North Byron Parklands

Response to Submissions

MP09_0028 Modification 3 – Lodged May 2015

Appendix A – Modified Consent Conditions

Appendix B – DP&E Public Exhibition Advertisement

Appendix C – Traffic Impact Assessment

October 2015

North Byron Parklands

Appendix A – Modified Consent Conditions

POST EXHIBITION UPDATED DETAILS OF MODIFICATION SOUGHT

To give effect to the amendments sought, having regard to feedback from the exhibition of Mod 3, the following modifications to the Consent are proposed. Words proposed to be deleted are shown as ~~struck through~~ and words to be inserted are shown in blue font. Changes made in Mod 1 are shown in red font. Changes made in Mod 2 are shown in mustard font.

A.1 PROJECT APPROVAL

SCHEDULE 1

Application No.:	MP 09_0028
Proponent:	Billinudgel Property Pty Ltd
Approval Authority:	Minister for Planning and Infrastructure
Land:	Lots 46, 402, 403, 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; and Lot 1 DP 1145020, Tweed Valley Way and Jones Road, Yelgun – Byron local government area.
Project:	Cultural Events Site, comprising: • erection of temporary and demountable structures; • temporary camping ancillary to the events usage; • construction of an administration building; • construction of a gatehouse building; • temporary toilet and shower facilities; • temporary water and wastewater facilities; • construction of an internal spine road; • construction of a water treatment plant; • construction of a wastewater treatment plant; • upgrading of local public roads, creation of site access intersections and an underpass beneath Jones Road; • construction of event laneways, walkways, car parking areas, drainage improvements and associated works; • resource recovery centre and art installations; and, • progressive implementation of a vegetation management plan.

PART A—NOTES RELATING TO THE DETERMINATION OF 09_0028

Responsibility for other consents / agreements

The Proponent is solely responsible for ensuring that all additional consents and agreements are obtained from other authorities, as relevant.

Appeals

The Proponent has the right to appeal to the Land and Environment Court in the manner set out in the Environmental Planning and Assessment Act 1979 and the Environmental Planning and Assessment Regulation 2000.

Appeals—Third Party

A third party right to appeal to this approval in the manner set out in the Environmental Planning and Assessment Act 1979 and the Environmental Planning and Assessment Regulation 2000.

Legal notices

Any advice or notice to the approval authority shall be served on the Director-General.

PART B—DEFINITIONS

In this approval,

Act means the *Environmental Planning and Assessment Act 1979*.

Advisory Notes means advisory information relating to the approved development but do not form a part of this approval.

BCA means Building Code of Australia.

Bump In and ***Bump out*** are the periods defined in Condition B1.

Camper arrival day and camper departure day are defined in Condition B1.

Complaints Register means the complaints register established under Condition C5.

Construction Certificate means a construction certificate for bulk earthworks or civil works unless specified otherwise.

Council means Byron Shire Council.

CPI means Consumer Price Index.

Department means the Department of Planning and Infrastructure or its successors.

~~***Director-General*** means the Director-General of the Department~~.

EMC – Emergency Management Centre is the central emergency coordination centre for emergency management for larger events.

Environmental Assessment means the Environmental Assessment prepared by SJ Connelly CPP Pty Ltd and dated August 2010, including all appendices.

Event Day means an advertised date on the face of an event entry ticket for a trial event but does not include small community trial event days.

Feasible and Reasonable Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. ***Feasible*** relates to the capability of a work practice or abatement measure being put into practice (or of being engineered) and whether that measure is practical to build given project constraints such as safety and maintenance requirements. ***Reasonable*** relates to the application of judgement in arriving at a decision, taking into account mitigation benefits and cost of mitigation versus benefits provided, community views and nature and extent of potential improvements. These terms are further defined in OEH's *Noise Guide for Local Government 2010*.

Large trial event is defined in Condition B1.

Medium trial event is defined in Condition B1.

Minister means the Minister for Planning and Infrastructure.

OEH means Office of the Environment and Heritage.

Patron means anyone who holds a ticket to attend an outdoor event;

Project means the project as described in Condition A2 to this approval.

PCA means a Principal Certifying Authority and has the same meaning as Part 4A of the Act.

Preferred Project Report means the Preferred Project Report prepared by SJ Connelly CPP Pty Ltd dated February 2011.

Proponent means Billinudgel Property Pty Ltd or any party acting upon this approval.

Regulation means the *Environmental Planning and Assessment Regulation 2000*.

Regulatory Working Group and RWG means the Group established in accordance with Condition C2.

RFS means Rural Fire Service.

Secretary means the Secretary of the Department of Planning and Environment.

Sensitive Receiver means a residence, education institution, health care facility and/or religious facility.

Site has the same meaning as the land identified in Part A of this schedule.

Small community trial event is defined in condition B1

End of Schedule 1

SCHEDULE 2
CONDITIONS OF APPROVAL

PART A - ADMINISTRATIVE CONDITIONS

A1 Structure of Approval

This project approval is divided into five (5) parts:

(a) Part A – administrative conditions.

(b) Part B – trial of outdoor events - parameters.

(c) Part C – conditions that apply to the trial.

(d) Part D – general health and safety conditions for events.

(e) Part E – conditions that apply to the permanent infrastructure/site enhancement works for Stages 1 and 2.

The Administrative Conditions and Advisory Notes apply to all Parts of this project approval.

A2 Staging and Project Approval

The project is approved in two (2) stages. Project approval is granted only to carrying out of the project as generally described below:

(a) Stage 1

(1) Outdoor Event Approval

i) A trial of outdoor events up to the end of 2017, including car parking; ancillary camping; and, erection of temporary structures and facilities within the Event Usage Area defined within Plan 1.2 – *Revised Event Area and Land Use Structure* accompanying the Preferred Project Report dated February 2011.

ii) Car parking usage within the Car parking Area defined within Plan 1.2 – *Revised Event Area and Land Use Structure*, accompanying the Preferred Project Report dated February 2011.

(2) Infrastructure Approval

i) Construction of the spine road;

ii) Construction of an underpass beneath Jones Road, car parking areas, pedestrian walkways and boardwalks, shuttle bus turnaround area;

iii) Upgrading of the western 340 m of Jones Road to a two-lane sealed road with a service entrance (Gate A ~~S~~);

iv) Construction of the intersections associated with Gates ~~A, B and C~~ B, C & D;

v) Construction of event laneways, resource centre, hard stand areas, drain crossings, stormwater management, regrading for positive drainage and associated works;

vi) Construction of laneways and drain crossings within car parking area; and

vii) Construction of entry treatment and signage.

(3) Vegetation Management Works Approval

i) Implementation of natural area protective fencing; constructed wetlands; new habitat area plantings; managed parkland plantings and Yelgun Creek rehabilitation; and

ii) Implementation of a comprehensive Vegetation Management Plan.

(b) Stage 2:

(1) Infrastructure Approval

i) construction and landscaping of an administration building with 175 m² of floor area;

ii) construction and landscaping of a gatehouse building with 100 m² of floor area;

iii) construction of a water treatment plant; and

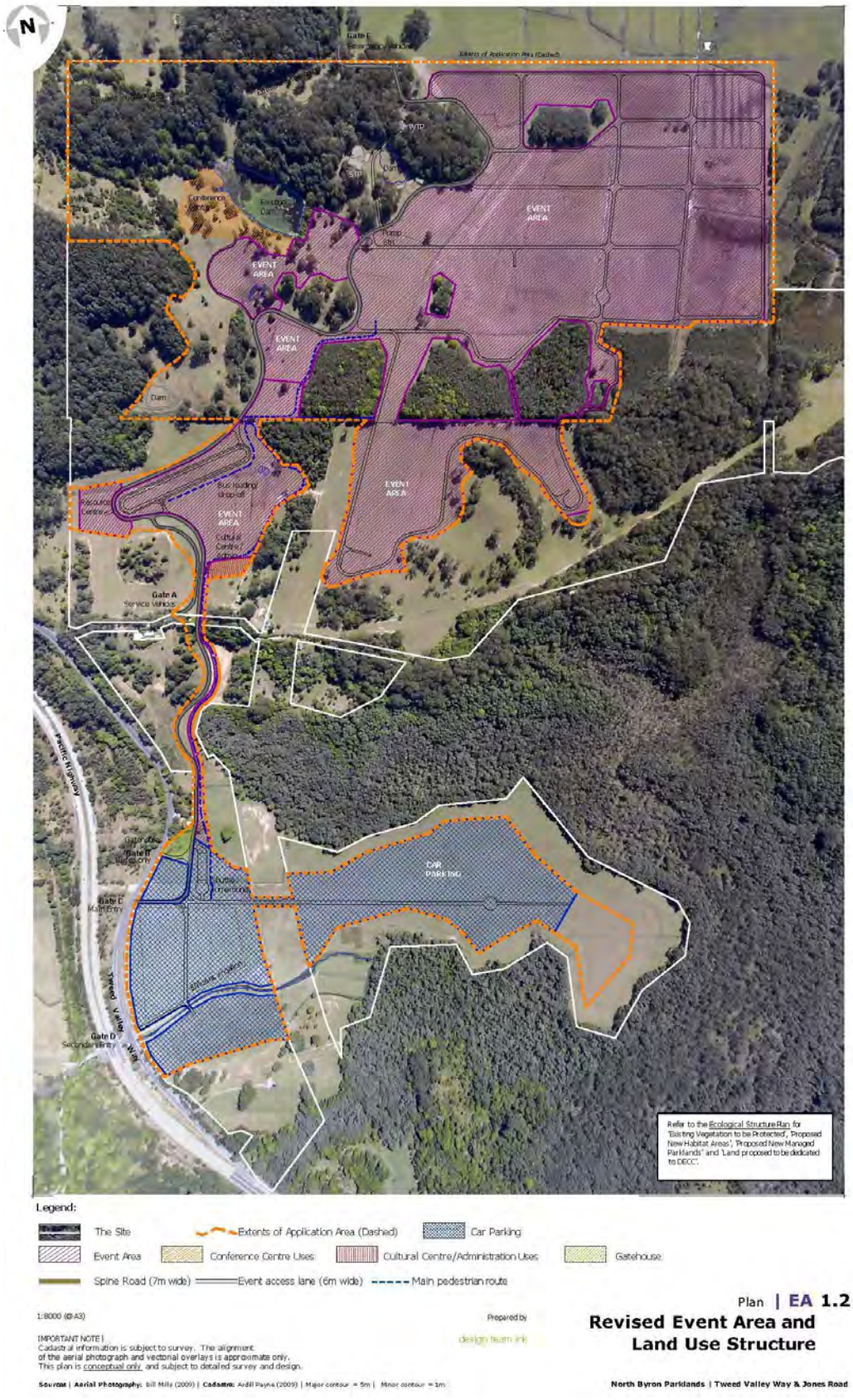
iv) construction of a wastewater treatment plant.

A3 Project in Accordance with Plans

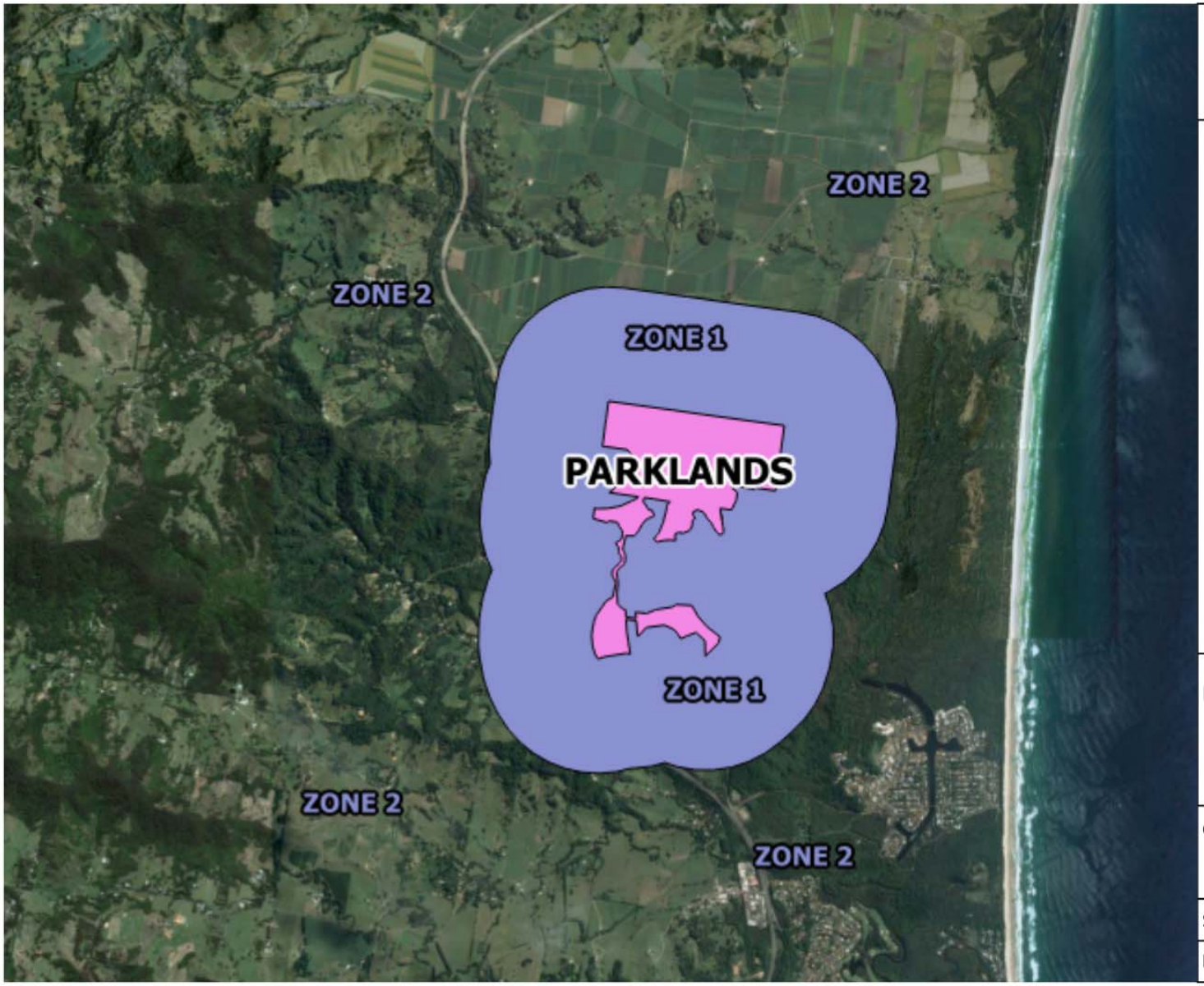
The project is to be undertaken generally in accordance with the following drawings:

Design Drawings prepared by Design Team Ink			
Drawing No.	**Revision**	**Name of Plan**	**Date**
1.1		Revised Illustrative Site Plan	14.12.10
1.2		~~Revised~~ Event Area and Land Use Structure	~~14.12.10~~ 13.10.14
1.3		Revised Ecological Structure Plan	14.12.10
Architectural Drawings prepared by Design Team Ink			
Drawing No.	**Revision**	**Name of Plan**	**Date**
1.1		Administration Building	28.04.10
1.1		Administration Building	27.04.10
1.1		Gate House	28.04.10
1.1		Gate House	27.04.10
Engineering Drawings prepared by Design Team Ink			
Drawing No.	**Revision**	**Name of Plan**	**Date**
1.1		Typical Design Roads and Laneways	25.02.10
1.2		Typical Design Bus Drop-off/Loading Area	25.02.10
1.4		Typical Design Signage	25.02.10
1.5		Typical Design Boardwalks	23.07.10
Landscape Drawings prepared by Design Team Ink			
Drawing No.	**Revision**	**Name of Plan**	**Date**
1.7		Administration/Cultural Centre Landscape Concept	09.06.10
1.7		Gatehouse Landscape Concept	09.06.10
Engineering Drawings Prepared by Ardill Payne & Partners			
Drawing No.	**Revision**	**Name of Plan**	**Date**
DA01	A	Road Hierarchy Plan and General Site Layout	May 2010

Drawing 1.2 Event Area Landuse Structure, 13.10.2014



DA02		Jones Road Plan and Long Section Ch0-180	May 2010
DA03	A	Jones Road Plan and Long Section Ch180-360	May 2010
DA04		Jones Road Cross Sections Ch0-340	May 2010
DA05		Jones Road Cross Sections Ch260-340	May 2010
DA06		Tweed Valley Way Intersections	May 2010
DA07	A	Spine Road 'Drop In' Plan and Long Section Ch. 0-180	May 2010
DA08		Spine Road 'Drop In' Plan and Long Section Ch. 180-303	May 2010
DA09	C	Spine Road Plan and Long Section Ch. 0-700	May 2010
DA10	A	Spine Road Plan and Long Section Ch. 700-1400	May 2010
DA11		Spine Road Plan and Long Section Ch. 1400-2100	May 2010
DA12		Spine Road Plan and Long Section Ch. 2100-2800	May 2010
DA13		Spine Road Plan and Long Section Ch. 2800-3060	May 2010
DA14	A	Bus Turnaround and Car Parking Area	May 2010
Tree Removal Plans Prepared by Ardill Payne & Partners			
Drawing No.	**Revision**	**Name of Plan**	**Date**
Plan 4.7.1		Plan 4.7.1 Tree Removal Plan	Aug 2010
Plan 4.7.2		Plan 4.7 Tree Removal Plan	Aug 2010
Plan 4.7.3		Plan 4.7.3 Tree Removal Plan	Aug 2010
Acoustic Management Plans Prepared by Air Noise Environment			
Drawing No.	**Revision**	**Name of Plan**	**Date**
PID: 4113		Proposed Noise Limit Zones	22/9/15



Air Noise Environment

Proposed noise limit zones

Client: North Byron Parklands

Scale: NTS	PID: 4113
Date: 22/09/15	By: CJB

A4 Project in Accordance with Documents

The project is to be undertaken generally in accordance with the following documents:

(a) *Environmental Assessment* prepared by SJ Connelly CPP Pty Ltd on behalf of Billinudgel Property Pty Ltd, dated August 2010;

(b) *Reply to Submissions and Preferred Project Report* prepared by SJ Connelly CPP Pty Ltd on behalf of Billinudgel Property Pty Ltd, dated February 2011;

(c) *Flood Risk Management Plan* prepared by Molino Stewart on behalf of North Byron Parklands (Billinudgel Property Pty Ltd), dated June 2011; and

(d) *Environmental Health and Safety Management Manual* prepared by North Byron Parklands, dated August 2010.

A5 Inconsistency between documents

In the event of any inconsistency between:

(a) The conditions of this approval and the Statement of Commitments included at Schedule 3, the conditions of this approval prevail;

(b) The conditions of this approval and the drawings/documents referred to in conditions A3 and A4, the conditions of this approval prevail; and

(c) Any drawing/document listed in conditions A3 and A4 and any other drawing/document listed in conditions A3 and A4, the most recent document shall prevail to the extent of the inconsistency.

Notwithstanding (a) to (c) above, if there is an inconsistency between this project approval and the concept plan approval (09_0028), the concept plan approval shall prevail to the extent of the inconsistency.

A6 Building Code of Australia

(a) All building work must be carried out in accordance with the requirements of the *Building Code of Australia* (BCA).

(b) The temporary structures for the event must comply with the requirements of Section B, Part B1, and Section H NSW H102 of the BCA and relevant referenced Australian Standards.

A7 Lapsing of Approval

The approval shall lapse 5 years after the project approval has been determined unless work the subject of this approval has physically commenced.

Other Approvals

A4 Approvals Under Section 68 of the Local Government Act 1993

The proponent is required to obtain all relevant approvals as required under Section 68 of the *Local Government Act 1993* from Council.

End of Part A

PART B – TRIAL OF OUTDOOR EVENTS– PARAMETERS

B1 Definitions

In this approval:

bump in means the period in which temporary infrastructure is assembled prior to the commencement of an event;

bump out means the period in which temporary infrastructure is dismantled at the conclusion of an event;

camper arrival day for a trial event, means ~~the day immediately~~ up to two days before the first event day, being a day on which camper patrons are permitted to arrive at the site;

camper departure day for a trial event, means the day immediately after the last event day, being a day on which camper patrons are permitted to depart from the site;

large trial event is an outdoor event the first trial event for which is proposed for between ~~15,000~~ 25,000 and ~~25,000~~ 35,000 patrons;

medium trial event is an outdoor event the first trial for which is proposed for between ~~10,000~~ 15,000 and ~~15,000~~ 25,000 patrons;

small trial event is an outdoor event the first trial for which is proposed for between 10,000 to 15,000 patrons.

small community trial event is a non-music focused event such as a trade show, fun run, food fair, school carnival, moonlight cinema and the like with up to 3,000 patrons.

B2 Trial period for outdoor events

1) There shall be a trial period for outdoor events up to the end of 2017. The ~~Director-General~~ Secretary may approve up to 3 trial events each calendar year of the trial period, being one large trial event, one medium trial event and one small trial event. The ~~Director-General~~ Secretary may also approve additional small or medium events in place of a larger trial event during any calendar year so long as the number of trial events for the year does not exceed three.

2) The maximum number of patrons that may be approved for each large, medium or small trial event depends on the number of trials that have been held for events in that class, as set out in the Table below.

Number of trial	Large trial event	Medium trial event	Small trial event
First trial	Up to 25,000 patrons	Up to 15,000 patrons	Up to 10,000 patrons
Second trial	Up to 27,500 patrons	Up to 17,500 patrons	Up to 12,000 patrons
Third trial	Up to 30,000 patrons	Up to 20,000 patrons	Up to 13,000 patrons
Fourth trial	Up to 32,500 patrons	Up to 22,500 patrons	Up to 14,000 patrons
Fifth trial	Up to 35,000 patrons	Up to 25,000 patrons	Up to 15,000 patrons

3) The ~~Director-General~~ Secretary may amend any approval that has been granted for a future trial event to minimise adverse impacts after considering -

   (a) the performance of previous trial events;

   (b) any monitoring data about the impact of those events; and

   (c) the management plans that will apply to the future event.

4) The ~~Director-General~~ Secretary may impose additional mitigation measures including (but not limited to) reducing the number of patrons permitted to attend the event, reducing the number of event days, imposing stricter noise limits or by amending plans of management for the event.

5) The Secretary may permit any number of small community trial events and may delegate to the proponent authority to carry out up to five such events each calendar year.

6) The Secretary may limit aspects of small community trial events following receipt of the annual performance report.

B3 Noise restrictions

a) Event noise shall be managed to not exceed the noise criteria set out in the Noise Management Plan (NMP) prepared under Condition C16 and the noise criteria set out in the proponent's Environmental Health and Safety Management Manual – Standard 008.

b) ~~After midnight, a level of 55dB(A) shall be achieved outside the bedroom windows of identified sensitive receivers.~~

~~c) Noise within the camping area between midnight and 8:00 am of each event day shall support peaceful rest for overnight patrons during events.~~

~~1) During trial events, all stages may operate from 11:00am but must be shut down at midnight.~~

~~2) Between 11:00am and midnight, noise levels at sensitive receivers must not exceed background +10dBA.~~

~~3) Music from bars, cafes and the dance floor must cease at 2:00am.~~

~~4) Between midnight and 2:00am, noise levels at sensitive receivers must not exceed background +55dBA when measured outside bedroom windows.~~

5) ~~The Regulatory Working Group may make a recommendation to the Director-General that the noise limits imposed under this condition should be increased or decreased for future events after considering the Noise Impact Report referred to in Condition C52..~~

6) ~~The Director-General may amend the noise limits imposed under this condition for future events after considering the advice of the Regulatory Working Group.~~

B4 Traffic management and car parking

1) A minimum Level of Service C is to be maintained at the Yelgun interchange and minimum level of service D is to be maintained[1] 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 70 m.

3) Queue lengths on the northbound off-ramp must not extend more than 210m from the Give Way yield line.

4) Car parking of vehicles south of Yelgun Creek can be utilised subject to the entry and exit being located along Tweed Valley Way. The car park shall only be used under event traffic control periods. No car parking is to occur on 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 a 100-year ARI flood event for the ~~Director General's~~ Secretary'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.

B5 Timing and duration of trial events

1) The total event days, not including small community trial events, each calendar year must not exceed ten days.

2) A trial event must not exceed four event days.

3) The bump in period must not exceed 21 days and the bump out period must not exceed ~~7~~ 14 days.

[1] Changed with Mod 1 – 3/12/2012

4) The ~~Director-General~~ Secretary must consult with the Department of Roads & Maritime Services and the Council before approving the dates for any trial event.

5) The site must not cater for more than one event at any time.

B6 Campers

1) The maximum number of campers permitted on the site at any time is 25,000 and is restricted to the periods during which an event is being held.

2) Campers may arrive at the site ~~the~~ up to two days before the first event day and must leave the site not later than the day immediately after the last event day.

3) The total camper arrival and departure days each calendar year must not exceed ~~6~~ 9 days.

B7 Performance Report

1) The proponent must prepare a Performance Report ~~at the conclusion of~~ each November ~~year in which trial events are held~~, or at such other times as directed by the Director-General.

2) The Report must address the performance of events during that year or during such other reporting period as the ~~Director-General~~ Secretary determines. In particular, it must address compliance with conditions of this approval and environmental criteria detailed in the management plans relating to noise, flora and fauna, traffic, any evacuation procedure carried out, community response, and any other matter the ~~Director-General~~ Secretary considers relevant. The Report must also include KPI parameters outlined in Standards 001–014 in the *Environmental Health and Safety Management Manual*, prepared by North Byron Parklands and dated August 2010.

3) For each reporting period, the Performance Report must address, but not be limited to the following:

   (a) an assessment of the project's performance and compliance with the terms of this approval, including any evacuation plans, monitoring and management plans and any other licences, permits or approvals, and an interpretation and discussion of these results;

   (b) a comparison of the environmental impacts and performance of the project against the environmental impacts and performance predicted in the EA and as modified by the conditions of this approval;

   (c) a list of all occasions in any preceding reporting period where environmental performance goals for the project have not been achieved, indicating the reason for failure to meet the goals and the action taken to prevent recurrence of that type of incident;

   (d) identification of trends in monitoring data over the life of the project to date;

   (e) a copy of the Complaints Register for the reporting period (exclusive of personal details), and details of how these complaints were addressed and resolved;

   (f) a list of variations obtained to approvals applicable to the project and to the site during the preceding reporting period;

   (g) environmental management targets and strategies for the following reporting period, taking into account identified trends in monitoring results; and

   (h) results of consultation with the Regulatory Working Group in relation to the matters listed above.

4) Each Performance Report must be submitted to the ~~Director-General~~ Secretary by the date specified by the Director-General.

5) Following its submission to the ~~Director-General~~ Secretary, a copy of the Performance Report shall be provided to the Council for its information and an electronic copy shall be placed on the proponent's website for public information or made available to the public on request.

6) The ~~Director-General~~ Secretary may specify conditions that must be complied with for the management of future events having regard to the performance reports of previous events held under this approval.

End of Part B

PART C – CONDITIONS THAT APPLY TO THE TRIAL

COMMUNITY CONSULTATION, REGULATORY WORKING GROUP AND ENVIRONMENTAL REPRESENTATIVE

C1 Documentation

Subject to confidentiality, the proponent must make all documents required under this approval publicly available on request.

C2 Regulatory Working Group – constitution and role

The proponent must establish a Regulatory Working Group (RWG) to oversee the environmental performance of events during the trial period. The RWG must:

(a) comprise at least one (1) representative of the proponent, Office of Environment and Heritage, Roads and Traffic Authority, NSW Police, State Emergency Services, Rural Fire Service and Council, where these parties agree to be part of the RWG, or as otherwise agreed to by the Director-General;

(b) comprise at least two (2) representatives of the local community nominated by the Council. Community representatives are appointed on a rotational basis with a representative not exceeding two (2) years;

(c) be chaired by a chairperson, whose appointment has been approved by the Director-General;

(d) meet at least once prior to the first trial event to review the proposed management in relation to:
- the Habitat Restoration Program;
- the Marshalls Ridge wildlife corridor,
- impacts on threatened species and endangered ecological communities;
- monitoring protocols for preconstruction ecological surveying;
- illegal camping;
- litter;
- provision of security services;
- noise;
- event traffic and car parking;
- flooding;
- bushfires; and,
- evacuation procedures.

(e) meet to review the proponent's performance with respect to environmental management and community relations for events held during a reporting period and where appropriate, make recommendations to the ~~Director General~~ Secretary on measures or strategies to improve performance for future trial events;

(f) undertake periodic inspections of the site; and,

(g) review community concerns or complaints with respect to environmental management and community relations.

Note: The RWG is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the proponent complies with this approval.

C3 Proponent to assist Regulatory Working Group

The proponent must, at its own expense:

(a) ensure at least one of its representatives attend the RWG meetings;

(b) provide the RWG with regular information on the environmental performance and management of the project;

(c) provide meeting facilities for the RWG (if necessary);

(d) arrange site inspections for the RWG (if necessary);

(e) take minutes of the RWG meetings;

(f) make these minutes publicly available;

(g) respond to any advice or recommendations the RWG may have in relation to the environmental management or community relations;

(h) provide a copy of the minutes of each RWG meeting, including a response to any recommendations from the RWG, to the ~~Director-General~~ Secretary at the times directed by the Director-General; and

(i) pay reasonable travel expenses for members to attend meetings.

C4 Complaints Procedure

The proponent must ensure that the following are available on the Proponent's website for community complaints:

(a) a 24-hour telephone number on which complaints about events may be registered;

(b) a postal address to which written complaints may be sent; and

(c) an email address to which electronic complaints may be transmitted.

The telephone number, postal address and email address must be maintained through the life of the trial and advertised in a newspaper circulating in the locality on at least one occasion prior to the commencement of each event.

C5 Complaints Register

The proponent must record details of all complaints received through the means listed under Condition C4 in an up-to-date Complaints Register. The Register must record, but not necessarily be limited to:

(a) the date and time of the complaint;

(b) the means by which the complaint was made (e.g. telephone, mail or email);

(c) any personal details of the complainant that were provided;

(d) the nature of the complaint;

(e) any action(s) taken in relation to the complaint, including any follow-up contact made;

(f) the date and time any action was taken in response to the complaint; and,

(g) if no action was taken in relation to the complaint, the reason(s) why no action was taken.

The register must be made available for inspection by the ~~Director-General~~ Secretary or Council upon request.

C6 Environmental Representative

The proponent must nominate a suitably qualified and experienced Environmental Representative(s) whose appointment is to receive prior approval of the Director-General.. The Proponent must employ the Environmental Representative(s) throughout the life of the project. The Environmental Representative must be:

(a) the primary contact point in relation to the environmental performance of the project;

(b) responsible for implementing all environmental-based Management Plans and Monitoring Programs required under this approval;

(c) responsible for considering and advising on matters specified in the conditions of this approval, and all other licences and approvals related to the environmental performance and impacts of the project;

(d) responsible for receiving and responding to complaints made in accordance with condition C4 of this approval; and

(e) given the authority and independence to require reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to recommend to the ~~Director-General~~ Secretary that relevant actions be ceased should an adverse impact on the environment be likely to occur.

The proponent must notify and seek the approval of the ~~Director-General~~ Secretary of any changes to that appointment that may occur.

CONDITIONS THAT APPLY PRIOR TO COMMENCEMENT OF OUTDOOR TRIAL EVENTS

C7 Management Plans and Monitoring Programs

(1) Management plans and monitoring programs required under this approval must be finalised and approved in accordance with this approval prior to the commencement of the trial events to which they relate. Management plans and monitoring programs referred to in Section C of this consent are not required for small community trial events. However, small community trial events are required to comply with:

- C4 – Complaints Procedure;
- C16 – Noise Management Criteria;
- C35 – Notification of Council;
- C45 – Access for emergency vehicles;
- C47 – Disabled Access;
- C48 – Dogs;
- C49 – Bushfire Management;
- C55 – Effluent Removal;
- C56 – Rubbish Removal;
- C57 – Removal of Temporary Structures.

With respect to small community trial events involving over 1,500 patrons with a fixed starting and finishing time, a minimum of 50% of patrons must arrive and depart the small community trial event by bus.

(2) Plans and programs referred to in this approval include:

- Event Management Plan;
- Transport Management Plan (*endorsed by Local Traffic Committee*);
- Traffic Control Plan (*endorsed by Local Traffic Committee and approved by Council*) ;
- Traffic Monitoring Program (*approved by ~~Director-General~~ the Secretary*);
- Noise Management Plan (*approved by ~~Director-General~~ the Secretary*);
- Acoustic Monitoring Program (*approved by ~~Director-General~~ the Secretary*
- Flora and Fauna Management Plan (*approved by ~~Director-General~~ the Secretary*
- Updated Koala Management Plan (*no further approval required*);
- Flora and Fauna Monitoring Program (*approved by ~~Director-General~~ the Secretary*;
- Bushfire Management Plan (*endorsed by RFS and RWG and approved by the ~~Director-General~~ Secretary*);
- Bushfire Emergency Evacuation Plan (*reviewed by RFS and RWG and approved by Local Emergency Management Committee);*
- Flood Risk Management and Mitigation Plan prepared by Molino Stewart (*no further approval required);* and
- Surface Water Management Plan.

(3) The proponent must implement and comply with the management plans and monitoring programs listed above.

(4) The *Environmental Health and Safety Management Manual* prepared by North Byron Parklands and dated August 2010 must be regularly updated to include the performance criteria and requirements that apply under this approval, including criteria and requirements imposed or varied following a review of performance reports by the Director-General.

(5) A plan or monitoring program may cover or be submitted in support of more than one event if it contains sufficient detail for each event.

C8 Event Management Plan

An Event Management Plan, where it is required for a trial event is to be prepared and submitted to the ~~Director-General~~ Secretary and Council at least 30 days prior to the event. The Event Management Plan is to be prepared in consultation with Council, the Office of Environment and Heritage, NSW Police, NSW Rural Fire Service, ~~NSW Fire Commissioner~~, and State Emergency Services. The Event Management Plan is to contain the following:

(a) an Event Structure Plan prepared in a similar format to the structure plans provided in the EA illustrating the internal layout of the site for the particular event, including the location of all temporary structures; performance stages; food stalls; sanitary facilities; temporary human exclusion fencing; places of public entertainment; camping areas; car parking areas (including the number of car parks provided for the event) and emergency assembly areas;

(b) a copy of the Bushfire and Flood Emergency Evacuation Management Plans approved under conditions C25 and C27 of this approval;

(c) disabled access and egress details and plans for access and egress to, within, around and out of the festival site and camping area;

(d) location of all emergency assembly areas throughout the site;

(e) lighting of the event and camping areas;

(f) location of all firefighting facilities throughout the site;

(g) location of any open fires that have received the prior approval of the Director-General, in consultation with the Rural Fire Service;

(h) the type, number and location of toilet facilities associated with the use of each temporary structure;

(i) details on a regular security guard surveillance service (day and night) for the site boundary with adjoining residential properties on Jones Road; and,

(j) a copy of all other approvals relied upon to carry out an event.

C9 Transport 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~~ Secretary 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 onsite, 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.

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) It must 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, bump 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 Level of Service D;

(c) Queue lengths on the link road between Tweed Valley Way and the Yelgun interchange must limited to a maximum of 70 m;

(d) The end of traffic queues on the interchange ramps must not be within 210 m of the start of the ramp;

(e) Onsite queuing is not to extend onto the Pacific Highway or the Tweed Valley Way; and

(f) There is to be no impact on through traffic travel times of the Pacific Highway.

C11 Notification of Other Authorities

A copy of the approved TMP and TCP, including an endorsed 'Responsible Organisations Contact Persons and Signatures', must be submitted to the RMS (Grafton) and the NSW Police (Byron Bay). Details of the contractor(s) and authorities who have been engaged to carry out the Traffic Control are to be provided to Council.

C12 Traffic Monitoring Program

A Traffic Monitoring Program is to be prepared by a suitably qualified traffic engineer, in consultation with the Council and the RMS to measure the impact of increased traffic generation on the amenity of the area. The Program for each event is to be submitted for the approval of the ~~Director-General~~ Secretary at least 60 days prior to the commencement of the event. The Program is to be prepared having regard to the proponent's *Environmental Health and Safety Management Manual* and is to include, but not necessarily be limited to:

(a) details of patron numbers for the event;

(b) data collection relating to vehicle arrival and departure times, occupancy rates and directions of travel for staff, campers and day patrons:

(c) patronage of bus services, including bus occupancy rates ,arrival and departure times and direction of bus travel

(d) queue monitoring, background travel counts on the Pacific Highway and Tweed Valley Way and vehicle volumes on the Yelgun interchange

(e) data on the impact of the event on the Yelgun rest area, in particular from unauthorised parking and unauthorised camping:

(f) locations (identified on a map) at which monitoring will be undertaken;

(g) monitoring of such other performance standards required by the Department in consultation with the RMS;

(h) procedures and protocols for the monitoring, including frequency;

(i) aerial photography of the site and surrounds at regular intervals before, during, and after the event; including peak traffic and parking periods must be undertaken (where possible); and,

(j) procedures for the reporting of monitoring results to enable an assessment of the traffic performance of the event.

C13 Car Parking Areas

(1) The car parking areas are to be prepared and marked out generally in accordance with the approved plans to allow marshals to efficiently direct patrons to parking spaces. Internal circulation aisles must provide adequate space for vehicles to manoeuvre into parking spaces and for vehicles to pass.

(2) Car parking spaces for people with disabilities must be provided at the rate of one (1) space for each 100 spaces or part thereof. Parking spaces are to be provided in accordance with AS1428. Signs and markings for the parking for people with disabilities are to be provided in accordance with AS1742.11.

C14 Bicycle Parking

The provision for bicycle parking on the site shall be publicised and appropriately signposted. Any sign posting on the public roads shall be included in the Traffic Control Plan.

C15 Speed Changes

A copy of the ~~RMS~~ Council's approval for any proposed temporary change of speed limits on surrounding roads must be submitted to ~~Council~~ the Secretary.

C16 Noise Management Plan

~~(1) A background noise survey to identify the criteria for each sensitive receiver must be conducted prior to each trial event.~~

(2) A Noise Management Plan (NMP) outlining measures to manage and minimise potential noise impacts of events is to be prepared by a suitably qualified acoustic consultant. The NMP is to be prepared in consultation with ~~Council and~~ the RWG, and submitted to the ~~Director-General~~ Secretary for approval at least 60 days prior to any event where amplified music is a feature. The NMP is to ~~be prepared having regard to the noise limits specified in condition *B3*, the proponent's *Noise Impact Assessment Report* prepared by Benbow Environmental for North Byron Parklands, dated 9 August 2010; the proponent's *Environmental Health and Safety Management Manual*; and, OEH's *Noise Guide for Local Government 2010* and is to~~ include, but not be limited to:

1. identification of all major sources of noise emitted during the carrying out of an event;
2. identification of nearby sensitive receivers;
3. ~~identification of~~ appropriate noise ~~limits/~~criteria for sensitive receivers (at the boundary of their property) as follows:

   For the Inner Zone, shown on the Air Noise Environment Plan PID 4113:

   a. Between 11am and midnight amplified entertainment noise from the event at sensitive receivers must not exceed 65dB(A) LAeq, 10-minutes or 75dB(lin) measured as Leq, 10-minutes in the 63 hertz 1/1 octave band; and
   b. Between midnight and 2am amplified entertainment noise from the event at sensitive receivers must not exceed 55dB(A) LAeq, 10-minutes or 70dB(lin) measured as Leq, 10-minutes in the 63 hertz 1/1 octave band.

   Outer Zone, shown on the Air Noise Environment Plan PID 4113:

   c. Between 11am and midnight amplified entertainment noise from the event at sensitive receivers must not exceed 60dB(A) LAeq, 10-minutes or 70dB(lin) measured as Leq, 10-minutes in the 63 hertz 1/1 octave band; and

d. Between midnight and 2am amplified entertainment noise from the event at sensitive receivers must not exceed 50dB(A) LAeq, 10-minutes or 65dB (lin) measured as Leq, 10-minutes in the 63 hertz 1/1 octave band.

e. On New Year's Eve the music noise levels provided in 3(a) and 3(c) apply between 11:00am and 2:00am.

4. identification of general and music noise limits within ~~camping areas~~ the site between midnight and 8:00am to support peaceful rest during events;
5. identification and implementation of best practice management techniques for the minimisation of noise from the site. For example, appropriate siting and orientation of performance stages and speakers, acoustic barriers, insulation/double glazing of sensitive receivers, etc;
6. procedures and limits for carrying out sound checks prior to and during events and rehearsals to ensure compliance with the relevant noise criteria, and measures to be undertaken if any non-compliance is detected;
7. requirements for sound engineers at each stage and their ability to enact noise mitigation measures;
8. community consultation requirements;
9. procedures for responding to any noise complaints received during an event. As much as is reasonable and feasible, the proponent must arrange for noise levels emanating from the site to be monitored at the location of any complaints as soon as possible after a complaint has been received; and,
10. measures to address and respond to the outcomes of a Performance Report required under Condition B7, including updating plans for subsequent events.

Note: A NMP may cover or be submitted in support of more than one event, subject to it providing sufficient detail of each event.

C17 Acoustic Monitoring Program

Prior to the commencement of any event where amplified noise is a feature, a qualified acoustic consultant must prepare and implement an Acoustic Monitoring Program (AMP) to monitor and assess the impact of noise generated by the event on the amenity of the area. The AMP must be prepared in consultation with the RWG and be consistent with the provisions and limits within the NMP required under Condition C16 ~~and the proponent's *Environmental Health and Safety Management Manual (Standard 008).*~~ The AMP shall include, but not be limited to:

(a) locations (identified on a map) at which monitoring will be undertaken. As a minimum monitoring locations must include the most sensitive noise receivers (residential, where no noise agreement is in place between the proponent and the receiver and the adjoining nature reserve) as identified in the ~~the proponent's *Noise Impact Assessment Report* prepared by Benbow Environmental for North Parklands, dated 9 August 2010~~ Noise Management Plan;

(b) procedures and protocols in accordance with OEH's *Noise Guide for Local Government 2010* and Australian Standard AS1055 *Acoustics - Description of measurement of environmental noise* (or any subsequent versions thereof);

(c) a program for periodic attended and unattended monitoring of noise at each of the set monitoring locations, including:

(1) Unattended monitoring must be undertaken at a minimum of eight monitoring locations (to be determined in consultation with the RWG) before, during and after each event;

(2) Attended monitoring must occur on at least one (1) occasion prior to the commencement (including during sound check) and during the operation of each event; and,

(d) procedures for the reporting of monitoring results to enable an assessment of the noise performance of the event.

The AMP must be submitted for the approval of the ~~Director-General~~ Secretary at least 60 days prior to the commencement of the event, or as otherwise agreed by the Director-General.

C18 Noise Mitigation

~~Upon receiving a written request from any of the sensitive receivers identified in the NMP or the AMP, or the landowner of a residence where subsequent noise monitoring shows that the noise generated by activities onsite is greater than the specified noise criteria the proponent shall implement additional noise mitigation measures at the residence in consultation and agreement with the landowner. Mitigation measures may be in the form of double glazing, secondary glazing of 'weak' areas, insulation and must be reasonable and feasible.~~

Upon receiving a written request from any sensitive receiver located in the Inner Zone as depicted in Plan ANE 1, where subsequent noise monitoring shows that the noise generated by activities onsite is:

a) greater than the specified inner zone noise criteria;

b) is sustained in duration for that event (i.e. a minimum of 3 x 10 minute samples on any given event day); and

c) that such inner zone noise criteria exceedances have occurred over at least two consecutive events.

~~If within three (3) months of receiving this request from the landowner, the proponent and landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.~~

The proponent shall implement additional noise mitigation measures at the residence in consultation and agreement with the landowner. Mitigation measures may be in the form of double glazing, secondary glazing of 'weak' areas, insulation and must be reasonable and feasible. If within three (3) months of receiving this request from the landowner, the proponent and landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

C19 Flora and Fauna Management Plan

A Flora and Fauna Management Plan is to be prepared by a suitably qualified ecologist(s), in order to manage the impacts to flora and fauna arising from the carrying out of events at the site. The Plan is to be prepared in consultation with the OEH, Council and the RWG having regard to the *Ecological Assessment and Response to Director-General's Environmental Assessment Requirements – prepared by Mark Fitzgerald, Ecological Consultant, June 2010* and *Environmental Health and Safety Management Manual*. The Plan is to include, but not be limited to the following:

(a) details of a monitoring and reporting framework required under Condition C20 to monitor any ecological impacts as a result of events being carried out at the site, particularly any impacts on fauna within the site and within the adjoining Billinudgel Nature Reserve;

(b) measures to ensure there are no significant impacts from the carrying out of events upon the functioning of the Marshall's Ridge wildlife corridor, threatened species, or endangered ecological communities within the site;

(c) measures to protect vegetation from human intrusion/ trampling;

(d) measures to protect adjoining *State Environmental Planning Policy No. 14 – Coastal Wetlands* and Billinudgel Nature Reserve;

(e) measures to minimise impacts of noise and lighting from events on surrounding bushland;

(f) contingency measures to be implemented in the event of significant impacts occurring; and

(g) measures to address and respond to the outcomes of a Performance Report required under Condition B7, including updating Plans for subsequent events.

The Plan must be submitted for the approval of the ~~Director-General~~ Secretary at least 60 days prior to the commencement of the first event, or as otherwise agreed by the ~~Director-General~~ Secretary.

C20 Flora and Fauna Monitoring Program

Prior to the commencement of the first event, a suitably qualified ecologist must prepare and implement a Flora and Fauna Monitoring Program to monitor and assess the impact of the project on flora and fauna within and adjacent the site. The Program must be prepared in consultation with the RWG. The Program shall include, but not necessarily be limited to:

(a) identification of predictions relating to changes that may occur to fauna within and adjacent the site as a result of the operation of the project;

(b) locations at which monitoring will be undertaken, including a map showing locations. As a minimum, monitoring locations must include areas near amplified sound and lit areas, Billinudgel Nature Reserve and Marshall's Ridge fauna corridor;

(c) identification of the key performance indicators to be monitored at each location that would determine whether the operation of the project is having a detrimental effect on the fauna;

(d) procedures and protocols for the sampling and analysis methodology to be undertaken for the monitoring, including sample design, statistical analyses and reporting. Procedures must be consistent with any relevant government publication and/ or Australian Standard; and

(e) a program for periodic monitoring of the parameters at each of the monitoring locations. As a minimum, monitoring must occur on at least one occasion prior to the commencement and after the conclusion of operation of each event.

The Monitoring Program must be submitted for the approval of the ~~Director-General~~ Secretary at least 60 days prior to the commencement of the first event, or as otherwise agreed by the Director-General.

C21 Updated Koala Plan of Management

The *Draft Vegetation Management and Biodiversity Plan* – submitted as Appendix M to the Ecological Assessment is to include an updated Koala Plan of Management (KPoM) if a resident population of koalas becomes established at the site within the meaning of SEPP 44. The KPoM is to include a contemporary assessment of any existing and/or potential areas of core koala habitat within the site, and results of further koala surveying efforts. The KPoM must also address the operation of ongoing events carried out at the site and the potential impacts that this will have on areas of core koala habitat and any existing koala populations.

C22 Human Exclusion Fencing

Temporary human exclusion fencing closely bordering (within 10 m of) designated forest blocks (Fitzgerald 2007a, 2007c) and other native vegetation must be provided. All temporary human exclusion fencing used in these locations must be 'fauna-friendly', incorporating a minimum 250 mm continuous gap at the base of the fence or 250mm square gaps at 10 m intervals along the base of the fence.

C23 Grassy Owl Searches

The proponent must ensure searches for any Grassy Owl (*Tyto capensis*) species on the event site where long grasses proposed to be slashed are present is ~~are~~ undertaken by a suitably qualified person(s) prior to any events being carried out. Search techniques are to include call-playback response methods in addition to physical site searches. Should any Grassy Owl species be found to be nesting on the site, an area of at least a 100 m radius is to be excluded from any mowing/slashing.

C24 Bushfire Management Plan

A Bushfire Management Plan must be prepared that includes the prevention, mitigation and management of the potential for peat fires, including the responsibilities of fire wardens and bonfire management procedures and controls. The plan is to be submitted to the Rural Fire Service (RFS) and RWG for consideration and endorsement. A copy of the endorsed Plan is to be submitted to the ~~Director-General~~ Secretary for final approval.

C25 Bushfire Emergency Evacuation Plan

~~In order to ensure appropriate bushfire safety management, a Bushfire Emergency Evacuation Plan for is to be prepared for review by the RFS and RWG, and approved by the Local Emergency Management Committee. The approved plan must be reviewed by the RFS and RWG prior to any event carried out at the~~

~~site. Such a review is to include event and site management, representatives of the Police, RFS and security provider.~~
In order to ensure appropriate bushfire safety management, a Bushfire Emergency Evacuation Plan for is to be prepared for approval by the Local Emergency Management Committee and reviewed by the Rural Fire Service (RFS) and Regulatory Working Group (RWG) prior to any small, medium or large event taking place.

C26 Location of Structures
All stages/facilities/camping areas shall be set back a minimum of 10 m from areas of unmanaged bushland with this area kept clear of obstructions at all times during events.

C27 Flood Evacuation Plan
Any event must be carried out in accordance with the responsibilities and management actions as outlined in the *Flood Risk Management Plan* prepared by Molino Stewart on behalf of North Byron Parklands (Billinudgel Property Pty Ltd), dated June 2011.

C28 Minimum Ground Level – Camping/Event Area
An area of no less ~~that~~ than 0.75 ha must be provided for campers with children, the elderly, and less mobile patrons. This area must be located above the 1 in 100-year ARI flood level with suitable grading (i.e. no greater than 1 in 20 fall (5%)) to meet the criteria for infants, small children and frail/older people, as described in Australian Rainfall and Runoff Feb 2011, for a 100-year ARI flood event. This area must also be in reasonable proximity to, and readily accessible via the Spine Road.

C29 Southern Car Park Access
In the event of a 'Red Alert - Refuge' flood evacuation procedure being carried out in accordance with the *Flood Risk Management Plan* prepared by Molino Stewart; appropriate measures to prevent patrons from accessing the southern car parking area via the Spine Road must be employed. Access is to be denied in the vicinity of the Jones Road underpass to ensure patrons are prevented from accessing vehicles.

C30 Emergency Assembly Area – Flood Evacuation
An emergency assembly area located on flood free land (i.e. above the Probable Maximum Flood level) is to be provided within the site as a designated emergency assembly area in the event of an onsite flood evacuation. The emergency assembly area must be sufficient in size to cater for all patrons proposed for any single event carried out at the site, and must be readily accessible via the Spine Road.

C31 Emergency Access Road
The proponent shall provide an all-weather two-way emergency access road from the northern property boundary to Wooyung Road. A copy of any required approvals must be submitted to the Certifying Authority prior to issue of the Occupation Certificate for the first event held at the site. Any works within a road reserve must be carried out to the satisfaction of Tweed Shire Council and the Department of Primary Industries.

C32 Installation of Flood Monitoring Equipment
The proponent is required to install flood monitoring equipment to monitor the site's flood behaviour. The flood monitoring equipment is to include the following:

(a) an automatic rainfall recording station;

(b) at least two (2) soil moisture sensors installed by a suitably qualified person; and,

(c) stream gauges installed at an appropriate offsite location and linked to the existing EnviroMon system to monitor stream height readings of Crabbes Creek and Yelgun Creek[2].

The data obtained from the flood monitoring equipment must be made available for collection remotely via telemetry, with data connections to the onsite administration office on the site and available for the ~~Director-General~~ Secretary and Council. A certificate from a suitably qualified engineer, with experience in flood matters, together with suitable documentation from the installer, certifying that the flood monitoring equipment has been

[2] Changed with Mod 2 – 29/1/2013

installed correctly and at appropriate locations, must be submitted to the ~~Director-General~~ Secretary and Council prior to the first event. In addition, the alert matrices contained within the *Flood Risk Management Plan* prepared by Molino Stewart on behalf of North Byron Parklands (Billinudgel Property Pty Ltd), dated June 2011 are to be updated to include the appropriate stream gauge readings to determine threshold actions. The stream gauge readings are to be developed in collaboration with the Bureau of Meteorology. A copy of the updated *Flood Risk Management Plan* is to be provided to the Director-General.

C33 Surface Water Management Plan

A Surface Water Management Plan is to be prepared outlining measures to control and manage surface water (including erosion and sedimentation) and stormwater infrastructure associated with the carrying out of events. The Plan must include, but not necessarily be limited to:

(a) Surface Water, Erosion and Sediment Management:

(1) measures to minimise the potential for erosion from the site during the carrying out of events and measures to maintain all erosion mitigating works at, or above design capacity; and,

(2) measures to rehabilitate erosion-affected areas and any areas the subject of excavation.

(b) Stormwater Management:

(1) a detailed plan showing the design of the stormwater management system, with an emphasis on water sensitive design practices;

(2) demonstration that the stormwater control infrastructure will conform with, or exceed all relevant requirements and guidelines within Council's adopted engineering standards, currently *The Northern Rivers Local Government Design & Construction Manuals (Version 3) and Standard Drawings (Version 1)*; and,

(3) description of any procedures for planting and maintaining vegetation along stormwater channels and detention systems to minimise the potential for erosion.

C34 Notification of Relevant Authorities

A copy of this project approval and approved plans must be provided to Byron Bay Police, Ambulance, Rural Fire Service and State Emergency Services and the conditions of approval specifically relating to noise, traffic and crowd control are to be highlighted.

C35 Community Notification

Prior to the commencement of any event, the proponent must notify the community via:

(a) a letterbox drop to all local residents and businesses directly affected by the traffic management arrangements advising the details of the event. An outline of the hours of the event, traffic management arrangements and the telephone contact details of the event coordinator are to be provided to these parties; and

(b) a notice published in at least two local newspaper outlining traffic management arrangements and how complaints can be made through the methods outlined in Condition C4.

C36 Notification of Council

At least 14 days prior to the 'bump in' period of an event, the event organiser must provide Council with the time and dates of the event (and of any proposed sound tests and rehearsals) and the name and contact details of the event organiser and/ or a general liaison person who may be contacted for the duration of the event being held.

CONDITIONS THAT APPLY TO TEMPORARY STRUCTURES

C37 Notice to be Given Prior to Commencement

The erection of temporary structures must not commence until:

(a) the proponent has appointed a PCA for the building works; and,

(b) the proponent has given at least two (2) days notice to Council and the PCA outlining intentions to commence the erection of temporary structures.

Note: the Principal Certifying Authority must, no later than two (2) days before the building works commence, notify the ~~Director General~~ Secretary and the Council of his or her appointment.

C38 Erection of Temporary Structures

(a) This approval includes approval under *State Environmental Planning Policy (Temporary Structures) 2007* for temporary structures as described in the *Temporary Structures Assessment* prepared by Mark Norris and Associates, dated 14 July 2010. All temporary structures (of any use and type) cannot be used by patrons until an Occupation Certificate has been issued for the event.

(b) Temporary structures are to be wholly within the part of the site designated as 'Event Area'. No approval is given for any temporary structures outside of this area.

(c) The proponent must ensure that all temporary structures are positioned on a level stable surface and sufficiently weighted to ensure stability at all times.

(d) The temporary structures are to be erected and supported in a secure manner for safety purposes. Should adverse weather conditions (such as strong winds) arise during an event, the proponent must mitigate potential safety concerns, for example, by removing the temporary structures from the public domain.

(e) All temporary structures that cannot be readily moved and/or dismantled are to be designed so that they will remain stable during a 100-year ARI flood event. This includes measures to resist flow velocities and buoyancy forces.

(f) All temporary structures requiring assembly/installation in the Event Area must provide original structural certification from a practising certified structural engineer to the Certifying Authority certifying that the structures can adequately support the proposed loads to comply with the Structural Provisions Part B1 including Performance Provisions BP1.1 and BP 1.2 of the *Building Code of Australia* and relevant Australian Standards.

(g) ~~The erection of~~ Major temporary structure~~s~~ erection works shall only be carried out during daylight hours and shall not exceed 21 days before the commencement of an event.

C39 Flora and Fauna Management

During construction of temporary structures, all trees not approved for removal within or immediately adjoining the construction footprint are to be suitably protected by way of tree guards, barriers or other measures to protect root systems, trunk and branches.

CONDITIONS THAT APPLY DURING OUTDOOR EVENTS

C40 Noise Management

(a) Event noise shall be managed to not exceed the noise criteria set out in ~~condition *B3*, and~~ the NMP prepared under Condition C16.

(b) Noise within the camping area between midnight and 8:00 am of each event day shall support peaceful rest for overnight patrons during events.

~~***C41 Positioning of Event Stages and Sound Equipment***~~

~~The layout of each event, including stages, sound equipment and the like, where reasonable and feasible, must be located in a manner that is capable of meeting the noise limits developed in the Noise Management Plan:~~

~~(a) Public address speakers, event stages and speakers shall generally be directed away from sensitive receivers;~~

~~(b) Where possible, amplified noise is to be directed away from forested areas;~~

~~(c) Where speakers are mounted on poles, they are generally to be inclined downwards at a minimum angle of approximately 45 degrees from the horizontal, unless otherwise approved in the NMP; and~~

~~(d) Event stages and speakers shall be positioned to take advantage of any potential noise attenuation to sensitive receivers provided by the natural topography of the site.~~

C42 Acoustic Monitoring

~~(1) The proponent shall engage the services of a suitably qualified acoustic consultant to conduct noise testing before, during and after each relevant event in accordance with the requirements of the Acoustic Monitoring Plan (Condition C17). Noise testing is to comply with Australian Standard AS1055 *Acoustics - Description of measurement of environmental noise* and the OEH's *Noise Guide for Local Government 2010*.~~

~~(2) The proponent shall provide an event stage manager onsite at all times (in direct contact with the acoustic consultant) in case the noise level is required to be reduced. The event stage manager if so required by an authorised officer, the manager onsite, the acoustic consultant or the NSW Police Force, must have the authority to order the reduction of noise level reduced, and shall comply with any such directions.~~

~~(3) The qualified acoustic consultant shall be present at all times during the attended monitoring regime set out in Condition C17.~~

~~(4) A detailed record of the meteorological conditions prevailing at the time of noise monitoring; shall be kept and included in the noise impact report required by Condition C52.~~

~~(5) At any time, when the noise level exceeds the set noise criteria during monitoring, the acoustic consultant is to implement adequate noise reduction strategies to reduce the noise level. The acoustic consultant is to conduct further noise testing at the subject site immediately after the proposed noise mitigation action occurs until the noise level is reduced to the requirement set in the NMP.~~

The proponent shall implement the approved Acoustic Management Plan.

C43 Security Personnel

Suitably qualified security personnel must be onsite at all times during an event and at bump in and bump out times. The proponent shall be responsible for ensuring effective crowd management is utilised at all times to prevent unsafe conditions for patrons, staff or the general public.

C44 Monitoring of Stormwater Management System

The stormwater drainage system shall be monitored in accordance with the approved Stormwater Monitoring Plan prior to each event to demonstrate that it satisfactorily complies with the intended design. Amendments to the system may be required to ensure compliance.

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.

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.

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 0.2 lux 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.

C48 Disabled Access

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

C49 Dogs

No dogs (with the exception of trained assistance dogs) are permitted on the site. Trained security guard dogs are allowed at all times, while under the control of an authorised person.

C50 Bushfire Management

(a) A 10,000 L dedicated water supply shall be provided for each stage and camping area for fire fighting purposes;

(b) Only open fires approved under this project approval may be carried out; and,

(c) No open fires are permitted on days whereby a Total Fire Ban (TOBAN) has been declared.

C51 Emergency Evacuation Plans

Emergency evacuation plans for flooding and bushfires must be available onsite under the control of the site/event manager and copies located at the Emergency Management Centre. ~~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~~.

CONDITIONS THAT APPLY AFTER AN OUTDOOR EVENT

Reporting

C52 Noise Impact Report

The results of the AMP carried out for an event are to be submitted to the Department at such times as the ~~Director-General~~ Secretary directs. This report must include details demonstrating compliance with the conditions of approval relating to noise/acoustic management, a summary of any complaints or requests received and actions taken, records of noise levels and data from acoustic monitoring, and any other information relevant to the consideration of the noise impact on residents. This report shall also be attached to the Performance Report required by Condition B7.

C53 Evidence of Attendee Numbers

Within 28 days of the conclusion of an event, evidence must be submitted to the ~~Director-General~~ Secretary to confirm that patron numbers within the event did not exceed the numbers specified within this approval.

C54 Water Use and Wastewater Volume Data

Water use and wastewater volume data must be collected for each event to assist with the planning of future events and the detailed design of the permanent water supply and wastewater treatment infrastructure. This data should be included in the Section 68 application to Council for the relevant infrastructure.

Removal of Structures and Waste

C55 Traffic Management Devices

All traffic management devices on public roads that have been established for an event are to be removed from the public roads within the time period specified within the TCP required under condition C10 of this approval.

C56 Effluent Removal

Within two (2) days of the conclusion of an event, all liquid waste must be measured and recorded prior to disposal by the transport contractor. Council must be supplied with a complete record of all loads delivered to Byron Shire Council's sewage treatment plants.

C57 Rubbish Removal

At the end of any 'bump out' period, all litter and solid waste is to have been removed from the road reserves of Jones Road and Tweed Valley Way where they adjoin the site.

C58 Removal of Temporary Structures

Within ~~seven~~ fourteen (~~7~~ 14) days of the conclusion of an event, all temporary structures, lighting towers, event facilities and temporary fencing are to be removed from the site.

End of Part C

PART D – GENERAL HEALTH AND SAFETY CONDITIONS FOR EVENTS

For all events carried out at the site, the following fire safety conditions apply, as relevant:

D1 Fire Safety Schedule

A copy of the attached fire safety schedule shall be placed in a conspicuous location onsite and remain onsite at all times.

Essential Fire or Other Safety Measures	Design Standard	Installation Standard	Maintenance Standard
Emergency Lighting	AS 2293.1 Emergency Evacuation Lighting to Buildings	AS 2293.1	AS 2293 Emergency Evacuation Lighting in Buildings - Inspection and Maintenance
Exit Signs	AS 2293.1 Emergency Evacuation Lighting	AS 2293	AS 2293.2 Emergency Evacuation Lighting in Buildings - Inspection & Maintenance
Portable Fire Extinguishers	AS 1841 2 Portable Fire Extinguishers - water type AS 1841.3 Portable Fire Extinguishers - wet chemical type AS 1841.4 Portable Fire Extinguishers - foam type AS 1841.5 Portable Fire Extinguishers - powder type AS 1841.6 Portable Fire Extinguishers - carbon dioxide type AS 1841.7 Portable Fire Extinguishers - vaporizing liquid type	AS 2444	AS 1851.1 - Maintenance of Fire Protection Equipment - Portable Fire Extinguishers
Fire Blankets	AS 3501 Fire Blankets	AS 3501	AS 3501
Fire fighting equipment		'Fire Fighting Facilities' prepared by Mark Norris & Associates and in accordance with this approval.	'Fire Fighting Facilities' prepared by Mark Norris & Associates and in accordance with this approval.
Emergency Evacuation plan		'Emergency Evacuation and Risk Management Plan' prepared by Mark Norris & Associates and in accordance with this approval.	'Emergency Evacuation and Risk Management Plan' prepared by Mark Norris & Associates and in accordance with this approval

D2 Essential Services

The following essential services must be provided in accordance with the requirements of the Regulation, as per the schedule:

- Portable fire extinguisher and fire blankets
- Emergency lighting
- Exit signs
- Emergency evacuation plan
- Fire fighting equipment
- Fire marshals (fire safety officers)
- Fabrics (Flammability Index)
- Access (Paths of Travel)

Once installed the essential services are to be the subject of a fire safety certificate. That certificate must be submitted to Council.

D3 Exits – Temporary Structures

(a) Exits must be so provided and arranged as to afford a ready means of egress from all parts of a temporary structure. (NSW H102.3 Location of exits).

(b) Exit signs must be provided above all exits and in such other locations as may be required by and the Certifying Authority and NSW E4.6 and must comply with E4.5 and E4.8. (NSW H102.16 Exit signs).

(c) Every part of an entrance or exit must provide a minimum unobstructed height or 2,000 mm. (NSW H102.5 Vertical clearances for exits).

D4 Electrical Services Certification

Electrical services connected to the local supply authority's mains, to a generating plant or to a battery supply must comply with:

(a) The requirements of the local supply authority; and

(b) AS 3002; and

(c) Where applicable, AS/NZS 3000; and

(d) NSW H101.l9.l (a) and

(e) NSW H101.19.3 (a) and

(f) NSW H102.l4 Electrical services and

(g) A Certificate from a licensed electrician is required indicating that all electrical services have been installed in accordance with AS 3000 and AS 3002

D5 Lighting

(a) Artificial lighting must be provided to all areas required by the Certifying Authority, and must comply with NSW H101.20.1, and NSW H101.20.2. (NSW H102.15 Artificial lighting).

(b) Emergency lighting must be provided to the areas provided with artificial lighting under NSW H102.15 and must include a sufficient number of lamps to give a minimum illumination of 0.2 lux at floor level. (NSW H12.15.1 Emergency lighting levels).

(c) Provide adequate lighting to toilet areas and emergency exits in accordance with the Building Code of Australia.

D6 Fire Fighting Services

Fire fighting services and appliances must be provided to afford adequate protection and must be located as the approving authority on the advice of the ~~Director-General~~ Secretary of New South Wales Fire Bridges, may require. Where required by the approving authority, the fire fighting services and appliances must comply with Part E1. (NSW H102.17 Fire-fighting services).

D7 Portable Fire Extinguishers

Portable fire extinguishers of an approved type having at least the protection effectiveness of a 4.5 kg carbon dioxide type extinguisher shall be provided to locations in accordance with the Certifying Authority's requirements, this approval and the approved plans as follows:

(a) At the rear, side and back stage area and mixing stands of all Stages

(b) Front of house mixing areas.

(c) VIP and administration tents.

(d) Mobile site offices.

(e) Relaxation and dining tents.

(f) Bar areas.

(g) Café and catering areas.

(h) Any other areas determined by Council onsite.

All such fire safety measures are to be maintained for the duration of the event.

D8 Certification of Blinds, Curtains and Tent Fabrics

Current certification from an accredited testing laboratory is to be provided to the Certifying Authority in order to certify the following:

(a) That all blinds and curtains for use in temporary structures comply with Specification C1.10 - Building Code of Australia (Part NSW H102.7).

(b) That the fabric used in the construction of the temporary structures will comply with the Flammability Index required under Part H of the Building Code of Australia (NSW H102.8).

Along with the Certification and test report required above, a table that identifies the fabric type, location on the event site, when the fabric was treated last and whether the fabric is tagged is to be submitted.

D9 Greywater

The proponent must ensure that adequate facilities are provided, and maintained, for the collection, storage and proper disposal of all greywater generated during the event. ~~It is not appropriate that wastewaters are discharged to the site during this event, as this is likely to cause environmental harm~~.

No greywater can be disposed onsite unless via a Council-approved greywater system.

D10 Sullage Water

The proponent must ensure that adequate facilities are provided, and maintained, for the collection, storage and proper disposal of all sullage wastewaters generated during an event. ~~It is not appropriate that wastewaters are discharged to the site during an event, as this is likely to cause public health risks and environmental harm.~~

Sullage water (from food preparation areas) can only be disposed of offsite at an approved sewage works for this type of waste water.

D11 Solid Waste

The proponent must provide adequate clean, vermin proof, bulk solid waste bins on the site as follows:

(a) Bulk waste storage bins must be located so as to support the requirement for clean and healthy conditions within all food premises, but not generate offensive odours nor provide a habitat for pests and vermin;

(b) The proponent must ensure that safe all weather access is provided for removal of bulk waste by large garbage compactor trucks on a daily basis;

(c) The proponent is to provide sufficient staff and receptacles around the venue, and external to the venue, to ensure that no unsightly or unhealthy conditions occur during (and immediately after) the proposed event; and,

(d) All liquid and solid wastes generated by food service premises must be adequately contained whilst on the site; and disposed of so as not to cause any nuisance or harm.

Potable Water and Sewage

For all events carried out at the site, the following potable water supply and sewage management conditions apply, as relevant:

D12 Potable Water Supply

The proponent shall provide a water management plan to Council that identifies:

(a) the location of all static potable water storage tanks;

(b) construction details for potable water storage tanks;

(c) the expected number of movements of water carters, frequency of water carter movements, times of water carter movements and estimated cost of operations;

(d) how water carter movements will occur without conflicting with other event activities;

(e) how water carters will sanitise and distribute water to the site and around the site in a manner that will not present a contamination risk; and,

(f) complies with the NSW Health Private Water Supply Guidelines (April 2007).

D13 Sewage and Trade Waste Disposal

The proponent is to provide a sewage and trade waste management plan to Council that identifies:

(a) the location of all static greywater and blackwater storage tanks

(b) the location of all portable facilities during construction, event and post-event periods, noting that a minimum 5 m buffer be provided to separate potentially conflicting uses such as wastewater management and sensitive ecological environments, food stalls and camping sites;

(c) the expected number of movements of mobile wastewater tankers, frequency of tanker movements, times of tanker movements and estimated cost of operations;

(d) how mobile wastewater tanker movements will occur without conflicting with other event activities; and,

(e) measures to be implemented to ensure that no effluent is lost from static storage and mobile wastewater tanks, and in the case of an environmental pollution event, the best practice methodologies to be implemented to clean up spills that maximise protection of the environment and human health.

D14 Sewage and Trade Waste Disposal Contractor

(1) The proponent must engage the services of an approved Liquid Waste Contractor with regard to sewage disposal from all site facilities. Details of the contractor are to be supplied to Water and Waste Division at least fourteen (14) days prior to the event. Liquid waste transport contractors must be EPA Licensed. The contractor must contact Council's Liquid Trade Waste Officer to ensure adequate arrangements are in place for the disposal of trade waste for the duration of the event.

(2) Please note that liquid trade waste from food stalls will not be accepted at any Byron Shire Council sewage treatment plant.

(3) A contingency plan is to be provided to Council's Water and Recycling Management Services should Council's sewage treatment plants not be able to receive sewage. Should the contingency plan include disposal at sewage treatment plants outside of the Byron Shire, written confirmation that waste can be accepted is required from the managing organisation.

D15 Portable Toilet Waste Management

The approved liquid waste contractor must advise Council of the proposed sanitary portable toilet chemical to be used within the site. The contractor must provide a Material Safety Data Sheet and details of the usage of the product.

D16 Temporary Toilet Facilities

(1) Adequate temporary toilet facilities must be provided and maintained for the patrons, operators, and staff for the duration of all proposed events.

(2) Temporary toilet facilities shall be located to ensure no offensive odour or spillage of contaminated wastewater is likely to cause nuisance or harm to public health or the environment.

End of Part D

PART E – CONDITIONS THAT APPLY TO PERMANENT INFRASTRUCTURE AND SITE ENHANCEMENT FOR STAGES 1 AND 2

CONDITIONS THAT APPLY PRIOR TO ISSUE OF CONSTRUCTION CERTIFICATE

E1 Approvals for Works within the Road Reserve

Consent from Council must be obtained for works within the road reserve pursuant to Section 138 of the *Roads Act 1993*. Three (3) copies of engineering construction plans must accompany the application for consent for works within the road reserve. Such plans are to be in accordance with Council's adopted engineering standards, currently *'The Northern Rivers Local Government Design & Construction Manuals (Version 3) and Standard Drawings (Version 1)'* and are to provide for the following works:

(a) Jones Road Underpass - The construction at no cost to Council of the Jones Road underpass in accordance with the plans approved under condition E2. Regard shall be given to any major surface or subsurface utility lines. The design must ensure that flood waters do not pass between the stormwater catchments separated by Jones Road during storm events up to and including the probable maximum flood.

(b) Jones Road Upgrade – A two-lane sealed road upgrade for the western 340m of Jones Road where it connects to Tweed Valley Way.

(c) Main Car Park Entry, Tweed Valley Way - Road, drainage and driveway construction on Tweed Valley Way for the main car park entry to provide an intersection generally in accordance with AUSTROADS standards. Such works to include all necessary widening, sealing of road and driveway, and line marking. Details for the provision of a physical separation for entering and exiting traffic must be included.

(d) Southern Car Park Entry, Tweed Valley Way - Road, drainage and driveway construction on Tweed Valley Way for the southern car park entry to provide an intersection generally in accordance with AUSTROADS standards. Such works to include all necessary widening, sealing of road and driveway, and line marking.

(e) Service Vehicle Entry, Jones Road - Driveway construction on Jones Road for the service vehicle exit shown at chainage 260 on plans prepared by Ardill Payne & Partners numbered DA03 Issue A. Details to be in accordance with Council's driveway standards. Re-alignment may be necessary to provide satisfactory sight distances.

E2 Detailed Design Drawings for Underpass

The proponent must submit detailed engineering drawings to Council for approval of the underpass facilitating vehicular and pedestrian movements under Jones Road. The design shall generally be in accordance with Council's adopted engineering standards for Structures/Bridge Design. Details must also be provided for:

(a) Replacement plantings proposed for road reserve, using suitable locally occurring ground cover and shrub species to provide dense cover for small and medium-sized terrestrial and arboreal vertebrates;

(b) Additional compensatory planting on the privately owned land adjacent to the tunnel;

(c) Maintenance to ensure success of the plantings;

(d) Fauna exclusion fencing for the edges of the cover section; and

(e) Details of any temporary road required for the construction of the underpass must also be shown on the construction plans.

Note: The creation of any temporary road within private lands must obtain all necessary approvals in accordance with the *Roads Act 1993.*

E3 Construction of the Spine Road and Associated Culverts

Prior to the issue of a construction certificate for Stage 1, detailed engineering drawings are to be provided to the Certifying Authority showing the Spine Road constructed above the 1 in 100-year ARI flood level; and concrete culverts to be installed under the sealed road and pathway connecting the southern and northern sections of the site (via the Jones Road underpass). The culverts must comprise a minimum two 1.0 m x 1.5 m box culverts south of Jones Road and a minimum one 1.0m x 1.5m box culvert north of Jones Road. Details must also be provided of the 'fauna friendly' human exclusion fencing in the vicinity of the box culverts (incorporating a minimum 250 mm continuous gap at the base of the fence or 250 mm square gaps at 10 m intervals along the base of the fence) to allow the culverts to function as fauna underpasses.

E4 Construction the East-West Laneway – Southern Car Park

Prior to the issue of a construction certificate for Stage 1, detailed engineering drawings are to be provided to the Certifying Authority showing an east-west laneway within the southern car parking area, constructed above the 1 in 100-year ARI flood level to provide egress opportunities. Feeder laneways are to be connected to the east-west laneway to provide a continually rising egress route.

E5 Detailed Design Drawings for Drains

Details of the proposed new drain to be constructed 5 m north of the northern edge of forest block "C" must be provided to the Certifying Authority to demonstrate that the drain will not result in draw-down of the water table in the adjoining forest block 'C' nor impact on sensitive biota prior to the issue of a construction certificate for Stage 1.

Stormwater Drainage

E6 Stormwater Drainage Works

Prior to issue of the first construction certificate for each stage of the project, the proponent must submit to Council, plans and specification for stormwater drainage works (new diversion drains, new open drains and filling of existing drains). The plans must be in accordance with Council's adopted engineering standards, currently *The Northern Rivers Local Government Design & Construction Manuals (Version 3) and Standard Drawings (Version 1)*.

E7 Stormwater Monitoring Plan

Prior to issue of the first construction certificate for each stage of the project, the proponent is to submit a Stormwater Monitoring Plan with the s68 Stormwater Application for Council's approval in order to demonstrate that the stormwater management system satisfactorily complies with the intended design.

E8 Stormwater Management

(1) Permanent stormwater quality treatment shall comply with the relevant requirements of *The Northern Rivers Local Government Design & Construction Manuals (Version 3) and Standard Drawings (Version 1)*.

(2) The stormwater and site works shall incorporate water sensitive urban design principles and where practical, integrated water cycle management.

Construction Management

E9 Construction Environmental Management Plan

Prior to the commencement of construction works for permanent infrastructure as described under condition A2A2 of this approval, a Construction Environmental Management Plan (CEMP) shall be prepared and implemented that covers these works. The CEMP shall be consistent with the *Guideline for the Preparation of Environmental Management Plans* (DIPNR, 2004). The CEMP shall include details sufficient to understand and avoid, mitigate and remedy all potential environmental impacts of the works during construction. The CEMP shall include, but not be limited to:

(a) a description of all relevant activities to be undertaken on the site during construction (including an indicative timeline);

(b) a description of relevant environmental management objectives for the site;

(c) statutory and other obligations that the Proponent is required to fulfil during construction including all relevant approvals, licences and consultations;

(d) a description of the roles and responsibilities for all relevant employees involved in construction;

(e) hours of work;

(f) The CEMP shall also be compiled from the documents and plans listed in conditions A4 and A5 (as relevant for construction);

(g) A 24-hour contact telephone number shall be provided to all adjoining owners and occupants;

Note: the nominated telephone number may contain provision for a voice message service outside of normal working hours.

(h) A subset of the following management plans:

(1) erosion and sediment control;

(2) traffic and pedestrian management;

(3) noise management;

(4) construction waste management (including the proposed method and location of excess spoil from bulk earthworks);

(5) dust management;

(6) groundwater and acid sulphate soil management;

(7) Aboriginal cultural heritage management; and

(8) flora and fauna management during construction.

Note: other conditions in this approval may specify relevant objectives or requirements for or in addition to any of the matters listed directly above.

The CEMP shall be submitted for the approval of the Certifying Authority no later than one month prior to the commencement of construction, or within such period as otherwise agreed by the Certifying Authority. Notwithstanding, where construction work is to be undertaken in stages, the proponent may, subject to the agreement of the Certifying Authority, stage the submission of the CEMP consistent with the staging of activities relating to that work. The proponent shall also forward copy of the CEMP to the ~~Director-General~~ Secretary and Council for information within a week of its approval. Construction shall not commence until written approval has been received from the Certifying Authority.

E10 Erosion and Sediment Control Plan

The Erosion and Sediment Control Plan required to be submitted as part of the CEMP (condition E9) is to be prepared by a practising Chartered Civil Engineer (CPEng) (or is eligible to be) and member of Engineers Australia and have appropriate experience and competence in the related field. The plan is to be designed in accordance with the requirements of Landcom's publication, *Managing Urban Stormwater: Soils and Construction*, 2004 or its latest edition and take into consideration Council's DCP 2002 Part N and Council's adopted engineering standards, currently *The Northern Rivers Local Government Design & Construction Manuals (Version 3) and Standard Drawings (Version 1).*

E11 Construction Traffic and Pedestrian Management Plan

The Construction Traffic and Pedestrian Management Plan required to be submitted as part of the CEMP is to be prepared by an RMS accredited person(s) and in accordance with AS1742 and RMS's publication *Traffic Control at Works Sites* Version 2. The Plan shall address, but not be limited to, the following matters:

(a) ingress and egress of vehicles to the site and details of how construction of project infrastructure will be managed in proximity to local and regional roads;

(b) loading and unloading, including construction zones;

(c) predicted traffic volumes and measures to ensure traffic volume, acoustic and amenity impacts along construction vehicle routes are minimised;

(d) types and routes including traffic routes for heavy vehicles, and any necessary route or timing restrictions for oversized loads;

(e) pedestrian and traffic management methods (including site security);

(f) washing facilities for trucks on the site (including a vehicle shakedown area);

(g) hours of access to the site;

(h) evidence that all statutory responsibilities with regard to road traffic impacts have been complied with; and

(i) procedures to notify nearby residents of works being carried out.

E12 Construction Noise Management Plan

A Construction Noise Management Plan to detail measures to minimise noise emissions associated with the construction of the project shall be submitted for approval as part of the CEMP (condition E9). This plan shall be prepared in accordance with the *Interim Construction Noise Guidelines* (Department of Environment Climate Change and Water, July 2009) and shall include, but not necessarily be limited to:

(a) identification of all major sources of noise that may be emitted as a result of the construction of the project;

(b) identification of nearby residents and other sensitive land uses;

(c) specification of appropriate construction noise criteria as it applies to a particular activity;

(d) identification and implementation of best practice management techniques for minimisation of noise and vibration emissions;

(e) procedures for the monitoring of noise emissions; and

(f) a description of the procedures to be undertaken if any non-compliance is detected.

E13 Acid Sulphate Soil Management Plan

(1) In order to ensure the protection of groundwater quality and the water quality of Crabbes and Mooball Creeks, an updated Acid Sulphate Soil Management Plan for the site shall be prepared. The updated plan shall include all areas onsite subject to earthworks where Acid Sulphate Soils or Potential Acid Sulphate Soils are likely to be intercepted;

(2) The plan must be carried out generally in accordance with the NSW State Government's *Acid Sulphate Soils Manual* (ASSMAC 1998) by a suitably qualified person;

(3) The plan shall be submitted to the satisfaction of the Certifying Authority prior to the issue of the relevant Construction Certificate.

E14 Groundwater Management and Monitoring Plan

Where interception or use of groundwater is likely, the proponent is to submit as part of the CEMP (condition E9) a detailed Groundwater Management and Monitoring Plan, supported by baseline groundwater monitoring and prepared in consultation with the NSW Office of Water.

E15 Aboriginal Cultural Heritage

The proponent shall ensure that management of Aboriginal Cultural Heritage is undertaken in a manner consistent with the recommendations of the *Aboriginal and European Heritage Assessment* prepared by Jacqueline Collins (Consultant Archaeologist), dated September 2010. The proponent shall ensure that the recommendations of this assessment are incorporated into the CEMP required under condition E9.

E16 Bond to Byron Shire Council

A bond of $20,000 is to be paid to Council as guarantee against damage to surrounding public land and infrastructure during construction works. Evidence is to be provided to Council indicating the pre-development condition of the surrounding public land and infrastructure. Such evidence must include photographs. The

proponent will be held responsible for the repair of any damage to roads, kerb and gutters, footpaths, driveway crossovers or other assets.

The bond will be held until Council is satisfied that the infrastructure is maintained/repaired to pre-development conditions and that no further work is to be carried out that may result in damage to public infrastructure.

Flora and Fauna Management

E17 Ecological Restoration

(1) The *Draft Vegetation Management and Biodiversity Plan* – submitted as Appendix M to the Ecological Assessment shall be finalised having regard to the variation contained in the Statement of Commitments and the conditions in this approval. The final plan must be submitted to the ~~Director General~~ Secretary for approval. The recommendations in the Plan must be implemented to the satisfaction of the ~~Director General~~ Secretary.

(2) The proponent is to consult with the Regulatory Working Group as required under condition C2 in the preparation of and implementation of habitat restoration works.

E18 Permanent Human Exclusion Fencing

Details of all permanent human exclusion fencing closely bordering (within 10 m of[3]) designated forest blocks and other native vegetation must be provided to the Certifying Authority. Human exclusion fencing in these locations must be 'fauna-friendly', incorporating a minimum 250 mm continuous gap at the base of the fence or 250 mm square gaps at 10 m intervals along the base of the fence.

Flood Management

E19 Habitable Floor Levels

Floor levels of all permanent habitable structures must be constructed a minimum of 500 mm above the 100-year ARI flood level.

CONDITIONS THAT APPLY PRIOR TO COMMENCEMENT OF WORKS

Notification Requirements

E20 Notice to be Given Prior to Commencement / Excavation

(1) The Principal Certifying Authority and Council shall be given at least two days' notice prior to the commencement of excavation, shoring or underpinning works for each stage of the project.

(2) Adjoining and affected residents shall be provided with a minimum 72 hours' notice prior to the commencement of works.

E21 Contact Telephone Number

Prior to the commencement of the works for each stage of the project, the proponent shall forward to the Department and Council a 24-hour telephone number to be operated for the duration of the construction works.

Structural Works

E22 Structural Details

Prior to the commencement of construction of each stage of the project, the proponent shall submit to the satisfaction of the Certifying Authority structural drawings of all permanent infrastructure, prepared and signed by a suitably qualified practising Structural Engineer outlining compliance with:

(a) the relevant clauses of the BCA;

(b) the relevant project approval;

[3] Amended with Mod 1 – 3/12/2012

(c) drawings and specifications comprising the Construction Certificate; and

(d) the relevant Australian Standards listed in the BCA (Specification AI.3).

Environmental Controls

E23 Erosion and Sediment Control
Prior to commencement of work on the site for each stage of the project, all erosion and sediment control measures are to be installed and operational including the provision of a 'shake down' area where required, to the satisfaction of the Certifying Authority.

E24 Flora and Fauna Management
All trees within or immediately adjoining the construction footprint of the site not approved for removal are to be suitably protected by tree guards, barriers or other measures as necessary to protect the root system, trunk and branches during construction of temporary structures.

Services

E25 Existing Services
The proponent shall accurately locate and identify any existing sewer main, stormwater line or other underground infrastructure within or adjacent to the site and the Certifying Authority advised of its location and depth prior to commencing works. The proponent shall ensure there is no conflict between the proposed development and existing infrastructure prior to start of any works.

Heritage

E26 Aboriginal Cultural Heritage Induction Training
All personnel involved in initial ground surface disturbance activities shall undergo a Cultural Heritage induction training session before commencing any construction activities. The induction should be presented by an appropriately qualified person and provide specific information in relation to the processes to be followed should any Indigenous items be uncovered as well as the types of and identification criteria for cultural heritage material that may be uncovered. Notwithstanding the above, the induction shall be undertaken in accordance with the terms and requirements of the *Aboriginal and European Heritage Assessment* prepared by Jacqueline Collins (Consultant Archaeologist), dated September 2010.

CONDITIONS THAT APPLY DURING CONSTRUCTION AND SITE ENHANCEMENT WORKS

Construction Management

E27 Approved Plans Onsite
A copy of the approved and certified plans, specifications and documents incorporating conditions of approval and certification shall be kept onsite at all times and shall be readily available for any officer of the Department, Council or PCA.

E28 Site Notice
A site notice(s) shall be prominently displayed at the boundaries of the site for the purposes of informing the public of project details including, but not limited to:

(a) details of the Builder, PCA and Structural Engineer for all stages of the project;

(b) the approved hours of work;

(c) the name of the site/project manager, the responsible managing company (if any), its address and 24-hour contact phone number for any enquiries, including construction/noise complaint are to be displayed on the site notice; and

(d) a statement that unauthorised entry to the site is not permitted.

Site Maintenance

E29 Erosion and Sediment Control
All erosion and sediment control measures, as designed in accordance with the approved plans are to be effectively implemented and maintained at or above design capacity for the duration of any construction works associated with the project and until such time as all ground disturbed by the works has been stabilised and rehabilitated so that it no longer acts as a source of sediment.

E30 Dust Control Measures
All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from leaving the site, including traffic-generated dust. Should such visible dust emissions occur, the proponent shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease. Adequate measures shall be taken to prevent dust from reducing the air quality and affecting the amenity of the neighbourhood during construction activities.

Noise

E31 Construction Noise Objective
The construction noise objective(s) is as described in the Construction Noise Management Plan required under condition E12 of this approval. Construction activities associated with the project, including the arrival and departure of vehicles delivering or removing materials from the site shall only be carried out during daylight hours, and in accordance with the noise contribution limits specified under condition E12.

E32 Hours of Work
The hours of construction for all stages of the project, including the delivery of materials to and from the site, shall be restricted as follows:

(a) between 7:00am and 5:00pm, Mondays to Fridays inclusive;

(b) between 8:00am and 1:00pm, Saturdays;

(c) no work on Sundays and public holidays.

Works may be undertaken outside these hours where:

(a) the delivery of materials is required outside these hours by the Police or other authorities;

(b) it is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm;

(c) the work is approved through the Construction Noise Management Plan; and

(d) residents likely to be affected by the works are notified of the timing and duration of these works at least 48 hours prior to the commencement of the works.

E33 Construction Vibration Management
For all stages of the project, the proponent shall:

(a) schedule rock breaking, rock hammering, sheet piling, pile driving and any similar activity only between the following hours unless otherwise approved in the Construction Environmental Management Plan (CEMP):

  (1) 9.00am to 12.00pm, Monday to Friday;

  (2) 2.00pm to 5.00pm Monday to Friday; and

  (3) 9.00am to 12.00pm, Saturday

(b) ensure that wherever practical, and where sensitive receivers may be affected, piling activities are completed using bored piles. If driven piles are required they must only be installed where approved in the CEMP.

E34 Vibration Criteria
For all stages of the project, vibration resulting from construction of the project must not exceed the evaluation criteria presented in the *Environmental Noise Management – Assessing Vibration: A Technical Guide (OEH, 2006).*

Wastewater Management

E35 Wastewater Treatment Ponds
All wastewater treatment ponds (including effluent holding ponds and effluent polishing wetlands) must be constructed above the water table or must be appropriately lined with an impermeable lining to prevent groundwater inception and potential contamination.

Heritage

E36 Impact of Below Ground (Sub-surface) Works – Non-Aboriginal Objects
If any archaeological relics are uncovered during the course of the work in any stage of the project, all works shall cease immediately in that area and the OEH contacted. Works must not resume at the location without the prior written consent of that Office.

E37 Impact of Below Ground (Sub-surface) Works – Aboriginal Objects
If during the course of future works of any stage of the project, any evidence of any unexpected Aboriginal archaeological site or relic is found, all work likely to affect that site or relic must cease immediately. Temporary fencing must be erected around the site or relic and the material must be identified by an independent an appropriately qualified archaeological OEH must be informed who will advise on the most appropriate course of action to follow. Works must not resume at the location without the prior written consent of OEH.

CONDITIONS THAT APPLY PRIOR TO COMPLETION OF WORKS

E38 Part 4A Certificates
Upon completion of works approved under this approval, a Part 4A Compliance Certificate or Certificates shall be obtained under Section 109D(1)(a) of the Act for the following:

(a) Bulk Earthworks

1) Compliance Certificate

(b) Bulk Earthworks

2) Civil Works
3) Compliance Certificate – Road-forming works
4) Compliance Certificate – Drainage
5) Compliance Certificate – Stormwater
6) Compliance Certificate – Trunk Infrastructure/Services (electricity, gas, water, telecommunications and sewer) where applicable.

E39 Works as Executed
Detailed Works as Executed Plans must be provided to the Certifying Authority, identifying all works within and adjacent to any public road reserves.

E40 Damage to Council or Public Authority Assets
(1) Any damage caused to public during construction of the project shall be repaired in accordance with Council's (or other relevant authority) requirements. The proponent shall ensure that these repairs are undertaken in a timely manner as specified by Council (or other relevant authority).

(2) The cost of repairing any damage caused to Council or other relevant authority's assets in the vicinity of the site as a result of construction works associated with the approved project is to be met in full by the proponent.

E41 Bushfire Management
All permanent structures shall comply with the BCA and AS3959 – Construction of Buildings in Bushfire-Prone Areas.

E42 Certificates for Engineering Works
The proponent is to provide the Certifying Authority with all test certificates for civil works, together with a certificate from a suitably qualified Engineer certifying that all permanent infrastructure has been constructed in accordance with the approved plans and Council's adopted engineering standards. Structural certification must also be submitted for the Jones Road underpass and associated structural elements.

E43 Geotechnical Report
A certificate from a professional Engineer experienced in soil mechanics is to be provided to the Certifying Authority, certifying that:

(a) the civil engineering works, including Jones Road underpass, all internal roads and other relevant structures are structurally adequate;

(b) the civil engineering works will not be affected by landslip or subsidence either above or below the works; and,

(c) adequate drainage has been provided.

E44 Ecological Restoration
The compensatory ecological restoration works south of Jones Road between the proposed underpass and the Tweed Valley Way/Pacific Highway must be undertaken as prescribed in Fitzgerald (2007c) except that planting of ground cover and understorey plant species should be included in the Zone 2 of Area 1 (Underpass Area) in the first year to facilitate early provision of cover habitat for small terrestrial fauna species and should include transplanted clumps of native groundcovers (ferns, herbs) removed prior to the underpass construction. Lowland subtropical rainforest plant species and moist sclerophyll plant species (*Eucalyptus pilularis, Eucalyptus microcorys, Eucalyptus siderophloia, Eucalyptus tereticornis*) are to be planted in areas above 10 m AHD rather than floodplain community plant species (Fitzgerald 2007c).

End of Part E

SCHEDULE 3

09_0028

NORTH BYRON PARKLANDS CULTURAL EVENTS SITE

TWEED VALLEY WAY AND JONES ROAD, YELGUN

Statement of Commitments

(SOURCE: PREFERRED PROJECT REPORT)

A. Overall Commitments

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
A1	Implementing the proposal	Parklands will: • Carry out the Project in accordance with this the exhibited EA as amended by the Preferred Project report, including all supporting documentation and reports; and • Adopt and implement the Parklands Environmental, Health and Safety Management Manual (Management Manual), being the primary mechanism for monitoring and measuring the environmental, health and safety performance of minor, small, moderate and major events held at Parklands.	Parklands - in the stages nominated within the EA. Parklands – establish and commence prior to works and event usage commencing; and then ongoing implementation.
~~A2~~	~~Capped Event Usage~~	~~Event usage capped at the following annual limits:~~ ~~– Years 1 – 5 (Commencing with the first event)~~ ~~• No more than a total of 10 event days per annum.~~ ~~• 3 major events with a maximum starting capacity of 60% (30,000), 50% (25,000) and 40% (20,000).~~ ~~• No more than 15% capacity increase per event annually subject to satisfying key performance indictors in the Management Manual.~~ ~~• No minor, small or moderate events.~~ ~~Years 6 onwards - maximum event usage as follows:~~ ~~• Major Events – no more than 12 event days per annum;~~ ~~• Moderate Events (3001 patrons to 10,000 patrons) – no more than 4 event days per annum;~~	~~Parklands – in years 1 to 5.~~ ~~Parklands – in years 6 onwards.~~

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		~~• Small Events (300 patrons to 3000 patrons) – no more than 4 event days per annum; and~~ ~~• Minor Events (less than 300 persons) – no daily limits.~~	
~~A3~~	~~Major Event capacity requirements~~	~~The largest Major event will operate at a maximum 60% of capacity until Parklands has demonstrated compliance with the Management Manual per event annually to the upper limit for that event category. Any increases in event capacity shall be limited to a 15% increase per event annually to the upper limit for that event category.~~	~~Parklands – in accordance with commitment timing.~~
A4	Monitoring and reporting of events usage	~~On the anniversary of the first major event (and every year thereafter)~~ Each November - Parklands will provide ~~the following two reports~~ a Performance Review Report to the Department of Planning. ~~1. A Management Manual Assessment Report that provides documentary evidence of event activities, compliance with the Management Manual (including EH&S Policies and Procedures and applicable EH&S Standards), findings from audit reports, non-conformances and corrective actions.~~ ~~2. A Management Manual Modification Report that documents any material changes to the management system, the reasoning behind such changes and a summary of expected improvements as a result of such changes.~~	Parklands – annually commencing on the anniversary of the first major event.
A5	Undertake an ongoing stakeholder consultation program	Parklands will implement an ongoing consultation program with key stakeholders (as detailed in *NBP Standard 007*) including: ~~• Establishing a Community Liaison Committee;~~ • Establishing a Regulatory Working Group comprising key government agencies; • Advising local residents prior to ~~Moderate~~ large and ~~Major~~ medium Events of important information, dates and times; • Operating a telephone and web-based hotline for any community member to communicate any immediate concerns during ~~major~~ large events; and	~~Parklands – prior to the first event.~~ Parklands – prior to the first event. Parklands – prior to the first Moderate or Major event. Parklands – during the first major event and all major events following.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		• Operating an offsite response team for ~~Major~~ large Events to address and manage any issues.	Parklands – during the first major event and all major events following.
A6	Community Grants Fund	Parklands will establish a Community Grants Fund (funded by a 'community levy' on ~~major~~ large event patron tickets) for annual distribution (at the discretion of Parklands) to a range of community, social, environmental and welfare projects within the local community.	Parklands – for the first major event and all major events following.
A7	Enhance the biodiversity values of the site and locality	Parklands will: • Continue to work with ~~DECCW~~ OEH and other key stakeholders to enhance the biodiversity values of the locality especially the adjoining Billinudgel Nature Reserve. • Commence the staged implementation of the Vegetation Management and Biodiversity Plan to guide the ecological restoration of the site. • Maximize 'down time' between larger events such that non-event days substantially dominate the annual cycle, providing time for 'normal' ecosystem processes, post-disturbance recovery and for local rehabilitation of habitats to occur. • Implement Yelgun Creek Rehabilitation Plan as detailed within Appendix J of **Technical Paper E** – *Ecological Assessment*	Parklands – at all times. Parklands – implementation of VMBP staged over time commencing at start of works. Parklands – with event programming in accordance with maximum usage limits. Parklands – as a priority stage of VMBP, within first two years.
A8	Youth Policy	Parklands will, in consultation with key stakeholders, develop and implement a Youth Policy which seeks to enrich the lives of local youth by involvement in the Parklands site and also the provision of facilities within local communities.	Parklands – within the first 18 months of event usage.
A9	Indigenous cultural heritage	1. Parklands will adopt and implement the five recommendations of **Technical Paper H**, developed in liaison with the Aboriginal stakeholders.	Parklands – Recommendation 1: Include in construction management plan and enact during works program. Recommendation 2: To be included in Event Management Manual prior to event usage and enacted during event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
			Recommendation 3: In consultation with Aboriginal stakeholders prior to design of any signage. Recommendation 4: in consultation with Aboriginal stakeholders prior to design of Cultural Centre Recommendation 5: workers site inductions occur before works commence and recommended actions occur during works as required.
		2. Parklands will provide the DECCW with additional Aboriginal cultural heritage management measures for each known Aboriginal site. These measures shall include: a. a program of ongoing monitoring by the local Aboriginal community, and assessment criteria for any previously unidentified Aboriginal cultural heritage values; b. management during maintenance activities (e.g. weed spraying, pest control, etc). as a component of any Aboriginal cultural heritage induction program; and, c. the specifics of any protection works (e.g., fencing, signage, located on maps, etc.).	Parklands – prior to event usage. Parklands – workers site inductions occur before works commence. Parklands – prior to any protection works commence.
		3. Any Aboriginal cultural heritage management measures developed in consultation with the registered local Aboriginal stakeholders and specific management during any proposed events shall be incorporated into the Management Manual.	Parklands – prior to event usage.
		4. An Aboriginal Cultural Heritage Awareness component shall be included in the pre-start induction to be attended by all personnel, contractors and their employees involved in onsite disturbance/construction activities. The induction will be completed as part of any induction. The induction will highlight the overall high level of	Parklands – workers site inductions occur before works commence.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		Aboriginal cultural sensitivity of the wider project area and the strict requirement for all onsite workers to confine their activities to the approved project area only. It must also include the legal obligations for Aboriginal sites, and reinforce the need to comply with these legal obligations (including penalties if breaches occur). The induction will also provide an overview of the types of Aboriginal cultural heritage materials that could occur within the project area, and of the procedures to be followed in the event of any possible finds during any stage of the development. 5. The Aboriginal stakeholders shall be given the opportunity to review, amend, and confirm the content of the Aboriginal Cultural Heritage Awareness induction component prior to its implementation. Aboriginal stakeholder representatives shall be invited to attend and participate in all induction sessions. 6. A register will be kept of all persons inducted for the duration of the project. The register will include dates, names and signatures of those inducted, the type of activity and location in which they will be working, name of the person who provided the induction, and whether any Aboriginal stakeholders were present during the induction.	Parklands – consultation with Aboriginal stakeholders prior to finalisation of induction program. Parklands – Aboriginal stakeholders invited to induction sessions. Parklands – at all times
A10	Non-Indigenous cultural heritage	Parklands will adopt and implement the non-indigenous cultural heritage recommendations of Technical Paper H relating to the planted fig trees and the notched tree stumps together with worker induction including matters relating to non-indigenous cultural heritage.	Parklands – all plans and works will protect sites *in situ*, workers' site inductions occur before works commence. Parklands – prior to opening of the Cultural Centre, background historic educational information and information specific to the study area will be included in displayed information.
A11	~~Ecological Impact Review~~	~~As soon as practicable, having regard to seasonal considerations, after the first event but not beyond 1 year of commencement of event operations Parklands will commission a~~	~~Parklands - after the first event but not beyond 1 year of commencement of event operations~~

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		~~comprehensive Ecological Impact Review shall be completed and lodged with the Department of Planning.~~ ~~Parklands will include any reasonable requirement/s of the Director General arising from the Department's assessment of the Ecological Impact Review into the Management Manual and implement any reasonable actions or mitigation measures contained in the report.~~	
A12	Mosquito Control	Any mosquito control shall be limited to the use of personal insect deterrents. Parklands will not use broad spectrum chemical control or barrier programs, to prevent potential adverse ecological impacts.	Parklands – at all times.

B. Construction Phase Commitments

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
B1	Staging of construction of the site	Parklands will carry out the Project in stages having regard to the following criteria for the orderly development of the site: • The infrastructure network of roads and services and facilities which are required to be operational to accommodate the size of events authorised shall be constructed in the initial years; • Stages may be aggregated; and • Stages may proceed concurrently.	Parklands - in the stages nominated within the EA.
B2	Construction in accordance with approved plans	• All civil works are to be constructed generally in accordance with the Civil Engineering plans (Ardill Payne and Partners Project 6883) Plan Set. • The finished surface level of the Spine Road will be constructed so that it is above the 1% ARI flood level. • Gatehouse and Administration buildings to be constructed generally in accordance with the architectural plans in the Plan Set. • Landscaping to be constructed generally in accordance with the Plan Set landscaping plans.	Parklands - in the stages nominated within the EA. Parklands – prior to event usage commencing. Parklands – within the first three years of event usage. Parklands – implementation of landscaping staged over time commencing at start of works.
B3	Construction Management Plan	1. The construction phase will be managed by the Construction Management Plan (**Technical Paper O**) which addresses	Parklands – during construction phase.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
	(CMP) to be implemented.	the management of the site during the construction phase. The CMP includes matters such as: • Traffic management; • Impacts on amenity of neighbouring properties; • Mitigating measures including noise, dust and sediment and erosion controls; • Soil and water management; and • Flora and fauna management. 2. The Construction Management Plan will be amended to: • Ensure that the section of the spine road, at the test excavated spur inland of Yelgun flat 1 (#22-1-114/115), is constructed on over-ground fill to avoid disturbance of Aboriginal artefacts within this area. • Restrict all heavy machinery activities to the spine road corridor.	Parklands – Construction Management Plan amended prior to site works commencing and implemented during construction phase.
B4	Aboriginal Heritage Protection and Protocols adopted and to be implemented	Adopt and implement the recommendations of the Aboriginal Heritage Assessment (**Technical Paper H**) and additional matters in Commitment A9.	Parklands – refer to timing details in Commitment A9.
B5	Standard Environmental Management Procedures adopted and to be implemented	Environmental Management Procedures listed in Section 3.0.3 of the Ecological Assessment within **Technical Paper E** be adopted and implemented.	Parklands - Environmental Management Procedures listed in Section 3.0.3 of the Ecological Assessment within **Technical Paper E** be incorporated into Management Manual before works and event usage commence.
B6	Pre-Construction ecological surveys/monitoring to be undertaken	Preconstruction ecological surveying and monitoring will be completed prior to commencement of construction activities as recommended by the Ecological Assessment in **Technical Paper F.** The monitoring protocols will be developed in consultation with the relevant agencies in the Parklands Regulatory Working Group and will be complied with.	Parklands - Preconstruction ecological surveying and monitoring will be completed prior to commencement of construction activities.
B7	Ecological Management - adopt and implement	Parklands will adopt and implement all construction phase mitigation measures in	Parklands will adopt all construction phase mitigation measures in Table

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		Table 11 of the Ecological Assessment within **Technical Paper E** including: • erecting advisory signage; • supervision of tree disturbance; • retaining biomass onsite; • compensatory plantings; • fauna movement culverts provided under road if 'at grade' option utilized; • Barrier fence retained vegetation and be commenced a program to remove weed species; • Monitor fauna impacts; and • Install and maintain sediment interception structures.	11 of the Ecological Assessment within **Technical Paper E** and implement in construction phase.
B8	Vegetation Management and Biodiversity Plan	Vegetation shall be managed in accordance with the Vegetation Management and Biodiversity Plan (Refer to **Technical Paper E**) as amended by these commitments.	Parklands – at all times.
B9	Water Cycle Management – Water Management Plan	The water cycle is to be managed in accordance with the Parklands Water Management Plan (WMP). All commitments made in the WMP will be fulfilled and all, activities will be carried out on the site in accordance with relevant statutory requirements.	Parklands – implemented prior to, during and following construction and event usage.
B10	Water Cycle Management - Sediment and Erosion Controls.	1. Erosion and sedimentation control shall be undertaken in accordance with the Erosion & Sediment Control Plan contained within **Technical Paper P** of the EA. All controlled discharges of water from the site during the construction phase should comply with the following criteria: • pH 6.5–8.5; • turbidity <50 NTU; and • suspended Solids < 50 mg/L. 2. Appropriate signage is to be provided throughout the proposed southern car park area to encourage reporting of any oil spills or leakages to festival management.	Parklands – implemented prior to, during and following construction and event usage. Parklands – prior to use of the car park.
B11	Soil Management	1. Soils shall be managed in accordance with the recommendations of the following: • Erosion and Sediment Control Plan (**Technical Paper P**); • Acid Sulfate Management Plan (**Technical Paper M1**);	Parklands – implemented prior to, during and following construction and event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		• Stormwater Management Plan (**Technical Paper Q**).	
B12	Ecological Structure Plan	1. Parklands will prepare and implement a Revised Ecological Structure Plan that adopts the DECCW recommendation that a greater proportion of the site be established as permanent habitat with greater connected ground cover and canopy. In particular, Parklands will establish: 5.9 ha of additional permanent habitat connecting the forest blocks on the north of Jones Road, thus further protecting and widening the Marshalls Ridge wildlife corridor:; 12.9 ha of permanent new habitat with constructed wetlands is provided in the southern car park providing a significant buffer to the Billinudgel Nature Reserve and SEPP 14 wetlands.	Parklands - implement the Revised Ecological Structure Plan over ten years with a minimum of 5% of the plan implemented each year.
		2. Parklands will install at least two fauna friendly (1 m x 1.5 m) box culverts under the spine road both north and south of Jones road to enhance safe fauna passage during event times or other uses of the road. The inverts of these culverts must be well above groundwater level.	Parklands – implement during construction phase.
		3. Any human exclusion fencing at the Jones Road intersection / underpass shall also include fauna friendly design (250 mm square gaps at <10 m intervals), allowing for fauna movement along the base of the fence.	Parklands – implement during construction phase.
		4. A habitat restoration program for the area between the SEPP 14 boundary and the BNR in the southern car park, will be developed in consultation with the Regulatory Working Group.	Parklands – develop plan in consultation with the Regulatory Working Group in first year and implement within stages of the Revised Ecological Structure Plan.

C. Operational Phase Commitments

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
C1	Event Management	All events will be carried out in accordance with the Parklands Environmental Health and Safety Management Manual (EHSMM), including the following Parklands Standards to manage event usage: • NBP Standard 001 - Safety Management • NBP Standard 002 – Transport and Traffic Management • NBP Standard 003 – Environmental Management • NBP Standard 004 – Water Management • NBP Standard 005 – Wastewater Management • NBP Standard 006 – Fire Management • NBP Standard 007 – Offsite Management • NBP Standard 008 – Noise Management • NBP Standard 009 – Evacuation Management • NBP Standard 010 – First Aid Management • NBP Standard 011 – Camping Management • NBP Standard 012 – Flooding Management • NBP Standard 013 – Temporary Structures • NBP Standard 014 – Waste Management (see Annexure E) • NBP Standard 015 – Community Management	Parklands – at all times.
C2	Certainty of effective event management	Events shall only occur on the site if the event operator commits to complying with the applicable requirements of Parklands EHSMM, including Parklands Standards 001 to ~~014~~ 015.	Parklands – at all times for all events.
C3	Managing demand on emergency and local services	~~For Moderate and Major~~ Events with over 10,000 patrons, onsite medical services and police services will be provided. ~~For Major events ambulance services will be provided by the proponent.~~	~~Parklands – For Moderate and Major events, onsite medical services and police services will be provided. For Major events ambulance services will be provided by the proponent.~~
C4	Managing demand on holiday accommodation in nearby centres	Parklands and event operators will work with local holiday accommodation organisations. Accommodation demands will be prioritised towards onsite camping. For offsite needs only holiday accommodation precincts in Byron Shire	Parklands – for all event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		and Tweed Coast with 'regulated site management' premises will be supported.	
C5	Managing demand on beach and other neighbourhood facilities and increased crowds in nearby areas	Parklands will liaise with local communities to either promote their community or redirect activities to those communities seeking tourism related business. In consultation with local communities, event literature will either be silent about a local destination (to minimise local disturbance) or specifically target the destination (to optimise local economic activity) as desired by that community.	Parklands – in consultation with local communities prior to event usage.
C6	Managing illegal camping and/or litter in nearby areas	Parklands will: • require Major Events to enact the Offsite Response Strategy (NBP Standard 007 – Offsite Management) including a telephone and web-based hotline combined with a litter response team; and • manage these issues in consultation with Regulatory Working Group.	Parklands – for Major Events in consultation with Regulatory Working Group.
C7	Safety Management	Parklands will adopt, implement, monitor and review NBP Standard 001 - Safety Management. In accordance with Clause 3 of the standard, event operators will conform with the following applicable Standard Parameters: 1. Develop a safety management plan covering both staff, contractors and volunteers, in addition to audience members attending the event including but not limited to: ▪ hazard identification ▪ risk assessment ▪ controls ▪ monitoring ▪ reporting ▪ incident management; 2. Develop an Event Safety Policy that articulates the event's commitment to safe working practices and which specifies core safety goals; 3. Undertake and document a hazards identification and risk assessment process resulting in a risk register, covering all aspects of the event including 'bump in' and 'bump out' activities; 4. Develop and document appropriate controls to eliminate or minimise identified risks documented in the risk register;	Parklands – prior to and during event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		5. Provide OH&S induction training to all staff and contractors; 6. Document and investigate all OH&S incidents including injury, property damage and near misses; 7. Immediately report any serious incidents (i.e. involving emergency services) to the General Manager, Parklands; 8. Ensure all machinery used onsite is in safe working order with appropriate safety devices fitted and complies with appropriate Workcover requirements; 9. Ensure all staff, contractors and volunteers wear appropriate personal protective equipment for the activity being undertaken (i.e. high visibility vests, hard hats, safety boots, etc.); 10. Ensure any direction from Parkland's staff to remove an event staff member, contractor, volunteer or patron is complied with; and 11. Provide emergency equipment (torches, radios and the like) in secure weatherproof containers on flood free land adjacent to the Spine Road and in the vicinity of the proposed Conference Centre.	Parklands – prior to event usage.
C8	Transport and Traffic Management	Parklands will adopt, implement, monitor and review NBP Standard 002 - Transport and Traffic Management. In accordance with Clause 3 of the standard, applicable Parklands/event operators will conform with the following Standard Parameters: *Transport Management* Develop a transport management plan that; ~~1. Achieves a private car occupancy rate of 2.9 people per car for 70% capacity events;~~ ~~2. Achieves a private car occupancy rate of 3.2 people per car for 100% capacity events;~~ ~~3. Achieves a minimum public transport mode share of 27% for 70% capacity events.~~ ~~4. Achieves a minimum public transport mode share of 39% for 100% capacity events;~~ 5. Maximises rideshare take-up through promotion on event websites and online forums	Parklands – prior to and during event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		6. Promotion of sustainable transport options through public information and event websites; 7. Encourages use of rideshare and sustainable modes through accommodation and transport packages and ticketing; 8. Manages parking supply and costs to encourage ridesharing and use of sustainable transport; 9. Supports cycling through provision of dedicated facilities and incentives such as priority camping locations; and 10. Provide public transport connections to adjacent townships (accommodation) and key transport nodes such as Airports and railways, where applicable.	
		Traffic Management Develop a traffic management plan covering 'bump in, bump out' and event days that: 1. Controls traffic movement past the site, and traffic and pedestrian movements onto the site; 2. Facilitates efficient processing and inspection of event patron's vehicles within the site; 3. Maintains a minimum Level of Service at the Yelgun Interchange of LoS ~~D~~ C and LoS D along the Tweed Valley Way; ~~4. Maintains a Degree of Saturation of less than 0.95 at the Yelgun Interchange;~~ 5. ~~Maintains a maximum Average Delay (s/veh.) 56 seconds at the Yelgun interchange;~~ 6. Results in a Queue Length (95% back of queue in metres) of no more than 97 m from the Give Way yield line on the southbound off-ramp and ~~247~~ 210 m from the Give Way yield line on the northbound off-ramp; 7. Installs variable messaging signs on the Pacific Highway approaching the Yelgun Interchange warning of special event traffic and to watch for queues on the off-ramps; 8. Provides temporary special event 40 kph speed limits to cover the link road between the Yelgun Interchange roundabout and Tweed valley Way; 9. Monitors car occupancy, mode share and traffic impacts during event days and the provision of a report to the General Manager, Parklands documenting findings;	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		10. Provides event site access over an appropriate timeframe prior to the event to reduce peak traffic movements 11. Is prepared by a certified traffic control planner; 12. Is approved by the relevant roads authority; 13. Is prepared in accordance with Australian Standard 1742 and the RTA's Guide to Traffic Management for Events; 14. Secures approval for temporary closure and access control of Jones Road for event days; 15. Secures approval for access control (residents and visitors only) of Yelgun Road for event days; 16. Provides a 'bump in' and 'bump out' schedule to the General Manager, Parklands; 17. Uses RTA accredited traffic control contractors on public roads; and 18. Ensures any serious traffic related incidents and/or delays are reported to the General Manager, Parklands as soon as practicable; and 19. Requires a 'special event clearway authority' to be obtained for the relevant sized which authorises towing of illegally parked vehicles. Traffic impact research 1. Planning for events shall be carried out in accordance with the publication entitled *Guide to Traffic Transport Management for Special Events* by the RTA and provide for data collection to include, but not limited to: • Numbers of staff, entertainers, support staff and set-up staff, when they arrive, vehicles involved, including type of vehicle with arrival and departure rates and direction of travel; • Patronage of bus services, including the number of patrons on buses, bus occupancy rates, arrival and departure rates of buses, timing of bus arrival and departure; • Number of campers, arrival and departure rates, vehicle occupancy, direction of travel; • Number of day patrons, vehicle occupancy, arrival and departure rates and direction of travel; • Background counts on the Pacific Highway and Tweed Valley Way;	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		• Number of patrons that attend by bicycle, arrival and departure rates; • Queuing monitoring and recording of maximum queue lengths during peak traffic periods; • Traffic arrival and departure and occupancy rates; • Pick up and set-down vehicle arrival, departure and occupancy rates.	
C9	Environmental Management	Parklands will adopt, implement, monitor and review NBP Standard 003 - Environmental Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Event operators shall only operate within the approved event area as defined in the attached event area map; 2. All staff and contractors are to undertake Parkland's Environmental induction prior to accessing the site. Documented records shall be maintained covering the environmental induction process; ~~3. No dogs will be allowed onsite;~~ No dogs (with the exception of trained assistance dogs) are permitted on the site. Trained security guard dogs are allowed at all times, while under the control of an authorised person; ~~4. Implement the environmental repair works described in Commitment B12;~~ 5. All temporary drain crossings shall be managed to minimise sedimentation and potential discharge of contaminants; 6. Implement a suitable buffer between edge of forest blocks and any event lighting wherever possible; ~~7. Direct all event lighting downwards, where possible;~~ ~~8 . Use low pressure sodium vapour lights which are less attractive to insects or bats, where possible;~~ 9. Any installations which rely on artificial lighting should be located in open areas away from forest blocks. Individual trees within the event area can be lit for installation purposes in a manner that is consistent with lighting principles addressed	Parklands – prior to and during event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		within the Flora and Fauna Management Plan; 10. Minimise or avoid lighting throughout the entire night i.e. once performances cease, lighting should be reduced or eliminated to allow a dark period for fauna to use or traverse the site. Where lighting is required for safety purposes provide the minimum necessary and avoid illuminating forest habitats; 11. No use of fireworks; 12. Use footlights instead of overhead lights where possible; 13. Overhead lighting should be shielded and directed downwards to minimise light spill where possible; 14. All internal traffic not to exceed ~~30~~ 25 kph; 15. Minimise the time that temporary fencing is erected to reduce barriers to fauna and conduct fauna search prior to securing fenced area; 16. Experienced fauna management crew to be onsite for the duration of the event; and 17. Environmental monitoring to be undertaken prior to, during and post all moderate and major events.	
C10	Water Management	Parklands will adopt, implement, monitor and review NBP Standard 004 – Water Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Engage water cartage contractor(s) with the capacity to deliver quantities of potable water for the event usage and camping as follows; ▪ Events - 1 kL/1,000 persons/day ▪ Camping (with showers) - 28kL/1,000 persons/day ▪ Camping (with pay for use showers) – 7 kL/1,000 persons/day 2. Where possible, utilise larger capacity water cartage vehicles to reduce truck movements; 3. Develop a potable water delivery schedule covering 'bump in, bump out' and event days to ensure an adequate supply of potable water; 4. Fill the Parkland's temporary bulk potable water storage tank(s) to a minimum 30% capacity prior to 'bump in';	Parklands – prior to and during event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		5. Fill the Parkland's temporary bulk potable water storage tank(s) to a minimum 100% capacity three days prior to the event; 6. Have samples of bulk potable water storage tested at a NATA registered laboratory prior to use for the event; and 7. Appoint a representative with sole responsibility for arranging water supply, delivery, testing (where applicable) and monitoring of water reserve levels.	
C11	Wastewater Management	Parklands will adopt, implement, monitor and review NBP Standard 005 – wastewater Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Provide suitable low flow portable toilets and shower amenities; 2. Toilets and amenities shall be strategically placed in clusters within the event area and camping areas (if applicable). Such clustered toilets and amenities should be connected to ~~Parkland's~~ 10,000 L temporary sewage holding tanks; 3. Provision of showers and toilets shall comply with BCA; 4. All food stall areas and catering (including backstage area) shall be plumbed to a suitably sized ~~Parkland's~~ temporary wastewater holding tank; 5. Engage wastewater cartage contractor(s) with the capacity to adequately service multiple 10,000 L temporary holding tanks and various sized wastewater holding tanks; 6. Transfer of sewage and wastewater from temporary holding tanks to trucks shall be done via suction pumping with appropriate secure coupling mechanisms and emergency stop provisions to cease transfer of material if required; 7. All sewage and wastewater temporary holding tanks shall suitably fenced and cordoned off from public access where necessary; 8. Sewage and wastewater shall be disposed of to a licensed sewage treatment plant facility; 9. Develop a sewage and wastewater disposal schedule covering 'bump in, bump out' and event days to ensure the adequate removal	Parklands – prior to and during event usage.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		of material to a licensed sewage treatment plant; 10. Appoint a representative with sole responsibility for wastewater and sewage management and disposal. 11. Prior to commissioning of the reticulated sewage system on the site, a comprehensive operations, monitoring and maintenance plan is to be developed for the system submitted to the Department of Planning. 12. ~~Implement any measures necessary to ensure no overflow occurs from the effluent holding dam or wetlands and no surface runoff occurs from the irrigation area.~~	Parklands - prior to commissioning of the reticulated sewage system on the site.
C12	Fire Management	Parklands will adopt, implement, monitor and review NBP Standard 006 – Fire Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. The event will comply with the requirements of Parkland's Bushfire Management Plan (BMP) and the event specific Bushfire Emergency Evacuation Plan (BEEP). The BEEP shall be prepared for review by the *RFS* and *RWG,* and approved by the *LEMC.* 2. The objective of the plans is to ensure the coordinated response to emergencies by all agencies having responsibilities and functions in emergencies. **The BEEP specifically includes:** 3. Roles and responsibilities of person's co-ordinating the event; 4. Roles and responsibilities of persons remaining onsite following evacuation; 5. Procedures for contacting emergency services e.g. NSW Rural Fire service District Office, NSW Fire Brigades, NSW Police Service, NSW Ambulance Service and the State Emergency Service; 6. Training of event staff and security personnel; 7. Police Officers to be onsite for the duration of the event; 8. Arrangements for *RFS* personnel to be available to service the site during the event; 9. Location of assembly areas; 10. Location of access and egress roads; 11. Circumstances where the site will be evacuated; and	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		12. Candidate location/s where evacuated persons will be directed. **Other requirements** 13. All stages/facilities/camping areas shall be set back a minimum of 10 m (defendable space) from areas of unmanaged bushland with this area kept clear of obstructions at all times during events; 14. A 10,000 L dedicated water supply shall be provided for each stage and camping area for fire fighting purposes; 15. Any open fire requires a bonfire management plan submitted to and approved by the Rural Fire Service; 16. Emergency evacuation plans for bushfires must be available onsite under the control of the site/event manager; 17. The following essential fire or other safety measures must be provided, including: 18. Portable fire extinguisher and fire blankets; 19. Emergency Lighting; 20. Exit Signs; 21. Emergency evacuation plan; 22. Fire fighting equipment; 23. Fire Marshals (fire safety officers); 24. Fabrics (Flammability Index); 25. Access (Paths of Travel). 26. Once installed the essential services are to be the subject of a fire safety certificate. That certificate must be submitted to *Council*; 27. Portable fire extinguishers of an approved type having at least the protection effectiveness of a 4.5kg carbon dioxide type extinguisher shall be provided to locations in accordance with the Certifying Authority's requirements as follows: • At the rear, side and back stage area and mixing stands of all Stages; • Front of house mixing areas; • VIP and administration tents; • Mobile site offices; • Relaxation and dining tents; • Bar areas; • Café and catering areas; and • Any other areas determined by *Council* onsite. 28. Additional Portable Fire Extinguishers will be provided throughout the temporary	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		camping areas under the control of the Fire and Camping Marshals; 29. Certification confirming the adequacy of the type, size and location of portable fire extinguishers and fire blankets shall be submitted prior to the commencement of the event; 30. All such fire safety measures are to be maintained for the duration of the event. 31. Woodpiles, combustible material storage sheds, large quantities of garden mulch and stacked flammable building materials shall not be located within the asset protection zone; 32. All temporary tent structures must satisfy the flammability index as nominated by the Building Code of Australia; 33. All curtains and blinds as, stage backdrops and attached décor to be provided to all place of public entertainment stages, will satisfy the Building Code of Australia; 34. All habitable permanent structures to be assessed as Special Fire Protection purpose; 35. The *RFS* shall be notified a minimum of three (3) months prior to the hosting of an event; and 36. Emergency evacuation plans for bushfire must be available onsite 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. ~~37. An Asset Protection Zone (APZ) of a minimum 10 metres from areas of bushland are required for all stages, facilities and camping;~~ ~~38. Rural Fire Service personnel shall be engaged for the duration of the event;~~ ~~39. Woodpiles, combustible material storage sheds, large quantities of garden mulch and stacked flammable building materials shall not be located within the APZ;~~ ~~40. A 10,000 litre dedicated fire-fighting water supply shall be provided for the duration of the event for each stage and camping area.~~ ~~41. All temporary tent structures must satisfy the flammability index as nominated by the Building Code of Australia;~~ ~~42. All curtains and blinds, stage backdrops and attached décor to be provided to all place of~~	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		~~public entertainment stages, will satisfy the Building Code of Australia;~~ ~~43. Provision of portable fire extinguishers to service each temporary structure required to satisfy the Building Code of Australia provisions (i.e. not limited to but including performance stages, front of house mixing desks, VIP, artists, administration, bars, restaurants, cinemas, etc);~~ ~~44. Additional Portable Fire Extinguishers will be provided throughout the temporary camping areas under the control of the Fire and Camping Marshals; and~~ ~~45. Certification confirming the adequacy of the type, size and location of portable fire extinguishers and fire blankets shall be submitted prior to the commencement of the event.~~ ~~10. Prior to each major event a bonfire management plan shall be submitted to and approved by the Rural Fire Services.~~ ~~11. The Bushfire Management Plan will address peat fire prevention and contingencies.~~ ~~12. The RFS will be a key governmental agency invited to attend the Regulatory Working Group as necessary.~~ ~~13. A Bushfire Emergency Evacuation Plan shall be prepared prior to use of the site. The objective of the plan is to ensure the co-ordinated response to emergencies by all agencies having responsibilities and functions in emergencies.~~ ~~The draft Bushfire Emergency Evacuation Plan will be reviewed by NSW RFS. The plan shall specifically include:~~ ~~a Roles and responsibilities of person's co-ordinating the event.~~ ~~b Roles and responsibilities of persons remaining onsite following evacuation.~~ ~~c Procedures for contacting emergency services e.g. NSW Rural Fire service District Office, NSW Fire Brigades, NSW Police Service, NSW Ambulance Service and the State Emergency Service.~~ ~~d Training of event staff and security personnel~~ ~~e Number of Police Officers to be onsite for the duration of the event.~~	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		~~f Number of RFS personnel to be available onsite during the event and available equipment.~~ ~~g Location of assembly areas.~~ ~~h Location of access and egress roads.~~ ~~i Situations where the site will be evacuated.~~ ~~j Location/s where evacuated persons will be directed.~~ ~~14. The Emergency Evacuation Plan shall be reviewed following each major event. Such review to include event and site management, representatives of the Police, RFS and security provider.~~ ~~15. A Bushfire Management Plan shall be prepared prior to use of the site. The draft Bushfire Management Plan shall be reviewed by NSW RFS. The plan will specifically include:~~ ~~• Demonstration that North Byron Parklands has the necessary experience, resources and funds to undertake the directions contained within the BMP in perpetuity.~~ ~~• The range of specific management options available to the development, its prescription and its location;~~ ~~• The predicted timing intervals of the management options.~~ ~~• The range of specific management options for managing the risk of the potential for ignition of peat soils~~ ~~16. All habitable permanent structures to be assessed as Special Fire Protection purpose.~~ ~~17. All events involving the conference centre and associated accommodation and cabins be approved subject to specific reference in the Evacuation Emergency Plan.~~ 18. ~~Major Events shall be notified to the RFS a minimum of three (3) months prior to such event. Small and moderate events shall be notified a minimum of 4 weeks prior to such event(s).~~	
C13	Offsite Management	Parklands will adopt, implement, monitor and review NBP Standard 007 – Offsite Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters:	Parklands – prior to, during and after event usage as specified.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		1. Develop an Offsite Response Strategy that includes but is not limited to the provision of an offsite response team; 2. Provide a dedicated community hotline for the duration of the event; 3. Place advertisements in all local papers regarding event times, traffic considerations, road closures, community hotline details and any other relevant community information; 4. Provide security services along Jones Road to ensure patrons or unauthorised persons are not permitted either on the road, adjacent to the road or within the vicinity of residential dwellings; 5. Provide security services, in consultation with the Parklands Regulatory Working Group, within the immediate locality to manage any potential for unauthorised persons to enter private property or the Billinudgel Nature Reserve; 6. Provide a litter response team for the duration of the event covering Jones Road, Tweed Valley Way, Yelgun Road and the Yelgun Interchange and adjacent to and within the Billinudgel Nature Reserve; 7. Provide a litter response team for the duration of the event covering designated event shuttle bus stops; 8. Provide resources to identify illegal camping and/or illegal parking within a 3 km radius of the event site. Such identified activities shall be reported to the Byron Shire Council and records of such maintained; 9. Provide ongoing coordinated consultation with local communities and businesses through the Parkland's Community Liaison Committee; and 10. Provide ongoing consultation with statutory authorities including but not limited to the Police, National Parks and Wildlife Services, Byron Shire Council, Roads and Traffic Authority and the Rural Fire Service through the Parklands Regulatory Working Group.	
C14	Noise Management	Parklands will adopt, implement, monitor and review NBP Standard 008 - Noise Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following Standard Parameters:	Parklands – prior to, during and after event usage as specified.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		1. ~~Develop a~~ Comply with the requirements of the approved Noise Management Plan (NMP) to manage noise prior to, during and after events. 2. Prior to the commencement of any event where amplified noise is a feature, a qualified acoustic consultant must prepare and implement an Acoustic Monitoring Program (AMP) in consultation with the RWG. The AMP must be submitted to the Secretary at least 60 days prior to the commencement of the event or as otherwise agreed by the Secretary; 3. The AMP shall include the following: • receptors and monitoring locations; • sensitive ecological monitoring locations; • attended noise monitoring; • unattended noise monitoring; • noise monitoring methodology; • event noise monitoring; • sound checks and rehearsals; • event acoustic controls; and • reporting. ~~1. Hand deliver information leaflets outlining event operation times and provide a continuously manned complaints hotline number to the nearest residential receptors (details to be provided by the General Manager, Parklands);~~ ~~2. Provide a continuously manned complaints hotline number and written records of all complaints received;~~ ~~3. Advertise in one or more local newspapers event operating times and the complaints hotline number at least 2 weeks prior to the event;~~ ~~4. Engage an independent noise consultant who will attend the boundary of a complainant's property to monitor noise levels. If noise levels are found to be excessive the consultant will contact the stage manager(s) via radio and/or mobile phone to request a reduction in volume;~~ ~~5. Continuous front of house music levels shall be monitored for all main stages and shall provide sound engineers with warnings when specified noise criteria is approached;~~ ~~6. Noise levels shall initially not exceed 102 dB(A) at all front of house mixing desks until sound checks confirm that compliance with~~	

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		~~the noise criteria stipulated in the Noise Management Plan for North Byron Parklands is achieved (note, the 102 dB(A) level is for main stages when measured 5 metres away from its respective speak systems. For dance areas, bars and cafes the level is 98 dB(A) when measured 5 metres away from its respective speak systems);~~ ~~7. Comply at all times with the noise criteria stipulated in the Noise Management Plan for North Byron Parklands;~~ ~~8. Achieve the following noise management objectives at residential receptors:~~ ~~• Control LAeq levels;~~ ~~• Control the bass frequencies by control of the dB(C) max levels; and~~ ~~• After midnight achieve a 55dB(A) level outside bedroom windows.~~ ~~9. Event PA's shall be designed and installed to minimise noise spillage;~~ ~~10. Event stage managers shall be allocated to each PA based music stage;~~ ~~11. Event stage managers shall be authorised to override mixing desks if sound exceeds the above level (including removal of power if the music act's own sound engineer refuses to comply with direction from stage management);~~ ~~12. Event stage managers shall comply with all directions from the independent noise consultant to ensure that recommended noise levels are being met; and~~ ~~13. A post event noise report shall be provided to the General Manager, Parklands detailing complaints, remedial action, noise levels and data from unattended noise loggers.~~ ~~B Parklands will implement best practice mitigation measures listed within the Noise Management Strategy (Technical Paper D) in consultation with the three residents identified as potentially being exposed to elevated noise emissions (R05, R13 and R13). Parklands will undertake noise monitoring during events to confirm effectiveness of noise mitigation measures.~~	Parklands – prior to, during and after event usage as specified.
C15	Evacuation Management	Parklands will adopt, implement, monitor and review NBP Standard 009 - Evacuation Management. In accordance with Clause 3 of the	Parklands – prior to, during and after event usage as specified.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Develop an evacuation management plan covering but not limited to fire, flood, structural collapse, serious injury/serious assault, bomb threat, contamination/spills and outbreak of disease; 2. A copy of the final evacuation management plan prepared in consultation with Byron Shire Council, District Emergency Management Officer, local Police and State Emergency Services shall be provided to these organisations; 3. Appoint a dedicated emergency coordinator; and 4. Designate dedicated assembly and evacuation points and include these on all maps and plans.	
C16	First Aid Management	Parklands will adopt, implement, monitor and review NBP Standard 0010 - Safety Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Develop a medical plan which details roles and responsibilities of all stakeholders should an incident occur. This plan must also include strategies to manage potential major incidents; 2. The plan should detail the levels of care required to effectively manage situations which may arise from the different phases of the event, i.e. 'bump in', event, camping and 'bump out' and consider the recommended first aid posts and personnel (included in the Standard); 3. The plan must ensure adequate equipment and stock is available and include strategies to access additional equipment should there be an extreme call on services; 4. Access routes for ambulance vehicles are required, as is the ability to restrict all other traffic from the roadway should emergency ambulance movement be required; 5. A dedicated helipad is required to ensure evacuation of critical patients; 6. Appropriately advertise that event attendees should wear adequate footwear, drink sufficient water and be prepared for climatic	Parklands – prior to, during and after event usage as specified.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		conditions such as sun exposure and weather protection; 7. Contract experienced health care providers to establish and run the medical facilities to reduce the impact on local health services; 8. Consult with relevant hospitals, ambulance service and health department prior to the event; 9. Designate medical service points and include these on all maps and plans; and 10. Provision of onsite ambulance services, where appropriate.	
C17	Camping Management	Parklands will adopt, implement, monitor and review NBP Standard 0011 – Camping Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Develop a camping management plan in accordance with the project application approved camping prescriptions covering but not limited to camping layout, toilets and shower amenities, camp marshal and fire marshal locations, potable water suppliers, wastewater storage tanks, fire fighting water tanks and fire extinguishers; 2. Vehicle speed limits in camp grounds shall be limited to 25 kph; 3. All camping areas are to be provided with camp marshals for the purposes of monitoring and maintaining camper safety and amenity and any fire safety provisions ancillary to the event fire fighting services. 4. All camping areas are to be provided with fire marshals (in addition to the camping marshals who oversee the general patron camping areas). All fire marshals will be trained and competent in the use of portable fire extinguishers and emergency management procedures; 5. An area shall be designated for disabled campers adjacent to the disabled toilet and shower amenities, and adjoining the all weather surface road providing direct access to the event site; and 6. Appoint a dedicated camping coordinator for the duration of the event.	Parklands – prior to, during and after event usage as specified.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
C18	Flooding Management	Parklands will adopt, implement, monitor and review NBP Standard 0012 - Flooding Management. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. Develop and implement a significant rainfall event forecasting system. An automatic rainfall recording station, stream height gauging stations and soil moisture sensors must be installed onsite by a suitably qualified person. The data must be made available for collection remotely via telemetry, with data connections to the administration office on the subject site and relevant agencies. The flood monitoring equipment shall be installed as early as possible to support the preparation of the flood evacuation plan. A certificate from a suitably qualified engineer, with experience in flood matters, together with suitable documentation from the installer, certifying that the flood monitoring equipment has been installed correctly and at appropriate locations, must be submitted to the Department prior to the first event. 2. A flood evacuation/contingency plan for the proposed development in accordance with Part K – Flood Liable Lands of Byron Shire Council Development Control Plan 2002 must be submitted to relevant agencies. The plan must clearly identify evacuation routes, ground levels of those evacuation routes, depth and time of flooding along the evacuation routes, method of evacuating the number of people and vehicles at the site, critical rainfall events for cancellation or evacuation of the event, and methods and location of flood monitoring. Development of the flood evacuation/contingency plan must be carried out in liaison with the local State Emergency Services. The plan must be assessed and updated by a suitably qualified engineer for each event utilising the data collected from the flood monitoring equipment and any previous evacuation review. A certificate from a suitably qualified engineer, with experience in flood-related matters, certifying the adequacy of the plan and that the event structures left onsite will	Parklands – prior to, during and after event usage as specified. Parklands – prior to event usage of the site. Parklands – prior to event usage of the site.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		not have any impact on flood levels, must be submitted to relevant agencies. 3. Review Bureau of Meteorology website information prior to, during and after the event covering rainfall events, expected flood peaks, road closures, weather forecasts and emergency services; 4. Liaise with SES local coordinator and utilise the SES text extreme weather alert notification system; 5. Provide flood evacuation signage and fencing stored in strategic flood free areas; 6. Maintain all drainage channels (free of obstructions); 7. Develop a car park management plan that distributes the maximum number of vehicles to more flood free areas of the site (as a precaution regardless of imminent flood risk or not); 8. This plan should also cover how patrons and their vehicles might be safely transported off flood affected areas of the site in the event of a flood; 9. Ensure there is an appropriate flood evacuation plan as part of the event's overall emergency evacuation planning; and 10. Consult with and provide flood evacuation plans to the Byron Shire Council, District Emergency Management Officer, local Police and State Emergency Services. 11. Utilise that part of the car park not affected by a five-year ARI flood first to minimise cars parked within the flood-affected area.	Parklands – prior to, during and after any event. Parklands – prior to and during any event. Parklands – at all times. Parklands – at all times. Parklands – prior to event usage of the site. Parklands – prior to event usage of the site. Parklands – prior to event usage of the site. Parklands – at all times.
C19	Temporary Structures	Parklands will adopt, implement, monitor and review NBP Standard 0013 - Temporary Structures. In accordance with Clause 3 of the standard, Parklands/event operators will conform with the following applicable Standard Parameters: 1. All temporary structures shall meet the requirements set out in the project application approved temporary structures prescriptions; 2. Provision of the live and dead loads that each temporary structure is designed to meet;	Parklands – prior to each event usage on the site.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		3. A list of any proposed fire safety measures to be provided for the use for each temporary structure; 4. In the case of a temporary structure proposed to be used as an entertainment venue - a statement as to how the performance requirements of Part B1 and NSW Part H102 of Volume One of the *Building Code of Australia* are to be complied with; 5. Documentation for any accredited building product or system sought; 6. Details on the heights of any temporary structure and their construction materials; and 7. An occupation certificate for each temporary structure.	
C20	Waste Management	Parklands will adopt, implement, monitor and review BNP Standard 014 – Waste Management. In accordance with Clause 3 of the Standard, Parklands/Event Operators shall prepare and implement a management plan to control littering adjacent to and within the Billinudgel Nature Reserve and other DECCW land parcels.	Parklands – prior to event usage of the site.
C21	Water Management	Parklands will comply with all statutory requirements relating to water management. In particular: 1. All groundwater licences for monitoring bores shall be obtained and associated works appropriately authorised prior to works commencing. All Form As associated with the construction of bores must be submitted to NOW at the time drilling is undertaken. 2. For all areas on the site that require dewatering, a water licence under Part 5 of the Water Act 1912 shall be obtained prior to commencement of work. This water licence application must be accompanied by a groundwater and excavation monitoring program and acid sulphate soils contingency plan, developed to the satisfaction of NOW. 3. Where taking surface water, all works shall be appropriately licensed. If and where the storage capacity of the constructed dams exceeds the maximum harvestable right for the property or such works are proposed to be constructed on a river, as defined under the Water Management Act 2000, then a water volume reflecting the water taken	Parklands – prior to works commencing. Parklands – attained if required prior to commencement of work. Parklands – attained if required prior to taking surface water.

	Commitment Topic	Commitment Details	Commitment undertaken by who and when
		from the relevant water source will also be required to be licensed. 4. To aid in the protection of receiving water source quality, all stormwater runoff must be adequately treated at its source and/ or diverted through the stormwater treatment process designed for the site, prior to the stormwater being discharged to surface water and groundwater sources. 5. All wastewater treatment ponds (effluent holding ponds, effluent polishing wetlands) shall be constructed above the water table or must be appropriately lined with an impermeable liner to prevent groundwater contamination.	Parklands – all stormwater runoff will be adequately treated at its source and/ or diverted through the stormwater treatment process designed for the site, prior to the stormwater being discharged to surface water and groundwater sources. Parklands – All wastewater treatment ponds shall be constructed above the water table or appropriately lined with an impermeable liner prior to their use.
C22	Soil Management	Parklands will prepare and implement a management plan to monitor bulk soil density to ensure the soil structure is not degraded and soil compaction is minimised.	Parklands – prior to event usage of the site.

A.2 CONCEPT APPROVAL

Application No.:	MP 09_0028
Proponent:	Billinudgel Property Pty Ltd
Approval Authority:	Minister for Planning and Infrastructure
Land:	Lots 46, 402, 403, 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; and Lot 1 DP 1145020, Tweed Valley Way and Jones Road, Yelgun – Byron local government area.
Project:	Cultural Events Site, comprising: • use of the site for cultural, educational and outdoor events with ancillary camping and car parking; • temporary and demountable event infrastructure; • a spine road; • a water treatment plant; • a wastewater treatment plant; • a cultural centre; • a conference centre and associated accommodation; and, • a comprehensive vegetation management plan

A.3 PART A–NOTES RELATING TO THE DETERMINATION OF 09_0028

1 Responsibility for other consents/agreements

The Proponent is solely responsible for ensuring that all additional consents and agreements are obtained from other authorities, as relevant.

2 Appeals

The Proponent has the right to appeal to the Land and Environment Court in the manner set out in the *Environmental Planning and Assessment Act 1979* and the *Environmental Planning and Assessment Regulation 2000.*

PART B–DEFINITIONS

In this approval,

Act means the *Environmental Planning and Assessment Act 1979*.

Advisory Notes means advisory information relating to the approved development but do not form a part of this approval.

BCA means Building Code of Australia.

Construction Certificate means a construction certificate for bulk earthworks or civil works unless specified otherwise.

Council means Byron Shire Council.

Department means the Department of Planning and Infrastructure or its successors.

~~***Director-General***~~ ***Secretary*** means the ~~Director-General~~ Secretary of the Department.

Environmental Assessment means the Environmental Assessment prepared by SJ Connelly CPP Pty Ltd and dated August 2010, including all Appendices.

Minister means the Minister for Planning and Infrastructure.

Project means the project as described in Term A1 of this approval.

PCA means a Principal Certifying Authority and has the same meaning as Part 4A of the Act.

Preferred Project Report means the Preferred Project Report prepared by SJ Connelly CPP Pty Ltd dated February 2011.

Proponent means Billinudgel Property Pty Ltd or any party acting upon this approval.

Regulation means the *Environmental Planning and Assessment Regulation 2000*.

Site has the same meaning as the land identified in Schedule 1.

A.4 SCHEDULE 2

1.1.1 PART A – TERMS OF APPROVAL

A1 Concept plan approval

1) Concept plan approval is granted to use the site for outdoor, cultural or educational events with ancillary event camping and car parking.

2) The project infrastructure and works are to be developed as generally described in the following three (3) stages:

Stage 1

a) A spine road, shuttle bus turnaround area and ancillary event laneways;

b) Upgrading of Jones Road;

c) An underpass beneath Jones Road;

d) Ancillary temporary structures; and

e) Implementation of a comprehensive vegetation management plan.

Stage 2

a) An administration building;

b) A gatehouse building;

c) A water treatment facility; and

d) A wastewater treatment facility.

Stage 3

e) A cultural centre;

f) A conference centre for a maximum of 180 guests and accommodation for 60 guests; and

g) Finalisation of the vegetation management plan.

A2 Project in accordance with documentation

The proponent shall carry out the concept plan and all related future projects generally in accordance with the following documents except as modified by this approval:

1. *Environmental Assessment* prepared by SJ Connelly CPP Pty Ltd on behalf of North Byron Parklands, dated August 2010;
2. *Reply to Submissions and Preferred Project Report* prepared by SJ Connelly CPP Pty Ltd on behalf of North Byron Parklands, dated February 2011;
3. *Flood Risk Management Plan* prepared by Molino Stewart on behalf of North Byron Parklands (Billinudgel Property Pty Ltd), dated June 2011; and
4. *Environmental Health and Safety Management Manual* prepared by North Byron Parklands, dated August 2010.

A3 Project in accordance with plans

The proponent shall carry out the concept plan and all related future projects applications generally in accordance with the following plans:

Design Drawings prepared by Design Team Ink		
Drawing No.	**Name of Plan**	**Date**
Plan EA 1.2	Revised Event Area and Land Use Structure	~~14.12.10~~ 13.10.14
Plan EA 1.3	Revised Ecological Structure Plan	14.12.10

A4 Consistency of future development

5. In the event of any inconsistency between:

a) this approval and the drawings/documents referred to in terms A2 and A3, this approval prevails to the extent of the inconsistency;

b) any drawing/document listed in terms A2 and A3 and any other drawing/document listed in terms A2 and A3, the most recent document/ plan shall prevail to the extent of the inconsistency;

c) this approval and the Statement of Commitments (at Schedule 3), this approval prevails to the extent of the inconsistency.

6. If there is any inconsistency between this concept plan approval and any future application/ project, this concept plan approval shall prevail to the extent of the inconsistency.

A5 Lapsing of approval

This concept plan approval shall lapse five (5) years after the date of this approval, unless works the subject of the project approval for Stage 1 have physically commenced on or before that lapse date.

1.1.2 PART B – MODIFICATIONS TO THE CONCEPT PLAN

B1 Definitions

In this approval -

Small community trial event *is a non-music focused event such as a trade show, fun run, food fair, school carnival, moonlight cinema and the like with up to 3,000 patrons.*

small trial event is an outdoor event the first trial for which is proposed for ~~up to 10,000 patrons per day~~ between 10,000 to 15,000 patrons ;

medium trial event is an outdoor event the first trial for which is proposed for between ~~10,000 and~~ 15,000 and 25,000 patrons per day;

large trial event is an outdoor event the first trial event for which is proposed for between ~~15,000 and~~ 25,000 and 35,000 patrons per day;

patron means anyone who holds a ticket to attend an outdoor event;

event day means any day that is an advertised date on the face of an entry ticket for a trial event;

camper arrival day for a trial event, means ~~the day immediately~~ up to two days before the first event day, being a day on which camper patrons are permitted to arrive at the site.

camper departure day for a trial event, means the day immediately after the last event day, being a day on which camper patrons are permitted to depart from the site.

B2 ***Trial period for outdoor events***

1. Concept approval is granted for a trial period up to the end of 2017.
2. The ~~Director-General~~ Secretary may approve up to three trial events each calendar year, being one large trial event, one medium trial event and one small trial event. The ~~Director-General~~ Secretary may also approve additional small or medium events in place of a larger trial event during any calendar year so long as the number of trial events for the year does not exceed three.
3. The total event days for each calendar year must not exceed ten days. The total camper arrival and departure days each calendar year must not exceed six days.
4. The maximum number of patrons that may be approved for each large, medium or small trial event depends on the number of trials that have been held of events in that class, as set out in the Table below.

Number of trial	Large trial event	Medium trial event	Small trial event
First trial	Up to 25,000 patrons	Up to 15,000 patrons	Up to 10,000 patrons
Second trial	Up to 27,500 patrons	Up to 17,500 patrons	Up to 12,000 patrons
Third trial	Up to 30,000 patrons	Up to 20,000 patrons	Up to 13, 000 patrons
Fourth trial	Up to 32,500 patrons	Up to 22,500 patrons	Up to 14,000 patrons
Fifth trial	Up to 35,000 patrons	Up to 25,000 patrons	Up to 15,000 patrons

5. The Secretary may permit any number of small community trial events and may delegate to the Proponent authority to carry out up to five such events each calendar year.
6. The Secretary may limit aspects of small community trial events following the receipt of the annual evaluation report.

B3 ***Approval process for trial events***

The process for approving trial events, including the ~~Director – General's~~ Secretary's powers to limit or regulate trial events, must be set out in the project approval for the trial period.

B4 ***Outdoor events after 2017***

7. Concept approval is given for outdoor events after 2017 for up to 35,000 patrons per event day subject to the satisfactory performance of the trial events.
8. The Stage 2 works must be completed prior any outdoor event after 2017.
9.

B5 Modifications to onsite effluent irrigation

To ensure the protection of existing groundwater conditions and adjoining environments, no onsite effluent irrigation is to occur on land south of Jones Road. The proponent must provide suitable areas for onsite effluent irrigation on land north of Jones Road, without introducing any adverse environmental impacts.

1.1.3 PART C – REQUIREMENTS FOR FUTURE APPLICATIONS

Pursuant to sections 75P(2)(c) of the Act the following requirements apply, as relevant, with respect to future stages of the project to be assessed under Part 4 of the Act:

C1 Outdoor events after 2017

10. The performance of trial outdoor events must be addressed as part of any development application under Part 4 for outdoor events after 2017.
11. Any development application for outdoor events after 2017 must be accompanied by an environmental management and monitoring plan that details the management strategies, monitoring regimes and regular reporting on the following matters:
    - noise
    - traffic and transport
    - flora and fauna
    - bushfire
    - flood
    - surface water
    - event management.
12. The Stage 2 works must be completed before any outdoor events are held after 2017.

C2 Additional flood modelling

The following matters are to be addressed as part of any development application for the proposed conference centre and cultural centre:

13. The proponent must undertake further flood modelling of the site at a localised/catchment level with the aid of a detailed hydrological and hydraulic model prior to the construction of the conference centre and/or cultural centre.
14. The additional flood modelling must take into consideration the existing flood behaviour of the site and climate change requirements and provide an indication of any further flood impacts anticipated as a result of the constructed conference centre and/or cultural centre.
15. The proponent must submit details of an appropriate drainage system designed around these proposed facilities, including incorporation of water sensitive urban design measures.
16. Any future drainage systems introduced must not generate any detrimental impacts on the sites existing infrastructure.
17. Any future drainage systems introduced must not exacerbate the sites existing flood regime, or exacerbate the impacts of flooding on any land adjoining the site.

C3 Habitable floor levels

Floor levels of all permanent habitable structures proposed as part of any future development application must be constructed a minimum of 500 mm above the 100-year ARI flood level including relevant climate change requirements applying at the time of lodgement of the development applications.

Appendix B – DP&E Public Exhibition Advertisement

NSW GOVERNMENT | Planning & Environment

MODIFICATION REQUEST

Cultural Events Site, Yelgun NSW

Application No MP09_0028 MOD 3
Location Tweed Valley Way and Jones Road, Yelgun.
Proponent Billinudgel Property Pty Ltd.
Council Area Byron Shire
Approval Authority Minister for Planning

Description of proposed modification

The modification request seeks approval to:

- modify noise criteria to include limits for lower frequency sound emissions from events;
- provide for small community, non-music focused events; and
- amend minor administrative issues.

Exhibition

A copy of the modification request may be viewed on the Department's website (http://www.planning.nsw.gov.au). The request will also be on exhibition from Friday 5 June 2015 until Monday 22 June 2015 during regular business hours at:

- **Department of Planning & Environment:** Information Centre, 23-33 Bridge Street, Sydney;
- **Byron Shire Council:** 70-90 Station Street, Mullumbimby; and
- **Tweed Shire Council:** Murwillumbah Civic Centre, 10-14 Tumbulgum Road, Murwillumbah.

Submissions

Any person wishing to make a submission on the modification request should use the online form if possible. To find the online form go to the web-page for this modification request via www.majorprojects.planning.nsw.gov.au/page/on-exhibition.

Your submission must reach the Department by Monday 22 June 2015. Before making your submission, please read our Privacy Statement at www.planning.nsw.gov.au/privacy or for a copy ring the number below.

The Department will publish your submission on its website in accordance with the privacy statement.

If you cannot lodge online you can write to the address below. If you want the Department to delete your personal information before publication, please make this clear at the top of your letter. You need to include:

- your name and address, at the top of the letter only;
- the name of the application and the application number;
- a statement on whether you support or object to the modification request;
- the reasons why you support or object to the modification request; and
- a declaration of any reportable political donations made in the previous two years. To find out what is reportable, and for a disclosure form, go to planning.nsw.gov.au/donations or ring the number below for a copy.

Contact

Phone: Information Centre - 1300 305 695
Address: Planning Services, Department of Planning & Environment, GPO Box 39 SYDNEY NSW 2001, or fax to (02) 9228 6355. Your submission should be marked, Attention: Manager - Industry Assessments.

Appendix C – Traffic Impact Assessment

Greg Alderson & Associates

Chartered Professional Engineers and Scientists

Traffic Impact Assessment
Small Community Events at North Byron Parklands, Yelgun, NSW

Prepared: Michiel Kamphorst
Reviewed: Greg Alderson
Issued: Michiel Kamphorst
Date: 05/08/2015

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Document Information

Document title	Traffic Impact Assessment for small cultural events at North Byron Parklands, Yelgun, NSW
Reference	MK20150723-NBP_0
Job number	15077

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Executive Summary

A modification has been submitted with the Department of Planning and Environment to seek approval for up to six (6) small community events per year at North Byron Parklands, Yelgun, NSW. The proposed maximum patronage is 3,000. Typical community events with varying capacities included in (but not limited to) this proposal are trade shows, cross-country runs, food and wine fairs, boat shows, fun runs, moonlight cinema and school excursions. All community events are non-music focussed.

This Traffic Impact Assessment (TIA) has been prepared to address a number of comments raised by the Roads and Maritime Services (RMS) in their response to the modification which was placed on public exhibition between the 5th and 22nd of June 2015. This TIA focuses on potential impacts of the proposal regarding the traffic flows at the Yelgun Interchange and Link Road intersection in particular. As part of their comments, RMS have requested intersection modelling to be carried out to assess the risk of queuing onto the off ramps at this interchange.

Based on the existing project approval for North Byron Parklands, we have established the following Key Performance Indicators (KPI's):

- Maximum queue lengths on off ramps: 210 metres from start of diverge of off ramp;
- Maximum queue length on Link Road: 70 metres;
- Maximum queue length right turn off Tweed Valley Way: to be contained within CHR turn bay;
- Worst Level of Service Tweed Valley Way and Brunswick Valley Way: LOS D;
- Worst Level of Service Yelgun Interchange: LOS C.

Background traffic profiles for the 2025 design year have been constructed using traffic survey data from the Pacific Motorway at the Brunswick Heads Weight-In-Motion sensor and various traffic surveys carried out in conjunction with previous events at North Byron Parklands. The Friday PM peak was found to be the busiest period for the subject site, therefore that scenario was chosen as the baseline for the intersection analyses. This would provide a conservative approach and would allow for the most flexibility with respect to timing of future small community events at the site.

We have analysed traffic survey data from various festivals, trade shows and sports fields to estimate the peak magnitude and concentration of the proposed event types. It was found that trade shows and camping events generally have a less concentrated arrival peak than sports events. Departure peaks are generally more concentrated than arrival peaks.

In order to estimate origin distributions, the Simple Gravity Model has been adopted. This catchment model compares areas of the various catchments for a development with their travel time to the development. We have applied this model to various towns and hamlets between Ballina, Lismore and Tweed Heads. As this method has a limited accuracy, we have incorporated this into a sensitivity study based on origin, peak magnitude and vehicle occupancy.

From this analysis it was determined that camping events and other community events such as food and wine fairs comply with the KPI's for a 3,000 patron event. Other events, such as events with critical start and/or finish times (i.e. the commencement of a fun run, or the end of a film festival, etc) comply with the KPI's for an event with patron levels up to 1500, whilst events with patron levels over 1500

would require some form of management, either by way of employing different modal splits (i.e. public transport) or reducing patron levels to a particular number to ensure compliance with the KPI's.

1. Introduction

Greg Alderson and Associates have been engaged by North Byron Parklands to prepare a Traffic Impact Assessment (TIA) for a modification to seek approval for small community events at North Byron Parklands in Yelgun. It is proposed to hold up to six (6) non-music events per year, that are community focussed for a patronage up to 3,000. While this TIA will focus on modelling the maximum number of patrons for small community events it is acknowledged that most if not all such community event patrons numbers will likely be lower than 3,000 people.

1.1. Project brief and background

In May 2015, Planners North prepared a S75W Modification Application for North Byron Parklands. As part of this application, approval is sought to hold up to six small community events per annum. Typical community events would be non-music events, and include trade shows, cross-country runs, food and wine fairs, boat shows, fun runs, moonlight cinema, etc. Some of these community events may attract up to 3,000 patrons.

The key requirements for these events are:

- "Non-music focussed;
- Small enough so as not to require external traffic management; and
- Conformity with the applicable Parklands general management protocols and consent conditions." (Planners North 2015).

After lodgement of the application, the NSW Roads and Maritime Services (RMS) provided a submission to the Department of Planning and Environment (DPE) as requested by DPE. In this letter (dated 29th June 2015), RMS indicates acceptance of a change of conditions that the Level of Service performance criteria for the Tweed Valley Way. The LOS requirement for these roads is amended from LOS C to LOS D.

However, concern is raised that small events may generate more concentrated traffic loads, which may result in unacceptable queuing on the Link Road and off ramps at the Yelgun Interchange.

An aerial image of the Yelgun Interchange is depicted in Figure 1. The Link Road, which connects Tweed Valley Way and Brunswick Valley Way with the Pacific Motorway, has a length of approximately 70 metres. Due to its relatively steep longitudinal gradient, we have observed that vehicles allow for more headway than usual when queuing on the Link Road, which results in a queue storage capacity of 5 to 6 vehicles on the Link Road. The existing approval conditions of North Byron Parklands, therefore include a Key Performance Indicator (KPI), that queuing on the Link Road should not exceed 70 metres as to ensure that the roundabout can remain free flowing. In addition to this condition, queue lengths on the off ramps are not permitted to grow past 210 metres from the start of the diverge of each off ramp.

It is the purpose of this TIA to carry out intersection analyses of the Yelgun Interchange in order to calculate the impact of various modelling scenarios. In chapter 2, typical background traffic profiles for the 2025 design year will be established and in chapter 3, typical event traffic profiles are established. Intersection modelling and sensitivity analyses are carried out in chapter 4 in order to calculate queue growth. Conclusions and recommendations are provided in chapter 5.

Figure 1 - Yelgun Interchange, *Source of aerial image: Google Maps*

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.

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 2 below depicts the location of the site with respect to its locality.

1.4. Definitions

AADT	Average Annual Daily Traffic; average traffic volume per day after application of correction factors
ADT	Average Daily Traffic; average traffic volume per day, based on a limited survey period, typically 1 week.
Peak Flow Rate	Hourly volume of vehicles during busiest part of assessment period
Peak Flow Percentage	Peak flow rate measured as a percentage of total number of vehicles in event
Background Traffic	Traffic composition as would typically exist without superposition of event traffic
Heavy Vehicle	For the purposes of this report: any vehicle other than a pedestrian, cyclist, motorbike or car (with trailer)

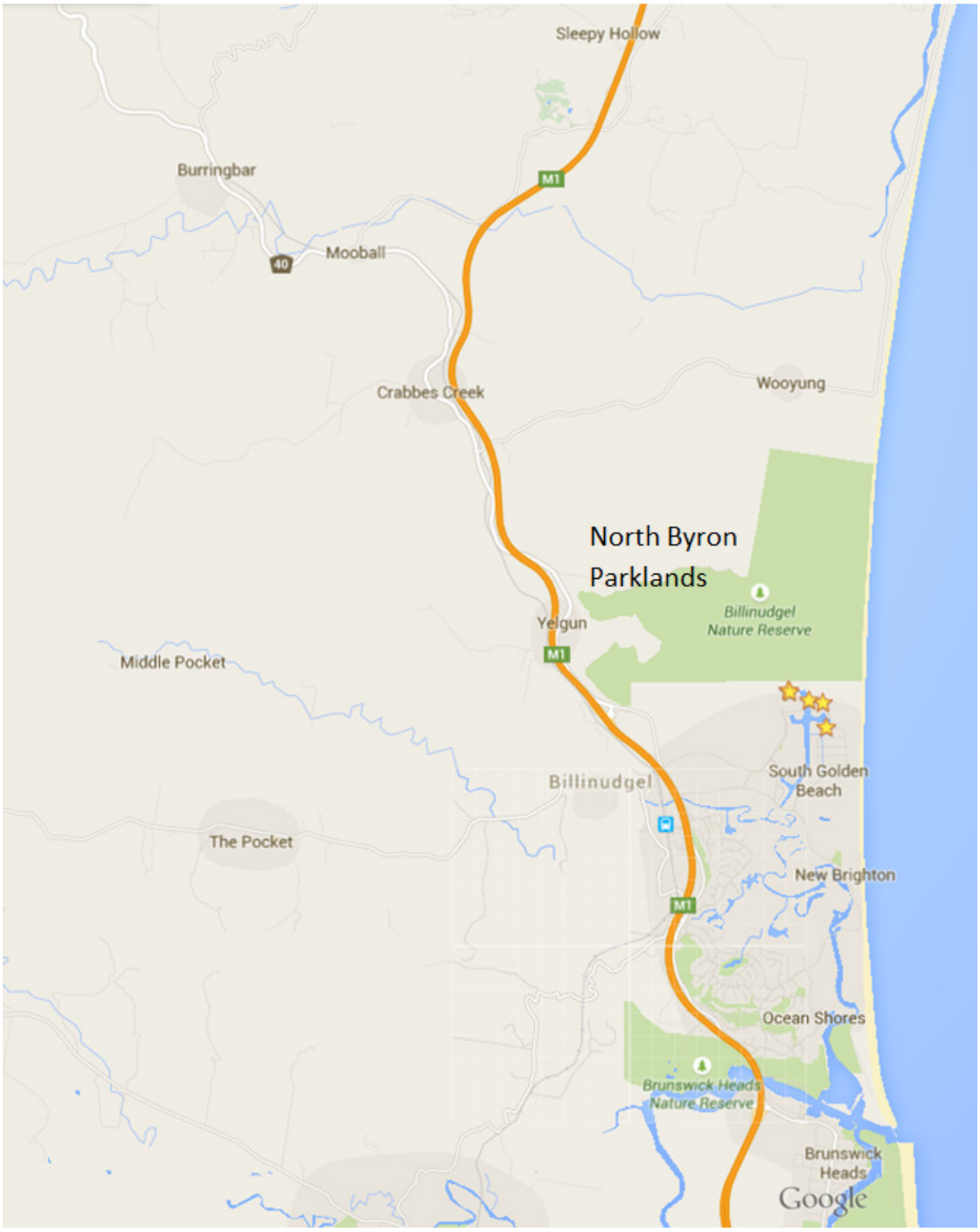

Figure 2 - Site locality, *Source of map: Google Maps*

1.5. Key Performance Indicators

Critical scenario's to be assessed are both arrival and departure peaks. Arrival peaks have the potential to cause congestion on the Yelgun Roundabout and associated queuing on the off ramps. Departure peaks could result in congestion due to the right turn from Tweed Valley Way onto the Link Road.

Based on the above, relevant KPI's for this proposed development would be:

- Maximum queue lengths on off ramps: 210 metres from start of diverge of off ramp;
- Maximum queue length on Link Road: 70 metres;
- Maximum queue length right turn off Tweed Valley Way: to be contained within CHR turn bay;
- Worst Level of Service Tweed Valley Way and Brunswick Valley Way: LOS D;
- Worst Level of Service Yelgun Interchange: LOS C.

2. Background traffic

To provide a baseline traffic volume to the various SIDRA calculations carried out in this report, background traffic flows are established. Background traffic volumes during the design year (2025) would be a function of various parameters, some of which are captured in this chapter. The impacts of 'black swans' (not-anticipated events that have a major effect on society) on traffic growth trends are not included in this assessment.

2.1. Seasonal adjustment factors

The proposal is flexible about periods during which the proposed events may be held. Therefore, background traffic is established using Average Annual Daily Traffic (AADT) calculations. AADT's are established by carrying out traffic surveys (with a duration of typically a week or more), the results of which would be adjusted using seasonal adjustment factors to allow for fluctuations in background traffic throughout the year.

The intersections that are the subject of this study generally carry traffic that enters or exits the Pacific Motorway at Yelgun. Therefore, it is reasonable to assume that seasonal fluctuations at the subject site are similar to those on the Pacific Motorway.

RMS have provided our office with hourly traffic volumes on the various Pacific Motorway traffic lanes at the Brunswick Heads Weight In Motion (WIM) station for the year of 2014, see Figure 3. The proximity of this WIM station to the subject site makes the data suitable to adopt as baseline for the seasonal adjustment factor calculations. Traffic data is missing for two dates in the data set (10th of January 2014 and 12th of January 2014). The remaining 363 days of 2014 are included, therefore sufficient data is present to carry out the calculations.

Figure 3 shows the fluctuation in Pacific Motorway traffic during irregular events such as Splendour In The Grass and the Christmas break. Although these events do impact some of the averaging methods adopted in this chapter, we have not excluded these events from the analyses. Selectively excluding events which have been identified to have a measurable impact on Motorway traffic would create the erroneous suggestion that the remaining traffic flows are not subject to any irregularities. Events such as the various festivals in the region and public holidays are existing sources of fluctuation and are likely to remain as such, therefore these have been included in the data sets.

Averaging all daily traffic volumes at this station, results in the calculation of a 2014 daily traffic volume of 22,405 AADT. The calculations for establishing the seasonal adjustment factors are provided in Table 1. This

table will be adopted for applying seasonal adjustments to traffic survey data collected at various sites relevant to the study area.

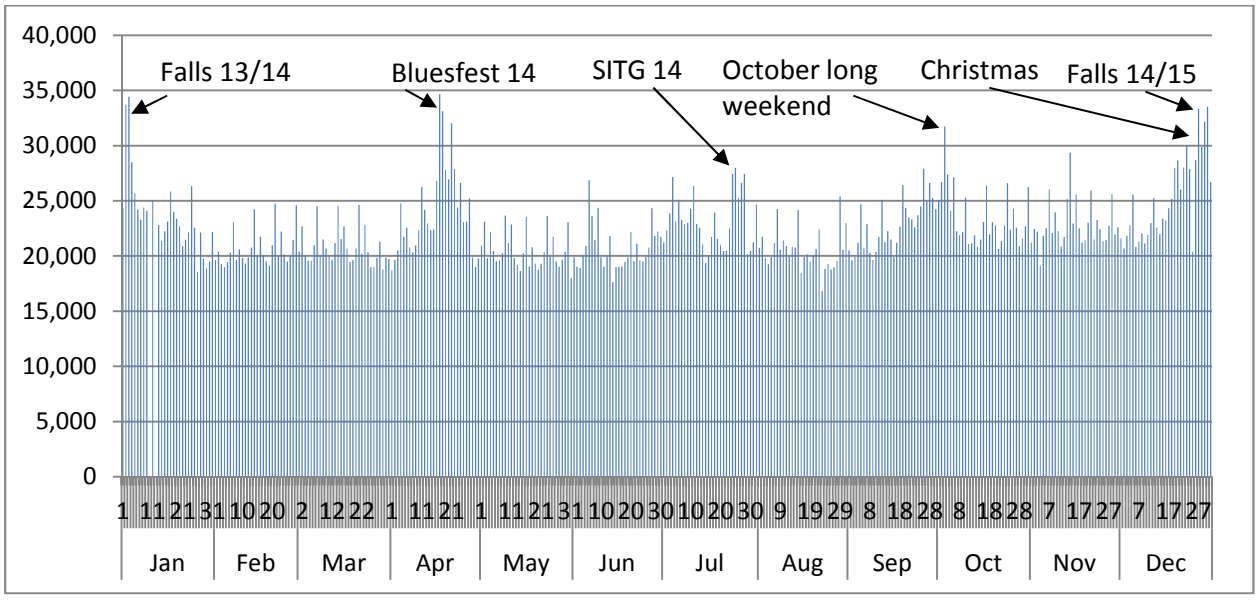

Figure 3 - 2014 WIM data at Brunswick Heads

Table 1 - Seasonal adjustment factors at Brunswick Heads WIM station 2014

Month	Average daily traffic (per month)	Seasonal adjustment factor
January	23,706	1.058
February	20,698	0.924
March	20,832	0.930
April	24,022	1.072
May	20,565	0.917
June	20,756	0.926
July	23,170	1.034
August	20,587	0.919
September	22,760	1.016
October	23,526	1.050
November	22,873	1.021
December	25,222	1.126

2.2. Adjusting for day of the week

The next adjustment factor relates to allowing for traffic fluctuations throughout the week. To establish this adjustment factor, the average of all daily traffic volumes of a particular week day (all Mondays, all Tuesdays, etc) is compared to the AADT. This then provides a weighted-average method to establish weekday adjustment factors. The results are tabulated in Table 2.

Table 2 - Weekday adjustment factors at Brunswick Heads WIM station 2014

Day of week	Average daily traffic (for all weeks)	Weekday adjustment factor
Monday	22,010	0.982
Tuesday	20,893	0.933
Wednesday	21,298	0.951
Thursday	22,491	1.004
Friday	25,503	1.138
Saturday	22,058	0.985
Sunday	22,667	1.012

We have compared the above weekday adjustment factors at the WIM station to traffic survey data collected on Tweed Valley Way between Yelgun Road and the Link Road in July 2014, December 2015 and July 2015. The results are depicted in Figure 4. From this figure it is clear that throughout the year there can be some fluctuation throughout the week. However, Friday is found to be the day with the largest traffic volume and the weekday adjustment factor is calculated to be between 1.12 and 1.14.

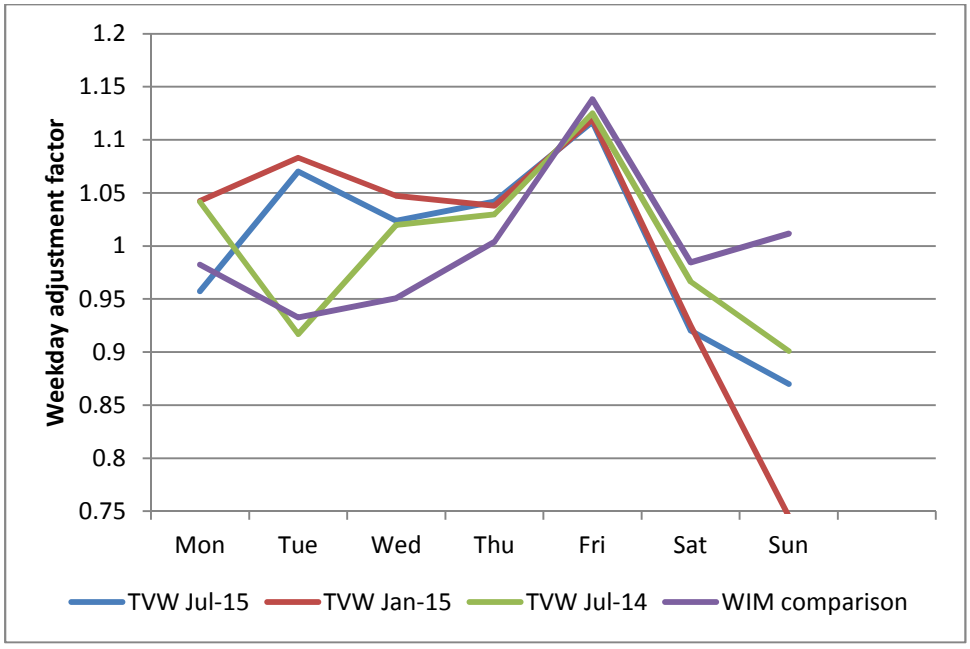

Figure 4 - Weekday adjustment factor comparison

2.3. Annual compound traffic growth

Our office has carried out traffic surveys at various locations on and near the Yelgun Interchange during 2013, 2014 and 2015. These volumes would need to be extrapolated to the 2025 design year using annual compound traffic growth assumptions. We will adopt Pacific Motorway traffic growth figures that have been published in the 2008 Working Paper 6 for the Tintenbar to Ewingdale Pacific Highway Upgrade.

Table 20 of Working Paper 6 is copied below into Figure 5. For the upgrade Highway between Bangalow and Ewingsdale, it depicts a traffic growth increase from 13,100 to 16,450 between 2012 and 2022 (the period best representative of the 2015-2025 period of this report). This implies an applied annual compound traffic growth rate of 2.30%. We will adopt this growth rate of 2.30% for the purposes of this report.

Table 20 Forecast Daily Traffic Volumes (vehicles)

Forecast Year	Between Ross Lane and Ivy Lane					
	Existing Highway			Upgraded Highway		
	Light	Heavy	Total	Light	Heavy	Total
2006	1,490	110	1,600	9,590	1,910	11,500
2012	1,750	130	1,880	12,170	2,330	14,500
2022	2,190	170	2,360	15,300	2,850	18,150
2032	2,640	200	2,840	18,170	3,380	21,550
2042	3,090	230	3,320	21,000	3,900	24,900

Forecast Year	Between Ivy Lane and Bangalow					
	Existing Highway			Upgraded Highway		
	Light	Heavy	Total	Light	Heavy	Total
2006	990	70	1,060	10,100	1,950	12,050
2012	1,170	90	1,260	12,730	2,370	15,100
2022	1,470	110	1,580	16,040	2,910	18,950
2032	1,770	130	1,900	19,050	3,450	22,500
2042	2,060	160	2,220	22,030	3,970	26,000

Forecast Year	Between Bangalow and Ewingsdale					
	Existing Highway			Upgraded Highway		
	Light	Heavy	Total	Light	Heavy	Total
2006	7,460	630	8,090	8,520	1,830	10,350
2012	8,810	740	9,550	10,860	2,240	13,100
2022	11,050	930	11,980	13,710	2,740	16,450
2032	13,290	1,120	14,410	16,210	3,240	19,450
2042	15,530	1,310	16,840	18,720	3,730	22,450

Figure 5 - Table 20 of the 2008 T2E Working Paper 6

2.4. Background traffic volumes and profiles

As the subject proposal is not specific to any event in particular, a conservative approach would need to be adopted for the selection of representative day of the week during which the various event traffic scenarios are analysed. From the above assessment it is clear that Friday typically is subject to the largest traffic volumes in a day (excluding public holidays and other irregular traffic events). Therefore, the analyses in this report will be based on Friday traffic.

In preparing background traffic volumes and profiles, classified traffic survey data collected by our office will be used. Firstly, 2025 background traffic volumes are established by calculating AADT values for each survey location based on traffic data collected recently for a Friday in July and a Friday in December or January. These 2025 AADT's are then averaged into the adopted 2025 AADT's. These calculations are tabulated in Table 3.

Table 3 - 2025 AADT calculations

Location	Date	Daily traffic total	Calculated AADT	Calculated 2025 AADT	Adopted 2025 AADT
TVW southbound	3rd July 2015	2074	1762	2212	2197
	12th December 2015	2227	1738	2182	
TVW northbound	3rd July 2015	2278	1935	2429	2146
	12th December 2015	1901	1483	1862	
northbound off ramp	10th July 2015	1549	1316	1652	1582
	12th December 2015	1544	1205	1513	
southbound off ramp	16th January 2015	1594	1324	1661	1716
	10th July 2015	1661	1411	1771	
BVW southbound	3rd July 2015	2381	2023	2539	2499
	12th December 2014	2511	1960	2460	
BVW northbound	3rd July 2015	2557	2172	2727	2599
	12th December 2014	2522	1968	2471	

Secondly, for each data set normalised hourly traffic profiles are established per direction. These are then averaged to create the adopted hourly profiles for each survey station. The hourly flows as percentage of daily traffic are plotted in Figure 6. The resulting hourly traffic profiles per survey station are depicted in Figure 7, Figure 8 and Figure 9.

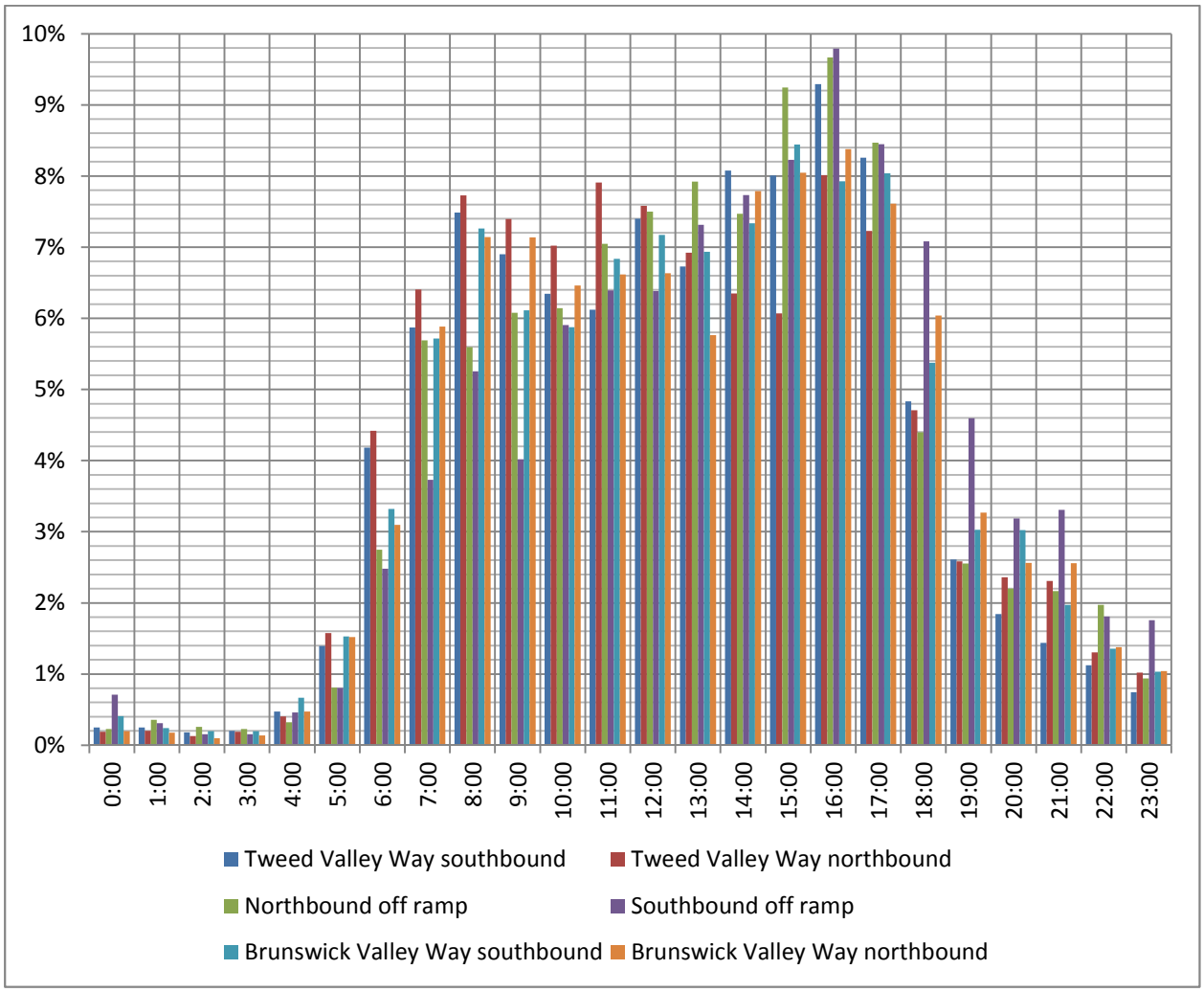

Figure 6 - Normalised hourly profiles for Fridays

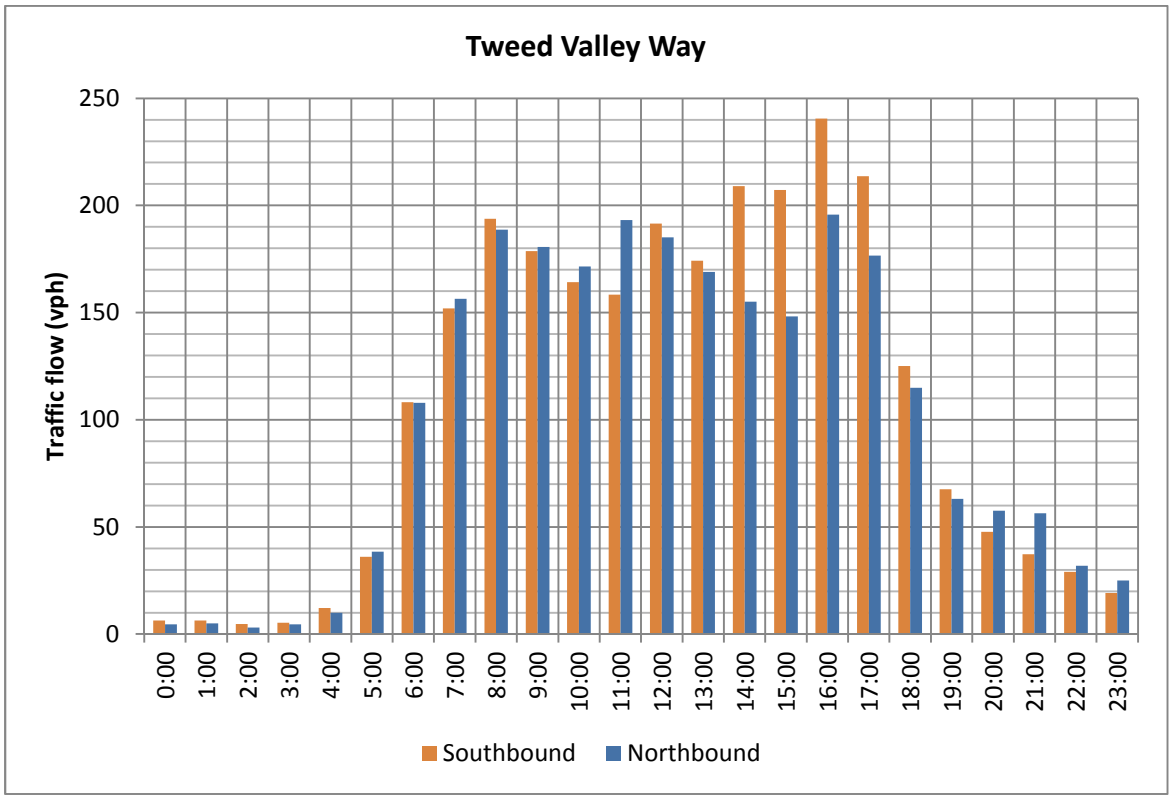

Figure 7 - Tweed Valley Way 2025 background traffic profile

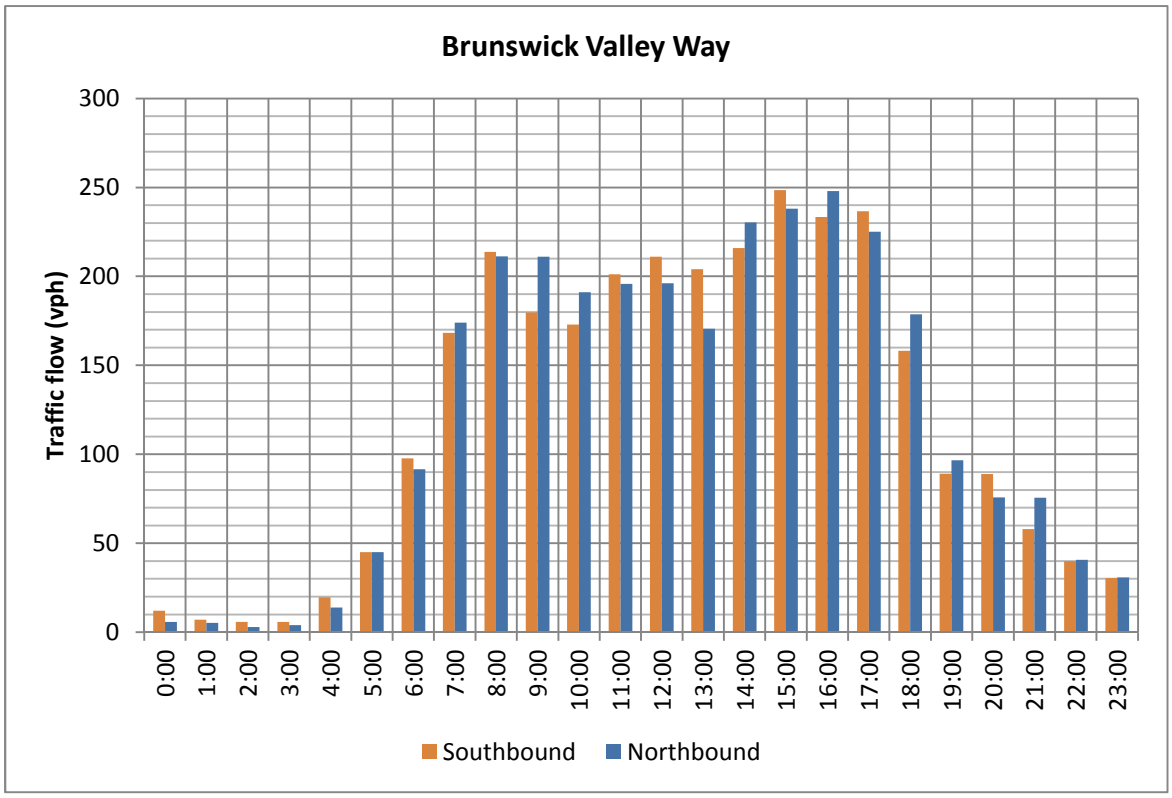

Figure 8 - Brunswick Valley Way 2025 background traffic profile

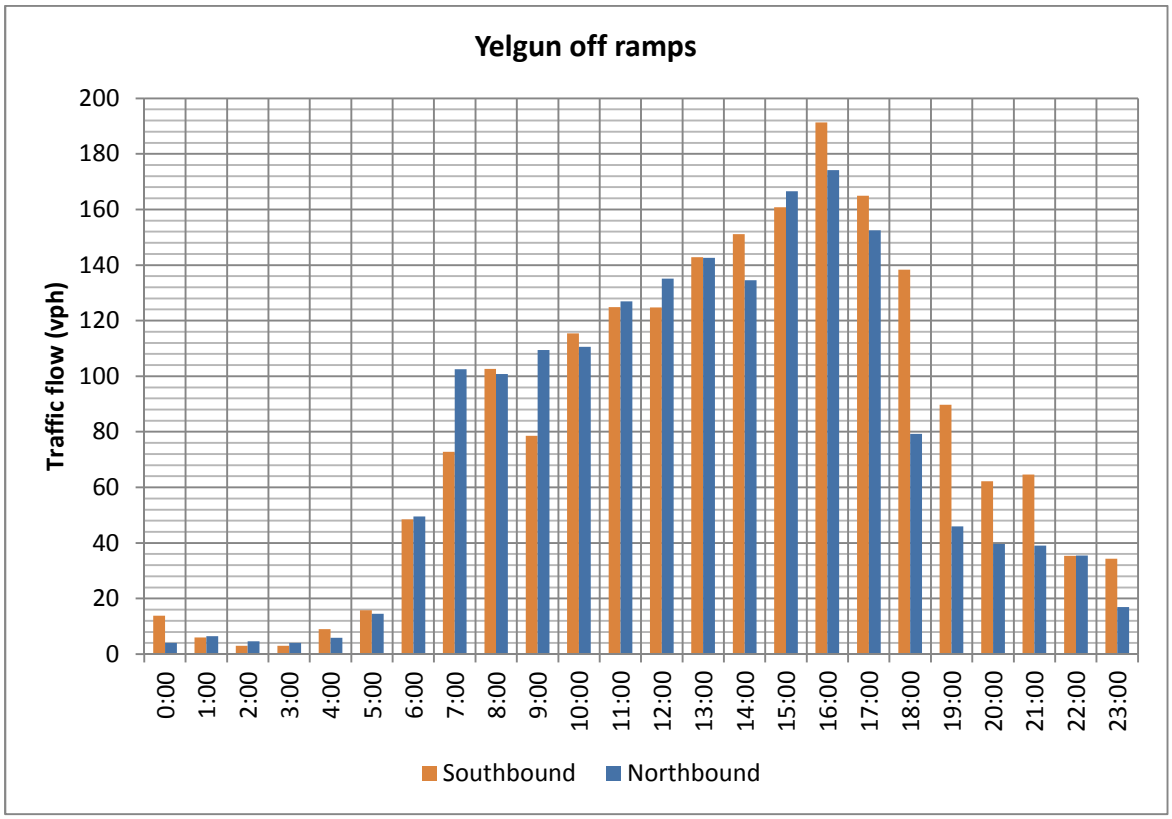

Figure 9 - Yelgun off ramps 2025 background traffic profile

2.5. Selection of background traffic scenarios

Calculated 2025 background traffic volumes during the Friday AM and PM peaks are depicted in Table 4. From this table it can be concluded that typically, the traffic load on the Yelgun interchange is larger during the PM peak than during the AM peak. SIDRA modelling in this report will be based on the PM peak baseline flow, which is the most conservative approach. By adopting the Friday PM peak as a baseline background traffic flow, the impact of any event would be less than modelled at other times during the week.

Table 4 - AM and PM background traffic volumes for 2025

Location	AM background volume, vph	PM background volume, vph
Tweed Valley Way southbound	194	214
Tweed Valley Way northbound	189	196
Brunswick Valley Way southbound	214	237
Brunswick Valley Way northbound	211	225
Southbound off ramp	79	165
Northbound off ramp	109	153

3. Event traffic

Event traffic generation is influenced by factors such as arrival and departure profiles, mode share, vehicle occupancy and origin/destination distribution. These parameters are addressed individually in this chapter.

3.1. Event arrival and departure profiles

The arrival and departure profiles would depend strongly on each event type, whether it be trade shows, events involving camping, or events with a defined start and finish such as sporting events.

3.1.1. Trade shows

During a 3 day trade show elsewhere in NSW, traffic surveys were carried out. This data was analysed by subtracting departing traffic from arriving traffic and adding this to vehicles on site. Thus, curves were created showing how many vehicles were on site. This is plotted below in Figure 10. Arrival and departure profiles (in 15 minute flows as a percentage of the daily total) are plotted in Figure 11 and Figure 12.

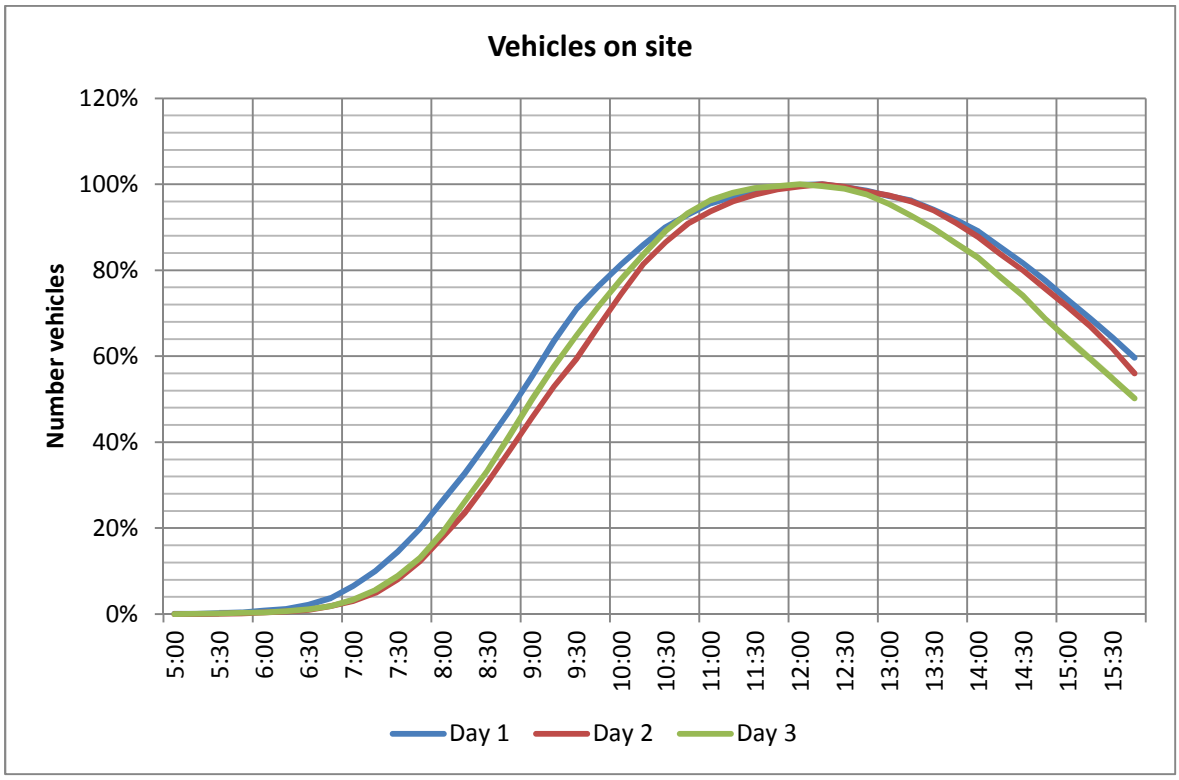

Figure 10 - Site usage curve during trade show

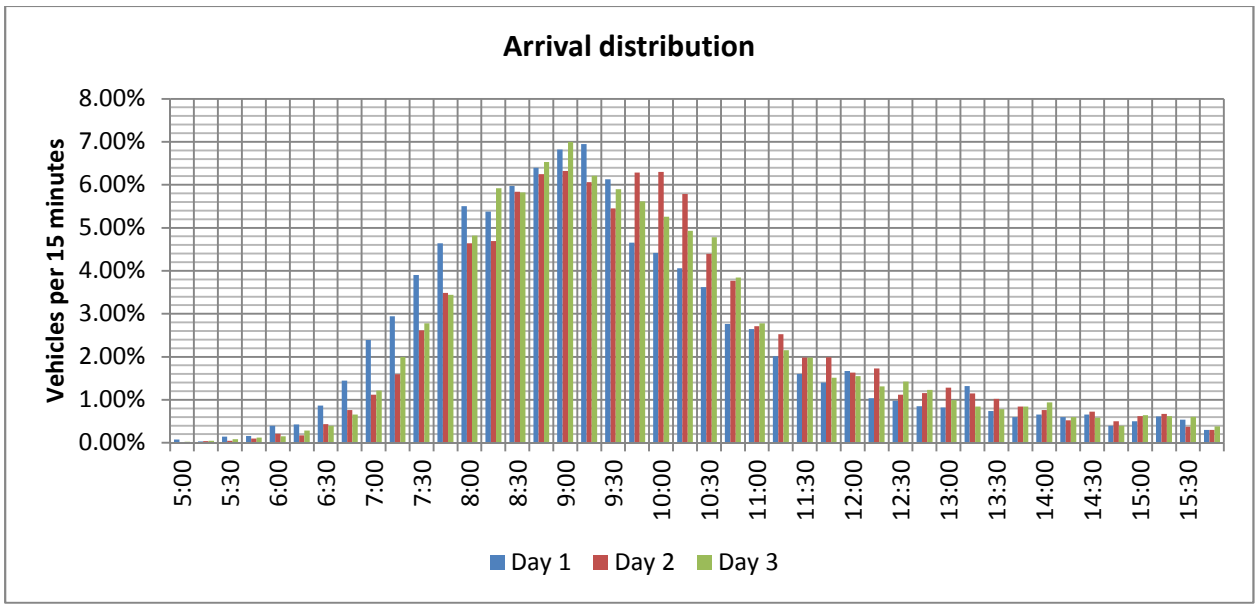

Figure 11 - Arrival profile (15-minute vehicle flow as percentage of daily total)

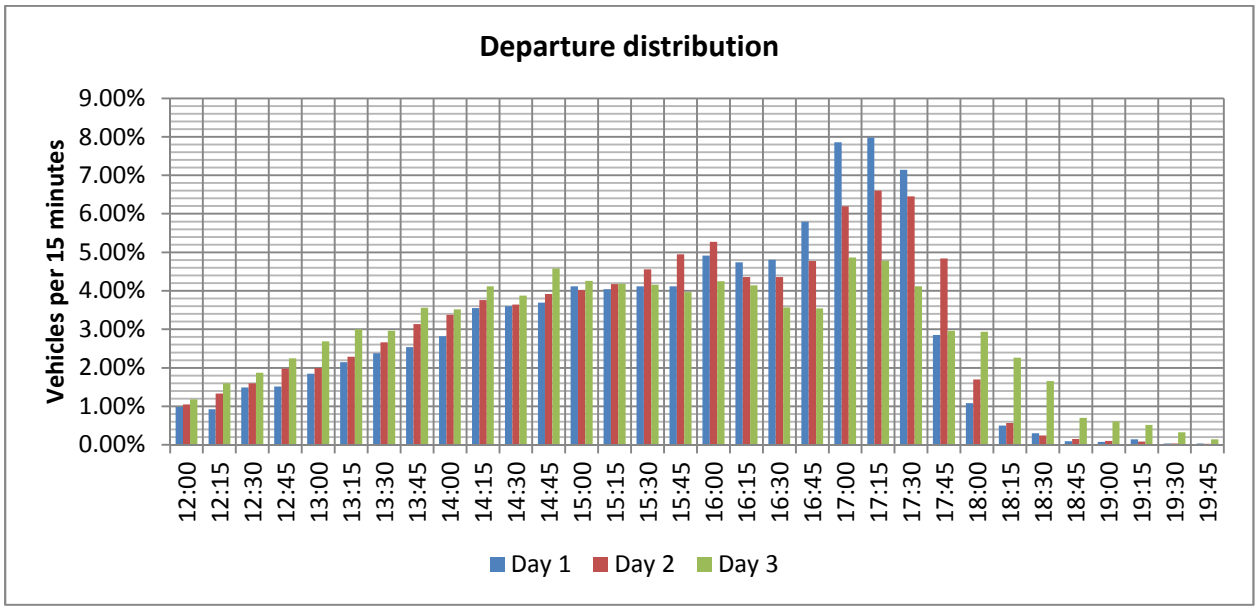

Figure 12 - Departure profile (15-minute vehicle flow as percentage of daily total)

Arrivals peaked around 9am, but the arrival profile is spread out relatively widely throughout the morning over a period of 3 to 4 hours typically. The largest amount of patrons was on site around midday. Then from midday onwards, departure flows generally increased and peaked shortly after 5pm when the event site was closed.

It is also noticed that the 5pm departure peak was largest on day 1 and reduced during the following days. Arrival profiles for day 1 and day 3 were similar, however during day 2 there was a slight surge of arrivals mid-morning. The peak hourly arrival flow was approximately 25% of the daily total arrivals. Departure peaks were 29% of total departures on day 1, 24% on day 2 and 17% on day 3.

As there is some overlap between arrival and departure curves during the middle of the day, there is a both traffic arriving and departing, resulting in an increased traffic load on the road network. However this increase is relatively minor compared to the impact of the arrival peaks and the departure peaks.

3.1.2. Events with camping

Events with camping generally show a fairly wide arrival profile for the arrival of campers the day before the actual event. Figure 13 shows arrival profiles for various events including camping in this region. The location and magnitude of arrival peaks vary, depending on what the event is and where it is held. Peaks generally varied between 9% and 15% of the daily total arrivals. It is noted that the wide spread of arrivals is typical for large events with camping. Smaller events with camping may be subject to larger, more concentrated peaks.

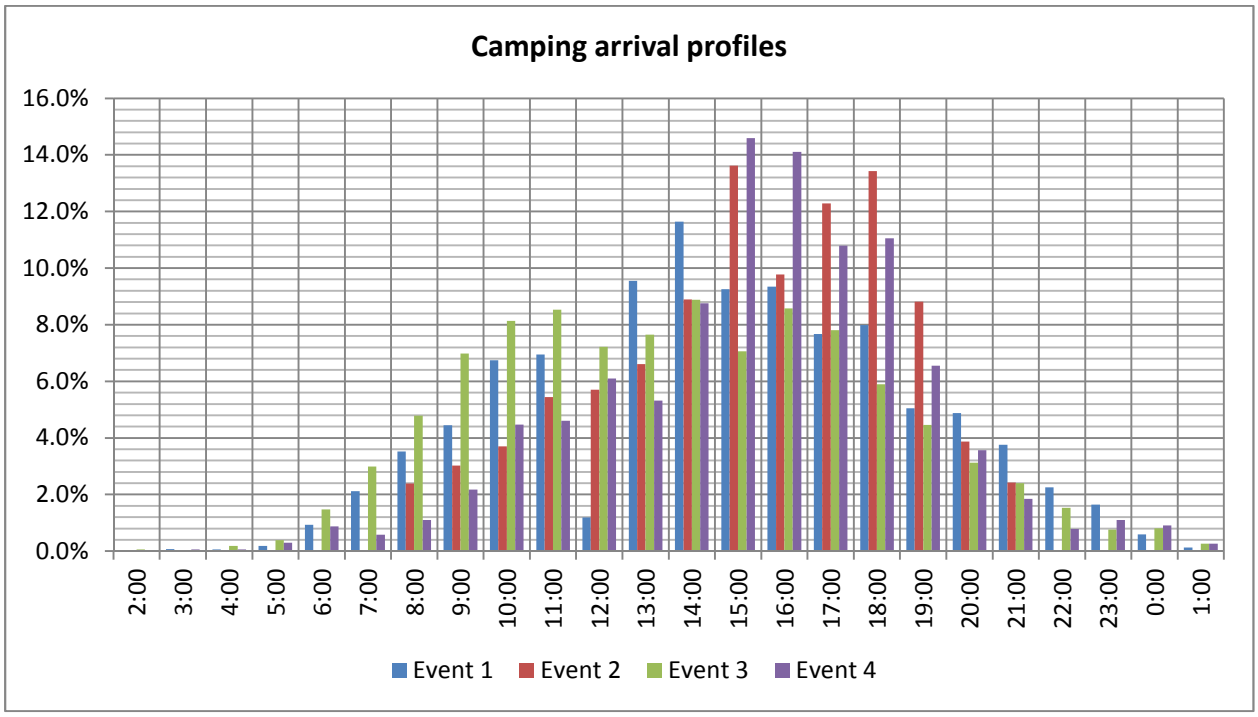

Figure 13 - Camping arrival profiles

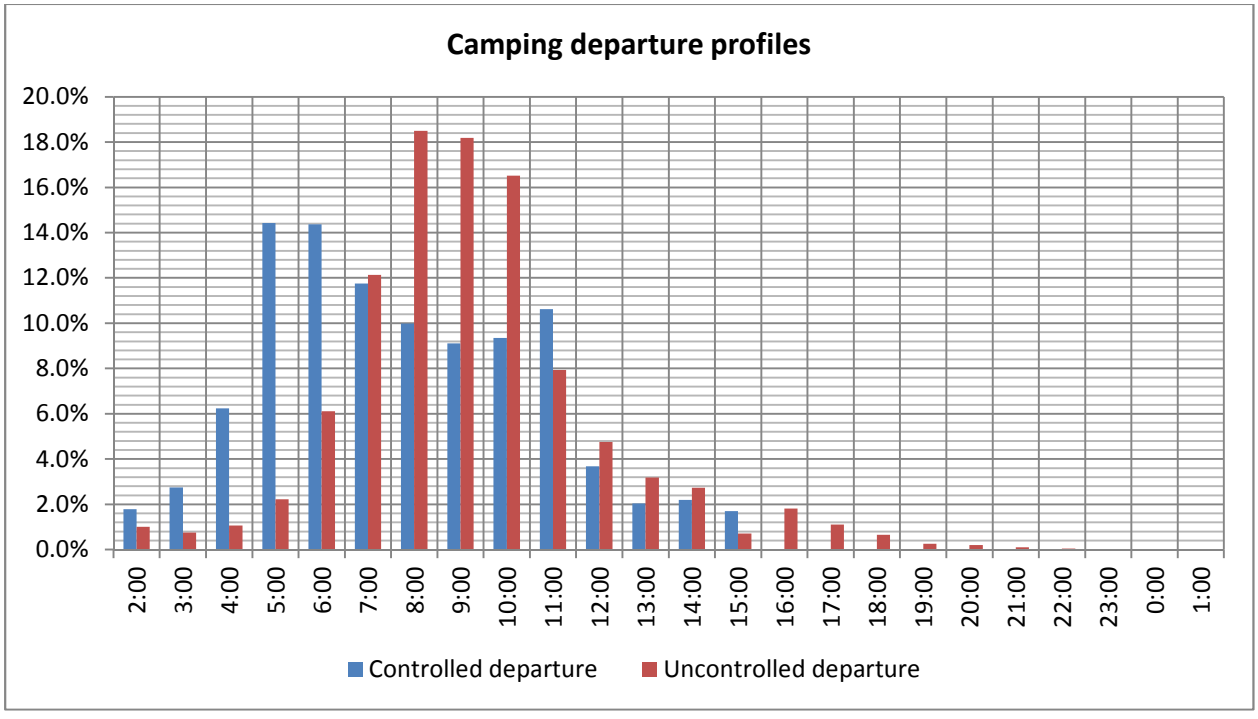

Figure 14 - Camping departure profiles

Figure 14 shows departure profiles for two types of events with camping. The event nominated in blue had a controlled exit. Exit flow rates were limited to protect public road infrastructure from congestion. The graph shows that many campers chose to leave the site early from 5am.

The red profile is for a camping event that did not have a controlled exit. A steady build-up of departing traffic is measured between 5am and 8 am, with a peak from 8am to 10pm at a rate of 16% to 19% of total departing traffic. This graphs shows that the majority of campers departed between 7am and 11am, with strongly reduced rates before and after this period.

3.1.3. Events with day patrons

We have analysed arrival profiles of various events with day patrons and plotted these in Figure 15. For a selected period of time, the hourly inbound traffic flow is divided by the total number of vehicles arriving in that same period to calculate the percentage flow rates. This shows that typical peaks are between 15% and 25% of total arrivals. It is noted however that this data was collected during events with large numbers of day patrons and an entertainment programme that extended from midday to midnight. Smaller events are likely to have more concentrated peaks.

Departure of day patrons recorded for some large events in the region are depicted in Figure 16. The plot shows that during the departure peak, some 24% to 35% of vehicles leave the event site in the space of 1 hour. Smaller events are likely to have more concentrated peaks.

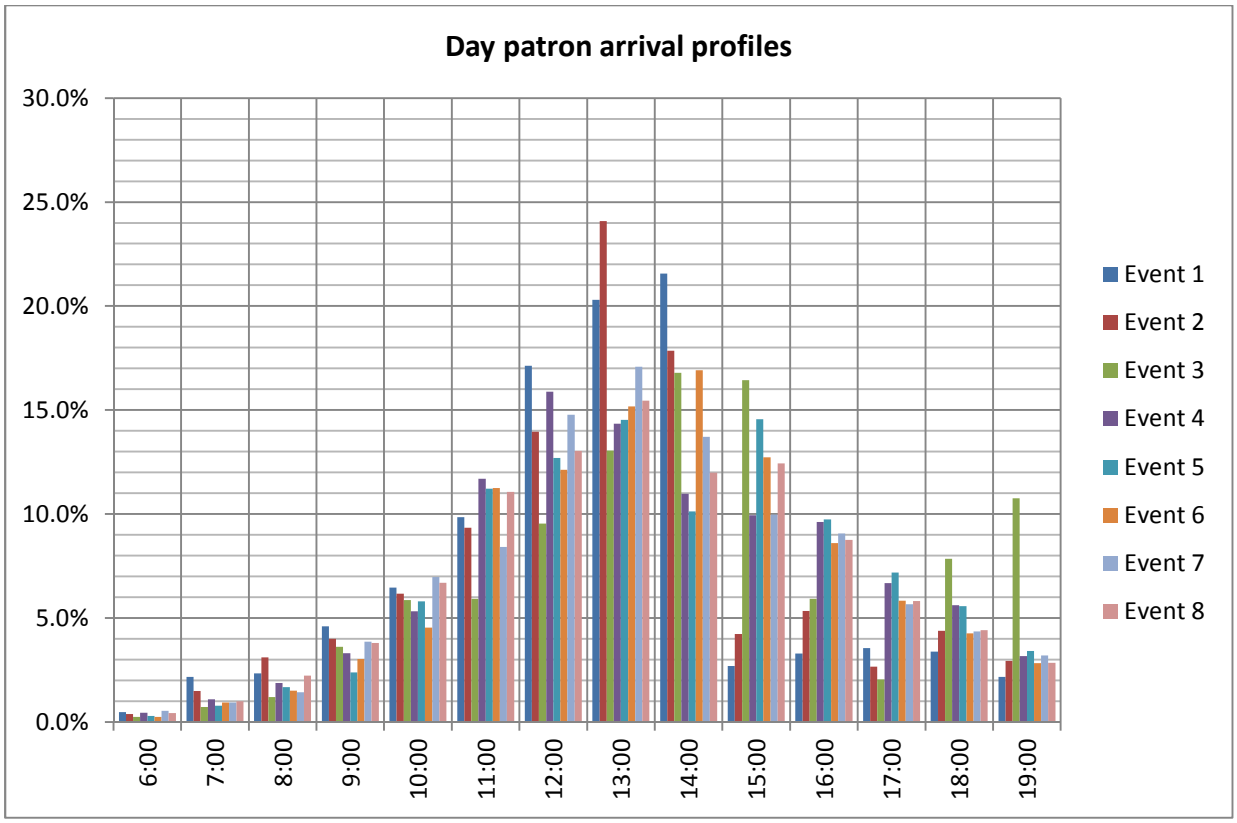

Figure 15 - Day patron arrival profiles

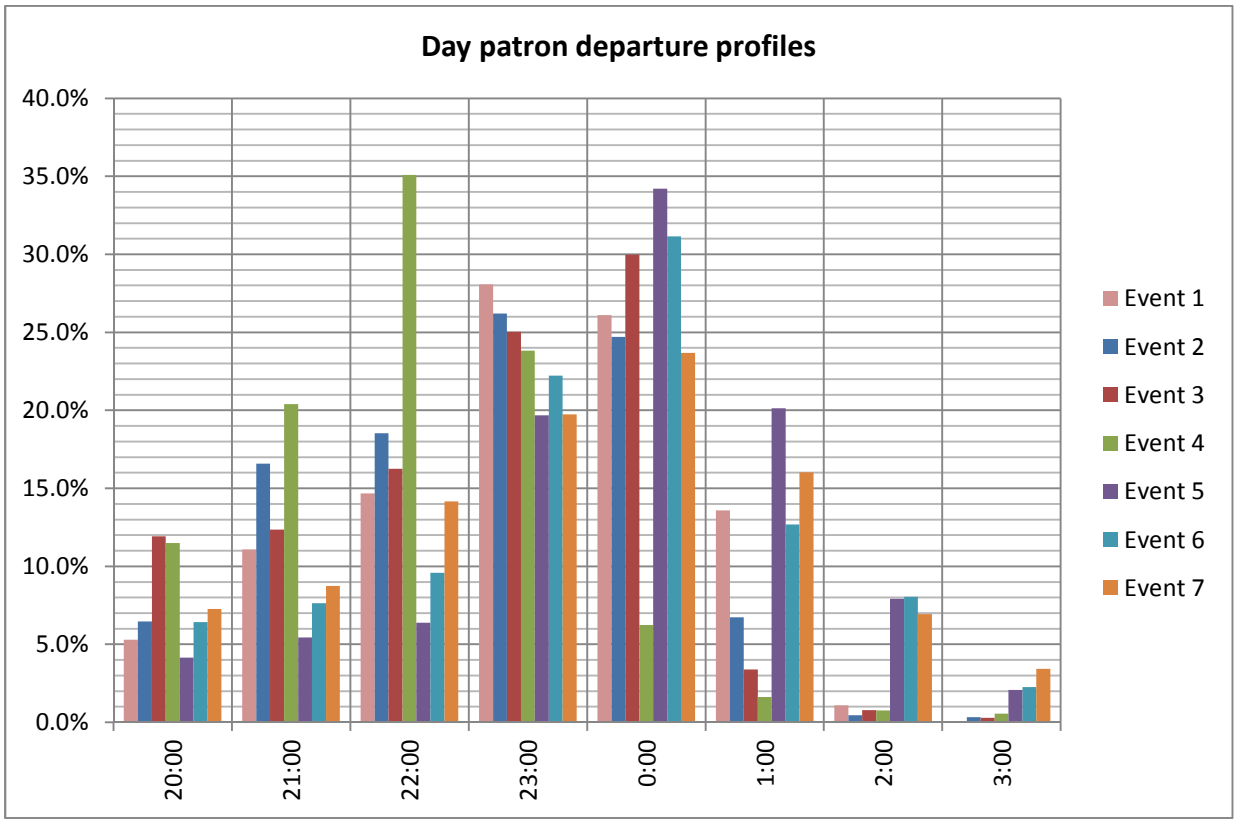

Figure 16 - Day patron departure profiles

3.1.4. Sporting events

Our office has carried out a traffic survey at a local sportsfield, the data of which can be used to analyse arrival and departure profiles for sporting events. The events captured in the data would include Saturday and Sunday competitions, and weekday afternoon games and competitions. The arrival profiles are plotted in Figure 17 using 15 minute traffic flows as percentages of the total number of vehicles in the event. This graph shows that for sporting events, up to some 43% of patrons could arrive in the space of 15 minutes; therefore a 100% would arrive within the hour.

Similarly for departure from sporting events (Figure 18), all vehicles depart within the hour, an on occasion, nearly 100% departs in the space of 15 minutes.

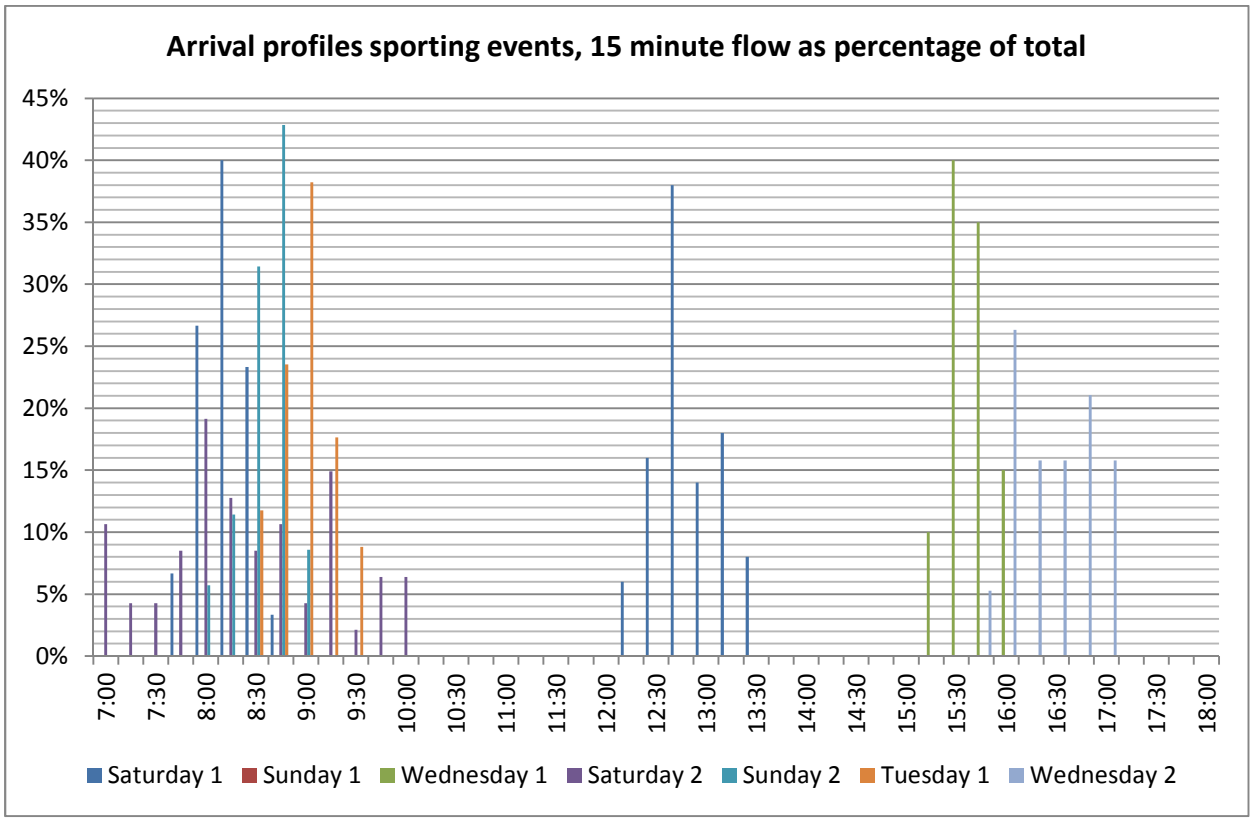

Figure 17 - Arrival profiles sporting events

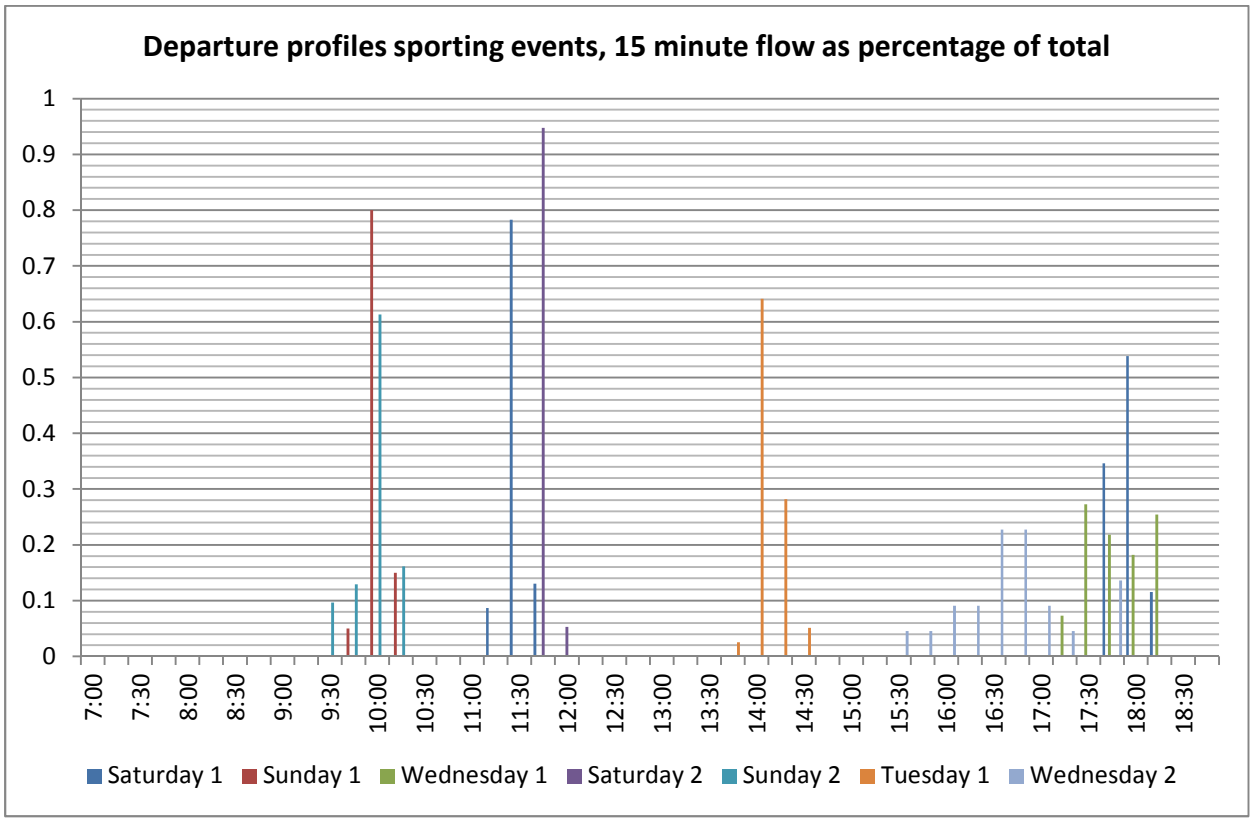

Figure 18 - Departure profiles sporting events

3.1.5. Arrival and departure profile summary

A summary table of the findings in the previous sections regarding arrival and departure profiles is provided in Table 5. It appears that typically, departure peaks are larger than arrival peaks. The arrival peaks for trade shows, camping events and entertainment events with day patrons did not exceed 25% of total arrivals. Departure peaks remained below 35%. It should be noted that smaller events have the potential to create more concentrated peaks. Sports events however, show different characteristics: all patrons could arrive within the space of half an hour and depart within the space of 15 minutes. The sports events analysed were relatively small events with up to some 45 vehicles on site. Larger sporter events would likely result less concentration of peaks so that all vehicles may arrive in a space of 1 hour rather than 30 minutes.

Table 5 - Arrival and departure profile summary

Location	Arrival peak in percentage of total	Departure peak in percentage of total
Large trade show	25%	17% - 29%
Campers at large event	9% - 15%	16% - 19%
Day patrons at large event	15% - 25%	24% - 35%
Sports event	100%	100%

3.2. Origin/destination distribution

Origin distributions have been estimated during previous events at the site. A summary is provided below in Table 6. A significant reduction can be observed between Falls 13/14 and Falls 14/15 for traffic exiting the Pacific Motorway from the North at Yelgun. This was due to management techniques employed to encourage patrons from the North to exit the Motorway at Pottsville, in order to reduce the pressure on the Yelgun Interchange.

Table 6 - Summary of origin distribution at previous events at NBP

Patron type	Origin	SITG 13	SITG 14	Falls 13/14	Falls 14/15
Day patrons	Pacific Motorway (North)	32%-33%	29%		
	Pacific Motorway (South)	51%-53%	42%		
	Tweed Valley Way (North)	5%-7%	6%		
	Brunswick Valley Way (South)	7%-11%	23%		
Campers	Pacific Motorway (North)	38%-44%	47%	29%	8%
	Pacific Motorway (South)	41%-43%	40%	36%	42%
	Tweed Valley Way (North)	6%-12%	5%	2%	30%
	Brunswick Valley Way (South)	7%-8%	8%	33%	20%

For past events at NBP, a relatively large proportion of traffic originated from South East Queensland. It is anticipated that due to the community nature of the proposed development, this portion of patrons would reduce significantly. The majority would be local patrons, from the Ballina, Lismore, Byron and Tweed Shires. The actual origin distribution per event will depend on each individual event.

A method that assists in estimating the origin distribution of traffic is the simple gravity model. The simple gravity model estimates the proportion of traffic that may originate from a particular region using the term A/T^n. In this term, A is the catchment area in hectares, T the travel time in minutes and n is a coefficient representing the (un)willingness of people to travel larger distances for particular purposes. An increased n relates to increased unwillingness to travel larger distances. Typical values for n are $1.3 \leq n < 1.5$ for work and $1.5 \leq n \leq 2.5$ for shopping and entertainment. For the purposes of this assessment, we will analyse the intersections based on n values of 1.5, 2.0 and 2.5.

Although the model is a relatively crude model, it provides some guidance as to what the origin distribution may be for a certain development. Errors result from inaccurate measurement of catchment area and the adoption of a centralised departure point representing a larger catchment area within which travel times may differ.

For the purposes of this development however, the method is suitable, if employed with care and by means of a sensitivity analysis. We have adopted catchments between Ballina, Lismore and Tweed Heads for the purposes of this assessment. The results of the analysis are depicted in Table 7. In this table, route A denotes the Pacific Motorway (North), B denotes Brunswick Valley Way (South), C denotes Tweed Valley Way (North) and D denotes Pacific Motorway (South).

Table 7 - Simple Gravity Model analysis

Origin	A (hectares)	T (minutes)	Route	A/T^1.5	Portion	A/T^2	Portion	A/T^2.5	Portion
Lismore/Goonellabah	2226	48	A	6.69	7.0%	0.97	3.9%	0.14	1.9%
Ballina/Skennars and Lennox Head	1979	36	A	9.16	9.6%	1.53	6.2%	0.25	3.5%
Alstonville/Wollongbar	538	38	A	2.30	2.4%	0.37	1.5%	0.06	0.8%
Suffolk Park	189	29	A	1.21	1.3%	0.22	0.9%	0.04	0.6%
Byron Bay	405	21	A	4.21	4.4%	0.92	3.7%	0.20	2.8%
Bangalow	116	19	A	1.40	1.5%	0.32	1.3%	0.07	1.0%
Mullumbimby	290	14	A	5.54	5.8%	1.48	6.0%	0.40	5.5%
Brunswick Heads	74	9	B	2.74	2.9%	0.91	3.7%	0.30	4.2%
Ocean Shores/New Brighton/Billinudgel	322	7	B	17.39	18.2%	6.57	26.7%	2.48	34.5%
South Golden Beach	118	6	B	8.03	8.4%	3.28	13.3%	1.34	18.6%
Mooball	6	5	C	0.54	0.6%	0.24	1.0%	0.11	1.5%
Burringbar	37	8	C	1.64	1.7%	0.58	2.3%	0.20	2.8%
Murwillumbah	708	24	C	6.02	6.3%	1.23	5.0%	0.25	3.5%
Pottsville	292	14	C	5.57	5.8%	1.49	6.0%	0.40	5.5%
Crabbes Creek	5	4	C	0.63	0.7%	0.31	1.3%	0.16	2.2%
Kingscliff/Casuarina/Chinderah	707	26	D	5.33	5.6%	1.05	4.2%	0.21	2.8%
Tweed Heads/Terranorah/Banora point	2498	30	D	15.20	16.0%	2.78	11.3%	0.51	7.0%
Cabarita beach	153	20	D	1.71	1.8%	0.38	1.6%	0.09	1.2%

Summing up the percentage portions per route provides origin percentages for the three values of n that will be analysed in this report. The results are depicted below in Table 8

Table 8 - Origin distribution based on Simple Gravity Model analysis

Route	n = 1.5	n = 2.0	n = 2.5
D - Pacific Motorway (North)	23.3%	17.1%	11.1%
A - Pacific Motorway (South)	32.0%	23.6%	16.2%
C - Tweed Valley Way (North)	15.1%	15.6%	15.5%
B - Brunswick Valley Way (South)	29.5%	43.7%	57.3%

3.3. Transport modes

For the purposes of this assessment, it is assumed that all patrons will arrive by private car and that no buses are used.

3.4. Vehicle occupancy

During previous events at NBP, car occupancy surveys were carried out. Car occupancies ranged from 2.4 to 3.2 persons per vehicle. This assessment will include sensitivity analyses based on an occupancy range of 2.0 to 3.5 ppv. The resulting event traffic generation scenarios that will be modelled as part of the sensitivity analyses are depicted in Table 9.

Table 9 - Event traffic generation scenarios

	Route	850 vph	1000 vph	1250 vph	1500 vph
n = 1.5	Pacific Motorway (North)	272	320	400	480
	Pacific Motorway (South)	198	233	292	350
	Tweed Valley Way (North)	128	151	189	227
	Brunswick Valley Way (South)	251	295	369	443
n = 2.0	Pacific Motorway (North)	201	236	295	354
	Pacific Motorway (South)	145	171	213	256
	Tweed Valley Way (North)	133	156	195	234
	Brunswick Valley Way (South)	371	437	546	656
n = 2.5	Pacific Motorway (North)	137	162	202	243
	Pacific Motorway (South)	94	111	138	166
	Tweed Valley Way (North)	132	155	194	233
	Brunswick Valley Way (South)	487	573	716	859

3.5. Number of vehicles per event

The proposal allows for events up to 3,000 patrons. We will carry out SIDRA modelling based on an occupancy range of 2.0 to 3.5 and 100% use of private cars. Thus, the number of vehicles would range from approximately 850 to 1,500 vehicles. As some events have the potential of generating traffic where 100% of patrons arrive or leave within one hour, the flow rates for which the assessment will be carried out ranges

from 850 to 1,500 vehicles per hour, which will be distributed over the network as per the origin distributions depicted in Table 8.

4. Intersection analysis

Intersection analysis of various scenarios is carried out using SIDRA Intersection 6.1 Network. This allows for the assessment of blockage probability of the Link Road, between Tweed Valley Way and the roundabout. The layouts in SIDRA are depicted in Figure 19 and Figure 20.

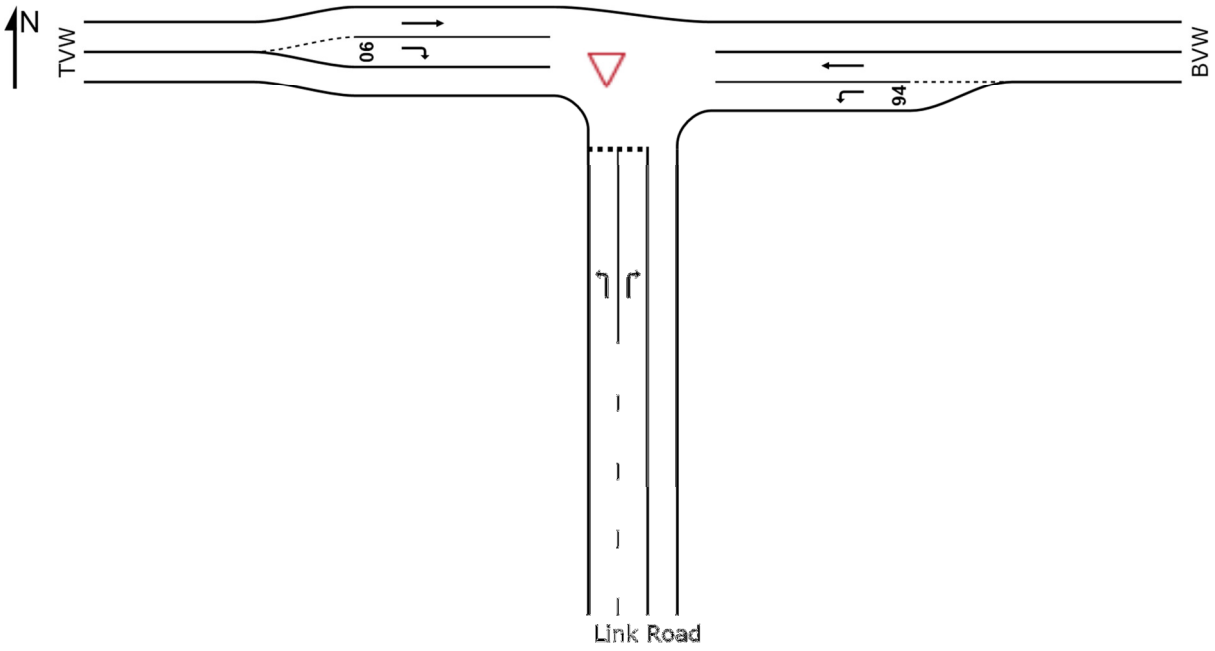

Figure 19 - Link Road intersection layout in SIDRA

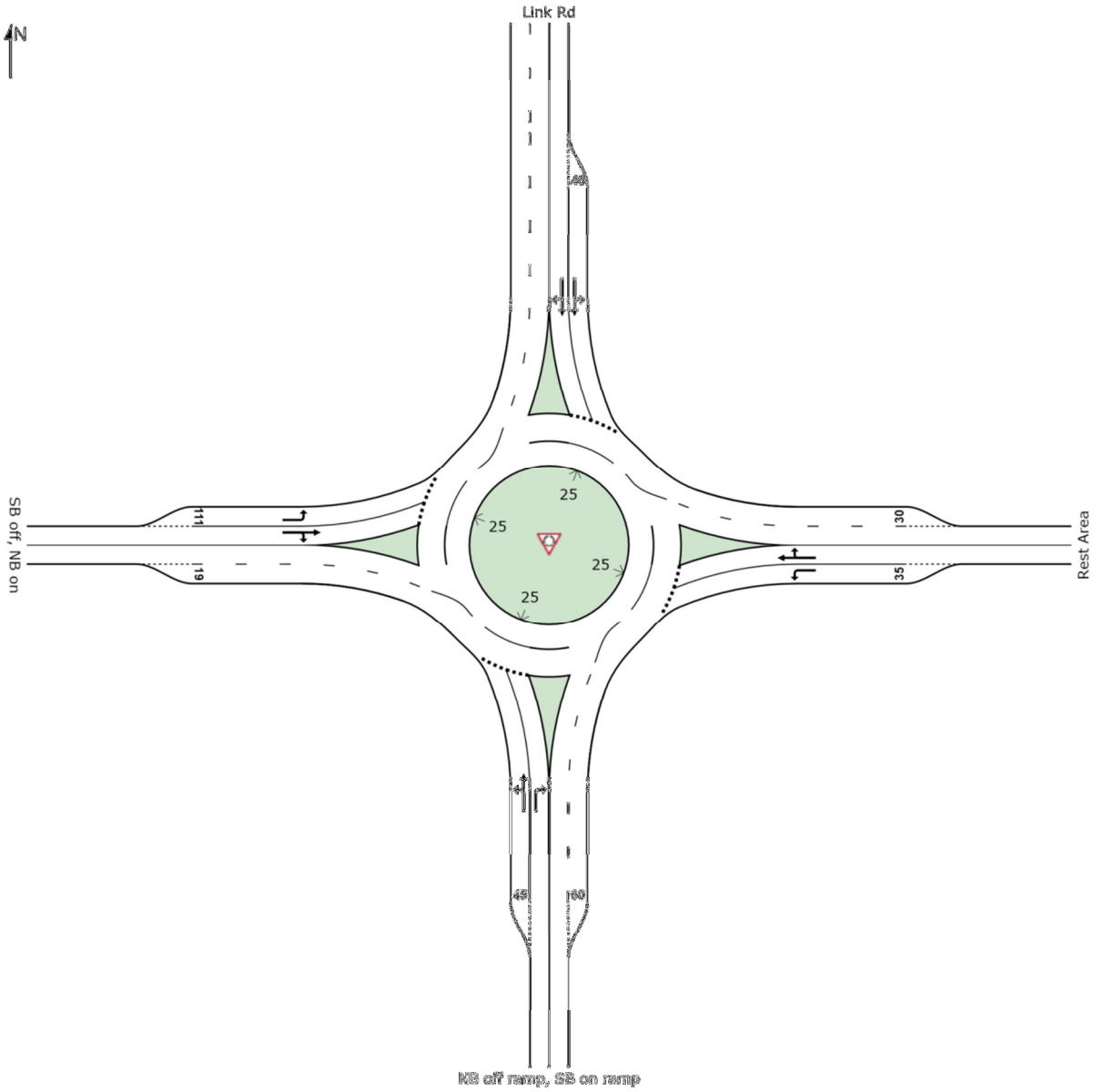

Figure 20 - Yelgun roundabout layout in SIDRA

4.1. Background scenario

Firstly, the background traffic scenario (Friday PM peak) is modelled. In 2010, Parsons Brinckerhoff (PB) carried out an intersection movement count for the Link Road intersection and roundabout during a Friday afternoon PM peak (3.30pm – 4.30pm) on the 12th of February. We have included the PB findings as published in Appendix A of the 2010 Traffic Impact Assessment for NBP by PB by calculating the percentages of total lane flow turning left, right or continuing straight through.

Heavy vehicle numbers have been calculated using heavy vehicle percentages surveyed by our office during surveys on Tweed Valley Way, Brunswick Valley Way, the southbound off ramp and the northbound off ramp.

Input and modelling results are depicted in Table 10. Queue lengths are acceptable and the lane blockage probability is calculated to be nil in this scenario.

Table 10 - Friday PM background modelling results

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	0	A	4.4
			R	45.5%	109	7.6%	101	8	6	A	10.4
	NB	196	NA	100.0%	196	7.6%	181	15			
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9			
	NB	248	L	53.8%	133	3.7%	128	5	0	A	4
			S	46.2%	115	3.7%	110	4	0	A	5.4
Link road	EB	338	L	47.7%	161	7.6%	149	12	4	A	7
			R	52.3%	177	3.7%	170	7	0	A	4.3
	WB	243	L	2.7%	7	0.0%	7	0	2	A	1.5
			S	51.9%	126	6.8%	117	9	4	A	0.6
			R	45.4%	110	8.7%	101	10	4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2			
	NB	31	L	45.5%	14	6.0%	13	1	0	A	2.3
			S	36.3%	11	6.0%	11	1	0	A	1.3
			R	18.2%	6	0.0%	6	0	0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	5	A	4.5
			S	5.8%	11	8.7%	10	1	1	A	5.1
			R	3.7%	7	8.7%	6	1	1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0	4	A	4.3
			S	91.6%	159	6.8%	149	11	4	A	4.5
			R	7.6%	13	6.8%	12	1	0	A	10.1

4.2. Arrival scenarios

Arrival traffic is modelled using the scenarios depicted in Table 9. The results of the queue length sensitivity analysis for the 'n' factor and number of vehicles (which is a function of patron numbers and car occupancy) are depicted in Figure 21 to Figure 24. Detailed result tables are provided in Appendix A1

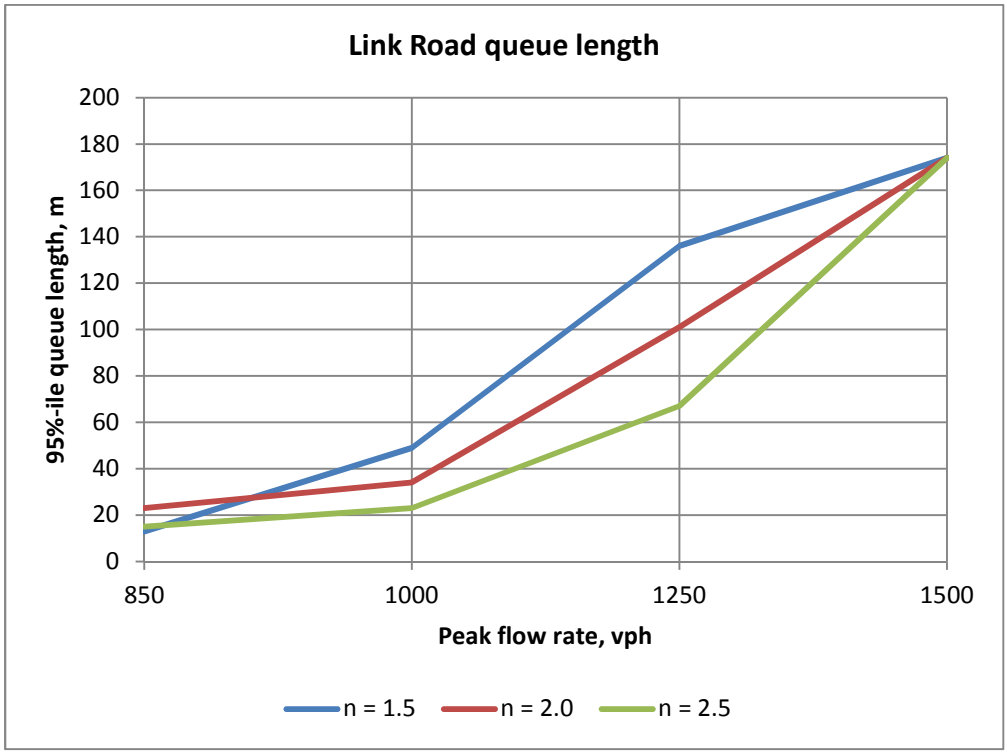

Figure 21 - Link Road queue length sensitivity analysis

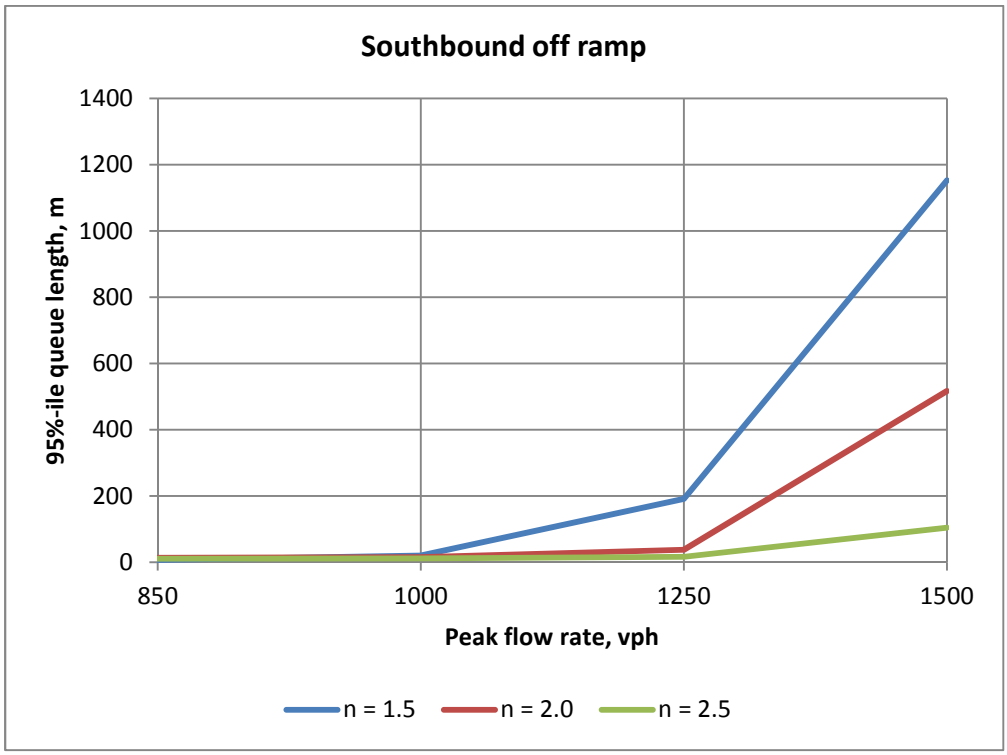

Figure 22 - Southbound off ramp sensitivity analysis

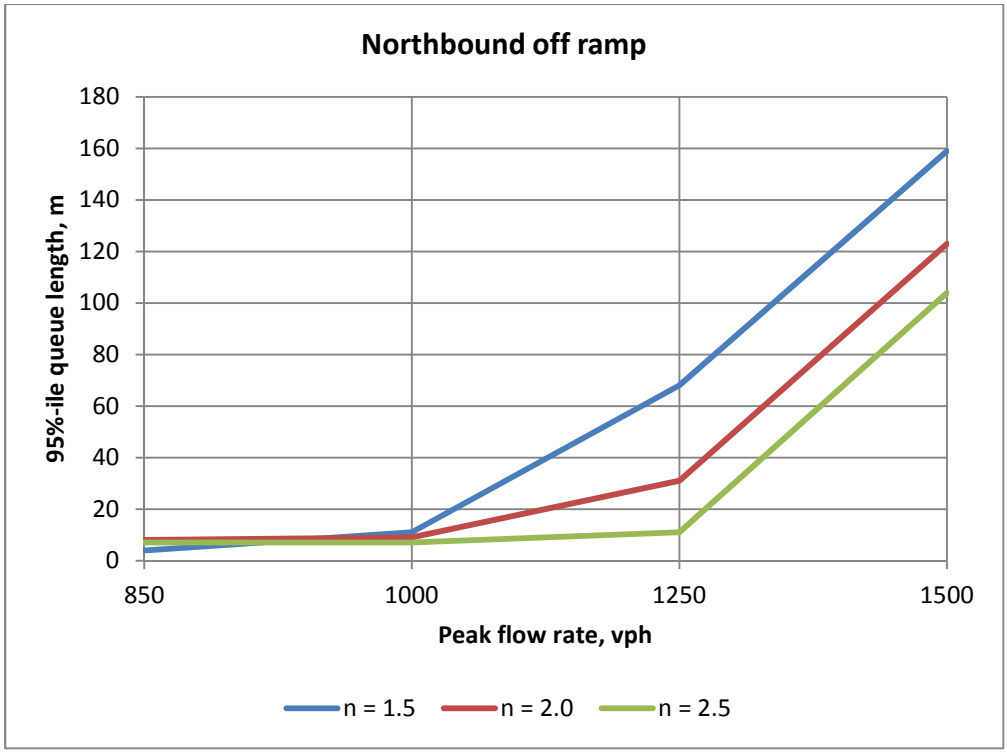

Figure 23 - Northbound off ramp sensitivity analysis

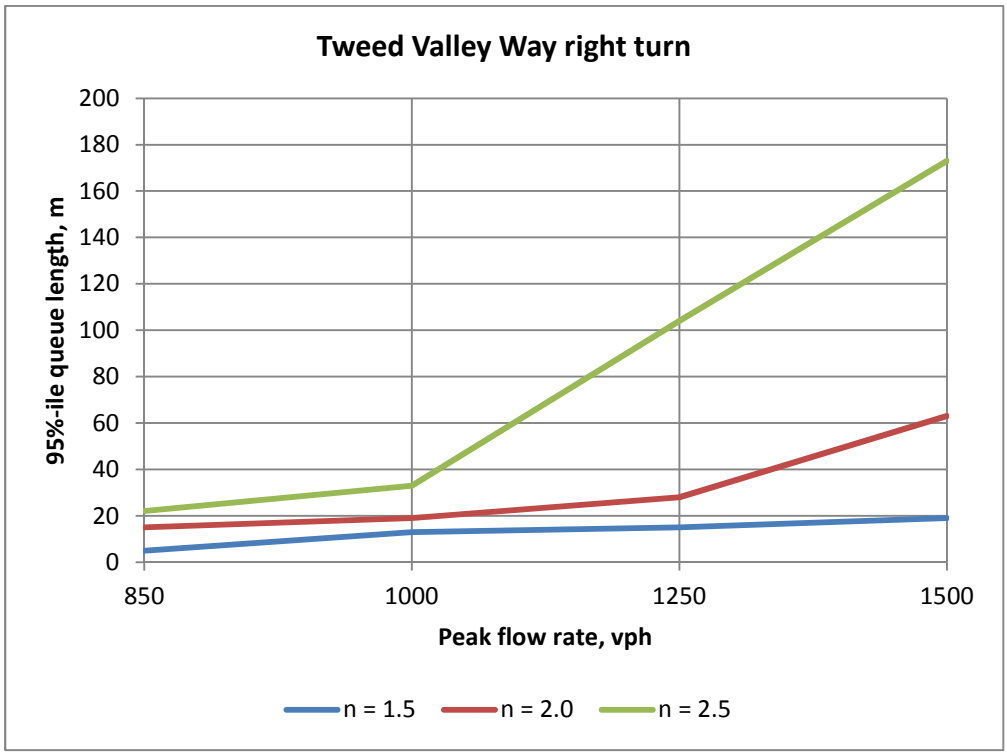

Figure 24 - Tweed Valley Way right turn onto Link Road sensitivity analysis

The above figures show that events generating up to 1,000 vehicles per hour cause some queuing, however queue lengths are contained within the available queuing space. In the situation of n = 2.5 though, a traffic generation of 1,000 vehicles per hour causes a level of service E on the right turn off Tweed Valley Way onto the Link Road. Compliance with the KPI's is summarized in Table 11.

Table 11 - KPI compliance summary for arrival peak flow rates

Peak flow rate, vph	n = 1.5	n = 2.0	n = 2.5
850	Yes	Yes	Yes
1000	Yes	Yes	No
1250	No	No	No
1500	No	No	No

In order to further study the potential of various events to create undesirable arrival peak flow rates, we have plotted peak flow rates resulting from a variety of peak types (with magnitude in percentage of total vehicles arriving) and car occupancy rates. The results for an event with 3,000 patrons are plotted in Figure 25. In this plot, the orange section indicates the approximate range within which some combinations of parameters result in traffic flow scenarios that comply with the KPI's, whereas others may cause non-compliance. The red section generally depicts non-compliance for all combinations of parameters assessed in this section.

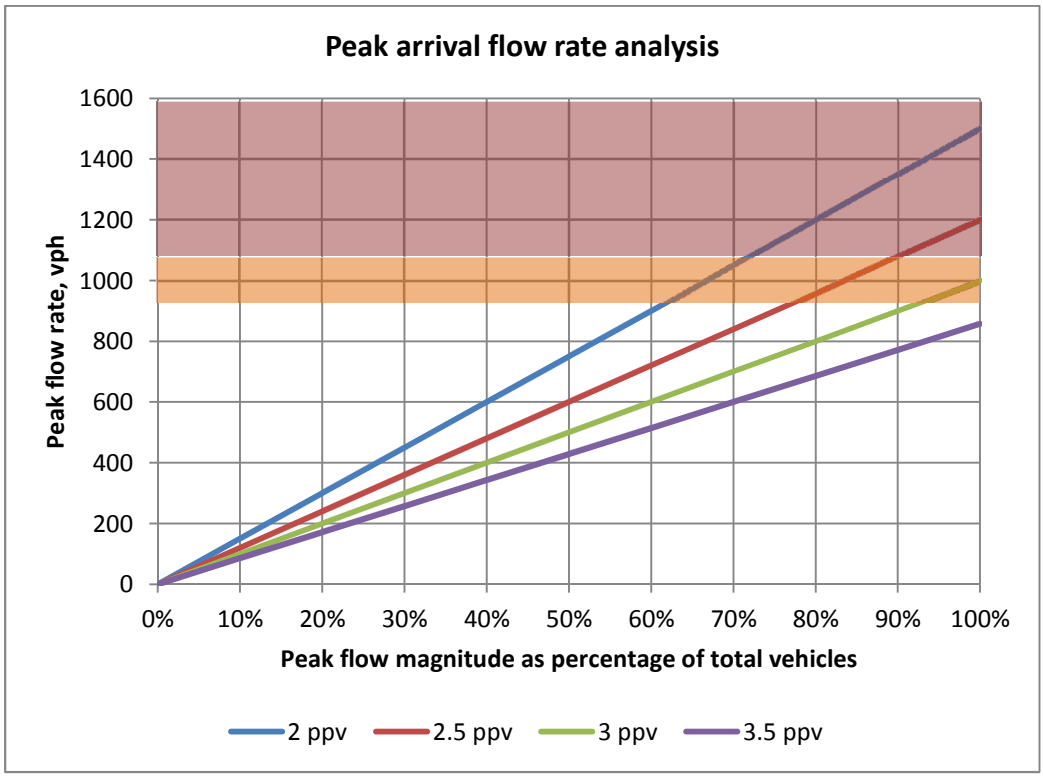

Figure 25 - Effect of arrival peak magnitude and occupancy

From Figure 25 it appears that events with high vehicle occupancies (3 ppv and over) would generally result in compliance with the KPI's. If occupancies are reduced however, the peak flow magnitude as function of total arrivals would have to reduce as well.

Based on the analyses carried out as part of this report, we have prepared Table 12 to summarize the characteristics and likely compliance for a 3,000 patron event. We have adjusted some of the peak flow percentages that were depicted in Table 5 to allow for more concentrated peaks for smaller events. The events listed in this table are not necessarily events that will be held at this site, they merely represent typical events held in this region.

Table 12 - Event arrival characteristics

Event type	Peak arrival flow percentage	Vehicle occupancy	Likely KPI compliance for 3,000 patron event
Trade show	25% - 40%	2.2	Yes
Food and wine fair	20% - 40%	2.5	Yes
Film festival	25% - 60%	2 - 2.5	Yes
Writers festival	25% - 60%	2 - 2.5	Yes
Country run	50% - 100%	2 - 2.5	No
Fun run	50% - 100%	2 - 2.5	No
Boat show	25% - 40%	2 – 2.5	Yes
Moon light cinema	50% - 100%	2 - 2.5	No
Non-music festival with camping	10% - 30%	2 - 3	Yes

From Table 12 we can conclude that events such as fairs, festivals and shows would comply with the KPI's for a 3,000 patron event. Sports events and cinema type events however have the potential to cause congestion at the Link Road intersection. Compliance for sports events and cinema type events could be achieved by limiting the patronage to 1,500. Alternatively, the use of buses could reduce the peak flow rate for these types of events.

4.3. Departure scenarios

Departure traffic is analysed in a similar fashion as the arrival flows in section 4.2 and the results for queue lengths plotted in Figure 26 and Figure 27. Detailed results tables are provided in Appendix A2.

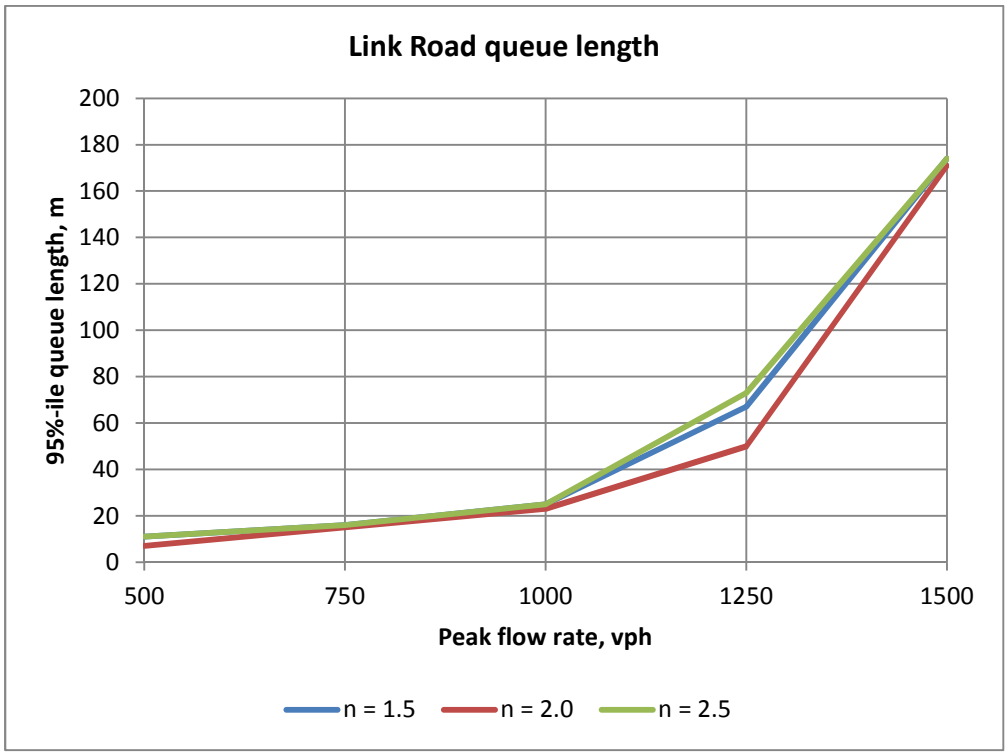

Figure 26 - Departure queue length, Link Road

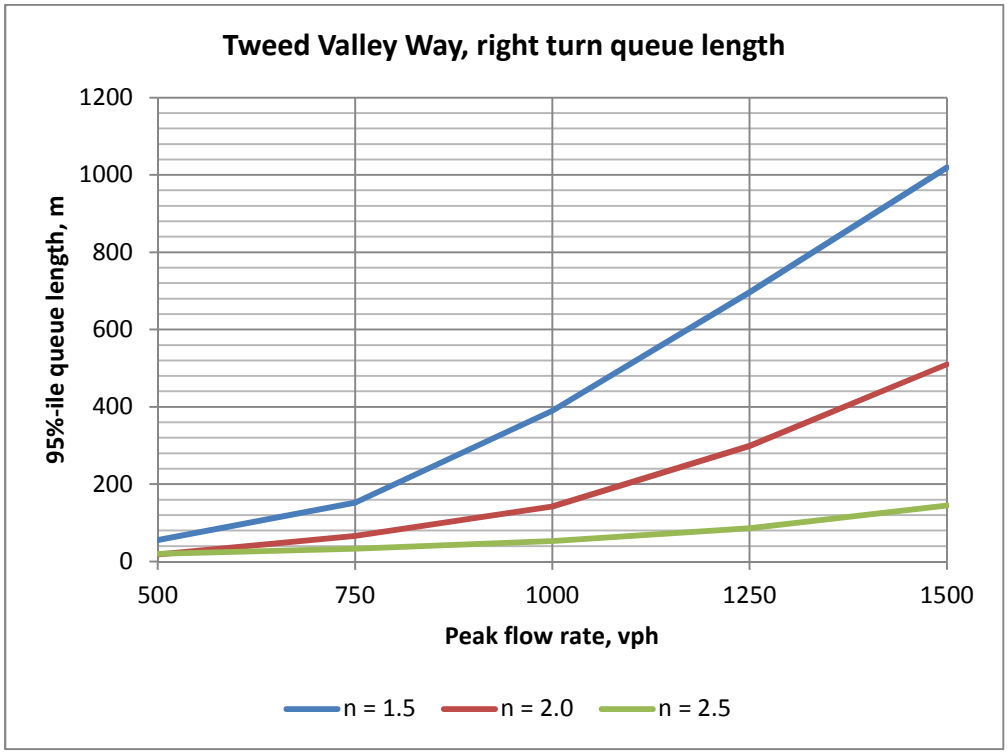

Figure 27 - Departure queue length, Tweed Valley Way right turn

The departure peak flow rate sensitivity analysis shows that if departure flow rates exceed 1250 vph, queues on the Link Road grow beyond its capacity and can cause congestion on the Yelgun Roundabout. The right

turn from Tweed Valley Way onto the Link Road however is more critical, it requires a flow rate of approximately 600 vph maximum to ensure all origin/destination distributions comply.

This is consistent with experience at previous festivals at NBP, where exiting flow rates had to be limited to between 600 and 800 vph to ensure the Level of Service on Tweed Valley Way southbound remained acceptable. Compliance with the KPI's is summarized in Table 13.

Table 13 - KPI compliance summary for departure peak flow rates

Peak flow rate, vph	n = 1.5	n = 2.0	n = 2.5
500	Yes	Yes	Yes
750	No	Yes	Yes
850	No	No	Yes
1000	No	No	Yes
1250	No	No	No
1500	No	No	No

In order to further study the potential of various events to create undesirable departure peak flow rates, we have plotted peak flow rates resulting from a variety of peak types (with magnitude in percentage of total vehicles arriving) and car occupancy rates. The results for an event with 3,000 patrons are plotted in Figure 28. In this plot, the orange section indicates the approximate range within which some combinations of parameters result in traffic flow scenarios that comply with the KPI's, whereas others may cause non-compliance. The red section generally depicts non-compliance for all combinations of parameters assessed in this section.

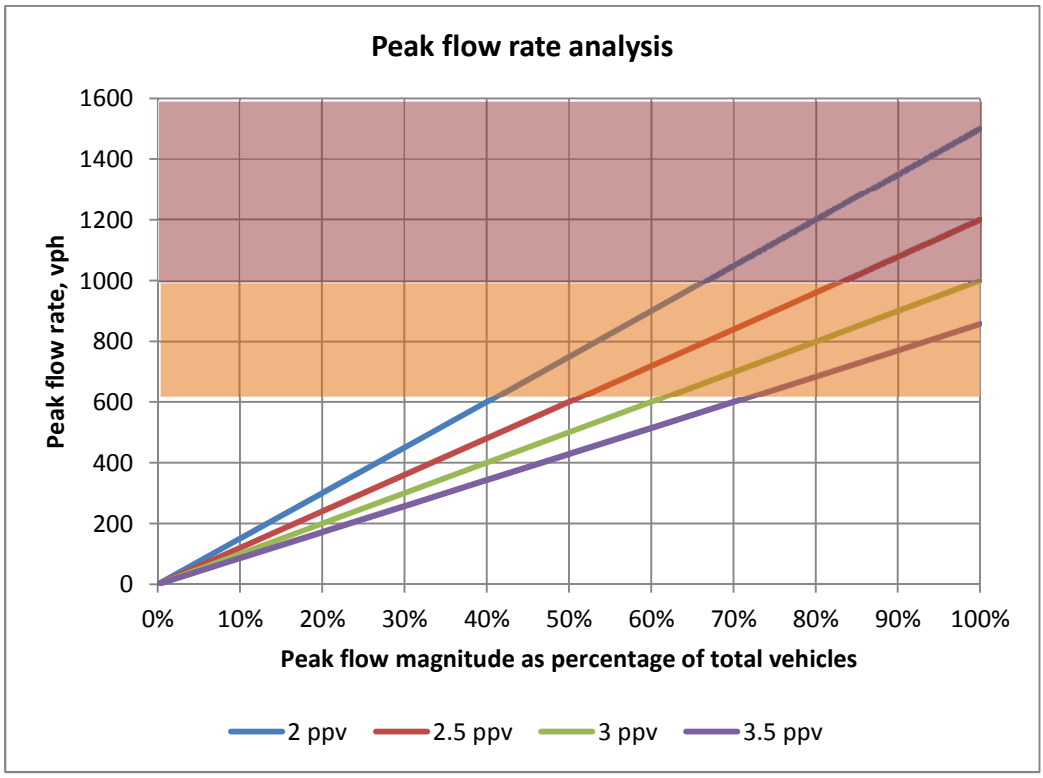

Figure 28 - Effect of departure peak magnitude and occupancy

From Figure 28 we can conclude that all modelled departure peak flow rates would need to be limited to a maximum hourly flow of between 40% and 70% of the total number of departing vehicles.

Based on the analyses carried out as part of this report, we have prepared Table 14 to summarize the characteristics and likely compliance for a 3,000 patron event. We have adjusted some of the peak flow percentages that were depicted in Table 5 to allow for more concentrated peaks for smaller events. The events listed in this table are not necessarily events that will be held at this site, they merely represent typical events held in this region.

From Table 14 can conclude that events such as fairs, festivals with camping would comply with the KPI's for a 3,000 patron event. The other types of events however have the potential to cause congestion at the Link Road intersection. It is noted however for the moon light cinema in particular, that departure would be at night time, during which congestion at the Link Road intersection is much less likely and the impact of any congestion negligible. Therefore, uncontrolled departure for the moonlight cinema would be acceptable.

Compliance for sports and cinema type events and shows, could be achieved by limiting the patronage to 1,500. Alternatively, the use of buses could reduce the peak flow rate for these types of events.

Table 14 - Event departure characteristics

Event type	Peak arrival flow percentage	Vehicle occupancy	Likely KPI compliance for 3,000 patron event
Trade show	17% - 60%	2.2	No
Food and wine fair	20% - 50%	2.5	Yes
Film festival	25% - 70%	2 - 2.5	No
Writers festival	25% - 70%	2 - 2.5	No
Country run	50% - 100%	2 - 2.5	No
Fun run	50% - 100%	2 - 2.5	No
Boat show	25% - 60%	2 – 2.5	No
Moon light cinema	50% - 100%	2 - 2.5	No
Non-music festival with camping	15% - 40%	2 - 3	Yes

4.4. Summary of modelling recommendations

The findings and recommendations made in this chapter are summarized in Table 15.

Table 15 - Summary of compliance and recommendations

Event type	Uncontrolled arrival compliance?	Uncontrolled departure compliance?	Proposed mitigation methods
Trade show	Yes	No	1500 patrons or use of buses
Food and wine fair	Yes	Yes	no mitigation required
Film festival	Yes	No	1500 patrons or use of buses
Writers festival	Yes	No	1500 patrons or use of buses
Country run	No	No	1500 patrons or use of buses
Fun run	No	No	1500 patrons or use of buses
Boat show	Yes	No	1500 patrons or use of buses
Moon light cinema	No	Yes*)	1500 patrons or use of buses
Non-music festival with camping	Yes	Yes	no mitigation required

*) *during night time departure only, otherwise 'No'*

Potential mitigation measures for the majority of event types would be either to limit the maximum number of patrons to 1500 patrons or by requiring 50% of patrons to arrive and depart by bus. Alternatively, traffic control could be employed to manage queues at the Link Road.

From the modelling it also becomes apparent that the impact of traffic on the Link Road intersection reduces as the simple gravity model parameter n increases. That is, if the events are of such a nature that mainly catchments using Brunswick Valley Way and Tweed Valley Way are targeted for the events. This would include Mooball, Burringabar, Murwillumbah, Pottsville, Crabbes Creek, Brunswick Heads, Ocean Shores, New Brighton, Billinudgel, and South Golden Beach.

Although the Falls Festival Byron 14/15 successfully employed a strategy to redirect event traffic from the North off the Pacific Motorway at Pottsville, the likely success of such methods for small community events would be less. Patrons would more likely be locals who are familiar with the road network and would therefore continue to Yelgun rather than using the Pottsville off ramp.

5. Conclusions and recommendations

Analysis of traffic surveys collected at a wide range of festivals, trade shows and a sports field, show that small events have the potential to create concentrated peaks in event traffic, which can temporarily cause congestion at the Yelgun Interchange and Link Road intersection. This congestion could occur both during arrival and departure.

This traffic study shows that the traffic load on the Yelgun Interchange and Link Road intersection during events such as fairs and non-music camping events is acceptable. Level of Service and queue lengths comply with the KPI's for events up to 3,000 patrons.

Other events however, such as trade shows, non-music festivals and cinema events could cause congestion at the Link Road intersection during arrival, with the potential of queuing on the motorway off ramps and onto the motorway in some situations. During departure, the right turn from Tweed Valley Way onto the Link Road could become congested, as has been observed during previous events at the site.

These issues could be mitigated as follows:

- Option A: for a 3,000 patron event, at least 50% of patrons would have to arrive by bus, or;
- Option B: a maximum patronage of 1,500 patrons for these events.

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Appendix A Detailed result tables

A.1. Arrival traffic flows, vph

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			5	B	17.9
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	251	361	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			13	A	7.7
			R	52.3%	177	3.7%	170	7			3	A	7.8
	WB	243	L	2.7%	7	0.0%	7	0	471	477	1	A	1.5
			S	51.9%	126	6.8%	117	9			2	A	0.6
			R	45.4%	110	8.7%	101	10			2	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	272	430	7	A	5.6
			S	5.8%	11	8.7%	10	1			0	A	6.3
			R	3.7%	7	8.7%	6	1			0	A	11.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			4	A	4.4
			S	91.6%	159	6.8%	149	11	198	347	4	A	4.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

850 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			15	B	25.2
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	371	482	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			23	A	8.6
			R	52.3%	177	3.7%	170	7			10	A	9.7
	WB	243	L	2.7%	7	0.0%	7	0	346	352	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	201	359	13	A	5.2
			S	5.8%	11	8.7%	10	1			1	A	6
			R	3.7%	7	8.7%	6	1			1	A	11
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			8	A	4.3
			S	91.6%	159	6.8%	149	11	145	294	8	A	4.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

850 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			22	C	38.3
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	487	597	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			15	A	9.5
			R	52.3%	177	3.7%	170	7			13	A	12.2
	WB	243	L	2.7%	7	0.0%	7	0	232	238	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	137	296	10	A	4.9
			S	5.8%	11	8.7%	10	1			1	A	5.7
			R	3.7%	7	8.7%	6	1			1	A	10.8
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			7	A	4.3
			S	91.6%	159	6.8%	149	11	94	243	7	A	4.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

850 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			12	B	19.4
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	281	391	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			42	A	9
			R	52.3%	177	3.7%	170	7			9	A	8.2
	WB	243	L	2.7%	7	0.0%	7	0	526	532	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	222	380	17	A	6.1
			S	5.8%	11	8.7%	10	1			1	A	6.9
			R	3.7%	7	8.7%	6	1			1	A	11.9
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			14	A	4.4
			S	91.6%	159	6.8%	149	11	304	453	14	A	4.6
			R	7.6%	13	6.8%	12	1			0	A	10.1

950 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			13	B	20.2
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	295	406	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			49	A	9.9
			R	52.3%	177	3.7%	170	7			9	A	8.4
	WB	243	L	2.7%	7	0.0%	7	0	554	560	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	320	478	20	A	5.9
			S	5.8%	11	8.7%	10	1			1	A	6.5
			R	3.7%	7	8.7%	6	1			1	A	11.5
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			11	A	4.4
			S	91.6%	159	6.8%	149	11	233	382	11	A	4.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

1000 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			19	C	31.7
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	437	547	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			34	A	11.1
			R	52.3%	177	3.7%	170	7			12	A	11
	WB	243	L	2.7%	7	0.0%	7	0	407	413	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	236	394	15	A	5.4
			S	5.8%	11	8.7%	10	1			1	A	6.1
			R	3.7%	7	8.7%	6	1			1	A	11.2
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			9	A	4.4
			S	91.6%	159	6.8%	149	11	171	319	9	A	4.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

1000 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			33	E	61.6
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	573	683	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			23	A	12.6
			R	52.3%	177	3.7%	170	7			15	B	14.7
	WB	243	L	2.7%	7	0.0%	7	0	272	279	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	162	320	11	A	5
			S	5.8%	11	8.7%	10	1			1	A	5.8
			R	3.7%	7	8.7%	6	1			1	A	10.9
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			7	A	4.3
			S	91.6%	159	6.8%	149	11	111	259	7	A	4.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

1000 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			15	B	25
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	369	480	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			136	B	22.9
			R	52.3%	177	3.7%	170	7			10	A	9.7
	WB	243	L	2.7%	7	0.0%	7	0	692	698	2	A	1.5
			S	51.9%	126	6.8%	117	9			5	A	0.6
			R	45.4%	110	8.7%	101	10			5	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	400	558	191	D	51.8
			S	5.8%	11	8.7%	10	1			1	A	6.8
			R	3.7%	7	8.7%	6	1			1	A	11.9
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			68	C	29.5
			S	91.6%	159	6.8%	149	11	292	440	68	C	29.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

1250 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			28	D	52.1
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	546	657	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			101	B	28.1
			R	52.3%	177	3.7%	170	7			14	A	13.9
	WB	243	L	2.7%	7	0.0%	7	0	508	515	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	295	453	38	A	12.2
			S	5.8%	11	8.7%	10	1			1	A	6.4
			R	3.7%	7	8.7%	6	1			1	A	11.4
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			31	B	15.3
			S	91.6%	159	6.8%	149	11	213	362	31	B	15.4
			R	7.6%	13	6.8%	12	1			0	A	10.1

1250 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			37	B	21.5
			R	45.5%	109	7.6%	101	8			104	F	230.8
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	716	826	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			67	C	32.4
			R	52.3%	177	3.7%	170	7			21	B	21.6
	WB	243	L	2.7%	7	0.0%	7	0	341	347	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.2
			S	36.3%	11	6.0%	11	1			0	A	1.2
			R	18.2%	6	0.0%	6	0			0	A	5.8
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	202	360	16	A	6.3
			S	5.8%	11	8.7%	10	1			1	A	5.9
			R	3.7%	7	8.7%	6	1			1	A	11
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			11	A	6.3
			S	91.6%	159	6.8%	149	11	138	287	11	A	6.5
			R	7.6%	13	6.8%	12	1			0	A	10.1

1250 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			19	C	32.1
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	443	553	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			174	F	77.3
			R	52.3%	177	3.7%	170	7			10	A	10.8
	WB	243	L	2.7%	7	0.0%	7	0	830	837	2	A	1.5
			S	51.9%	126	6.8%	117	9			5	A	0.6
			R	45.4%	110	8.7%	101	10			5	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.3
			S	36.3%	11	6.0%	11	1			0	A	1.3
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	480	638	1152	F	63.3
			S	5.8%	11	8.7%	10	1			1	A	63.6
			R	3.7%	7	8.7%	6	1			1	A	10.1
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			159	E	446
			S	91.6%	159	6.8%	149	11	350	499	159	E	7.2
			R	7.6%	13	6.8%	12	1			0	A	12.2

1500 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			0	A	4.4
			R	45.5%	109	7.6%	101	8			63	F	128.4
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	656	766	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			174	F	188.6
			R	52.3%	177	3.7%	170	7			18	B	18.1
	WB	243	L	2.7%	7	0.0%	7	0	610	616	2	A	1.5
			S	51.9%	126	6.8%	117	9			4	A	0.6
			R	45.4%	110	8.7%	101	10			4	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.2
			S	36.3%	11	6.0%	11	1			0	A	1.2
			R	18.2%	6	0.0%	6	0			0	A	5.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	354	512	517	F	190.7
			S	5.8%	11	8.7%	10	1			1	A	6.6
			R	3.7%	7	8.7%	6	1			1	A	11.7
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			123	E	59
			S	91.6%	159	6.8%	149	11	256	405	123	E	59.3
			R	7.6%	13	6.8%	12	1			0	A	10.1

1500 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10			49	C	29.4
			R	45.5%	109	7.6%	101	8			173	F	512.3
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4	859	969	0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			174	F	267.8
			R	52.3%	177	3.7%	170	7			33	C	39.8
	WB	243	L	2.7%	7	0.0%	7	0	409	415	2	A	1.5
			S	51.9%	126	6.8%	117	9			3	A	0.6
			R	45.4%	110	8.7%	101	10			3	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.1
			S	36.3%	11	6.0%	11	1			0	A	1.1
			R	18.2%	6	0.0%	6	0			0	A	5.8
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15	243	401	197	F	80.7
			S	5.8%	11	8.7%	10	1			1	A	6.1
			R	3.7%	7	8.7%	6	1			1	A	11.2
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			104	E	62.4
			S	91.6%	159	6.8%	149	11	166	315	104	E	62.7
			R	7.6%	13	6.8%	12	1			0	A	10

1500 vph, n = 2.5

A.2. Departure tables

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	148	269	0	A	4.3
			R	45.5%	109	7.6%	101	8	277	378	55	B	16.2
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			11	A	10.3
	WB	243	L	2.7%	7	0.0%	7	0			4	A	1.5
			S	51.9%	126	6.8%	117	9	117	234	10	A	0.6
			R	45.4%	110	8.7%	101	10	160	261	10	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.3
			S	36.3%	11	6.0%	11	1			1	A	2
			R	18.2%	6	0.0%	6	0			0	A	6.6
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	4.9
			S	91.6%	159	6.8%	149	11			5	A	5.2
			R	7.6%	13	6.8%	12	1			1	A	11.2

500 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	219	340	0	A	4.3
			R	45.5%	109	7.6%	101	8	203	304	18	A	11.8
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			7	A	7
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	85	203	13	A	0.6
			R	45.4%	110	8.7%	101	10	118	219	13	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.8
			S	36.3%	11	6.0%	11	1			1	A	2.4
			R	18.2%	6	0.0%	6	0			1	A	7
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	5.1
			S	91.6%	159	6.8%	149	11			5	A	5.4
			R	7.6%	13	6.8%	12	1			1	A	11.4

500 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	286	407	0	A	4.3
			R	45.5%	109	7.6%	101	8	136	237	20	A	12.1
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			11	A	10.3
	WB	243	L	2.7%	7	0.0%	7	0			3	A	1.5
			S	51.9%	126	6.8%	117	9	55	173	7	A	0.6
			R	45.4%	110	8.7%	101	10	81	182	7	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	2.8
			S	36.3%	11	6.0%	11	1			0	A	1.6
			R	18.2%	6	0.0%	6	0			0	A	6.2
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	4.6
			S	91.6%	159	6.8%	149	11			5	A	4.8
			R	7.6%	13	6.8%	12	1			1	A	10.6

500 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	222	343	47	A	5.3
			R	45.5%	109	7.6%	101	8	415	516	152	C	30.4
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			16	B	15.5
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	175	293	13	A	0.6
			R	45.4%	110	8.7%	101	10	240	341	13	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.8
			S	36.3%	11	6.0%	11	1			1	A	2.4
			R	18.2%	6	0.0%	6	0			1	A	7
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	5.3
			S	91.6%	159	6.8%	149	11			6	A	5.5
			R	7.6%	13	6.8%	12	1			1	A	11.7

750 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	328	449	0	A	4.3
			R	45.5%	109	7.6%	101	8	305	406	66	B	17.6
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			15	B	15
	WB	243	L	2.7%	7	0.0%	7	0			5	A	1.5
			S	51.9%	126	6.8%	117	9	128	245	10	A	0.6
			R	45.4%	110	8.7%	101	10	177	278	10	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.4
			S	36.3%	11	6.0%	11	1			1	A	2.1
			R	18.2%	6	0.0%	6	0			0	A	6.7
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	5
			S	91.6%	159	6.8%	149	11			5	A	5.2
			R	7.6%	13	6.8%	12	1			1	A	11.3

750 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	429	551	0	A	4.3
			R	45.5%	109	7.6%	101	8	204	305	33	A	13.7
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			16	B	15.7
	WB	243	L	2.7%	7	0.0%	7	0			4	A	1.5
			S	51.9%	126	6.8%	117	9	83	200	8	A	0.6
			R	45.4%	110	8.7%	101	10	121	222	8	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	3
			S	36.3%	11	6.0%	11	1			0	A	1.8
			R	18.2%	6	0.0%	6	0			0	A	6.4
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	4.8
			S	91.6%	159	6.8%	149	11			5	A	5
			R	7.6%	13	6.8%	12	1			1	A	10.9

750 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	251	372	51	A	6
			R	45.5%	109	7.6%	101	8	471	572	235	D	50.4
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	0
			S	46.2%	115	3.7%	110	4			0	A	0
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			19	B	18.8
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	198	316	14	A	0.6
			R	45.4%	110	8.7%	101	10	272	373	14	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	7.1
			S	36.3%	11	6.0%	11	1			1	A	2.5
			R	18.2%	6	0.0%	6	0			1	A	3.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	5.4
			S	5.8%	11	8.7%	10	1			1	A	5.7
			R	3.7%	7	8.7%	6	1			1	A	11.9
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	4.5
			S	91.6%	159	6.8%	149	11			6	A	5.1
			R	7.6%	13	6.8%	12	1			1	A	10.3

850 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	371	493	66	A	5.2
			R	45.5%	109	7.6%	101	8	346	447	89	B	20.5
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			18	B	18
	WB	243	L	2.7%	7	0.0%	7	0			5	A	1.5
			S	51.9%	126	6.8%	117	9	145	263	11	A	0.6
			R	45.4%	110	8.7%	101	10	201	301	11	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.5
			S	36.3%	11	6.0%	11	1			1	A	2.2
			R	18.2%	6	0.0%	6	0			1	A	6.8
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	5.1
			S	91.6%	159	6.8%	149	11			5	A	5.4
			R	7.6%	13	6.8%	12	1			1	A	11.4

850 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	487	608	0	A	4.3
			R	45.5%	109	7.6%	101	8	232	333	40	B	14.5
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			19	B	19.1
	WB	243	L	2.7%	7	0.0%	7	0			4	A	1.5
			S	51.9%	126	6.8%	117	9	94	211	9	A	0.6
			R	45.4%	110	8.7%	101	10	137	238	9	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			0	A	3.1
			S	36.3%	11	6.0%	11	1			1	A	1.9
			R	18.2%	6	0.0%	6	0			1	A	6.5
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	4.8
			S	91.6%	159	6.8%	149	11			5	A	5.1
			R	7.6%	13	6.8%	12	1			1	A	11

850 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	295	417	56	A	7.4
			R	45.5%	109	7.6%	101	8	554	655	390	F	101.6
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4.3
			R	52.3%	177	3.7%	170	7			25	B	27.1
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	233	351	14	A	0.6
			R	45.4%	110	8.7%	101	10	320	421	14	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	4
			S	36.3%	11	6.0%	11	1			1	A	2.5
			R	18.2%	6	0.0%	6	0			1	A	7.1
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	5.4
			S	91.6%	159	6.8%	149	11			6	A	5.7
			R	7.6%	13	6.8%	12	1			1	A	11.9

1000 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	437	558	73	A	5.3
			R	45.5%	109	7.6%	101	8	407	508	142	C	28.7
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			23	B	24.8
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	171	288	12	A	0.6
			R	45.4%	110	8.7%	101	10	236	337	12	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.7
			S	36.3%	11	6.0%	11	1			1	A	2.4
			R	18.2%	6	0.0%	6	0			1	A	6.9
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	5.3
			S	5.8%	11	8.7%	10	1			1	A	5.5
			R	3.7%	7	8.7%	6	1			1	A	11.7
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	4.5
			S	91.6%	159	6.8%	149	11			5	A	5.1
			R	7.6%	13	6.8%	12	1			1	A	10.3

1000 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	573	694	0	A	4.3
			R	45.5%	109	7.6%	101	8	272	374	53	B	16
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			25	B	27.8
	WB	243	L	2.7%	7	0.0%	7	0			4	A	1.5
			S	51.9%	126	6.8%	117	9	111	228	9	A	0.6
			R	45.4%	110	8.7%	101	10	162	262	9	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.2
			S	36.3%	11	6.0%	11	1			1	A	2
			R	18.2%	6	0.0%	6	0			0	A	6.6
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.9
			S	5.8%	11	8.7%	10	1			1	A	5.2
			R	3.7%	7	8.7%	6	1			1	A	11.2
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	4.5
			S	91.6%	159	6.8%	149	11			5	A	5.1
			R	7.6%	13	6.8%	12	1			1	A	10.3

1000 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	369	490	65	A	7.6
			R	45.5%	109	7.6%	101	8	692	793	696	F	204.4
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			67	F	86.7
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	292	409	14	A	0.6
			R	45.4%	110	8.7%	101	10	400	501	14	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	4
			S	36.3%	11	6.0%	11	1			1	A	2.7
			R	18.2%	6	0.0%	6	0			1	A	7.3
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	5.5
			S	91.6%	159	6.8%	149	11			6	A	5.7
			R	7.6%	13	6.8%	12	1			1	A	11.9

1250 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	546	667	85	A	7.7
			R	45.5%	109	7.6%	101	8	508	609	299	F	70.9
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			50	E	63.2
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	213	331	14	A	0.6
			R	45.4%	110	8.7%	101	10	295	396	14	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	4
			S	36.3%	11	6.0%	11	1			1	A	2.5
			R	18.2%	6	0.0%	6	0			1	A	7.1
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	5.4
			S	91.6%	159	6.8%	149	11			6	A	5.7
			R	7.6%	13	6.8%	12	1			1	A	11.9

1250 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	716	837	103	A	5.1
			R	45.5%	109	7.6%	101	8	341	442	86	B	20.1
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			73	F	94.4
	WB	243	L	2.7%	7	0.0%	7	0			5	A	1.5
			S	51.9%	126	6.8%	117	9	138	256	11	A	0.6
			R	45.4%	110	8.7%	101	10	202	303	11	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.5
			S	36.3%	11	6.0%	11	1			1	A	2.5
			R	18.2%	6	0.0%	6	0			1	A	7.1
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			5	A	5.1
			S	91.6%	159	6.8%	149	11			5	A	5.4
			R	7.6%	13	6.8%	12	1			1	A	11.4

1250 vph, n = 2.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	443	564	74	A	7.8
			R	45.5%	109	7.6%	101	8	830	931	1019	F	310.9
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			174	F	357.9
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	350	468	14	A	0.6
			R	45.4%	110	8.7%	101	10	480	581	14	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	4
			S	36.3%	11	6.0%	11	1			1	A	7.1
			R	18.2%	6	0.0%	6	0			1	A	11.5
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	5.5
			S	91.6%	159	6.8%	149	11			6	A	5.7
			R	7.6%	13	6.8%	12	1			1	A	11.9

1500 vph, n = 1.5

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	656	777	97	A	8
			R	45.5%	109	7.6%	101	8	610	711	510	F	142.4
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			171	F	259.9
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	256	374	14	A	0.6
			R	45.4%	110	8.7%	101	10	354	455	14	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	4
			S	36.3%	11	6.0%	11	1			1	A	6.8
			R	18.2%	6	0.0%	6	0			1	A	11.2
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	5.5
			S	5.8%	11	8.7%	10	1			1	A	5.7
			R	3.7%	7	8.7%	6	1			1	A	11.9
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	4.5
			S	91.6%	159	6.8%	149	11			6	A	5.1
			R	7.6%	13	6.8%	12	1			1	A	10.3

1500 vph, n = 2.0

Road description	Direction	Total traffic	Turn designation	% of traffic	Volume	HV%	LV	HV	LV (event)	LV (total)	95%-ile queue length (m)	LoS	Control delay (s)
Tweed Valley Way	SB	240	S	54.5%	131	7.6%	121	10	859	980	116	A	5.2
			R	45.5%	109	7.6%	101	8	409	510	145	C	29.1
	NB	196	NA	100.0%	196	7.6%	181	15					
Brunswick Valley Way	SB	233	NA	100.0%	233	3.7%	225	9					
	NB	248	L	53.8%	133	3.7%	128	5			0	A	7
			S	46.2%	115	3.7%	110	4			0	A	4.3
Link road	EB	338	L	47.7%	161	7.6%	149	12			4	A	4
			R	52.3%	177	3.7%	170	7			174	F	385.6
	WB	243	L	2.7%	7	0.0%	7	0			6	A	1.5
			S	51.9%	126	6.8%	117	9	166	283	13	A	0.6
			R	45.4%	110	8.7%	101	10	243	343	13	A	5.3
Rest area	SB	31	NA	100.0%	31	6.0%	29	2					
	NB	31	L	45.5%	14	6.0%	13	1			1	A	3.7
			S	36.3%	11	6.0%	11	1			1	A	7
			R	18.2%	6	0.0%	6	0			1	A	11.5
Southbound off ramp	SB	191	L	90.5%	173	8.7%	158	15			5	A	4.5
			S	5.8%	11	8.7%	10	1			1	A	5.1
			R	3.7%	7	8.7%	6	1			1	A	10.3
Northbound off ramp	NB	174	L	0.8%	1	6.8%	1	0			6	A	5.3
			S	91.6%	159	6.8%	149	11			6	A	5.6
			R	7.6%	13	6.8%	12	1			1	A	11.7

1500 vph, n = 2.5