



**LOCAL GOVERNMENT DATA COLLECTION 2001-2002
KERBSIDE WASTE MANAGEMENT SERVICES**

May 2003

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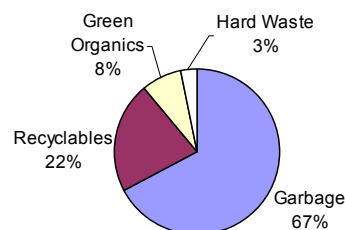
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EXECUTIVE SUMMARY

Total Waste

- Kerbside services collected 1.66 M tonnes in Victoria (nearly 61,000 tonnes more than in 2000/01)
- Garbage accounted for 67% or 1.12 M tonnes
- Victorians generated on average 946.8 kg per household per year (including garbage, recyclables, green organics and hard waste collections)
- The total kerbside collection expenditure by local government was nearly \$170 M
- State wide average recyclables diversion rate was 25%, up from last year's 23%

Composition of waste processed through kerbside services, Victoria 2001-2002



Garbage

- Average of 577 kg per household per year (620kg 2000/01)
- Local governments using smaller garbage bins generated less waste and had greater diversion rates than those using larger bins
- Average cost of \$51 per household per year

Recyclables

- Average of 197 kg per household per year (192kg 2000/01)
- 361,000 tonnes of recyclables were collected from kerbside services, up 7.1% from last year
- Mobile bin recyclable collection systems (collected fortnightly) delivered the greatest yield per household and diversion rate compared to the crate collection systems (collected weekly)
- The predominant bin system used for recyclables (41%) was a *crate* for containers and *tied bundle* for paper
- Average cost of \$28 per household per year
- The average reported contamination rate for recyclables was 6.5%
- By weight of recyclable material collected (exc. green organics) from kerbside collections, paper/cardboard accounted for 58%, glass containers 29% and plastic 7.5%

Regional waste generation, Victoria 2001-2002

Regional Waste Management Group	Total waste generation (kg per household) ¹	Recyclables diversion rate (%)
South Western	539.6	27.9
Mildura	588.9	23.8
Highlands	664.3	24.6
Desert Fringe	705.1	36.0
Leastwaste	726.8	32.1
Barwon	736.5	19.4
Gippsland	737.4	19.6
Western	748.1	23.9
Northern	761.8	27.5
Mornington Peninsula	777.8	17.4
Central Murray	800.2	29.8
South Eastern	810.6	27.1
Grampians	876.8	20.3
North Eastern	893.4	31.9
Goulburn Valley	938.5	20.7
Calder	999.1	15.1
State average	774.0	25.4

¹Only includes garbage and recyclables

Green organics

- 38 out of 78 local governments provided a green organics collection service
- 132,000 tonnes of green organics were collected from kerbside services (8% of total kerbside waste stream)
- On average, 119 kg of green organics collected per household, costing \$13 per household

Hard waste

- 41 out of 78 local governments provided a hard waste collection service
- Over 53,000 tonnes collected and 41,000 tonnes disposed to landfill, representing a 23% diversion rate
- On average, 53 kg of hard waste collected per household per year, costing \$5 per household

Environmental benefits from kerbside recycling

The environmental savings are equivalent to:

- Filling 37% of Maroondah Reservoir's storage capacity (8,143 megalitres of water)
- Taking 46,951 cars off the road (281,705 T of greenhouse gases)
- Supplying energy used by nearly all households in Greater Dandenong, Casey and Frankston Council areas combined (788,030 MWh of energy)

Commercial & Industrial kerbside services

- Only 2 councils provided a separate commercial and industrial kerbside recyclables service to 8,100 properties
- A further 70,070 properties were serviced within the domestic garbage service and 33,450 within the domestic recyclables service

Street sweeping and litter services

- Street sweeping cost local governments \$30 M
- Nearly 784,000 km of kerb and channel were swept
- Litter services (i.e. maintaining litter bins and traps) cost over \$12 M
- 514 penalty infringement notices were issued in 2001-2002; metro local governments issued nearly three quarters of these

Landfills & transfer stations

- 163 local government owned landfills operated during 2001-2002, 58 of which were licensed
- 193 transfer stations operated during the same period
- \$47 M was spent on operating the landfills and transfer stations
- Green organics accounted for 61% of all materials recovered at landfills and 46% at transfer stations

Kerbside services provided by number of local governments, Victoria 2001-2002

<i>Kerbside service</i>	<i>Metro (no.)</i>	<i>Non- Metro (no.)</i>	<i>Total (no.)</i>	<i>Total as a proportion of councils (%)</i>
Garbage	31	47	78	100.0
Recyclables	31	44	75	96.2
Green Organics	28	10	38	48.7
Hard Waste	29	12	41	52.6
Commercial and Industrial Recyclables	2	0	2	2.6
Street Sweeping	31	41	72	92.3
Litter Service	31	38	69	88.5

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INTRODUCTION

In September 2002 EcoRecycle Victoria collected data on the waste and recycling services provided by Victorian local governments, as part of the Local Government Data Collection 2001-2002¹ program.

This is the second in the series of surveys undertaken for Victoria and enables the performance of the cost and yield of municipal kerbside services to be evaluated over time.

As comparisons of performance over time become available, the data will play a vital role in the formulation of future policy directions for waste management services throughout the state as well as provide a measure of Victoria's progress towards the delivery of efficient and sustainable kerbside services.

EcoRecycle gratefully acknowledges the co-operation of Victorian local governments, Regional Waste Management Groups and the Municipal Association of Victoria in achieving a 100% response rate to the survey (78 local governments). For the first time, some data is also included for three (3) Alpine Resorts² from the North Eastern Regional Waste Management Group, namely Falls Creek, Mount Hotham and Mount Buller. However, unless specifically stated, the figures in this report do not include those from the Alpine Resorts. See Appendix A Methodology.

The data collection³ extended to the following service areas:

- Household garbage collection and disposal
- Household recyclables collection and sorting
- Household green organics collection and processing
- Household hard waste collection, recycling and disposal
- Commercial and industrial sector recyclables collection and sorting
- Litter bin and litter trap collection and disposal
- Street sweeping
- Landfill and transfer station operating details and resource recovery collection

The data collected has been organised in this report under a number of broad section headings:

1. Household Waste Generation

This section focuses on the total generation of waste by Victorian households that is then collected through kerbside services.

2. Local Government Household Kerbside Services

Kerbside services provided through local government for the collection of household garbage, recyclables, green organics and hard waste is covered more specifically in this section.

¹ Formerly known as the *Municipal Data Collection*.

² For the purpose of waste reporting, EPA legislation considers Alpine Resorts as municipalities.

³ The data collection separated kerbside services from services provided by local government owned drop-off facilities at landfills and transfer stations

As well as providing an overview of the services, the section draws on the data collected and analyses the *efficiency* of these services in relation to costs, yields and access as well as to container type and service frequency.

3. Environmental Benefits from Kerbside Recycling

Applying the findings of The Independent Assessment of Kerbside Recycling in Australia⁴ and the Life Cycle Assessment for Paper and Packaging Waste Management Scenarios Victoria⁵ to the collected data, this section looks at the environmental benefits gained from kerbside recycling in Victoria during 2001-2002.

4. Commercial and Industrial Kerbside Services

The focus of this section is the range of kerbside collections to commerce and industry provided by local government.

5. Street Sweeping and Litter Services

The cost of litter and street sweeping services is covered in this section. Litter services include collecting waste from litter bins and litter traps, as well as further detail on a small range of other litter service functions.

6. Landfills and Transfer Stations

This section deals with the numbers and operating details of local government owned and operated landfills (licensed and unlicensed) and transfer stations. Also included are the type and quantities of items recovered for recycling.

7. Alpine Resorts

This section deals with the waste services provided by Alpine Resorts, including kerbside services, street sweeping and litter services.

⁴ National Packaging Covenant Council *The Independent Assessment of Kerbside Recycling in Australia* January 2001

⁵ Grant T, James KL, Lundie S, Sonneveld K (2001) *Stage 2 Report for Life Cycle Assessment for Paper and Packaging Waste Management Scenarios in Victoria*, Centre for Design at RMIT, Melbourne.

EcoRecycle has sought to verify information provided in data collection returns through rigorous follow-up with individual local governments. However, EcoRecycle is not in a position to validate underlying data in the report. Findings in this report are therefore subject to the accuracy of data provided by individual local governments.

As more data becomes available through future annual data collections, comparisons of individual Regional Waste Management Groups' performances over time as well as with other areas of the state will be possible. This will provide an important tool to assist the Victorian Government and Regional Waste Management Groups assess the impact of waste minimisation and recycling initiatives across the state.

Together the data will play a vital role in the formulation of future policy directions for waste management services throughout the state as well as provide a measure of Victoria's progress towards the delivery of efficient and sustainable kerbside services.

1. HOUSEHOLD WASTE GENERATION

The focus of this section is on the generation of waste by Victorian households.

Household waste generation is closely linked to Victorian household consumption patterns. It is a clear measure of the state's progress towards the sustainable use of resources.

It is important to note that the local government data collection only measures wastes collected through kerbside services. It does not include quantities of wastes disposed of through drop-off at transfer stations or landfills, or wastes removed through private contractors outside the local government kerbside system.

The data collected revealed that Victorians generated 1.66 million tonnes of solid waste through kerbside collection services in 2001-2002.

More ambitious household waste reduction targets will be necessary if Victoria is to make genuine progress towards reducing the total amount of household waste sent to landfill and to move towards the more sustainable use of resources.

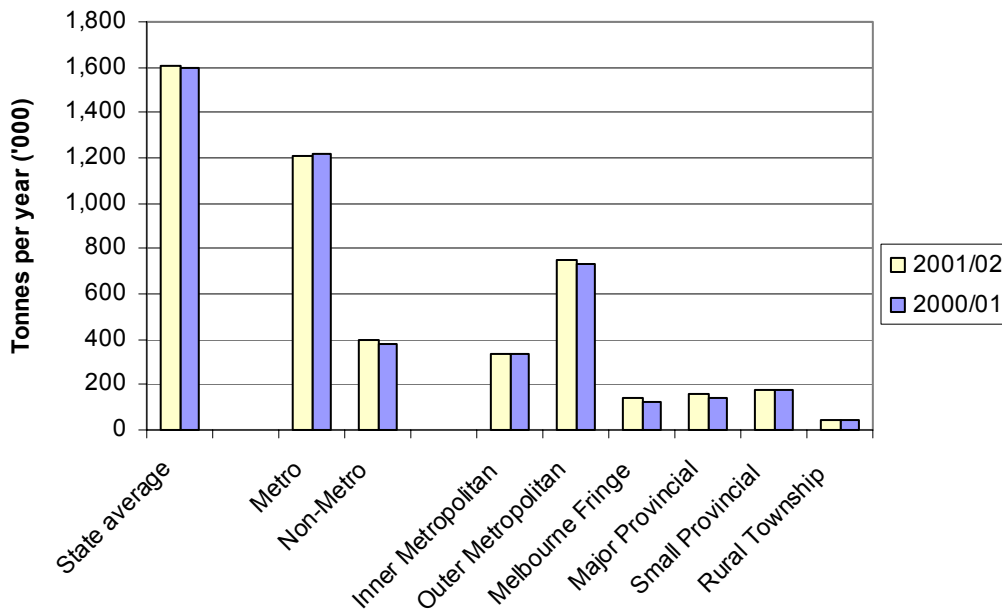
Key findings include:

- **Total Waste Generated**

Victorians generated 1,662,078 tonnes of solid waste through kerbside collection services in 2001-2002. This represents an increase of 3.8% from the 1,601,278 tonnes generated in 2000-2001. This figure encompasses the garbage, recyclables, green organics and hard waste services. The Alpine Resorts contributed a further 2,238 tonnes of solid waste through their kerbside collections.

With hard waste services and the Alpine Resorts excluded, the total waste generated amounted to 1.6 million tonnes (see Figure 1).

Figure 1 – *Waste generation, Victoria 2000-2002



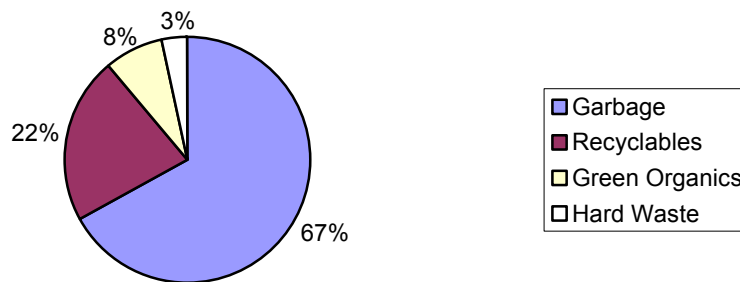
*Waste generation includes garbage, recyclables and green organics but excludes hard waste. Figures also exclude the 3 Alpine resorts.

Definitions of the six service provision categories used in Figure 1 are provided in Appendix B and a list of all local governments, classified by service provision, Regional Waste Management Group and metro/non-metro classification, is located in Appendix C.

• Composition

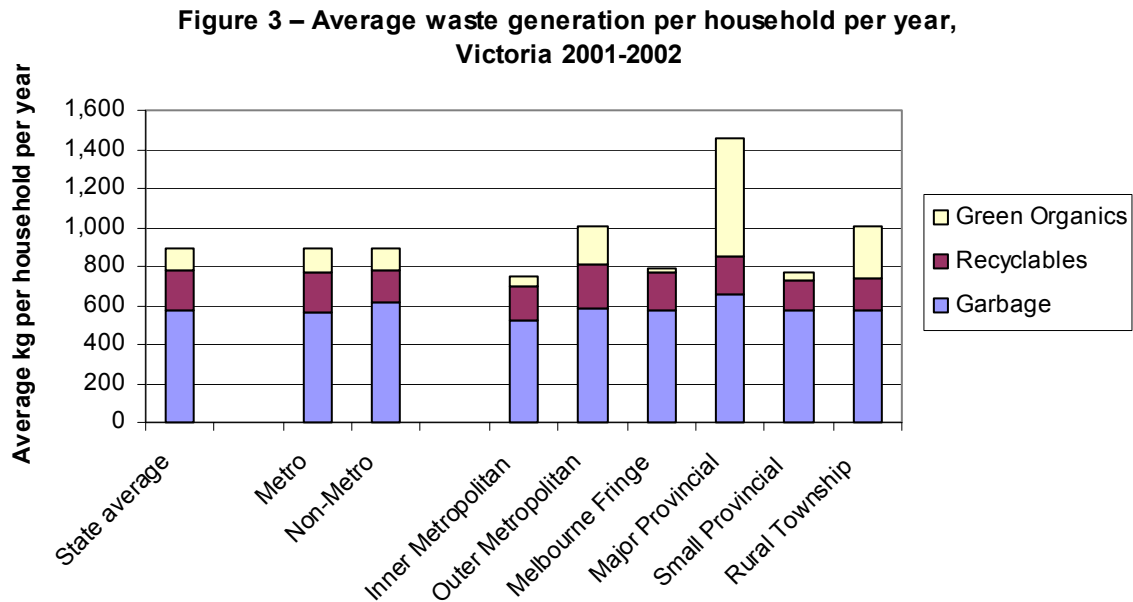
Of the total amount of waste generated, garbage accounted for 67% of the total, with recyclables, green organics and hard waste making up the remainder (see Figure 2).

Figure 2 – Composition of waste processed through kerbside services, Victoria 2001-2002



- **Waste generation per Victorian household**

Victorian households generated on average 946.8 kg of waste per year (including garbage, recyclables, green organics and hard waste), 577.4 kg of which was garbage (Figure 3). The chart below excludes hard waste.



- **Waste generated per geographic sector: volume**

The proportions between the waste generation averages⁶ of metropolitan (metro) and non-metropolitan (non-metro) local governments showed little differences while the differences between the service provision categories were pronounced. Major provincial local governments for instance, showed a disproportionate average kg per household for green organics of 42%, compared against the State average of only 13% and Melbourne fringe local governments with a low of 3%.

In terms of volume, outer metropolitan local governments generated most of Victoria’s total waste stream and accounted for 754,000 tonnes or 47% of the total (Figure 1).

- **Waste generated per geographic sector: composition**

Non-metro households generated 50 kg more per household of garbage than metro households. Non-metro households generated on average 36 kg (18%) less per household of recyclables per year than metro households.

- **Waste generated per region**

The waste generation figures shown in Table 1 include figures only for garbage and recyclables. Green organics are not included because the majority of local governments do not provide a green organics kerbside service. In order to ensure a consistent and equitable comparison of Regional Waste Management Groups (RWMG), green organics have therefore not been included in Table 1 and Figures 4, 5 and 6.

⁶ Average quantity garbage + recyclables + green organics per household per year

Of the regions, Desert Fringe achieved the highest average diversion rate with 36%, well above the State average rate of 25.4% (see Table 1).

Calder was the highest average waste generator at 999.1 kg per household per year (see Figure 4)⁷ and recorded the lowest diversion rate with 15% (see Figure 5).

Table 1 – Regional waste generation, Victoria 2001-2002

<i>Regional Waste Management Groups</i>	<i>kg per household per year</i>			
	¹ <i>Garbage</i>	<i>Recyclables</i>	<i>Total waste generation</i>	<i>Diversion rate (%)</i>
South Western	388.8	150.8	539.6	27.9
Mildura	448.9	140.1	588.9	23.8
Highlands	501.1	163.1	664.3	24.6
Desert Fringe	451.0	254.1	705.1	36.0
Leastwaste	493.9	233.0	726.8	32.1
Barwon	593.5	143.0	736.5	19.4
Gippsland	592.8	144.6	737.4	19.6
Western	569.1	178.9	748.1	23.9
Northern	552.1	209.8	761.8	27.5
Mornington Peninsula	642.2	135.5	777.8	17.4
Central Murray	562.0	238.3	800.2	29.8
South Eastern	591.3	219.4	810.6	27.1
Grampians	698.6	178.2	876.8	20.3
² North Eastern	608.2	285.3	893.4	31.9
Goulburn Valley	743.8	194.7	938.5	20.7
Calder	848.7	150.4	999.1	15.1
¹ <i>State average</i>	<i>577.1</i>	<i>196.9</i>	<i>774.0</i>	<i>25.4</i>

¹Excludes local governments without a kerbside recyclables collection service, i.e. Golden Plains, Loddon and Yarriambiack

²Excludes the 3 Alpine Resorts of Falls Creek, Mount Hotham and Mount Buller

More detailed information on total waste generation and cost per household for garbage, recyclables and green organic collections for each local government is available in Appendix D.

⁷ Green organics are not included in the figures for regional waste generation due to the variable nature of this collection service amongst local governments within regions.

Figure 4 – Average household waste generation by regional waste management group, Victoria 2001-2002

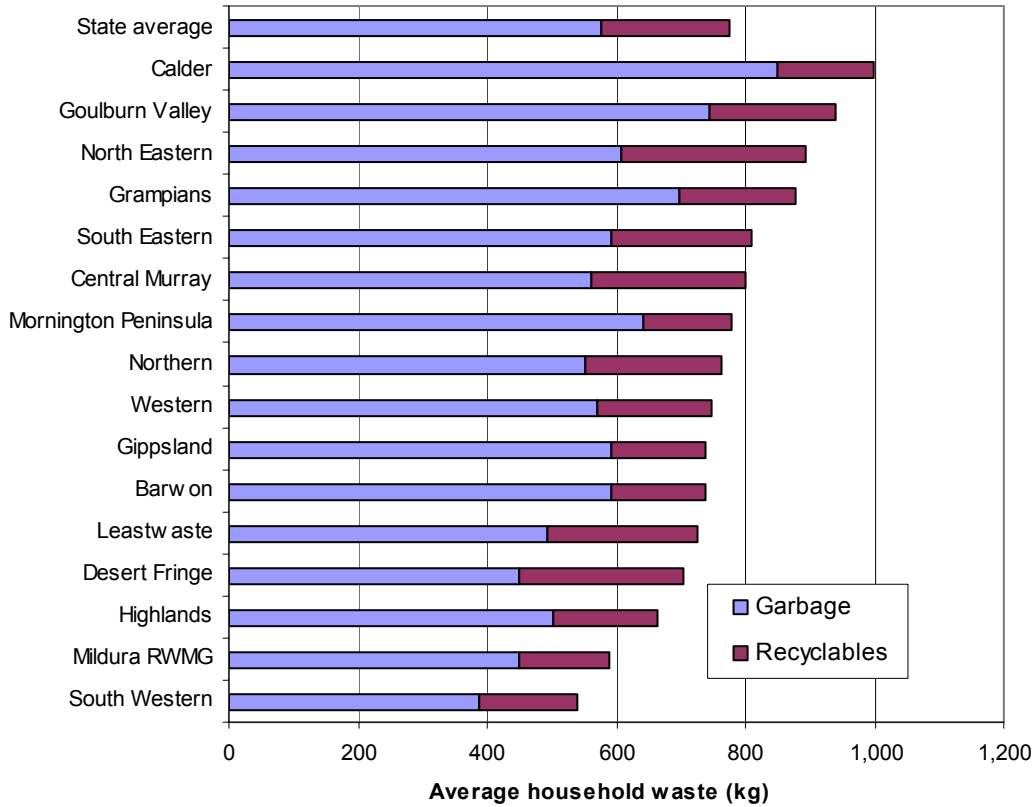


Figure 5 – Average waste diversion by regional waste management group, Victoria 2001-2002

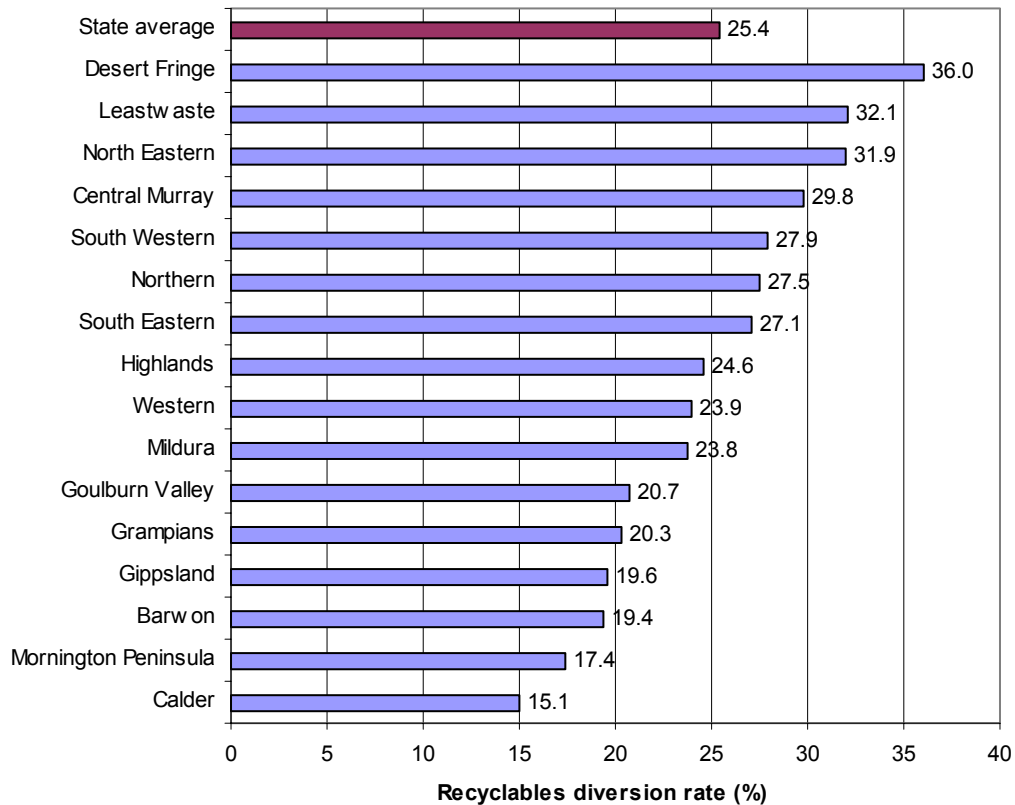
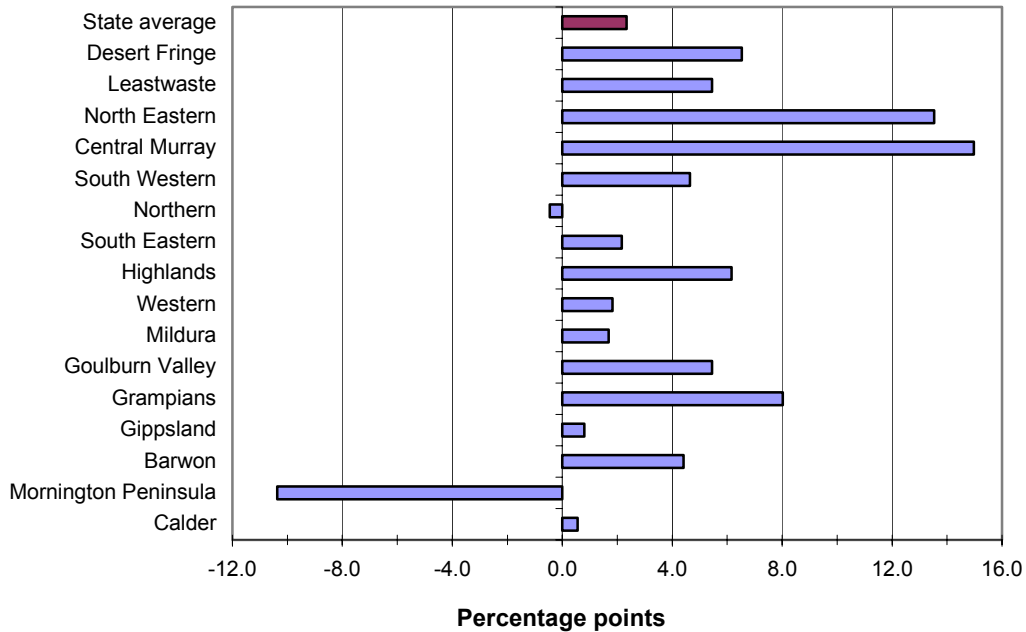


Figure 6 below shows the change in diversion rate by regional waste management groups compared to last year's data of 2000-2001.

Figure 6 – Diversion rate, change from previous year by regional waste management group, Victoria 2000-2002



Some of the changes are large in both directions. Mornington Peninsula RWMG for instance shows a large decrease of over 10 percentage points compared to last year. Variations may be explained by the following factors:

- A single council regional waste management group can show large variations in data due to changes in relatively small proportion of quantities collected;
- The use of conversion factors for converting quantities collected from *cubic metres* to *tonnes* may be different from one year to the next;
- Compaction factors may be used but not reported for the tonnage collected, thus distorting the true value;
- A slight change in methodology from last year which included councils with kerbside garbage collection service but not a recyclables service in the calculation of diversion rate. This year, only councils with both garbage *and* recyclables service are included;
- 2 more councils now have a recyclables service, which will affect the diversion rate of the corresponding RWMG they belong to.

2. LOCAL GOVERNMENT HOUSEHOLD KERBSIDE SERVICES

Part two of this report provides an analysis of local government kerbside collection services. It is divided into five sections: a general overview, garbage services, recycling services, green organic services and hard waste services.

The focus of each section, drawing from the data provided by local government, is on the *efficiency* of these services. The key efficiency considerations are:

- *service* costs expressed both on a per household and per tonne basis
- *yields* or quantities collected
- *access* to kerbside services

2.1 Overview

This section of the report provides an overview of the kerbside collection services provided by Victorian local governments as well as some comparisons with last year's data where appropriate.

It is important to note that the data does not include waste disposed at drop-off facilities or by private contractors outside the local government system.

The amount spent by Victorian local governments on these services is considerable, nearly \$170 million (see Table 2), and representing 4.7% of total local government expenditure in Victoria in 2001-2002⁸.

Key findings include:

- **Overall cost of kerbside collection services**

Of the \$170 million spent by Victorian local governments on kerbside collection services for garbage, recyclables, green organics and hard waste during 2001-2002, 89% was on garbage and recyclable collection services (see Figure 7). Expenditure this year increased by \$14M over 2000-2001 representing a 9% increase.

⁸ Australian Bureau of Statistics, *ABS 5501.2 Local Government Finances, Victoria 1999-2000*, 2001 and estimates from MAV.

Figure 7 – Proportion of total kerbside service cost by type of service, Victoria 2001-2002

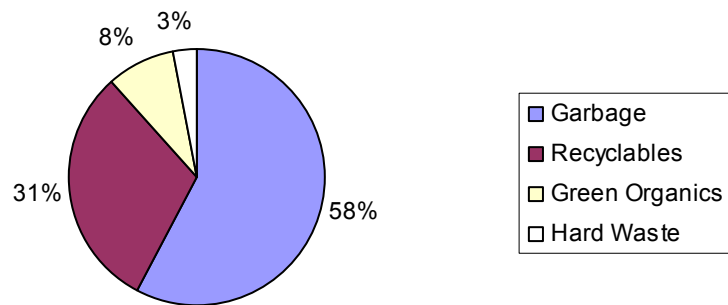


Table 2 – Kerbside services summary, Victoria 2001-2002¹

	<i>Garbage</i>	<i>Recyclables</i>	<i>Green Organics</i>	<i>Hard Waste</i>	<i>Total</i>
Metro					
Annual service cost	\$70,138,139	\$39,327,928	\$13,381,312	\$5,064,819	\$127,912,199
Tonnes collected	804,341	281,459	125,362	47,767	1,258,928
² Total households serviced	1,425,210	1,364,963	1,049,789	899,395	—
Average cost per tonne	\$87.20	\$139.73	\$106.00	\$107.45	\$101.60
Average cost per household per year	\$49.21	\$28.81	\$12.72	\$5.68	—
Average kg per household per year	564.4	206.2	120.0	52.9	—
Non Metro					
Annual service cost	\$27,714,788	\$12,886,609	\$1,045,990	\$266,589	\$41,913,977
Tonnes collected	311,327	79,475	6,768	5,579	403,149
² Total households serviced	506,897	467,889	63,745	101,620	—
Average cost per tonne	\$89.02	\$162.15	\$154.54	\$43.52	\$103.97
Average cost per household per year	\$54.68	\$27.54	\$16.41	\$2.49	—
Average kg per household per year	614.2	169.9	106.2	57.2	—
Total					
Annual service cost	\$97,852,927	\$52,214,538	\$14,427,302	\$5,331,408	\$169,826,175
Tonnes collected	1,115,668	360,934	132,130	53,346	1,662,078
² Total households serviced	1,932,107	1,832,852	1,113,534	1,001,015	—
Average cost per tonne	\$87.71	\$144.67	\$108.48	\$100.69	\$102.18
Average cost per household per year	\$50.65	\$28.49	\$12.93	\$5.37	—
Average kg per household per year	577.4	196.9	119.2	53.3	—

¹The base figures and averages exclude the Alpine Resorts. The averages also exclude partial figures from local governments that did not provide full figures for tonnage collected or cost of service.

²With some services, the number of households serviced also includes commercial and industrial properties serviced, particularly for the garbage and recyclables services

- **Geographic comparison**

Although there was little difference in the average kerbside service costs per household for recyclables between metro and non-metro local governments, the average cost for garbage was \$5.47 higher (11%) for non-metro local governments compared to metro (see Table 2).

- **Overall access to kerbside collection services**

Victorian household access to kerbside collection services is high, with 92% of households having access to kerbside recyclables collections and 95% access to garbage collections (see Table 3⁹).

Table 3 – Kerbside services by proportion of households receiving service, Victoria 2001-2002¹

<i>Kerbside service</i>	<i>Metro (%)</i>	<i>Non-Metro (%)</i>	<i>Total (%)</i>
Garbage	97.3	90.4	95.3
Recyclables	95.2	84.1	92.1
Green Organics	74.5	11.7	57.0
Hard Waste	63.8	18.7	51.3

¹Excludes the Alpine Resorts.

While Table 3 shows access to services at the household level, Table 4 presents the *number of local governments* providing each service. Nearly all Victorian local governments are providing a kerbside garbage and recyclables service with 100% and 96% respectively with 95% and 92% of households having access to the service. Drop-off facilities are generally established to assist where services are not provided.

Table 4 – Kerbside services provided by number of local governments, Victoria 2001-2002¹

<i>Kerbside service</i>	<i>Metro (no.)</i>	<i>Non-Metro (no.)</i>	<i>Total (no.)</i>	<i>Total as a proportion of councils (%)</i>
Garbage	31	47	78	100.0
Recyclables	31	44	75	96.2
Green Organics	28	10	38	48.7
Hard Waste	29	12	41	52.6
Commercial and Industrial Recyclables	2	0	2	2.6
Street Sweeping	31	41	72	92.3
Litter Service	31	38	69	88.5

¹Excludes the Alpine Resorts.

⁹ Some anomalies exist in the data due to the variations in the household populations reported in the survey. It is likely that some of the survey data contains commercial premises included with the residential household aggregates.

2.2 Garbage Services

This section of the report analyses local government kerbside services for the collection of garbage.

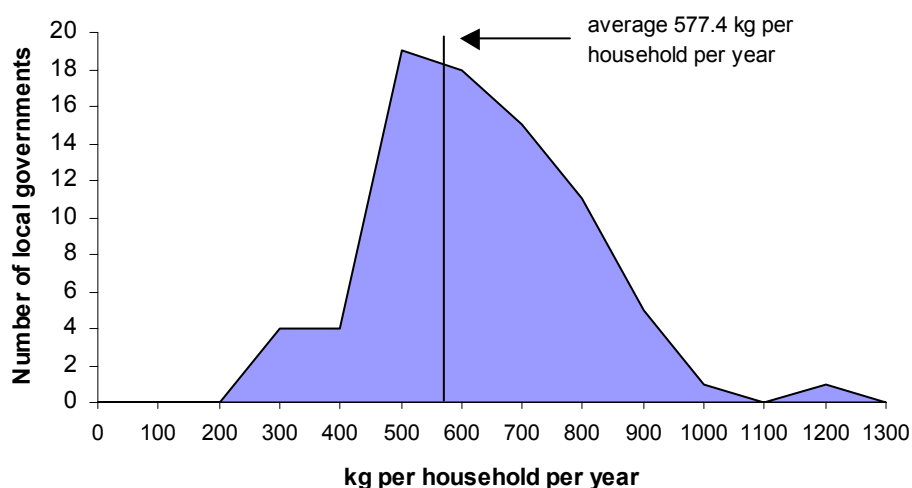
- **Access**

All 78 Councils have a kerbside garbage collection service that service 95% of Victorian households (see Table 3 and 4).

- **Yields**

Victorians generated an average of 577.4 kg (619.7 kg, 2000/01) of garbage per household per year, but this varied between local governments (Figure 8).

Figure 8 – Garbage, average kg per household per year across local governments, Victoria 2001-2002



- **Geographic comparison**

There is an 11% difference between metro and non-metro local governments in average cost per household with non-metro households paying more for the provision of a kerbside garbage service. Non-metro local governments also generated on average about 9% more garbage than metro local governments per household per year (see Table 2).

Transport distances and lower level road infrastructure are believed to lie behind the higher average cost per household of garbage services to rural township local governments relative to other service provision categories (see Table 5). Rural townships recorded \$25 more for the average cost per household per year compared to the State average.

Table 5 – Garbage services by service provision category, Victoria 2000-2002

	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
2001-2002							
Annual service cost	\$21,212,979	\$40,718,160	\$9,386,455	\$9,835,845	\$12,510,751	\$4,188,737	\$97,852,927
Tonnes collected	236,353	475,605	105,969	126,289	139,749	31,703	1,115,668
Total households serviced	453,748	807,339	183,196	191,245	241,385	55,194	1,932,107
Average cost per tonne	\$89.75	\$85.61	\$88.58	\$77.88	\$89.52	\$132.12	\$87.71
Average cost per household per year	\$46.75	\$50.44	\$51.24	\$51.43	\$51.83	\$75.89	\$50.65
Average kg per household per year	520.9	589.1	578.4	660.3	578.9	574.4	577.4
2000-2001*							
Annual service cost	\$20,954,210	\$38,982,100	\$9,782,914	\$7,656,090	\$12,391,502	\$4,133,953	\$93,900,769
Tonnes collected	237,876	497,168	93,213	115,681	137,947	38,340	1,120,226
Total households serviced	401,196	766,481	179,014	186,347	226,306	48,235	1,807,579
Average cost per tonne	\$88.09	\$78.41	\$104.95	\$66.18	\$89.83	\$107.82	\$83.82
Average cost per household per year	\$52.23	\$50.86	\$54.65	\$41.09	\$54.76	\$85.70	\$51.95
Average kg per household per year	592.9	648.6	520.7	620.8	609.6	794.9	619.7
Per cent change (%)							
Annual service cost	1.2%	4.5%	-4.1%	28.5%	1.0%	1.3%	4.2%
Tonnes collected	-0.6%	-4.3%	13.7%	9.2%	1.3%	-17.3%	-0.4%
Total households serviced	13.1%	5.3%	2.3%	2.6%	6.7%	14.4%	6.9%
Average cost per tonne	1.9%	9.2%	-15.6%	17.7%	-0.3%	22.5%	4.6%
Average cost per household per year	-10.5%	-0.8%	-6.2%	25.2%	-5.4%	-11.4%	-2.5%
Average kg per household per year	-12.1%	-9.2%	11.1%	6.4%	-5.0%	-27.7%	-6.8%

*Only 77 of the 78 local governments reported data.

The 120L garbage bin was by far the most common collection system, being the predominant bin in 47% (42% 2000/01) of local governments (see Table 6). The larger garbage bins (140L or greater) are still used by 32 local governments, representing 41% of all local governments.

Table 6 – Garbage collection system¹ by service provision categories, Victoria 2001-2002

<i>Service Provision Category</i>	<i>Bag</i>	<i>80L</i>	<i>120L</i>	<i>140L</i>	<i>240L</i>	² <i>240L split</i>	<i>Number of Councils</i>
Inner Metropolitan	—	2	5	—	3	—	10
Outer Metropolitan	—	1	10	4	2	—	17
Melbourne Fringe	—	—	3	1	1	1	6
Major Provincial	1	—	—	3	2	—	6
Small Provincial	—	3	9	2	10	1	25
Rural Township	—	—	10	2	2	—	14
Number of Councils	1	6	37	12	20	2	78

¹Refers to the predominant bin type used by the local government (see glossary for definition of predominant bin).

²The 240L split bin refers to a garbage and recyclables bin.

The 120L bins are the most predominant in all service provision categories except for in major and small provincial areas, where the predominant collection systems are 140L and 240L bins, respectively.

Table 7 shows how yields and costs are affected by the size of the garbage collection system employed.

Table 7 – Garbage collection system¹ by costs and yields, Victoria 2001-2002

	<i>Garbage collection system</i>					<i>State average</i>
	<i>80L</i>	<i>120L</i>	² <i>240L split bin & Bag</i>	<i>140L</i>	<i>240L</i>	
Annual service cost	\$8,255,157	\$46,617,255	\$7,870,125	\$12,802,814	\$22,307,576	\$97,852,927
Tonnes collected	70,691	481,264	106,369	170,347	286,997	1,115,668
Total households serviced	183,632	918,667	163,238	257,091	409,479	1,932,107
Average cost per tonne	\$116.78	\$96.86	\$73.99	\$75.16	\$77.73	\$87.71
Average cost per household per year	\$44.95	\$50.74	\$48.21	\$49.80	\$54.48	\$50.65
Average kg per household per year	385.0	523.9	651.6	662.6	700.9	577.4
Number of Councils	6	37	3	12	20	78

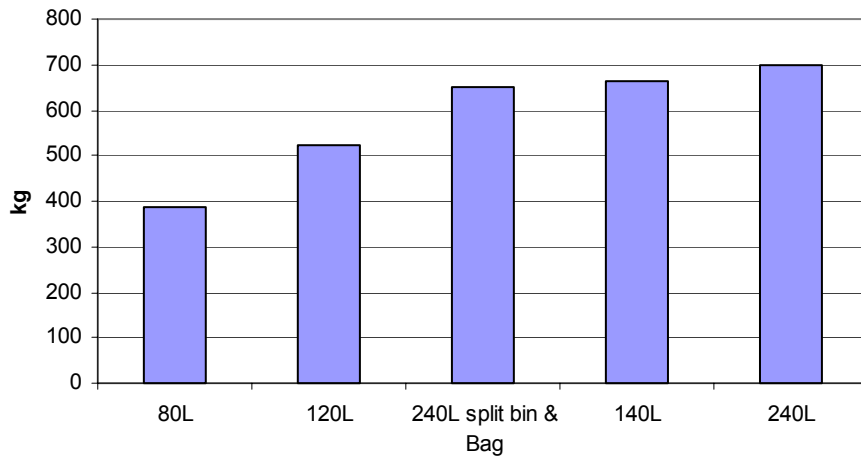
¹Refers to the predominant bin type used by the local government.

²Data aggregated for 240L split bin and bag due to confidentiality.

Smaller bins such as the 80L bin, produced on average 385 kg per household per year compared to the 240L with 701 kg per household. This represents 82% more garbage produced per household per year by using the 240L bin compared to the 80L bin. The other garbage collection systems also substantiate the increasing trend in yields for larger bins (see Figure 9).

The average cost to a household is also shown to be lower with smaller bins. The 80L bin for instance, costs \$9.53 less per household per year compared to the 240L bin. The average cost per household of the 120L, 140L and the 240L split bin remain relatively similar to each other but are still lower than the 240L bin.

Figure 9 – Garbage collection system¹ by yield per household per year, Victoria 2001-2002



¹ Refers to the predominant bin type used by the local government.

2.3 Recycling Services

This section of the report analyses local government kerbside services for the collection of containers and paper/cardboard.

2.3.1 Costs, yields, access to services and geographic comparison

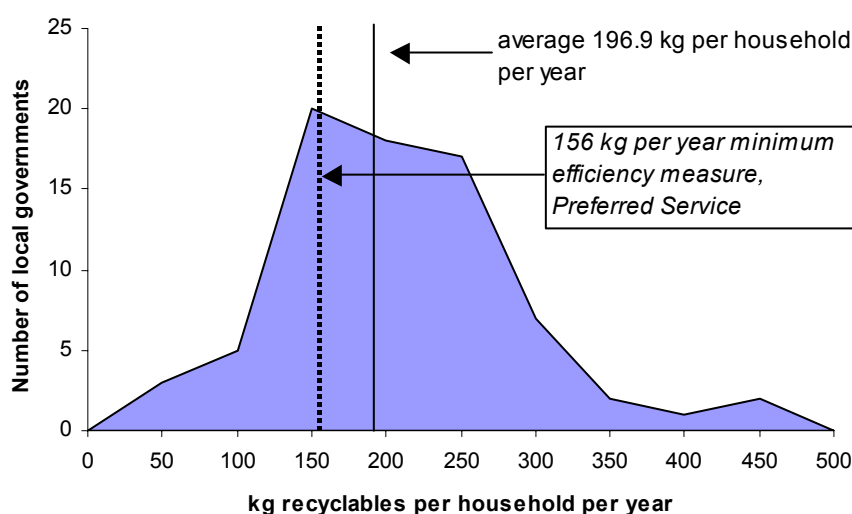
- **Access**

Close to all Victorian households, 92%, had access to kerbside recyclables collection (see Table 3).

- **Yields**

An average of 196.9 kg of recyclables were collected per household per year (see Figure 10). This is higher than the 156 kg average minimum efficiency measure established in the *Guide to Preferred Standards for Kerbside Recycling in Victoria*. However, it should be noted that the yield of recyclables varied significantly around this average, from a low of 28 kg to a high of 422 kg per household per year.

Figure 10 – Recyclables, average kg per household per year across local governments, Victoria 2001-2002



On average, households in non-metro local governments generated 18% less recyclables or 36.3 kg less per household per year than in metro municipalities (see Table 2).

- **Geographic comparison**

While average per household collection costs were only marginally higher for non-metro local governments, the differences between the two areas lay in the cost per tonne and yield per household. It costs \$22.50 more per tonne for the non-metro areas than the metro areas and the average non-metro yields (170 kg per household per year) were 18% lower than those of metro areas (206 kg per household per year) (see Table 2). These figures point to the greater challenges of delivering efficient and high-yielding recycling services in rural areas, given the greater transport distances between households and to end-markets.

Patterns emerged also in the analysis of recyclables costs and yields by service provision category (see Table 8).

Table 8 – Recyclables by service provision category, Victoria 2000-2002¹

	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
2001-2002							
Annual service cost	\$10,762,155	\$23,052,205	\$6,286,245	\$3,900,339	\$6,732,014	\$1,481,579	\$52,214,538
Tonnes collected	76,812.5	174,927.5	33,760.3	34,053.9	33,922.0	7,457.6	360,933.8
Total households serviced	424,720	781,885	177,256	180,177	224,642	44,172	1,832,852
Average cost per tonne	\$140.11	\$131.78	\$186.20	\$114.53	\$206.55	\$198.67	\$144.67
Average cost per household per year	\$25.34	\$29.48	\$35.46	\$21.65	\$29.97	\$33.54	\$28.49
Average kg per household per year	180.9	223.7	190.5	189.0	145.1	168.8	196.9
2000-2001²							
Annual service cost	\$9,864,631	\$20,171,939	\$5,878,038	\$4,119,740	\$5,874,093	\$1,135,108	\$47,043,550
Tonnes collected	78,382.0	169,408.0	31,609.0	22,062.0	29,988.0	5,680.0	337,130.0
Total households serviced	400,447	766,722	168,713	175,548	208,664	37,960	1,758,054
Average cost per tonne	\$125.85	\$119.07	\$185.96	\$186.73	\$195.88	\$199.84	\$139.54
Average cost per household per year	\$24.63	\$26.31	\$34.84	\$23.47	\$28.15	\$29.90	\$26.76
Average kg per household per year	195.7	221.0	187.4	125.7	143.7	149.6	191.8
Per cent change (%)							
Annual service cost	9.1%	14.3%	6.9%	-5.3%	14.6%	30.5%	11.0%
Tonnes collected	-2.0%	3.3%	6.8%	54.4%	13.1%	31.3%	7.1%
Total households serviced	6.1%	2.0%	5.1%	2.6%	7.7%	16.4%	4.3%
Average cost per tonne	11.3%	10.7%	0.1%	-38.7%	5.4%	-0.6%	3.7%
Average cost per household per year	2.9%	12.1%	1.8%	-7.8%	6.5%	12.2%	6.5%
Average kg per household per year	-7.6%	1.3%	1.7%	50.4%	1.0%	12.8%	2.7%

¹Figures exclude Alpine Resorts

²Only 77 of the 78 local governments reported data

- Outer metropolitan local governments delivered the highest average recyclable material yields of all service provision categories with 224 kg per household per year compared against the State average of 197 kg.
- As well as geographic factors, costs in non-metro local governments were adversely affected by relatively low yields achieved in some cases. In addition to this, it is also important to acknowledge the lower household coverage of collection services for recycling in small provincial and rural township local governments at 83% and 69% respectively. Despite the relatively low household coverage, it should be noted that there has been expansion of recycling services in some of these areas over the last five

years. In the time between the two surveys for 2000-2001 and 2001-2002, two local governments began a recycling service. The relative infancy of more recent services may allow scope for further cost efficiencies and yield improvements.

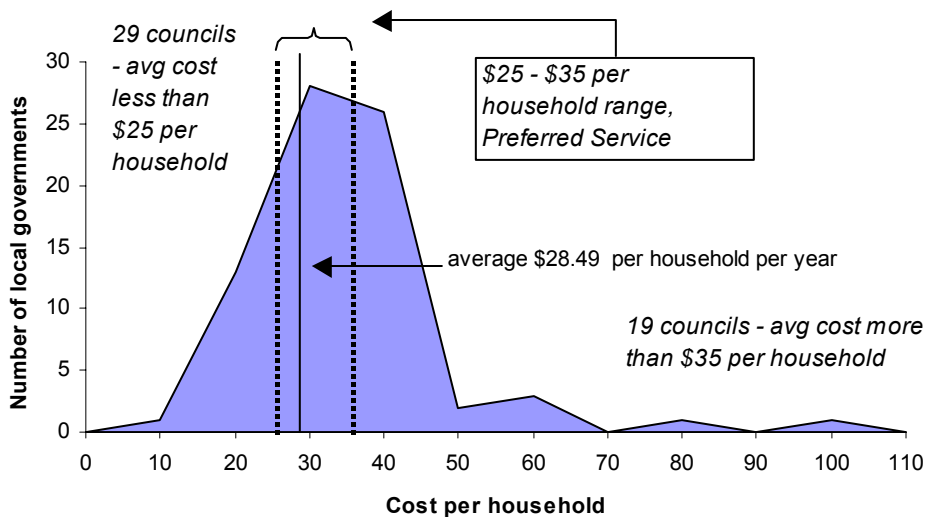
- The exception to the low rural yields were Melbourne fringe local governments, posting a high average yield but also a high average cost of \$186 per tonne, similar costs to those of small provincial cities and rural townships.

• **Costs**

The average household cost of \$28.50 per year falls within the \$25 - \$35 range established in the *Guide to Preferred Standards for Kerbside Recycling in Victoria* (see Figure 11). However, the high number of local governments (19) falling above this range point towards:

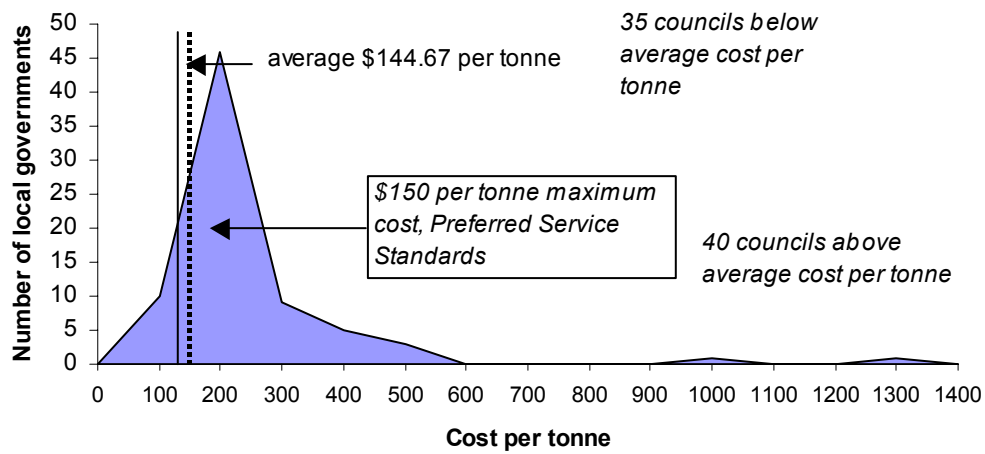
the continuing challenge of containing the costs of delivering optimum kerbside recycling services in some areas
the limitations of some existing contracts in committing sufficient funds to provide adequate recycling services.

Figure 11 – Recyclables, average cost per household per year across local governments, Victoria 2001-2002



The average cost per tonne of \$144.50 is under the maximum \$150 per tonne established in the *Guide to Preferred Standards for Kerbside Recycling in Victoria* (see Figure 12). However, 40 local governments fell above this average cost, indicating underlying issues relating to the continuing challenge of containing the costs of delivering optimum kerbside recycling services in some areas of Victoria.

Figure 12 – Recyclables, cost per tonne across local governments, Victoria 2001-2002

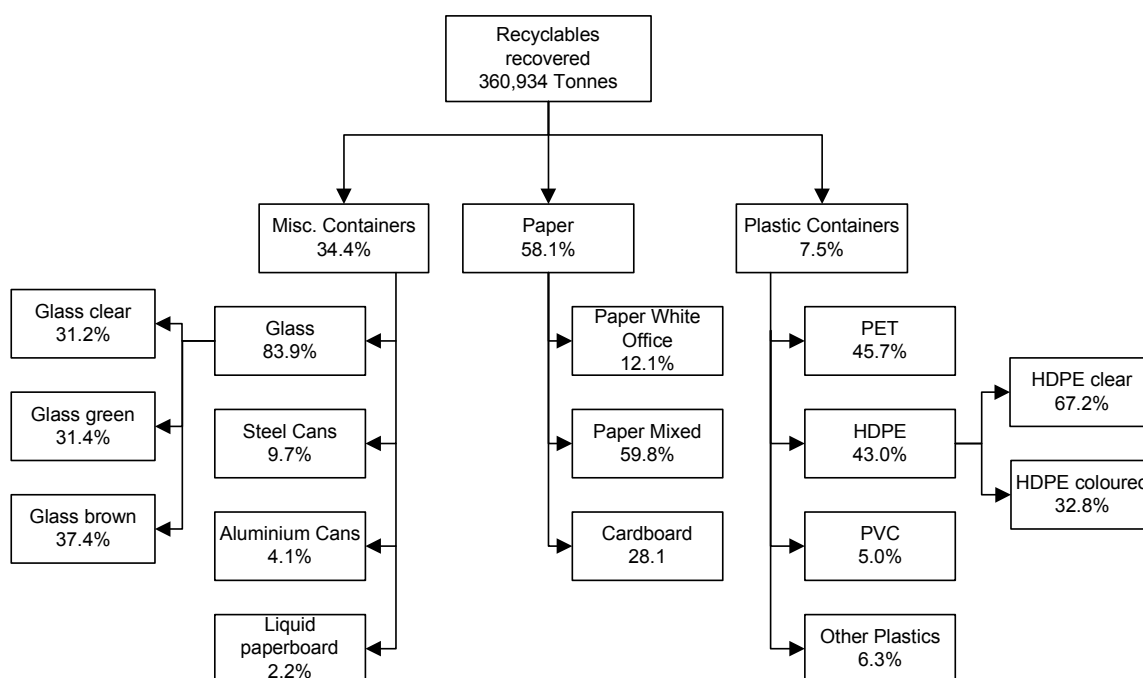


2.3.2 Materials collected and contamination

- **Materials collected**

Paper items accounted for 58% by weight of recyclables collected by kerbside services followed by glass items as the next highest category with 29%. Plastic and other containers made up the remainder (see Figure 13). In Victoria, most local governments with a recyclable service collected PET and HDPE plastic containers (Code numbers 1 and 2), with half collecting PVC (Code number 3) and only a small amount collecting other types of plastic.

Figure 13 – Recyclables by types of items collected, Victoria 2001-2002¹⁰



• **Contamination**

Only 66 local governments with a recyclables collection service provided data on contamination rates. Of those that provided data, contamination levels averaged 6.5% of quantities collected.

Provided below are figures from the *Guide to Preferred Standards for Kerbside Recycling in Victoria* in relation to contamination rates found for various collection systems (see Table 9). As these figures are from a report published in 2000, it is possible that there has been a change over time with the expansion of using bins for recyclables collection.

Table 9 – Recyclables, average contamination rates by collection system¹

<i>Collection system</i>	<i>Average contamination rate (%)</i>
Bin split with garbage and paper included	22
Bin commingled with paper included	17
Bin with paper separate	17
Bin split with paper included	13
Crate with paper separate	4
Bag with paper separate	4

¹Refers to the predominant bin type used by the local government.

¹⁰ Based on returns from local governments comprising 36 detailed responses for plastic and other containers; and 49 detailed responses for paper products.

2.3.3 Container type and service frequency

There are more than 20 different combinations of container systems and service frequencies used by Victorian local governments.

The predominant system was crate and tied bundle, provided weekly or fortnightly by 41% of local governments (see Table 10).

Ten local governments (13% of those with a recyclables service) have received funding for implementing the preferred standard for kerbside recycling to date. However, 24 local governments in 2001-2002 had a collection system that was listed in the *Guide to Preferred Standards for Kerbside Recycling in Victoria*. The preferred service standards involve: 2 x 60L crates collected weekly or a 240L split or commingled bin collected fortnightly.

- **Container type**

An analysis of the data revealed that container type has an impact on yields and costs (see Table 10).

Table 10 – Recyclables, average yields and costs by collection system¹, Victoria 2001-2002

<i>Collection system</i>	<i>Total number of Councils</i>	<i>Average yield kg per household</i>	<i>Average cost per household</i>	<i>Average cost per tonne</i>
240L split or commingled	19	238.9	\$36.21	\$151.55
120L commingled or with tied bundle	6	219.0	\$35.84	\$163.61
240L & tied bundle	4	221.0	\$31.98	\$144.69
Crate & tied bundle	31	183.1	\$25.20	\$137.64
2 Crate system	5	182.8	\$22.88	\$125.19
² Other systems	10	141.0	\$21.89	\$155.27

¹Refers to the predominant bin type used by the local government.

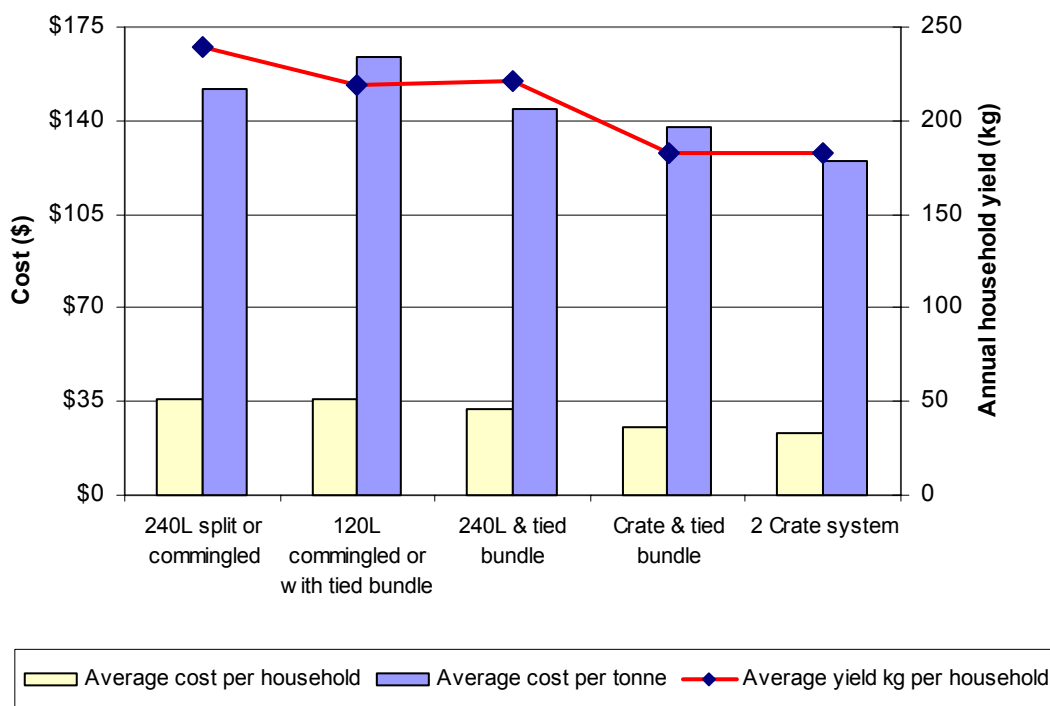
²Includes bag collections, split recyclables with garbage collection, and monthly collections.

A 240L split or commingled collection delivered the greatest yield. A two-crate system yields 183 kg per household compared to the 240L split or commingled system which yields 31% or 56 kg more recyclables per household per year. The cost of providing the 240L split or commingled system to a household is 58% higher than the two-crate system.

Yields and costs for collection systems represented by small numbers of local governments should be treated with caution.

Figure 14 below illustrates yields and costs for the most common system types employed across Victoria.

Figure 14 – Recyclables, yields and costs by collection system¹, Victoria 2001-2002



¹ Refers to the predominant bin type used by the local government

EcoRecycle emphasises that other factors such as population density, education programs and distances to sorting facilities and end markets can have significant impacts on yields and costs, so container systems should not be judged in isolation from the context of other variables.

- **Frequency of service**

The aggregated data in Table 11 below shows the effect of frequency of collection on yields, costs and diversion rate. The *Guide to Preferred Standards for Kerbside Recycling in Victoria* recommends that a fortnightly collection be undertaken. The differences found by frequency of collection relates to recyclables container size, as a fortnightly collection is often used for larger bins while a weekly collection is more common for a crate system.

Table 11 – Recyclables, costs and yields by frequency of service¹, Victoria 2001-2002

	Weekly collection service	Fortnightly collection service
Average cost per tonne	\$135.19	\$154.21
Average cost per household per year	\$25.97	\$33.69
Average kg per household per year	192.1	218.5
Diversion rate	24.2%	27.1%
² Number of local governments	32	33

¹Refers to the predominant frequency of service used by the local government

²Excludes bag collections, split recyclables with garbage collection, and monthly collections.

The figures above indicate that a fortnightly collection yields on average about 26 kg (14%) per household per year more than a weekly collection. Consequently, the average cost per household per year is also significantly higher at \$33.69 compared to the weekly collection of \$25.97; this represents nearly \$8 (or 30%) more.

Note how the frequency of collection has an effect on the diversion rate. The weekly collection has a diversion rate of 24% compared to the fortnightly recyclables collection diversion rate of 27%.

- **Correlation between garbage container size and diversion**

The data shows a strong correlation between smaller garbage bin size and higher diversion rates¹¹ of recyclables (see Table 12). It appears that the use of smaller garbage bins increases the proportion of recyclables collected in local government collections, resulting in more efficient kerbside resource recovery.

Table 12 – Correlation between garbage and recyclables collection system¹ and diversion rate, Victoria 2001-2002

	Garbage collection system						Average diversion rate
	80L	120L	140L	240L	240L split (garbage & recyclables)	Bag	
<i>Recyclables collection system</i>	Diversion rate (%)						
120L commingled or with tied bundle	33	32	—	—	—	—	32
240L split or commingled	—	34	27	26	—	—	30
240L & tied bundle	—	28	28	27	—	—	28
2 Crate system	46	20	—	22	—	—	24
Crate & tied bundle	30	28	24	14	—	—	23
² Other systems	19	34	6	15	17	19	18
<i>Average diversion rate (%)</i>	35	29	25	18	17	19	—

¹Refers to the predominant bin type used by the local government

²Includes bag or split recyclables with garbage collection, or monthly collections.

Table 12 above shows that an 80L garbage bin gives the highest average diversion rate compared to other garbage bins, with a 35% diversion. When coupled with a two-crate recyclables system, it gives the highest average diversion rate of any container combination at 46% (but this system is used by only one council so is difficult to substantiate without other cases of the same system). The recyclables 120L commingled or 120L bin system with tied bundle for paper, gives a high average diversion rate of 32% followed closely by the 240L split or commingled bin with 30%.

¹¹ Diversion is calculated as: quantity recyclables / (quantity recyclables + garbage). It does not factor in green organics diversion due to the irregular pattern of these services across Victorian local governments in 2000 – 2001.

2.4 Green Organics Services

This section of the report looks at green waste kerbside collection services provided by Victorian local governments.

- **Access**

Fifty-seven percent of Victorian households in 38 municipalities had access to regular green organics kerbside collection services¹² (see Tables 3 and 4), an increase of five local governments since 2000-2001¹³.

The cost and tonnes collected for the green organics service across service provision areas are summarised in Table 13.

¹² Data on green waste drop-off facilities at landfills and transfer stations, offered by many local governments, was not included.

¹³ EcoRecycle Victoria, *Municipal Data collection 2000-2001 – Kerbside Waste Management Service*, June 2002

Table 13 – Green organics services by service provision category, Victoria 2000-2002¹

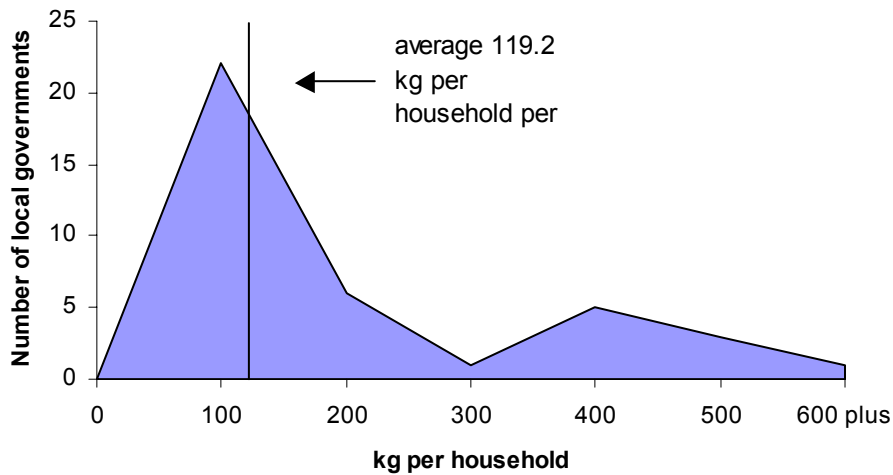
	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
2001-2002							
Annual service cost	\$2,835,340	\$10,048,841	\$497,131	\$247,280	\$680,260	\$118,450	\$14,427,302
Tonnes collected	19,044	103,641	2,677	2,082	2,601	2,085	132,130
Total households serviced	375,487	538,422	135,880	3,450	52,475	7,820	1,113,534
Average cost per tonne	\$143.98	\$96.96	\$185.72	\$118.77	\$261.50	\$56.81	\$108.48
Average cost per household per year	\$7.40	\$18.66	\$3.66	\$71.68	\$12.96	\$15.15	\$12.93
Average kg per household per year	51.4	192.5	19.7	603.5	49.6	266.6	119.2
2000-2001							
Annual service cost	\$2,660,031	\$6,357,017	\$573,298	\$108,250	\$285,457	\$56,000	\$10,040,053
Tonnes collected	16,728	69,609	2,987	2,340	7,477	—	99,141
Total households serviced	356,996	458,425	136,795	4,250	47,532	4,100	1,008,098
Average cost per tonne	\$159.02	\$91.32	\$191.93	\$46.26	\$38.18	—	\$101.27
Average cost per household per year	\$7.45	\$13.87	\$4.19	\$25.47	\$6.01	\$13.66	\$9.96
Average kg per household per year	46.9	151.8	21.8	550.6	157.3	—	98.3
Percent change (%)							
Annual service cost	6.6%	58.1%	-13.3%	128.4%	138.3%	111.5%	43.7%
Tonnes collected	13.8%	48.9%	-10.4%	-11.0%	-65.2%	—	33.3%
Total households serviced	5.2%	17.5%	-0.7%	-18.8%	10.4%	90.7%	10.5%
Average cost per tonne	-9.5%	6.2%	-3.2%	156.7%	585.0%	—	7.1%
Average cost per household per year	-0.7%	34.6%	-12.7%	181.4%	115.9%	10.9%	29.8%
Average kg per household per year	9.7%	26.8%	-9.8%	9.6%	-68.5%	—	21.2%

¹The base figures and averages exclude the Alpine Resorts (which did not have green organics services). The averages also exclude partial figures from local governments that did not provide full figures for tonnage collected or cost of service.

- **Yields**

In 2001-2002, 132,130 tonnes of green organics was collected, an average yield of 119.2 kg per household per year (see Figure 15). This represents a 21% increase in yield from 2000-2001 (98.3 kg). Nearly 95% of this material was collected from metro local governments (see Table 2).

Figure 15 – Green organics, average kg per household per year across local governments, Victoria 2001-2002



- Frequency**

Nineteen local governments provided a fortnightly or monthly green organics collection service (see Table 14).

Table 14 – Green organics collection by frequency of service, Victoria 2001-2002¹

<i>Predominant frequency of service²</i>	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
Annual	1	1	—	—	2	—	4
Bi-annual	4	2	1	—	1	—	8
Monthly	2	2	—	—	1	2	7
Fortnightly	3	6	1	2	—	—	12
Weekly	—	—	—	—	1	—	1
On-call	1	1	2	—	1	—	5
Other	—	1	—	—	—	—	1
Total	11	13	4	2	6	2	38

¹The figures exclude Alpine Resorts (which did not have any green organics services)

²Refers to the predominant frequency of service used by the local government

Inner and outer metropolitan service areas (which account for 35% of local governments) provided 63% of the green organic collection services, and mainly used a fortnightly or bi-annual collection frequency.

As can be seen in Table 15, costs and yields per household vary with the frequency of service.

Table 15 – Green organics costs and yields by frequency of service¹, Victoria 2001-2002

	<i>Annual</i>	<i>Bi-annual</i>	<i>Monthly</i>	<i>Fortnightly</i>	<i>On-call</i>
Annual service cost	\$220,520	\$902,424	\$1,449,825	\$10,894,169	\$403,728
Tonnes collected	2,216.3	8,916.0	12,674.6	104,568.3	2,658.8
Total households serviced	136,353	309,395	145,013	433,628	143,665
Average cost per tonne	\$99.50	\$101.21	\$114.39	\$104.18	\$151.85
Average cost per household per year	\$1.62	\$2.92	\$10.00	\$25.12	\$2.81
Average kg per household per year	16.3	28.8	87.4	241.1	18.5
No. of local government services ²	4	8	7	15	5

¹Excluding Weekly and Other frequency services

²Local governments that had more than one frequency of collection are listed here as separate services

For regular collections (i.e. not on-call), the more frequent the service, the higher the cost per household and kilogram per household. Annual collections cost \$1.62 and yielded 16.3 kg per household per year while fortnightly collections cost \$25.12 and yielded 241.1 kg per household. On-call service costs and yields per household were similar to the less frequent collections. The cost per tonne did not vary as much but generally maintained the trend of the more regular the service, the higher the cost (except for monthly collections having the highest cost per tonne for a regular service). However, on-call services varied considerably from the other services and had the highest overall cost per tonne at \$152.

- **Costs**

The cost of providing this service amounts to over \$14.4 million a year, or an average cost of \$13 per household per year, an increase in overall cost by \$4.4 million and \$3 per household since 2000-2001. All figures of cost, tonnes collected and households serviced have increased, some markedly, from the 2000-2001 figures. These figures should be read with caution, given the significant variability in the data provided by different local governments, as can be seen when comparing service provision categories.

2.5 Hard Waste Services

This section of the report looks at hard waste kerbside collection services provided by Victorian local governments.

- **Access**

More than half of the local governments, 41 out of 78, reported the provision of a kerbside hard waste collection service (see Table 4). This is an increase of two from 2000-2001 (one of these is accounted for by the local government that did not respond in the previous survey). Hard waste collection services were provided to a greater proportion of households in metro areas than non-metro areas (64% and 19% respectively) (see Table 3).

- **Cost**

The service cost to Victorian local governments was \$5.3 million, 84% accounted for by inner and outer metropolitan local governments (see Table 16).

- **Yield**

Over 53,000 tonnes were collected, with over 41,000 tonnes being disposed to landfill, leaving a diversion rate of 23 % (17.6% 2000/01).

Table 16 – Hard waste services by service provision category, Victoria 2000-2002¹

	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
2001-2002							
Annual service cost	\$1,451,095	\$3,002,459	\$611,265	\$80,000	\$162,812	\$23,777	\$5,331,408
Tonnes collected	11,228.4	31,315.7	5,222.6	3,000.0	2,579.3	—	53,346.0
Tonnes disposed	9,813.8	23,741.5	3,828.6	2,500.0	1,265.6	—	41,149.5
Diversion rate (%)	12.6%	24.2%	26.7%	16.7%	50.9%	—	22.9%
² Total households serviced	264,528	561,973	72,894	11,000	86,620	4,000	1,001,015
Average cost per tonne	\$129.23	\$97.85	\$117.04	\$26.67	\$63.12	—	\$100.69
Average cost per household per year	\$5.49	\$5.42	\$8.39	\$7.27	\$1.88	—	\$5.37
Average kg per household per year	42.4	55.4	71.6	272.7	29.8	—	53.3
2000-2001							
Annual service cost	\$1,395,316	\$2,232,208	\$456,000	\$610,000	\$128,171	—	\$4,821,695
Tonnes collected	10,769.0	23,207.0	6,293.0	3,400.0	1,114.0	—	44,782.0
Tonnes disposed	10,001.0	18,789.0	4,252.0	3,128.0	745.0	—	36,916.0
Diversion rate (%)	7.1%	19.0%	32.4%	8.0%	33.1%	—	17.6%
² Total households serviced	355,984	535,811	157,349	89,082	73,115	—	1,211,341
Average cost per tonne	\$129.57	\$96.19	\$72.46	\$179.41	\$115.10	—	\$107.67
Average cost per household per year	\$3.92	\$4.17	\$2.90	\$6.85	\$1.75	—	\$3.98
Average kg per household per year	30.3	43.3	40.0	38.2	15.2	—	37.0
Percent change (%)							
Annual service cost	4.0%	34.5%	34.0%	-86.9%	27.0%	—	10.6%
Tonnes collected	4.3%	34.9%	-17.0%	-11.8%	131.5%	—	19.1%
Tonnes disposed	-1.9%	26.4%	-10.0%	-20.1%	69.9%	—	11.5%
Diversion rate (%)	77.4%	27.3%	-17.6%	108.3%	53.9%	—	29.9%
² Total households serviced	-25.7%	4.9%	-53.7%	-87.7%	18.5%	—	-17.4%
Average cost per tonne	-0.3%	1.7%	61.5%	-85.1%	-45.2%	—	-6.5%
Average cost per household per year	39.9%	30.0%	189.2%	6.2%	7.4%	—	34.9%
Average kg per household per year	40.1%	28.0%	79.1%	613.9%	95.9%	—	44.1%

¹The base figures and averages exclude the Alpine Resorts. The averages also exclude partial figures from local governments that did not provide full figures for tonnage collected or cost of service.

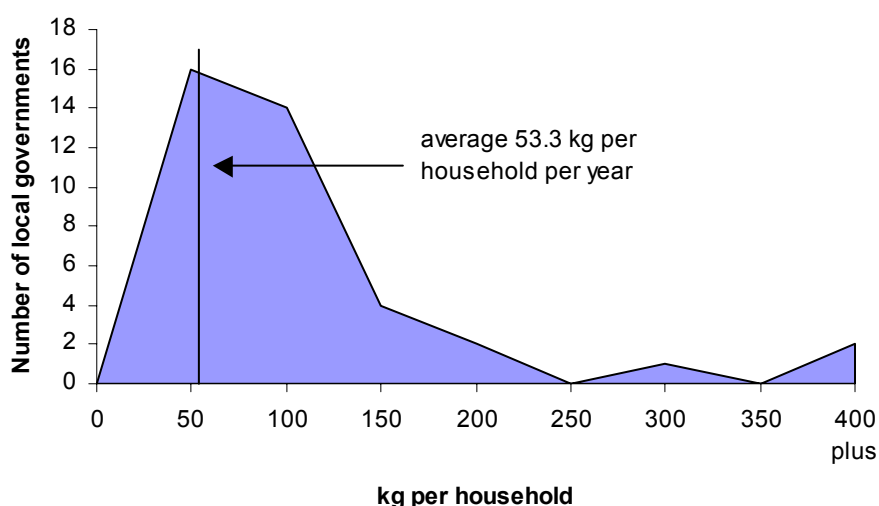
²Total residential households serviced includes No. of residential households serviced or (for those with a call out service) No. of call outs

Small provincial local governments reported the highest average diversion rates of materials for recycling at 50.9% compared to a low of 12.6% and 16.7% for inner metropolitan and major provincial areas. All but the Melbourne fringe local governments have increased their diversion rates since 2000-2001. The reduction in the number of households could be due to better reporting by the local governments or a different

analysis from 2000-2001 of the number of households serviced. The different analysis involved, for those local governments that indicated they had an on-call service, the use of the more specific number of on-call services instead of the number of households serviced.

On average, 53.3 kg of hard waste was collected per household over the 2001-2002 financial year (see Figure 16), an increase of 44% since 2000-2001.

Figure 16 – Hard waste, average kg per household per year across local governments, Victoria 2001-2002



- **Frequency**

Twenty five (61%) of local governments with a hard waste service reported annual or on-call as the predominant frequency of service (see Table 17).

Table 17 – Hard waste collection by frequency of service, Victoria 2001-2002¹

<i>Frequency of service</i>	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
Annual	2	5	—	1	4	1	13
Bi-annual	3	2	1	—	2	—	8
Quarterly	1	1	—	—	—	—	2
On-call	3	6	2	—	1	—	12
Other	—	2	1	—	3	—	6
Total	9	16	4	1	10	1	41

¹These figures exclude Alpine Resorts

3. ENVIRONMENTAL BENEFITS FROM KERBSIDE RECYCLING

This section looks at the environmental benefits gained from recycling during the financial year 2001-2002.

According to the data collected in the Local Government Data Collection, a total of 360,934 tonnes of recyclables were collected for recycling in Victoria (not including Alpine Resorts) or 196.9 kg per household.

Allowing for a contamination rate of approximately 6.5% (as indicated by local government), it is estimated that 337,473 tonnes of municipal waste was actually recycled in 2001-2002.

The amount of 196.9 kg per household is pleasing given that this yield is much higher than the 156 kg per household per year average minimum efficiency measure established in the *Guide to Preferred Standards for Kerbside Recycling in Victoria*.

Applying this data to the findings of the *Life Cycle Assessment for Paper and Packaging Waste Management Scenarios in Victoria*¹⁴ reveals even greater benefits. The benefits for the total amount collected for recycling are estimated to include savings of:

- 8,143 megalitres of water a year – equivalent to 37% of Maroondah Reservoir's water storage capacity¹⁵ OR the water consumption of 21,429,008 people for one day¹⁶
- 281,705 tonnes of greenhouse gases (such as CO₂) a year – equivalent to the amount of greenhouse gases generated by 18,780 households per year¹⁷ (eg over half the households in Ballarat City Council) OR taking 46,951 cars off the road for a year¹⁸
- Air pollution equivalent to emissions from Victorian motorists travelling over 396 million kilometres a year in average post 1985 passenger cars
- 2,834,652 gigajoules or 788,033 MWh of energy a year – the average amount of energy used by 141,733 households a year¹⁹ (eg just under the number of households of Greater Dandenong, Casey and Frankston Council areas combined)
- Solid waste to landfill of up to 337,473 tonnes

The environmental benefits can be further quantified by applying the findings of *The Independent Assessment of Kerbside Recycling in Australia*.²⁰ This report is the most comprehensive study of recycling undertaken in Australia to date. It measures the

¹⁴ Grant T, James KL, Lundie S, Sonneveld K (2001) *Stage 2 Report for Life Cycle Assessment for Paper and Packaging Waste Management Scenarios in Victoria*, Centre for Design at RMIT, Melbourne.

¹⁵ Conserve Water, 2003, Melbourne Water, Melbourne, viewed at 17 March 2003, <<http://conservewater.melbournewater.com.au>>

¹⁶ Water Smart, Victorian Government, Melbourne, viewed at 17 March 2003, <<http://www.watersmart.vic.gov.au>>

¹⁷ Australian Greenhouse Office, 2003, Australian Greenhouse Office, Canberra, viewed at 17 March 2003, <<http://www.greenhouse.gov.au>>

¹⁸ CSIRO Atmospheric Research, 2000, CSIRO, Melbourne, viewed at 17 March 2003, <<http://www.dar.csiro.au>>

¹⁹ Australian Bureau of Statistics, 2002, Australian Bureau of Statistics, Canberra, viewed at 17 March 2003, <<http://www.abs.gov.au>>

²⁰ National Packaging Covenant Council, January 2001

financial, environmental and social impacts of recycling, translating the environmental impacts into dollars to compare costs and benefits.

Applying the study to the Local Government Data Collection findings, the net overall benefit of kerbside recycling to Victorians is estimated to be \$72,400,000 per year. This is based on average net environmental savings of \$40 per household per year for those households serviced. This results from the benefit from kerbside recycling of \$68 per household per year, less the reported costs to local government of delivering these services at \$28 per household per year.

In addition, only two of the Victorian local governments reported kerbside recycling costs that exceeded the calculated average environmental savings resulting from kerbside recycling of \$68 per household per year. While the net benefits tend to be lower in rural areas due to greater transport distances between households and to markets, this remains a convincing validation of the environmental benefits of Victoria's kerbside recycling services.

4. COMMERCIAL AND INDUSTRIAL KERBSIDE SERVICES

The focus of this section is the range of kerbside collections provided by local governments to commerce and industry.²¹

- **Access**

Table 18 shows the number of commercial and industrial properties receiving kerbside services provided by local government.

Table 18 – Number of commercial and industrial properties serviced by kerbside collections, Victoria 2000-2002¹

<i>Type of service</i>	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
2001-2002							
<i>Separate commercial & industrial kerbside system —</i>							
Recyclables collection	8,100	—	—	—	—	—	8,100
<i>Domestic kerbside system —</i>							
Garbage collection	34,413	19,395	1,520	2,633	9,336	2,773	70,070
Recyclables collection	13,837	5,631	3,893	1,021	6,273	2,790	33,445
Total —	56,350	25,026	5,413	3,654	15,609	5,563	111,615
2000-2001							
<i>Separate commercial & industrial kerbside system —</i>							
Recyclables collection	4,500	—	—	—	—	—	4,500
<i>Domestic kerbside system —</i>							
Garbage collection	14,338	19,852	1,797	1,290	7,301	1,677	46,255
Green organics collection	—	—	—	—	700	—	700
Recyclables collection	6,491	200	1,230	—	4,228	787	12,936
Total —	25,329	20,052	3,027	1,290	12,229	2,464	64,391

¹Excludes Alpine Resorts

The number of commercial and industrial (C&I) properties receiving some form of collection service in Victoria was 111,615 properties in 2001-2002. In fact, the true number of C&I premises serviced is likely to be even lower due to double-counting, as many of the properties receiving a recyclables service would also be receiving a garbage collection service.

Of those properties serviced through the domestic kerbside system, more than double as many received a garbage collection service (70,070 properties) than those receiving a recyclables collection service (33,445 properties).

A further 8,100 properties received recyclables collections through separate C&I kerbside systems. These properties were restricted to two inner metropolitan local governments, which only had a cardboard collection service.

The figures for 2001-2002 are all higher than those reported in 2000-2001 (except for green organics), which may be due to better reporting.

²¹ The data collected did not include collection services provided through individual arrangements between businesses and garbage / recycling service contractors.

- **Yields**

It was not possible to calculate yields per property or cost per tonne/property for those C&I properties serviced through domestic kerbside collection services, as in most instances, this data was not reported separately.

5. STREET SWEEPING AND LITTER SERVICES

This section looks at the cost and provision of street sweeping and litter maintenance services. The figures give an indication only of the services, as some local governments could not provide full details in relation to specific costs and tonnages for the litter service, as separate from other services.

Seventy two local governments reported a street sweeping service (67 local governments 2000/01), and 69 indicated a litter bin and trap maintenance service (62 local governments 2000/01) (see Table 4).

5.1 Street Sweeping

- **Cost**

Victorian local governments spent more than \$30.4 million on street sweeping (see Table 19).

Table 19 – Street sweeping service, Victoria 2001-2002¹

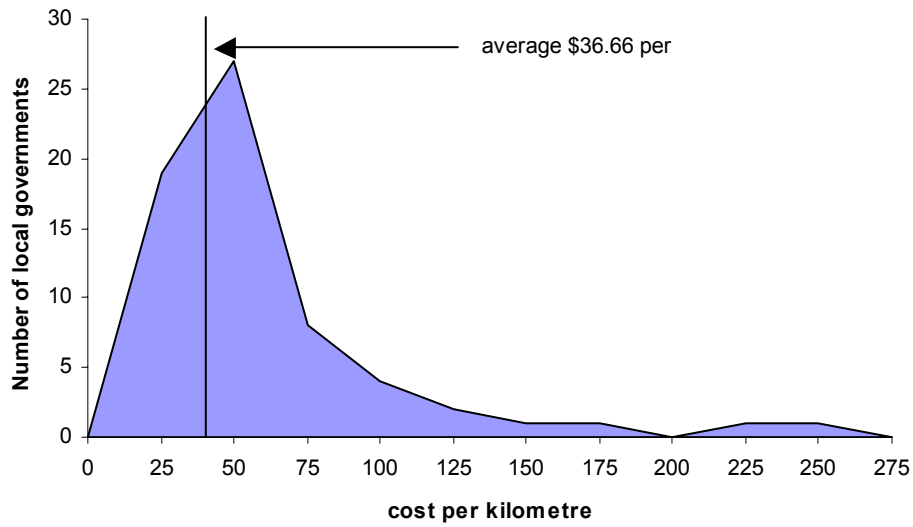
	<i>Metro</i>	<i>Non-Metro</i>	<i>Total</i>
Annual service cost	\$24,195,584	\$6,219,607	\$30,415,191
Annual length of sweepable kerb & channel (km)	516,843	276,815	793,658
Cost per kilometre	\$46.81	\$17.66	\$36.66

¹The base figures and averages exclude the Alpine Resorts. The averages also excluded outliers and partial figures from local governments that did not provide full figures for length swept or cost of service.

The metro local governments swept nearly double the length of annual kerb and channel than the non-metro local governments, while the metro local governments cost per kilometre was over \$29 higher. The figures of 2001-2002 cannot be compared to those of 2000-2001 as the annual length of kerb and channel swept was drastically under-reported in 2000-2001 (often the length of only *one* cycle was mistakenly reported due to a misunderstanding of the question).

The average cost per kilometre was \$36.66 (see Figure 17).

Figure 17 – Street sweeping, average cost per kilometre across local governments, Victoria 2001-2002



5.2 Litter Service

Over \$12 million was spent by Victorian local governments on the provision of litter services involving litter bins, litter traps and issuing penalty infringement notices. (see Table 20).

Table 20 – Litter service, Victoria 2000-2002¹

	<i>Metro</i>	<i>Non-Metro</i>	<i>Total</i>
2001-2002			
Annual service cost	\$9,114,221	\$3,261,345	\$12,375,566
Tonnes collected	22,519.2	5,848.6	28,367.8
No. of litter bins	24,657	12,586	37,243
No. of in-line litter traps	217	82	299
No. of side entry traps	2,417	790	3,207
No. of penalty infringement notices issued	382	132	514
2000-2001			
Annual service cost	\$7,050,917	\$3,703,199	\$10,754,116
No. of litter bins	24,195	14,530	38,725
No. of in-line litter traps	213	68	281
No. of side entry traps	2,246	25	2,271
No. of penalty infringement notices issued	256	100	356
Percent change (%)			
Annual service cost	29.3%	-11.9%	15.1%
No. of litter bins	1.9%	-13.4%	-3.8%
No. of in-line litter traps	1.9%	20.6%	6.4%
No. of side entry traps ²	7.6%	3060.0%	41.2%
No. of penalty infringement notices issued	49.2%	32.0%	44.4%

¹Figures exclude Alpine Resorts

²The increase in the non-metro area relates to an individual local government

- **Litter bins and traps**

A total of 40,749 litter bins and traps are installed in 89% of local governments in Victoria (see Table 4). The drop in litter bins occurred in the non-metro area where there was a decrease of 13%. This was mainly due to a significant local government not being able to report figures this year due to a change in service. The number of traps reported increased, especially the number of side entry traps. The increase was predominantly in the non-metro areas and is mainly due to one local government.

- **Penalty Infringement Notices**

A total of 514 penalty infringement notices were issued for litter – metro local governments issued nearly three quarters of these. This was an increase of 44% from 2000-2001.

- **Other litter service functions**

Thirty local governments provided further detail on their litter services (see Table 21).

Table 21 – Other litter services, Victoria 2001-2002¹

	<i>Illegally dumped rubbish</i>	<i>Road side litter</i>	<i>Bill poster</i>	<i>Cigarette bins</i>
No. of local governments that list item separately for expense allocation	12	8	4	3
Annual service cost	\$935,424	\$242,060	\$190,500	\$51,372
Tonnes collected	5,423.3	881	n.a.	n.a.
No. of call outs	5,909	n.a.	25	n.a.
No. of penalties issued	93	n.a.	10	n.a.
No. of cigarette bins	n.a.	n.a.	n.a.	399

¹Figures exclude Alpine Resorts

For budget allocations, it was more common to separately list the cost of cleaning up illegally dumped rubbish (12 local governments) as a specific service. Illegally dumped rubbish appears to be the highest activity that is specifically recorded by local governments in comparison to dealing with roadside litter and bill posters. This is in terms of cost, tonnes collected, number of call outs and number of penalties issued. The number of local governments that reported the item separately in their budget was sometimes more than the number that reported quantities, and vice versa.

The cigarette bins were also a significant service, with 24 local governments reporting a quantity of 399 cigarette bins. The number of local governments that listed the cigarette bins as a separate item for expense allocation or reported a cost, however, was very low at three and seven local governments respectively.

6. LANDFILLS AND TRANSFER STATIONS

This section deals with the number of local government owned landfills (licensed and unlicensed) and transfer stations across the state, including those that are operated by private contractors. The data does not include privately owned sites.

For several years, EPA has run a program in conjunction with local government to identify unlicensed landfills across Victoria. In spite of significant progress, the identification and closure of unlicensed landfills remains a challenge in non-metro areas. The true number of unlicensed landfills may well be higher than the figure below. Even when the Alpine Resorts and the council that did not participate in the 2000-2001 survey were taken into account, there has still been an overall increase in the number of landfills reported.

The number of local government owned landfills and transfer stations are displayed in Table 22.

Table 22 – Number of local government owned landfills and transfer stations by service provision category, Victoria 2000-2002¹

	<i>Inner Metropolitan</i>	<i>Outer Metropolitan</i>	<i>Melbourne Fringe</i>	<i>Major Provincial</i>	<i>Small Provincial</i>	<i>Rural Township</i>	<i>Total</i>
2001-2002							
Operating Landfills –							
No. of licensed landfills	0	6	5	8	29	10	58
No. of unlicensed landfills	0	0	3	3	66	33	105
<i>Total landfills operating</i>	0	6	8	11	95	43	163
Closed Landfills –							
No. of licensed landfills closed during 2001-2002	0	0	2	1	8	0	11
No. of unlicensed landfills closed during 2001-2002	0	0	0	1	10	8	19
<i>Total landfills closed</i>	0	0	2	2	18	8	30
Transfer Stations –							
No. of transfer stations	5	10	12	13	103	52	195
No. of new transfer stations established during 2001-2002	0	0	1	0	14	18	33
2000-2001							
Operating Landfills –							
No. of licensed landfills	0	7	7	7	34	12	67
No. of unlicensed landfills	0	0	3	3	48	49	103
<i>Total landfills operating</i>	0	7	10	10	82	61	170
Closed Landfills –							
No. of licensed landfills closed during 2000-2001	0	1	2	0	3	1	7
No. of unlicensed landfills closed during 2000-2001	0	0	0	4	7	32	43
<i>Total landfills closed</i>	0	1	2	4	10	33	50
Transfer Stations –							
No. of transfer stations	5	12	12	13	76	32	150

¹2000-2001 figures did not include Alpine Resorts and one local government, but 2001-2002 figures include all local governments

- **Licensed landfills**

Of the 163 operating landfills reported by local governments, 58 were licensed. It was more likely for metro local governments to have licensed landfills than unlicensed landfills, but the reverse is true for non-metro local governments. Indeed, inner metropolitan local governments had no landfills owned or operated by local government.

- **Unlicensed landfills**

Rural townships and small provincial local governments (which have lower population densities) owned 94% of the 105 unlicensed operating landfills reported by local governments.

- **Closed landfills**

Although not as many landfills closed in 2001-2002 as compared to the previous year (30 compared to 50), the bulk of the closures once again were for unlicensed landfills. The closures continued to occur mainly in the small provincial and rural township areas, but as they have the highest number of landfills, their rate of closure is not necessarily higher than other areas.

- **Transfer stations**

Rural townships and small provincial local governments maintain 155 of Victoria's 195 council owned transfer stations, reflecting the significant need in rural areas for drop-off facilities to consolidate recyclables and waste. These areas account for all but one of the 33 new transfer stations that have been established during 2001-2002.

- **Operating details**

The operating costs for landfills and transfer stations was over \$47 million, servicing 4.6 million people (see Table 23), which encompasses nearly all of the population of Victoria²². These operating details were not collected in the 2000-2001 survey.

Table 23 – Operating details of local government owned landfills and transfer stations, Victoria 2001-2002¹

	<i>Metro</i>	<i>Non-Metro</i>	<i>Total</i>
Landfills –			
Annual operating costs	\$6,688,618	\$13,596,253	\$20,284,871
Population serviced	1,161,859	1,093,835	2,255,694
No. of weighbridges installed ²	6	15	21
Transfer Stations –			
Annual operating costs	\$16,214,946	\$10,630,718	\$26,845,664
Population serviced	1,757,366	605,803	2,363,169
No. of weighbridges installed	9	2	11

¹Figures include Alpine Resorts

²Only one local government had two weighbridges installed

²² Australian Bureau of Statistics, Census Data 2001

- **Disposal charges**

Table 24 displays the varying disposal costs (including the landfill levy for putrescible and inert waste) at landfills and transfer stations. Details of disposal charges were given for 63 landfill sites and 112 transfer stations. The use of either cubic metres or tonnes was based on the how the local governments presented the data.

Table 24 – Disposal charges at landfills and transfer stations, Victoria 2001-2002¹

<i>Type of waste</i>	<i>Cost per cubic metre</i>	<i>Cost per tonne</i>
Landfills –		
Municipal putrescible	\$13.33	\$34.31
Industrial putrescible	\$16.83	\$35.22
Municipal inert	\$12.73	\$36.87
Industrial inert	\$18.97	\$35.65
Separated green organics	\$6.21	\$28.02
Separated recyclables	\$0.13	\$1.55
Transfer Stations –		
Municipal putrescible	\$12.72	\$36.50
Industrial putrescible	\$15.09	\$46.65
Municipal inert	\$12.58	\$35.69
Industrial inert	\$14.45	\$46.65
Separated green organics	\$7.00	\$32.08
Separated recyclables	\$0.13	\$0.00

¹For municipal and industrial charges (both putrescible and inert) and green organics, \$0 responses were removed from the data set as it was assumed that they were items not taken at these sites. However, for recyclables a \$0 response was retained as they were often collected but attracted no charge

Industrial waste (both putrescible and inert) attracted higher charges than municipal waste, across sites. Green organics were charged at a cost less than for putrescible and inert waste. Recyclables did not attract disposal charges except at a very small number of sites.

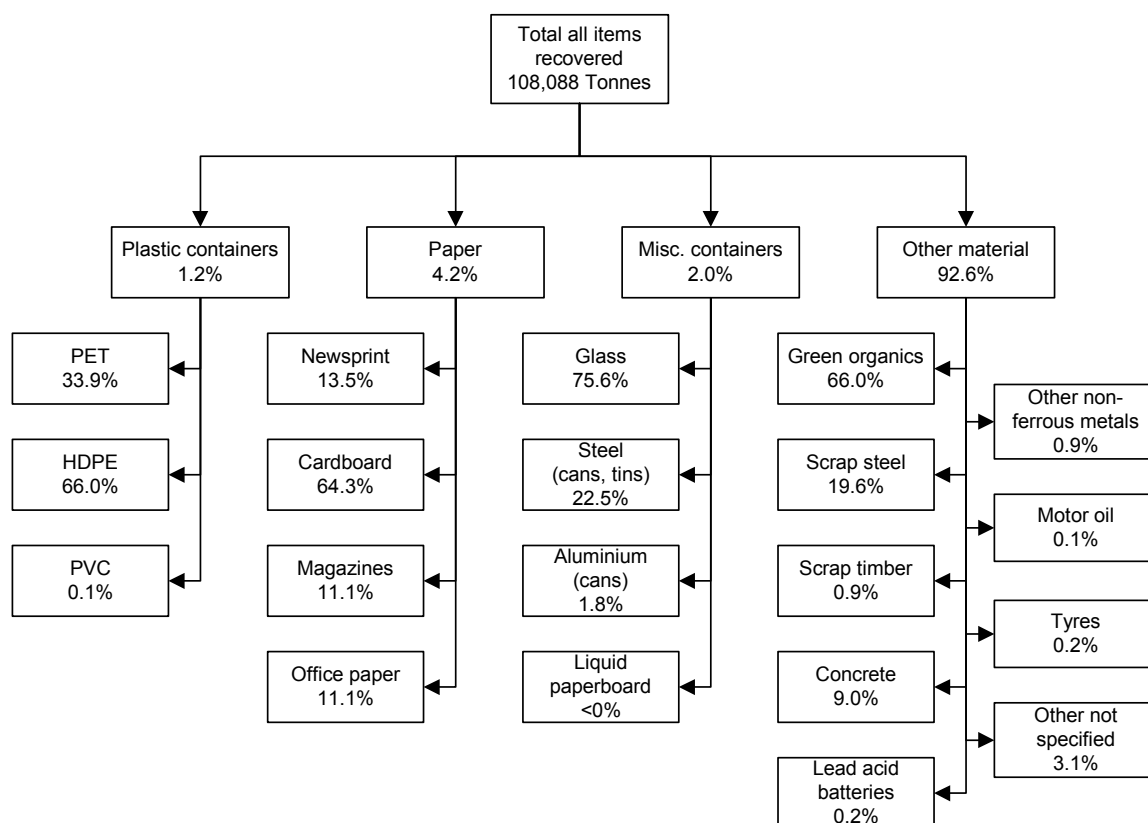
- **Resource recovery**

Seventy two landfill sites and 127 transfer stations provided resource recovery facilities. Further detail on items and quantities recovered were given for 46 landfill sites and 78 transfer stations (though sometimes this was an aggregated amount including quantities collected at other sites).

- **Resource recovery at landfills**

Over 108,000 tonnes were recovered from landfill sites in 2001-2002 (see Figure 18).

Figure 18 – Resource recovery by type of items recovered at landfills, Victoria 2001-2002

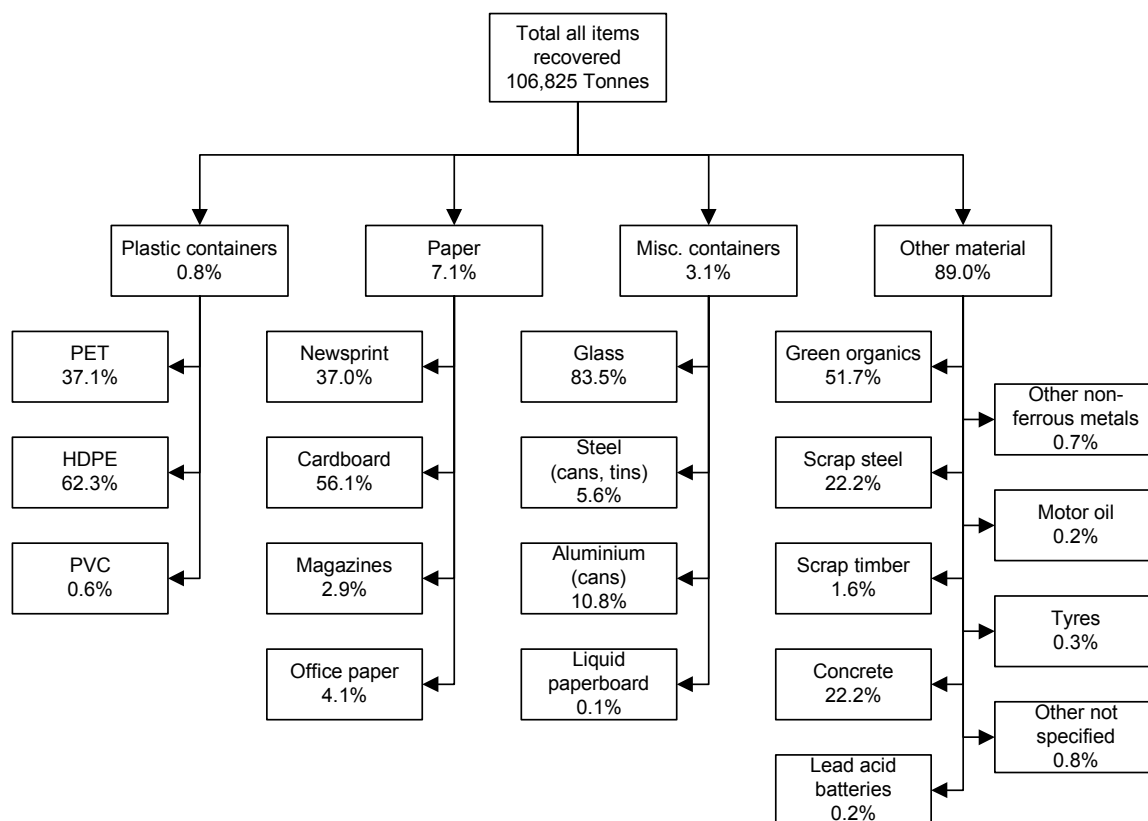


“Other materials”, which included steel, green organics and tyres, accounted for 93% of the total tonnage. The paper category was the second highest category at 4%. Green organics was by far the greatest proportion of material recovered at landfills, accounting for 61% of the total waste recovered. Green organics, scrap steel and concrete accounted for 87% of the total items recovered at landfills.

- **Resource recovery at transfer stations**

Transfer stations recovered a similar quantity to the landfills, at 107,000 tonnes in 2001-2002 (see Figure 19).

Figure 19 – Resource recovery by type of items recovered at transfer stations, Victoria 2001 - 2002



“Other material” was still the dominant source of items recovered, at 89% of the total with an increase to 7% for the paper category. Green organics again accounted for the highest proportion at 52% of all “other material”, along with steel and concrete at 22% respectively. These items accounted for 86% of the total of all items recovered at transfer stations.

• **Resource recovery by source**

Some of the main items recovered through municipal kerbside collections and drop-off facilities are displayed in Table 25.

Table 25 – Items recovered by source of recovery, Victoria 2001-2002

Item recovered	Source of item			Total
	Kerbside	Transfer Stations	Landfill	
	<i>tonnes recovered</i>			
Plastic	27,070	855	1,297	29,222
Paper	209,703	7,585	4,540	221,827
*Other Containers	124,161	3,312	2,162	129,635
Green organics	132,130	49,153	66,059	247,342
Totals	493,064	60,904	74,058	628,026

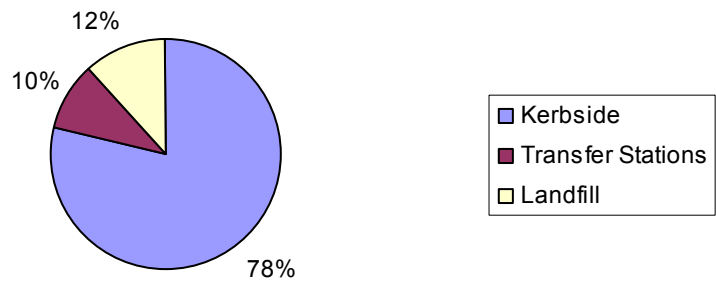
*Includes aluminium cans, steel cans, glass bottles and liquid paperboard

Landfills and transfer stations diverted nearly 135,000 tonnes of household recyclables from landfill. Of the items listed above, the quantity of green organics collected was

equally represented through both kerbside collections and drop-off facilities. This may reflect the fact that only 57% of households have a kerbside green organics service whereas 92% have a kerbside recyclables service (see Table 3).

The proportion of items recovered by their source of recovery, is displayed in Figure 20.

Figure 20 – Proportion of items recovered* by source of recovery, Victoria 2001-2002



*Only includes items for paper, plastic, containers and green organics

The vast majority of paper, plastic, containers and green organics are collected through kerbside services (78%) with landfills and transfer stations sharing a relatively equal role to each other in resource recovery for these items.

7. ALPINE RESORTS

Three Alpine Resorts from the North Eastern RWMG completed the survey for 2001-2002. They had not previously been included, but as they are considered municipalities for the purpose of EPA legislation (Environment Protection Act 1970), they are now included as a trial. There are six Alpine Resorts that fall under the Act's jurisdiction. Limited information was available from the Resorts even when a service was indicated, and with such a small survey size, generalisations from the data should be made with caution.

The Alpine Resorts generally consist of large buildings with multiple rooms. The rooms are often let on a nightly basis to visitors, most of which visit in winter. As such, the number of households did not seem an appropriate indicator, so the number of beds and annual visitors were used, as they were more representative of the activity in the area.

7.1 Kerbside Services

Alpine Resorts provided up to three kerbside services: garbage, recyclables and hard waste (see Table 26).

Table 26 – Kerbside services summary for Alpine Resorts, Victoria 2001-2002¹

	<i>Garbage</i>	<i>Recyclables</i>	<i>Hard Waste</i>	<i>Total</i>
Annual service cost	\$223,200	\$69,800	\$2,660	\$295,660
Tonnes collected	1,908.7	318.4	11.0	2,238.1
No. of beds	16,900	16,900	12,300	16,900
No. of visitors	430,000	430,000	300,000	430,000
Average cost per tonne	\$116.94	\$219.22	\$241.82	\$132.11
Average cost per bed per year	\$18.45	\$5.77	\$0.35	—
Average cost per visitor per year	\$0.52	\$0.16	\$0.01	—
Average kg per bed per year	157.7	26.3	1.5	—
Average kg per visitor per year	4.4	0.7	0.0	—
No. of Alpine Resorts providing service	3	3	2	—
<i>State average cost per tonne</i>	<i>\$87.71</i>	<i>\$144.67</i>	<i>\$100.69</i>	<i>\$101.57</i>

¹The base figures include all information provided by the Alpine Resorts, but the averages excluded Alpine Resorts that did not provide full figures

- **Garbage service**

All three Alpine Resorts have a kerbside garbage service.

Bags were used for garbage collection with a variable frequency over the year. In winter there was a daily collection, while in summer the frequencies ranged from weekly to three times per week, depending on the Resort. The variable frequencies were probably reflective of the attraction to the areas for winter activity, creating a fluctuation in the population.

Each visitor generated on average 4.4kg. The cost of garbage (at \$117 per tonne) is higher than other Victorian local governments, with the state average being \$88.

- **Recycling service**

The three Alpine Resorts also provided kerbside recycling.

The recyclables were collected in bags at the same frequency as garbage, which was daily in winter and ranging from weekly to three times a week in summer, depending on the Resort.

Each visitor generated 0.7kg of recyclables on average, with a diversion rate of 14.3%. The cost per tonne of \$219 exceeds the Preferred Service Standards of \$150.

- **Hard waste service**

Two Alpine Resorts reported a hard waste collection. At least 11 tonnes were collected, of which two tonnes (18.2%) were diverted from landfill.

7.2 Street Sweeping and Litter Services

The provision of litter and street sweeping by the Alpine Resorts is covered in this section.

Only one Alpine Resort reported the provision of street sweeping, while two Alpine Resorts provided a litter service (see Table 27). However, due to confidentiality the annual service cost is not published.

Table 27 – Litter services across Alpine Resorts, Victoria 2001-2002

	<i>Alpine Resorts</i>
Tonnes collected	5.0
No. of litter bins	32
No. of in-line litter traps	0
No. of side entry traps	0
No. of penalty infringement notices issued	0
No. of Alpine Resorts providing service	2

The litter service revolved around servicing 32 litter bins, as no litter traps were reported.

APPENDIX A METHODOLOGY

• Coverage

The target population of the survey was all 78 local governments within Victoria. Three Alpine Resorts also completed the survey as a trial out of a maximum of six. A hard copy of the survey was sent to all the local governments by mail.

The data collection is completely enumerated, that is the data collection included all 78 Victorian local governments, which all responded (representing a 100% response rate). All local governments have a weighting of one, which means that the numerical findings in this report are entirely derived from the data provided by the 78 participating local governments.

There are six Alpine Resorts that for the purpose of the Environment Protection Act (1970) are deemed to be municipalities. Three Alpine Resorts (all from the North Eastern Regional Waste Management Group) completed the survey, representing 50% of Alpine Resorts. The numerical findings are derived from the data given by the three participating Alpine Resorts, and no estimates were made for the non-participating units.

• Data collected

The data collection extended to the following service areas:

- Household Garbage collection and disposal
- Household Recyclables (i.e. containers and paper/cardboard) collection and sorting
- Commercial & Industrial Sector Recyclables (i.e. containers and paper/cardboard) collection and sorting (if separate service provided)
- Household Green Organics collection and processing
- Household Hard Waste collection and disposal/recycling
- Litter bin collection and disposal
- Street Sweeping
- Landfill and Transfer Station operating details and resource recovery

The data collection contained the local government owned drop-off facilities within the landfill and transfer station section and so excluded drop-off from the other kerbside services.

• Presentation of data

The data has been provided in full to Regional Waste Management Groups and their respective member local governments.

In the report, the data is presented in aggregated form. This reduces the impact of statistical anomalies on the findings. The data collection findings are therefore more representative of costs, yields and other features being analysed.

In various parts of the report, the data is grouped by:

- Service Provision Categories - established in the *Guide to Preferred Service Standards for Kerbside Recycling in Victoria* (EcoRecycle Victoria, November 2000)
- Metropolitan/Non-Metropolitan classifications

- Regional Waste Management Group (for waste generation)
- Collection system type (for garbage and recyclables)
- Collection frequency

- **Survey limitations**

EcoRecycle has sought to verify information provided in data collection returns by local governments through rigorous follow-up with individual local governments by telephone, fax and email, to validate data entries. In addition, EcoRecycle circulated extracts containing individual local government returns to Regional Waste Management Group Executive Officers to verify data. Through these steps and extensive data analysis, EcoRecycle has identified and corrected a significant number of anomalies.

However, EcoRecycle is not in a position to validate underlying data in the report. Findings in this report are therefore subject to the accuracy of data provided by individual local governments.

APPENDIX B GLOSSARY

- **Alpine Resort Management Boards**

Three Alpine Resort Management Boards of Mount Hotham, Mount Buller and Falls Creek from the North Eastern Regional Waste Management Group were included for the first time this year as a pilot trial. They are now included as under the Alpine Resort Management Act (1994), there are six Alpine Resorts that are considered municipalities for the purpose of EPA legislation (Environment Protection Act 1970). Unfortunately, difficulties were encountered with the concepts and counting methodology for the Alpine Resorts. This made the exercise of integrating the Resorts into the main body of data problematic. The number of residential premises serviced was difficult to report for these units. Consequently, the number of beds and visitors per year were reported for use in the derived data (e.g. *average cost per bed*), as they were more representative indicators of the type of activity undertaken at the Resorts.

- **Annual service cost**

Refers to the collection, sorting and disposal contract costs of *providing a waste service*. In-house contracts should allocate costs for providing labour services and associated sorting and disposal fees even if they are usually only accounted for internally. Capital equipment used to provide the kerbside service such as trucks and other specialised equipment should be depreciated as per normal accounting practices with the annual depreciation figure included as a cost. Lease or hire purchase costs should also be reported. Excludes all capital expenditure costs associated with the construction and commissioning of infrastructure. Only the annual operating expenses of providing a kerbside service are required.

- **Cigarette bins**

Cigarette bins are containers mounted on walls or poles, dedicated to the disposal of cigarette butts. They can be purchased, rented and even sometimes cleaned through the manufacturer

- **In-line and side entry traps**

Traps act as filters in the stormwater to capture litter before it enters the waterways. They are cleaned regularly, either manually or with a vacuum, to dispose of the litter to landfill. In-line entry traps operate within the drainage system and act as a filter to capture pollutants flowing through the stormwater. Side entry traps act at the drainage entrance to capture pollutants.

- **Items recovered for recycling**

Most local governments provided a total quantity recovered or at least the sub-totals for paper, non-plastic containers, and plastic containers. Ninety six percent of local governments provided at least a total of all recyclable items collected. Detailed breakdowns were provided from 86% of local governments for the totals of non-plastic containers (i.e. glass, steel, aluminium, liquid paperboard), 84% for plastic containers and 93% for paper. Significantly fewer local governments reported on individual items (eg. the quantity of PET within the plastic container category).

- **Landfill & Transfer Station details**

This section deals with the number of local government owned or operated landfills (licensed and unlicensed) and transfer stations across the state. The data does not include privately owned sites. EPA policy states that any landfill servicing a population of over 5,000 requires a license. Any landfill servicing under 5,000 is able to operate unlicensed.

- **Length of sweepable kerb and channel**

This item refers to the *annual* length of kerb and channel swept in kilometres (km). The length of sweepable kerb and channel is calculated using the frequency of the service multiplied by the length of kerb and channel swept for that period. For instance, if a local government provides a weekly service where 12 km of kerb and channel are swept, then the length of sweepable kerb and channel is 12 km multiplied by 52 weeks, which equates to 624 km. If other parts of the municipality are provided with a service other than on a weekly basis, then that length swept is multiplied by the frequency per year. For example, multiply by 52 for a weekly service, 12 for monthly, 1 for annual, etc. Then all the calculated totals are summed to arrive at an annual length swept.

- **On-call services**



Many local governments provide an *on-call* service, such as for a green organics collection. Generally 1 or 2 free services per year are provided to all residents in the municipality. However, responses to this question were not always accurate due to the ambiguous nature of the question. For instance, local governments that reported an on-call service often mistakenly stated that all residents were provided the service rather than the actual number serviced. This obviously has the effect of deflating the *cost per household* figure.

- **Penalty Infringement Notices**

Litter enforcement officers, who are employees of public authorities, issue penalty infringement notices. Notices are issued for littering, which could lead to fines or court appearances under the Environment Protection Act.

- **Plastic Definitions**

The Plastic Coding System is a series of symbols that identify the most common plastic material used in the manufacture of a product or packaging. The symbols are usually embossed on the bottom of plastic containers and bottles. Their purpose is to assist collectors with sorting the collected plastics by material type. They do not necessarily indicate that the product can be recycled or is made from recycled content. Each symbol in the Plastics Coding System consists of a number from 1 to 7 inside a chasing arrows triangle. The most common plastic containers that are collected in Victoria are:

-  PETE PET (Plastic Identification Code 1 used for soft drink bottles),
-  HDPE HDPE (Plastic Identification Code 2 used for milk and juice bottles) and



- PVC (Plastic Identification Code 3 used for juice and cordial bottles)

- **Predominant bin type**

This refers to the bin type used by most residential properties within the municipality for garbage and recyclables. For instance, if a local government has a 120L bin for 30% of the municipality and a 240L bin for 70% of the municipality then the predominant bin type is the 240L bin.

- **Predominant frequency of service**

This refers to the frequency of service that is most common within the municipality for green organics and hard waste. The defining criterion is the number of households serviced. For example, if a local government has a fortnightly service for 1,000 households and an annual service for 10,000 households, the predominant frequency of service is an annual service as more households receive this service.

- **Putrescible & Inert Waste**

Putrescible waste is organic material that decomposes, such as food scraps. Inert waste does not decompose or rot, such as concrete and white goods, and have no potentially hazardous content once landfilled.

- **Recyclable collection systems**

For this publication, the following definitions of bin types have been used:

- *2 crate system* – refers to a crate for the collection of containers and a crate for the collection of paper;
- *Crate and tied bundle* – refers to a crate for the collection of containers and a tied bundle (or a loose stack) for the collection of paper;
- *Commingled bin* – refers to one collection system used to accept containers and paper mixed together.
- *Split bin* – refers to the collection of containers and paper in one collection system segmented to accept both recyclables streams;
- *Split bin (garbage)* – refers to the collection of recyclables (commingled containers and paper) together with garbage in one collection system segmented to accept the 2 different waste streams;

- **Regional Waste Management Groups (RWMG)**

There are 16 Regional Waste Management Groups, which cover all 78 Victorian local governments, divided into metro and non-metro areas. They vary in the number of local governments they include from one local government to ten local governments. Each RWMG is responsible for coordinating the waste management activities for its member local governments.

- **Resource Recovery**

Where items are collected so as to avoid waste going to landfill. Items recovered range from those collected through kerbside recycling (e.g. glass bottles), to scrap steel, green organics and motor oil

- **Service provision categories**

The six kerbside recycling service provision categories established in the *Guide to Preferred Service Standards for Kerbside Recycling in Victoria* have been applied in this report to the range of waste management services provided by local government. Each local government area has been coded to a service provision category (see Appendix C) according to the following guidelines:

- *Inner Metropolitan*: Covering the more densely populated inner area of Melbourne. Characterised by high levels of multi-tenanted dwellings, narrower streets making accessibility for collection purposes difficult, and generally short distances to a landfill/transfer station, sorting facilities and end markets for recyclables. For example, Yarra and Port Phillip City Councils.
- *Outer Metropolitan*: A geographically more dispersed part of Melbourne, which is generally based on average population density, average block sizes and generally short distances to a landfill/transfer station, sorting facilities and end markets for recyclables. For example, Whitehorse, Monash and Hume City Councils.
- *Melbourne Fringe*: Areas on the outskirts of Melbourne often with a blend of urban and rural areas. Likely to have slightly larger block size and moderate collection transport costs and freight costs to a landfill/transfer station, sorting facilities and end markets for recyclables. For example, Nillumbik, Cardinia and Macedon Ranges Shire Councils.
- *Major Provincial Centres*: Characterised by significant population totals and average population density. Likelihood of regional sorting facility within the city and reasonable transport route to Melbourne or other market destinations. Relatively short distances to a landfill/transfer station for waste disposal. For example, City of Wodonga, Greater Bendigo and Ballarat City Councils.
- *Small Provincial Centres*: Population centres of moderate size and density with some surrounding semi-rural properties. Reasonable likelihood of transportation to a major centre for sorting and additional transportation of recyclables to reprocessing markets. Moderate distances to a landfill/transfer station for waste disposal. For example, Ararat Rural City Council, Baw Baw and Campaspe Shire Councils.
- *Rural Townships/Remote*: Small population centres with significant distances to sorting and reprocessing facilities. Rural areas with sparse populations and lower level road infrastructure, greater distances to a landfill/transfer station for waste disposal. For example, Buloke, Corangamite and Moira Shire Councils.

- **Tonnes collected**

Conversion factors have been used to convert quantities reported in cubic metres to tonnes. No compaction factors have been taken into account unless otherwise stated on the survey forms.

The conversion factors as used by EcoRecycle Victoria are:

1 cubic metre is equal to:

Paper/cardboard.....	0.10 tonne
Household garbage/Garden/vegetation/.....	0.15
Wood/timber	0.30
Glass	0.70
Plastics	0.20
Steel cans	0.90
Aluminium cans	0.90
Commingled recyclables, i.e. plastic/glass/steel/aluminium	0.68

- **Total households serviced**

Refers to both residential households *and* commercial and industrial premises serviced. Many local governments cannot provide a split of the number of commercial and industrial premises serviced or do not have a separate charge for this service. For practical reasons, the derived figures calculated in this publication which rely upon the *Total households serviced* such as *Average cost per household per year*, refers to the total residential *and* commercial and industrial premises serviced.

- **Transfer Stations**

For the purpose of this survey, transfer stations are defined as any facility that collects and *consolidates* waste before being transferred to a disposal site, i.e. landfill. The size of the collection systems may vary in size, including small mobile garbage bins, mini-skips and push-pits (a pit from which the waste is pushed into a large bin).

A transfer station is further defined as any location or site designated by a local government as a transfer station regardless of its physical appearance or size. Where resource recovery is undertaken at a landfill site then strictly speaking it is not considered a transfer station as it has reached its final destination (i.e. the landfill) **unless** a local government considers this location a transfer station.

APPENDIX C TABLE OF LOCAL GOVERNMENTS IN ALPHABETICAL ORDER

Local governments in alphabetical order (by region, service provision category and metro/non-metro classification), Victoria 2001-2002

<i>Council name</i>	<i>Regional Waste Management Group</i>	<i>Service Provision Category</i>	<i>Metro/Non-metro classification</i>
Alpine Shire Council	North Eastern RWMG	Small Provincial	Non-Metro
Ararat Rural City Council	Grampians RWMG	Small Provincial	Non-Metro
Ballarat City Council	Highlands RWMG	Major Provincial	Non-Metro
Banyule City Council	Northern RWMG	Outer Metropolitan	Metro
Bass Coast Shire Council	Gippsland RWMG	Small Provincial	Non-Metro
Baw Baw Shire Council	Gippsland RWMG	Small Provincial	Non-Metro
Bayside City Council	South Eastern RWMG	Outer Metropolitan	Metro
Boroondara City Council	South Eastern RWMG	Outer Metropolitan	Metro
Brimbank City Council	Western RWMG	Outer Metropolitan	Metro
Buloke Shire Council	Central Murray RWMG	Rural Township	Non-Metro
Campaspe Shire Council	Goulburn Valley RWMG	Small Provincial	Non-Metro
Cardinia Shire Council	South Eastern RWMG	Melbourne Fringe	Metro
Casey City Council	South Eastern RWMG	Outer Metropolitan	Metro
Central Goldfields Shire Council	Highlands RWMG	Small Provincial	Non-Metro
City of Melbourne	Western RWMG	Inner Metropolitan	Metro
City of Wodonga	North Eastern RWMG	Major Provincial	Non-Metro
Colac Otway Shire Council	Barwon RWMG	Small Provincial	Non-Metro
Corangamite Shire Council	South Western RWMG	Rural Township	Non-Metro
Darebin City Council	Northern RWMG	Inner Metropolitan	Metro
Delatite Shire Council	North Eastern RWMG	Major Provincial	Non-Metro
East Gippsland Shire Council	Gippsland RWMG	Small Provincial	Non-Metro
Falls Creek Alpine Resort Management Board	North Eastern RWMG	Small Provincial	Non-Metro
Frankston City Council	South Eastern RWMG	Outer Metropolitan	Metro
Gannawarra Shire Council	Central Murray RWMG	Rural Township	Non-Metro
Glen Eira City Council	South Eastern RWMG	Inner Metropolitan	Metro
Glenelg Shire Council	South Western RWMG	Rural Township	Non-Metro
Golden Plains Shire Council	Highlands RWMG	Rural Township	Non-Metro
Greater Bendigo City Council	Calder RWMG	Major Provincial	Non-Metro
Greater Dandenong City Council	South Eastern RWMG	Outer Metropolitan	Metro
Greater Geelong City Council	Barwon RWMG	Major Provincial	Non-Metro
Greater Shepparton City Council	Goulburn Valley RWMG	Major Provincial	Non-Metro
Hepburn Shire Council	Highlands RWMG	Small Provincial	Non-Metro
Hindmarsh Shire Council	Desert Fringe RWMG	Rural Township	Non-Metro
Hobsons Bay City Council	Western RWMG	Inner Metropolitan	Metro
Horsham Rural City Council	Grampians RWMG	Small Provincial	Non-Metro
Hume City Council	Northern RWMG	Outer Metropolitan	Metro
Indigo Shire Council	North Eastern RWMG	Small Provincial	Non-Metro
Kingston City Council	South Eastern RWMG	Outer Metropolitan	Metro
Knox City Council	Leastwaste RWMG	Outer Metropolitan	Metro
Latrobe City Council	Gippsland RWMG	Small Provincial	Non-Metro
Loddon Shire Council	Central Murray RWMG	Small Provincial	Non-Metro
Macedon Ranges Shire Council	Calder RWMG	Melbourne Fringe	Non-Metro
Manningham City Council	Leastwaste RWMG	Outer Metropolitan	Metro
Maribyrnong City Council	Western RWMG	Inner Metropolitan	Metro
Maroondah City Council	Leastwaste RWMG	Outer Metropolitan	Metro
Melton Shire Council	Western RWMG	Outer Metropolitan	Metro

<i>Council name</i>	<i>Regional Waste Management Group</i>	<i>Service Provision Category</i>	<i>Metro/Non-metro classification</i>
Mildura Rural City Council	Mildura RWMG	Small Provincial	Non-Metro
Mitchell Shire Council	Goulburn Valley RWMG	Small Provincial	Non-Metro
Moira Shire Council	Goulburn Valley RWMG	Rural Township	Non-Metro
Monash City Council	South Eastern RWMG	Outer Metropolitan	Metro
Moonee Valley City Council	Western RWMG	Inner Metropolitan	Metro
Moorabool Shire Council	Highlands RWMG	Melbourne Fringe	Non-Metro
Moreland City Council	Northern RWMG	Inner Metropolitan	Metro
Mornington Peninsula Shire Council	Mornington Peninsula RWMG	Melbourne Fringe	Metro
Mount Alexander Shire Council	Calder RWMG	Small Provincial	Non-Metro
Moyne Shire Council	South Western RWMG	Rural Township	Non-Metro
Mount Buller Alpine Resort Management Board	North Eastern RWMG	Small Provincial	Non-Metro
Mount Hotham Alpine Resort Management Board	North Eastern RWMG	Small Provincial	Non-Metro
Murrindindi Shire Council	Goulburn Valley RWMG	Rural Township	Non-Metro
Nillumbik Council	Northern RWMG	Melbourne Fringe	Metro
Northern Grampians Shire Council	Grampians RWMG	Small Provincial	Non-Metro
Port Phillip City Council	Western RWMG	Inner Metropolitan	Metro
Pyrenees Shire Council	Highlands RWMG	Rural Township	Non-Metro
Queenscliff Borough Council	Barwon RWMG	Small Provincial	Non-Metro
Rural City of Wangaratta	North Eastern RWMG	Small Provincial	Non-Metro
South Gippsland Shire Council	Gippsland RWMG	Small Provincial	Non-Metro
Southern Grampians Shire Council	South Western RWMG	Small Provincial	Non-Metro
Stonnington City Council	South Eastern RWMG	Inner Metropolitan	Metro
Strathbogie Shire Council	Goulburn Valley RWMG	Rural Township	Non-Metro
Surf Coast Shire Council	Barwon RWMG	Small Provincial	Non-Metro
Swan Hill Rural City Council	Central Murray RWMG	Small Provincial	Non-Metro
Towong Shire Council	North Eastern RWMG	Rural Township	Non-Metro
Warrnambool City Council	South Western RWMG	Small Provincial	Non-Metro
Wellington Shire Council	Gippsland RWMG	Small Provincial	Non-Metro
West Wimmera Shire Council	Desert Fringe RWMG	Rural Township	Non-Metro
Whitehorse City Council	Leastwaste RWMG	Outer Metropolitan	Metro
Whittlesea City Council	Northern RWMG	Outer Metropolitan	Metro
Wyndham City Council	Western RWMG	Outer Metropolitan	Metro
Yarra City Council	Western RWMG	Inner Metropolitan	Metro
Yarra Ranges Shire Council	Leastwaste RWMG	Melbourne Fringe	Metro
Yarriambiack Shire Council	Grampians RWMG	Rural Township	Non-Metro

APPENDIX D TOTAL WASTE GENERATION AND COSTS PER HOUSEHOLD FOR INDIVIDUAL LOCAL GOVERNMENTS

The total waste generated per household for each local government in relation to garbage, recyclables and green organics are listed below.

Total waste generation per household of garbage, recyclables and green organics by local government, Victoria 2001-2002¹

<i>Council name</i>	<i>Garbage kg per household</i>	<i>Recyclables kg per household</i>	<i>Green organics kg per household</i>	<i>Total waste generation</i>
Alpine Shire Council	494.2	144.4	15.8	654.3
Ararat Rural City Council	823.6	198.7	—	1,022.3
Ballarat City Council	494.3	188.5	935.6	1,618.4
Banyule City Council	427.2	242.8	145.5	815.5
Bass Coast Shire Council	277.2	187.1	—	464.3
Baw Baw Shire Council	714.0	131.9	51.9	897.8
Bayside City Council	535.4	224.3	381.1	1,140.8
Boroondara City Council	544.4	272.3	147.2	963.9
Brimbank City Council	752.4	179.0	39.8	971.2
Buloke Shire Council	671.2	82.1	—	753.3
Campaspe Shire Council	936.0	105.0	—	1,041.0
Cardinia Shire Council	507.8	239.1	65.6	812.5
Casey City Council	604.3	243.0	460.9	1,308.2
Central Goldfields Shire Council	445.8	104.7	41.7	592.2
City of Melbourne	523.5	126.2	1.0	650.7
City of Wodonga	734.9	396.3	316.2	1,447.4
Colac Otway Shire Council	350.7	127.2	124.2	602.1
Corangamite Shire Council	468.5	124.5	151.8	744.9
Darebin City Council	506.7	199.8	98.1	804.6
Delatite Shire Council	524.7	422.4	—	947.1
East Gippsland Shire Council	611.0	185.9	—	796.9
Frankston City Council	415.6	196.2	—	611.8
Gannawarra Shire Council	593.3	288.8	—	882.1
Glen Eira City Council	763.9	148.8	331.1	1,243.8
Glenelg Shire Council	256.3	127.2	—	383.5
Golden Plains Shire Council	728.0	—	—	728.0
Greater Bendigo City Council	787.5	122.2	—	909.7
Greater Dandenong City Council	705.3	248.0	256.8	1,210.2
Greater Geelong City Council	651.0	152.4	—	803.4
Greater Shepparton City Council	755.4	190.2	—	945.6
Hepburn Shire Council	655.9	136.4	—	792.3
Hindmarsh Shire Council	535.6	413.2	—	948.8
Hobsons Bay City Council	564.3	188.3	13.3	765.9
Horsham Rural City Council	741.4	114.6	—	856.0
Hume City Council	891.3	143.1	—	1,034.4
Indigo Shire Council	418.3	123.6	—	541.9
Kingston City Council	502.7	243.1	198.1	943.9
Knox City Council	424.5	254.4	482.6	1,161.6

<i>Council name</i>	<i>Garbage kg per household</i>	<i>Recyclables kg per household</i>	<i>Green organics kg per household</i>	<i>Total waste generation</i>
Latrobe City Council	839.9	88.9	34.9	963.7
Loddon Shire Council	607.1	—	—	607.1
Macedon Ranges Shire Council	868.5	269.1	—	1,137.6
Manningham City Council	528.9	266.4	398.3	1,193.7
Maribyrnong City Council	621.5	208.9	38.8	869.2
Maroondah City Council	449.7	230.8	324.4	1,004.9
Melton Shire Council	658.5	221.8	—	880.3
Mildura Rural City Council	448.9	140.1	—	588.9
Mitchell Shire Council	557.9	306.3	—	864.2
Moira Shire Council	806.9	259.8	—	1,066.7
Monash City Council	775.0	188.8	90.4	1,054.1
Moonee Valley City Council	782.1	145.6	12.3	940.0
Moorabool Shire Council	502.3	138.0	—	640.3
Moreland City Council	447.0	198.2	98.5	743.7
Mornington Peninsula Shire Council	642.2	135.5	4.7	782.5
Mount Alexander Shire Council	1,160.9	75.9	—	1,236.8
Moyne Shire Council	615.3	47.9	431.5	1,094.7
Murrindindi Shire Council	651.2	75.0	—	726.2
Nillumbik Council	450.9	305.6	82.4	838.9
Northern Grampians Shire Council	539.7	237.2	—	776.9
Port Phillip City Council	400.9	181.5	2.0	584.4
Pyrenees Shire Council	427.5	37.8	—	465.3
Queenscliff Borough Council	488.2	151.3	28.5	668.0
Rural City of Wangaratta	694.4	144.6	—	839.0
South Gippsland Shire Council	474.7	167.4	—	642.1
Southern Grampians Shire Council	246.2	139.9	—	386.1
Stonnington City Council	443.5	195.6	53.7	692.8
Strathbogie Shire Council	317.3	221.9	—	539.3
Surf Coast Shire Council	397.8	92.2	—	490.0
Swan Hill Rural City Council	506.1	272.8	—	778.9
Towong Shire Council	665.4	233.9	—	899.3
Warrnambool City Council	418.0	209.0	—	627.0
Wellington Shire Council	456.8	163.2	—	620.0
West Wimmera Shire Council	347.4	28.3	—	375.7
Whitehorse City Council	541.7	219.8	41.5	803.0
Whittlesea City Council	603.2	233.8	121.7	958.7
Wyndham City Council	676.1	175.4	5.5	857.0
Yarra City Council	248.7	213.6	42.6	504.9
Yarra Ranges Shire Council	513.8	202.4	22.4	738.6
Yarriambiack Shire Council	515.0	—	—	515.0
<i>State average</i>	<i>577.1</i>	<i>196.9</i>	<i>119.2</i>	<i>893.2</i>

¹No figure indicates the service is not provided

The cost per household for each local government in relation to garbage, recyclables and green organics are listed below.

Total cost per household for garbage, recyclables and green organics by local government, Victoria 2001-2002¹

<i>Council name</i>	<i>Garbage cost per household</i>	<i>Recyclables cost per household</i>	<i>Green organics cost per household</i>	<i>Total cost per household</i>
Alpine Shire Council	\$54.46	\$46.09	\$2.21	\$102.77
Ararat Rural City Council	\$97.84	\$16.47	—	\$114.30
Ballarat City Council	\$26.95	\$31.38	\$85.80	\$144.14
Banyule City Council	\$51.48	\$38.43	\$19.32	\$109.24
Bass Coast Shire Council	\$36.41	\$36.32	—	\$72.73
Baw Baw Shire Council	\$50.43	\$27.35	\$15.71	\$93.48
Bayside City Council	\$50.95	\$23.96	\$37.82	\$112.73
Boroondara City Council	\$45.86	\$19.93	\$10.08	\$75.87
Brimbank City Council	\$55.45	\$26.89	\$4.25	\$86.58
Buloke Shire Council	\$66.31	\$20.61	—	\$86.92
Campaspe Shire Council	\$56.80	\$19.09	—	\$75.89
Cardinia Shire Council	\$66.96	\$34.22	\$27.11	\$128.29
Casey City Council	\$48.64	\$30.61	\$31.41	\$110.65
Central Goldfields Shire Council	\$45.32	\$23.87	\$8.91	\$78.10
City of Melbourne	\$47.98	\$39.86	\$3.14	\$90.98
City of Wodonga	\$45.38	\$34.84	\$59.46	\$139.68
Colac Otway Shire Council	\$46.17	\$30.69	\$60.49	\$137.35
Corangamite Shire Council	\$60.44	\$19.57	\$12.47	\$92.48
Darebin City Council	\$51.72	\$25.15	\$12.31	\$89.19
Delatite Shire Council	\$71.80	\$38.00	—	\$109.80
East Gippsland Shire Council	\$33.59	\$26.49	—	\$60.08
Frankston City Council	\$45.59	\$26.91	—	\$72.50
Gannawarra Shire Council	\$55.60	\$77.50	—	\$133.09
Glen Eira City Council	\$49.22	\$21.97	\$46.15	\$117.34
Glenelg Shire Council	\$45.56	\$22.44	—	\$68.00
Golden Plains Shire Council	\$97.51	—	—	\$97.51
Greater Bendigo City Council	\$47.61	\$15.00	—	\$62.61
Greater Dandenong City Council	\$45.17	\$37.70	\$79.54	\$162.41
Greater Geelong City Council	\$61.49	\$14.08	—	\$75.57
Greater Shepparton City Council	\$51.25	\$28.15	—	\$79.39
Hepburn Shire Council	\$35.36	\$28.73	—	\$64.09
Hindmarsh Shire Council	\$62.73	\$16.41	—	\$79.14
Hobsons Bay City Council	\$53.76	\$24.60	\$9.27	\$87.63
Horsham Rural City Council	\$33.50	\$7.56	—	\$41.06
Hume City Council	\$69.87	\$28.05	—	\$97.91
Indigo Shire Council	\$76.25	\$53.19	—	\$129.44
Kingston City Council	\$44.75	\$31.34	\$22.03	\$98.12
Knox City Council	\$50.45	\$39.75	\$36.86	\$127.06

<i>Council name</i>	<i>Garbage cost per household</i>	<i>Recyclables cost per household</i>	<i>Green organics cost per household</i>	<i>Total cost per household</i>
Latrobe City Council	\$51.17	\$16.26	\$0.94	\$68.37
Loddon Shire Council	\$75.12	—	—	\$75.12
Macedon Ranges Shire Council	\$64.00	\$55.38	—	\$119.38
Manningham City Council	\$56.39	\$32.76	\$41.25	\$130.40
Maribyrnong City Council	\$24.98	\$22.79	\$3.47	\$51.23
Maroondah City Council	\$55.30	\$37.52	\$44.21	\$137.02
Melton Shire Council	\$44.97	\$26.91	—	\$71.88
Mildura Rural City Council	\$42.47	\$36.60	—	\$79.07
Mitchell Shire Council	\$46.30	\$31.46	—	\$77.75
Moira Shire Council	\$129.11	\$49.50	—	\$178.62
Monash City Council	\$50.70	\$21.35	\$7.67	\$79.72
Moonee Valley City Council	\$40.77	\$19.41	\$2.12	\$62.30
Moorabool Shire Council	\$58.94	\$20.97	—	\$79.91
Moreland City Council	\$48.05	\$30.10	\$10.43	\$88.57
Mornington Peninsula Shire Council	\$33.38	\$29.39	\$1.71	\$64.49
Mount Alexander Shire Council	\$55.03	\$32.71	—	\$87.74
Moyne Shire Council	\$96.40	\$18.03	\$18.99	\$133.42
Murrindindi Shire Council	\$41.56	\$26.76	—	\$68.32
Nillumbik Council	\$57.28	\$52.42	\$15.53	\$125.23
Northern Grampians Shire Council	\$63.73	\$33.22	—	\$96.95
Port Phillip City Council	\$44.48	\$24.07	\$1.50	\$70.04
Pyrenees Shire Council	\$50.50	\$36.49	—	\$86.99
Queenscliff Borough Council	\$70.79	\$14.61	\$5.53	\$90.93
Rural City of Wangaratta	\$86.46	\$26.67	—	\$113.13
South Gippsland Shire Council	\$59.48	\$12.78	—	\$72.27
Southern Grampians Shire Council	\$28.98	\$25.00	—	\$53.98
Stonnington City Council	\$67.15	\$24.16	\$10.26	\$101.56
Strathbogie Shire Council	\$48.69	\$18.31	—	\$66.99
Surf Coast Shire Council	\$67.22	\$37.59	—	\$104.81
Swan Hill Rural City Council	\$43.95	\$93.10	—	\$137.06
Towong Shire Council	\$99.04	\$39.77	—	\$138.81
Warrnambool City Council	\$60.24	\$33.33	—	\$93.57
Wellington Shire Council	\$50.18	\$23.14	—	\$73.32
West Wimmera Shire Council	\$60.61	\$34.10	—	\$94.72
Whitehorse City Council	\$47.27	\$25.86	\$3.84	\$76.97
Whittlesea City Council	\$46.99	\$34.99	\$10.77	\$92.76
Wyndham City Council	\$50.43	\$20.67	\$0.34	\$71.44
Yarra City Council	\$31.10	\$24.59	\$1.12	\$56.81
Yarra Ranges Shire Council	\$63.92	\$36.43	\$2.54	\$102.89
Yarriambiack Shire Council	\$64.48	—	—	\$64.48
<i>State average</i>	<i>\$50.65</i>	<i>\$28.49</i>	<i>\$12.93</i>	<i>\$92.06</i>

*No figure indicates the service is not provided