly?			
2.10	Has access to the site been provided?			
3	<b>Documentation Sighted</b>			
3.1	TCP, including details & modifications			
3.2	Direction to Restrict (DTR)			
3.3	Traffic controllers certification			
4	Has the Signage been covered for non RTA Controllers operation as specified on the TC Plan			
Comments/Findings				
Recommendations/Corrective Action				
Auditor (signed)		Site Supervisor:		

## 9.0 Responsible organisations contact persons and signatures

The following persons have read and understand this Traffic Management Plan prepared for The Falls Festival 2018/2019, to be conducted at the North Byron Parklands, Tweed Valley Way, Yelgun, and will implement this plan.

### Senior Accredited Traffic Controller:

Name of responsible person who can be contacted on the following phone numbers:

Name: .....

Signature: .....

Phone: .....

Mobile Phone: .....

### Festival Site Manager:

Name of responsible person who can be contacted on the following phone numbers:

Name: .....

Signature: .....

Phone: .....

Mobile Phone: .....

### Festival Promoter:

Name of responsible person who can be contacted on the following phone numbers:

Name: .....

Signature: .....

Phone: .....

Mobile Phone: .....

## 10.0 Approval condition compliance summary table

This TMP has been prepared in accordance with the RMS Guide to Traffic and Transport Management for Special Events. **Table 3** below summarizes the compliance with the conditions of approval as listed in chapter 1.

**Table 3 - Condition compliance summary table**

Condition	Compliance achieved (y/n)	Location
B4 – Traffic management and parking	y	Chapter 2 and 3
C9 – Transport Management Plan	y	Chapters 2 and 3
C10 – Traffic Control Plans	y	Appendix B and C
C45 – Car Parking Management	y	Chapter 2
C46 – Access for Emergency Vehicles	y	Chapter 8
C47 – Pedestrian Access from Day Parking Area	y	Appendix A
C48 – Disabled Access	y	Appendix A
C51 – Emergency Evacuation plans	y	Chapter 8

## 11.0 Chain of command

The Traffic Engineer (TE) will be present at the site or the surrounding road network generally at the times of peak event traffic activity undertaking traffic monitoring and observations.

The responsibilities of the TE are:

- Certification of the installation and proper implementation of TMP and TCP,
- Liaison with Falls Festival management and Site Manager,
- Liaison with Traffic Control Supervisor,
- Undertake Traffic Monitoring activities,
- Provide Traffic Evaluation Report following each event.
- Design and Modification of existing approved traffic control plans when required,
- Certification of new traffic control plans when required.

The Traffic Control Manager (TCM) will be present at the site or surrounding road network during peak arrival and departure periods, and be available at all times to implement contingency measures.

The responsibilities of the TCM include:

- Liaison with Falls Festival management and Site Manager,
- Liaison with Camping Manager,
- Liaison with Parking Manager,
- Liaison with Traffic Engineer,
- Liaison with Council and RMS,
- Liaison with NSW Police,

Changes to traffic control plans can only be made by a certified orange card holder. This would normally be either the TE or the TCM

The TCM will supervise the operation of the TMP and TCP and ensure that the Traffic Controllers are advised of their roles in the traffic management. The TE will report any significant issues observed to the TCM as required.

The Event Management would be expected to contact the TE or TCM to discuss any traffic matters. The success of the implementation this TMP depends on a coordinated managed traffic approach and this will be achieved by following a chain of command protocol. This will also be reinforced in the Protocol issued to the contracted traffic control company.

## **12.0 Conclusions and recommendations**

With demand management and close supervision of the traffic and parking it is possible to manage the 2018/19 Falls Festival at Yelgun such that it does not adversely impact on the Pacific Motorway or the local road network, outside the levels nominated in the development consent.

The KPI's nominated in the project approval can be met when the festival is managed as per this TMP.

An appropriately qualified traffic engineer should be present at critical times to enable effective evaluation of the implementation of the TMP and traffic control plans and make adjustments where required.

A designated person from Festival Management should also be the point of contact, with respect to traffic, camping patrons entry and day parking issues, buses and taxis, and for the liaison between traffic controllers, parking attendants and camping operators, RMS, Police, Byron Shire Council and Festival Management.

Traffic counters will be installed to monitor traffic flows both for rate and volume. Monitoring of the operation of the car parks, in particular the operation of the car parks for ingress and egress, is to be performed to ensure effective operation of the car parks.



## REFERENCES

*Splendour in the Grass 2013 Traffic Management Plan*, Greg Alderson and Associates Pty Ltd, 3<sup>rd</sup>  
April 2013, Nashua

*Splendour in the Grass 2013 Traffic Monitoring Program*, Greg Alderson and Associates Pty Ltd, 2<sup>nd</sup>  
May 2013, Nashua

*Splendour in the Grass 2013 Traffic Management Brief*, Greg Alderson and Associates Pty Ltd, 13<sup>th</sup>  
May 2013, Nashua

*Splendour in the Grass 2013 Traffic Evaluation Report*, Greg Alderson and Associates Pty Ltd, 16<sup>th</sup> of  
August 2013, Nashua

*Splendour in the Grass 2014 Traffic Management Plan*, Greg Alderson and Associates Pty Ltd, 3<sup>rd</sup>  
April 2013, Nashua

*Splendour in the Grass 2014 Traffic Monitoring Program*, Greg Alderson and Associates Pty Ltd, 26<sup>th</sup>  
May 2014, Nashua

*Splendour in the Grass 2014 Traffic Management Brief*, Greg Alderson and Associates Pty Ltd, 2<sup>nd</sup>  
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*Splendour in the Grass 2014 Traffic Evaluation Report*, Greg Alderson and Associates Pty Ltd, 28<sup>th</sup>  
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*Splendour in the Grass 2016 Traffic Management Plan*, Greg Alderson and Associates Pty Ltd, 23<sup>rd</sup>  
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*Falls Festival Byron 2015/16 Traffic Management Plan*, Greg Alderson and Associates Pty Ltd, 2<sup>nd</sup>  
October 2015, Nashua

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*Falls Festival Byron 2016/17 Traffic Management Plan*, Greg Alderson and Associates Pty Ltd, 28 September 2016, Nashua (Refers to this report and included Traffic Control Plan)

*Falls Festival Byron 2017/18 Traffic Evaluation Report*, Greg Alderson and Associates Pty Ltd

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*Splendour in the Grass Traffic Management Plan*, Adam Pekol Consulting, April 2011

*Guide to Traffic and Transport Management for Special Events*, RTA Transport Management Centre, August 2006

*Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis*, Austroads Inc., Sydney, August 2009

*Highway Capacity Manual 2010*, Transportation and Research Board of the National Academies, 2010

## **APPENDIX A – Event and camping plan**

## **APPENDIX B – Traffic control plans**