ASSESSING THE ENVIRONMENTAL IMPACTS OF SPECIAL EVENTS: Examination of nine special events in Western Australia

Roy Jones, Alan Pilgrim, Graham Thompson and Colin Macgregor
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ABSTRACT

This research project sought to build on the Encore: Event Evaluation Kit project by examining the environmental impacts of a range of special events in order to evaluate the opportunities for developing an environmental evaluation tool or checklist. The hosts and organisers of a diverse range of nine annual special events held in Western Australia were interviewed over the course of 2005 and 2006. These included the state’s largest event, the Australia Day Skyworks fireworks display, which attracts a six figure crowd to Perth Water in the centre of the city and the Avon Descent, a ‘white water’ time trial event for paddle and power craft conducted over two days along 134 kilometres of the Avon and Swan rivers. Other smaller scale events surveyed for the research project include a vintage car rally/race in the regional centre of Albany, a triathlon and half triathlon in the regional centre of Busselton and a local component of the RSPCA’s Million Paws Walk.

The environmental impacts identified by organisers and/or hosts as the most important were transport (parking and traffic), waste management (general rubbish collection, litter, recycling and the provision of toilets) and noise. For six of the events, mention was also made of putting measures in place to promote environmental awareness. Environmental impacts/issues perceived as less significant included the provision of power, (for outdoor events), air pollution (smoke haze and vehicle emissions), management of environmental risk and the minimisation of environmental harm. However, the calculation of environmental impacts is more problematic, due to the limited availability of data for most of the perceived environmental impacts and the limited enthusiasm of both organisers and hosts to collect such data.

The research outcomes thus highlighted the dichotomy between the real research and environmental need to measure the global environmental/carbon impacts of events and the ‘on the ground’ needs of organisers-hosts to ameliorate local problems. Many of the organisers expressed little concern over their event’s environmental impacts merely seeking the most expeditious and economical means of dealing with these issues. For the hosts (i.e. the local authorities) the main concerns related to process and environmental management. They needed to ensure that the specifically local environmental impacts of a given event were clearly identifiable in advance in order to establish management/amelioration procedures. Even though organisers frequently had to deal with multiple local authorities in order to stage their events and though friction could arise between adjacent local authorities over these ‘externalities’ of event management, most respondents did not favour the development and use of environmental check lists for their events. While several local authority officers felt that a standardised checklist would be valuable for dealing with a range of specific issues, such as waste and local traffic problems, many feared that this would merely increase red tape rather than generate any real improvements in the process.

A checklist focused on the identification and means of amelioration of environmental management issues, rather than the collection of environmental impact measures per se is likely to more readily utilised by event hosts and organisers. And although existing generic checklists are not widely used, there is potential for an environmental checklist to serve as an approval form for submission by event organisers to host local authorities—with a consequential saving in terms of ‘bureaucratic red tape’ if the same list/form could be submitted to multiple local authorities or to local and state authorities where multiple approvals are required.

Acknowledgements

The Sustainable Tourism Cooperative Research Centre, established and supported under the Australian Government’s Cooperative Research Centres Program, funded this research. Our thanks to all those who participated in the interviews and also to Lisa Cooke, Environmental Officer with the City of Perth and Margaret Yeomans, Events Sales Executive, Royal Agricultural Society of Western Australia, for their assistance.
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SUMMARY

Objectives of the Study
The number, variety and geographic spread of special events continue to increase in Australia. In conjunction with the Sustainable Tourism Cooperative Research Centre’s work undertaken on the economic and social impacts of events impacts, this project aims to contribute to the development of an integrated suite of impact evaluation tools to be used by event organisers, venue managers, tourist organisers and other interested stakeholders.

The research project seeks to build on the Encore: Event Evaluation Kit developed by the Sustainable Tourism Cooperative Research Centre (STCRC) in 2005 by examining the environmental impacts of a range of special events in order to evaluate the opportunities for developing an environmental evaluation tool or checklist. A key part of this process involved evaluating the extent to which organisers and hosts were able, or willing, to assess and therefore minimise environmental impacts as well as the ability of and desire of organisers and hosts to achieve such outcomes.

Methodology
Nine special events were selected for examination. While they were conducted in a range of settings, all were held in the south-west of Western Australia. The events selected provided diversity in geographic scale, distribution and timing. In addition, the events were spread across a range of activities, embracing sport and recreation, music, fund raising, community education and family entertainment.

Interviews were sought with event organisers and hosts. The interviews were conducted as ‘open ended’ discussions with the hosts/organisers asked to identify the specific management tasks or areas of concern in relation to environmental management/risk, the availability of data relating to the direct and indirect costs of managing potential environmental impacts/risks and the actual/perceived benefits of using an environmental checklist.

Key Findings
- The development of an environmental checklist has the potential to be of use to event hosts and possibly to event organisers.
- Overall, event hosts indicated a greater level of interest (compared to organisers) in the use of an environmental checklist.
- The environmental concerns of organisers and hosts were focused on managing the environmental impacts of specific events, rather than a concern about the overall environmental impact of an event on a region. A checklist with a focus on environmental management issues, rather than the collection of environmental impact measures per se is likely to more readily utilised by event hosts and organisers.
- In relation to the nine events examined, there was not adequate data available to enable an accurate calculation of the environmental impact on any of the events.
- An environmental checklist could serve as an approval form for submission by event organisers to host local authorities; with a potential saving in terms of ‘bureaucratic red tape’ if the same list/form could be submitted to multiple local authorities or to local and state authorities where multiple approvals are required.

Future Action
- The paucity of data collection at all nine special events examined presents the opportunity to work with one or more of the event organisers and hosts to develop a generic environmental checklist that incorporates standardised data collection for all, or at least the key environmental impacts identified in this study.
- Such a checklist needs to have a primary focus on addressing environmental management issues, rather than simply the collection of environmental impact measures per se, as well as providing an opportunity to serve as an approval form for submission by event organisers to host local authorities.
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Chapter 1

INTRODUCTION

Rationale and Research Focus

The number, variety and geographic spread of special events continue to increase in Australia. In conjunction with the Sustainable Tourism Cooperative Research Centre’s work undertaken on the economic and social impacts of events impacts, this project aims to contribute to the development of an integrated suite of impact evaluation tools to be used by event organisers, venue managers, tourist organisers and other interested stakeholders. Such tools are relatively lacking at present. The Encore: Event Evaluation Kit developed by the Sustainable Tourism Cooperative Research Centre (STCRC) in 2005 includes four modules. One of the modules assesses the demographic profile of attendees, and another, the economic benefits of the event. There is also a marketing module to assess why people attended the event as well as an evaluation of their experience. The fourth module provides the opportunity for organisers to collect additional information specific to a particular event.

This research project seeks to build on the Encore project by examining the environmental impacts of a range of special events in order to evaluate the opportunities for developing an environmental evaluation tool or checklist. A key part of this process involved evaluating the extent to which organisers and hosts were able, or willing, to assess and therefore minimise environmental impacts as well as the ability of and desire of organisers and hosts to achieve such outcomes. In line with the work of Collins and others (2005) in relation to their assessment of the ecological footprint of the FIFA World Cup, it was initially envisaged that there would be a particular focus on power and water consumption, energy usage in transport to and from events and waste generation and disposal. Fredline and others (2005) also identified these as key areas of interest.

Research Methodology

Event selection

Nine special events were selected for examination. While they were conducted in a range of settings, all were held in the south-west of Western Australia. The events selected provide diversity in geographic scale, distribution and timing. In addition, the events were spread across a range of activities, embracing sport and recreation, music, fund raising, community education and family entertainment. The specific nature of each event is detailed in the case study discussions presented later in the report.

Data collection

The research project sought interviews with event organisers and hosts. The interviews were conducted as ‘open ended’ discussions and the hosts/organisers were asked to identify the specific management tasks or areas of concern in relation to environmental management/risk. Hosts/organisers were then asked to describe the processes in place to manage each environmental criterion. Information was also sought on the availability of existing data relating to environmental impacts (traffic counts, number of toilets, noise levels, and so on). Host/organisers were also asked whether an environmental checklist was already in use and whether such a toolkit would be of value. None of the event organisers or hosts identified air transport in their list of environmental impacts, even though a number of the special events examined in this study involve national/international participants. As already noted, the interview schedule focused solely on those environmental impacts identified by organisers and/or hosts and accordingly, only surface transport is discussed in this report.

Gaining interviews with organisers of all of the events proved problematic, with a number of organisers (for example the International Management group [IMG], the organisers of the Ironman event) expressed no interest at all in an environmental checklist. By contrast, local government authorities, as host or co-host to the majority of events, demonstrated a greater level of interest and preparedness to contribute to the research work. In the course of 2006, interviews were conducted with officers from all but one of the relevant local government authorities, with information from the Perth City Council (organiser and co-host of the Australia Day Skyworks)
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provided by email in response to a set of questions. The Royal Agricultural Society of Western Australia, host of the Big Day Out at the Royal Showgrounds, expressed interest in the research project but was unable to provide any information within the project time-frame. In all, interviews were conducted with the organisers of four events, hosts of seven of the nine events, and an officer from the Keep Australia Beautiful Council, an organisation affiliated with the Australia Day Skyworks.

In addition to a general literature search other material, more specific to individual events, was sourced directly from state, local government or other organisations or was accessed from websites.

Interviewees

Organisers

- **Avon Descent**: James O’Toole, Events Manager, Northam Avon Descent Association (NADA)
- **City to Surf**: Dave Budge, Tri-Events
- **Half-Iron Man Event–Busselton**: Peter Donkin, Executive Officer, Triathlon WA
- **Million Paws Walk**: Maree Snape, Events Coordinator, Royal Society for the Prevention of Cruelty to Animals

Host organisations

- **Albany City Classic Car Race**:
  - Gregg Harwood, Senior Environmental Health Officer, City of Albany
  - Phil Shephard, Strategic Planning Officer, City of Albany
  - Garry Turner, Senior Ranger, City of Albany
- **Australia Day Skyworks**:
  - Sebastian Camillo, Manager, Environmental Health and Regulatory Services, City of South Perth
  - Albert Meyerkort, Environmental Health Officer, Compliance Services, City of Perth (email correspondence)
- **Avon Descent**:
  - David Chidlow, Manager Planning and Community Development, Shire of Toodyay
  - Jason Jenke, Environmental Health Officer, Town of Northam
  - Binh Luong, Environmental Health Officer, City of Bayswater
- **Big Day Out**: Kevin Pond, Senior Environmental Health Officer, Town of Claremont
- **City to Surf**:
  - Sonja Farrow, Environmental Health Officer, Town of Cambridge
  - Claire Seville, Community Development Officer, Town of Cambridge
  - John Bown, Ranger Services, Town of Cambridge
- **Iron Man–Busselton**: Allan Whitfield, Community Development Officer, Shire of Busselton
- **Margaret River Pro**: Greg Simpson, Senior Environmental Health Officer, Augusta-Margaret River Shire Council

Affiliated organisations

- **Australia Day Skyworks**: Susan Waller, Environment Officer, Keep Australia Beautiful Council, Department of Environment and Conservation


Chapter 2

LITERATURE REVIEW

Introduction

Special events encompass a broad range of public events that are sometimes referred to as ‘hallmark’ events or ‘mega-events’ (Jones 2001) when large in scale. Major sporting events such as the Olympic Games are typical mega-events. However, even small-scale events such as community festivals of various kinds can also be classified as ‘special events’ (Fredline & Faulkner 2002; Gursoy, Kyungmi & Muzaffer 2004). Small-scale events also include cultural events such as music concerts and arts festivals. Even some weddings, birthdays and anniversaries could qualify as special events. The range of potential activities associated with events is enormous. Getz (1997) has used the encompassing definition of events or festivals as ‘public themed celebrations’ but, whatever the scale and nature of events, they are by definition short-term events of fixed duration (Hiller 1998).

The majority of studies that have examined the various impacts associated with special events have focused on sporting events (Standeven & DeKnop 1999). Hall (1992) suggests that this is probably the result of their higher public profile compared to other types of special events. It is this profile that has characteristically made them the most desired events sought by host cities.

Events Management Literature

A growing number of academic texts have been written on festival and event management, convention and exhibition management, sport event management, and event tourism (e.g. Getz 1991 & 1997; Hall 1992; Stedman, Goldblatt & Delpy 1995; Goldblatt 1997; Watt 1998; McDonnell, Alien & O’Toole 1999; McCabe, Poole, Weeks & Leiper 2000; Shone & Parry 2001). There is even a dictionary of event management (Goldblatt & Nelson 2001). But most texts on event management pay very little attention to the environment. Shone and Parry’s (2004) book, Successful Event Management: a practical handbook, includes a schematic diagram illustrating the implications of special events. Their diagram would appear to be typical of most thinking on event management (see Figure 1).

As demonstrated in Figure 1, the environment is seldom identified as part of the event management impact schema and, while it seems conceivable that environmental concerns could be covered by the heading ‘social/community implications’, these are neither specifically identified nor are they likely to be discussed in any detail. Some textbooks on event management that have discussed environmental implications have done so in what may be regarded as a fairly superficial manner (e.g. Allen 2002; Yeoman, Robertson, Ali Knight,
Drummond & McManah-Beattie 2004; Van Der Wagen 2005; Westerbeck, Smith, Turner, Emery, Green & van Leeuwen 2005). This observation also appears to hold true for peer-reviewed articles on this topic. Getz (2002) conducted a review of articles concerned with event management in the journal, Festival Management and Event Tourism (now called Event Management) and he categorised the main topics covered by that periodical in its articles, research notes and profiles. He identified the following topics:

- Economic development and economic impacts of events (26 articles)
- Sponsorship and event marketing from the corporate perspective (14 articles)
- Marketing including segmentation (11 articles)
- Other management topics (9 articles)
- Visitor or participant motives (7 articles)
- Education, training, accreditation, research, professionalism (7 articles)
- Community impacts, resident attitudes and perceptions of event impacts (6 articles)
- Descriptive analysis of the festival sector (seasonal, spatial, calendars) (5 articles)
- Attendance estimates and forecasts (5 articles)
- Volunteers (4 articles)
- Politics, policy and planning (4 articles)
- Urban renewal (2 articles)
- Law (1 article)
- Benefits to consumers (1 article)
- Arts and culture (1 article).

Again it is interesting to see that no contributions to this journal specifically address either environmental impacts or environmental management. That said, environmental issues associated with events are not completely ignored by the literature. Environmental concerns are discussed in some articles in relation to the attitudes and perceptions of local residents. To a lesser extent, some reference is also made to environmental concerns in articles examining socio-economic impacts.

Festivals and events have become one of the fastest growing sectors of tourism (Getz 1997; Gursoy et al. 2004) and at present there is a strong association between events and tourism (Quin 2006). Because the environment is largely ignored in the events literature, tourism periodicals (particularly those concerned with eco-tourism and nature-based tourism) were also reviewed in order to identify some of the major themes associated with environmental impacts. Other non-peer-reviewed literature associated with specific events, such as that found on websites (e.g. for the Sydney Olympic Games 2000), also provided valuable insights.

**Literature Concerned with Social and Economic Impacts**

Most of the literature on the hosting of events has focused on economic impacts (e.g. Crompton & McKay 1997; Gartner & Holecek 1983; Kim, Scott, Thigpen & Kim 1998; Thrane 2002; Kasimati 2003; Gursoy et al. 2004) with the perceived positive economic benefits proving so compelling to key elites that the negative impacts are considered minor and are either ignored or hidden (Hall & Hodges 1996; Hiller 1998). Some studies have considered the social implications of hosting mega-events. Ritchie and Hall (1999), for example, explored mega-events and human rights, giving particular attention to housing implications, residents’ aspirations and public participation. Horrocks and Stewart (1999) extended the social considerations by examining health rights and, in particular, medical coverage and environmental health implications. But these studies are more the exception rather than the rule with Carlsten, Getz and Soutar (2001) noting that the socio-cultural and environmental dimensions of event impacts have been largely ignored and that full cost-benefit evaluations of environmental impacts have rarely been undertaken. It is notable that there has been a study of events and sustainable development (Quin 2006) but again it is the social and economic dimensions of the ‘triple-bottom-line’ (environment, society and economy) that were the focus of the research and the environmental aspects ignored.

**Environmental Impacts**

While the premier journal concerned with event management has so far failed to grasp the significance of environmental impacts associated with events, there is no doubt that hosting major events can impose a very significant environmental or ecological cost on the host locale. A study of the ‘ecological footprint’ of hosting the 2004 FA Cup final, held at Cardiff’s Millennium Stadium in Wales by Collins, Flynn, Mundy and Roberts (2005) testifies to the potential impacts. The research team converted the energy and resources used on the day
of the match into an ecological footprint (defined as the area of land required to support the use of the resources involved). This method gave the match a footprint equal to 3051 hectares. Collins et al. (2005) explain that more than half of this footprint was generated by the 73,000 supporters travelling to the stadium (collectively they travelled nearly 42 million kilometres). The provision and consumption of food was the second-largest contributor, accounting for 1381 hectares.

Despite the clear potential for environmental impacts, some studies suggest that host city residents do not regard the environmental damage or costs as a major concern (Ritchie & Aitkin 1984; Mihalik & Simonette 1998). In terms of people’s perceptions about the environmental impacts associated with events, the dominant concerns appear to be traffic congestion and parking (Kim & Petrick 2005; Kim, Gursoy & Lee 2006). It is this one issue perhaps more than any other that has the potential to diminish public support for an event. For example, Deccio and Baloglu’s (2002) study of community attitudes to the 2002 Winter Olympic Games held in Salt Lake City demonstrated that those sensitive to environmental concerns such as traffic congestion did not support the Olympics.

Numerous environmental impacts can emerge as a result of hosting a special event. Larger events are likely to have both a broader range of, and a greater magnitude of environmental impacts. The sheer scale of mega-events can provide a useful demonstration of the breadth and scope of potential environmental impacts. The Olympic Games provide a good example. The 1994 Winter Olympics in Lillehammer, Norway is now regarded as the first attempt to create a ‘green’ Olympic Games mainly because the local residents of Lillehammer forced Norway’s Olympic Organising Committee to make changes based on environmental concerns (Schmidt 2006). The ‘green’ tradition has apparently now become well-entrenched within the Olympic culture with the International Olympic Committee (IOC) now requiring that environmental protection and stewardship feature strongly in ‘the bids’ submitted by potential host cities. According to Myrholt (1996) the IOC now expects that:

- the host city will respect the natural environment;
- a positive environmental message emerges;
- all actions are carried out in accordance with environmental legislation;
- organisers go beyond minimum public requirements; and,
- the candidate city’s maximum environmental potential will be targeted.

In the winning bid for the 2000 Summer Olympic Games the environment was given such a high priority by the successful bidding committee that the event was nicknamed the ‘Green Games’. This strong environmental focus worked in Sydney’s favour (Myrholt 1996). The organising committee (SOCOG–Sydney Organising Committee for the Olympic Games) promised to give consideration to the environment across five key areas:

- energy conservation;
- water conservation;
- waste avoidance and minimisation;
- pollution management; and,
- the protection of significant natural and cultural environments (Kearins and Pavlovich 2002).

Key activities highlighted in the bid document included building design and construction and fit-out, transport, catering, ticketing and waste management.

Environmental guidelines and principles for conducting the 2000 Olympic Games were detailed in a Manual on Sport and the Environment (IOC 1997). The Olympic Coordination Authority (OCA) developed an environmental strategy and installed an Environmental Management System (EMS) which was modelled on ISO 14,001 specifications. As a result, there were some notable environmental successes during the Games including:

- high spectator and workforce use of public transport on the newly constructed train lines;
- the diversion of considerable amounts of waste from landfill;
- energy efficiency and water conservation improvements; and,
- the adoption of measures to protect valuable ecological habitats at Olympic sites.

In addition, all tenders for services to the Games were required to demonstrate how they would address the environmental guidelines, for example, with respect to the manufacture and disposal of their products where there was an emphasis on recycling of materials.
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Despite all the guidelines for the 2000 Games, Kearins and Pavlovich (2002) maintain that, overall, the environmental considerations actually ranked relatively low on the agenda of priorities. Some of the more notable failures included:

- only a few sponsors made environmental commitments; the use of environmentally destructive refrigeration coolants in on-site equipment (Greenpeace Australia 2000);
- use of non-recyclable and non-reusable materials;
- Olympic sponsor Holden failed to provide a single high efficiency or alternative fuel vehicle for the Olympic VIP car fleet; and,
- the innovative electric vehicles provided by sponsor Frazer Nash saw only limited use (Earth Council 2001).

A coalition of five major state and national environmental groups (NSW Nature Conservation Council, Total Environment Centre, Australian Conservation Foundation, National Parks Association and National Toxics Network) called the Green Games Watch 2000 (GGW2000) was established in 1995 to act as an independent watchdog to monitor and assess the environmental performance of the 2000 Games. GGW2000 confirmed that there were some notable successes including: public transport access; use of solar power; environmentally selective building material use; the recycling of construction waste; environmentally sensitive tendering policies; energy and water conservation; and, wetland protection and restoration. However, they also identified notable failures. Some of these are mentioned above but others include: inadequate community consultation; government-approved removal of threatened vegetation; use of unsustainably sourced turpentine; insufficient and short-term public transport access to western Sydney venues; failure to provide the promised LPG (Liquid Petroleum Gas) vehicles and failure of the 3800 Olympic bus fleet to include any more than 24 CNG (Compressed Natural Gas) buses; environmentally irresponsible Olympic merchandise; use of PVC plastics; failure to clean up dioxin-polluted Homebush Bay sediments; unsafe dioxin storage under plastic sheets; and, unclear post-Olympic management responsibility for the Millennium Parklands and toxic landfill areas (Symington and Latham 2000). Athens also had difficulties in meeting its environmental obligations. Despite a commitment to use 100% renewable energy during the games, almost all the energy consumed ultimately came from non-renewable sources (Schmidt 2006).

The environmental protection tradition surrounding the Olympics still remains today and, arguably, there is now even more of an emphasis in this area. In a study conducted by Price Waterhouse Coopers (PwC 2005) on the potential impacts associated with staging the Olympics in London in 2012, the authors identify nine categories of potential environmental impacts on: land/water/air; biodiversity/ecology; energy use; waste; culture/heritage/built form; amenity; transport; housing; and support for environmental services. It could be argued that impacts on culture/heritage/built form and housing are not ‘environmental’ impacts but are more social in nature yet, that point aside, this list is testimony to the growing acknowledgement of the breadth of environmental impacts that can arise. PwC’s (2005) study was broad in nature and did not attempt to discuss the detailed impacts of particular entities. The report does however provide a useful framework for a consideration of the potential environmental impacts in both their geographic (aerial) and temporal contexts. In geographic terms they recognised that some impacts may spread over wide areas, e.g. air pollution, while others would be extremely localised e.g. litter. Their basic framework acknowledged three scales: impacts in the immediate locality (the Lower Lea Valley), impacts on London, and impacts across the UK. Each of the categories of impacts were also considered across three time periods; pre-event, during event and post-event. For example, the impacts in the Lower Lea associated with culture/heritage/built form were considered ‘very negative’ at pre-event (during the construction phase), ‘negative’ during event and ‘negative’ in post-event. However, at the broader scale of London these impacts were thought to be ‘neutral’ at pre-event, ‘positive’ during the event and ‘neutral’ in post-event. At the UK scale, these impacts were ‘neutral’ at pre-event and post-event but ‘positive’ during the event. In summarising the study, PwC concluded that, overall, the Games will bring negative environmental impacts during the construction phase to the Upper Lea but overall they believe the impacts at this scale will be positive. At the London and UK-wide levels the impacts are generally considered to be positive.

Not all events take place in terrestrial contexts. Some, such as the America’s Cup yacht race, take place in marine environments. In a review of the impacts associated with the America’s Cup on Auckland in New Zealand, Barker, Page and Meyer (2002) found concerns associated with litter and pollution both in the marine and terrestrial environments. There was also concern about the detrimental impacts on the coastal and marine environments from noise and exhaust emissions from the 2000–3000 spectator craft on scheduled race days. Glass litter was also a problem in the ‘America’s Cup Village’ during Cup celebrations with broken beverage
glass also presenting a danger to the general public. Green (1999) details other concerns for marine wildlife at this event, including boat strikes on Little Blue Penguins, Bottlenose and Common Dolphins, and Brydes Whales. There was also concern over the dramatic increase in recreational fishing and associated potential entanglement and ingestion risks for sea birds and marine mammals. Lastly, there was concern over the increased sewage discharge from recreational boats.

Traffic and Transportation

Increased traffic congestion can certainly be problematic in the host cities of mega-events and there is no doubt that this puts pressure on road infrastructure and creates parking problems (Jeong & Faulkner 1996; Deccio & Baloglu 2002; Gursoy et al. 2004). Higham (1999) observed that the Atlanta Olympic Games (1996) was marred by public transport chaos during the event.

Collins, Flynn, Mundy and Roberts (2005) believe that traffic and transportation associated with the 2004 FA Cup Final created more than half of the overall environmental impact associated with this event. Other literature also notes that as far as host community perceptions are concerned, traffic congestion may be the single most important negative environmental impact (Mihalik & Cummings 1995; Kim, Gursoy, & Lee 2006).

Traffic and transportation is such a significant issue in staging an event that it goes beyond being solely an environmental concern—it can have very significant management implications for the event as a whole and it can, and perhaps should, influence the decision on where to stage an event in the first place. Traffic and transportation was a key factor in SOCOG’s site selection decision for Sydney Olympic Park (Greenpeace 2000). In hosting an event such as the Olympic Games, organisers need to take an integrated approach when considering how large numbers of people will converge on event sites. The implications for public transport (bus, rail, air, taxis and, perhaps, ferries) need to be considered as well as the implications for private motor vehicles, bicycles and walkers (Greenpeace 2000). Congestion is not limited to traffic; crowding and people congestion, for example increased levels of crowding in streets and shops is often associated with the staging of mega-events (Higham 1999; Gursoy et al 2004).

In an effort to curb the use of private motor vehicles during the Sydney 2000 Games no private car parking for spectators was provided at Olympic venues although ‘park and ride’ car parks were strategically located for people who didn’t have direct access to the Olympic transport system.

Lastly, another transport issue that seems to be completely ignored by the literature is the considerable energy that must be consumed in transporting all the materials necessary for staging an event. Equipment for example is not only transported to an event but it must also, at the completion of that event, be transported off-site.

Energy Use

Energy use at events is clearly an important component contributing to overall environmental impact. Energy Australia estimated that approximately 38.5 million kilowatt hours of energy was consumed in delivering the Sydney Olympic Games in 2000 (Ottesen quoted in Greenpeace 2000). Despite the significance of energy use, very little is said about this in any of the literature explored for this review. The work by Ness (2004) on the environmental impact of the Rugby World Cup matches played in Brisbane is a notable exception. The SOCOG environmental guidelines did identify the importance of energy use and called for:

- passive solar building designs wherever possible
- use of insulation and natural ventilation
- the widest possible use of renewable sources of energy
- high efficiency lighting systems with maximised use of natural light
- use of energy efficient appliances
- sophisticated building management and control systems to assist management engineering services at each venue to minimise energy requirements
- mechanical ventilation zoned to allow ventilation flow to be switched off when spaces are unoccupied.

In their positive assessment of Sydney’s effort to incorporate the above guidelines, Greenpeace noted that the effort employed to achieve sustainable energy use during the Games was one of the environmental success
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

stories of the Games. As useful as these guidelines appear to be, most will only really apply to the design and construction of permanent or perhaps semi-permanent buildings. They therefore seem largely irrelevant for most events—certainly for the many events that run over one or a few days and involve the use of temporary grandstands, marquees, tents and toilets etcetera.

In terms of the provision of power there are essentially two options at event sites—use of the power grid or the generation of power by portable generators. Solar cells and wind generators would obviously be preferable but these are expensive to buy and, because they are weather dependent, unreliable and intermittent in operation (Australian Greenhouse Office 2005). Thus they are unlikely to be used to deliver the majority of power at most events. Accessing the grid for power fails to provide opportunities for the application of ‘green principles’. In contrast, if suitable equipment is available, the use of portable generators can provide the opportunity to use biodiesel or perhaps LPG or CNG. This would marginally reduce the event’s footprint. In terms of energy consumption, there are options which help to minimise waste. Using energy efficient devices for lighting and as water heaters, washing machines, cookers, photocopiers and whatever else is needed for running an event can save significant amounts of energy. For example, using energy efficient office equipment can reduce energy consumption for individual products by more than 50% (Commonwealth Government 2005).

Food Consumption

If the ecological footprint model used by Collins and her colleagues (quoted in Copely 2005) is to be regarded as reliable, then food consumption for special events typically accounts for nearly half of the overall impact. Energy consumption in the preparation of food and drink is an issue, but of more concern is the fact that the caterers typically contribute unusually excessive loading on landfills as a means of waste disposal (Fredline & Faulkner 1998). The use of disposable plastic plates and utensils and the general waste of food on a large scale also contribute to the release of greenhouse gases. According to Fredline and Faulkner (1998) catering companies should be at the forefront of the movement to make events more ‘green’.

Offering food and drinks to special events through local markets using seasonal and, ideally, organic produce would be more sustainable and have a lower impact on the environment in terms of ‘food miles’ (effectively reducing greenhouse gas emissions because it involves less transportation). The biggest obstacle in offering organic produce is its cost; it is more expensive to produce and therefore more expensive to supply. At least one company in the United States (Rising Sun Catering) actively supports local family farms at the locations of special events, believing the produce is more likely to be organically grown, to use humane practices in raising animals and to avoid the use of chemical pesticides (Fredline & Faulkner 1998). Creating menus from foods that are seasonal is also a priority. Fredline and Faulkner (1998) also suggest that catering companies could donate unserved food to local food banks or shelters where/when possible and compost food scraps wherever possible.

Waste Management

As mentioned above, any event that attracts large numbers of people will also generate large quantities of municipal solid waste (paper, cardboard, plastic, glass and aluminium). Recycling such waste would reduce the environmental impact of hosting an event (Fredline & Faulkner 1998). However, as the study by Collins and others (2005) showed in reference to the ecological footprint associated with the running of the 2004 FA Cup final, recycling of this kind would have had a very marginal impact on reducing the overall ecological impact—a potential saving of 39 hectares out of the overall 3051 hectares (1.3%). Nevertheless, the principles of reducing, reusing and recycling (the 3Rs) described by Scott (1993) would seem to apply during events just as well as in any other context within a responsible civil society. In his book Event Management and Event Tourism, Donald Getz (1997) highlights the efforts made by the organisers of the Cherry Creek Arts Festival in Denver, Colorado as an example of what can be done to minimise solid waste at an event. The key elements in their strategy included:

• ‘Precycling’—involves encouraging suppliers and vendors to reduce packaging and non-recyclable materials; requiring that all beverages be poured from fountains rather than being served from bottles and cans; and food being served with as few utensils as possible using recyclable materials.
• Primary sorting of waste was done by the consumers who placed the materials in different labelled containers.
• Secondary sorting was done by utilising nine categories of waste; the sorting was done by non-profit groups which were provided with some remuneration—volunteers called the ‘green team’ worked in
two shifts to cover the day. (The 'green team ensured that 92% of waste was recycled.)
- Non-recyclable waste was compacted into one compostable product.
- Leftover non-perishables were donated to local food banks.
The issue of litter is largely ignored by the events literature which seems somewhat surprising, particularly since some of the literature on nature-based tourism (e.g. Priskin 2001), does acknowledge that littering can be a serious problem at such sites.

**Water Use**

Water use is another subject that has yet to receive much attention in the event literature. Ness (2004) considered water use in his study of the environmental impact of the Rugby World Cup matches held in Brisbane. Perhaps if environmental impacts were explored more fully then the subject of water would be considered. There are essentially two aspects to water use that need to be considered—water consumption and the potential for water pollution arising either from the disposal of liquid waste into water or through waterway contamination from event activities.

All events have demands for clean fresh water; however, some of the water demands, such as toilet use, do not require the same quality of water as that needed for human consumption. In theory, the use of recycled water in toilets and other appropriate facilities would be a proactive step in reducing the environmental impact of staging an event. Unfortunately this can only occur where recycled water is available and it is unlikely this would be an option at many event sites. Therefore most event managers must make arrangements to tap local freshwater supplies. The local contexts determine the capacity of supply and potentially this may influence the size of an event and/or the number of people that could attend.

Some of the water used at events can be recycled after use but environmental health regulations and standards require sophisticated and technologically demanding treatments for this to occur. In most cases such treatment would be beyond the capacity of event managers simply because of the establishment costs. Nevertheless, there are other initiatives that event managers can undertake to reduce the initial demand on water. For example, use of water conserving equipment can save an estimated 30% of total water needs (Greenpeace 2000). Examples of such devices include the use of dual flush toilet systems, roof-fed water tanks wherever possible, water-saving shower hoses and the selection of low water-use washing appliances (e.g. dishwashers and washing machines etc).

**Water Pollution**

Wherever water is being consumed, waste water is generated. Broadly speaking wastewater can be classed as either ‘grey water’ or ‘black water’. Grey water is the wastewater generated by washing machines, dishwashers, sinks, showers and so on. Toilet effluent is categorised as ‘black water’. While a certain amount of grey water can be disposed of directly into the environment without treatment, black water must be treated prior to disposal. The temporary influx of a large number of people to an event site usually necessitates the installation of temporary toilets (portaloos). In most cases these are chemical toilets that require regular on-site emptying during an event. Again, it seems somewhat surprising that the literature concerned with events management has apparently ignored the potential environmental impacts from the generation of black water and chemical toilet waste disposal. Ultimately though, such waste will be collected and disposed of either at landfills or at local sewerage waste treatment plants. This therefore becomes a management problem for the hosting local municipality.

Schmidt (2006) notes that pollution can result from run off event sites and contaminate major waterways with and parking lots being particularly prone to such occurrences. Priskin (2001) also acknowledges that eutrophication can also occur where excessive nutrients from various sources (diffuse and point-sources) enter waterways. Where an event takes place offshore and involves large numbers of pleasure boats, pollution can also create problems. Schmidt (2006) notes that conventional outboard motors and personal water craft may release as much as 30% of their fuel into the water unburnt with marine engines contributing a high percentage of hydrocarbon emissions to the air.

**Air Pollution**

A mega-sporting event with an enormous potential environmental impact is the FIFA World Cup. Recognising the significance of this, and no doubt responding to political pressures, ‘climate neutrality’ (i.e. zero impact) has become one of the World Cup’s environmental targets. The organising committee for the 2006 World Cup hoped
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this could be achieved by offsetting the expected 100,000 tons of greenhouse gas emissions generated by staging the event, by investments in renewable energy and energy-efficient technology (Schmidt 2006). Other notable environmental areas targeted by the ‘Green Goal: Environmental Goals for the FIFA 2006 World Cup’ (The Institute for Applied Ecology 2006) in Berlin were water use, recycling, energy efficiency and traffic mitigation.

Motor racing events are also events where air pollution can become an issue. Schmidt (2006) uses the example of the NASCAR racing events in the United States as a notable example because the race series organisers allow competitors to use leaded fuel in their race cars. Racers have successfully argued for many years that lead lubricates engines, helping them run smoothly. The concern expressed by others is that lead is a neurotoxicant which can lower IQ levels especially in young children. A study published by O’Neil, Steele, McNair, Matusick and Madlem (2006) found elevated blood lead levels among some of the mechanics and crew members of a NASCAR race team. In January 2006, under pressure from Clean Air Watch, NASCAR agreed to change over to using lead-free fuel by 2008 (Schmidt 2006).

Ecological Impacts

Impacts on ecosystems appear to be completely ignored in the events literature. However, the tourism literature has picked up on this issue in relation to ecotourism or nature-based tourism. For example, Priskin (2001) acknowledged that loss of biodiversity, weed invasion, biological disease (e.g. dieback from various Phytophthora species) and fire are all potential ecological impacts associated with ecotourism and nature-based tourism. Special events have the potential to cause similar damage. In a study of the potential impacts from ecotourism in a Chinese nature reserve, Li (2004) described the potential ecological impacts associated with four-wheel drive (4WD) vehicles. Typical impacts include trail widening and tread incision resulting in root exposure and other vegetation damage. In this context Priskin (2001) also noted degradation of dunes, erosion of tracks and river channels (again from 4WD vehicles), trampling of vegetation and erosion of landforms. Even SOCOG apparently appreciated the value of local ecology with one of the principles for constructing buildings at the Olympic site at Homebush Bay (2000 Olympic Games) specifying that buildings should not encroach on farm or bushland (Kearins & Pavlovich 2002).

Noise

Where events are staged in residential areas, the attraction of large numbers of people to a relatively small area inevitably creates problems with traffic management (as discussed above), as well as with crowds and noise. Noise is especially significant if the event in question is a major motor sport event such as the Australian Formula One Grand Prix (F1GP). Fredline and Faulkner’s (2002) study of residents in the Melbourne area, where the Australian F1GP is now held, demonstrates how significant the noise problem can be. The event has been staged in Melbourne since 1996 and the study suggests that noise, together with traffic congestion and environmental damage, are the most significant negative concerns of some residents, especially those who are most negative towards the event. It is notable that 73% of a statistically identified group of the most negative residents lived in the immediate vicinity of the track. This group was also the most frequent users of the area of parkland where the track is established each year. Demographically, the group had the highest mean age (53.48 years) of all groups and the highest percentage of residents with a university-level education. A large proportion of this group (92%) claimed to have no interest in motor racing or anything to do with the event. The vast majority of these residents (88%) favoured complete cancellation of the event in their city; 49% even claimed to have left town on the weekend the race took place. But noise is certainly not limited to motor racing events, with Jones’ (1999) study of the 1999 Rugby World Cup noting the impact that noise disruption had on the host community.

Positive Environmental Impacts

Many writers have discussed the positive socio-economic benefits that events can bring to the cities/towns and localities that host events (e.g. Hall 1987; Bramwell 1997; Getz 1997). One could argue that there are positive environmental spin-offs as well. For example, Kitchen’s (1996) study of the Barcelona 1992 Olympic Games noted that public spaces were enhanced and improved. Essex and Chalkey (1998) also highlighted how the coastal area of Barcelona was rejuvenated with a marina, recreation facilities and sandy beaches. This has been beneficial to both tourists and local residents. Kim and Petrick (2005) note that in hosting the 2002 World Cup the Korean government made a number of positive community investments including: reclaiming a landfill site
around the main stadium; embarking on a city beautification program that involved repairing shop signs; increasing the controls for food and sanitation at street stands, and, an improvement of night lighting and waste management.
Keen for the tournament to be seen as an eco-friendly World Cup, the Seoul municipal government also raised the awareness of environmental issues through its website homepage and through various information channels.

Management of Environmental Impacts Associated with Events

While the literature concerning the impacts of events on the environment is thin, there is even less that considers the management of environmental impacts. One study looking at event evaluation research (Carlsen, Getz & Soutar 2001) points out that there are on-site and off-site impacts and that these should be monitored and controlled. The authors also note that because most events take place in urban regions it will be necessary to differentiate between event-specific impacts from others that might normally take place. They also suggest the event manager should take responsibility to ensure all the external costs associated with running an event are internalised and so fully costed. Carlsen et al. (2001) argue that there is a need for more complete cost-benefit analysis processes where the ‘intangible’ costs (e.g. inconvenience, overcrowding, crime, noise pollution, waste generation and damage of various kinds) are included. More recently, Getz (2007) in discussing the potential environmental impacts of special events notes the current absence of, but need for, environmental impact assessments both before and after events.

One possible way to consider potential environmental/ecological impacts with events is to consider the Pressure-State-Response (PSR) model which was first proposed by Canadian researchers in the early 1990s. Approved by the OECD (Organisation for Economic and Cooperation Development) and the UNEP (United Nations Environment Programme) in 1995 (Hammond 1995), this framework has become an almost ‘industry standard’ in many areas of civil society. In 1996, the model was adopted for the establishment of sustainable development indicators by the UN Commission on Sustainable Development and the UN Department for Policy Coordination and Sustainable Development (Li 2004). In his review the environmental indicators used to assess environmental impacts from ecotourism in the Tianmushan Nature Reserve in China, Li (2004) utilised the PSR model. A similar PSR approach was adopted by Rebollo and Baidal (2003) when they examined the sustainability of tourist development at development sites in Spain’s southern Mediterranean coast. There is clear potential for this model to be used in event management (Figure 2).

According to the PSR model, indicators can be classified as pressure indicators, state indicators and response indicators. State indicators reflect the environmental state of an event destination, which according to Li’s (2004) criteria would become the key factor determining the extension and degree of event development at the site. The pressure indicators would reflect the event activities and their impacts on the environment, which would indicate whether the event activities exceed the limits of carrying capacity at the site and the effectiveness of the efforts that the managers take to protect the site’s environment. Response indicators therefore reflect the regulations, controls and standards that the municipal authority use to prevent degradation of the local environment.
Rebollo and Baidal (2003) suggest a number of specific indicators for inclusion in the PSR model, some of which could be suitable for use in event management. Pressure indicators would include human pressure i.e. the number of visitors the event attracts, the increase in garbage collection, the increase in water consumption, the increase in power consumption and so on. State indicators would include any increases in atmospheric or water pollution, pollution of sea water, increased traffic and pressure of parking, amenity, impacts on beach environments or parks and natural areas, and possible noise levels. Response indicators would include urban planning adjustments, protection measures for natural areas, adjustments to the municipal budget, increasing garbage collection and processing (e.g. recycling), street cleaning, treatment of waste water, and environmental monitoring and controls.

In recent years Ecological Footprint Analysis has been applied to special events. The work of Collins, Flynn, Mundy and Roberts (2005) in evaluating the FA Cup Final led the authors to conclude the event had a significant global ecological impact—with visitor travel and their consumption of food and drink and waste generation, the key impacts. The results indicated that the ecological footprint could be reduced through better management of the event. On a smaller scale Wong (2005) applied ecological footprint methodology to calculate the environmental impacts of an annual music festival, Splendour in the Grass, held at Byron Bay on the New South Wales north coast.

**Literature Review: Concluding Remarks**

Implementing environmental evaluation of special events is likely to present something of a challenge. Success will require the participation of, and cooperation between, organising committees, host organisations (often local government), and other stakeholders. It has been suggested that 20% of all environmental problems (impacts) have technological solutions, while the remaining 80% call for social and organisational solutions—doing things differently (Myrholt 1996). Both imply significant financial investment but given the high public profile and participation accorded special events, the opportunity exists to focus public attention on protection of the environment and more broadly on the principles of sustainability. In this sense, events are an opportunity for civil society to move forward towards sustainability if the organisers and administrators choose to invest.

What is also clear from this review is that there is a considerable shortage of literature concerning the environmental impacts of special events, very much implying that more research is needed on the subject. This observation seems supportable by comments made by Donald Getz (2002), one of the most published researchers and writers on the subject of event management.
Overview

As noted earlier in the report, nine special events were selected for examination (Table 1 shows the timing of the events during the year).

<table>
<thead>
<tr>
<th>Event</th>
<th>Month</th>
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<tbody>
<tr>
<td>Australia Day Skyworks</td>
<td>January</td>
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<tr>
<td>The Big Day Out</td>
<td>February</td>
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<tr>
<td>Margaret River Pro</td>
<td>March</td>
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<tr>
<td>Million Paws Walk</td>
<td>April</td>
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<tr>
<td>Albany City Classic Car Rally</td>
<td>June</td>
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<tr>
<td>Half Ironman</td>
<td>June</td>
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<tr>
<td>Avon Descent</td>
<td>August</td>
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<tr>
<td>City to Surf</td>
<td>August</td>
</tr>
<tr>
<td>Ironman</td>
<td>November</td>
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The selected case studies present considerable geographic diversity in scale, location, and duration of events. Four of the events—the Australia Day Skyworks, Big Day Out, Million Paws Walk and the City to Surf—are held in metropolitan Perth (Figures 3 and 4). Another four are based in regional Western Australia—the Half Ironman and Ironman events at Busselton, the Albany City Classic Car Rally and the Margaret River Pro international surfing competition (Figure 5).

The events vary considerably in terms of the scale and dimensions of the ‘venue’. Only one of the events, Big Day Out, is held in an enclosed, albeit open air, venue. Six of the events Million Paws Walk, Albany City Classic Car Race, Half Ironman, Ironman, Avon Descent and City to Surf are linear courses or circuits. For example the Avon Descent paddle and power craft race commences in the regional centre of Northam and finishes in the Perth suburb of Bayswater. The Margaret River Pro and Perth Skyworks are outdoor events focused on a nodal area, the surf zone at the mouth of the Margaret River and Perth Water respectively.

The Margaret River Pro is the only week-long event. Events of two or three days duration, coinciding with a weekend, include the Half Ironman, the Ironman, Albany City Classic Car Race and Avon Descent. The 30 minute Australia Day Skyworks fireworks display has the shortest duration of the nine special events examined. However, the logistics of 400,000 people accessing vantage sites around Perth Water has resulted in a range of other activities preceding the fireworks, with spectators gathering on-site as early as the morning of the event. After the event, the dispersal of spectators takes place over several hours. Of the remaining events, Million Paws Walk and City to Surf are of one to several hours duration, while the Big Day Out music festival runs for 12 hours.

The majority of events have a sport or recreational focus, ranging from extreme endurance events such as the Ironman to more family orientated events such as the City to Surf. Professional sports people compete in a number of the events, most notably the Ironman, Avon Descent, City to Surf, and the Margaret River Pro. Several of the special events have a significant focus on fund raising, notably the RSPCA’s Million Paws Walk, the City to Surf, (raising funds for Activ Industries) and the Albany City Classic Car Rally. A number of the events such as the Ironman, Half Ironman and the Big Day Out are commercial ventures with a focus on profit. All of the events attract private sector and/or government sponsorship (often a mixture of cash and in-kind support) although there are significant differences in the level of sponsorship provided across the range of...
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

events. There is also a significant range in the number of people attending these events—from between 4000 and 5000 attending the Margaret River Pro, to as many as 400,000 attending the Australia Day Skyworks fireworks display over Perth Water. Attendance at most of the events ranges from between 8000 and 40,000.

Figure 3: Events occurring within the Perth metropolitan area
(Swan River Trust 20061)

Figure 4: City to Surf detailed route map

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Figure 5: Events occurring outside the Perth metropolitan area
(Swan River Trust 2006^3)

^2 Available from: http://citytosurf.activ.asn.au/
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

Australia Day Skyworks (Perth)

Interviewees
- Sebastian Camillo, Manager, Environmental Health and Regulatory Services, City of South Perth
- Susan Waller, Environment Officer, Keep Australia Beautiful Council (KABC), Department of Environment and Conservation
- Albert Meierkort, Environmental Health Officer, Compliance Services, City of Perth (email correspondence)

Introduction
The Australia Day Skyworks is part of the Australia-wide fireworks displays held in celebration of Australia Day. In Perth, the main fireworks display is held on Perth Water, as well as incorporating some of the buildings in the CBD. Over the years the performance has attracted crowds up to 400,000 making this the biggest single special event held in Western Australia. Sebastian Camillo from the City of South Perth believes that in recent years the numbers of people attending the Skyworks in central Perth have diminished (in his view gaps in the crowd have become more noticeable in recent years), most likely because other Skyworks events are now staged at a number of outer metropolitan areas such as Armadale, Canning, Joondalup and Mandurah. At Armadale for example, in 2005 around 20,000 people attended the local Skyworks event in Minnawarra Park. The number of people attending the outer metropolitan shows has continued to increase. In 2006 the number of people attending the Armadale event had doubled to an estimated 40,000. Smaller crowds, much less traffic congestion, less travel time, and a likely reduced risk of unruly crowd behaviour may well be key factors in drawing people, especially families with young children, to the smaller, more local events. This may mean that the numbers attending the Perth Skyworks has peaked, with likely benefits for the City of South Perth and City of Perth in terms of reduced environmental impacts. This report only examines the Skyworks performance over Perth Water.

Skyworks is organised by the City of Perth with the City of Perth and City of South Perth being the primary hosts for the event. The Keep Australia Beautiful Council (KABC) is also involved in the event, with responsibility for the distribution of general and recyclable rubbish bags to the crowd on the day of the Skyworks and the promotion of safe and responsible litter collection. On the day of the event, KABC employs and manages 60 volunteer scouts, organising them in such a way that each person does no more than a four hour shift. The scouts are each paid a $40 volunteer honorarium and provided with a prime position in the ‘exclusion zone’ to watch the Skyworks display.

Approval process and conditions of approval
In December 2004 the Swan River Trust (SRT) released the Spectator and Entertainment Event Policy (SRT/RA1) under which the City of Perth must apply for a Regulation 8 approval within the Swan River Trust Act 1988 to host the event. Other agencies and government departments (e.g. FESA, WA Police, DPI, Main Roads, Kings Park and Botanical Gardens Authority, DEC—Parks and Conservation (previously CALM), DEC—Swan Goldfields Agricultural Region, other local governments, Town of Victoria Park and City of South Perth, the Perth Transport Authority, Keep Australia Beautiful Council and more) are all involved during the consultation stages and preparation for the event. The event must also be approved by the Fire and Emergency Services Authority (FESA). FESA has responsibility for a number of areas of risk management, including fire. According to anecdotal evidence, the severe hot weather conditions on Australia Day 2007, and the associated risk of fireworks igniting a bushfire in Kings Park, saw final approval for the event delayed until 15 minutes prior to the scheduled start time.

4 The Keep Australia Beautiful Council (KABC) was, until 2001, an independent organisation that promoted, largely through consultation and education with communities and industries, the safe and responsible collection and disposal of general and recyclable waste. This involved encouraging rather than compelling such groups to take more responsibility for waste disposal. However, the KABC did possess some statutory powers and could use the legal process to enforce the litter Act if deemed necessary. At the time of the interview, it received its funding primarily from industry groups. In 2001, the KABC was incorporated into the Department of Environment largely because of reduced industry funding and thus difficulty in maintaining its roles and responsibilities. The KABC is now classed more as a working group within the Department of Environment. Although still performing the same roles, compared with other groups within the Department of Environment its position is not a primary one. However, the State Government is in the process of renewing the litter Act and this is likely to have a number of implications for the KABC.
The above policy also states that the organiser of an event must satisfy the SRT that a range of plans are in place for managing waste, protecting the river and for emergency response. Moreover, the organiser/host of the event (in the case of Skyworks the City of Perth) must also evaluate the success of these plans.

Environmental impacts and direct costs

Surface transport: traffic, parking and public transport

The State Government Department of Main Roads has responsibility for the collection of traffic data. Main Roads have not collected data on traffic counts or traffic flows associated with the event. The WA Police Department can only provide estimates of the number of vehicles attending the event. This lack of data is somewhat of a surprise given that, in terms of traffic movement, Skyworks is by far the biggest event in the Perth events calendar. Bus and train timetables are available from Transperth (the state government public transport authority) that show the additional bus and train services operating to and from the Skyworks. This data would allow for the calculation of Transperth’s extra fuel consumption as well as an estimate of the number of people travelling by public transport.

The environmental impacts of private vehicles in South Perth are areas of major concern for the City of South Perth (Sebastian Camillo). The lack of data on traffic flows along the main access routes in and out of South Perth made it difficult for the City of South Perth to develop more effective parking and traffic flow plans for the event. Severe traffic congestion and very lengthy delays are features of the post-event dispersal of attendees. Each year, 15 casual rangers are employed to monitor parking in the area with a number of others employed to impound vehicles and erect road barriers. The availability of traffic data would likely enable more effective deployment of rangers and a more cost effective operation.

Energy and water provision

Portable generators and lighting towers are installed for each site where portable public toilets are provided. In addition, extra floodlights are provided for security and safety reasons. To cater for the police and St John’s Ambulance Service, 12 additional floodlights are positioned in an area close to the Swan River, approximately midway along the foreshore. This area, referred to as the exclusion zone (the general public is prohibited from this area) is designed to provide safe ingress and egress for emergency vehicles and personnel. It provides a clear access route between the Swan River and the nearby main arterial route, Mill Point Road. A local equipment hire company is contracted to provide the generators and lighting towers.

Litter and general refuse (including animal waste)

In 2005, a total of 30.2 tonnes of waste was generated, 16.1 tonnes in South Perth (south of the Swan River) and 14.1 tonnes in the City of Perth (north of the Swan River). These figures, provided by Sebastian Camillo from the City of South Perth, do not include general refuse collected from more distant vantage points such as Matilda Bay to the south west (City of Subiaco) or from the foreshore in the Town of Victoria Park. For the 2006 event, Susan Waller estimated the total weight of general and recyclable waste had increased to 40 tonnes and the total number of ‘skips’ provided by Stateside Bins has increased from 200 to 275. The South Perth City Council organises the contractor Stateside Bins to deliver 75 large bins (‘skips’) from their depot in Malaga to the South Perth foreshore. After the event, Stateside Bins then transport the refuse to the regional landfill facility operated by the Eastern Metropolitan Regional Council (EMRC) at Red Hill, some 30 to 35 kilometres north-east of central Perth. Calculating an estimate of the cost of fuel consumption associated with this task would be a relatively simple process.

As already noted one of the roles of the KABC is to distribute general and recyclable rubbish bags to the crowd on the day of the Skyworks as well as promoting the message of safe and responsible litter collection. The 60 volunteer scouts employed for the event range in age from 14 to 25, the older scouts being venture scouts. Parents of scouts are also recruited, particularly parents of the younger members. When distributing the bags the scouts inform attendees about how to use them correctly—providing instructions on separating general and recyclable waste, use of the correct skips for the different bags and the signage and colour coding of the different bins. Anecdotal evidence from the volunteer scouts indicates that the scouts are generally praised for their work.

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5 Government of Western Australia Media Release, 30/12/04
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by attendees with people indicating their willingness to cooperate in helping to minimise littering and maximise recycling. The KABC also liaise with the media (in particular the major sponsor of Skyworks, radio station 94.5FM), before and during the event, to get these messages across. Radio announcers provide regular reminders to listeners about safe and responsible litter collection and disposal.

Despite all these efforts there is a significant litter problem associated with the event. Sebastian Camillo estimates that possibly only 50% of attendees either take their rubbish home or deposit it the rubbish bins provided. This requires a major litter clean up each year following the event. Along the South Perth foreshore, the cleanup of litter on the following day is organised by Sebastian Camillo. Up to 2005, he led a team of about 20 employees to collect the litter along the South Perth foreshore. The cleanup was undertaken very early on the morning after the event. However, in 2006, the cleanup was undertaken immediately after the Skyworks show, with workers collecting litter from 9 pm until around 2 am to 3 am the following morning.

It is somewhat ironic in that in their attempt to improve relationships on the day with attendees, the WA Police have taken to distributing Minties (confectionery). While this has had some measure of success, the initiative has also inadvertently added to the litter problem.

The collection and disposal of bottle tops, cigarette butts and glass shards is of particular concern. Despite the threat of a $200 on-the-spot fine for dropping litter ($75 for dropping cigarette butts), the local councils have to employ litter pickers during the day to collect as many of these smaller items as possible. The aim here is to help prevent injury that might be incurred by stepping on bottle tops, cigarette butts and broken glass, and, to help remove the threat of any of these items (broken or otherwise) being used as missiles. The cigarette butts and bottle tops are usually collected by hand, using protective gloves. Broken glass is collected by hand on the day of the event, but is also collected by machine for up to six weeks after the event as the smaller pieces of glass can become embedded in the grass and pose a significant risk of accidental injury.

There are also some problems with the inappropriate use of the 240 litre Sulo bins. These bins are not anchored or bolted to the ground and have been used as cricket wickets, filled with water and used as a bath for cooling down, or they have been pushed into the river. On the north side of the river some families have brought along white goods such as fridges, mini bars and even spas. Rather than take these items home, they have on occasion been left behind for collection and disposal. The City of Perth has addressed this particular problem by the blocking of street access close to the river, discouraging people from unloading larger items such as fridges. The larger ‘skips’ also present some problems—albeit that the problem is limited to a very small minority of people. During the occasional melee, refuse, such as bottles have on occasion been retrieved from the skips and used as missiles against the police. Bags of litter have also been thrown into the Swan River.

Recycling

The City of South Perth has been trying to implement a recycling program for a number of years. Some of the 75 refuse skips placed along the South Perth foreshore were designated ‘for recyclable waste only’. Unfortunately, all bins ended up full of mixed waste. This was attributed to most people being in ‘party mode’ and not really concerned about separating their waste into recyclable and non-recyclable items. In 2003 the KABC tried unsuccessfully to implement a recycling system with the 240 litre Sulo bins used for the recycling of bottles and cans.

Despite the goodwill demonstrated towards the volunteers distributing refuse and recycling bags, the KABC campaign has also failed to achieve success. Inspection of the contents of the bags by the KABC revealed that approximately 30% of bags designated for recyclable waste were contaminated with general waste; with a similar level of contamination in those bags designated for general waste. Overall, in 2006, it was estimated that 95% of all the waste collected were beverage bottles. In short, notwithstanding the KABC’s successes in terms of the overall numbers of litter bags collected, and its efforts to encourage recycling on the day of the event, most bags were in the end too highly contaminated to be separated and all the waste ended up as landfill.

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6 Cigarette butts account for 50% of the litter stream.

7 Many people, including children, run around in bare feet in this area both on the day of the event and on other days immediately following the event.
Toilet facilities
In addition to the permanent toilets located along the South Perth foreshore, eighty portable chemical toilets (cubicles) are provided to cater for attendees. Two skid mounted toilets blocks (demountables) are also used, with these plumbed into the main sewage system. Coates Hire delivers the toilets and a service team from Cleanaway is employed to maintain the toilets during the event. This involves the ongoing extraction (pumping out) of sewage from the toilets and the replenishment of the chemical flush. These tasks require the use of additional power and water and as already noted Coates Hire provides portable generators and lighting towers for each site. The City of South Perth covers the costs of these services. The number of portable toilets used on the north side of the river (City of Perth) is unknown.

Noise
Each year the City of Perth receives several complaints regarding noise levels associated with the Skyworks show. In the fifteen years that Sebastian Camillo has been associated with organising the City of South Perth’s involvement with the Skyworks event, he is only aware of one complaint to the Council about noise. It is likely that many local residents watch the performance and it is also likely that the event is recognised as an important part of the Australia Day celebrations. The spectacular visual display clearly outweighs the noise, the latter audible from as far away as the Perth hills. During the fireworks display, noise levels on the nearby river foreshore are estimated to be between 90 and 100 dB(A) while noise levels at a distance of 5 kilometres are in the order of 50 to 60 dB(A). Aside from community acceptance of the noise level, Skyworks is deemed to be a community event and is exempt from the provisions of the Environmental Protection (Noise) Regulations 1997. This means there is no mandatory requirement for noise levels to be monitored.

Managing environmental risk
The most visible environmental risks associated with this event are the risks of fire and the widespread incidence of littering. There are at least two fire risks associated with this event, neither of which was mentioned in the interview sessions. In 2007, with the Perth region experiencing very hot dry weather and an extreme or very high fire danger, the Fire and Emergency Services Authority (FESA) were concerned about the risk of fireworks or other potential ignition sources such as discarded cigarette butts igniting a bushfire in the Kings Park bushland. FESA has the authority to cancel the fireworks display, with the media reporting that approval was given for the event to proceed 15 minutes prior to the scheduled start time. There is also the risk of fire on the barges used to launch the fireworks. In 2007, and for the first time in the history of the event, there were fires on two of the barges. As a precaution spectators were evacuated from the nearby foreshore. The matter of littering has already been discussed and as noted, although there is a significant amount of littering, there is also a well coordinated response to ensure that all of the rubbish is collected by the following morning.

Comments
The major concerns revealed in these interviews relate to traffic management and the management of general refuse and recyclables. The risk of fire was not raised as an issue during the interviews, most likely as fire management is not the responsibility of those interviewed. Consideration is being given to employing more rangers and to give them greater powers to enforce the Litter Act. In terms of developing a workable strategy for Skyworks, trying to separate recyclable from general waste on the day of the event is not practical. A more workable strategy in the context of legislative changes is being considered whereby all waste will be collected in general waste skips. The skips will then be transported to one site where general and recyclable waste will be separated. The company being considered for this operation is Atlas. It is hoped that this process will begin in 2007.

The fact that there are currently no public recycling facilities may also be part of the problem in the wider community attitude towards recycling. At present recycling is based on kerbside collection from households.

Sebastian Camillo suggested that an environmental checklist could be of value in terms of working through the approvals process under the Swan River Trust’s events policy. Such a process would require cooperation between contractors, organisers and local authorities in the provision of information.

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8 Albert Meyerhort, Environmental Health Officer, Compliance Services, City of Perth (email correspondence dated 1 November 2006).
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

The Big Day Out: Royal Showgrounds

Interviewee
Kevin Pond, Senior Environmental Health Officer, Town of Claremont

Introduction
The Big Day Out is a twelve hour event (commencing at 11 am) of non-stop musical entertainment featuring a range of bands described on the website as ‘from the obscure to the megastars’. The 2006 event was the thirteenth year the Big Day Out has been held in Perth. An estimated crowd of up to 27,000 attended the event in 2006, compared to 38,000 in 2005. Prior to 2002, and until the number of people attending became too great for the venue, the event was staged at Bassendean Oval. Big Day Out was first staged in Sydney in 1992, attracting a crowd of 9500. It is now staged as an annual event in Auckland, Sydney, Brisbane, Melbourne, Adelaide, the Gold Coast and Perth. In 2006, the tour attracted a total audience of 223,000.

Approval process and conditions of approval
The Town of Claremont is primarily responsible for managing matters relating to both planning and environmental health, outside of the Claremont Showground. This includes any planning or environmental health issues resulting from either internal events (i.e. events held inside the Showground and undercover, for example in the Robertson Pavilion), as well as larger external events (i.e. events held in the main arena). In some cases, responsibility for environmental health management within the Showground (for example, litter collection and noise abatement) is shared between the Town of Claremont and other organisations. The management of environmental health in relation to special events at the Showground (the Big Day Out and the Royal Show) is a complex issue. Environmental Health officers from the Town of Claremont need to comply with about 40 different sets of regulations and codes of practice in relation to the staging of major cultural and sporting events.

Noise reduction at sporting and/or cultural events—and indeed generally—is deemed a ‘whole of State’ responsibility and the Town of Claremont has to apply for approval from the Department of Environment and Conservation (DEC), under Regulation 18 of the Environmental Protection Act. The DEC monitor noise levels generated by events like the Big Day Out and the Royal Show. Noise is the most important environmental impact of events such as the Big Day Out. Any such outdoor concert is required, under state law, to apply for noise exemption status. Local government CEOs have delegated authority from the Department of Environment and Conservation to grant noise exemptions.

Although located within the Town of Claremont jurisdiction, the Royal Agricultural Society (RAS) has complete control of the Showground. The RAS owns and is responsible for approximately 60 hectares (150 acres) of land. Under a 1926 Act of Parliament the RAS is exempt from local Council rates.

Environmental Impacts and Direct Costs
The staging of major special events at the Showgrounds invariably means that additional costs (in particular in relation to the management of environmental health) are incurred by the Town of Claremont. Given the rate exemption status of the Showground there is no mechanism for recouping these costs.

Surface transport: traffic, parking and public transport
An estimated 25,000 to 30,000 people (85% of attendees at the Big Day Out) travel to the Showground by train. To accommodate patrons attending major events at the Showgrounds, the railway station platform was recently extended to cater for ‘six car’ trains, with the Showgrounds station the only suburban platform long enough to accommodate six cars. The event organiser covers the cost of additional train services. The number of passengers...

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9 Kevin Pond has had responsibility for Environmental Health at the Town of Claremont since 2002.
12 Mr Pond informed us that, from 1999 onward, the Royal Agricultural Society has conducted surveys and have summary documents that may be of interest to us that ask questions about the impacts of concerts.
13 The Royal Show has been exempt noise since 1904. Thirty to forty years prior to 1904, the Royal Show was held at Guilford.
ASSESSING THE ENVIRONMENTAL IMPACT OF SPECIAL EVENTS

vehicles parked around the Showgrounds during the event is in the order of 500 to 1000. For a $10 per car fee, parking is available at the Oval and on Westrail land next to Gate 1. The Town of Claremont Council and the Claremont Football Club share the revenue. The high level of train patronage means there are seldom problems with traffic congestion. Costs associated with traffic management (signs, designated drop off bays and the use of Council personnel for managing traffic flow), is shared between the Town of Claremont and the Royal Agricultural Society.

Noise

In 2006, six Department of Environment and Conservation officers were employed to monitor noise levels in the area. Unmanned monitoring stations were also used. Measurements are taken from either the nearest residential properties and/or any other locations selected at random. This degree of noise monitoring is important because even though events like the Big Day Out are granted noise exemption permits, there are still upper limits as to what local communities deem acceptable. These upper limits are based on ongoing monitoring of noise levels in relation to the numbers of complaints received. Normal acceptable noise levels are 45 dB(A). The Big Day Out generates 75 dB(A), with the actual noise levels doubling (as this is a logarithmic scale) with every 3 dB(A) increment.

Until recent years, and commencing in 1927, Speedway competitions were held at the Royal Showgrounds once per week for six months of the year. In the post-Speedway years the Town of Claremont and the Department of Environment and Conservation have reached agreement on a maximum of ten events per year at the Showgrounds (six in the arena and four indoors—the Robinson Pavilion seats 5000 people maximum). In reaching this agreement the assumption was made that local residents should be able to endure increased noise levels as they had endured the Speedway for 26 nights per year for about 50 years. Although the recently introduced events generate much less noise overall, according to Kevin Pond some local residents, particularly older residents, still perceive events like the Big Day Out to be noisier.

Wind direction plays an important role in determining noise impact. Usually, the wind is blowing from the west or south-west (the coastal sea breeze) with residents to the east and north-east of the Showgrounds likely to be most affected by noise. In 2006 an uncharacteristic easterly breeze meant there were complaints about noise from the beachfront suburb of Cottesloe—the area most affected by the noise. A reading of 72 dB(A) was recorded at Cottesloe.

According to Kevin Pond, advances in sound technology have helped to reduce noise levels both in and around the Royal Showgrounds during these events. For the past few years the speakers, which were once wall-to-wall and pointing straight at the crowd, are now angled and include louvers and veins. This design channels the sound in various directions and thus has a diffusing effect.

In the first year the Big Day Out was staged at the Royal Showgrounds (2002), there were 160 complaints, some of which were quite abusive. In 2006, there were approximately 30 to 35 complaints. This may reflect improved sound technology, and/or the unusual (easterly) wind direction in 2006 and/or a growing tolerance of the event by local residents. Throughout the concert, two dedicated complaints lines are operated by female members of the RAS. The overwhelming majority of complaints are received after 7.00 pm. Some of the local residents complain that the operators of the complaints hotline are biased (which he insists is not the case) and they would prefer to (and do) complain direct to the Council. According to Kevin Pond there are some local residents who believe the RAS has too strong a vested interest in the event being held and are therefore more likely to under report serious complaints. An independent survey conducted between April and May 2006 received 30 complaints.

Local residents are given prior notice of all such special events held at the Showgrounds and despite the complaints Kevin Pond believes the majority of residents see larger numbers of attendees at events like the Big Day Out and the Royal Show as more a benefit than a disadvantage.

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14 Reports are available form the Department of Environment.

15 The Chief Executive Officer (CEO) of the Department of Environment delegates authority to town council CEOs who can then authorise noise exemptions.

16 It will be interesting to examine the number of complaints about noise during the interim years (2002 to 2005) to see if there is a trend in the reduction of complaints about noise or whether 2006 was a one off.
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

Energy and water provision
The RAS has paid for the installation of extra sub-stations and lights and power lines have been upgraded. The Showgrounds are connected to the mains pressure water supply.

Waste management
With the exception of the provision of portable chemical toilets (paid for by the event organisers), the RAS collects and manages waste (litter, sewage) inside the Royal Showgrounds\textsuperscript{17}.

Litter and general refuse (including animal waste)
The RAS is also responsible for the collection of litter along the road verges bordering the showgrounds. Road verges are cleared of litter by early the next morning and there is very little litter associated with the Big Day Out to be found away from the Showgrounds. In the event that additional Council personnel are required to assist in the cleanup of litter, the RAS has recently agreed to recoup these costs from the organisers.

Recycling
The Town of Claremont provides a kerbside recycling service for all residents. However, the provision of separate bins for general refuse and recyclables at the Big Day Out has not succeeded in achieving a separation of waste material and recyclables. It would seem that when a very large crowd is in ‘party mode’, recycling is not a personal priority. The Big Day Out website also carries a notice encouraging everyone to use recycling stations at the event.

Toilet facilities
The Showgrounds have permanent toilet facilities connected to the metropolitan reticulated sewerage system. In recent years the RAS has funded the upgrading of the Showgrounds’ sewerage system. These facilities are not sufficient to meet the requirements of very large crowds. As already noted, in 2006 between 26,000 and 27,000 people attended the Big Day Out. According to Kevin Pond the formula used by the RAS to calculate the number of toilets required is one developed about 40 years ago, the underlying assumption of which is that an equal number of toilets need to be provided for male and female patrons. Over the past 40 years there has been a significant change in the demographics of those attending special events—not only is there now the capacity to accommodate a much larger number of people, but there is also a greater number of females attending such events. Events such as the Big Day Out have provided clear evidence that the formula currently used is not meeting demand, and has the potential to lead to antisocial behaviour. Given the changing demographics, Kevin Pond estimates that for a crowd of 25,000, the number of toilets required would be in the order of 250 for men and 375 for women. The Town of Claremont Council has been negotiating with the RAS for a 50% increase in the number of toilets provided for female patrons. At present, a 30% increase has been achieved.

Other infrastructure
The Showgrounds have an outer perimeter fence (four to five kilometres in length) and for the Big Day Out an inner perimeter fence is erected around the main arena. There is a small problem with ‘fence jumpers’ seeking to gain free entry. This includes trespass on private residential property in order to gain access to the outer perimeter fence. Such antisocial behaviour has resulted in theft, property damage, injury to themselves and at times local residents, and a general feeling of insecurity for some local residents. Closure of some local roads is one option considered, although as most people attending the event travel by train, this may not resolve the problem.

Comments
The Big Day Out provides a good example of the separate and overlapping responsibilities of the two host organisations—the Royal Agricultural Society and the Town of Claremont—and highlights the importance of a

\textsuperscript{17} The Royal Agricultural Society is in possession of its own waste management statistics.
cooperative approach for mutual benefit. The example also highlights some of the legislative responsibilities of local and state government (for example in relation to noise pollution) and the need for review of some regulations (for example in relation to the provision of toilet facilities). Two key issues were identified with the hosting of the *Big Day Out*—noise pollution and the need for the provision of adequate toilet facilities. Kevin Pond also noted that some older residents perceived the *Big Day Out* to be full of people taking drugs and acting in a somewhat antisocial manner. According to Kevin Pond, the reality is quite different, citing an example from several years ago, when the drug and alcohol problem was much worse during a performance by older rock stars watched by a much older audience. Police statistics reveal the crime rate associated with the Big Day Out is now lower than in previous years.

The *Big Day Out* and the *Royal Agricultural Show* are two of the ‘stand out’ (in terms of number of people attending) special events that take place each year at the Showground. The Royal Agricultural Society, in consultation with the Town of Claremont, is also seeking approval for special events such as motor cross and motor cycle racing, as well as symphony orchestral concerts and performances by other professional artists. The long term aim is to host a range of special events catering for a variety of age groups.

In terms of the applicability of an environmental checklist/toolkit, the WA Department of Health already uses a checklist in providing the Town of Claremont with expert advice regarding environmental health and the staging of events. Kevin Pond expressed interest in the use of an environmental checklist/toolkit in local government for both assessing the requirements for special events and evaluating the outcomes.
Margaret River Pro

Interviewee
Greg Simpson, Senior Environmental Health Officer, Augusta-Margaret River Shire Council

Introduction
The Margaret River Pro (formerly titled the Margaret River Masters) is an annual international surfing competition held at Surfers Point near Margaret River, in the south-west of Western Australia. The event, a four-star-rated World Qualifying Series event, attracts approximately 200 competitors, including some of the world’s best professional surfers. It is a week-long event and in 2006 was held between 27 March and 2 April18. On average, the tournament attracts between 4000 and 5000 people annually. By comparison, other special events such as major outdoor concert performances held within the Shire attract an average attendance of 6500.

Approval process and conditions of approval
As is the case with all public events, the organisers must seek approval under Regulation 18 of the Environmental Protection Act. Since November 2004 the Shire Council has adopted a more structured and holistic approach to the planning and implementation of special sporting and cultural events. The new policy includes community consultation in both the planning and post-event review process. The current policy is now (November 2006) under review with the objective of making further improvements in the area of risk management. The Shire’s management strategy for special events specifies an upper limit of 10,000 people in attendance at any one event.

Environmental impacts and direct costs

Surface transport: traffic, parking and public transport
Traffic management in and around the event site represents the single biggest concern for the Shire in terms of staging the surfing competition. Complaints about car parking associated with the event are quite frequent most years. The biggest source of complaints expressed by spectators is the lack of adequate parking. Currently there are 2000 car parking spaces available. Parking passes are now issued to patrons in an attempt to reduce the level of frustration experienced by those wanting to attend the event. In addition, to help minimise traffic congestion, a courtesy bus operates between the car parking area at the beach and the Margaret River town site.

Additional police officers are also required to assist with traffic management. The Augusta-Margaret River Shire Council is of the view that events organisers should pick up the cost of additional police officers by contributing an amount of between $5000 and $10,000.

Temporary structures such as grandstands are also erected on-site with most of this infrastructure transported from Perth.

Noise
The Augusta-Margaret River Shire has set a noise limit of 100 dB(A) for all special events in the Shire. The area is particularly renowned for outdoor concerts featuring international entertainers. There have been no complaints about noise in relation to the surfing competition.

Energy and water provision
The provision of power is the responsibility of event organisers but water is available on-site.

Litter and general refuse (including animal waste)
Although there is usually some additional litter throughout the town after events like the Margaret River Pro, littering is not considered to be a major problem. Waste collection and disposal is well organised with few, if any complaints received from local residents. Many of the additional costs associated with waste management are charged to the organisers. These costs are generally determined by the Augusta-Margaret River Shire for clear-ups on the basis of previous experience. There are also a number of set costs that are passed onto the event.

organisers. These include the cost of using a contractor to collect and transport waste to the landfill site, the cost of disposal at the landfill site and the cost of collection and disposal of toilet waste.

Toilet facilities
There is a septic tank system on site and sufficient toilets for the number of attendees.

Other infrastructure
There are also significant occupational health and safety issues in relation to the safe erection and dismantling of temporary grandstands and other infrastructure. Organisers are under considerable pressure with all on-site infrastructure erected in a five day period, and dismantled within two days of completion of the event.

Managing environmental risk
The Shire charges organisers $5,500 for rehabilitation of events sites and the protection of native vegetation. The Shire representative expressed concern in two areas; first, he noted that fencing has been damaged in previous years which meant that the public had accessed native vegetation in front of the pavilion and car park areas. He also observed that the workers found it necessary to enter the native vegetation areas during the assembly and disassembly of the stands although he did not feel this was having a significant impact.

Fire
Fire is a major concern and there is a specific risk management plan in place for fire. This includes regular patrols of surrounding bushland.

Minimising environmental damage
Weed control and the protection of environmentally sensitive areas of natural bushland adjoining the beach are issues of major concern. Environmental controls are in place to minimise damage to the many environmentally sensitive areas that adjoin this (and other) venues. Access to bushland reserves is blocked by the erection of appropriate barriers and fencing. In addition, a team of security personnel and other groups recruited by the Shire Council assist in policing the restrictions on people accessing environmentally sensitive areas.

Promoting environmental awareness
Environmental awareness is promoted through the erection of appropriate banners and signs to provide information about environmental and safety concerns.

Comments
The Augusta-Margaret River Shire Council undertakes an annual review of all special events held within the Shire. The review includes consideration of the number and nature of complaints received. This process aligns with the Shire’s newly introduced policy encouraging more community involvement in evaluating special events. The review process provides the starting point for the planning process involved in staging special events for the following year. Greg Simpson expressed interest in the development of an environmental toolkit/checklist.

Most of the major sporting and cultural events held within the Shire are timetabled between the months of November to April but the Margaret River area is very popular with event organisers and according to our informant, there are few times during the year when there is not an event of some kind taking place somewhere in the Shire. Traffic management and the risk of bushfire are the key risk management issues generic to all of the special events held in the district. In relation to the Margaret River Pro, there is the added concern (in terms of risk management) related to the erection of temporary structures such as grandstands.
RSPCA Million Paws Walk

Interviewee
Maree Snape, Events Coordinator, Royal Society for the Prevention of Cruelty to Animals

Introduction
The year (2006) marked the tenth anniversary of the Million Paws Walk, an annual event held in autumn at the Sir James Mitchell Park on the Swan River Foreshore in South Perth. The event is sponsored and organised by the Royal Society for the Prevention of Cruelty to Animals (RSPCA) and is the organisation’s largest single fund raising and community education event (promoting responsible pet ownership). In 2006 more than 8000 people, along with their pets, participated in the event on the South Perth foreshore. In addition to paid RSPCA staff, the South Perth event is supported by around 100 volunteers. On the same day, Million Paws Walks were also hosted in nine country towns in Western Australia. Murdoch University veterinary students attend the Million Paws Walk where they offer, under the supervision of qualified veterinarians, free veterinary advice to the general public. Other annual events, listed in order of importance by events coordinator for the RSPCA, Maree Snape are the All Creatures Expo (an event not held for the past few years), Paws for a Cause, participation in the Perth Royal Show and the Pride Fair at Hyde Park. From time to time the RSPCA is also approached by community groups, schools in particular, to organise local events. Most of these requests are declined as the RSPCA does not have the resources to undertake such events.

Approval process and conditions of approval
The event has always been hosted in the same location. Each year the RSPCA submits a proposal to the City of South Perth outlining the objectives of the event, the anticipated benefits for the host organisation (City of South Perth) and the specific assistance requested from the City of South Perth by the sponsor, the RSPCA. The long-time support of the City of South Perth is, according to the events coordinator, much valued by the RSPCA and care is taken each year to emphasise the valuing of the Council’s contribution and participation. Once all requirements have been agreed upon the City of South Perth Council sends a letter of acceptance to the RSPCA. This exchange of letters constitutes the formal agreement for the event to proceed. Minimal conditions are placed on the approval. The most significant is a health requirement that the RSPCA gain approval for any food outlets that will operate on-site. Other tacit agreements between the RSPCA and the City of Perth also exist and appear to work quite well. For example, it is assumed by both parties that the RSPCA will be involved in the removal of any animal waste that participants have not collected en route. No formal agreement has been entered into regarding this matter. Another case in point is that, although the City of South Perth is concerned about minimising damage to the grassed areas of the park, this is not specified in any formal proposal. Again there is a tacit agreement between the RSPCA and the City of South Perth that the RSPCA will do everything it can to minimise such damage. Some damage did occur in 2005 when the truck delivering the electrical generators became stuck in wet and muddy ground as a result of the exceptionally wet winter. However, both parties agreed that no one was to blame and that the need for safe access needed to be examined.

At the request of the RSPCA, the City of South Perth provides free ground hire and assistance with waste collection and disposal. In return, the RSPCA provides the City of South Perth with a marquee for their rangers free of charge. This ‘shop front’ is used to promote the City’s ranger services. City of South Perth rangers are now also permitted to enter the Million Paws Walk free of charge as a corporate team. According to the events coordinator, corporate involvement in the Million Paws Walk is the biggest growth area for this and, perhaps, forthcoming events with the possible future use of company logos and banners, for example promoting active lifestyles (‘Be active’, Activ Industries).

The approval process is more formal between the RSPCA and the Swan River Trust (SRT). The SRT requires marshals to be employed to help prevent any dogs, or persons, from entering the Swan River during this event. The RSPCA also applies to the Town of Victoria Park for formal permission to stage the Million Paws Walk as the event extends into the Victoria Park municipality. Approval from the Town of Victoria Park involves paying a deposit for a key to open all the necessary park gates in the area.
Environmental impacts and direct costs

Surface transport: traffic, parking and public transport
Information was not available on the exact numbers of cars on-site during the Million Paws Walk. An estimate of probable vehicle numbers was made on the following basis. In 2006, extra donations were received as drivers were asked for a gold coin donation as they entered the car parks. In 2006, $2000 was received and so one could estimate that as many as 2000 cars were parked. In addition, corporate teams were offered free parking on the opposite side of the river. In all, there were 716 people registered in corporate teams in 2006. This equates to around 250 vehicles if the assumption is made that between two to three people travel to the event in each car. There were 100 volunteers involved who were travelling as one to two people per car, and there were thirty staff, vendors and sponsors. There were also ten sound engineers working for 92.6FM, people supervising children’s rides and about 100 veterinary students. In all, it is estimated that up to 3000 vehicles were parked in the vicinity of the venue. People travelled to event from (at least) across the metropolitan region.

Access to parking areas has at times presented problems. In 2005, for example, drivers were having trouble gaining access to parking at the Mill Point Road site, with traffic backed up to the Kwinana freeway one kilometre distant. Some level of traffic congestion occurs each year, most commonly due to cars parked in front of the entrance gates to the temporary parking areas. At present traffic management is undertaken by the City of South Perth Rangers and junior managers with the support of the Serpentine-Jarrahdale SES. Some concern was expressed that the City of South Perth might decide to give responsibility for the coordination of vehicle parking to a traffic management company. This would then require the RSPCA to go through a formal approval process via upper management/councillors, which may in turn lead to the introduction of strict rules and regulations concerning traffic management. At present traffic management is handled in an informal manner by direct negotiation between the RSPCA and City of South Perth ground staff.

Noise
There have been very few complaints about noise. A small number of complaints have been received in the past, usually about the music from visiting live performers on stage (although there were no live performances in 2005) and/or outside broadcasts by local radio stations. In 2006 the stage has was repositioned so that very little noise is now carried by the wind towards residential areas. There were no complaints about noise in 2006.

Energy and water provision
Two generators (each generating 100 Kva) were used in 2006 to power the dog washing facilities provided by the company Flea Stoppers, light drinks vans, and the State Emergency Services (SES) coffee urns. This year the generators were provided free of charge. A separate 30 Kva generator, also provided free of charge, was used for power associated with activities on the stage.

Fuel for the generators was also provided free of charge. Prior to 2005, the costs associated with hiring the generators (including delivery) amounted to approximately $1000. Fuel for running the generators incurred an extra cost.

In 2006 the RSPCA also made use of the electricity grid. A cool-drinks van was plugged into the mains at the RSPCA headquarters allowing the refrigeration unit to cool overnight. The van was then driven to South Perth the next day ready-cooled, and was again plugged into the mains on-site for use during the Million Paws Walk. Access to mains power for use in this way was provided to the RSPCA, and paid for, by the City of South Perth.

Flea Stoppers required a significant amount of water since they were involved in washing a large number of dogs. In 2006, Flea Stoppers used about 20 litres of water per dog for washing, and then about 10 litres of water per dog to rinse the bath following each wash. Three hundred dogs were washed in total. In 2006 a water tanker was provided for use by Flea Stoppers. The 1000 to 2000 litre tanker was used to fill 10 litre buckets of water for the dog baths as well as providing water for the many ‘dog drinking stations’ along the walk. Access to water on-site was available via a mains water supply tap. The water was paid for by the City of South Perth.

Litter and general refuse (including animal waste)
The Council provides 20,240 litre wheelie bins for public waste, 10,240 litre wheelie bins for animal waste and 10,000 plastic bags for owners to collect animal waste during the event. The South Perth City Council also organises a Ranger patrol to monitor the collection of animal waste. The overwhelming majority of participants
collected the waste. Following the event rubbish removal is undertaken by the City of South Perth through the use of licensed contractors.

Waste water (grey water)
This is principally the waste water from the dog wash facility and waste water from food outlets. Currently, waste water from the food outlets is collected in separate containers beneath the wash basins and is then disposed of to water the nearest tree. Similarly, grey water from the dog wash area is disposed of directly onto the ground under trees. None of the water discharges directly into the river. There is no requirement for grey water to be transported off site for disposal.

Toilet facilities
Twelve chemical toilets are hired from Coates Hire at a cost of $1600 (ten for use by the general public and two for use by paid and volunteer staff). The record number of people attending the walk in 2006 meant the toilet facilities were inadequate with long queues and a clear need for more toilets for females. The City of South Perth does not specify the number of toilets required. Given the problems experienced in 2006, the RSPCA was looking to provide an additional eight toilets in 2007, most of these for female patrons.

Promoting environmental awareness
The RSPCA do their best to promote environmental issues through provisions for recycling waste and advertising. For example, provisions for recycling include 10,000 ‘poo’ bags for the collection of animal waste en route, 5000 biodegradable bags free of charge and another 5000 for sale. (Bags used by the RSPCA at the Royal Show are now made of calico.) In 2006, the RSPCA advertised the Million Paws Walk using 20,000 (A4, 3-fold) flyers in the Perth region that included all pre-registration information. In addition the RSPCA used 3000 A4 letterheads, 8000 registration forms on the day and 1000 A3 posters. A total of 250 posters were used to advertise the event in regional areas. Due to the additional cost, the RSPCA does not use recycled paper for advertising material. The Conditions of Entry form includes a ‘do not do’ list with some points relating directly to protecting the environment.

Comments
Events coordinator Maree Snape believes a checklist would be of great value to the organisation. However, she is also mindful that the RSPCA operates on a tight budget with a focus on fund raising. She believed that if a checklist included elements of monitoring and evaluation it could be too expensive for the RSPCA to implement. At the same time, a checklist that involved elements of monitoring or evaluating the RSPCA’s ability to meet certain environmental standards in relation to the impact on animal health and welfare would be very valuable.

At present the RSPCA is required to complete a risk management plan to cover all its operational activities and the events coordinator could see merit in having the results of any evaluation included as part of their risk management planning.
ASSESSING THE ENVIRONMENTAL IMPACT OF SPECIAL EVENTS

Albany Classic Car Rally

Interviewees
• Gregg Harwood, Senior Environmental Health Officer, City of Albany
• Phil Shephard, Strategic Planning Officer, City of Albany
• Garry Turner, Senior Ranger, City of Albany

Introduction
The Albany City Classic Car Rally is described by the interviewees as the ‘premier’ event on the Albany events calendar. Staged on the Foundation Day long weekend in early June, the event is very much a ‘family weekend’. Entertainment associated with the rally includes music, car displays, ‘boot-scooting’ events and other family-orientated activities. The rally is essentially a series of time trials—in all, a total of 26 races. These include a hill-climb event, a range of class events such as the Mini event, a vintage car event, an open-wheeler event and so on. The largest single race in terms of participants involves about 30 vehicles, with a total of about 130 vehicles across all 26 events. Participants pay $40 for a license and $100 to take part in any single race. About 10 to 15 of the participants are local to the Albany district with most participants drawn from across south-western Australia. The majority of spectators are from the greater Albany region. Aside from other areas of Western Australia, a small number of participants and spectators travel from interstate. Sunday is the main day, with between 15,000 to 20,000 spectators attending. Admission is free for spectators although everyone is encouraged to make a gold coin donation. All donations are collected by members of Apex, with all proceeds donated to charity.

Participants race against the clock with practice session times recorded to determine race positions. The objective of the races is not to compete against other drivers as such but to improve upon your best logged practice time. Competitors earn points for laps completed in less time than that logged in practice sessions and conversely lose points for slower laps. The winner of the event is the driver who acquires the most points.

The over-arching organising committee is the Confederation of Australian Motor Sport (CAMS). This organisation collaborates with the Vintage Sporting Car Club (VSCC) and it is this Club that issues the competitors with the licences necessary to compete. At the local level, it is the Albany Classic Car Organising Committee that makes all the arrangements for staging the rally. The VSCC inspects and ultimately approves the track once the course has been established and all safety measures such as barriers are in place.

The event was first staged in Albany around 70 years ago and, with the exception of a 10 year gap during the 1970s, the event has operated every year. However, the scale of the event has grown significantly over the past 20 years. The length of the track can change slightly from year to year. In 2006 the track was about 1.5–2.0 kilometres. Over the years other changes have occurred; most notably there are now higher standards in the regulations surrounding the use of safety barriers and the distance between the spectators and the barriers.

The event is financed entirely through donations, sponsors and the participants’ fees. Because the event enjoys enormous support from the community, many of whom directly benefit by way of increased trade, the direct costs of the event are small. Most of the costs are effectively absorbed by those involved in staging particular events or activities. For example, local businesses or organisations are able to sponsor a particular section of the race track and as part of the sponsorship, are provided with naming rights, such as ‘Smoke Free Corner’, ‘South Coast Security Chase’, ‘Shannon’s slide’ and so on. The value of sponsorship and in-kind contribution is very significant with the interviewees noting that without the high level of local support, the cost of staging the event would be in the order of $1 million.

Approval process and conditions of approval
Albany City Council has a number of generic issues/concerns that are considered when approving/staging any event:
• Illegal parking in no-parking zones and in special parking bays for disabled drivers is a generic concern but

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19 Gregg Harwood is a member of the Classic Car Rally organising Committee (as a private individual, not as a Council representative) and Garry Turner was a participant in one of the 2005 race events.
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

this has never been a problem associated with the staging of the Classic Car Rally.

- Damage by trampling or by vehicles to areas of natural vegetation or shire managed grassed areas. As the rally is staged in the city centre there has never been a problem with such damage.
- Damage to private property in relation to the staging of special events is a matter of concern, in terms of duty of care, for the Albany City Council. To date there have been no problems of excessive drinking and/or damage to property through vandalism. This may be due to the nature of the event. It is staged during the day and has a strong family focus.
- Litter is another generic concern linked to special events, although the rally has not generated concern for the Council in terms of a ‘litter problem’.

The rally organising committee has been responsible for the event for the last 15 years and they have thus become experienced at organising the event. Each year, following the event, the organising committee meets to review the event and identify any issues that need particular attention for the following year. The City Council is very supportive of the Classic Car Rally and of the work undertaken by the organising committee. While the approval process would appear to be quite straightforward, the interviewees did express concern about the amount of paperwork involved in getting approvals each year for the event to proceed.

Environmental impacts and direct costs

Surface transport: traffic, parking and public transport
The race track utilises the city centre streets and, although the town centre is cordoned off for the duration of the rally, this has never caused any traffic congestion or other traffic related problems. This is probably a reflection of the relatively small population size of Albany (around 30,000) and the numerous access roads leading into the town. Similarly, parking is not a problem, with ample parking available at nearby supermarket car parks in addition to the availability of street parking immediately outside the cordoned off city centre. Spectators are able to park no further than one kilometre from the track. The number of spectators is significant. Sunday is the main race day attracting between 15,000 and 20,000 spectators on that day alone.

As the events are staged as time-trials, the risk of a crash between two or more vehicles is minimal. Any competitor involved in a crash is automatically disqualified from competing with race marshals used to ensure the racing is safe. The drivers, often late middle aged to elderly, cherish their vehicles and tend not to take risks with their driving.

Noise
There have been no complaints from local residents or business proprietors about noise levels during the rally. The cars are all roadworthy and licensed so they are not excessively noisy. There is a public address system used for commentary but again, this is not seen as excessively loud. Smell from the cars could be a very minor issue because some of the cars use methanol and even castor oil as fuel but, to date, there have been no complaints.

Fuel for race vehicles and other fuel costs
A temporary fuel station is provided near the race track with fire extinguishers and other safety measures in place. Most of the vehicles use petrol (the only fuel supplied). As mentioned above, a few of the vehicles use methanol and other specialist fuels and oils and these are supplied by the competitors. The temporary fuel station dispenses very little fuel since most competitors fill their vehicles at petrol stations outside the town centre before they take part in any of the races. The very short length of the race track also ensures that only a small amount of fuel is used. In the opinion of the officers interviewed from the City of Albany, the temporary fuel station was not considered to represent an additional pollution hazard for the city centre.

As already noted, while most of the participants are from outside the Albany region (including a small number from eastern Australia), the majority of spectators are from the Albany region. The amount of fuel used by the thousands of spectator vehicles travelling to and from the event would far exceed the fuel used by competitors.

Litter and general refuse
The rally’s organising committee has an arrangement with Cleanaway whereby bins are provided at strategic locations and then picked up after the event. This service has been provided free of charge for the past few years
as an in-kind contribution by Cleanaway. The refuse is transported to the local landfill site. Albany City Council uses a street-sweeper on the race track and the surrounding streets before and after the event to clean up any litter. The officers interviewed acknowledged that some additional bins could be useful, but they also stressed that the car rally did not generate a significant litter problem.

Recycling
None of the rubbish is recycled because this is considered to be too expensive an option, though the City of Albany officers interviewed acknowledged that recycling would be a more environmentally friendly alternative. The additional expense would probably mean that Cleanaway would not be prepared to provide the service free of charge. Feedback from other events discussed in this report indicates that current recycling initiatives used at special events are seldom successful.

Toilet facilities
Albany has quite a few permanent public toilets around the town centre and these are cleaned regularly on the day. The rally organising committee has the responsibility for engaging additional cleaners for the weekend. About a dozen portable chemical toilets (portaloos) are hired to supplement the public toilets. The waste is taken by a local contractor to the Council’s designated liquid waste disposal site. Toilets located in local hotels and restaurants are also available for patrons.

Other temporary infrastructure requirements
Trackside barriers, stages and other materials needed for the event are all organized with local suppliers, with some of the material transported down from either Perth or regional centres in the south-west.

Comments
The event is well organised with environmental concerns addressed as part of the event management process. The most significant environmental impact is likely to be in relation to the travel journey with many participants and spectators travelling to the event by private vehicle, from beyond the Albany region. Environmental impacts of the actual event such as vehicle emissions, fuel consumption and noise are likely to be no greater or even less than the environmental impacts associated with ‘normal’ traffic movements in the streets of Albany.
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

Half Ironman Event (Busselton)

Interviewee
Peter Donkin, Executive Officer, Triathlon WA

Introduction
The Half Ironman event is held in Busselton in May each year. This is a team event and in 2006 it attracted 1250 competitors, including 250 from the Busselton region. In contrast to the international Busselton Ironman event held in November, the Half Ironman attracts primarily local (i.e. Western Australian) competitors. Peter Donkin estimated that the event injects $3 million into the Busselton economy each year although, unlike the Ironman event, the Half Ironman receives no direct financial support (in the form of a grant) from the Busselton Shire Council.

Approval process and conditions of approval
One of the conditions of approval applied by the Busselton Shire Council is that Triathlon WA is charged $3000 to cover the cost of cleanup operations after the event. An additional fee is charged for any unforeseen maintenance that is required. Although Peter Donkin noted that Triathlon WA enjoyed a generally good working relationship with the Busselton Shire Council, he did express a level of frustration about (in his view) ‘a time consuming, frustrating bureaucracy’ and the stringent application of rules and regulations.

Triathlon WA receives some grants to stage the event and in addition, they are contracted to use the IMG brand for the next two years. There is a good working relationship between IMG (organisers of the main Ironman event) and Triathlon WA, with the two organisations working together in setting and abiding by guidelines about how best to stage events. These guidelines relate to the rules of the race and impact of the event on the local environment/community. According to Peter Donkin, the main Ironman event serves to inspire locals to compete in the Half Ironman competition.

The 1.9 kilometre ocean swimming leg of the race is adjacent to the Busselton Jetty with approval required from the Department of Planning and Infrastructure (DPI), since water safety beyond 400 metres of the shoreline is the responsibility of the DPI. The DPI has no jurisdiction closer to shore, where local surf clubs have responsibility. Triathlon WA therefore has to liaise with two organisations handling water safety. Peter Donkin expressed some frustration and concern about the amount of bureaucracy involved and the potential for having to comply with different sets of rules.

Environmental impacts and direct costs

Surface transport: traffic, parking and public transport
Peter Donkin expressed the view that Triathlon WA is very considerate of the needs of local people in terms of the level of disruption caused by the event through temporary closure of roads and footpaths, especially in the vicinity of the waterfront. The main road is closed for five hours as compared to the main Ironman event where competitors are running all day and as a consequence the roads are closed for longer. For the Half Ironman event, contractors are usually employed to control traffic and Mr Donkin undertakes the traffic planning and management work.

Litter and general refuse
Waste bins are placed along the roadside in the transition area (where competitors change from swimming to cycling to running), and at the drink stations. Volunteers are recruited to help collect litter. If additional cleaning tasks are required after the event, Triathlon WA is invoiced by the Busselton Shire.

Minimising environmental damage
At the time of the interview, Peter Donkin has only been in his position of employment for eight months. In that time he not received any complaints about adverse environmental impacts from the Busselton Shire Council.

Peter Donkin expressed a view that since water safety was the responsibility of two organisations, there could be a requirement for more water craft for support teams and officials. More boats in the area could increase any negative impact on the marine environment, in terms of waste disposal from the boats, fuel leakage, noise...
disturbance on marine life and backwash from the boats eroding the coastline.

Promoting environmental awareness
All competitors are provided with a race book. Included in the book is a request that everyone takes their rubbish away with them. Peter Donkin expressed the view that the nature of the event (promoting fitness and health) meant that competitors and spectators were generally well educated about the importance of minimising pollution and environmental damage. Notwithstanding this, Triathlon WA is involved in placing no smoking signs on the beach.

Comments
No interest was expressed in the use of an environmental checklist/toolkit. Areas of concern noted (and none were identified as major issues) were in relation to litter (including discarded cigarette butts on the beach) and potential impacts on marine life. Peter Donkin claimed that the Half Ironman event has little direct negative impact on the environment. The highest impact area of the event is most likely to be the beachfront, but there is no evidence to suggest this event has had any long term deleterious impact on the foreshore environment.
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

Avon Descent

Interviewees
- David Chidlow, Manager Planning and Community Development, Shire of Toodyay
- Jason Jenke, Environmental Health Officer, Town of Northam
- Binh Luong, Environmental Health Officer, City of Bayswater
- James O’Toole, Event Manager, Northam Avon Descent Association (NADA)

Introduction

The *Avon Descent* is a time trial event for paddle and power craft. Promoted on the event’s website as ‘The world’s greatest white-water event’, the annual *Avon Descent* was first held in 1973, attracting a field of 49 competitors20. In the 1973 event, there were no rules, officials or checkpoints and very few spectators. The 2006 event attracted 804 competitors in 578 watercraft, with competitors and spectators travelling from across Australia and from overseas to participate. Through a formal agreement, dating from October 2001, the winners of similar white water paddling events in South Africa, Ireland and Spain are invited to compete. There is also an annual exchange of competitors between the *Avon Descent* and the South African *Fish River Marathon*21. Spectator numbers for the 2006 event were estimated to be in excess of 25,000. In addition there more than 2500 family and friends are involved as support crews and an additional 2500 volunteers assist with other tasks such as traffic management, rescue services and the provision of food.

This is a two day event, commencing in the town of Northam, east of Perth and finishing in the Perth suburb of Bayswater. Competitors who complete the course traverse 134 kilometres of the Avon and Swan Rivers. The *Avon Descent* is more than just a race. On the evening prior to the race the Town of Northam hosts the Avon River Festival at Bernard Park. This includes a float parade through the town by local service groups, youth and scout groups, businesses and organisations, a fireworks display and all the fun of the fair with rides and other family activities. Up to 60 bays are allocated for food and other stalls in Bernard Park. On day one of the event (a Saturday), the town of Toodyay, located downstream from Northam and the site of the Saturday–Sunday night stopover for the competitors, hosts an International Fine Food Festival on the banks of the river. On the Sunday, and much closer to the finish line, Sandalford Wines and the City of Swan host the Avon Descent Picnic in the Park on the banks of the Swan River at Sandalford Winery in Caversham. Also on the Sunday and several kilometres further downstream, the City of Belmont hosts a Family Fun Day at Garvey Park on the banks of the Swan River. The race (time trial) finishes at Riverside Gardens in Bayswater with the City of Bayswater’s *Finish Line Community Day*.

In 2006 the event attracted more than 30 sponsors (business organisations as well as local and state governments) with naming rights for the main sponsor (for example, in 2006 the event was called the Multiplex *Avon Descent* and in 2002 the Summit Homes *Avon Descent*). The Town of Northam is a significant sponsor of the event contributing around $20,000 for the hire of marquees, stages, lighting and advertising. The Shire of Toodyay provides direct sponsorship support to Northam Avon Descent Association (NADA) of $10,000. The official attendance recorded in Northam for 2006 was 6000 people. An estimated 10,000 people visit Riverside Gardens, Bayswater over the race weekend with most of these visiting on the Sunday.

Approval process and conditions of approval

There are three aspects to the ‘approvals process’—approval to participate in the event, approval from local government and approval from the relevant state government agencies. The NADA requires all competitors to demonstrate an adequate level of competency as a condition of entry. Information on competency and training as well as instructions on water safety is provided on the *Avon Descent* website22.

In relation to local government approval, NADA writes to the local government authorities requesting their approval for staging the *Avon Descent*. The exchange of letters constitutes the formal agreement between the parties. The City of Bayswater (and possibly other local Councils) also requires NADA to complete a traffic

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20 In addition to information provided by interviewees some of the information was accessed from the Avon Descent website. Available: http://www.avondescent.com.au


ASSESSING THE ENVIRONMENTAL IMPACT OF SPECIAL EVENTS

management plan and to present this for approval. In 2006, NADA made formal application for up to 3000 campers to stay overnight in the Shire of Toodyay. The main campsite used within the Shire of Toodyay is Cobbler's Pool. The Avon Descent website includes a list of 21 conditions that apply to the use of the campsite at Cobbler's Pool. The list makes reference to a range of environmental considerations, including the proper use of toilet facilities provided, the non-disposal of waste water near or in the Avon River, avoidance of damage to areas of natural bushland or disturbance of wildlife and rules relating to the storage and use of fuels.

As with the other local government authorities, negotiations between NADA and the City of Bayswater are managed quite informally. By contrast, the recent Canoeing Championships held in the Bayswater area were managed through a formal agreement, largely because, unlike the Avon Descent, this was a 'one-off' event. Representatives from NADA and others involved in the Avon Descent were included in these discussions.

NADA works closely with both local government authorities and relevant state government agencies (Department of Environment and Conservation, the Swan River Trust and the Department of Public Health) to identify and resolve issues relating to public/environmental health. The process amounts to a risk assessment exercise in terms of legal requirements that need to be met. An example provided would be the need to close the river in the event of a toxic algal bloom, although such an event is highly unlikely in August.

Local government authorities require all vendors to complete a Condition of Approval for the area where the vendors' vans are registered. The Condition of Approval is transferable across local government boundaries.

Environmental impacts and direct costs

Surface transport: traffic, parking and public transport

Although there can be at least 30,000 people (including competitors, support crew, other volunteers and spectators) attending the Avon Descent, the traffic impact is distributed across a large area. Even at higher impact nodes such as the Northam and Toodyay town-sites, Cobbler's Pool campsite, Bells Rapids and the finish line in Bayswater, traffic congestion was not identified as a major area of concern.

Although some roads located close to the river festival and race starting line in Northam are closed between 5 pm and 10 pm on the Friday night before the race, as well as on the Saturday morning, this does not appear to result in traffic congestion. Ample parking is available on sealed surfaces, with little or no need for parking on grassed areas. Most spectators will walk to the event, either from their local place of residence or from their temporary accommodation. The early start to the event on Saturday morning means that, within two hours of the first boats starting, all competitors have left the starting line. To help minimise congestion, all boats are unloaded on the north side of the Avon River (the town centre is on the south side of the river).

A number of road closures are also in place adjacent to the river within the Toodyay town-site. The most significant traffic congestion would appear to be associated with some of the designated camp sites. Signage is used to direct people to designated campsites and away from sensitive areas. There is some damage to tracks, roadsides and natural vegetation from what is probably a small number of four-wheel drive owners. Track closures have been used in an effort to minimise this damage and the Shire of Toodyay has developed a traffic management plan to address these and other issues.

As many as 2000 vehicles are estimated to visit Riverside Gardens in Bayswater on the weekend of the Avon Descent. Although the area is busy, traffic congestion is not considered a problem. Rangers and additional council staff are employed on the weekend to assist with traffic management. Three rangers and between five and ten extra staff are in attendance over the weekend. Parking signs are also erected to help direct traffic.

Noise

Many of the competitors stay at the local camping and caravan parks in Northam and there have been occasions when proprietors have had to ask some campers to leave because of their excessively noisy behaviour. However, no complaints had been received in relation to the race, or the festivities directly associated with the event. All the local government officers interviewed stressed the importance of keeping local residents informed about the upcoming event. It would seem that local residents are very accepting of the event. Even the early morning testing of the public address system used at Riverside Gardens does not attract complaints.
Energy and water provision
The only information available in relation to power use was at Riverside Gardens. Mains power is available on site and it is the responsibility of NADA and the vendors to negotiate access with energy provider Synergy. Street lighting is available at Riverside Gardens with additional lights provided for the *Avon Descent*. These are powered by portable generators (about five generators were used in 2006).

Litter and general refuse
In the Town of Northam a total of 21 bins (six more than in 2005) were used in and around Bernard Park (between Swan Compound and the Start Line). These were primarily for the river festival on the Friday evening before the race. The additional bins used in 2006 were provided as a precautionary measure to ensure sufficient capacity, even though there were no serious problems with litter in 2005. Of the 21 bins provided, most were of 240 litre capacity. Two 1100 litre bins were provided for use by vendors for the disposal of packaging, in particular cardboard boxes. Nearby hotels and restaurants could also make use of the large bins. An additional 1100 litre bin would be provided in 2007. The main disadvantage of the 1100 litre bins was that they were open, and thus likely to generate some odour and attract flies.

Within the Shire of Toodyay there are relatively few litter problems at the designated camp sites. The bins provided are well utilised and campers at these sites are usually observant of the rules and regulations regarding litter disposal (signage is used at the campsites). However, littering does occur along the roadsides leading to the designated campsites such as Cobblers Pool. The type of litter found at these locations is mainly beer bottles. The organisers use volunteers such as the members of the Toodyay Football Club to assist with the clean up of litter at campsites along the Avon River.

Food stalls (burger bars, sausage sizzles, cake stalls and coffee stands etc.) are also set up at designated camp sites. In line with food hygiene standards, vendors are issued with a license by the Shire of Toodyay. One of the license conditions requires vendors to provide their own refuse bins. Similar conditions apply to vendors participating in the Toodyay International Food Festival.

The main waste management problem confronting the Shire of Toodyay is the amount of litter left by people camping illegally in areas such as the Avon Valley National Park and at other scenic locations that provide good vantage points. The type of litter left by illegal campers is usually drink cans, paper, food and sweet wrappers. The litter is found primarily at the campsites.

As noted earlier, approximately 10,000 people visit Riverside Gardens over the race weekend, with most attending the finish on Sunday. The City of Bayswater employs two extra staff and has a refuse truck on standby. Extra waste bins, in addition to the ones permanently installed on site, are provided for this event. NADA provides thirty-six 240 litre bins for Riverside Gardens and provides a private contractor to collect and dispose of the refuse. The number of bins provided by NADA is matched by the City of Bayswater. Most of the litter is food packaging and food scraps. Drink containers are not a major problem. There is only one licensed area for the sale of alcohol and according to the City of Bayswater Environmental Health Officer, there is not a lot of alcohol consumed at this event as the *Avon Descent* is very much a family and sports focused occasion. NADA has responsibility for the collection of litter, although according to the City of Bayswater Environmental Health officer, NADA often underestimated the amount of litter that would be generated.

Waste minimisation and recycling
Kerbside recycling is not available in either the Shire of Toodyay or the Town of Northam. It is not economically viable for either of the Councils. Bayswater City Council (an urban council within metropolitan Perth) does have kerbside recycling. Local residents in the Town of Northam are able to participate in recycling provided they deposit recyclables in the 4.5 cubic metre recycling bins located at community “drop-off” locations. The tonnage of recyclables collected is quite low. Recyclables are also collected at a central point in the Shire of Toodyay with the materials transported to the Northam recycling depot. Funding is now being allocated towards developing a zero waste policy in the Shire of Toodyay.

Aside from the centrally located recycling bins there are no other recycling facilities (for example, special 240 litre bins) provided for the *Avon Descent*, including in the City of Bayswater. There are also no banners, signs and/or other media encouraging people to recycle, as there are at many other events.
Waste water (grey water)
At Riverside Gardens, NADA provide four or five very large party-size spas for competitors. The waste water is not transported to a designated disposal site but simply emptied onto the grass and left to soak into the ground. Although the water is treated (with bromine) and is not discharged directly into the Swan River, the Environmental Health Officer at the City of Bayswater noted that there may be better ways of disposing of the water.

Food vendors, who often operate from home, are also responsible for the safe disposal of their liquid waste. Food vendors have, built into their vans, self-contained liquid disposal units. All liquid waste collected in the units is transported offsite, and, under the Health Act, is required to be discharged into the main sewers or, in the case of oils for example, disposed of in other acceptable ways. There are penalties for breach of these conditions and the interviewees assumed a high level of compliance.

Toilet facilities
Bernard Park in Northam and Riverside Gardens in Bayswater both have public toilets connected to sewerage. NADA is responsible for the provision and operation of additional toilets. Large caravan-type portable toilets are provided within which are housed a number of chemical toilets (as opposed to the individual free standing (portaloos).

Minimising environmental damage
David Chidlow from the Toodyay Shire Council identified two main areas of concern. Damage to areas of natural vegetation by four-wheel drive vehicles and the erosion of river banks (especially in areas where banks are already degraded) by the wash from power boats. Reducing the damage caused by four-wheel drive vehicles may require closure of some access roads while the minimisation of bank erosion by power boats is more problematic. There is not likely to be support for a much reduced speed limit along stretches of river most prone to bank erosion.

The impact on wildlife is not known although at Northam, swans are herded to a compound up river prior to the start of the race. Similarly swans in the vicinity of the finish line are herded downstream.

In their Avon Descent Environmental Management Plan (1997:3–4) NADA identified three key issues in relation to potential environmental impacts on the Avon River. These were the potential impact of craft and participants on the river bed; the potential impact of participants and spectators on the river banks; and, the potential impact of spectators on the river floodplain. The key issue in relation to likely impacts on the riverbed is low flow conditions whereby competitors have no option but to carry their vessel across exposed areas of river bed. A Low Stream Contingency Plan prepared by NADA and DEC provides a process for identifying vulnerable and/or sensitive areas of riverbed as well as suitable paths for use by competitors carrying their craft over exposed areas of river bed. There is also a process in place for providing this advice to all competitors. Much the same protocol is prescribed in relation to the potential for erosional damage to river banks, with the identification of sensitive locations and the use of pedestrian access control measures. The Contingency Plan also discusses the use of a photographic monitoring program to identify riverbank damage and the need for remediation of damage caused by the event. The environmental impacts on floodplains relate to soil disturbance by vehicle use (in particular under wet track conditions) and damage to riparian vegetation.

All of these potential environmental impacts are included within a comprehensive environmental checklist used by NADA in the planning and managing of the _Avon Descent_. Other components of the checklist include the list of approvals required, management of traffic and campsites, gazetting of speed limits, rules and regulations for competitors and monitoring of the event.

Promoting environmental awareness
To promote good community relations, NADA donates $2000 to the volunteer group Friends of the River for river restoration work. Local community stakeholders are also invited to meetings with government environmental agencies.

Comments
The local government officers interviewed at the Shire of Toodyay and Northam Town Council expressed little support or interest in an environmental checklist, primarily because it was felt that there was ‘too few problems to worry about’. David Chidlow believes the committee in place to oversee the event in the Shire of Toodyay
‘has a system in place that works well’. There was agreement that, if a checklist was to be used, then it would be best to focus on specific areas of concern. In the case of the Toodyay Shire Council this would mean a focus on the river (monitoring and addressing oil and fuel spills, bank erosion) and on better management of four-wheel drive access.

In order to reduce the litter problem, the solution was seen as better management/control of spectator access to the river (minimising access to a relatively small number of sites) rather than the provision of more bins over a large area. Waste management was identified as the most important issue in the Town of Northam and this was the only area identified where an environmental checklist might be useful.

The environmental Health Officer at the City of Bayswater noted that an environmental checklist would be useful in principle. The City of Joondalup is currently developing a CD for organisers of events. The CD comprises a ‘kit’, explaining among other things how to apply to local authorities to hold events, and who to speak to. An environmental checklist of the sort we are developing may complement such a kit.

NADA have an environmental management plan for the Avon Descent and, as already noted, this specifies rules and regulations for competitors.

The fact that there is an Avon Descent Environmental Management Plan demonstrates that NADA, in consultation with the DEC, AWC and SRT, is perhaps more engaged in environmental impact assessment than the other events organisers (and hosts) and works closely with the relevant councils and agencies. This is most likely a reflection of the highly sensitive nature of the Avon River environment and the active involvement of DEC in working in partnership with landowners to undertake river restoration work such as the restoration of riparian vegetation.
Perth City to Surf

Interviewees
- Dave Budge, Tri Events, Organisers of the Perth City to Surf
- Sonja Farrow, Environmental Health Officer, Town of Cambridge
- Claire Saville, Community Development Officer, Town of Cambridge
- John Bown, Ranger Services, Town of Cambridge

Introduction
The 2006 Perth City to Surf was held on 27 August and attracted a total of 26,008 runners, walkers and wheelchair athletes. The event attracts significant sponsorship, as illustrated by the naming rights for the 2006 event. Titled the 2006 Channel Nine City to Surf presented by HBF, the event comprises a number of different categories—the Centrum 12 kilometre run, 12 kilometre walk, 11 kilometre wheelchair event and the Be Active WA four kilometre Walk/Run. The 12 kilometre run starts on St George’s Terrace in the Perth Central Business District and finishes on the coast at the Jubilee Park oval in City Beach. In 2006 more than 16,000 competitors completed the 12 kilometre course. To help minimise crowd congestion and risk of injury at the start of the 12 kilometre run, participants are grouped into one of four starting categories according to past or anticipated completion times.

City to Surf is an officially sanctioned event by Athletics Australia, attracting professional athletes and serious runners in addition to families and corporate groups. The first City to Surf event in February 1975 attracted 500 runners and comprised a single event, the 12 kilometre run. Channel Nine has been a sponsor since the inaugural year and the event is the largest funding event for ACTIV, an organisation that works to provide support services to people with disabilities and their families. City to Surf is also the second largest community sporting event in Australia.23

The event is organised by Tri Events, who have organised other major recreation/sporting events within the region including the Great Perth Bike Ride and five triathlons, including the Women’s Triathlon. Part of the organisation for the event involves a training program for volunteers. In 2006 the event was supported by 580 volunteers. Volunteers are provided with job descriptions and identification badges at the evening training sessions. Three full-time staff and a number of casual staff members are employed to carry out the training sessions. Some of the volunteers from the TAFE and university sector undertake the work as part of their course work (for example, TAFE Level 3 and 4 Recreation Management students).

Approval process and conditions of approval
Tri Events complete a standard events application kit when applying to the local Councils involved (the City of Perth, Town of Cambridge, City of Nedlands and City of Subiaco) for permission to stage the event. Approval is also required from the Main Roads Department (of state government) in relation to road closures in place during the event. For the past few years, most of the same people have been involved in the organisation of the event and in the approvals process. This has helped to develop good working relationships between all concerned but has not allayed concerns expressed by Dave Budge from Tri Events about the amount of bureaucracy involved in terms of what he regarded as ‘often inflexible rules and regulations’. Traffic management was cited as one such area of concern where the same rules are applied regardless of the nature of the disruption to traffic.

Another area of risk management involves the securing of insurance. Since 11 September 2001, the risk of, and response to, a terrorist attack has formed part of the insurance assessment process.

In terms of preparing for the staging of the event and in order to share information and ideas, an initial meeting is convened between the local Councils involved, the Main Roads Department, contractors (for example, those involved in traffic management) and the organisers (Tri Events and Activ Industries). Subsequent meetings are organised with and within individual Councils, to address more specific details. From March 2006, the Town of Cambridge and Tri Events have held monthly meetings for a six month period spanning the pre event planning and post-race debriefing, and a Memorandum of Understanding has been signed between the two

23 Available: http://citytosurf.activ.asn.au
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

organisations.

Environmental impacts and direct costs

Surface transport: traffic, parking and public transport
Because this is a road race, there are about 120 road closures in effect on the morning of the event. Most, if not all, roads are re-opened by 11 am. The Main Roads Department has traffic management rules and regulations that apply equally to all events and circumstances. At present there is a requirement that traffic management contractors be used to help regulate traffic flows and parking during the event. The rules and regulations are considered by some to be too inflexible and Tri Events, in partnership with local governments, emergency services and state government agencies (including Main Roads) is currently negotiating for the introduction of more flexible rules and regulations. The longer term objective is to have volunteers with the appropriate skills, accredited so that they can do the job currently undertaken by contractors.

The majority of spectators congregate at a number of popular vantage points—mainly at the start and finish of the race. There are designated parking areas with a small fee charged for parking. With the increasing popularity of the four kilometre walk, Perry Lakes, the starting point for the four kilometre walk is another popular parking location. Traffic congestion is not considered a significant problem with the event and there have been no complaints about traffic and road closures.

To help reduce the numbers of cars on site, some of the companies with teams participating organise buses to transport competitors back to central Perth. An increasing number of buses are being used as more and more school teams enter the City to Surf Schools Challenge. At present there are approximately 50 to 60 buses used from both private companies and the municipal public transport organisation, Transperth, with the Town of Cambridge organising designated parking for all buses. The participation of noted marathon runner Steve Moneghetti several years ago is credited with raising the profile of the event, especially with schools.

All competitors are entered into a draw for a new car. In past years, including 2006, the winner was announced at the conclusion of the event. This resulted in a mass exodus of competitors and spectators immediately following the draw. In future years the draw will be announced at a later date to avoid the crowd and traffic congestion experienced in past years. For similar reasons the start time for the four kilometre walk commencing at Perry Lakes is now a half hour later, thus avoiding the bulk of the 12 kilometre runners as they pass through the Perry Lakes area.

Noise
Currently, organisers are required to abide by Standard 1742 (Department of the Environment and Conservation), with this standard applying to all types of events. Complaints about noise are surprisingly few. Any complaints concerning noise arise from the early sound checks that are carried out by commentators as well as the ongoing commentary that can be heard by local City Beach residents throughout much of the day. Sound checks usually begin around 7.00 am as Channel 9 and 94.5FM begin setting up their public address systems at the finish line. Local residents are surprisingly tolerant of the noise. Interviewees suggested that the reasons for this may well be related to the local communities having some ownership of the event. Local people are given ample warning before the City to Surf begins and the event is recognised as the major fund raising event for Activ Industries.

Energy and water provision
Portable generators are used to supply power to vendor vans, but there was no data available regarding power consumption and costs. Large water tanks are set up as drink stations along the route for the competitors. There have been some complaints about the quality of the water from the tanks with competitors reporting it to be brown and silty.

Litter and general refuse
No data was available in relation to the amount of waste collected on the day. This information, if available, is held by the contracting company. In 2005, the Town of Cambridge organised volunteers to help with litter collection, marshalling etc., with this contribution valued at about $25,000. Dave Budge from Tri Events was critical of the level of waste management facilities available and believed that a better service should be provided.
No data was collected in relation to the number of bins provided along the route and at the oval at Jubilee Park. Statistics were available on some of the waste generated at the ‘drinks stations’ with 120,000 paper cups and 30,000 plastic water bottles distributed. Paper cups are now used in preference to plastic cups, with the latter considered too high a risk in terms of injury from plastic shards. In relation to safety, the Town of Cambridge also has a ‘no glass policy’ for the City to Surf event.

Although there are bins provided at the drinks stations and at the oval at Jubilee Park, volunteer crews are organised by both Tri Events and the Town of Cambridge to collect litter along the race course and at the oval. There are many bins provided at Jubilee Park but, given the exposed coastal location of the site, litter is blown across the oval from any overfull bins. Dave Budge from Tri Events was somewhat critical of the waste management arrangements provided at the oval, believing that Tri Events was not getting value for money. He also noted that the site was never designed to cater for the estimated 35,000 people present at the end of the event.

Recycling
According to Dave Budge, the promotion of recycling at the oval at Jubilee Park is somewhat ad hoc and he would like to see what he termed as a more strategic approach adopted. Three to four years ago, the Town of Cambridge introduced separate bins for recyclables and general refuse for the City to Surf. Although signs were used to advertise the recycling bins, patrons used the first available bin. This may simply reflect the sheer number of people present on the day and the desire of most patrons to at least dispose of their refuse in a bin.

Toilet facilities
Portable chemical toilets are provided at the finish line (the oval at Jubilee Park) and along the race route. Most of the toilet facilities are provided at the finish line. Tri Events employs a contractor to service the toilets on the day.

Minimising environmental damage
Damage to local flora was considered to be minimal by the interviewees as was the impact on local fauna. At Perry Lakes, rangers have at times relocated swans and ducks, although this measure has more commonly been associated with other events held at Perry Lakes, such as Garden Week.

Following an incident where one of the corporate teams broke an underground mains water supply pipe while erecting their marquee, the town of Cambridge now marks out the location of underground pipes.

A significant number of people now park at Perry Lakes to start the four kilometre walk. This is a particularly popular event with family groups. A growing concern is the risk of oil pollution of the adjacent wetlands from oil and grease washed into the lakes from surface run-off and storm water drains.

There is a designated area at Jubilee Park for marquees and barbeques. Not all groups comply with this requirement with some teams locating themselves on the sand dunes surrounding Jubilee Park. This causes concern in relation to the risk of bushfire and the run-off of animal fat from barbeques (in the designated area, this is collected and disposed of appropriately). Ranger numbers are not sufficient to allow an appropriate level of policing in relation to where groups set up their barbeques and sometimes when groups are asked to relocate, the outcome is a level of animosity directed at the rangers and the Town of Cambridge.

Promoting environmental awareness
Each competitor is provided with a numbered bib for identification. The bib includes some information regarding protection of the environment.

Comments
The key areas of concern identified by all interviewees related to traffic and waste management. Dave Budge from Tri Events was particularly concerned about the need for greater flexibility in the rules and regulations (in particular with respect to traffic management) relating to the staging of the event and with the ever increasing complexity in relation to securing insurance for the event.

Tri Events and the Town of Cambridge have established a good working relationship with meetings spanning
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

...a six month period to embrace pre and post event planning and debriefing. The Town of Cambridge adopts a similar approach with other major sporting and cultural events within their jurisdiction including Australia Day celebrations, Garden Week, *Relay for Life*, Grand Prix Athletes and Little Athletics Championships at Perry Lakes.

The Town of Cambridge officers that were interviewed all agreed that a simple and easy to use environmental checklist would be very useful in assisting in the preparation, management and evaluation of these events. Dave Budge from Tri Events noted that, although in principle the idea of a checklist had merit, they would only be interested if someone provided the funding to undertake the work. At present the only evaluation undertaken by Tri Events is through an informal online evaluation for the purpose of marketing.
Busselton Iron Man Triathlon

Interviewee
Allan Whitfield, Community Development Officer, Shire of Busselton

Introduction
This is the second year that the Ironman event has been held in Busselton. In 2005 the event attracted 696 individual competitors (male and female) from around the world. Fifty of the competitors were from Japan. Overall about 45 of the competitors are professional. Last year’s female winner, a professional competitor, was later disqualified after a positive drug test. Also taking part and separate from the main event are eight teams of three where each competitor enters only a single event (swimming, cycling or running). The teams, usually from surrounding local communities, enter to raise funds for charities such as disabled athletes associations.

The Ironman competition is a global competition and is currently staged in 38 countries. The event is organised by the International Management Group (IMG), an American based organisation that presents a number of major sporting events, such as golf tournaments and triathlons worldwide. The Busselton Ironman is a qualifying event for the Hawaii Ironman. In Australia, the IMG has offices in Melbourne, Sydney and Brisbane. IMG’s Event Director, Dallas O’Brien, was in Perth for a relatively short period of time prior to the 2005 event. He was not interested in participating in the research project. His primary concern was to organise and stage an event that runs smoothly and makes a profit. The IMG’s sole focus is to deliver a world-class international triathlon.

The Busselton Shire Council plays a significant role in helping to stage the local event, overseen by Alan Whitfield, the Shire’s Community Development Officer. In addition to the considerable ‘in-kind’ support provided by the Busselton Shire Council, IMG sought and received cash contributions from both local and state government. Busselton Shire provided a cash donation of $150,000 with the State Government contributing $300,000. The Shire’s contribution is offset to a small degree by income received from stall-holders, mainly food vendors. This reduces the net cost to around $120,000 to $130,000. IMG use the cash contributions to help pay contractors who are engaged through a tendering process. For the Shire, there are other costs that are of an ‘in-kind’ nature. For example, $130,000 was allocated to path and road maintenance in areas associated with the triathlon. Much of the ‘in-kind’ budget, however, is used up in general administration, such as the running of offices and the provision of information technology services. Operations of this sort can be quite time consuming with the Shire often incurring a net loss against their budget allocation for the project.

Food vendors (mainly local but also some from Perth) are located in a designated area near the start/finish lines on the Busselton foreshore. The Shire covers the costs of setting up stalls and providing electricity. The professional caterers are then required to declare their profits at the end of the day with the Shire taking a percentage of earnings. This arrangement is done on the basis of trust.

In 2005 IMG recruited 1400 volunteers to assist as race marshals, parking assistants and so on. Most of the volunteers are from the local Busselton district, although some were from the adjoining Bunbury and Dunsborough regions, as well as from Perth some 250 kilometres distant. Some of the volunteers are also from overseas, including (in 2005) volunteers from Mexico, Singapore and Germany. A German doctor, who was unable to compete due to injury, offered his services as a volunteer. A group of 45 Singaporean high school students also volunteered as marshals. Each volunteer cost IMG $80 in 2005. Most of this money is spent on food for the volunteers, and appropriate clothing for race marshals and parking attendants. The cost to the organisers is a fraction of the real cost of this labour. In addition to its cost effectiveness, the use of volunteers also brings the benefits of generating a very enthusiastic support team.

Approval process and conditions of approval
Generally, the role of the Shire is to assess and then, if appropriate, approve sporting and cultural events for the Shire. According to Alan Whitfield, events that are approved will receive support from the Shire Council to help the event run as smoothly as possible. This includes, for example, ensuring that the designated course is safe in terms of infrastructure such as maintaining paths and roads in good condition.
Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

Environmental Impacts and Direct Costs

Surface transport: traffic, parking and public transport
A traffic count undertaken (by the researchers) at 3.00 pm gave a tally of about 670 vehicles parked in the streets and on some grassed areas in the vicinity of the start/finish line. The roads were quite congested with parking on both sides of the street but traffic flow was unimpeded. Nearby caravan parks were full. Road closures were in place along the beachfront roads as these roads formed part of the race course.

Throughout the day there was ample parking several blocks away and no traffic congestion in Princess Street, the main street in Busselton. A mid-morning survey of coffee shops and restaurants in Princess Street revealed very few patrons.

It was also interesting to note that there were fewer people at the Sunday morning Busselton markets. The community markets are held every two weeks and are usually well attended in the morning. Local residents may have chosen to attend the swimming and cycling events on the foreshore in preference to visiting the markets. Some residents may have also stayed away from the markets (although the markets are located well away from the beachfront activity associated with the competition), in anticipation of traffic congestion and road closures.

The total number of people visiting Busselton for the Ironman competition would be difficult to measure because there are so many entry points to the town. Some spectators were also located along the length of the course. This is also a full day event and it was evident from the traffic movement that some of the spectators attend the event for only part of the day. With this in mind, it is likely that a percentage of the parking bays would be occupied by two or three cars during the course of the day.

Energy and water provision
Power for the food vendors is provided via a ‘three phase’ power outlet with vendors’ stalls drawing power primarily for lighting, refrigeration and heating. There is a non-metered Council provided power outlet so the local Council is unable to measure power consumption. A Coates Hire diesel generator is also used although power output is not measured.

Waste management
Although it is responsible for litter and waste management, including the provision of portable toilet facilities, the IMG does not collect data on the amount of waste collected. These (and other) services are sub-contracted out to primarily Busselton and Perth based companies. The IMG was uninterested in the environmental impact (no triple bottom line interest, simply bottom line) of the Ironman event (telephone conversation, with Dallas O’Brien). Their view was that the Shire Council would probably be more interested because they are responsible for the general operations. The Shire Council was not able to assist with issues relating to waste management because they did not know which subcontractors had been engaged by IMG.

Other infrastructure
In 2005, the Busselton Shire Council widened several sections of cycle pathway to provide for two lanes of competitors running in opposite directions. Sections of roads were also widened for two-way traffic. As part of their general duty of care, the Shire is responsible for providing public toilets (but not the mobile toilets) and for the cleanliness of the public toilets. The Shire employed a health amenities officer for the day to manage the contract cleaners.

Comments
Alan Whitfield from the Busselton Shire Council expressed considerable interest in developing an environmental impact assessment (EIA) for special events. As a first step in such a process he could see the value of having an effective evaluation tool to measure relevant inputs/outputs in terms of energy use, and to assist in undertaking a cost-benefit analysis. Such an assessment could assist the Shire in identifying the most significant environmental impacts/costs, enabling a more strategic approach to managing special events and the ability to evaluate the merit of providing support for specific events. He also acknowledged that these tasks, though desirable, may be difficult to achieve in practice because of the variables associated with measuring environmental impacts.
Chapter 4

DISCUSSION AND EVALUATION OF OUTCOMES

Overview of Key Findings

As noted in the previous Research Methodology section, all of the interviews were conducted as ‘open-ended’ discussions. In identifying environmental impacts, interviewees were asked to identify the key issues in relation to their specific events. Interviewees were not provided with a check list of potential environmental issues/impacts, nor were they asked to rank the importance of each. The expectation is that the approach used has avoided bias or over-reporting by respondents, enabling the identification of those environmental impacts perceived or understood to be the most significant to each specific event. It is therefore likely that, in identifying environmental impacts, hosts/organisers focused primarily on those environmental impacts representing the greatest organisational/management challenge and/or cost to themselves, rather than the greatest environmental impact of the activity.

Table 2: Case studies: special events in Western Australia—Summary of environmental impacts as perceived by organisers and hosts

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<th>Big Day Out</th>
<th>Pro Surf</th>
<th>Million Paws</th>
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<th>Avon Descent</th>
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KEY

H High impact
M–H Medium to high
M Medium impact
L–M Low to medium
L Low impact
Table 2 presents a summary of the results. Each response has been ranked on a three point scale of importance—high (H), medium (M) and low (L). Rank values were assigned by the researchers (not the interviewees) based on the information collected through the interviews. Ranking values assigned reflect a subjective and relative measure of the importance of each attribute, rather than absolute values. A ranking was only assigned to the criteria identified by those interviewed. For example under the heading ‘Air Quality’ a ranking of ‘low’ (L) is listed for Skyworks, where smoke haze from the fireworks and vehicle emissions were considered by the City of Perth spokesperson to be insignificant. Five of the event organisers/hosts deemed recycling sufficiently important to provide designated bins for recycling of bottles and aluminium cans. For these events recycling was therefore assigned a ranking of ‘medium’ (M), even though all of the recycling initiatives proved to be unsuccessful.

The environmental impacts identified by organisers and/or hosts as the most important were surface transport (parking and traffic), waste management (general rubbish collection, litter, recycling and the provision of toilets) and noise. For six of the events, mention was also made of measures in place to promote environmental awareness. Environmental impacts/issues perceived by those interviewed to be less significant included the provision of power, (for outdoor events), air pollution (smoke haze and vehicle emissions), the management of environmental risk and the minimisation of environmental harm. The results presented in Table 2 may not be representative of all the event stakeholders’ views inasmuch as not all organisers and hosts were interviewed for all events. As indicated in the introduction, a number of the organisers and hosts were either not interested or not available for interview.

The following brief discussion provides a summary of the key outcomes in relation to each of the criteria listed in Table 2.

**Surface Transport (Traffic, Parking and Public Transport)**

Surface transport received a ‘high impact’ rating for two events, Skyworks and the Margaret River Pro. The sheer number of vehicles, temporary road closures, difficulty with parking and traffic congestion associated with Skyworks makes this event the most problematic in terms of transport, despite the additional public transport services (buses and trains) provided for the event. The number of people attending the Margaret River Pro surf event is only a fraction of the number attending Skyworks, but access to the surf event is much more restricted (there is one access road), leading to traffic congestion and difficulties with the provision of adequate parking. A number of the other events also involve temporary road closures—the Half Ironman, Ironman, City to Surf and the Albany Classic Car Rally. The City to Surf event requires more than 100 temporary road closures. With the event scheduled early on a Sunday morning and in the absence of complaints about road closures there appears to be little disruption to traffic flow. Both Ironman events are hosted in Busselton and involve significant road closures (including impacts on major roads) for the cycling and running stages. However the impact on the town of Busselton, and on the surrounding roads would appear to be minimal. During the event, road closures do not prevent access to the town.

Only limited data is available to enable measurement of the surface transport impacts of all nine events. For events involving road closures the number and location of road closures is recorded (and publicised). However no traffic data is collected by the Main Roads Department (for example traffic counts and traffic flows on specific roads) for any of the events and the collection of traffic data is not a role undertaken by either local government or the police. The RSPCA provided an estimate of vehicle numbers on the basis of their collection of a gold coin donation for those patrons parking in designated areas. It is probable that most visitors parked in the designated areas. None of the other event organisers/hosts were able to provide reasonably reliable travel/transport data. Calculating travel distance (home to event and return) for the nine events is also problematic. Registration for the Million Paws Walk includes the home address of participants on each registration form. So where access is available to this type of data, it would be possible to provide a reasonably accurate total travel distance for all participants. However, collection and analysis would be time-consuming and would only provide a general indication of actual movements and environmental impacts. Any such calculation will most likely be an overestimate as an unknown number of participants/spectators will include other destinations as part of their journey to an event.

Between 25,000 and 30,000 patrons attending the Big Day Out use public transport (primarily the train service), to travel to the show. This represents about 85% of total attendance, negating the need for road closures. There are seldom problems with traffic congestion or parking difficulties associated with the event.
Transperth are able to provide information on the number of trains in service for the Big Day Out (additional services are scheduled) and the total number of carriages used. As noted earlier, special six-car trains are used on the day. Given this information it would be possible to determine total energy consumption and emissions from the train service. There is no information available that would enable calculations of total travel distances for those using public transport as well as private vehicles to be made. Equally, there is no data that would enable meaningful calculations of total travel distances (and therefore energy consumption and emissions) for the other events. Five of the events involve longer distance travel (by an unknown number of people) to the regional centres of Albany, Margaret River, Busselton and the Northam-Toodyay region. Anecdotal evidence suggests most spectators will travel to these five events by private vehicle, from locations in south-western Australia (with many likely to be from Perth).

Provision of Energy and Water

Energy

Somewhat surprisingly, power generation was identified as an important environmental impact in their terms by hosts/organisers for only two of the events—Skyworks and the Million Paws Walk. For safety and security reasons, in addition to street lighting, portable generators with lighting towers are used for the Skyworks event. Similarly, the twelve hour Big Day Out event utilises fixed and portable lighting towers at the Showgrounds. Of the nine events examined, these two are most likely to be the biggest users of electricity. All of the other events also make use of portable generators to provide power (and for some, lighting) for vendors and others. The portable generators are supplied by private contractors. Energy consumption is not recorded although some estimates could be made, provided that cooperation with the contractors occurs. Most, if not all of the events, including the Half Ironman, Ironman, Avon Descent, and Million Paws Walk, also access the electricity grid through power outlets provided by local Councils. None of these outlets are provided with meters making it impossible/impractical to monitor this energy consumption. In summary, the amount of energy generated/consumed at each of the events cannot be measured with any precision and interviews revealed a general lack of interest from stakeholders in gaining a better understanding of the energy consumed. From the organisers’ perspective, where electricity is provided through the integrated electricity grid, the service is frequently provided at ‘no cost’. As such, energy consumption is a benefit rather than a cost for event organisers.

As already noted the one exception to this apparent lack of interest in energy consumption is provided by the organisers and performers associated with the Big Day Out. In a recent press release, organisers of the Big Day Out announced that, as of the 2007 Australian concert tour, the Big Day Out was adopting a ‘carbon neutral’ policy. A spokesperson was quoted as saying that “because of the large scale of the show, many performers and organisers were feeling uncomfortable with the effect the show had on the environment”24. Organisers have engaged CO2 Australia Ltd to ensure that the Big Day Out greenhouse gas emissions are mitigated by the planting of mallee eucalyptus tree plantations.

Potable water

In terms of occupational health and safety, the availability of potable water is considered a normal requirement for the staging of special events25. City to Surf and Million Paws Walk were the only two events to identify water in their list of environmental considerations. Water is an essential component for both of these events—the supply of drinking water for athletes and for animals. Similarly, the two Ironman events also require drinking water for athletes. The Million Paws event also uses water for ‘dog washes’ and for the City to Surf, several spa baths are provided for athletes at the finish line. Estimates could be made of the amount of water used at these events, but at present water consumption is neither monitored nor recorded for any of the events.

Waste Management

Litter/general refuse

For most events the collection of general refuse was a simple process of providing sufficient bins. Littering was not seen as a major problem for most of the events. The exceptions were the City to Surf event, where the coastal

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sea breeze added to the dispersal of litter, and Skyworks where the sheer number of people attending results in a significant amount of littering. For all events, there are processes in place for the collection of litter during and/or immediately following all of the events. This work is characteristically undertaken by volunteers organised by organisers/hosts and/or by local council employees. The majority of patrons at all of the events acts responsibly and makes use of bins/skips provided. Nevertheless, without these cleanup strategies in place, the environmental impact of littering would be significantly higher. Data on rubbish collection was not (readily) available for the majority of events.

Recycling

More than half of the events surveyed reported using recycling bins in their waste management strategy. None of these efforts succeeded, with most patrons disposing of all waste in the first available bin. The most common explanation offered by organisers and hosts was that ‘patrons were in “party mode” and not thinking about recycling’. With the exception of Skyworks event organisers/hosts do not collect data on the total amount of general refuse/recyclables collected. Collection of all waste bins (general refuse and recycling) is managed by local councils and/or private contractors. For Skyworks, the event generating the greatest amount of general refuse, recyclables and litter (a total of 30.3 tonnes for the 2005 event), it has been agreed that for future events all waste will be collected and taken to a depot for extraction of recyclables. Monitoring the total volume of waste and recyclables would require a high level of cooperation between the organisers, local government and contractors. At present the information is not readily available for the majority of events.

Grey water

The disposal of grey water was identified as a potential environmental impact for just two of the events—the Million Paws Walk (dog washing) and the Avon Descent (spa baths for athletes at the completion of the event). In both cases the waste water was disposed of on-site, under trees and/or on grassed surfaces adjacent to the Swan River. Informally, and because of the relatively small quantity of water involved, this process has the tacit approval of both local governments involved. Although the volume of grey water was not recorded, it would be possible to make an estimate of total volume discharged.

Toilet facilities

With the exception of the Albany Classic Car Rally and the Margaret River Pro all of the events reported the need for portable toilet facilities to supplement permanent public toilets. In all cases the provision and servicing of portable toilets was undertaken by private contractors. While the number of hire toilets can be determined there is no information available on the volume of effluent disposed of, or of the volume of water utilised in the servicing and operation of the facilities. The provision of this information would be reliant upon the goodwill of contractors. This is not likely to be a high priority for contractors. However, while this information might be forthcoming, there would still be no data on usage of public toilet facilities.

An area of concern raised in relation to the Big Day Out (and presumably impacting on all of the events) was the outdated formulae in use to calculate the required number of male and female toilets on the basis of anticipated crowd size.

Air Pollution

Noise

For the majority of events, noise was not identified as a serious environmental impact. The Big Day Out was the only event where organisers and/or hosts rated noise as a significant issue. The environmental impact of the amplified music is in part dependent on weather conditions on the day. In 2006 for example, a strong easterly breeze meant that all complaints were received from residents to the west of the Showgrounds. The inverse applies with a south-westerly or westerly sea breeze, with a more uniform geographic spread of complaints recorded in the vicinity of the venue under relatively calm conditions. Although this is a twelve hour event (11 am to 11 pm) the vast majority of complaints (about noise) are received in the evening. Complaints are received from local residents each year. The Environmental Protection Authority (EPA) undertakes noise monitoring of the Big Day Out.

Noise was identified as a minor issue for several of the other events. For example, in relation to the Million Paws Walk, and in response to just several complaints from local residents, reorientation of the public address system (so that the speakers were not directed towards housing) resolved the problem.
Each year the City of Perth receives several complaints regarding noise levels associated with the Skyworks show. For the overwhelming majority of patrons and local residents, the noise associated with events such as Skyworks and the Albany Classic Car Rally is deemed to be acceptable given the nature of the events. As noted earlier in the report, during the fireworks display, noise levels on the nearby river foreshore are estimated to be between 90 and 100 dB(A) while noise levels at a distance of five kilometres are in the order of 50 to 60 dB(A). Aside from the apparent community acceptance of this noise level, Skyworks is deemed to be a community event and is exempt from the provisions of the Environmental Protection (Noise) Regulations 1997. This means there is no mandatory requirement for noise levels to be monitored.

As indicated by the noise levels recorded, Skyworks does generate significant noise and although of short duration (about 30 minutes), is somewhat analogous in terms of ‘noise and light equivalence’ to a severe thunderstorm. As a result, advisory notices are issued by the radio station involved in promoting the event, with the RSPCA advising residents to keep pets indoors, with windows shut and a radio or television switched on. For some residents this may be a significant social impact.

Air quality
No complaints are received about the short term smoke haze associated with the Skyworks fireworks, with the smoke haze considered by those interviewed to be an insignificant issue. Similarly, air pollution from vehicle emissions was also considered to be an insignificant issue (or was not mentioned at all for all nine events). This is particularly surprising for Skyworks given the volume of traffic, traffic congestion and the length of time vehicles are either stationary with engines idling, or travelling at exceedingly slow speeds. For many local roads, especially in South Perth, the volume of traffic associated with Skyworks would be exceptionally high and undoubtedly a once in a year event.

Managing Environmental Risks

Fire
Bushfire was identified as a risk in relation to the Margaret River Pro and the City to Surf events. In both cases this related to the risk of bushfire in coastal vegetation. Rangers patrol the high risk areas. Fire is also a significant risk for Skyworks with outbreaks of fire (the first such occurrence in the history of the event) on two of the barges at the 2007 event. As noted earlier in the report, FESA has responsibility for risk management in relation to fire and has the authority to withhold approval for Skyworks.

Environmental weeds
The introduction and spread of environmental weeds was identified as a key area of concern for the Margaret River Pro event. This was a major concern given the number of vehicles accessing the area and the pressure on parking facilities. This area of coastline embraces part of the Leeuwin-Naturaliste National Park. Measuring the environmental impact of this event in relation to the introduction and spread of weeds is problematic because the area is frequented by tourists/recreationists all year round. One measure would be the direct cost of policing and monitoring the area for the duration of the Margaret River Pro. The environmental impact of weed invasion in any area requires a longer term view—and can include a loss of agricultural production, loss of biodiversity, loss of landscape amenity and so on.

Managing environmental risk and minimising impact
The ‘carbon neutral’ policy adopted in 2007 by organisers of the Big Day Out is the standout example, inasmuch as it demonstrates a global view of both managing environmental risk and minimising impact. The one other example of an offset policy is in relation to the Avon Descent where organisers donate a set amount of money to a local Friends Group for foreshore rehabilitation work on a section of the Avon River. Unlike the carbon neutral policy there is no correlation between the funding provided and the perceived or measured environmental impact of the event on the riverine environment. Other strategies adopted by event organisers include the distribution of plastic bags for collection of animal waste (Million Paws Walk); the team of sixty volunteer scouts organised by the Keep Australia Beautiful Council, to distribute plastic bags for general refuse and recyclables (at Skyworks); and, the combination of ranger patrols and/or road closures to restrict access (in particular for illegal camping) to areas of high conservation value (for example, the Avon Descent, Pro Surf and City to Surf).
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Promoting environmental awareness
A number of the events included environmental awareness promotional material. Examples include the environmental messages on the numbered bibs worn for the City to Surf event; the team of Keep Australia Beautiful Council volunteers distributing plastic bags at Skyworks; and, the distribution of plastic bags for animal waste at the Million Paws Walk. Again, perhaps the most significant initiative (potentially) is the adoption of a carbon neutral policy for the Big Day Out.

Potential Use of an Environmental Impact Checklist
Hosts and/or organisers interviewed for six of the nine events selected for this project expressed various levels of interest in the development of an environmental checklist. Most of the interest was from officers working in local government who saw benefits in better management of events and the opportunity for monitoring and evaluation of outcomes. But there were also some local government officers who believed that there was little to gain from such an approach. Event organisers were generally less enthusiastic about this concept, citing a number of objections including ‘more bureaucratic red tape’, and the additional cost associated with implementation, monitoring and evaluation. The key concern for organisers was the staging of a successful event and for the more commercially-oriented event organisers; this meant a single bottom line concern—that the event generates a profit.

For those who expressed interest in the development/use of a checklist, the focus was very much on the use of such a tool to better manage events, identify the key issues of concern and to help minimise specific environmental impacts on the day. As already noted this was a view more commonly expressed by local government officers rather than organisers. The one notable exception was the view expressed by the RSPCA representative, who noted the public relations benefits for the organisation in seeking to minimise the environmental impact of the Million Paws Walk. There was no interest expressed by those interviewed in the use of a checklist to measure (quantify) environmental impacts, or to use such information to look for carbon neutral options. The recent (January 2007) public announcement by organisers of the Big Day Out (they were not interviewed) provides the one notable exception, where clearly the intent is to measure energy use in order to implement their offset strategy based on oil mallee plantations.

The lack of a generally enthusiastic response to the idea of a checklist reflects current practice in Western Australia in relation to special events. While there are already at least two checklists available, neither of these documents is in general use by event organisers nor hosts. In 2002, the Western Australian Government (through the Department of Health and the Department of Racing, Gaming and Liquor), released *A Planning Guide for Event Managers*. The document comprises a checklist covering site selection, event promotion and ticketing, availability of food, water and alcohol, provision of toilet facilities and refuse bins, transport, noise, lighting and power and issues relating to safety and security. Most of the local Councils interviewed for this study were aware of this *Planning Guide* but they did not make use of it. The most common response was that each local Council developed their own procedures. Officers from the Shire of Toodyay had used the document and found it to be useful. The City of South Perth used another document, also produced by the Department of Health, the *Guidelines for Concerts, Events and Organised Gatherings*.

Measuring Environmental Impacts
In addition to the general lack of enthusiasm in support of the use of an environmental checklist, the hosts and organisers surveyed for this study demonstrated even less interest in the measurement of environmental impacts. This study also revealed a lack of much of the rigorous data required to enable such measurement. For example none of the nine events surveyed incorporated traffic counts, including Perth Skyworks, the largest and most disruptive event (in terms of volume of traffic and traffic flow) in the state. Similarly, there is no readily accessible data on travel distances covered by patrons. Waste management, in terms of the provision of toilets and refuse bins was undertaken in large part by contractors. For most events, tonnages of waste, and water use were not recorded or known by organisers or hosts. The one exception was the availability of data for waste collected by local government in association with Skyworks. This information, if available, would need to be collected from individual contractors. Similarly, while estimates can be made of the amount of electricity generated by the portable generators used at most events there is no separate metering of energy supplied through the public electricity grid. Similar difficulties with data collection for events of this scale were identified by Wong (2005) in her study of the annual music festival, *Splendour in the Grass*, at Byron Bay, New South
Adoption of an Environmental Impact Checklist

The research project has examined nine special events held annually in the south-west of Western Australia. Results demonstrate an overall lack of specific interest, some ambivalence and even some opposition to the use of an environmental checklist to enable the quantification of environmental impacts. This lack of an overwhelmingly positive response is mirrored by concerns focused on the desire to avoid even more bureaucracy and a fear of additional costs in the use of the toolkit, especially in relation to monitoring and evaluation. Apart from the financial concerns, there is also an implied concern that more measurement, monitoring and evaluation could lead to more rigorous/restrictive environmental conditions of approval being imposed on event organisers. As already noted, responses from the officers working in local government (most commonly the host or co-host) generally demonstrated a higher level of interest compared to the response from organisers.

This report has also identified that there was some support for the use of an environmental checklist as an aid to better management of environmental impacts. Where this view was articulated, the discussion focused on the identification of the environmental issues and ways of minimising impact. One way forward would be to link the ‘event approval process’ to an environmental checklist focused on minimising environmental impact/harm (as distinct from simply managing the issue). This would address the concerns of those interested in better managing environmental risk/impact but would likely not win the favour of those organisers concerned about increased levels of bureaucracy. It would also provide the first step towards developing an audit strategy that would allow for a meaningful assessment of the environmental impact of special events of this scale.

Concluding Comments

This study has highlighted two dichotomies associated with the environmental aspects of the holding of events. Firstly, the issues of environmental impacts and of environmental management are viewed very differently by the different stakeholders. The impacts as measured for example by the ecological footprint method are frequently non-local. It was the total travel and food requirements of the FA Cup final patrons that contributed most to that event’s footprint. Yet, for the organisers and hosts at the Millennium Stadium and in Cardiff, managing the ‘on the ground’ environmental issues of rubbish, noise and waste disposal were more likely to have been of immediate concern. Furthermore, the measurement of total environmental impacts has, at least until very recently, been primarily of academic interest (the carbon concerns of the Big Day Out organisers may mark a new awareness or merely be the exception that proves the rule) while event hosts and, to varying extents, event organisers have been far more concerned with the management of specific environmental issues, with the precise nature and relative importance of these issues varying in relation to the nature and location of the events in question.

Secondly, the concerns of the organisers and the hosts are likely to diverge. While the organisers will generally wish to preserve and, if possible, enhance the ‘image’ of their particular events, their environmental concerns are more likely to be limited to ensuring that the events run smoothly and that the experience of the attendees is positive. For the hosts, wider questions arise, notably those relating to the impact of the events on local environments and communities. It is therefore hardly surprising that it was the host representatives who were more disposed to participate in this project and to entertain the concept of an environmental event checklist/toolkit.

It is not surprising, therefore, that there was less than total agreement on the need for such a checklist/toolkit. Aggregate measures of event impact are of limited use to hosts and organisers and, while these groups have and even may share concerns over specific event-related environmental matters, there is an understandable concern that any such tool would add to, rather reduce, the bureaucratic burden associated with event organisation. Nevertheless, supporters of the checklist idea outnumbered their opponents by six to two. Given that some state government ‘guidelines’ from which a checklist might be developed already exist, it is somewhat surprising that relatively little use appears to have been made of them. We would conclude that:

- the development of such a checklist has the potential to be valuable to event hosts and possibly to event organisers;
- the results presented here (with the addition of air transport) provide a basis upon which such a checklist could be developed;
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- such a checklist should focus on environmental management issues, rather than the collection of environmental impact measures per se;
- a relatively limited range of headings can encompass the environmental issues that might arise at most events (a diverse set of events were surveyed for this project and even the range of headings adopted for Table 2 above may be susceptible to some amalgamation e.g. litter/rubbish and recycling);
- such a checklist could serve as an approval form for submission by event organisers to host local authorities; and,
- a potential saving in terms of ‘bureaucratic red tape’ could be made if the same list/form could be submitted to multiple local authorities or to local and state authorities where multiple approvals are required.


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ASSESSING THE ENVIRONMENTAL IMPACT OF SPECIAL EVENTS


Examination of nine special events in Western Australia with particular reference to the approval process and identification of potential environmental impacts

AUTHORS

Roy Jones
Roy Jones is Professor of Geography, Dean of the Centre for Research and Graduate Studies and Co-director of the Curtin Sustainable Tourism Centre at Curtin University of Technology. He is an historical geographer with research interests in heritage and tourism issues. While he has worked at Curtin and its predecessor the Western Australian Institute of Technology since 1970, he has also conducted tourism-related research in Canada, Indonesia and the UK.
Email: r.jones@curtin.edu.au

Alan Pilgrim
Alan is Associate Professor of Geography at Curtin University of Technology. Trained as a geomorphologist his more recent research interests include Landcare, natural resource management, sustainability and the community engagement/participation processes used by government and industry. He teaches in the areas of physical geography, environmental planning and environmental health and has taught at a number of Universities in Australia and overseas. He is also an elected Councillor in local government.
Email: A.Pilgrim@curtin.edu.au

Graham Thompson
Graham is currently studying for a PhD in geography at Curtin University of Technology. His thesis explores how well knowledge and understanding of natural resource management issues are being shared across geographic and bureaucratic boundaries. He also works part-time as a water management officer for the Southeast East Regional Centre for Urban Landcare (SERCUL) in Perth, and has previously been employed as a research assistant and tutor at Curtin. Graham holds a Postgraduate Certificate in Education (PGCE) from the University of East Anglia in the UK and has published in the area of student self-assessment in tertiary level geography. He is currently working part-time at Curtin as a tutor and research project officer.
Email: graham.thompson@postgrad.curtin.edu.au

Colin Macgregor
Colin is a Research Fellow attached to the Centre of Excellence in Natural Resource Management (CENRM) at the University of Western Australia (UWA) in Albany, WA. Most of Colin’s research has involved combining a variety of social science and geography methodologies to explore and deliver sustainable outcomes, particularly at local levels and in resource dependent contexts. He has also taught in the subjects of geography, environmental science and sustainable development at a number of University institutions both in Australia and overseas and he has consulted for Commonwealth, State and Local Government for more than fifteen years.
Email: colin.macgregor@uwa.edu.au
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