

Kangaroo Island Development Board

Kangaroo Island Commercial Waste
Management Study

Volume 1 - Report

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Kangaroo Island Commercial Waste Management Study

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Table of Contents

1	Introduction	5
2	Current Commercial Waste Management Services	7
2.1	Identification of Commercial Sectors	8
2.2	Current Waste Collection Services	8
2.3	Current Waste Storage Facilities	9
2.3.1	Transfer Stations	9
2.3.2	Kingscote Landfill	9
2.3.3	Disposal on Private Properties	9
3	Commercial Sector Waste Survey	10
3.1	General	11
3.2	Waste Generation	11
3.2.1	Waste Quantities	11
3.2.2	Waste Components	12
3.2.3	Seasonal Variation	12
3.3	Waste Management Practices	13
3.3.1	Waste Collection Units	13
3.3.2	Frequency of Waste Removal	13
3.3.3	Removal Service Providers	13
3.4	Comments and Concerns	14
3.4.1	Public Bins	15
3.4.2	Asbestos Removal	15
3.4.3	Cardboard Recycling	15
3.4.4	Wine Bottle Deposits	15
4	Commercial Viability of Various Private and Council Operations	16
4.1	General	17
4.2	Options	17
4.2.1	Scenarios	17
4.2.2	Issues	20
4.3	Assumptions	20
4.4	Council Supplied Options	21
5	Recycling	22
5.1	General	23
5.2	Current Recycling Services on Kangaroo Island	24
5.2.1	Island Recycling	24
5.2.2	Cardboard and Paper Wastes	24
5.2.3	Green Wastes	24
5.3	Waste Oil	24
5.4	Car Tyres and Batteries	25
5.5	Community Recycling Activities	25
5.6	Further Recycling Opportunities and Markets for Recycled Products	25
6	Education and Waste Minimisation	26
6.1	General	27
6.2	Waste Minimisation Strategy	27
6.3	Promotion and Education	27
7	Other Incentives	29
7.1	General	30

Table of Contents - cont

7.2	Environmental Levy	30
7.3	Other Economic Incentives	30
8	Summary	31
	Appendix A Council Operations	
	Appendix B Commercial Sector Waste Survey Results and Calculations	
	Appendix C Commercial Viability Calculations	

1 Introduction

1 Introduction

The purpose of this study was to provide an independent review of the current commercial waste management system on Kangaroo Island. The Kangaroo Island Development Board commissioned the study due to the apparent lack of a centralised commercial waste management system on the island.

Kangaroo Island is renowned as a popular tourist destination. One of the reasons for this, according to the 2002 Tourist Guide is “the native wildlife, the fresh air, the unhurried pace of life, produce, wine and fishing! People also return because there’s so much to explore with over 450 kilometres of coastline, it is Australia’s largest island¹”.

As mentioned above, Kangaroo Island covers a large geographical area. Kangaroo Island has a relatively small permanent population of 4259 (as at 30 June 2001²) people and a large number of visitors (approximately 160,000 per year).

The island’s demography and geography make waste collection practices challenging. Kangaroo Island Council has provided all waste collection services in the past. Council is now focusing on providing domestic services only, using two collection vehicles, transfer stations at Penneshaw and Parndana, and a landfill at Kingscote. The collection of non-domestic waste may no longer be considered a core activity by Council.

The study involved a telephone questionnaire of the majority of the businesses on the island aimed at establishing waste management practices. Following the questionnaire, a visit was made to Kangaroo Island, where key stakeholders were consulted to identify current management practices and opportunities for improvement.

This report captures the findings of the questionnaire, the outcomes of stakeholder consultation as well as commercial viability studies of various proposed waste collection options. A discussion is also provided on recycling opportunities and the importance of waste management education.

¹ Tourism Kangaroo Island as quoted in Kangaroo Island Secrets South Australia

² Australian Bureau of Statistics, A Regional Profile: Kangaroo Island Development Board Region, South Australia, 2001 Edition

2 Current Commercial Waste Management Services

2 Current Commercial Waste Management Services

2.1 Identification of Commercial Sectors

The commercial sector on the island is mostly comprised of the following industries³:

Table 1: Employment by industry

Industry	Percentage
Agriculture, Forestry and Fishing	27.3
Health and Community Services	12.9
Retail Trade	12.4
Accommodation, Café, Restaurants	11.0
Transport and Storage	7.8
Education	6.6
Construction	5.0
Property and Business Services	4.1
Government Administration and Defence	3.8
Personal and Other Services	3.4
Wholesale Trade	3.2
Cultural and Recreational Services	2.6

From Table 1 it is evident that the agricultural, retail and accommodation related sectors are the largest on the island. It can be further deduced that these industries generate the majority of the island's wealth. Hence maintenance of Kangaroo Island's image of being environmentally conscious and producing 'clean and green' produce may be of significant importance.

2.2 Current Waste Collection Services

Kangaroo Island Council currently provides waste collection services to approximately 70% of the residential establishments on the island. Its current collection routes, as supplied by Council, are provided in Appendix A. In addition to domestic collection operations, Council also collects waste from some commercial establishments which happen to reside on the collection routes.

Kangaroo Island was involved with the ChemCollect program, which was a free collection, storage and destruction scheme for unwanted agricultural and veterinary chemicals used in primary production. Both the State and Federal Government funded the program, and it was administered by the EPA. The ChemCollect program ran for three years throughout South Australia.

DrumMuster is a national program developed by NFF, Avcare, VMDA and the Australian Local Government Association (ALGA) for the collection and recycling of empty, cleaned, non returnable crop production and on-farm animal health chemical containers. It is administered locally by Kangaroo Island Council. The schedule for the next DrumMuster is yet to be determined.

There is no collection program in place for domestic hard wastes. Council encourages residents to 'drop and swap' their hard wastes at the Kingscote landfill.

³ Based on 2001 Australian Bureau of Statistics Regional Profile of Kangaroo Island.

2 Current Commercial Waste Management Services

2.3 Current Waste Storage Facilities

2.3.1 Transfer Stations

There are transfer stations located at Penneshaw and Parndana. The opening times for Penneshaw are 10am til noon Monday, Tuesday, Friday and Sunday. The opening times for Parndana are 2-4pm Tuesday, Friday, and Sunday. The purpose of the transfer stations is to provide a waste depot for residents and businesses which do not have access to Council collection services. The fees associated with disposal at the transfer stations are:

Table 2: Transfer station disposal fees

Single axle trailers	\$8.80 per load
Utility	\$8.80 per load
Car boot	\$4.40 per load
Garbage bag	\$1.10 per bag

2.3.2 Kingscote Landfill

Kangaroo Island currently has only one official landfill which is located in Kingscote. The landfill is open from 1-4:30pm on weekdays, 9am-12noon Saturdays and 1-4:30pm on Sundays. Waste collected from the Council runs, transfer stations and taken directly by the public are disposed of at the Kingscote landfill. The fees associated with disposal at the Kingscote landfill are provided in Appendix A.

2.3.3 Disposal on Private Properties

As many residents do not have access to Council collection services and live far from the transfer stations or Kingscote landfill, some waste is disposed of in designated locations on private properties. The quantities and types of waste, which are disposed of in this manner, are unidentifiable. The storage, treatment or disposal of domestic waste at residential premises is not considered to be a prescribed activity of environmental significance according to Schedule 1 of the Environment Protection Act. There is no mention of the disposal of commercial wastes on private property. However, it is not a practice which enhances the environmentally conscious image of the island.

Based on the survey conducted as part of this study, it would appear that some of the residents who dispose on their properties would be willing to pay for a collection service. However this would be dependent on the charges incurred for the collection system.

3 Commercial Sector Waste Survey

3 Commercial Sector Waste Survey

3.1 General

A commercial sector waste telephone survey was undertaken of the major businesses on Kangaroo Island. The survey addressed issues associated with waste generation and management. The survey questions and results are presented in Appendix B.

3.2 Waste Generation

This section looks at the commercial sector’s waste generation, specifically focussing on the results of the survey for waste quantities, waste composition and seasonal variations.

3.2.1 Waste Quantities

As part of the survey, questions were asked with regards to the amount of waste generated on a weekly basis. The units used by participants to describe the waste amounts varied, therefore a definite figure in tonnes or cubic meters cannot be provided. However, below is a summary of information provided by the participants with respect to waste quantities. The figures are approximations and are intended to provide an indication only of the quantities involved in commercial waste collection.

Table 3: Waste quantities generated on a weekly basis

Wheelie bins	Trailers	Utes	Trucks	Miscellaneous (tonnes)
190	32	10	6	8

By making the assumptions that:

- all wheelie bins are 240L
- trailers are 4x6ftx1.5m high
- utes have a volume of 1.3m³
- trucks have a volume of 9m³

an approximation of 2,700 tonnes per year, inclusive of waste associated with tourism, is obtained of waste generated by the commercial and construction/demolition sectors on the island. Appendix B provides further details on these calculations.

If it is assumed that rural areas generate 0.8 tonnes of waste per person per year, the total waste on Kangaroo Island would be around 3,200 tonnes per year. An additional component for the 160,000 tourists per year amounts to 920 tonnes of waste per year⁴. Therefore the total waste per year is approximately 4,100 tonnes.

Generally 40% of this waste is from domestic sources, the other 60% comes from the commercial and building/demolition sectors. Using this information, a figure of approximately 2,500 tonnes per year is obtained for waste generated in the

⁴ This is based on visitor statistics (from the Bureau of Tourism Research obtained from the Kangaroo Island Tourism Optimisation Management Model Sustainable Funding Study). In the year 2000/2001 visitors to the island stayed a total of 418,000 nights. This is equivalent to approximately 1,150 additional residents on the island, which amounts to 920 tonnes of waste per year (based on 0.8 tonnes of waste per person per year).

3 Commercial Sector Waste Survey

commercial and building/demolition sectors. This is similar to the amount calculated above, based on the responses from the questionnaire.

3.2.2 Waste Components

The survey also addressed the types of waste being generated by the commercial sector. About 100 people were interviewed, who represented businesses or industry. Each person provided a list of their waste components. There was a total of 260 waste components listed from the various businesses, many of which were common among the businesses interviewed.

The waste components are summarised into the groups presented in the table below. The percentage of the component mentioned in the survey is also presented in the table. For example, 20% of the total number of responses (260) was cardboard.

Table 4: Waste components with corresponding percentages based on number of responses

Waste Component	Percentage with respect to number of responses
Cardboard and cartons	20%
Paper	16%
Organic: food, green wastes	16%
Plastic: including shrink wrap	11%
Bottles: glass and plastic	9%
Cans	6%
Packing waste: mix of plastic and cardboard	5%
Household waste	4%
Metal parts: old appliances, car parts	4%
Building waste: concrete, iron, cement fibre sheeting, hardiflex, timber, particle board	4%
Engine oil and coolant	2%
Tyres and batteries	1%
Plumbing waste: old hot water services, gutters	1%
Frying oil	1%

From the responses presented in the Table 4 it can be seen that the most mentioned waste constituents in the commercial sector are cardboard, paper and organics.

3.2.3 Seasonal Variation

As part of the survey, questions were asked with regards to any seasonal variation of quantities and types of waste generated. The survey results show that 35% of the businesses do not experience any variation either in the amount or types of waste generated throughout the year. The remaining 65% of businesses indicated that their waste amount reduced during the winter period (the off peak tourist season), and more than half of these businesses advised their waste was reduced by 50%. The types of waste however did not change.

3 Commercial Sector Waste Survey

The majority of the businesses, which did not experience waste variation throughout the year, cater for the local population on Kangaroo Island. Business which fell in this category are presented in the table below.

Table 5: Businesses which did not experience seasonal variation in their waste generation

Building industry: tiling, joinery, plumbing, building, concrete
Freight and transport
Schools
Mechanics: garages, crash repairs
Some local stores: grocers, hardware, chemists, electrical goods

3.3 Waste Management Practices

This section looks at the results from the survey which address waste management practices adopted by the commercial sector. This involves questions related to the choice of waste collection units, the frequency of waste removal and the provider of the waste removal service.

3.3.1 Waste Collection Units

As discussed in Section 3.2.1 the most widely used waste collection unit is the 240L wheelie bin. Businesses which use utes or trailers often collect their waste in rubbish bags prior to loading their vehicle to go to the transfer station or landfill.

It should also be noted that businesses may use a variety of waste collection units simultaneously. For example a particular business may use wheelie bins for smaller sized waste and a trailer for large cardboard packaging.

3.3.2 Frequency of Waste Removal

Most waste removal occurs on a weekly basis. There are some businesses which require a service twice weekly. There are also others which only require a fortnightly service. Where a business may have a variety of waste collection units there may also be variation of frequency based on the types of collection units. For a given business, for example, the wheelie bin may be collected weekly, however the trailer may be emptied fortnightly when full.

Another aspect which impacts on the frequency of waste removal is that of seasonal variation. The businesses which experience waste reductions during the off peak period may reduce the frequency of removal.

3.3.3 Removal Service Providers

The survey shows that there are three main service providers for waste removal, these are:

- Council pick up of wheelie bins
- local private contractors which do rounds with their trucks
- personal drop off

3 Commercial Sector Waste Survey

The results show that some businesses use a combination of services. For example they use Council pick up for their wheelie bins, but they personally go to the Kingscote recycling depot for their bottles once a month.

The percentages for the utilisation of each type of service are presented in the Table 6 below.

Table 6: Distribution of waste collection services

Council	Private Contractor	Personal drop off	Combination for waste to be land filled	Combination for recycling
26%	12.5%	42%	12.5%	6.6%

The majority of businesses take their wastes themselves to the landfill. Council is the next main option for waste collection, followed by private contractors. Many of the businesses as mentioned above use one of the services in conjunction with another.

Council provides the pick up service mainly to businesses which reside on their existing domestic run. The service on average comprises of the first wheelie bin being free of charge. Any additional wheelie bins incur a cost of \$3 per bin with a \$20 minimum annual charge, plus GST.

Council also provides a pick up service to businesses which do not reside on their regular route. However in addition to the fees for the bins, businesses must also cover the travelling cost incurred by Council for the extra distance from the regular collection route.

3.4 Comments and Concerns

During the survey and interviews most participants mentioned that they were quite content with their current collection system. However there were additional comments and concerns raised regarding other aspects of waste management. These comments have been summarised in the Table 7 below.

Table 7: Comments and concerns

Council should provide a bin in the area
Wine bottles should receive a refund
Kangaroo Island needs a paper/cardboard recycling facility
There is a need for more public usage bins, and opening hours at the depots should be extended.
Cardboard should be recycled. Tourists comment negatively on waste in the area. There should be a levy on every disposable items that comes on to the island to be used towards waste management.
There is nowhere to dispose of asbestos
Dump has limited opening hours which makes it inconvenient for business owners
There is no place to dispose of asbestos
CFS does a bottle drive for the Penneshaw area. They receive a lot of wine bottles in the collection. There needs to be a solution for wine bottles.
There are inadequate rubbish facilities for tourists. There is a need for bigger and more public rubbish bins.
Council does not collect rubbish even though they drive past to get to the depot.

3 Commercial Sector Waste Survey

The majority of concerns raised are centred around the apparent lack of public bins, asbestos disposal, lack of cardboard recycling facilities and wine bottles not receiving deposits. These are briefly considered below.

3.4.1 Public Bins

The provision of public bins is a responsibility of Council. The feasibility analysis in Section 4 of this report looks at different scenarios addressing varying waste quantities being picked up. Waste quantities generated by tourists and disposed in public bins are included in the feasibility studies.

3.4.2 Asbestos Removal

Currently there is no service on the island which allows for the disposal of asbestos. McMahons Services have indicated an interest in providing an asbestos removal service on the island. The minimum approximate cost for the removal of a 16m³ supplied lined bin would be in the range of \$3,000 to \$4,000. There is also the additional hire cost of \$20 to \$40 per week for the bin.

McMahons Services have advised if such a service was to be implemented on the island, an extensive education program would need to be launched so that people disposing asbestos became familiar with the procedures involved with asbestos disposal management. Disposal management includes activities such as appropriate wrapping and labelling of wastes.

3.4.3 Cardboard Recycling

This issue is addressed in Section 5.2.2.

3.4.4 Wine Bottle Deposits

This issue requires State Government legislation, and is therefore not discussed further.

4 Commercial Viability of Various Private and Council Operations

4 Commercial Viability of Various Private and Council Operations

4.1 General

This section looks at the commercial viability of various private and council operated waste collection options. The purpose of this section is to present the options in a way which allows a comparison on a cost basis.

As there are many assumptions the outcomes of the provided financial calculations should be considered carefully. The assumptions are listed in Section 4.3.

4.2 Options

Several scenarios have been considered and these are summarised below.

4.2.1 Scenarios

Table 8: Waste collection scenarios

Operation	Description
Private 1	Skip bin pick up with current Council truck at no charge for 3 years followed by the purchase of a new skip bin truck for commercial service
Private 2	Skip bin pick up with current Council truck at a charge for 3 years followed by the purchase of a new skip bin truck for commercial service
Council 1	Council skip bin pick up for 3 years followed by the purchase of a new skip bin truck at 0% or 8% interest for commercial service.
Council 2	Council skip bin pick up and wheelie bin pick up with the current Council trucks for 3 years followed by the purchase of a new skip bin truck at 0% or 8% interest for commercial service
Private 3	Skip bin and wheelie bin pick up with a new combined skip bin/wheelie bin truck for commercial service
Council 3	Council skip bin and wheelie bin pick up using Council trucks for 3 years, followed by the purchase of a new combined truck at 0% or 8% interest for commercial service
Council 4	Council skip bin and wheelie bin pick up using Council trucks for 3 years, followed by the purchase of a new skip bin truck at 0% or 8% interest for both commercial and domestic services
Private 4	Skip bin and wheelie bin pick up using new combined truck for both commercial and domestic services
Private 5	Wheelie bin pick up with Council truck for operation life for both commercial and domestic services
Council 5	Wheelie bin pick up with Council truck for operation life for both commercial and domestic services at 0% or 8% interest.

Calculations have been performed to determine the total cost of each operation as well as the bin pick up charges for wheelie and skip bins. These costs and charges are presented in spread sheet format in Appendix C. The costs of each of the operations in the table above are summarised below in Table 9.

The total cost and bin charges, as presented in Table 9, differ between the first 3 years of operation and the remaining years, as it was assumed that a Council supplied vehicle would be available for the first 3 years. Due to procurement of a new vehicle after the third year of operation, it is anticipated that the first 3 years of operation will be cheaper than the remaining years.

4 Commercial Viability of Various Private and Council Operations

Table 9 also shows the total costs and bin charges for Council if a loan at 8% interest rate was obtained versus an interest rate of 0%.

The bin charges in Table 9 above do not take into account profit. They are minimum fees which would need to be charged to recover costs. Profit would have to be added to the bin charges for the private operations.

From the calculations it appears as though the cheapest operations for skip bin pick up are that of Private 3 and Council 3. For Private 3, an extra amount has to be added to the bin charge for profit. Both Private 3 and Council 3 are based on a combined skip and wheelie bin vehicle. It must be noted that the combined vehicles may not be the most productive option because they are heavier vehicles than the regular skip bin or wheelie bin collection vehicle; their payload capacity is less. This has not been taken into account in the calculations.

The next best option for skip bin pick up is Council 1 or 2 with 0% interest rate.

The best operation for wheelie bin pick up is that of Council 4.

The best overall operation for both skip bin and wheelie bin pick up is Council 4.

4 Commercial Viability of Various Private and Council Operations

Table 9 Total costs and bin charges for various private and council collection services

Operation	First 3 years								After 3 years							
	Total Cost with 8% Interest		Total Cost with 0% Interest		Total Charge with 8% Interest		Total Charge with 0% Interest		Total Cost with 8% Interest		Total Cost with 0% Interest		Total Charge with 8% Interest		Total Charge with 0% Interest	
	Skip*	Wheel#	Skip	Wheel	Skip	Wheel	Skip	Wheel	Skip	Wheel	Skip	Wheel	Skip	Wheel	Skip	Wheel
Private 1	\$67,029	-	-	-	\$27	-	-	-	\$112,161	-	-	-	\$45	-	-	-
Private 2	\$79,828	-	-	-	\$32	-	-	-	\$124,960	-	-	-	\$50	-	-	-
Council 1	\$67,029	-	\$65,524	-	\$27	-	\$26	-	\$112,161	-	\$93,868	-	\$45	-	\$38	-
Council 2	\$74,004	\$89,700	\$63,899	\$88,998	\$30	\$4.30	\$26	\$4.30	\$119,136	\$89,700	\$92,243	\$88,998	\$48	\$4.30	\$37	\$4.30
Private 3	\$78,952	\$78,461	-	-	\$31	\$3.80	-	-	\$78,952	\$78,461	-	-	\$31	\$3.80	-	-
Council 3	\$65,404	\$89,700	\$63,899	\$88,998	\$26	\$4.30	\$26	\$4.30	\$89,241	\$89,732	\$75,300	\$76,594	\$36	\$4.30	\$30	\$3.70
Council 4	\$78,879	\$94,575	\$68,774	\$93,873	\$32	\$1.80	\$28	\$1.80	\$124,011	\$94,575	\$97,118	\$93,873	\$50	\$1.80	\$39	\$1.80
Private 4	\$87,161	\$87,161	-	-	\$35	\$2.80	-	-	\$87,161	\$87,161	-	-	\$35	\$2.80	-	-
Private 5	-	\$155,242	-	-	-	\$2.70	-	-	-	\$155,242	-	-	-	\$2.70	-	-
Council 5	-	\$155,252	-	\$154,189	-	\$2.70	-	\$2.70	-	\$155,252	-	\$154,189	-	\$2.70	-	\$2.70

Note:

* Skip refers to skip bin (3m³ bin)

Wheel refers to wheelie bin (240L bin)

4 Commercial Viability of Various Private and Council Operations

The most financially feasible operations are summarised below:

Table 10: Summary of most financially feasible options

Skip Bin Pick Up	Council 1: Council skip bin pick up for 3 years followed by the purchase of a new skip bin truck at 0% interest for commercial service.
	Council 2: Council skip bin pick up and wheelie bin pick up with the current Council trucks for 3 years followed by the purchase of a new skip bin truck at 0% interest for commercial service
Wheelie Bin Pick Up	Council 4: Council skip bin and wheelie bin pick up using Council trucks for 3 years, followed by the purchase of a new skip bin truck for both commercial and domestic services.
Skip Bin and Wheelie Bin Pick Up	Council 4: Council skip bin and wheelie bin pick up using Council trucks for 3 years, followed by the purchase of a new skip bin truck at 0% interest for both commercial and domestic services

4.2.2 Issues

With each of the operations considered there are many associated assumptions and issues. The calculations do not take into account socio-economic effects caused by the operations. Consideration should be given to other impacts in addition to the economic viability calculations. Some of the potential issues are discussed in this section.

As mentioned earlier there are currently several small private contractors which service some of the commercial establishments. These businesses may suffer with the introduction of a collection service specifically for commercial establishments.

Council has highlighted the issue of not being able to relinquish the domestic service due to sensitive union issues. This impact on Private 4 and Private 5 operations needs to be considered.

By having a service dedicated to commercial establishments, the number of personal trips to the landfill are reduced and this in turn may reduce the amount of recyclables, which are separated from the waste stream.

4.3 Assumptions

The calculations for commercial viability of various options of waste collection on Kangaroo Island are based on the following:

- There are 4,000 tonnes of waste available for collection per year on the island, inclusive of tourism.
- 1,500 tonnes are available to be picked up via skip bin (3m³ bins) operation for commercial establishments (inclusive of rural establishments) as well as from the transfer stations at Parndana and Penneshaw.
- 1,500 tonnes are currently being picked up via Council's domestic run using wheelie bins.
- There is a potential for a further 1,000 tonnes to be picked up from commercial establishments via wheelie bins. This would require an additional 200 bins.
- Wheelie bins are \$70 each to purchase.

4 Commercial Viability of Various Private and Council Operations

- Skip bins can be bought second hand at \$1,000 each.
- The total operational life is taken to be 15 years.
- The current Council skip bin truck has a remaining life of 3 years.
- There are 40 businesses interested in having a skip bin service.
- There are 10 skip bins which are readily available for use.
- Thirty additional skip bins are required to service the remaining 30 businesses.
- The Kingscote/Parndana/Rocky Rivers/Vivonne Bay/Kingscote and the Kingscote/Penneshaw/American River/Kingscote routes are 330km combined.
- For Council operations variations in interest rates were calculated. One is using an 8% commercial interest rate for capital expenditures. The other is based on an interest rate of 0%, i.e. low rate loans are available to Council through organisations such as the LGA.
- Revenue from transfer stations is the disposal fee at the Kingscote landfill. This has only been included for the skip bin operations.
- The cost of a new wheelie bin truck is \$210,000, and a new front lift truck costs \$270,000. A refuse vehicle manufacturer, Superior Pak in Brisbane, has provided these figures.
- The capitalisation cost for the skip bin truck is based on figures provided by Council to the Kangaroo Island Development Board.
- Operating costs for the skip bin and wheelie bin trucks are based on figures provided by Council to the Kangaroo Island Development Board (refer to Appendix C).
- The capitalisation cost for a wheelie bin truck is based on a new truck at a cost of \$210,000 amortised over 15 years (the assumed life of operation).

4.4 Council Supplied Options

During the Kangaroo Island visit on 27-29 January 2003, Maunsell became aware of a workshop document owned by Council which evaluated waste collection options. This document was received on 14 February 2003. Due to its availability late in the study period, it was not incorporated into the viability studies.

5 Recycling

5 Recycling

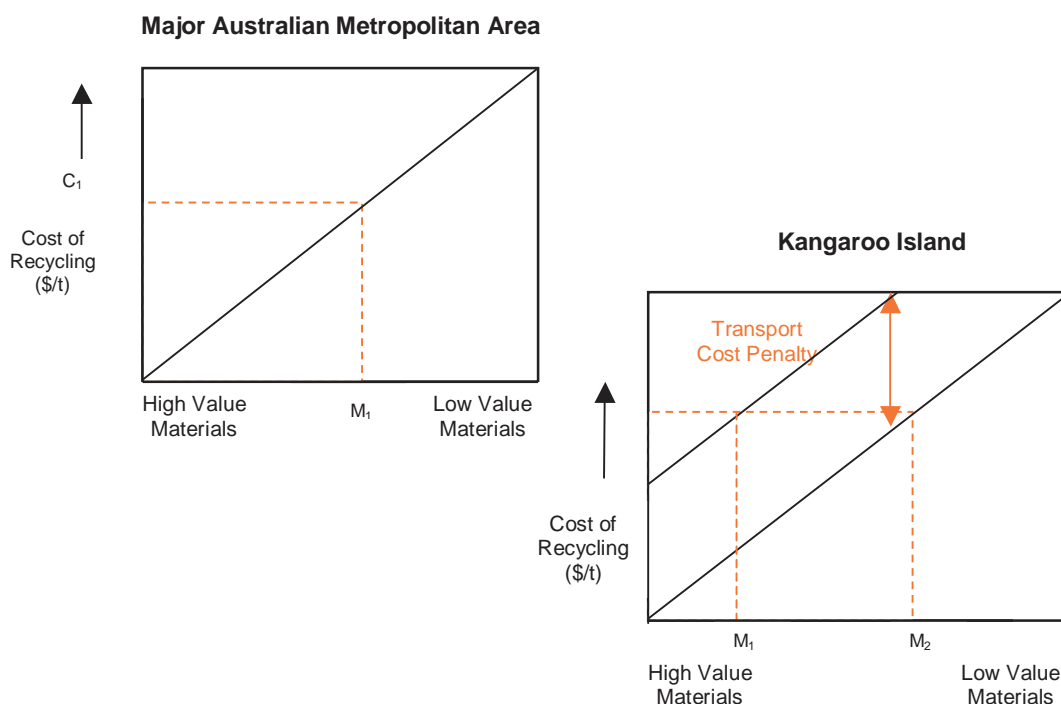
5.1 General

As part of Council's 2002 Strategic Plan, five key goals were identified. The first goal is that of 'The sustainable management of our natural environment'. As part of this goal Council plans to review the current waste management strategy and investigate the feasibility of establishing recycling services.

For recycling services to succeed on Kangaroo Island, Council's leadership in identifying and supporting community and industry initiatives will be important. Council's strategic planning comes at a time where recycling in Australia is taking place against a sometimes unfavourable external environment in the guise of falling commodity prices and rising service costs for local government.

In addition, the geographic location of Kangaroo Island may hinder recycling activities due to the costs associated with the transport of recyclables to markets. A brief description of the impacts of transport costs is provided below.

Transport costs are incurred when recyclables are transferred to markets elsewhere in Australia. Transport costs on the basis of back loading opportunities are expected to be in the order of \$100/t to \$150/t. Assuming similar collection and preliminary processing costs on Kangaroo Island as elsewhere in Australia, the transport costs will reduce the financial viability of recycling activities. It is expected that only the recycling of high value materials (e.g. aluminium, glass, PET) will be financially attractive. Low value materials (e.g. paper, cardboard, timber) are unlikely to be recycled commercially if processing is to take place off the island. This situation is described in the following charts:



5 Recycling

5.2 Current Recycling Services on Kangaroo Island

5.2.1 Island Recycling

Island Recycling is a privately operated recycling depot, which accepts various types of wastes. For some waste types, such as deposit cans, bottles, cartons and scrap metal a refund is available. For other waste such as car batteries and non-deposit glass bottles no refund is provided.

Island Recycling is dependent upon residents and businesses separating their recyclable material and dropping it off at the depot in Kingscote. The operator then further separates the deposit and non-deposit materials and calculates the refund amount.

Many residents and businesses take their recyclables to the depot as a part of their weekly trip to the Kingscote landfill. There may be risk of reducing such initiative if a generic non-discriminatory commercial collection system was to be established.

5.2.2 Cardboard and Paper Wastes

Island Recycling had been approached with regards to providing services for the recycling of paper and cardboard. Due to the voluminous nature of the waste and its low commodity value, the labour of stacking the cardboard and the transport costs of back loading to Adelaide are expected to be in excess of any revenue received at the other end. Even with the use of an efficient shredder to reduce volumes the cost would be in excess of revenue.

5.2.3 Green Wastes

A similar issue exists with green wastes (garden wastes). It would be too expensive to transport this material to Adelaide. Likewise it is too expensive to have a specific pick up around the island for green waste. Therefore once again any collection of green waste would be dependent upon residents themselves.

Currently Council provides a shredding service at the Kingscote landfill for green wastes. The shredded green waste becomes a low quality source of mulch. The mulch is available to the community at Kingscote landfill at no charge. The availability of such mulch should be more widely advertised on Kangaroo Island, as many people were not aware that such a service exists. However the potential for spreading weeds by distributing this type of material would also need to be considered.

5.3 Waste Oil

As of 6 March 2003, Council announced that automotive tyres, waste engine oil and batteries were no longer to be accepted at the transfer stations or Kingscote landfill.

Currently waste oil is collected from commercial establishments on Kangaroo Island by Nationwide. The collection service for waste oil is provided free of charge to establishments which have more than a minimum 400L-600L of waste oil. Due to the expense of the ferry, Nationwide Oil first telephone all their collection locations to ensure that there will be sufficient amounts of oil to warrant a pick up. This generally corresponds to visits being made to the island on a 3 monthly basis.

5 Recycling

Nationwide Oil have indicated an interest in extending their service to individual farms or collection points, provided that there is a minimum of 400 to 600L of waste oil to be collected from each pick up location.

The collected waste oil is transported to a terminal in Adelaide where it is refined. Some of the refined oil is then transported to Melbourne and the remaining oil is recycled in South Australian power plants.

5.4 Car Tyres and Batteries

There are plans in place for a tyre storage facility to be established on Council land to address the EPA ban on tyre disposal at the Council waste depots. Residents as well as businesses could dispose of their tyres at the designated site. Every six months a tyre shredder from Adelaide would be hired by Council to shred the tyres and transport them back to Adelaide for landfilling.

Initially it is anticipated that no charge would be applied for tyre disposal, to encourage the disposal of old tyres. After a period of time, Council would establish a fee structure for tyre disposal, which would cover the expenses of shredding and final disposal to landfill.

Car batteries are accepted, free of charge, at Island Recycling and certain garages.

5.5 Community Recycling Activities

There are several community based recycling activities on Kangaroo Island for the purposes of fund raising. These activities are based on residents giving their deposit containers to the local CFS or other organisations. The organisations then sort the deposit containers and take them back to Island Recycling to collect the refund. The refund acts as an additional source of funding.

5.6 Further Recycling Opportunities and Markets for Recycled Products

In addition to the green waste being converted to mulch, a more efficient shredder could be purchased by Council which could also shred cardboard. Cardboard and green wastes could be shredded together for mulch.

It may be possible to overcome the transport cost barrier by seeking State or Federal government funding for transporting recyclable materials to processing centres. These funding opportunities could be explored by Council.

6 Education and Waste Minimisation

6 Education and Waste Minimisation

6.1 General

This section looks at waste minimisation activities and community education with the view that Council would be best positioned to carry out such strategies.

6.2 Waste Minimisation Strategy

Waste minimisation and waste avoidance is achieved at the place of waste generation. Changes to current operational practices may avoid the generation of waste. Examples of such waste minimisation activities include:

- less packaging materials, eg used by food outlets, general stores, agricultural supplies
- reuse of packaging and storage containers, eg the refilling of toner cartridges for printers
- revised practices by industry, eg alternative process or production, technologies which will create less waste per output unit

Waste minimisation will commence with waste audits, which will assess the quality and composition of wastes produced by particular processes or activities.

Most waste minimisation opportunities are outside the direct control of Council. To achieve waste minimisation, Council has the opportunity to promote waste minimisation amongst industry, eg by means of workshop and other educational efforts, and to encourage industry to conduct waste audits and subsequently change practices by part-funding waste audits. The success of waste audits will be dependent on environmental commitments by individual businesses and the financial benefit gained by those organisations if work practices are adjusted.

To set an example of its commitment to waste minimisation, Council could conduct a waste audit of its own operations. This could be followed by adjustments to current operational practices and its purchasing policy, if considered necessary.

6.3 Promotion and Education

Waste minimisation and participation in recycling and waste management activities require both promotion and education to ensure that the general public and commercial sector including the agricultural industries will be informed of opportunities which exist on Kangaroo Island. Examples of waste management activities which require promotion are the ChemCollect, drum muster and 'drop and swap' programs. A flexible education strategy needs to be developed to achieve:

- Possible reinforcement of the need for effective waste minimisation strategy and management
- A flow of information on the benefits of effective waste management
- Identification of the benefits and outcomes derived from waste reduction activities

6 Education and Waste Minimisation

Council could be responsible for:

- Promotion via newspapers, radio and television
- Provision of pamphlets to all commercial/industrial operators
- Conducting workshops for all commercial/industrial operators
- Promotion at primary and secondary school level

7 Other Incentives

7 Other Incentives

7.1 General

There are other means of fund raising for the purposes of environmental protection, which should be considered in order to expand recycling opportunities and maintenance of the landfill. These are political in nature and are beyond the scope of this study, however they are mentioned below.

7.2 Environmental Levy

There is an opportunity for an additional fee to be added on to ferry or air fares, which would go towards environmental protection on the island. The fee would apply to tourists visiting the island. There is already an adopted mechanism in place by ferry and air services which differentiates between local residents and tourists, as locals pay a cheaper rate than tourists. Therefore implementing an environmental levy should not require any further significant infrastructure on behalf of the transportation industry.

As the transportation costs to the island are already expensive, an additional small charge for an environmental levy is not expected to significantly deter tourists wanting to visit the island.

The money raised from the levy could go towards Council funding such activities as a recycling collection service, recyclable material transported to Adelaide for processing, increased number of public bins and improved landfill infrastructure.

7.3 Other Economic Incentives

Other incentives which were suggested by respondents to the questionnaire include:

- giving people refunds when they take their rubbish with them off the island.
- trucks delivering goods for businesses to go back to the mainland with cardboard or other packaging waste which they had delivered

While these suggestions have merit they require further evaluation.

8 Summary

8 Summary

Kangaroo Island's demographical and geographical factors makes implementation of waste management practices challenging. Nevertheless it is a necessity as the tourism industry is based on the ecological diversity of the island and primary production is promoted as being 'clean and green'. Maintaining environmental integrity should be a priority.

This study sets out to investigate the current practices adopted by the commercial sector with respect to waste management. This was undertaken through a telephone questionnaire of most of the businesses on the island, followed by interviews with key stakeholders on the island.

Results from the questionnaire and interviews show that there are currently three ways of managing waste from commercial establishments: personal drop off at the transfer stations of Kingscote landfill, small private contractor pick up or Council pick up. It appears that most businesses are content with current practices, however would prefer more opportunities for recycling.

The commercial viability study of various private and Council operations showed that there are many assumptions required to determine the total cost and bin charges. Nevertheless the study showed that Council operations can be potentially cheaper to the community than private operations due to:

- access to lower interest rate loans
- no need for commercially acceptable profit

The most feasible operations are summarised below.

Table 11: Summary of financially feasible options

Skip Bin Pick Up	Council 1: Council skip bin pick up for 3 years followed by the purchase of a new skip bin truck at 0% interest for commercial service.
	Council 2: Council skip bin pick up and wheelie bin pick up with the current Council trucks for 3 years followed by the purchase of a new skip bin truck at 0% interest for commercial service
Wheelie Bin Pick Up	Council 4: Council skip bin and wheelie bin pick up using Council trucks for 3 years, followed by the purchase of a new skip bin truck for both commercial and domestic services.
Skip Bin and Wheelie Bin Pick Up	Council 4: Council skip bin and wheelie bin pick up using Council trucks for 3 years, followed by the purchase of a new skip bin truck at 0% interest for both commercial and domestic services

There are limited opportunities for recycling without access to government grants. One action which could be undertaken by Council, is the purchasing and operation of a cardboard shredder for mulch.

Waste minimisation and education form very important parts of any waste management strategy. Promoting and educating industry on waste minimisation techniques is a way of attacking the problem at the front end.

Other incentives were also briefly discussed, with an environmental levy being an option worth considering for fund raising towards maintaining the environmental integrity of the island.

Appendix A Council Operations

**Appendix B Commercial Sector Waste Survey
Results and Calculations**

Appendix C Commercial Viability Calculations
