



THE SUSTAINABLE CARAVAN PARK RESOURCE EFFICIENCY PROJECT

FINAL REPORT



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Preface

The material contained within this report is the combined data from studies undertaken with 51 caravan and tourist parks throughout the North East and Goulburn Valley regions of Victoria. The data was collected over a two year period from 2006-2007. Prior to the preparation of this document, each of the participating caravan and tourist parks received an individual report and an Environmental Action Plan detailing suggested resource efficiency improvements and cost savings. To maintain confidentiality, the data presented within this report reflects the combined results of all participating parks.

Acknowledgements

The Project Officer would like to express his thanks to the industry partners who helped fund and substantially facilitate this project. In particular I would like to acknowledge;

The Victorian Environment Protection Authority (EPA), the North East Victorian Regional Waste Management Group (NevRwaste), Goulburn Valley Regional Waste Management Group (Resource GV) Sustainability Victoria, the Goulburn Broken Catchment Management Authority, Goulburn Murray Water, Goulburn Valley Water and North East Water. Thank you also to the organisations who provided in kind support; including the Victorian Caravan Parks Association, the Department of Sustainability and the Environment, the North East Catchment Management Authority and Tourism Victoria.

The Project Officer would like to acknowledge and especially thank the caravan park owners, operators, staff and Committee's of Management for their time, support, faith, cooperation, insight, patience, open-mindedness, commitment and willingness to participate in the pilot project.

This Sustainable Caravan Park – Resource Efficiency Project has benefited from the generous contributions of time by many individuals. The Project Officer would like in particular to thank a group of people whom have provided close support and mentoring to the Project Officer over the past 2 years:

- ❖ Cr John Mahony, Chairman of the Sustainable Caravan Park Project Committee - Wodonga City Council
- ❖ Kevin Harvey, Executive Officer – NevRwaste
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- ❖ Paul Baumgartner, National Manager STAR Ratings – AAA Tourism
- ❖ George Campbell, National Operations Manager - AAA Tourism

- ❖ Charles Deuchrass, Assessing Coordinator – AAA Tourism
- ❖ Julie Stanley, Project Manager – AAA Tourism
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The Project Officer would also like to thank the local municipalities in the project region for their support, special thanks must go to:

- Lyn Blanford, Waste Manager – Alpine Shire
- Paula Tovey, Environment Manager - Moira Shire
- Andrea Colston, Superintendent Waste Services – Moira Shire
- Darren Richie, Waste Manager- Murrindindi Shire
- Bronwyn Chapman, Manager - Environment & Buildings – Rural City of Wangaratta

Section 1: Executive Summary

The Sustainable Caravan Park Project is a joint partnership, funded in its initial year by the Victorian Environment Protection Authority (EPA), the North East Victorian Regional Waste Management Group (NevRwaste), the Goulburn Valley Regional Waste Management Group (Resource GV) and Sustainability Victoria. Additional financial partners joined the project in the second year, they included; the Goulburn Broken Catchment Management Authority, Goulburn Murray Water, Goulburn Valley Water and North East Water. Additional in-kind support has been provided by the North East Catchment Management Authority, Sustainability Victoria, the Department of Sustainability and Environment, Tourism Victoria and the local councils in the project region.

The project focused on 13 local government areas from the Goulburn Valley and North East regions of Victoria. A total of 51 businesses from these municipalities participated in the project, 34 from the initial year with an additional 17 joining the project in the second round. Combined they represented 35% of the caravan parks in the project region.

The principle aim of the pilot project was to *“improve overall environmental performance of caravan parks in the project region”*, through reductions in the use of water, electricity, gas and the volume of waste produced in caravan parks. The project also aimed to reduce the environmental risks posed by on-site waste water treatment plants at caravan parks.

Through workshops, audits and ongoing education, participants were able to learn more about resource efficiency, minimising energy and water consumption, and reducing the amount of waste going to landfill. Businesses have been shown, and have since proven with the adoption of new resource-efficient practices, that significant savings in operational costs are possible.

1.1 Key Findings for Participating Parks

1.1.2 Cost Savings

The project identified resource improvements with annual savings for the participating caravan and tourist park operators in the range of \$383,000 - \$453,000. The project also identified additional cost and environmental saving associated with waste diversion from landfill.

1.1.3 Waste

A total of 10 caravan parks (20%) encouraged extensive recycling for visitors when the project first began. At the completion of the project 41 parks (80%) had implemented a recycling program, representing an increase of 300%.

- Caravan parks that participated in the project generate approximately 2,364 tonnes of waste annually while all of the parks in the project region potentially generate 6,440 tonnes annually of which 60% is estimated to be recyclable.
- Parks that participated in the project can potentially divert over 1,490 tonnes from landfill annually which would save 1,639 m³ of landfill, 3,850 tonnes of greenhouse gases, 65,880 gigajoules of energy and 60 Mega Litres (ML) of water.
- Collectively all the caravan parks in the project region could divert in excess of 4,000 tonnes annually from landfill, potential saving 4,400m³ of landfill space, as well as reducing energy use by 181,000 gigajoules per annum also reducing greenhouse gas emissions by 10,578 tonnes and water use by 166 ML.

- Five caravan parks in the project region have joined Sustainability Victoria's Waste Wise program.
- Auditing conducted during the project revealed that approximately 60% of the waste being generated from caravan parks is recyclable. With a diversion target between 30 - 60% for recyclables, participating caravan parks operators can reduce their waste bills and save approximately \$70,000 - \$140,000. Additional cost savings for local municipalities associated with the management costs of landfills are estimated to be in the range of \$29,800 - \$52,150.

1.1.4 Energy

- Hot water systems; efficient equipment and practices; and lighting were identified as the three main areas for electrical energy reduction in the majority of caravan parks.
- Caravan park operators cited electricity as the largest operating expense.
- The project identified significant energy savings potential for caravan parks in the area in converting to efficient equipment (including water efficient showerheads).
- 75% of caravan parks heated water to excessive temperatures.
- Potential annual savings \$252,000.

1.1.5 Water

- Caravan parks in the project use an annual total of approximately 121 Mega litres (ML) of water for amenities (toilet, showers and basins) alone.
- The project has identified combined water savings in excess of 60 ML/ per annum for the parks that participated in the project.
- 94% of operators of participating parks can reduce water use by up to a half thereby reducing waste water discharge by 60 ML per year.
- 49% of caravan parks have onsite septic or waste water treatment systems (No sewer link).
- Potential annual savings \$61,000

1.1.6 Greenhouse Gas Reduction

- Potential savings of between 4,184 – 6,199 tonnes of greenhouse gases have been identified, where parks were to introduce resource efficient practices and install efficient equipment. This equates to removing between 960 – 1,422 cars from the road¹.

¹ Greenfleet 2007.

Section 2: Introduction

The Sustainable Caravan Park Project is a joint partnership funded in its initial year by the Victorian Environment Protection Authority (EPA), the North East Victorian Regional Waste Management Group (NevRwaste), Goulburn Valley Regional Waste Management Group (Resource GV) and Sustainability Victoria. Additional financial partners joined the project in the second year, they included; the Goulburn Broken Catchment Management Authority, Goulburn Murray Water, Goulburn Valley Water and North East Water. Additional in kind support has been provided by the North East Catchment Management Authority, Sustainability Victoria, the Department of Sustainability, Vic Parks, Tourism Victoria and the thirteen local municipalities.

The project set out to work with caravan parks in the North East and Goulburn Valley regions of Victoria to improve their water, waste management and energy efficiency. The pilot project is the first of its type in Victoria and aimed to help caravan park operators become more environmentally sustainable while providing cost savings for operators. A project officer was appointed and was responsible for developing and implementing the Caravan Parks Resource Efficiency Project.

2.1 The Caravan Industry

Caravan parks and camping grounds are popular and widespread holiday options for a large proportion of the Australian population. Some municipalities can swell to over 10 times their normal levels².

In Australia there are 2685 Caravan Parks with some 8% of our population owning caravans, camper trailers or motor homes³ and there are an estimated 641 caravan parks in Victoria.⁴ The caravan park operations vary in scale, complexity and level of provision, much like other sectors of the accommodation industry. They range from small-scale operations of 20-25 sites to large resort style operations. The vast majority of these parks are located outside major cities and are often the chief form of accommodation available in regional areas.

Results from the Domestic Tourism Monitor⁵ note that 31% of all holiday nights in tourist accommodation in regional Australia were spent in caravan parks. Tourism Research Australia⁶ estimate that the caravanning and camping sector accounted for over 32 million domestic visitor nights. In economic terms The Bureau of Tourism Research⁵ identified this sector of the tourism industry being worth in excess of \$1.5 billion annually to the Australian economy and employs 15,000 people.

Tourism visitation figures published by Tourism Victoria⁷ indicate Victorian caravan and camping tourism accounted for 8,692,000 visitor nights. The Goulburn Valley and North East regions of Victoria had approximately 2,540,000 people visiting the

² Merrin Socha, Moira Tourism. 2006. *Personal communication*.

³ Ian Beadel. (2007). Former Chairman of the BIG4 Holiday Parks group

⁴ Lynn Oaten, Victorian Caravan Parks Association (Vic Parks). 2007. *Personal Communication*.

⁵ Bureau of Tourism Research. 1998. *Domestic Tourism Monitor*

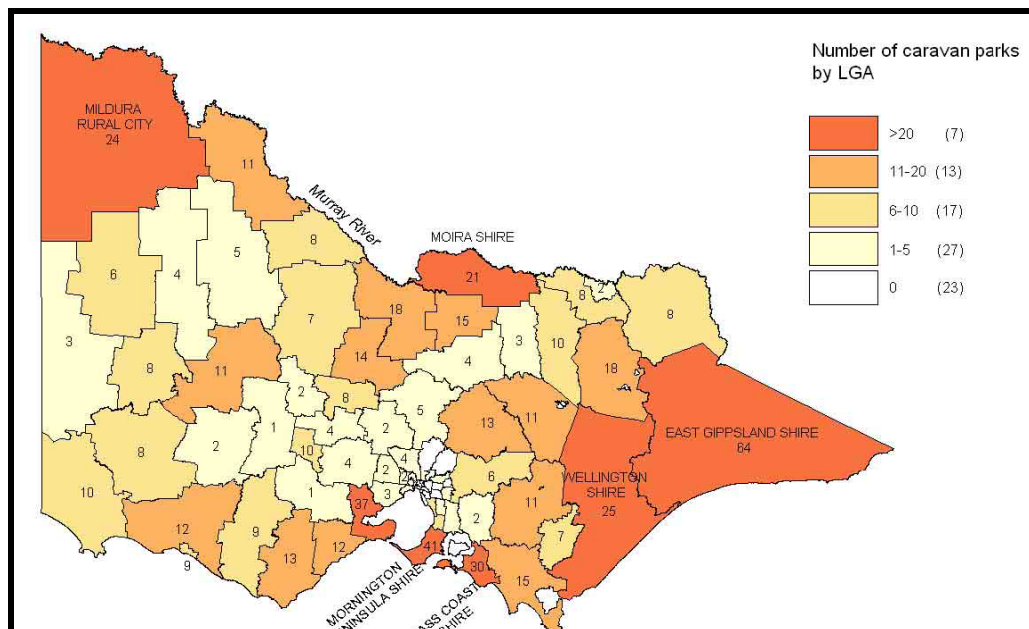
⁶ Tourism Research Australia. 2005. *National and International Visitors Survey*.

⁷ Tourism Victoria. 2004. *Caravan and Camping Tourism – Market Profile*

region in the year ending December 2005⁸. Approximately 50 percent of these visitors stayed in a caravan park⁹.

The North East EPA region contains the largest amount of caravan parks of any Victorian EPA region with approximately 142 caravan and tourist parks. The 51 parks that participated in the project accounted for over 648,000 visitor nights in 2006.

Map 1. Number of Caravan Parks by Local Government Area



Source: Victorian Caravan Park Flood Risk Survey Bewsher Consulting Pty Ltd - Draft Final Report, 6 December 2005

2.2 Impact of Caravan Parks on the Environment

By their nature most caravan parks in the project region are located in prime positions, often adjacent to environmentally sensitive rivers, lakes and waterways. Locals and visitors alike, value these natural attributes as the essence of outdoor living. The appeal, and ultimately the success, of caravan parks, relies on the quality of the environment in which they are located. If the quality is impaired the business is put at risk. Alternatively, environmental health and stability can (and does) strengthen the business, encouraging further environmental conservation measures to be implemented. Park operators and users therefore have a shared incentive to conserve and enhance all aspects of the environment.

During peak periods, holiday parks experience high visitor numbers. This can have a significant impact on the environment and cause degradation, as well as place a heavy demand on services such as water, energy and waste disposal. It can also cause increased pressure on facilities/systems such as sewage and waste management.

Because of their remoteness to established public infrastructure, caravan parks often rely on private systems for the disposal of human waste. In particular caravan parks with on-site treatment plants contribute significant quantities of wastewater to the environment.

⁸ Tourism Victoria. 2007. *Domestic Visitation to Regions of Victoria year ending March 1999-2006*.

⁹ Australian Bureau of Statistics. 2005. *Tourism Indicators*.

NevRwaste has identified, through a study conducted by Nolan ITU¹⁰, that the Hospitality and Accommodation Industry segment, (which includes caravan parks) are the major waste producers in North East Victoria.

2.3 Project Region

The area covered by the project is the EPA's North East region (Map 1) with the addition of the Campaspe Shire, which is within both the North West EPA's region and that managed by Resource GV's. There are 13 local government areas within the project region which include:

- Alpine Shire
- Benalla Rural City
- Campaspe Shire
- Indigo Shire
- Mansfield Shire
- Mitchell Shire
- Moira Shire
- Murrindindi Shire
- City of Greater Shepparton
- Strathbogie Shire
- Towong Shire
- Rural City of Wangaratta
- Wodonga City Council

Map 2. Victorian EPA Regional Boundaries.



¹⁰ Nolan ITU. 2002. *Regional Waste Management Profile Study*.
Sustainable Caravan Park Project

Section 3: Aims and Objectives

The objectives of the project were to:

- Reduce water and energy usage and waste production from caravan parks.
- Reduce environmental risks posed by on-site treatment plants at caravan parks.
- Work with at least 30 caravan parks in the North East EPA region, to improve their overall environmental performance. Through reductions in resource consumption, waste generation and environmental risks associated with waste water treatment systems.
- Identify and develop solutions to improve water usage and reduce wastewater discharge from these premises to the environment.
- Ensure that caravan park operators who are participating in the program were committed to implementing and planning for future activities to improve resource consumption in waste, water and electricity.
- Assist at least 5 caravan parks to implement best practice systems, for waste resource recovery and enable certification through the Waste Wise Program.
- Document the implementation and evaluation of the Sustainable Caravan Park Project.

The aims of the project were to:

- Develop an understanding of the existing environmental impacts of caravan parks in the project region.
- Measure and record the amount of resources consumed and the activities that consume the most resources.
- Observe and record caravan park operators' behaviours and operating practices.
- Promote the principles of sustainability and more specifically, implementing state policies and strategies relating to solid waste management and resource efficiency.
- Raise the environmental awareness of caravan park operators and caravan park industry as a whole.
- Assist caravan park operators in the project region to develop the necessary understanding, capacity and commitment to change practices and undertake activities to reduce resource consumption.
- Determine the number of caravan park operators who have recycling programs in place.
- Facilitate improvements to waste management practices and waste infrastructure within the project region.
- Facilitate the implementation of Caravan Park Resource Efficiency Action Plans.
- Determine the services options and level of support that local government offer to caravan parks in their municipality.
- Conduct visual inspections of wastewater treatment plants.
- Increase the caravanning industry's awareness of environmental issues and provide information and education to the operators and the industry.
- Identify areas where resource use can be reduced.
- Identify potential cost savings to individual caravan park operators.
- Identify the amount and effectiveness of existing environmental educational material present at caravan parks.
- Develop productive working relationships with caravan park operators.

- Promote the Waste Wise program and assist parks to achieve Waste Wise certification
- Work with stakeholders (Regional Waste Management Groups, EPA, Catchment Management Authorities, Water Authorities, DSE, the Caravan Park Industry and councils) to achieve objectives the project objectives and to maximise offering to participating caravan parks and the caravan industry.

Section 4: Methodology

There was a vast amount of information to collect and research in order to understand the current operating practices, legislative requirements, industry membership obligations, and technology used in the operations and management of caravan parks.

In order to achieve the aims of this project, a variety of different research techniques were utilised:

Desk and internet based research were used to initiate the project and continued to be used to supplement other research techniques in subsequent stages of the project.

Another essential part of the research involved liaising with key partners and organisations that play an important role in resource management, as well as the caravan & tourism industry and local government.

Initial and ongoing meetings were held with partners to discuss project requirements, what would be involved in the project and to discuss the likely outcomes of the project. This ensured that the project went in the right direction.

Initially a data base was developed of caravan parks in the project region. As the project sought voluntary participation, written invitations to participate in the project were issued to all of the caravan parks in the project region promoting the benefits of participating in the project. Once operators had indicated their desire to participate in the project, the Project Officer arranged a site visit and conducted a waste, energy and water audit (Appendix A) in addition an interview was undertaken with the owner or manager with a standard questionnaire (Appendix B).

The data collected from the site visits was analysed and potential environmental and cost savings were identified. These were communicated to the operators in the form of an Environmental Action Plan (EAP) (Appendix C).

EAP's were developed for each of the businesses participating. Each EAP identified simple, cost effective measures which were easy to understand and implement, while delivering either instant or short term savings to the operator and the environment. The EAP's were developed with three key areas, Waste Management, Energy Management and Water Management.

Ongoing support and advice was provided to participating parks to enable them to implement the suggestions contained within the EAP. Fact Sheets were developed which identified additional resource efficient practices, cost savings, information and tips.

Section 5: Auditing Results

All participants in the project received at least one site visit from the Project Officer. Information collected during the site visit included the operators response to a questionnaire as well as data form an audit of waste, energy, water and waste water at the site. A summary of the data collected is described below.

5.1 General Information

- 68% of caravan parks in the project were established over 30 years ago.
- 27% of caravan parks participating in the project are operating on land managed by the Department of Sustainability and the Environment.
- 70% of parks are located on a waterway.
- The participating parks have a combined maximum occupancy of 27,200 people.
- The peak visitation period is from November – March.
- 70% of parks have experienced an increase in business over the past 2 years, while 14% have experienced a decrease and 16% had reported static growth.
- 32% of parks have reported negative impacts from bushfires, drought and negative publicity.
- Water conservation was identified as the most popular environmental initiative operators wanted to undertake in the future, followed by recycling and power conservation.
- Time and money were identified as the main barriers for operators achieving their environmental initiatives.
- Operators indicated that the main areas within the project scope that were of most interest or benefit to them were cost savings, improving their environmental performance, help with solid waste management/ recycling and education.

5.2 Waste

Operators identified a number of issues that hampered their efforts or created difficulties for them in implementing recycling programs. These included:

- Manual handling was identified as an issue when moving and emptying large bins full of recycling material. However, some parks have purchased a bin lifter to overcome this issue.
- The frequency of recycling services during peak visitation created problems disposing of waste.
- The need for alternatives to 240 litre recycling bins. Skips were identified as a solution to overcoming waste storage and disposal issues during peak periods.
- The limited availability of recycling skip services in the project region.
- The need for local councils to provide a flexible billing system for operators who may pay an annual fee for their waste removal. Operators are charged for 52 weeks of the year while they may only use the service and all their bins 12 weeks of the year.
- The lack of visitor and operator education concerning recycling practices and what materials are recyclable.
- Lack of support and assistance from local councils to provide recycling services for small and medium enterprises.
- Limited space provided at transfer stations for operators who choose to transport recycling material themselves.
- The need for signage on bins and appropriately coloured bin lids.
- Limited factual information supplied by waste contractors concerning recycling options that they may, or may not offer.

Operators were asked what would help them manage their waste more efficiently and the top responses were signage, education and visitor information, as well as, the provision of bins.

5.3 Energy

- Electricity was identified as the major cost for caravan parks followed by gas, with 86% of parks relying on LPG gas.
- 75% of caravan parks with electric or gas hot water storage units were heating their water excessively by an average of 10°.
- 13% of operators purchased energy efficient light globes.

5.4 Water

- Water was identified by operators as the third highest expense for operating a caravan park.
- Showers were identified as the activity that used the greatest amount of water in caravan parks. On average showers used 18 litres of water a minute. While hand basin taps used 20 litres per minute on average. It was also found that despite the presence of a number of newer efficient toilet cisterns in parks, the average flush volume was 7 litres.
- There is potential for water use across all parts of a caravan parks operation to be significantly reduced through either changing current practices and/or installing flow control devices. Simple changes can lead to significant financial savings and water savings.
- 64% of parks are on town water while 39% are on town sewerage and 40% of parks hold water extraction licences with Goulburn Murray Water.
- All but 1 of the parks holding water extraction licences with Goulburn Murray Water are not aware of how much water they consume as they are not required/ or able to measure their consumption rate.
- 17% of operators had flow control devices in place at the commencement of the project.
- 33% of operators collect rainwater.
- 57% of parks have an onsite septic or waste water treatment system.
- 31% of parks hold an EPA licence for the waste water treatment systems.

Section 6: Results and Observations

The Sustainable Caravan Park Project achieved the aims and objectives set out by the project partners as outlined in Section 3. In addition to the overall project aims and objectives the following outcomes were achieved.

6.1 Waste Management

EcoRecycle¹¹ estimated waste generated for the entire accommodation sector is 430,000 m³ per year, which is approximately 70,000 tonnes. Caravan parks were identified as the largest generator of waste in this sector, generating 41% of the total. Caravan parks participating in the project generate approximately 2,364 tonnes of waste annually while parks in the project region potentially generate 6,440 tonnes annually of which, over 60% is recyclable.

¹¹ EcoRecycle Victoria. 2000. *Waste reduction, A key to good business – Accommodation Sector*

6.1.1 Waste Auditing

There is a lack of data available on the total volume and composition of waste generated from the caravan park sector. Therefore, detailed waste auditing was undertaken at eight caravan parks to collect data. Only one of the caravan parks being audited offered a recycling program.

Auditing was conducted with three caravan parks in the Alpine Shire after the Melbourne Cup long weekend, 2006. The aim of this process was to capture waste disposed of by park users.

Further waste auditing was conducted within the Murrindindi Shire and Greater City of Shepparton, Moira Shire and Rural City of Wangaratta after the Easter long weekend 2007.

Reviewing the contents of the garbage and recycling bins has provided important information that will assist park managers assess the current and future waste management systems.

Although the sample size on the first audit was small the data from the three parks was consistent, with approximately 70% of the total waste being recyclable. The data collected on the second audit revealed that 58% of the waste stream could be recycled.

Combining the data from both auditing periods revealed that on average 63% of the total waste volumes was recyclable materials. If this was captured in the recycle bins and diverted from the garbage based on these figures all parks could quite easily reduce their waste to landfill by over 50%.

Of the parks participating in the project from the first year 87% have implemented recycling programs compared with 35% at the commencement of the project. 63% of parks joining the project in the second year have implemented recycling systems at the time of preparing this report. Of the remaining parks 19% are located in the Murrindindi Shire who has just changed waste contractors and new commercial services are yet to be finalised. 13% are still exploring recycling options and the remaining obstacle is operator commitment.

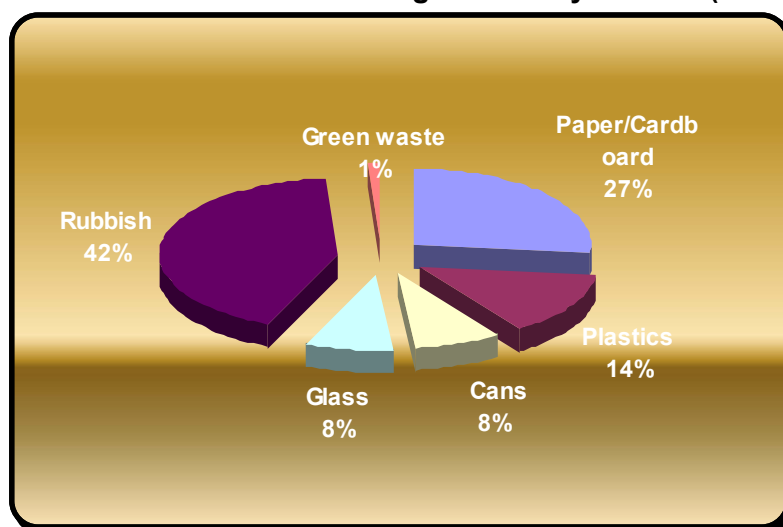
The project officer has worked with waste contractors; local government; material recovery facility operators; and caravan park operators to extend current systems and the level of service offered to caravan parks; to expand recycling to include most parks involved in the project (some parks are currently restricted by their location) and to remove any other barriers.

AAA Tourism, who manage the STAR rating system for accommodation businesses have a set of criteria that businesses need to achieve in order to receive the relevant STAR rating. Scoring points are important to operators as a STAR rating increase can mean the increase of a businesses value of up to \$250,000. One aspect in the criteria for caravan and tourist parks required operators to provide one standard size bin for every two sites or a 240 litre bin for up to 8 sites. The bins are required to be lined and placed no further than 75 metres from a site. These requirements impede the ability of operators to install effective recycling programs as they need to double the amount of bins in the park and with the AAA Tourism criteria this requires a large expense and detracts from the visual aesthetics of the park.

Waste stations are an effective way for visitors and operators to manage their waste though the distance limit set by AAA Tourism and the ratio of bins per site do not encourage operators to install recycling programs and waste stations. Requiring all bins to be lined with plastic liners also creates contamination issues for recycling. The Project Officer approached AAA Tourism with their concerns and was provided

the opportunity to submit information towards the review process of the STAR criteria. The criteria are still under review at the time of preparing this report.

Graph 1. Combined Waste Auditing Results by Volume (litres)



6.1.2 Waste Wise Program

While the conversion rate from non recyclers to recyclers is high the participation in the Waste Wise program is poor. As challenging as it was to have businesses provide recycling services, it proved even more challenging to have them take the next step and participate in the Waste Wise program. In the main they see no “real value” in participating and believe that they are doing the right thing by recycling and see the extra process as another level of bureaucratic paper work.

Five businesses have committed to participating in the Waste Wise program at the time of preparing this report with an additional 2-3 hopefully joining the project by February 2008. All of the operators who have committed to join the Waste Wise Program have only done so when incentives have been offered. Resource GV offered 3 x \$750 incentives (which could be spent on environmental initiatives) which resulted in 5 parks joining the Waste Wise Program. Moira Shire also offered assistance to operators who commit to joining the program which will reduce their waste management costs. This process is ongoing at the time of preparing this report.

While economic benefits of recycling may not exist across all regions of Victoria it is more cost effective for caravan parks to recycle in the project region. The most cost effective option (if available) is to utilise the service provided by local councils.

6.2 Energy Management

Hot water systems, efficient appliances and lighting were identified as the three main areas for electricity reduction across the majority of caravan parks.

Electric and gas hot water storage systems are required legally to store water at 60°C. The temperature of hot water systems were measured by the Project Officer and all operators were issued with thermometers and instructed how to monitor and adjust their hot water systems. 75% of operators had systems heating water in excess of 60°C some as high as 82°C.

The majority of caravan parks had equipment and appliances operating on stand-by power. Operators were advised of the potential savings by turning electrical

appliances off at the wall. All operators agreed that this was a simple and effective way to reduce electricity use and greenhouse gas emissions.

Lighting systems, timers and equipment can be improved in the majority of parks. Monitoring timers and installing movement sensors in combination with energy saving light globes can make a significant impact on the light component of an electricity bill. Only four operators used energy saving light globes at the commencement of the project, though all caravan parks have or will be installing energy saving light globes in the near future.

6.3 Water Management

6.3.1 Water Savings

The project has identified water savings in excess of 60 ML annually and reductions in waste water discharged to the environment by the same amount.

6.3.2 Waste Water

An increasing number of Caravan Park operators are seeking to explore their grey water reuse options. This is a difficult task as there are many hurdles that parks need to overcome such as meeting the local and state regulations for grey water reuse.

Although national standards and guidelines are currently being developed for grey water reuse, the past lack of a national approach has created difficulties for manufacturers of wastewater treatment systems.

As a result it is difficult for caravan park operators to source an industry specific grey water reuse system. There is a lack of suitable products available to suit caravan parks. The small number of systems available to a caravan park, and that are not aimed at the domestic market are designed for much larger developments and are cost prohibitive to a caravan park.

Only one Caravan Park had a treatment system that was posing an environmental health risk due to the manner in which they were discharging wastewater to the environment. The operators were advised of the problem (having just purchased the business) and rectified the issue.

The great majority of wastewater treatment systems were observed to be functioning effectively. The most common management issue was presence of vegetation either within or surrounding the system which impeded the ability of the system to function effectively.

The other issue identified was the volume of wastewater being generated and the volume entering the wastewater treatment system. As many caravan parks are over 35 years old many needed repairs and upgrades required for the systems to function effectively. Cracks or holes in pipelines result in waste water leaching into the environment and not entering the waste water treatment system. This problem can be overcome by installing water meters at pumping stations and at the point where the water enters the treatment system.

During 2007 the EPA introduced new regulations to sewage treatment plants discharging less than 100,000 litres per day, solely to land, and where systems are in accordance with EPA specifications they are now exempt from licensing if there is no evidence of degradation to land, soil, groundwater or surface waters on the premises or adjoining land and waterways. Operators holding an EPA licence can apply to hand in their licence.

6.4 Greenhouse Gas Reduction

Potential combined greenhouse gas reductions were identified from the participating parks by improving efficiencies in the following areas;

Electricity	Identified savings (tonnes)
- Water heating	799
- Insulating hot water pipes	260
- Lighting	640
- Water pumping	60-120
- Appliances/ Stand-by	40-70
Gas	
- Water heating	314
- Insulating hot water pipes	146
Waste Management	
- Reduction to landfill	1925 - 3850
Total tonnes	4,184 – 6,199
Equivalent cars removed from the road	960 - 1422

6.5 Cost Savings

An indirect, though substantial benefit to Caravan Park operators was the real financial savings that the project identified and created. Cost savings have been identified through a number of areas, such as waste management, water savings and energy reduction. The potential savings vary from park to park. Generally, the larger the size of the park the greater the potential to reduce operating costs. Monitoring of utility costs and savings will continue, though it is possible for some caravan parks to save tens of thousands of dollars per year. To date, savings in excess of \$335,000 have been identified directly for caravan park operators.

6.6 Gas Savings

Gas is predominately used in a caravan park for heating, cooking and hot water. Nearly 90% of caravan parks rely upon LPG gas with only a small number of caravan parks connected to natural gas.

Gas instantaneous hot water systems are the most efficient way for a caravan parks to heat their water. Other systems used included electric or gas boilers. Gas savings are generally possible by reducing the temperature within the boiler hot water system and reducing the amount of water used in showers and basins. Reducing the amount of gas consumed will also reduce greenhouse gas emissions.

6.7 Education

Education plays a vital and ongoing role in the project. On average, caravan parks participating in the project change ownership or management every six years. Therefore there is a need for education to be continuous and information to be easily available to operators.

The project aimed to educate caravan park operators on a variety of sustainable principles and practices. Operators were asked which areas within the scope of the project were of interest or benefit to them. One of the top responses was education on environmental initiatives and resource efficient technology.

Visitor education was also an aim of the project. In order to promote various environmental messages and to initiate positive behaviour change with the guests

visiting the park, the owners, managers and staff need to be educated first so they can act as a champion or ambassador, aid in the education of visitors and to promote environmental messages. Operators also realise that by operating sustainably and encouraging their guests to adopt various environmental measures, a positive public image of the business is created and costs are reduced at the same time.

6.8 Project Promotion – Information Distribution

In addition to providing assistance to the caravan and tourist parks participating in the project, the Project Officer has provided information concerning the project and assistance to the following organisations;

6.8.1 The Department of Sustainability and the Environment – Information on resource efficiencies was provided to the DSE who has published the information on the DSE's website which is accessible to approximately 185 caravan parks operating on land managed by DSE and representing approximately 27% of the total caravan parks in Victoria.

6.8.2 Regional Waste Management Groups (RWMG) – In addition to providing general information and background on the project from requests of the Barwon RWMG, South West RWMG, Mornington Peninsula RWMG and Mildura RWMG, the Project Officer has presented information to the Board of the Gippsland Regional Waste Management Group and was invited to present information on resource efficiency to caravan park operators from the Gippsland Region. The Project Officer also attended regular board meetings of the Goulburn Valley and North East Victorian Regional Waste Management Groups. The North East Victorian RWMG has published the 1st years finding of the project on the organisations website.

6.8.3 AAA Tourism – The Project Officer presented information to AAA Tourism's National Assessors Conference, 2007, focussing on resource efficiency practices which can be adopted by all sectors of the accommodation industry. AAA Tourism have also offered to publish resource efficiency information and fact sheets on their web site and make information available to over 10,500 accommodation businesses nationally.

6.8.4 Victorian Caravan Park Association – The Project Officer was invited to present resource efficiency information and findings of the project at the 2007 State Conference of the Victorian Caravan Park Industry. The Project Officer developed a presentation with the Central Greenhouse Alliance. The session was well attended and the Project Officer received requests for resource efficiency information from 36 caravan parks.

6.8.5 The Environment Protection Authority – The EPA has developed a case study of the project's first 12 months. The Project Officer has distributed over 300 hard copies of the case study which is also published on the EPA's web site.

6.8.6 Tourism Victoria – The Project Officer provided assistance and information to the Sustainable Tourism Officer. Tourism Victoria has recently developed a sustainable tourism website. This initiative will provide marketing advantages for businesses involved in sustainability programs.

6.8.7 Local Government – The Project Officer worked closely with a number of employees from local government areas.

6.8.9 Resource Efficiency Project, Moira Shire – A Resource Efficiency Partnership Project partnership was established between the Moira Shire and the EPA. Project Officers from both projects worked together and exchanged information.

6.8.10 EcoStrata - The Project Officer was contacted by EcoStrata who are a leading technology and information services company for the Australian strata and community title industry. The company provides a consultancy services to top tier developers, Australian and overseas governments on the establishment, structure and ongoing management of strata and community title developments as well as environmental consulting for achievement of environmentally sustainable buildings and master planned communities.

6.8.11 Additional information - on resource efficiency information has been provided to; the Warrnambool City Council, the Outdoor Education Group, Murchison Nursing Home, the Victorian Camps Association, Victorian Employers Chamber of Commerce and Industry, the Hotel Motel Association of Australia and Regional Tourism Associations.

Section 7: Future prospects for the project

A number of opportunities exist that can be pursued in the future. None is more exciting or has greater potential to achieve significant environmental gains and cost savings than the opportunity for government agencies to support AAA Tourism's (AAAT) development of the Green STAR Program.

AAAT is the national tourism body of Australia's Auto Clubs; they manage the national STAR rating scheme and publish travel guides and online content. AAAT also manage a Green STAR program which is offered to motel operators.

The Project Officer met with staff from AAAT to discuss the potential of expanding the Green STAR program to include caravan and tourist parks. The Project Officer also requested that AAAT review some of the requirements contained within the Star Rating Scheme to consider certain existing requirements that were considered to impeded, operators from adopting environmentally friendly practices.

The response from AAAT was very positive allowing the Project Officer to submit recommendations in relation the STAR Rating Scheme. The Project Officer was also invited to present information to the National AAAT Assessors Conference. AAAT has since offered to promote resource efficient practices via their web site which services over 10,500 members nationally.

AAAT have expressed a desire to expand their Green STAR program, which is a partnership with Green Globe and the Commonwealth Research Centre for Sustainable Tourism. As AAAT are a national body this presents an exciting opportunity with extensive environmental benefits and significant cost savings for participating businesses.

The Project Officer has provided AAAT with the information and findings from the Sustainable Caravan Park Project and believes that the identified savings for caravan park operators can be achieved across all sectors of the accommodation industry. The Project Officer strongly encourages Tourism Victoria and Sustainability Victoria to take a lead role to pursue this opportunity and provide support and assistance to AAAT in developing a Victorian trial project and expansion of the Green STARS Program with the aim to establishing a nation wide program.

Section 8: Project Issues, Recommendations and Actions

In drawing from the data collated and observations of the Project Officer a number of recommendations have been made and future opportunities identified.

Rec No.	Recommendation	Action	Who's responsible	Expected Competiti on date
A. Waste Management				
1.	Regional Waste Management Groups and or Local Government identify funding opportunities, which will enable caravan park operators to install or modify existing equipment/facilities, and aid them to implement recycling programs consequently reducing waste to landfill.	Apply to the Packaging Stewardship Forum for funds to produce bin stickers and promotional material for accommodation operators.	Regional Waste Management Groups (RWMG)	July 2008
2.	Local municipalities and DSE to work with Regional Waste Management Groups to introduce recycling and waste management conditions into lease arrangements for caravan park operators.	Explore legalities of introducing mandatory recycling for lease holders and Committee's of Management.	DSE & Local municipalities	March 2008
		Report issues regarding recycling and leases to Regional Waste Management Groups.	DSE & Local municipalities	April 2008
3.	Local municipalities need to consider the requirements of Small and Medium size Enterprises (SME's) when tendering waste contracts to improve the recycling services offered to caravan park operators and other SME's which will aid in the development of practical systems and waste diversion from landfill.	Contracts with municipal waste contractors include clauses/ Key performance Indicators, requiring waste contractors to be more proactive in promoting recycling services offered to SME's and required to increase the amount of businesses utilising recycling services they provide. Involve industry representatives from SME's and Regional Waste Management Groups in the formulation of waste contracts. Local municipalities seek information from other municipalities from around Victoria.	Local municipalities and RWMG's	Ongoing
4.	Regional Waste Management Groups/ Sustainability Victoria develop, offer and distribute signage to aid Caravan Park operators/ accommodation industry and SME's to implement effective recycling systems.	Develop, print and distribute a variety of bin and skip stickers.	Sustainability Victoria RWMG's	August 2008
5.	Regional Waste Management Groups trial source separation recycling programs with caravan park and accommodation providers.	Trial a source separation project with caravan park operators.	RWMG's	Dec – Jan 2008/09
		Provide caravan park operators with promotional material, black tubs and bags.	RWMG's	Oct-Nov 2008
		Provide or seek funding for trial.	RWMG's	Feb – July 2008
6.	Local municipalities and DSE consider offering incentives for Caravan Park operators to adopt resource efficient practices.	Explore offering financial and in-kind incentives for operators who adopt resource efficient practices.	DSE & local municipalities	May 2008

Rec No.	Recommendation	Action	Who's responsible	Expected Competiti on date
B. Energy Management				
7.	Sustainability Victoria and Tourism Victoria support AAA Tourism in the promotion and adoption of the Green STARS program to the broader accommodation industry.	Tourism Victoria and Sustainability Victoria convene a meeting with AAA Tourism to identify potential opportunities of working together to aid the adoption of resource efficient practices in the tourism and accommodation industry.	Tourism Victoria and Sustainability Victoria	Jan/Feb 2008
8.	The DSE and local municipalities who lease or operate caravan parks install or require operators to install energy efficient alternatives to current hot water storage units.	Explore issues of introducing mandatory resource efficient practices for lease holders and Committee's of Management.	DSE & local municipalities	Ongoing
9.	Government departments and agencies extend current programs and develop new ones offering incentives for caravan park operators/ accommodation providers to install energy efficient equipment.	Explore offering financial and in-kind incentives for operators who adopt resource efficient practices.	Sustainability Victoria & DSE	Ongoing
C. Water Management				
10.	The DSE and local municipalities who lease or operate caravan parks install or require operators to install water efficient appliances.	Explore issues of introducing mandatory resource efficient practices for lease holders and Committee's of Management.	DSE & local municipalities	Ongoing
11.	Water Authorities provide support and assistance for accommodation operators to install water efficient appliances and adopt water saving practices.	Water authorities continue to support and/or develop resource efficient projects.	North East Water & Goulburn Valley Water	Ongoing
12.	Water Authorities, Local municipalities and the EPA promote the reuse of grey water.	Regional Water Authorities work with caravan park operators in developing establishing grey water reuse options.	North East Water & Goulburn Valley Water, EPA, Local municipalities	Ongoing
13.	Goulburn Murray Water arrange for water meters to be installed on all licence holders and encourage caravan park operators and private residents to adhere to water restrictions.	Water meters be installed on all customers of Goulburn Murray Water.	Goulburn Murray Water	Dec 2008
		Implement and enforce water restrictions for caravan park operators and residential dwellings.	Goulburn Murray Water	Dec 2008
14.	Water Authorities provide financial incentives (billing discounts) to operators who install grey water systems.	Explore the potential of offering waste water discharge discounts to operators installing grey water recycling systems.	North East Water & Goulburn Valley Water	June 2008
15.	Water Authorities continue to promote water efficient practices.	Distribute the findings of this report and the fact sheets to all their customers who operate caravan parks and accommodation businesses, especially those who are required to develop Water Management Plans.	Regional Water Authorities	Ongoing

Rec No.	Recommendation	Action	Who's responsible	Expected Competiti on date
16.	Water Authorities, Local municipalities and DSE consider offering incentives for caravan park operators to adopt environmentally efficient practices.	Explore offering financial and in-kind incentives for operators who adopt resource efficient practices.	Water Authorities, Local municipalities and DSE	May 2008

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