Victorian Local Government Annual Survey

2006 – 2007

Sustainability victoria

Victoria The Place To Be

Published by Sustainability Victoria. Level 28, Urban Workshop 50 Lonsdale Street Melbourne Victoria 3000 Australia. April 2008.
Also published on www.sustainability.vic.gov.au

Contents

Figures

Tables

Executive summary

Introduction

In September 2007, Sustainability Victoria commenced its survey on the waste management and recycling services provided by Victorian local governments during the 2006–07 financial year.

This is the seventh in the series of annual surveys undertaken for Victoria and builds on previous surveys to enable the evaluation of performance of local government waste management services.

The data collection for 2006–07 extended to the following service areas:

> household garbage collection and disposal

> household recyclables collection and sorting

> household green organics collection and processing

> litter bin and litter trap collection and disposal

> litter clean up services

> street sweeping

> hard waste collection

> commercial and industrial recyclables services

> landfill and transfer station operations

Total waste generation

> Total waste generation collected (garbage, recyclables and green organics) from kerbside services accounted for a little over 1.8 million tonnes in Victoria in the 2006–07 financial year, a decrease of almost 19,000 tonnes, or 1.0% less than in the 2005–06 financial year. Household garbage decrease by nearly 26,000 tonnes (2.5%) while recyclables increased by almost 20,000 tonnes or 3.7% from the previous year. Green organics decreased this year by just about 13,000 tonnes which represents 5.0% less collected than last year. The general downturn in green organics collected can be attributed to the drought conditions prevailing in Victoria and the water restrictions on household gardens.

> Kerbside collection expenditure by local government on the three services was more than $232 million (Table 1), an increase of a little over $3 million (1.5%) from the previous year.

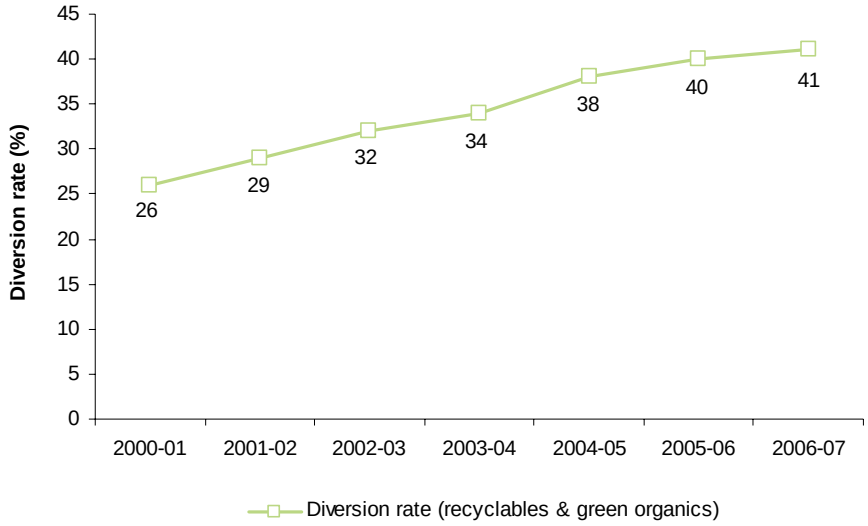
Table 1 Kerbside services, Victoria 2006–07

	Garbage	Recyclables	Green organics	Total
Annual service cost	$126,219,968	$71,116,512	$34,831,093	$232,167,573
Tonnes collected	1,000,638	561,251	246,175	1,808,064
Tonnes processed / recycled	—	504,174	244,731	748,905
Total households serviced*	2,111,319	2,070,875	1,612,285	—
Cost per tonne	$126.14	$126.71	$141.49	$128.41
Cost per household	$59.78	$34.34	$21.60	—
Household yield (kg)	474	271	153	—

* Total households serviced may also include commercial and industrial properties. Green organics refers to the number of households with access to a service

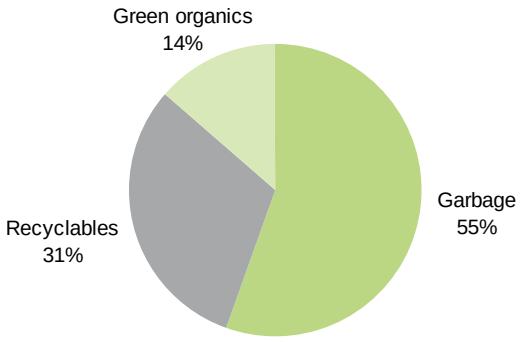
> The statewide average recyclables and green organics diversion rate by tonnes has increased from 40% in 2005–06 to 41% (see Figure 1). The rate of increase for the diversion rate has slowed slightly since the 2004-05 period. This is consistent with many local governments adopting the preferred bin systems for recyclables over the same period.

Figure 1 Diversion rate by tonnes, Victoria 2000–01 to 2006–07



> Garbage accounted for 55% of the total waste stream proportion, down 1% over 2005–06 (see Figure 2). Since the start of the benchmark survey in 2000-01, the trend of total waste generation had continually increased. This year, for the first time since 2000-01, this trend has decreased with 2.5% less garbage being generated since the previous survey period.

Figure 2 Composition of waste processed (collected) through kerbside services, Victoria 2006–07



Garbage

> A little over 1 million tonnes of garbage was collected through kerbside services in 2006–07. This equates to about 197 kg for every person[1] in Victoria, 2 kg less than in the previous year.

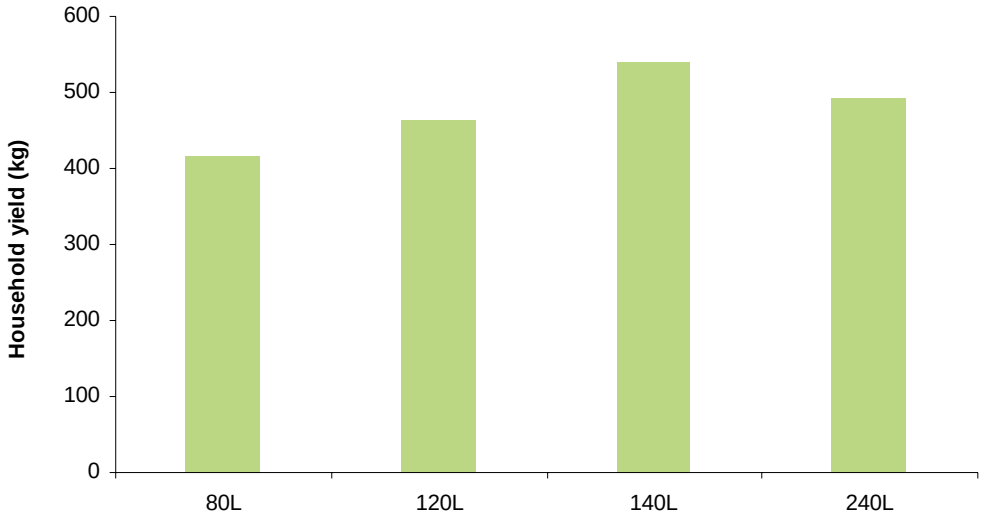
> Over the last six years Victorian households have steadily reduced their garbage generation. Households have generated 474 kg or 16 kg less than in 2005–06.

> The total tonnes collected have decreased slightly by 25,869 tonnes or 2.5% over the past year.

> Service costs averaged $59.78 per household per year ($60.49 in 2005–06).

> Local governments using smaller garbage bins generally generated less waste and had greater diversion rates for recycling than those using larger garbage bins. For the first time since the survey was conducted in 2000-01, the 240L bin system did not generate the greatest quantity of waste per household (see Figure 3). A possible reason for this may be the improvements in the provision of better kerbside services allowing greater diversion of material into the kerbside recyclables and green organic bin. This is not verified and will require more detailed analysis.

Figure 3 Garbage yield by collection system, Victoria 2006–07



Recyclables

> 561,251 tonnes of recyclables were collected from kerbside services (up 3.7% from the previous year), an increase of almost 20,000 tonnes collected. This increase can be attributed to the increase in the expansion of kerbside services within Victoria. There are now 78 of 79 Victorian local governments with a kerbside recyclables service. The number of households being serviced has also increase by 3.1% over the previous year.

> The cost of a kerbside garbage collection and disposal service has now almost matched the cost of providing a kerbside recyclables collection service at $126.71 per tonne. These new figures show that recycling is worth the effort for collectors as the costs of recycling are almost equivalent to the cost of landfilling.

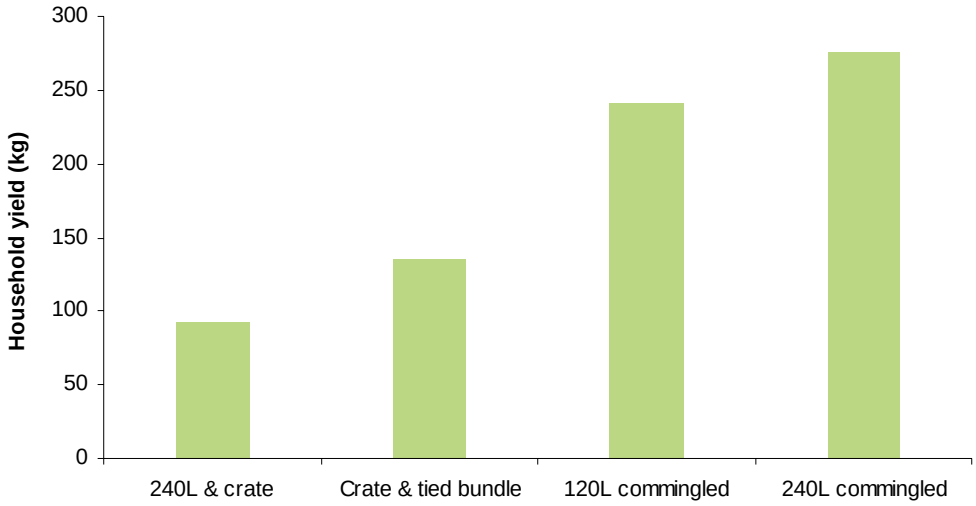
[1] ABS Catalogue number 3222.0 Estimated Resident Population, 14 June 2006. Series B figures for population have been used to calculate the Victorian 'per person rate' in this publication - (population = 5,068,100).

> Collections averaged 271 kg per household per year representing only a small increase (1 kg) over 2005–06. This represents 111 kg of recyclables generated by every person in Victoria.

> Nearly all local governments (96%) now use a best practice 240L or 120L commingled bin for recyclables instead of a crate for containers and tied bundle for paper.

> The best practice bin systems (a 240L commingled or a 240L split recyclables fortnightly or a weekly 120L commingled recyclables mobile bin) delivered the greatest yield per household and a higher diversion rate compared to other bin system combinations (see Figure 4).

Figure 4 Recyclables yield by collection system, Victoria 2006–07



> Service costs averaged $34.34 per household per year. This is largely unchanged from 2005–06.

> The average contamination rate for recyclables was 10.2%, a decrease of 1.1% over the last survey period (11.3%). Decreased contamination may be associated with improved kerbside services such as the expansion of the three bin systems (garbage, recyclables and green organics) to more households.

> By weight of recyclable material collected from kerbside collections (excluding green organics) paper/cardboard accounted for 62.7%, miscellaneous containers (glass/steel and aluminium cans) 28.9% and plastic containers 8.4%. These proportions are similar to previous results obtained from the survey.

Green organics

> A green organics collection service was provided by 45 out of 79 local governments. Of these, 37 had a regular collection (i.e. weekly, fortnightly or monthly).

> 246,175 tonnes of green organics were collected from kerbside services, a decrease of 12,829 tonnes, or 5.0% compared to 2005–06.

> On average, 153 kg of green organics were collected per household annually (49 kg per person) a decrease of 9 kg per household since 2005–06.

> Costs per household remained relatively unchanged at $21.60 up $0.93 from 2005–06.

> Fortnightly services were the most common (60%), yielding an average of 227 kg per household annually.

Environmental benefits from kerbside services

The environmental savings from kerbside recycling of containers, paper and cardboard for the year are equivalent to:

> filling 4,215 Olympic-sized swimming pools (10,537 megalitres of water)

> taking 46,169 cars off the road (277,016 tonnes of greenhouse gases)

> preventing air pollution and emissions from Victorian motorists travelling nearly 975 million kilometres in average passenger cars

> every Victorian watching 314 days television (7,387,947 gigajoules of electricity)

The environmental savings from kerbside recycling of green organics for the year are equivalent to:

> filling 69 Olympic-sized swimming pools (171 megalitres of water)

> taking 9,402 cars off the road (56,410 tonnes of greenhouse gases)

Litter and street sweeping services

The total cost of litter and street sweeping maintenance for local governments was over $70 million for 2006–07, or $13.92 for every person in Victoria. Of this:

> maintenance of litter bins, traps and litter clean up (such as dumped rubbish) cost nearly $24 million, or 34% of the total cost

> street sweeping services cost a total of nearly $43 million a year, of which metropolitan local governments accounted for 79%

> 18,800 tonnes of roadside litter and illegally dumped rubbish cost local government nearly $6.5 million to collect

> 1,413 penalty infringement notices for litter were issued in 2006–07

Hard waste

> 40 out of 79 local governments provided a hard waste collection service.

> Over 63,000 tonnes were collected and 55,000 tonnes were disposed to landfill representing a 13% diversion rate

> On average, 42 kg of hard waste was collected per household per year for 2006–07, costing an average of $5.93 per household

Commercial and industrial kerbside services

> A total of 75,376 commercial and industrial properties received a domestic recyclables kerbside service and 72,006 also received a domestic regular household garbage service

Landfill and transfer station operations

> The number of local government owned and/or operated landfills (licensed and unlicensed) has decreased by 6 while the number of resource recovery and waste transfer stations has increased by 20 since the last survey period of 2005–06

> 94 landfills operated during 2006–07 of which 40 were licensed

> 275 transfer stations operated during the same period

> 16,891 tonnes of material (glass containers, aluminium cans, steel cans, plastic containers and paper) were recovered from drop-off facilities / transfer stations[2] during 2006–07

> Material collected through kerbside services represented 97% of all material recovered from kerbside and drop-off facilities with paper representing the largest proportion at 61% (Table 2).

Table 2 Main items recovered by source of recovery, Victoria 2006–07

	Source of item		
	Kerbside	Drop-off	Total
Main items recovered	Tonnes		
Plastic containers	46,962	858	47,820
Paper	351,817	11,595	363,412
Glass containers	140,059	2,636	142,695
Steel cans	16,772	1,554	18,326
Aluminium cans	5,640	248	5,888
Total	561,250	16,891	578,142

[2] Refers to local government owned and operated transfer stations only

Introduction

The *Local Government Data Collection* survey plays a vital role in the formulation of future directions for waste management services throughout the state, as well as providing a measure of Victoria's progress towards the delivery of efficient and sustainable kerbside services to the Victorian community.

Sustainability Victoria gratefully acknowledges the cooperation of Victorian local governments and regional waste management groups in achieving a 100% response rate to the survey.

The data collection for 2006–07 includes information about the following service areas:

> household garbage collection and disposal

> household recyclables collection and sorting including material collected from drop-off facilities / transfer stations

> household green organics collection and processing

> litter bin and litter trap collection and disposal

> litter clean up services

> street sweeping

> hard waste collection

> commercial and industrial recyclables services

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

Total waste generation

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

Local government household kerbside services

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

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

Environmental benefits from kerbside recycling

Applying the findings of *The Independent Assessment of Kerbside Recycling in Australia* [3] and the *Life Cycle Assessment for Paper and Packaging Waste Management Scenarios in Victoria*[4], this section looks at the environmental benefits gained from kerbside recycling and green organics collection in Victoria during 2006–07.

[3] National Packaging Covenant Council (2001) *The Independent Assessment of Kerbside Recycling in Australia*

[4] 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 University, Melbourne

Litter services

The cost of litter services is covered in this section. Litter services include collecting waste from litter bins and litter traps, as well as litter clean up services, such as removing illegally dumped rubbish and street sweeping.

Hard waste collections

This sections deals with the hard waste kerbside collection services provided by local governments.

Commercial and industrial recyclables services

The focus of this section is the range of kerbside collection services provided by local governments to commercial and industrial premises as part of the normal domestic kerbside collection service.

Landfills and transfer stations

This section deals with the number and operating details of local government owned and/or operated landfills (licensed and unlicensed) and resource recovery at waste transfer stations.

Sustainability Victoria has sought to verify information provided in data collection returns through rigorous follow-up with individual local governments. However, Sustainability Victoria 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, it will be possible to compare the performance of individual local governments and regional waste management groups over time, as well as across areas of the state. This will provide an important tool to assist the Victorian Government and regional waste management groups to assess the impact of waste minimisation and recycling initiatives across the state.

The data will play an important role in the formulation of future directions for waste management services throughout the state, and will help monitor Victoria's progress towards the delivery of efficient and sustainable waste management services.

Total 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 and the goals and targets set in the State Government's *Toward Zero Waste* (TZW) strategy.

The *Local Government Data Collection* survey focuses on measuring waste collected through kerbside services when analysing household waste generation. For the first time this year, quantities recovered from drop-off facilities are included in the analysis of diversion rate by region. It is important to note that waste recovered and removed by private contractors is not included in this survey.

The following sections outline the key findings.

Total waste generated

Victorians generated 1,808,064 tonnes of solid waste through garbage, recyclables and green organics kerbside collection services in 2006–07. This represents nearly 357 kg for every person[5] in Victoria annually. Total waste generated decreased by 1.0% from 1,826,902 tonnes in 2005–06 and has increased by 16% since 2000–01 (see Figure 5).

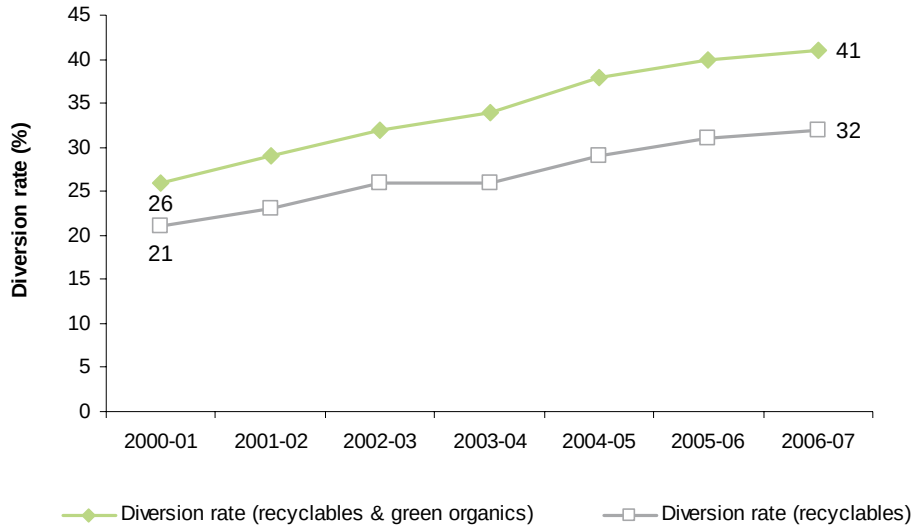
Figure 5 Waste generation*, Victoria 2000–01 to 2006–07

* Waste generation includes garbage, recyclables and green organics

[5]ABS Catalogue number 3222.0 Estimated Resident Population, 14 June 2006. Series B figures for population have been used to calculate the Victorian 'per person rate' in this publication - (population = 5,068,100)

The diversion rate by tonnes collected over time can be seen in Figure 6. The diversion rates of both scenarios have steadily increased over the last seven years. Diversion including recyclables and green organics has risen from 26% in 2000–01 to 41% in 2006–07, while diversion including only recyclables has risen from 21% to 32% over the same period.

Figure 6 Diversion rate by tonnes, Victoria 2000–01 to 2006–07



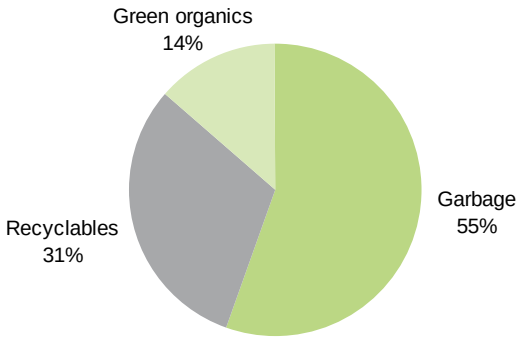
In 2006–07, drop-off material was reported for the first time in the survey. By including the quantities of drop-off material collected and recycled in the calculation of diversion rate (recyclables and green organics), the state average diversion rate increases by 1% to 42%.

For comparative purposes, the diversion rate which includes recyclables and green organics is the current official method used in this publication to benchmark local governments and waste management groups against the state average diversion rate. That is, the state average rate of 41% is the official figure that should be quoted for 2006–07. Until local governments become better at collecting and reporting data for drop-off material collected through transfer stations / resource recovery facilities, the diversion rate will always be expressed as a percentage in terms of tonnes of recyclables and green organics recycled (processed) over garbage, recyclables and green organics collected.

Composition

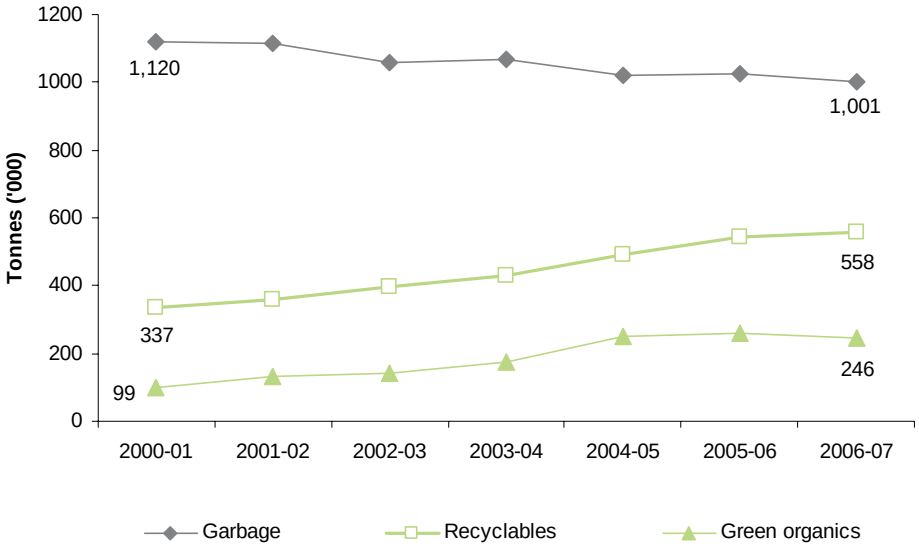
Of the total amount of waste generated, garbage accounted for 55%, down from 56% in 2005–06 (see Figure 7).

Figure 7 Composition of waste processed through kerbside services, Victoria 2006–07



Although garbage still represents the greatest proportion of the waste stream from households, the total amount of garbage has steadily decreased in proportion to the quantities of recyclables and green organics collected over the last seven years (see Figure 8).

Figure 8 Tonnes collected for the three main kerbside services, Victoria 2000–01 to 2006–07



Recyclables have increased by nearly 66% and green organics by 148%, while garbage has decreased by nearly 11% since the benchmark survey of 2000–01.

Waste generated per geographic sector

In terms of quantity, metropolitan local governments generated most of Victoria's total waste, accounting for 1.32 million tonnes, or nearly 72% of the total (see Figure 9).

Figure 9 Waste generation by metro / non-metro local governments, Victoria 2006–07

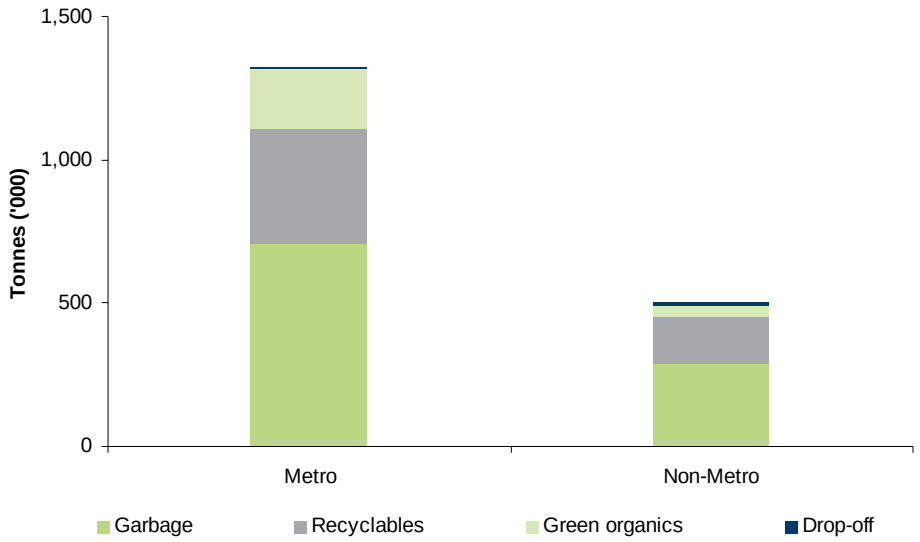
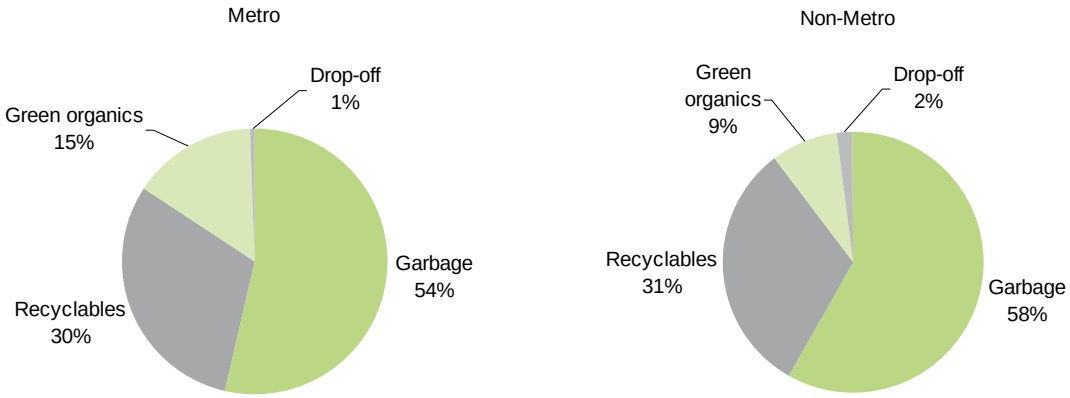


Figure 10 illustrates the relative proportion of material collected by metropolitan and non-metropolitan local governments. Non-metropolitan local governments generated as a proportion of their total waste stream 4% more garbage and 6% less green organics than metropolitan local governments. This indicates that potentially more can be achieved from non-metropolitan local governments in diverting green organics through an expanded kerbside service as well as decreasing their overall garbage generation through better education programs.

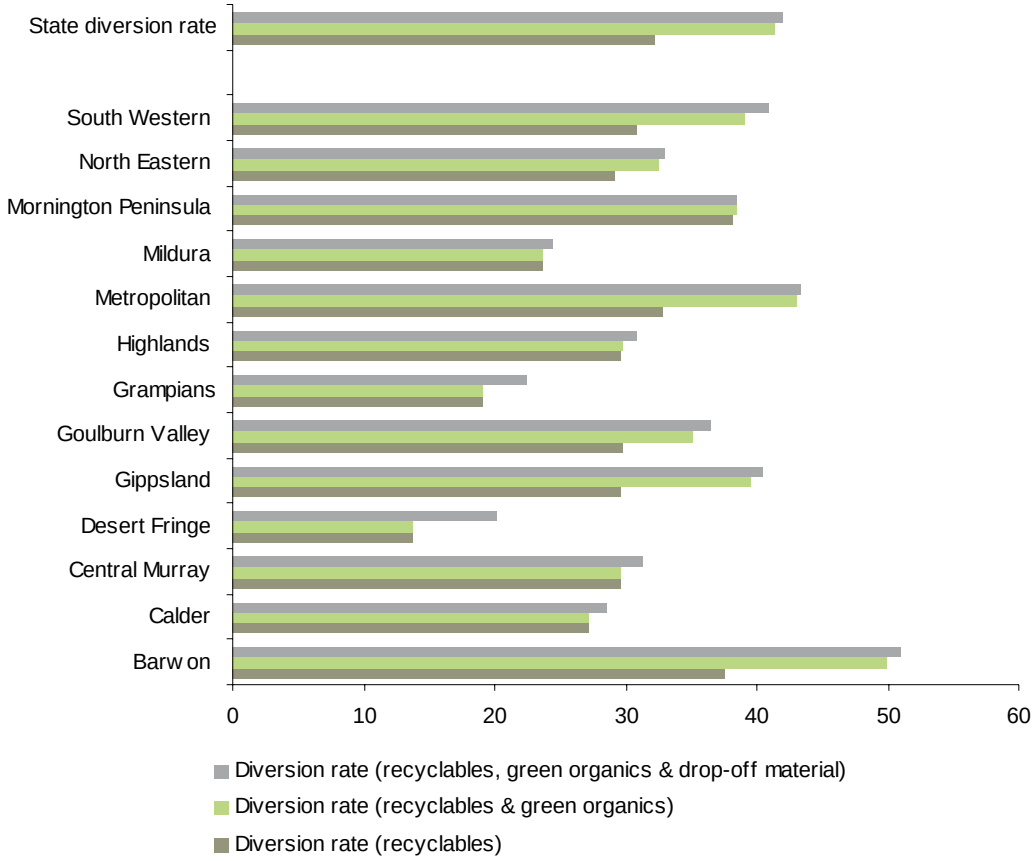
Figure 10 Composition of waste generation by metro / non-metro local governments, Victoria 2006–07



Waste diversion rates per waste management group

Figure 11 shows that local governments[6] in the Barwon Regional Waste Management Group and the Metropolitan Waste Management Group have diversion rates higher than the state average of 41%.

Figure 11 Diversion rate by waste management group, Victoria 2006–07



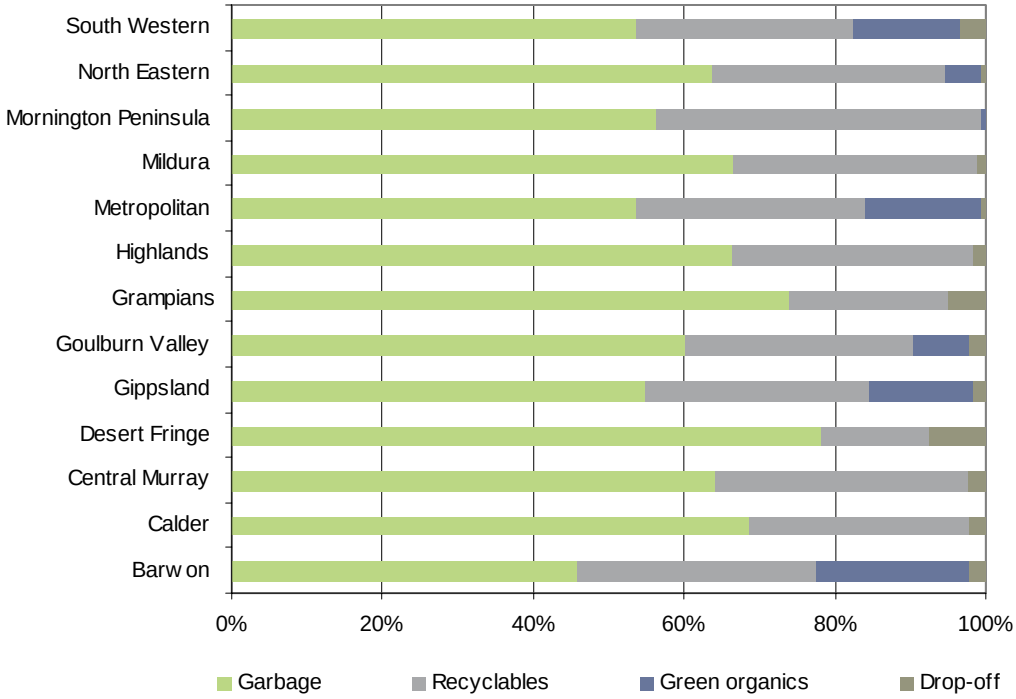
The diversion rate of some rural local governments such as Desert Fringe and the Grampians region is significantly improved by the incorporation of drop-off material recovered from resource recovery facilities / transfer stations.

In many rural areas, drop-off services are often provided in lieu of a kerbside service as this is a more cost-effective way to divert material. Previous reports have not included drop-off figures and therefore suggest that many rural local governments have lower diversion rates. In the current report, the relative contribution that drop-off collections have on some of the rural waste management groups' diversion rate is clearly shown in Figure 11. Desert Fringe for instance has nearly 8% of its total waste stream composed of drop-off material recovered, which has improved its diversion rate from 14% to 20%.

[6]Refer to Appendix B, Glossary, regional waste management groups, for changes to the definition of metropolitan local governments and comparisons with previous publications

Local governments that provided a green organics kerbside service generally had much higher diversion rates than those waste management groups that did not, as displayed in Figure 12.

Figure 12 Waste management group by composition of waste stream collected, Victoria 2006–07



Barwon, Metropolitan, Gippsland and South Western waste management groups had higher proportions of green organics in the total waste stream, giving these groups greater diversion rates. The relative proportion of garbage is also generally much lower for local governments with a green organics service compared to those without. Barwon, for instance, has just over 40% of their waste stream composed of garbage, compared to Desert Fringe, which has proportions closer to 80%; nearly double the rate of Barwon.

Local government household kerbside services

Part 2 of this report provides an analysis of local government kerbside collection services. It is divided into four sections: a general overview, garbage services, recyclables services and green organic services.

The focus of each section, drawing from the data provided by local governments, 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

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 collected by private contractors outside the local government system.

In 2006–07, expenditure by Victorian local governments on garbage, recyclables and green organic kerbside services was more than $232 million (see Table 3). This was nearly $3.4 million more than for 2005–06 and represents a 1.5% increase. The increase in expenditure can be partly attributed to an increase in the number of households serviced by kerbside services and an extension of the range of services provided to households by local governments.

Table 3 Kerbside services summary, Victoria 2006–07

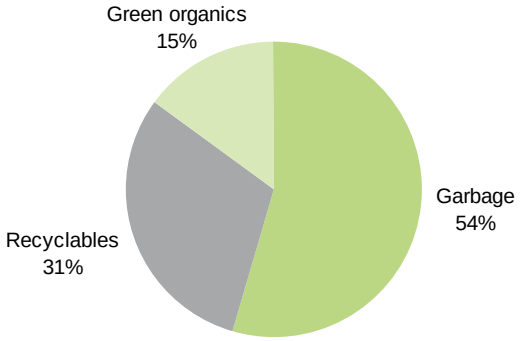
	Garbage	Recyclables	Green organics	Total
Metro				
Annual service cost	$88,703,446	$45,385,704	$28,694,558	$162,783,708
Tonnes collected	708,668	403,112	203,340	1,315,119
Tonnes processed / recycled	—	364,148	203,021	567,170
Total households serviced*	1,461,321	1,437,433	1,322,240	—
Cost per tonne	$125.17	$112.59	$141.12	$123.78
Cost per household	$60.70	$31.57	$21.70	—
Household yield (kg)	485	280	154	—
Non-Metro				
Annual service cost	$37,516,522	$25,730,808	$6,136,535	$69,383,865
Tonnes collected	291,970	158,139	42,836	492,945
Tonnes processed / recycled	—	140,026	41,709	181,735
Total households serviced*	649,998	633,442	290,045	—
Cost per tonne	$128.49	$162.71	$143.26	$140.75
Cost per household	$57.72	$40.62	$21.16	—
Household yield (kg)	449	250	148	—
Total				
Annual service cost	$126,219,968	$71,116,512	$34,831,093	$232,167,573
Tonnes collected	1,000,638	561,251	246,175	1,808,064
Tonnes processed / recycled	—	504,174	244,731	748,905
Total households serviced*	2,111,319	2,070,875	1,612,285	—
Cost per tonne	$126.14	$126.71	$141.49	$128.41
Cost per household	$59.78	$34.34	$21.60	—
Household yield (kg)	474	271	153	—

* Total households serviced may also include commercial and industrial properties, for green organics this refers to the number of households with access to a service. Refer to Appendix B, Glossary for more details

Overall cost of kerbside collection services

Of the $232 million spent by Victorian local governments on kerbside collection services for garbage, recyclables and green organics during 2006–07, 85% was for garbage and recyclables services (see Figure 13).

Figure 13 Proportion of total kerbside service cost by type of service, Victoria 2006–07



Expenditure increased by nearly $3.4 million or 1.5% from 2005–06. There has been no major shift in the relative proportions of costs although the cost of providing a green organics service increased more than the other services, 5.2% compared to recyclables 3.2% and a decrease in garbage costs by less than 1% (see Tables 6, 9 and 13).

Geographic comparison

The household yield for the three main kerbside services was higher in metropolitan local governments compared to non-metropolitan local governments (see Table 3). The household yield for garbage was 36 kg per year higher in metropolitan compared to non-metropolitan local governments. Similarly, recyclables were 30 kg higher and green organics 6 kg higher.

The cost of garbage services was $2.98 higher per household per year in non-metropolitan local governments. The cost of recyclables services was $9.02 lower in metropolitan local governments (see Table 3). The difference in green organics was less pronounced with non-metropolitan local governments paying less ($0.54) per kg of waste collected than their metropolitan counterparts.

Overall access to kerbside collection services

Victorian household access to kerbside collection services is high, with 96% of households having access to kerbside garbage collections and 95% having access to recyclables collections (see Table 4)[7].

[7]Some anomalies exist in the data due to the variations in the number of households reported in the survey. It is likely that some of the survey data contains commercial premises within the residential households figure

Table 4 Kerbside services by proportion of households receiving service, Victoria 2006–07

Kerbside service	Metro	Non-metro	Total
		Per cent	
Garbage	99	91	96
Recyclables	98	89	95
Green organics	93	42	76

Access to green organics services is also relatively high at 76%, though frequency of service provision is variable (see Section for Green Organics Services). Overall, the relative proportion of access to all three kerbside services has remained fairly consistent since 2003–04[8].

While Table 4 shows access to services at the household level, Table 5 presents the number of local governments providing each service.

Table 5 Kerbside services provided by number of local governments, Victoria 2006–07

Kerbside service	Metro (no.)	Non-Metro (no.)	Total (no.)	Total as a proportion of local governments (%)
Garbage	30	49	79	100
Recyclables	30	48	78	99
Green organics	30	15	45	57
Litter service	29	45	74	94
Hard waste	28	12	40	51
Street sweeping	28	46	74	94

All Victorian local governments provide a kerbside garbage service, with nearly all (99%) providing a recyclables service. These proportions have remained largely unchanged for the last few years.

The provision of green organics services has remained fairly stable since 2005–06. Although a little over half of the local governments provided a green organics service, most were concentrated in highly populated metropolitan areas. This means approximately three-quarters of Victorian households have access to such services.

Hard waste is provided by just over half of the local governments. In line with the green organics service, the trend is for metropolitan local governments to provide this type of service rather than non-metropolitan local governments.

[8] Any reference or comparisons made to previous reports, periods, years or reference periods, refers specifically to the *Local Government Data Collection* survey for that particular year

Garbage services

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

Access

All 79 local governments have a kerbside garbage collection service; covering 96% of Victorian households (see Tables 4 and 5).

Table 6 Garbage services by service provision category, Victoria 2005–06 to 2006–07

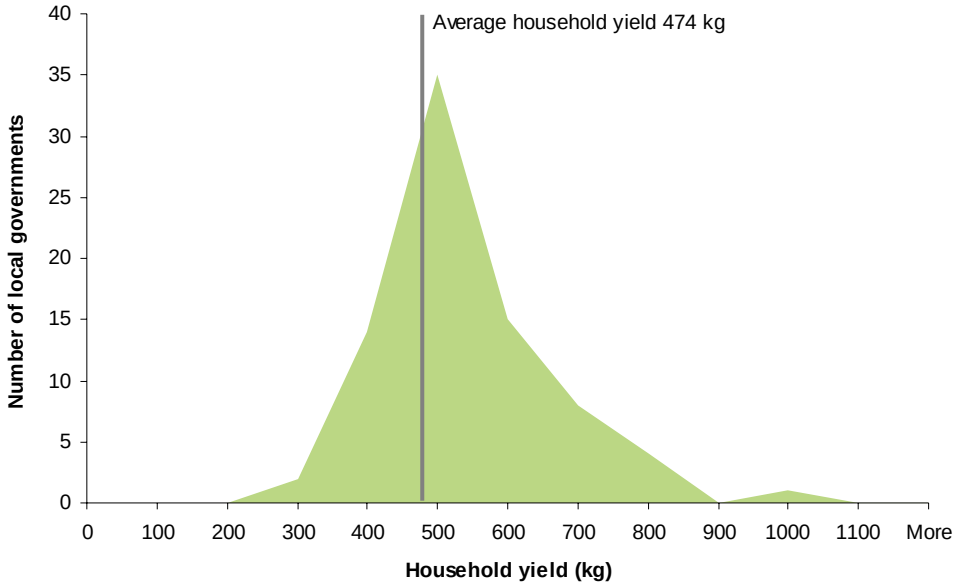
	Inner Metro	Outer Metro	Melbourne Fringe	Major Provincial	Small Provincial	Rural Township	Total
2006–07							
Annual service cost	$26,805,393	$52,907,309	$14,126,129	$10,214,999	$16,641,921	$5,524,216	$126,219,968
Tonnes collected	213,616	450,235	82,111	94,634	119,656	40,386	1,000,638
Total households serviced*	469,899	894,176	196,506	200,783	273,138	76,817	2,111,319
Cost per tonne	$125.48	$117.51	$172.04	$107.94	$139.08	$136.78	$126.14
Cost per household	$57.05	$59.17	$71.89	$50.88	$60.93	$71.91	$59.78
Household yield (kg)	455	504	418	471	438	526	474
2005–06							
Annual service cost	$26,565,060	$52,942,515	$14,237,262	$10,175,938	$16,859,450	$5,965,955	$126,746,180
Tonnes collected	220,384	450,781	81,369	111,046	122,219	40,708	1,026,507
Total households serviced*	466,058	884,162	196,343	199,364	278,751	70,758	2,095,436
Cost per tonne	$120.54	$117.45	$174.97	$91.64	$137.94	$146.56	$123.47
Cost per household	$57.00	$59.88	$72.51	$51.04	$60.48	$84.31	$60.49
Household yield (kg)	473	510	414	557	438	575	490
Per cent change							
Annual service cost	0.9	-0.1	-0.8	0.4	-1.3	-7.4	-0.4
Tonnes collected	-3.1	-0.1	0.9	-14.8	-2.1	-0.8	-2.5
Total households serviced*	0.8	1.1	0.1	0.7	-2.0	8.6	0.8
Cost per tonne	4.1	0.1	-1.7	17.8	0.8	-6.7	2.2
Cost per household	0.1	-1.2	-0.9	-0.3	0.7	-14.7	-1.2
Household yield (kg)	-3.9	-1.2	0.8	-15.4	-0.1	-8.6	-3.3

* Total households serviced may also include commercial and industrial properties

Yields

Victorians generated an average of 474 kg of garbage per household, but this varied between local governments (see Figure 14). On average, each person[9] in Victoria generated about 197 kg of garbage. This represents 2 kg less than last year's 199 kg per person.

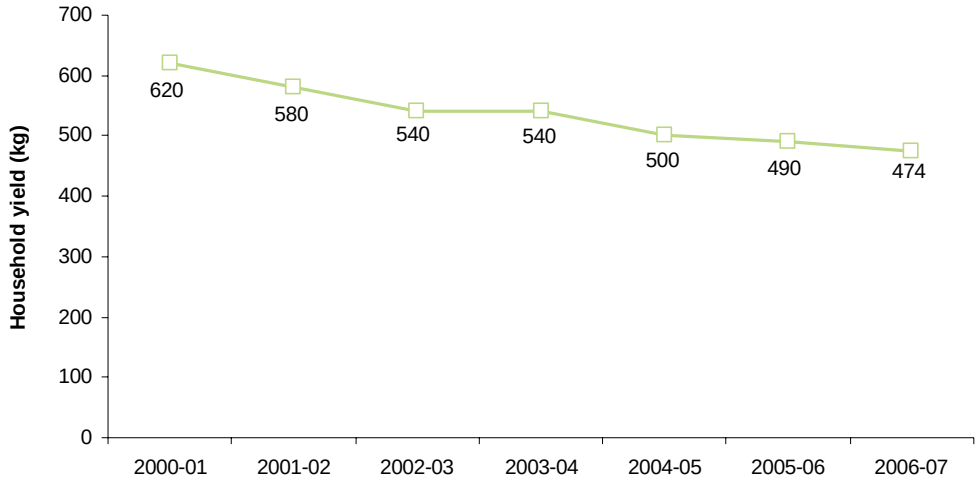
Figure 14 Garbage household yield across local governments, Victoria 2006–07



Over the last five years, Victorian households have steadily reduced their garbage generation and for the third time since the baseline was established, households have generated, on average, less than 500 kg (see Figure 15). Households generated 16 kg less in 2006–07 compared to 2005–06.

[9]ABS Catalogue number 3222.0 Estimated Resident Population, 14 June 2006. Series B figures for population have been used to calculate the Victorian 'per person rate' in this publication (population 5,068,100).

Figure 15 Garbage household yield, Victoria 2000–01 to 2006–07



Household garbage generation has decreased by nearly 24%, or 146 kg per household, from 620 kg to 474 kg since 2000–01.

Geographic comparison

The difference between average costs paid by metropolitan and non-metropolitan households is slowly decreasing over time, with non-metropolitan households now paying $2.98 less for the provision of a kerbside garbage service compared to metropolitan households. In previous years, non-metropolitan households were paying more than their metropolitan counterparts. Non-metropolitan local governments also generated, on average, about 7% or 36 kg (16 kg in 2005–06) less garbage than metropolitan local governments per household per year (see Table 3).

Cost per tonne and yield per household varied between local government service provision categories (see Table 6). Definitions of the six service provision categories used in Table 6 are provided in Appendix B and a list of all local governments, classified by service provision, regional waste management group and metropolitan/non-metropolitan classification, is located in Appendix C.

> Melbourne fringe local governments again recorded the lowest yield of 418 kg (414 kg in 2005–06) and the highest cost per tonne of $172.04 (see Table 6)

> The state average cost per household has shown a slight decrease of 1.2% from $60.49 in 2005–06 to $59.78 (Table 6)

> The state average household yield for garbage has decreased by 3.3% (16 kg) from 490 to 474 kg

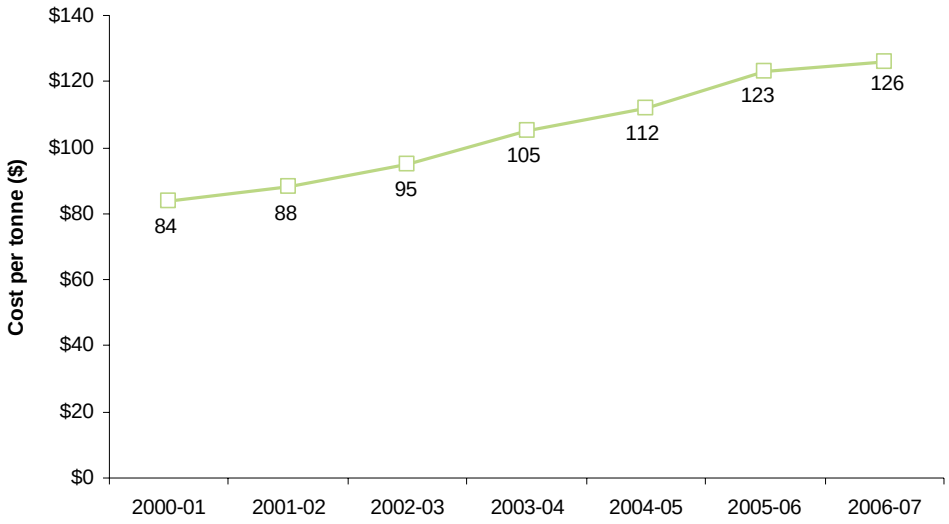
> The cost per tonne has increased by 2.2%, from $123.47 in 2005–06 to $126.14 in 2006–07

Figure 16 shows the steady increase in cost per tonne since 2000–01; $83.82 in 2000–01 to $126.14 in 2006–07, representing a 50% increase in 7 years.

The cost of a kerbside garbage collection and disposal service has now almost matched the cost of providing a kerbside recyclables collection service at $126.71 per tonne.

These new figures show that recycling is worth the effort and the cost is now almost equivalent to the cost of landfilling.

Figure 16 Garbage costs per tonne, Victoria 2000–01 to 2006–07



It is expected that the cost per tonne will increase over time (as is shown in Figure 15) as the cost of managing landfills, and potentially, the landfill levy increases.

Major provincial local governments had the lowest cost per household of $50.88 ($51.04 in 2005–06), compared to rural township local governments at $71.91 which is $21 more or 41% higher per household.

Collection system

The 120L garbage bin continues to be the most common collection system, being used in 45 (56%) of the local governments (see Table 7) which is two less than the previous period.

Table 7 Garbage collection system* by service provision category, Victoria 2006–07

Service Standard Category	80L	120L	240L split garbage and green organics	140L	240L	Number of local governments
Inner Metropolitan	2	6	—	—	2	10
Major Provincial	1	1	—	2	1	5
Melbourne Fringe	1	4	—	1	—	6
Outer Metropolitan	2	9	—	5	1	17
Rural Township	—	12	—	2	2	16
Small Provincial	3	13	1	5	3	25
Number of local governments	9	45	1	15	9	79

* Refers to the predominant bin type used by the local government (see Appendix B, Glossary for definition of predominant bin)

The 120L garbage bins were the most predominant in all service provision categories except in major provincial local governments where the predominant collection system was a 140L bin. The largest garbage bin (240L) is still used by nine local governments, representing 11% of all local governments. This illustrates a continued shift to downsizing of bins which is influencing improved household yields for garbage over time. Local governments that had a split garbage and recyclables bin are moving away from these in favour of separate bins. Most of these bin systems are weekly services except for four local governments: three metropolitan local governments with a 120L fortnightly system and one non-metropolitan local government with a 240L system.

Table 8 shows how yields and costs are affected by the size of the garbage collection system employed.

Table 8 Garbage average yields and costs by collection system*, Victoria 2006–07

Collection system	Number of local governments	Cost per tonne	Cost per household	Household yield (kg)
80L	9	$126.99	$52.74	415
120L	45	$133.14	$61.56	462
240L split bin**	1	n.p.	n.p.	n.p.
140L	15	$119.13	$64.26	539
240L	9	$111.68	$54.93	492
State average	79	$126.14	$59.78	474

* Refers to the predominant bin system

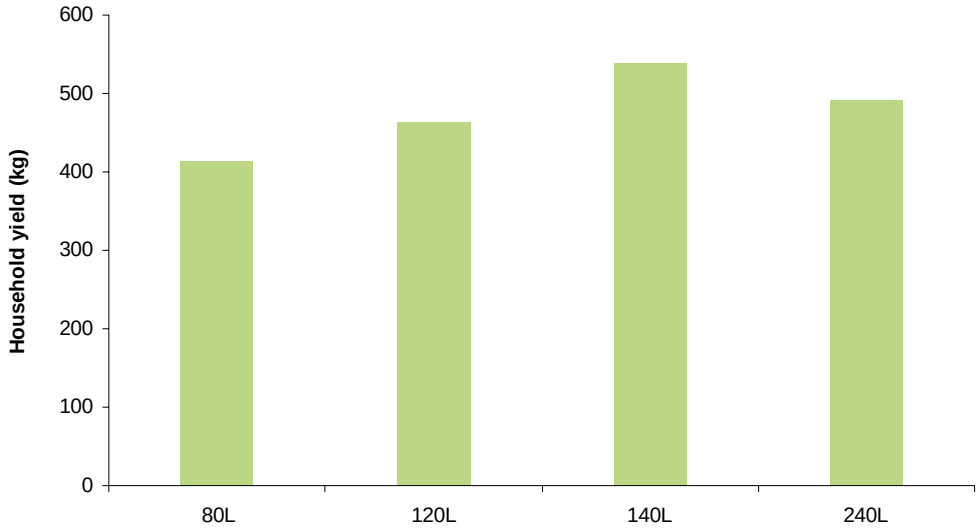
** Refers to a split garbage and green organics system

Surveys over the past seven years have shown that as the bin size increases, the corresponding household yield increase as does the cost per household. This year, the yields and costs associated with the 240L bin system do not follow this trend. Smaller bins, such as the 80L bin, produced on average 415 kg of garbage per household per year compared to the 240L with 492 kg per household. Surprisingly this year, the 140L bin generated the most garbage per household annually with 539 kg.

This represents 30% more garbage produced per household per year compared to local governments using an 80L bin. The cost per tonne and cost per household also generally decreases as bin sizes increase, although again, this is not reflected by the 240L bin. A possible reason for this anomaly may be that better kerbside services allow greater diversion of material into the kerbside recyclables and green organic bins. This is not verified and will require more detailed analysis. Table 11 in the Recyclables section of the publication, shows the correlation between using a large 240L recyclables bin with the different garbage bin sizes. One of the key findings is that, using an 80L or 120L garbage bin in conjunction with a 240L commingled recyclables bin delivers the highest diversion rates of 37% and 33% respectively compared to the 240L garbage bin with a diversion rate of only 28%.This clearly indicates that matching a large 240L garbage bin system with a 240L recyclables bin system produces the lowest average diversion rate than any other combination of bin system.

This correlation between yield and bin size is illustrated in Figure 17. As bin sizes increase, yields generally increase correspondingly.

Figure 17 Garbage yield by collection system, Victoria 2006–07



Recyclables services

This section of the report analyses local government kerbside services for the collection of containers (i.e. plastic containers, glass bottles, aluminium and steel cans) and paper/cardboard.

Costs, yields, access to services and geographic comparison

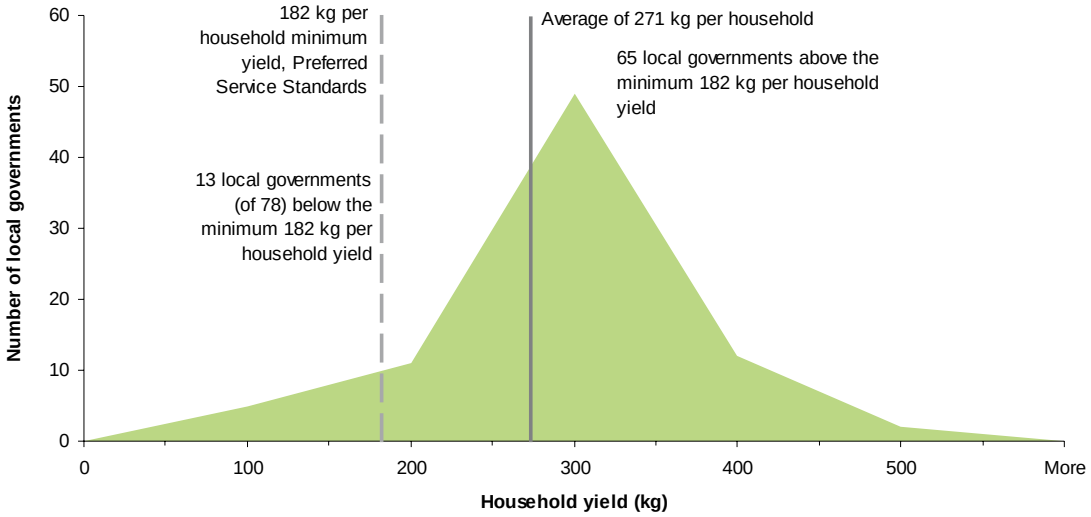
Access

Seventy-eight local governments run a kerbside recyclables service, providing access for 95% of Victorian households (see Table 4).

Yields

On average, 271 kg of recyclables were collected per household per year (see Figure 18). This represents approximately 111 kg for every person in Victoria.

Figure 18 Recyclables household yield across local governments, Victoria 2006–07



Sustainability Victoria has developed a *Guide to Preferred Standards for Kerbside Recycling in Victoria*. The collection systems now outlined in the guide are the:

> 240L commingled bin[10] collected fortnightly

> 240L split recyclables bin[11] collected fortnightly

> 120L commingled bin collected weekly

The guide outlines minimum performance criteria for a kerbside recyclables system, including:

> minimum annual household yield of 182 kg

[10]Commingled bin refers to one collection system used to accept containers and paper mixed together

[11]Split recyclables bin refers to the collection of containers and paper in one collection system but is segmented to accept both recyclables streams

> maximum cost per household of $42 for metropolitan and larger provincial areas, and $50 for rural areas

> maximum cost per tonne of $170 for metropolitan and large provincial areas, and $200 for rural areas

In 2006–07, the state average yield of 271 kg was higher than the 182 kg average minimum efficiency measure established in the guide. This represents 89 kg more (49%) than the minimum efficiency measure. The household yield has increased by 1 kg (0.5%) over 2005–06.

It should be noted that the yield of recyclables varied significantly around this average (Figure 18). However, 83% of local governments are above the minimum efficiency yield of 182 kg.

Victorians have successfully increased their recyclables yield over the last seven years (see Figure 19).

Figure 19 Recyclables household yield, Victoria 2000–01 to 2006–07

The household yield for recyclables has risen from 192 kg in 2000–01 to 271 kg in 2006–07 which is an increase of 79 kg or 41%.

On average, households in metropolitan local governments generated 30 kg, or 12% more recyclables per household per year than those in non-metropolitan municipalities (see Table 3).

Geographic comparison

In non-metropolitan areas it cost $50.12 (46%) more per tonne for recyclables ($162.71) than for metropolitan areas ($112.59). The higher cost per tonne and lower yield highlight the greater challenges of delivering efficient and high-yielding recycling services in rural areas, given the greater transport distances between households and end-markets.

Table 9 details the variations between recyclables costs and yields by service provision category.

Table 9 Recyclable services by service provision category, Victoria 2005–06 to 2006–07

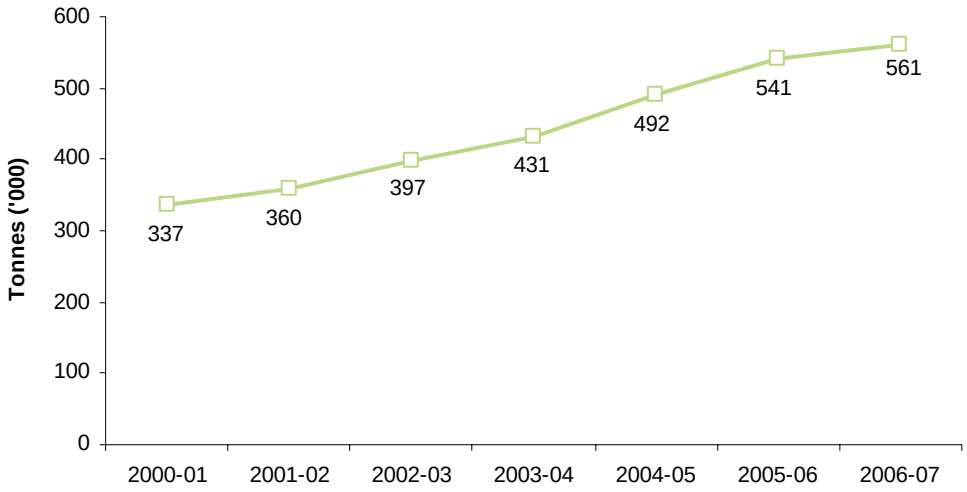
	Inner Metropolitan	Outer Metropolitan	Melbourne Fringe	Major Provincial	Small Provincial	Rural Township	Total
2006–07							
Annual service cost	$14,289,115	$26,623,398	$7,388,657	$7,663,850	$11,713,852	$3,437,641	$71,116,512
Tonnes collected	111,572	263,450	55,470	53,219	63,480	14,059	561,251
Total households serviced*	457,718	882,895	196,080	198,582	264,616	70,984	2,070,875
Cost per tonne	$128.07	$101.06	$133.20	$144.01	$184.53	$244.51	$126.71
Cost per household	$31.22	$30.15	$37.68	$38.59	$44.27	$48.43	$34.34
Household yield (kg)	244	298	283	268	240	198	271
2005–06							
Annual service cost	$13,729,729	$26,854,733	$6,994,291	$6,645,662	$11,677,782	$3,024,443	$68,926,640
Tonnes collected	113,978	250,121	54,700	49,968	49,968	12,820	541,391
Total households serviced*	434,993	864,090	195,114	193,523	261,773	58,797	2,008,290
Cost per tonne	$120.46	$107.37	$127.87	$133.00	$233.71	$235.91	$127.31
Cost per household	$31.56	$31.08	$35.85	$34.34	$44.61	$51.44	$34.32
Household yield (kg)	262	289	280	258	191	218	270
Per cent change							
Annual service cost	4.1	-0.9	5.6	15.3	0.3	13.7	3.2
Tonnes collected	-2.1	5.3	1.4	6.5	27.0	9.7	3.7
Total households serviced*	5.2	2.2	0.5	2.6	1.1	20.7	3.1
Cost per tonne	6.3	-5.9	4.2	8.3	-21.0	3.6	-0.5
Cost per household	-1.1	-3.0	5.1	12.4	-0.8	-5.9	0.1
Household yield (kg)	-7.0	3.1	0.9	3.8	25.7	-9.2	0.5

* Total households serviced may also include commercial and industrial properties. Refer to Appendix B, Glossary, Total households serviced for more details

Outer metropolitan local governments again delivered the highest average recyclables yield of all service provision categories with 298 kg per household compared with the state average of 271 kg. This represents an increase of 9 kg or 3.1% from 2005–06. The largest increase in household yield was displayed by small provincial areas with a 49 kg improvement over the previous year representing a 26% increase. Inner metropolitan areas this year showed a 7.0% decrease in household yield.

There has been a steady increase in tonnes of recyclables collected since 2000–01 (see Figure 20).

Figure 20 Recyclables tonnes collected, Victoria 2000–01 to 2006–07

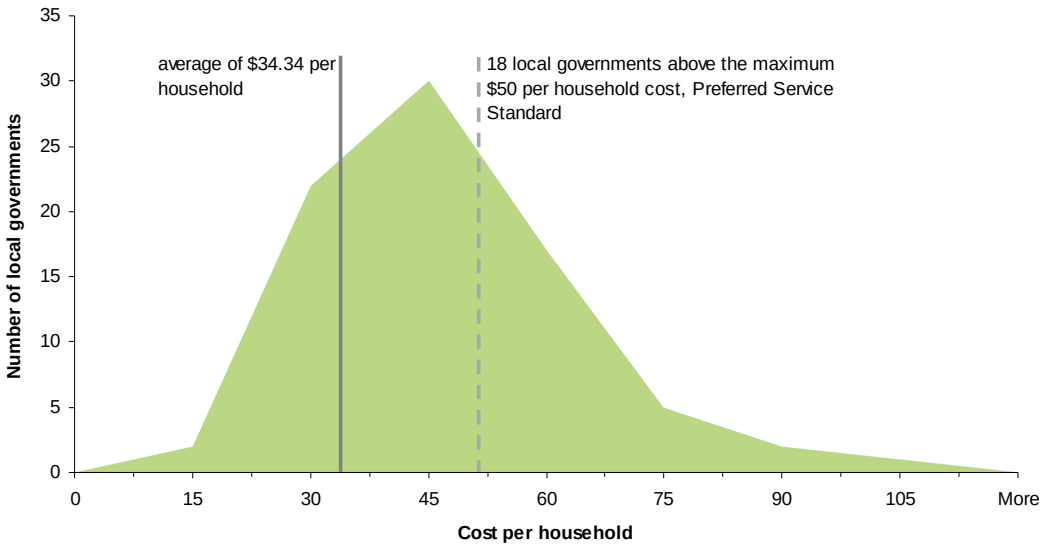


The quantity of recyclables collected has risen from 337,130 tonnes in 2000–01 to 561,251 tonnes in 2006–07. This represents an increase of over 224,000 tonnes, or 66%, since 2000–01. The increase in tonnes collected can be largely attributed to the increase in the number of local governments that have adopted the preferred service standards for kerbside recycling (commingled bin systems). The majority of local governments (96%) now use a 240L or 120L commingled bin for recyclables instead of crate-based systems. The 240L commingled and 120L commingled recyclables mobile bins delivered the greatest yield per household and displayed higher diversion rates compared to other combinations of bin systems.

Costs

Figure 21 shows the average household cost of $34.34 per year for a kerbside recyclables service and the wide variation around this average.

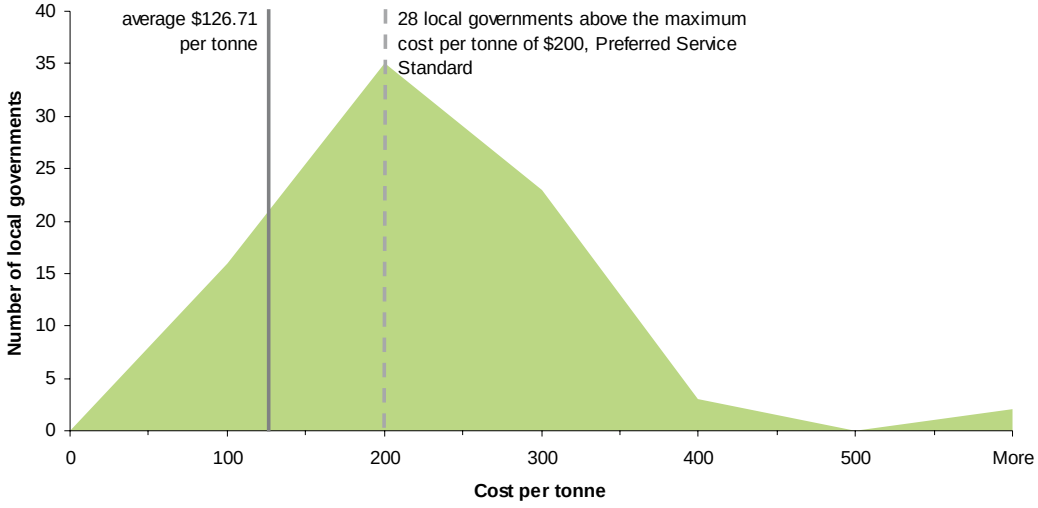
Figure 21 Recyclables cost per household across local governments, Victoria 2006–07



The 18 local governments still above the highest band of $50 per household (17 of these are from non-metropolitan areas) are evidence of the continuing challenge in containing the costs of delivering optimum kerbside recycling services in rural areas. In such cases, it can be more cost-effective to provide high-quality drop-off facilities to the standard outlined in Sustainability Victoria's *Guide to Best Practice at Resource Recovery and Waste Transfer Facilities*.

The average cost per tonne of $126.71 is less than the maximum of $170 per tonne for metropolitan and large provincial local governments and $200 for rural established in the *Guide to Preferred Standards for Kerbside Recycling in Victoria* (see Figure 22). Of the 28 local governments above the maximum of $200 per tonne, 27 are from non-metropolitan areas. This again highlights the difficulties faced by rural local governments in delivering a cost-effective kerbside service.

Figure 22 Recyclables cost per tonne across local governments, Victoria 2006–07

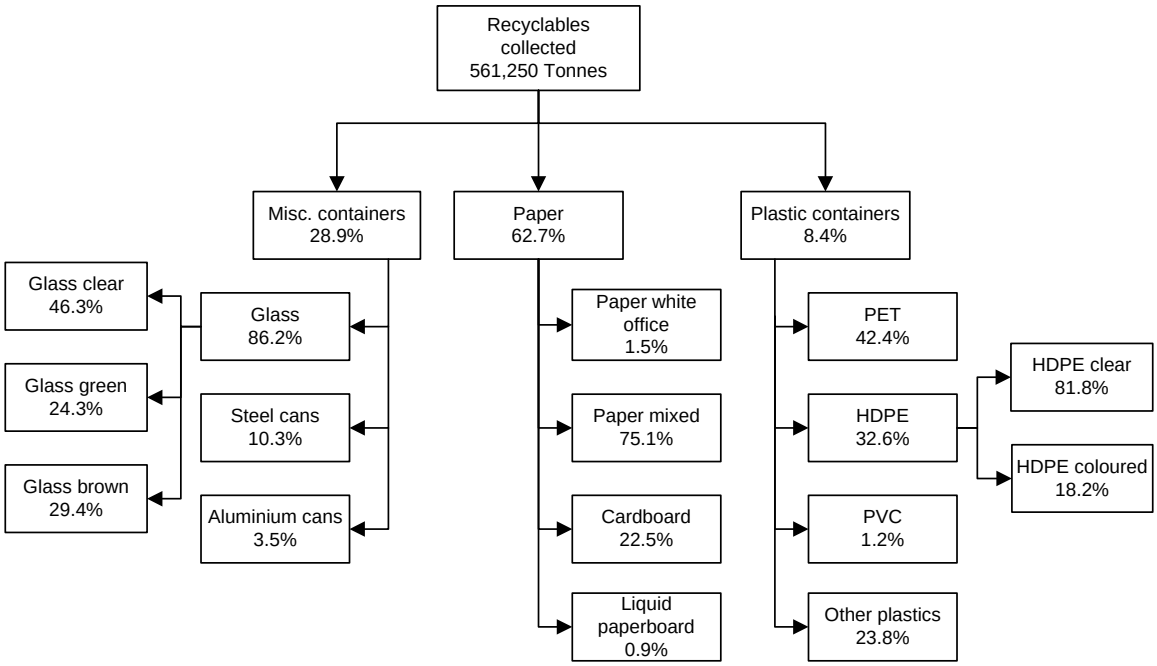


Materials collected and contamination

Materials collected

Paper items were the largest category of recyclables collected, accounting for 62.7% by weight of recyclables (see Figure 23).

Figure 23 Kerbside recyclables by type of items collected, Victoria 2006–07[12]



The second largest category was miscellaneous containers with 28.9%. Of this category, glass accounted for the vast majority at 86.2%, which equates to almost 25% of the entire kerbside recyclables stream. Plastic containers, due to their light weight, made up only 8.4%. These proportions are similar to those found in previous surveys.

Contamination

Of the seventy eight local governments with a kerbside recyclables collection service, sixty local governments were able to provided detailed data on contamination rates. For 2006–2007, recycling contamination levels averaged 10.2% of quantities collected which is slightly lower than the 2004–05 rate of 11.3%.

Contamination is general material that cannot be reprocessed. Material that may fall into this category includes broken glass (i.e. it is recyclable but unable to be sorted out from the recycling stream) or plastics not normally collected such as code numbers 4, 5 and 6. Contamination rates differed for each type of the material collected.

[12]Based on returns from local governments, comprising 59 detailed responses for plastic containers, 59 for miscellaneous containers and 61 for paper products

Table 10 shows the contamination rates found for the various collection systems.

Table 10 Recyclables average yields, costs and contamination rates by collection system*, Victoria 2006–07

Collection system	Number of local governments	Cost per tonne	Cost per household	Household yield (kg)	Contamination rate (%)
240L commingled	69	$125.77	$34.69	276	10.2
120L commingled	6	$131.66	$31.73	241	10.3
Crate & tied Bundle	2	$237.50	$32.28	136	1.4
240L and crate	1	n.p.	n.p.	92	5.9
State average	78	$126.71	$34.34	271	10.2

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

Bin-based collection systems recorded higher contamination rates, ranging from 10.2 % to 10.3% compared to crate-based systems, which had much lower rates of 1.4%. This reflects the trend found in previous years.

Container type and service frequency

There are currently 4 different combinations of container systems used by Victorian local governments. This indicates that many of the local governments have adopted the preferred service standards and have provided a more consistent approach in delivering a kerbside recyclables service compared to past years where there were at least 14 different container systems in use.

The predominant system is now a 240L commingled bin provided fortnightly. This system is used by 69 local governments, an increase of 6 since 2005–06. The crate and tied bundle system is now used by only 2 local governments (see Table 10). The trend to adopt the 240L commingled bin system over the crate and tied bundle system has been evident since 2002–03. At this stage, there were more local governments with a crate and tied bundle than a 240L commingled or split recyclables bin system. Changes in WorkSafe regulations relating to manual handling during this time have impacted on this change, although there was already a shift towards 240L bins.

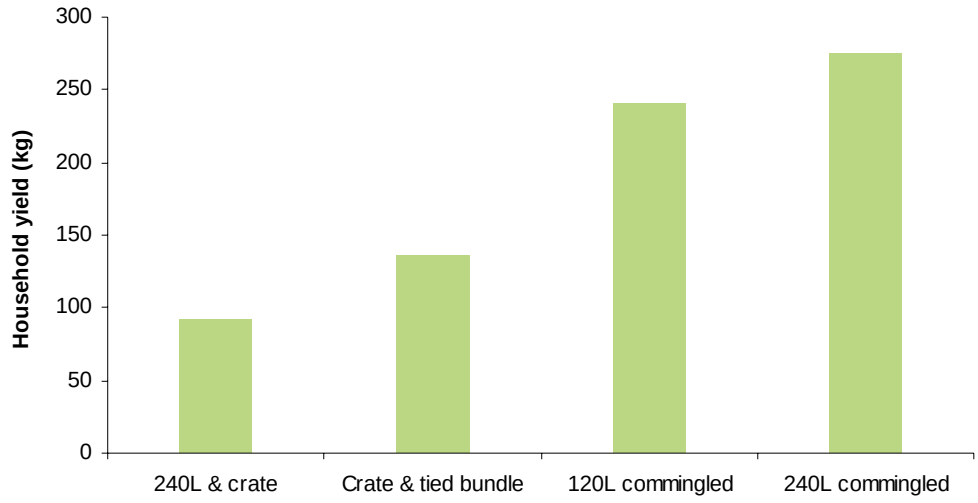
Container type

Container type has a direct impact on yields and costs.

A 240L commingled or 120L commingled recyclables collection system delivered the greatest yield at 276 kg and 241 kg per household respectively, compared to 136 kg for crate and tied bundle system. The cost of $34.69 to provide the 240L commingled bin system to a household is $2.41 or 7% more expensive than the crate and tied bundle system. The cost per tonne is higher for the crate and tied bundle system at $237.50 compared to $125.77 for the 240L commingled bin system.

Figure 24 illustrates yields for the most common system types employed across Victoria.

Figure 24 Recyclables yields by collection system, Victoria 2006–07



Yields are generally much higher for bin-based systems than crate-based systems such as the crate and tied bundle system.

Sustainability Victoria emphasises that other factors such as population density, length of time a system has been established, education programs, and distances to sorting facilities and end-markets can have significant impacts on yields and costs. The performance of recycling systems should not be judged outside the context of these variables.

Correlation between garbage and recyclables container size and diversion

Table 11 shows the correlation between using smaller garbage bin sizes and achieving higher diversion rates.[13] This correlation has been clearly evident in each survey since the 2000–01 benchmark survey and is reflected again in the 2006–07 data.

Table 11 Correlation between a garbage and 240L recyclables collection system* and average household diversion rate, Victoria 2006–07

	Garbage collection system				
	80L	120L	140L	240L	Average diversion rate (%)
Recyclables collection system:					
240L commingled	37	33	30	28	32

* Refers to predominant bin system used by local governments

The difference in diversion rate achieved by matching the most common recycling bin system (240L commingled) to the different garbage bins currently used by local governments is illustrated by Table 11. Using smaller garbage bins increases the proportion of recyclables collected, resulting in more

[13]Diversion is calculated as: quantity recyclables recycled / (quantity recyclables + garbage collected)

efficient kerbside recovery. This same trend has been observed with other size recycling bin systems.

An 80L garbage bin for instance, gives the highest average diversion rate of 37% when coupled with a 240L commingled recycling bin. The diversion rate for this combination of bin system delivers 9% more compared to a 240L garbage bin system coupled with a 240L commingled recyclables system. A possible reason for this would be that households with a small 80L garbage bin would need to think more carefully about disposing of waste and consequently recycle more if a larger 240L recyclables bin is provided. Providing a household with a large 240L garbage bin negates the value of having a larger recycling bin as the opportunity to think about recycling or diverting waste material from a larger garbage bin need not be considered as carefully.

Using an 80L or 120L garbage bin in conjunction with a 240L commingled recyclables bin delivers the highest diversion rates of 37% and 33% respectively. The garbage section of this report (Figure 16) indicates that a 240L garbage bin did not yield the highest quantity of household garbage but the 240L garbage bin clearly yields the lowest average diversion rate when coupled with a 240L commingled recyclables bin system.

Table 12 illustrates the various combinations of the different garbage and recyclables bin systems available and the number of local governments using them during 2006–07. In Victoria the most common combination is a 240L commingled recyclables bin with a 120L garbage bin. This system is used by 39 local governments.

Table 12 Garbage and recyclables collection system* by number of local governments, Victoria 2006–07

	Garbage collection system					
Recyclables collection system	80L	120L	240L split garbage and green organics	140L	240L	Total
120L commingled	2	4	—	—	—	6
240L & crate	1	—	—	—	—	1
240L commingled	6	39	1	14	9	69
Crate & tied bundle	—	2	—	—	—	2
Total number of local governments	9	45	1	14	9	78

* Refers to predominant bin system used by local governments

Green organics services

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

Access

Seventy-six per cent of Victorian households in 45 municipalities had access to green organics kerbside collection services (see Tables 4 and 5).

Yields

In 2006–07, the average yield was 153 kg of green organics collected per household per year (see Table 13). This represents a decrease over the previous period of 5.5% (162 kg).

Previous reporting on the total households serviced was based on how many households participated, or the number of on-call services made. Since 2002–03 the analysis has used the total households that were offered the service, i.e. had access to the service rather than those that simply took up the offer to use the service. Hence, the total households serviced and the number of households with access should not be compared with the data predating 2002–03.

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

Table 13 Green organics by service provision category, Victoria 2005–06 to 2006–07

	Inner Metropolitan	Outer Metropolitan	Melbourne Fringe	Major Provincial	Small Provincial	Rural Township	Total
2006–07							
Annual service cost	$4,735,251	$21,818,931	$2,195,776	$3,578,371	$2,211,829	$290,935	$34,831,093
Tonnes collected	36,362	157,019	10,175	23,904	14,504	4,212	246,175
Total households serviced*	435,060	797,953	165,374	120,327	83,136	10,435	1,612,285
Cost per tonne	$130.22	$138.96	$215.81	150	153	69	$141.49
Cost per household	$10.88	$27.34	$13.28	30	27	28	$21.60
Household yield (kg)	84	197	62	199	174	404	153
2005–06							
Annual service cost	$3,881,294	$23,375,057	$1,489,111	$2,533,239	$1,722,768	$123,467	$33,124,936
Tonnes collected	31,129	173,401	8,831	30,118	14,863	663	259,004
Total households serviced*	428,659	827,066	171,604	99,794	70,947	4,296	1,602,366
Cost per tonne	$124.68	$134.80	$168.62	$84.11	$115.91	$186.33	$127.89
Cost per household	$9.05	$28.26	$8.68	$25.38	$24.28	$28.74	$20.67
Household yield (kg)	73	210	51	302	209	154	162
Per cent change							
Annual service cost	22.0	-6.7	47.5	41.3	28.4	135.6	5.2
Tonnes collected	16.8	-9.4	15.2	-20.6	-2.4	535.7	-5.0
Total households serviced*	1.5	-3.5	-3.6	20.6	17.2	142.9	0.6
Cost per tonne	4.4	3.1	28.0	78.0	31.6	-62.9	10.6
Cost per household	20.2	-3.3	53.0	17.2	9.6	-3.0	4.5
Household yield (kg)	15.1	-6.1	19.6	-34.2	-16.7	161.7	-5.5

* Total households serviced refers to the number of households with access to any of the green organics kerbside services, such as a regular fortnightly collection, an on-call service or a user-pays optional service

A total of 246,175 tonnes of green organics were collected during 2006–07. This represents a 5% decrease in tonnes collected since 2005–06. Of the amount collected, 99% was processed. Quantities not processed may have been burnt or sent to landfill due to contamination. Processing also includes using the material for daily cover at landfills, as it replaces soil as a resource.

The quantities of green organics collected over time are shown in Figure 25.

Figure 25 Green organics tonnes collected, Victoria 2000–01 to 2006–07

The quantity of green organics collected has increased from 99,141 tonnes in 2000–01 to 246,175 tonnes in 2006–07, a 148% increase. During this time, there has been an expansion of the three-bin system to one small bin for garbage, one large bin for recyclables and another large bin for green organics. This has encouraged householders to divert green organics from landfill. More local governments offered a kerbside green organics service to households but less tonnes were collected statewide. Although the quantity collected decreased for the first time in seven years, this can be attributed to the prevailing drought conditions experienced in Victoria and the watering restrictions enforced in many parts of the state.

Costs

The cost of providing this service is now nearly $35 million a year an increase of $1.7 million or 5.2% since 2005–06. This represents an average cost of $21.60 per household per year.

Frequency

A frequent (weekly, fortnightly or monthly) green organics collection service was provided by 37 local governments (see Table 14) of which 17 were of an optional user pays fortnightly service.

Table 14 Green organics collection by frequency of service, Victoria 2006–07*

Predominant frequency of service	Inner Metropolitan	Outer Metropolitan	Melbourne Fringe	Major Provincial	Small Provincial	Rural Township	Total
Annual	—	1	—	—	1	—	2
Bi-annual	2	1	1	—	—	1	5
Fortnightly	2	10	—	1	2	1	16
Monthly	—	—	—	—	1	1	2
On-call	5	2	1	—	1	—	9
Weekly	—	—	1	—	1	—	2
Fortnightly (user pays)	6	6	1	2	2	—	17
On-call (user pays)	—	1	—	—	1	—	2
Total	15	21	4	3	9	3	55

* Local governments that have more than one frequency of collection are listed here as separate services. Only 45 local governments offered a green organics services

Inner and outer metropolitan service areas continue to provide a significant proportion (70%) of the green organic collection services and mainly offer a fortnightly collection.

Regular green organics kerbside services

Table 15 illustrates the costs and yields associated with a regular kerbside service. A regular service is provided by council as a mandatory service and the cost is generally included as part of the overall council waste charges.

Table 15 Green organics average costs and yields by collection system, Victoria 2006–07

Regular green organics service	Number of local governments*	Cost per tonne	Cost per household	Household yield (kg)
Weekly	2	$157.43	$53.00	337
Fortnightly	16	$132.54	$30.05	227
Monthly	2	$109.79	$17.01	155
Other (i.e. annual & biannual)	7	$293.73	$6.31	21
Total	27	$139.07	$24.07	173

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

Regular collections (weekly and fortnightly services) had the highest household yield with 337 kg and 227 kg respectively. Correspondingly, these regular services also had the highest cost per household. The more frequent the service the higher the cost per tonne and cost per household. Biannual and annual collections had lower costs per households and significantly lower yields per household.

Of the regular green organic kerbside services, weekly services had the highest annual household yield with 337 kg. This was 117% more than the 155 kg yielded by a monthly service. A weekly service was

$18.36 (13%) higher than the average cost per tonne, and more than double the average for cost per household with $53.00.

On-call green organic services

Table 16 compares the costs and yields associated with regular 'on-call' and user pays 'on-call' services. An on-call service is provided by councils as part of the general waste charges and allows households to have access to a number of free services per year. An optional on-call user pays service is offered to residents as an additional service where no regular green organics service is generally offered and typically incurs a pick up fee. All residents may have access to an optional user pays on-call service but only some will elect to participate.

Table 16 Green organics average costs and yields for on-call services, Victoria 2006–07

	Number of local governments*	Cost per tonne	Cost per on-call service**	Household yield (kg) per on-call service**	Participation rate*** (%)
On-call service	9	$129.16	$21.81	169	8
On-call service (user pays)	2	$74.74	$4.55	61	1

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

** Refers to the number of households that took up the service offered rather than the number of households with access to the service

*** Refers to the number of households that took up the service offered as a proportion of the total number of households with access to the service

The number of on-call services provided per household can be as high as 12 (i.e. one per month) but it is more often limited to once or twice per year.

Although the costs associated with a regular on-call green organics service are higher than a user pays on-call service, the household yields are much greater with 169 kg per household compared to 61 kg. This represents a yield of 177% more per household.

Optional user pays regular (fortnightly) green organic services

Table 17 compares the costs and yields associated with an optional fortnightly user pays service. An optional user pays regular (fortnightly) service is offered to residents as an additional service where generally no regular green organics service is offered. All residents may have access to the optional service but only some will elect to participate. An optional regular user pays service incurs an additional annual fee to the regular council waste charges.

Table 17 Green organics average costs and yields for optional user pays services, Victoria 2006–07

	Number of local governments*	Cost per tonne	Cost per optional user pays service**	Household yield (kg) per optional user pays service**	Participation rate*** (%)
Fortnightly (user pays)	17	$147.39	$42.75	290	41%

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

** Refers to the number of households that took up the service offered rather than the number of households with access to the service

*** Refers to the number of households that took up the service offered as a proportion of the total number of households with access to the service

The optional fortnightly user pays service is the most common service provided to households. There are 17 local governments with this system and 16 local governments with a regular fortnightly service. The regular fortnightly service has a high participation rate with 41% compared to the optional on-call service which only has a 1% participation rate. The associated cost per tonne is a little higher ($14.85 or 11%) than a regular fortnightly service but less than a weekly service. The average household yield of the optional user pays fortnightly service is 290 kg per household or 63 kg more than the regular fortnightly service; nearly 23% more.

Container type

Table 18 illustrates the range and frequency of containers used for green organic collections.

The predominant bin system used by Victorian local governments in 2006–07 was the 240L bin, accounting for 32 or 58% of all services provided. This is an improvement from last year where 27 (54%) of such systems were used.

Table 18 Green organics bin systems, Victoria 2006–07

Primary bin	Metro	Non-Metro	Total
120L	4	—	4
240L	21	11	32
240L split garbage & green organics	—	1	1
Other*	14	4	18
Total	39	16	55

* Other includes tied bundle, bagged, and residents own green organics container

Environmental benefits from kerbside recycling

This section looks at the environmental benefits gained from recycling during 2006–07.

A total of 561,251 tonnes of recyclables was collected for recycling in Victoria, or 111 kg per household. Allowing for a contamination rate of approximately 10.2% (as indicated by local governments) and a small quantity that was collected but not recycled, 504,174 tonnes of municipal waste was actually recycled in 2006–07. Material that is not recycled is either garbage (householders incorrectly put material out for recycling) or small quantities of recyclables that cannot readily be reprocessed (such as broken glass that cannot be sorted out from the recycling stream).

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

> 10,537 megalitres of water a year – equivalent to filling 4,215 Olympic-sized swimming pools, or 23 showers for every Victorian per year

> 277,016 tonnes of greenhouse gases (such as CO^2) a year, or taking 46,169 cars off the road[15]

> emissions and air pollution from Victorian motorists travelling nearly 975 million kilometres a year in average passenger cars

> 7,387,947 gigajoules of electricity a year, equivalent to 314 days of watching television for every Victorian

A life cycle assessment was also applied to the green organics processed through kerbside collection services. Of the 246,175 tonnes collected, 244,731 tonnes were processed. The environmental benefits of kerbside green organics were savings of:

> 171 megalitres of water a year – equivalent to filling 69 Olympic-sized swimming pools

> 56,410 tonnes of greenhouse gases a year – equivalent to taking 9,402 cars off the road

[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 University, Melbourne

[15]CSIRO Atmospheric Research (2000), CSIRO, Melbourne, <http://www.dar.csiro.au> viewed on 17 March 2003

Litter and street sweeping services

This section looks at the operation of litter maintenance and street sweeping services. The figures provide only a general indication of some of the services, as some local governments were unable to provide full details of specific costs and tonnages for all the litter services.

Seventy four local governments reported on litter bin and trap maintenance services in 2006–07 (see Table 19).

The total cost to local governments of providing a municipal litter service, street sweeping and litter clean up services was in excess of $70 million annually or $13.92 for every person in Victoria. Of this, Victorian local governments spent nearly $24 million on the provision of litter services involving litter bins, traps and litter clean up services (such as dumped rubbish).

The largest proportion of expenditure was on street sweeping accounting for 67% of the total followed by expenditure on litter bin maintenance with 21% (see Figure 26).

Figure 26 Litter and street sweeping services tonnes collected, Victoria 2000–01 to 2006–07

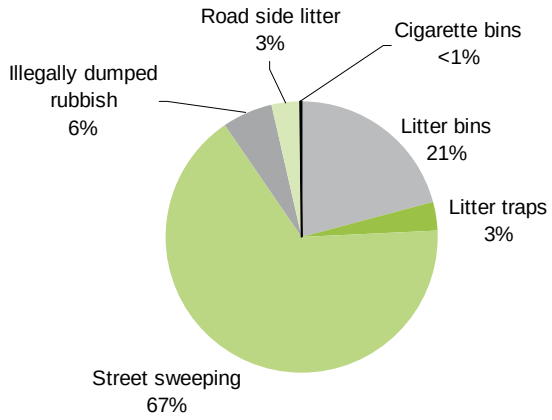


Table 19 Litter services, Victoria 2005–06 to 2006–07

	Metro	Non-Metro	Total
2006–07			
No. of litter bins	20,804	17,092	37,896
Annual service cost for bins	$9,632,771	$5,037,057	$14,669,828
Tonnes collected from bins	21,109	6,583	27,691
No. of side entry traps	2,342	130	2,472
No. of in-line litter traps	584	241	825
Annual service cost for traps	$1,592,390	$691,748	$2,284,138
Tonnes collected from traps	2,999	1,133	4,132
No. of penalty infringement notices issued	1,306	107	1,413
No. of public recycling bins	900	677	1,977
2005–06			
No. of litter bins	22,506	16,553	39,059
Annual service cost for bins	$8,997,081	$5,244,140	$14,241,221
Tonnes collected from bins	25,987	16,040	42,027
No. of side entry traps	2,435	508	2,943
No. of in-line litter traps	509	262	771
Annual service cost for traps	$1,597,953	$841,796	$2,439,748
Tonnes collected from traps	3,037	802	3,838
No. of penalty infringement notices issued	1,665	184	1,849
No. of public recycling bins	711	618	1,329
Per cent change			
No. of litter bins	-7.6	3.3	-3.0
Annual service cost for bins	7.1	-3.9	3.0
Tonnes collected from bins	-18.8	-59.0	-34.1
No. of side entry traps	-3.8	-74.4	-16.0
No. of in-line litter traps	14.7	-8.0	7.0
Annual service cost for traps	-0.3	-17.8	-6.4
Tonnes collected from traps	-1.2	41.2	7.6
No. of penalty infringement notices issued	-21.6	-41.8	-23.6
No. of public recycling bins	26.6	9.5	48.8

Litter bins and traps

A total of 37,896 litter bins and 3,297 traps (side entry and in-line traps) were in place across 94% of Victorian local governments in 2006–07.

Yield

A total of 27,691 tonnes was collected through litter bins, representing a 43% decrease from 42,027 tonnes collected in 2005–06. It should be noted though, that two large local governments did not respond to this component of the survey this year which has affected the results by approximately 7,500 tonnes based on last years figures. Litter traps collected 4,132 tonnes, an increase of 294 tonnes from the previous year.

Cost

The majority of costs associated with the operation of litter maintenance are for litter bins, which account for more than $14 million, or 87% of the total cost, while litter traps cost nearly $2.3 million, or 13% of the total cost.

Penalty infringement notices

There were 1,413 penalty infringement notices issued for litter, down on the previous year when 1,849 notices were issued. Metropolitan local governments issued 92% of all penalty infringement notices.

Public place recycling

Forty–four local governments reported a total of 1,977 public place recycling bins, up 648 on the previous year. This is mainly due to more local governments now being able to report the data rather than an actual increase. In 2005–06, 34 local governments reported 1,329 public place recycling bins.

Litter clean up services

Some local governments also provided further detail on their litter services (see Table 20). Enhanced reporting is more likely to explain variation year to year rather than increases in real terms.

The combined cost for cleaning up illegally dumped rubbish, roadside litter and cigarette bins amounted to nearly $7 million (see Table 20).

Table 20 Litter clean up services, Victoria 2005–06 to 2006–07

	Illegally dumped rubbish	Road side litter	Cigarette bins
2006–07			
Annual service cost	$4,183,078	$2,327,511	$221,043
Tonnes collected	14,870	3,930	n.a.
No. of call outs	15,291	n.a.	n.a.
No. of penalties issued	398	n.a.	n.a.
No. of cigarette bins	n.a.	n.a.	1,469
2005–06			
Annual service cost	$2,295,404	$1,498,778	$204,201
Tonnes collected	11,923	8,819	n.a.
No. of call outs	14,691	n.a.	n.a.
No. of penalties issued	529	n.a.	n.a.
No. of cigarette bins	n.a.	n.a.	1,147
Per cent change			
Annual service cost	82.2	55.3	8.2
Tonnes collected	24.7	-55.4	n.a.
No. of call outs	4.1	n.a.	n.a.
No. of penalties issued	-24.8	n.a.	n.a.
No. of cigarette bins	n.a.	n.a.	28.1

Cleaning up illegally dumped rubbish cost local government in excess of $4 million, with a total of 14,870 tonnes collected from 15,291 call-outs. The annual service cost for illegal dumped rubbish was provided by 37 local governments. This is 8 more than in the previous year which is why the cost has increased by nearly 28% since 2005–06.

The cost of roadside litter was also considerable at just over $2.3 million across 23 local governments, reporting 3,930 tonnes collected.

Despite not indicating that any of the three litter clean up areas were listed separately as a line item in the budget, more local governments went on to actually provide careful estimates for the figures.

Cigarette bin services also showed a large increase, with 44 local governments reporting a total of 1,469 cigarette bins (an increase of 28.1% over last year) and 24 recording a combined operational cost of $221,043 representing an increase of 8.2% over 2005–06.

Street sweeping

Seventy four of the seventy nine local governments (94%) indicated that they provided a municipal street sweeping service and were able to provide service cost figures.

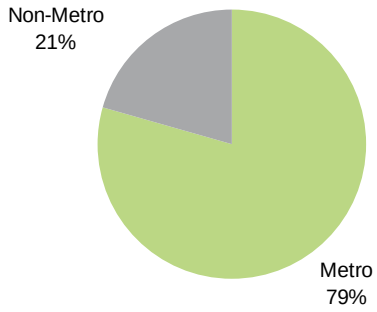
In Victoria, street sweeping cost local governments in excess of $46 million (Table 21) an increase of more than $3.6 million from the previous year. This equates to $9.24 annually for every person in Victoria.

Table 21 Street sweeping services, Victoria 2005–06 to 2006–07

	Metro	Non-Metro	Total
2006–07			
Annual service cost	$37,221,021	$9,620,681	$46,841,702
2005–06			
Annual service cost	$33,067,274	$10,151,393	$43,218,667
Per cent change			
Annual service cost	12.6	-5.2	8.4

Metropolitan local governments incurred the greatest proportion of the cost, with 79% of the total (Figure 27) a rise of 2% on the previous year.

Figure 27 Street sweeping services, annual service cost, Victoria 2006–07



Commercial and industrial recyclables

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

Access

Table 22 displays the number of commercial and industrial (C&I) premises receiving kerbside services provided by local government.

Table 22 Number of commercial and industrial premises serviced by kerbside collections, Victoria 2006–07

	Inner Metropolitan	Outer Metropolitan	Melbourne Fringe	Major Provincial	Small Provincial	Rural Township	Total
Domestic kerbside service							
Garbage collection	22,720	22,128	3,158	3,958	14,193	5,849	72,006
Recyclables collection	32,714	18,542	3,007	2,132	11,517	7,464	75,376

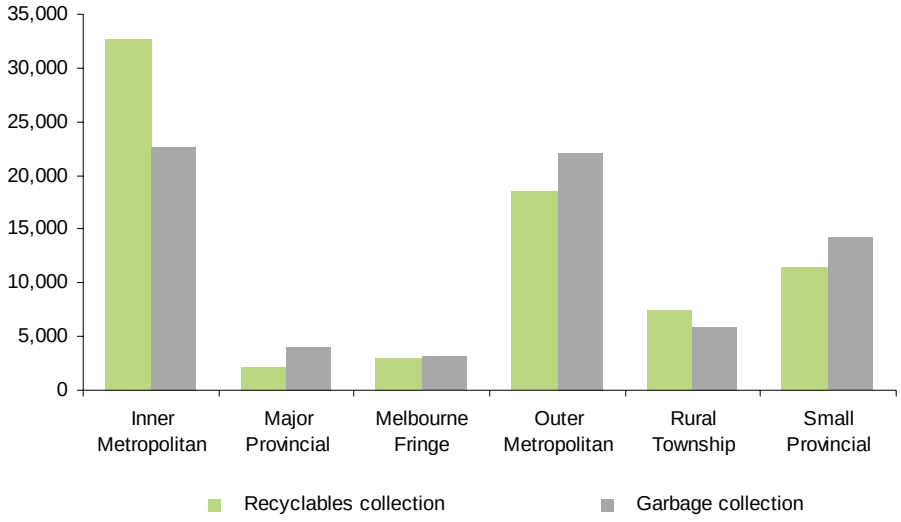
Of those C&I properties serviced through the domestic kerbside system, 75,376 received a recyclables service and 72,006 also received a garbage collection service. It is likely that most of the properties receiving a recyclables service would also be receiving a garbage collection service.

An additional 24,710 C&I premises are serviced by a domestic kerbside recyclables service compared to 2005–06. This may be the result of better data reporting, rather than an actual increase in premises serviced.

It should be noted that, wherever possible, local governments were requested to exclude C&I properties from the domestic kerbside service. This occurred only if related costs and tonnes could be excluded (which was often not the case). Some local governments could not identify the number of C&I properties within the total properties serviced and simply listed C&I properties under the number of domestic households serviced, although the reporting or C&I premises has improved over time.

Figure 28 illustrates the spread of where most C&I premises are serviced in Victoria. Inner and outer metropolitan areas service the majority of premises with 68% for recyclables and 63% for garbage respectively.

Figure 28 Number of commercial and industrial premises serviced by kerbside collections by service provision categories, Victoria 2006–07



Hard waste

This section of the report looks at hard waste kerbside collection services provided by Victorian local governments. Hard waste is household waste not normally accepted into garbage bins for example, white goods, tyres and so on.

Access

A little over half of all local governments (40) reported the provision of a hard waste collection service, three less than in the previous year (see Table 23). As with green organics, the analysis of total households serviced has changed to the number of households with access, regardless of how many households participated or the number of on-call services made. More and more local governments are slowing moving away from providing a hard waste service due to the high cost of providing such a service and are instead providing residents with free coupons to dispose of hard waste at transfer stations / drop-off facilities. Major provincial areas this year reported only 86 tonnes collected compared to last year where 7,600 tonnes were reported. One local government has ceased to provide a service for hard waste which has significantly affected the results.

Table 23 Hard waste services by service provision category, Victoria 2006–07

	Inner Metropolitan	Major Provincial	Melbourne Fringe	Outer Metropolitan	Rural Township	Small Provincial	Total
Annual service cost	$2,006,557	$15,000	$697,017	$5,854,632	$58,702	$260,878	$8,892,786
Tonnes collected	12,259	86	5,063	44,097	137	1,260	62,901
Tonnes disposed	11,430	86	4,712	37,912	69	815	55,024
Diversion rate (%)	7	0	7	14	50	35	13
Total households serviced*	443,792	13,310	149,374	836,534	4,749	51,694	1,499,453
Cost per tonne	$163.69	$174.42	$137.66	$132.77	$428.48	$207.13	$141.38
Cost per household	$4.52	$1.13	$4.67	$7.00	$12.36	$5.05	$5.93
Household yield (kg)	28	6	34	53	29	24	42
Cost per 'on-call' service	$20.99	—	$27.56	$38.26	—	$19.95	$29.30
No. of local governments	10	1	4	16	3	9	43

* Refers to households with access to a hard waste service

Cost

The total hard waste service cost to Victorian local governments was just under $8.9 million. This is an increase of $1 million from 2005–06. Outer metropolitan local governments accounted for 66% of this cost.

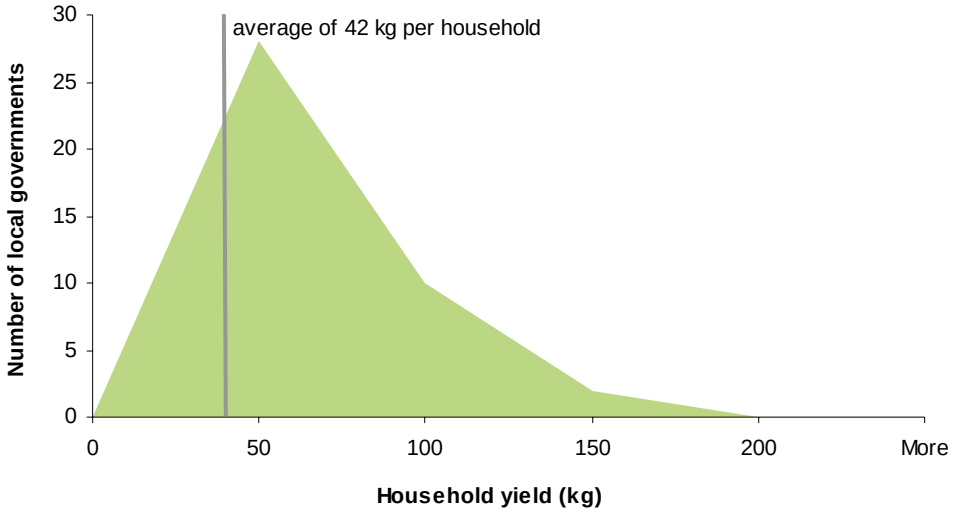
Yield

Of the 62,901 tonnes collected, 55,024 tonnes were disposed to landfill representing a state average diversion rate of 13%, 1% less than in the previous survey period.

Rural townships and small provincial areas reported the highest diversion rate at 50% and 35% respectively. This is far greater than any of the other service provision categories and nearly three to four times better than the state average of 13%. This may be due to the lack of well developed kerbside services available in the more remote rural areas. Consequently, households have less opportunity to dispose of material through normal means and would rely more on hard waste collections.

On average, 42 kg of hard waste was collected per household during 2006–07 (see Figure 29); 4 kg less than last year.

Figure 29 Hard waste household yield across local governments, Victoria 2006–07



Frequency

A little over half of the local governments (51%) collected hard waste annually. The main frequency of collection was annual with 17 local governments offering this service. Over a third provided an on-call service (see Table 24).

Table 24 Hard waste collection frequency by service provision category, Victoria 2006–07

Frequency of service	Inner Metropolitan	Major Provincial	Melbourne Fringe	Outer Metropolitan	Rural Township	Small Provincial	Total
Annual	2	—	2	5	2	6	17
Biannual	2	—	—	6	—	1	9
Monthly	—	—	—	—	—	1	1
On-call	6	1	1	5	—	—	13
Total	10	1	3	16	2	8	40

Landfills and transfer stations

This section looks at the number of local government owned or operated landfills (licensed and unlicensed) and resource recovery and waste transfer stations across the state, including those that are operated by private contractors for local governments. The data does not include privately owned sites.

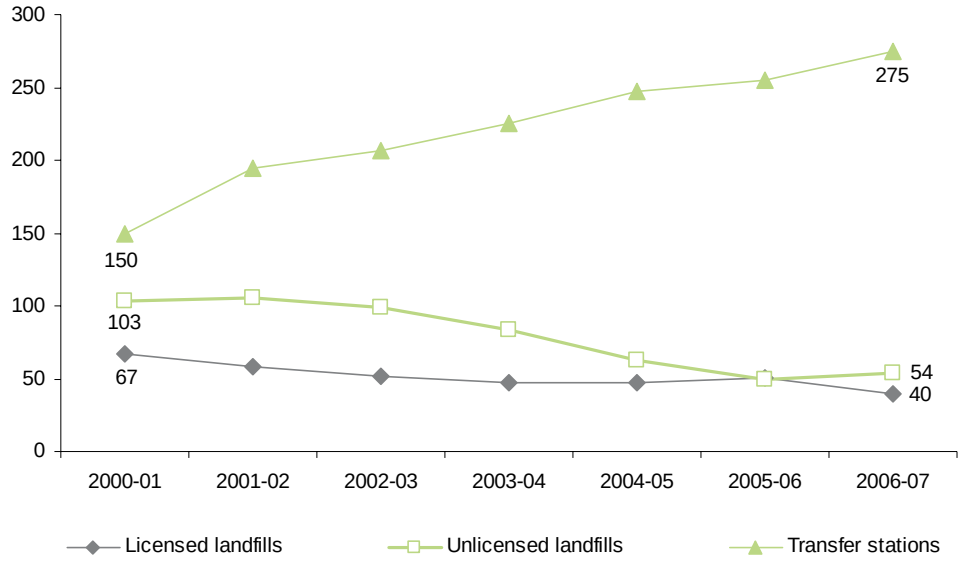
The number of local government owned or operated landfills and transfer stations are shown in Table 25.

Table 25 Number of local government owned landfills and transfer stations by service provision category, Victoria 2006–07

	Inner Metropolitan	Major Provincial	Melbourne Fringe	Outer Metropolitan	Rural Township	Small Provincial	Total
Operating landfills							
No. of licensed landfills	0	4	2	3	6	25	40
No. of unlicensed landfills	0	2	2	0	33	17	54
Total landfills	0	6	4	3	39	42	94
Closed landfills							
No. of licensed landfills closed in 2006–07	0	0	4	0	0	3	7
No. of unlicensed landfills closed in 2006–07	0	0	0	0	0	1	1
Total landfills closed	0	0	4	0	0	4	8
Transfer stations							
No. of transfer stations	7	13	21	11	84	139	275
No. of new transfer stations established in 2006–07	2	0	1	2	4	10	19

Over time, there has been a gradual decrease in the number of licensed and unlicensed landfills and a corresponding increase in the number of transfer stations and resource recovery centres being established and/or upgraded across the state (see Figure 30).

Figure 30 Number of licensed / unlicensed landfills and transfer stations, Victoria 2000–01 to 2006–07*



* No survey was conducted for the 2003–04 period. Data has been estimated from existing information for this period

Licensed landfills

Of the 94 operational landfills reported by local governments, 40 were licensed. Inner metropolitan local governments did not operate or own any landfills. Most licensed landfills (25) were operating in small provincial local governments during 2006–07 representing 63% of all licensed landfills in Victoria.

Unlicensed landfills

Of the 54 unlicensed landfills operating in Victoria during 2006–07, the majority (50 or 93%) were in rural townships and small provincial local government areas.

Closed landfills

The rate of licensed and unlicensed landfill closures has slowly decreased over the past seven years. Of the eight landfills closed during 2006–07, seven were licensed landfills. The closure of landfills occurred equally in small provincial and Melbourne fringe local government areas.

Transfer stations

Rural townships and small provincial local governments maintained 223 (81%) of Victoria's 275 transfer stations, reflecting the need in rural communities for drop-off facilities to consolidate recyclables and waste. These areas accounted for 14 of the 19 new transfer stations established during 2006–07.

Resource recovery from drop-off facilities / transfer stations

A total of 16,891 tonnes of material (glass containers, steel containers, aluminium containers, plastic containers and paper and cardboard) was recovered from drop-off facilities / transfer stations for 2006–07.

Paper comprised the greatest proportion of material recovered representing 68.6% of the total. Cardboard was the largest contributor to this category accounting for 60.5% of the 68.6%. Cardboard contributed 42% to the total of all items recovered from these facilities.

Miscellaneous containers was the next largest category with 26.3% of the total. Glass containers represented the largest proportion of miscellaneous containers contributing 59.4% to this category and almost 16% to the total of all items recovered (Figure 31).

Figure 31 Resource recovery by type of items recovered at drop-off facilities, Victoria 2006–07

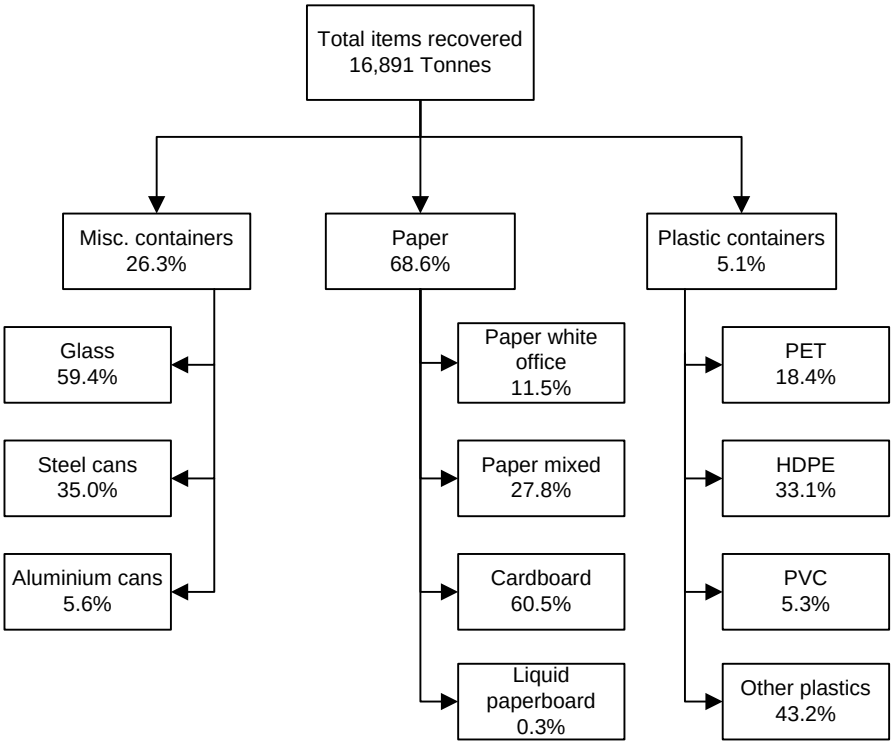
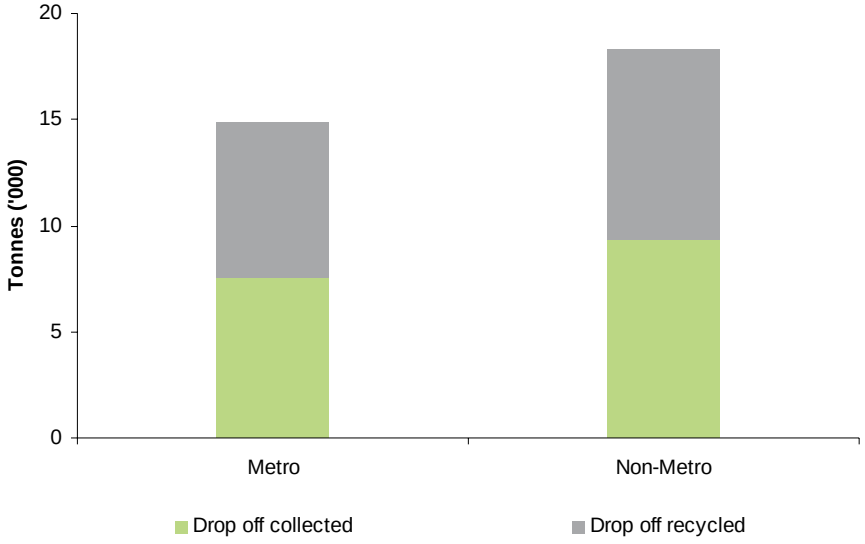


Figure 32 displays the proportions of material collected and recycled from drop-off facilities by metropolitan and non-metropolitan local governments. It is clear that the impact of drop-off recovery is more important to non-metropolitan areas. The quantities collected for non-metropolitan areas represent about 2% of the total waste generated compared to metropolitan areas where the impact is less than 1% of total waste generated.

Figure 32 Tonnes of drop-off material collected and recovered, Victoria 2006–07



Resource recovery by source

Some of the main items recovered through municipal kerbside collections and drop-off facilities are shown in Table 26.

Table 26 Main items recovered by source of recovery, Victoria 2006–07

	Source of item		
	Kerbside	Drop-off	Total
Main items recovered	Tonnes		
Plastic containers	46,962	858	47,820
Paper	351,817	11,595	363,412
Glass containers	140,059	2,636	142,695
Steel cans	16,772	1,554	18,326
Aluminium cans	5,640	248	5,888
Total	561,250	16,891	578,142

*Miscellaneous containers include glass, steel and aluminium containers

Material collected through kerbside services represented 97% of all material recovered with paper being the largest proportion with 61%.

Conclusions

The survey results indicate encouraging progress in reducing waste to landfill and in meeting the State Government's Towards Zero Waste targets for 2014, based on the current performance and Victoria's diversion rate of 41%.

Total waste has increased progressively over the past six years of the conduct of this survey until this year where it was reversed for the first time by 1%. The derived household rate for garbage shows that less waste is being landfilled (474 kg per household compared to 490 kg in 2005–06) than in previous years while more recyclables are being recovered from the waste stream for recycling. There was a 5% decrease in the green organics recovered this year over the 2005–06 period. This is attributed to the water restrictions placed on residential households as a result of the prevailing drought conditions through most of the state.

For the first time since this survey began, the cost of landfilling (cost per tonne of garbage collected and disposed) is comparable to the cost of recycling. Recycling is now worth the effort in terms of dollar cost to collectors of recyclables. As the cost of landfilling increases, the cost per tonne of kerbside recycling services (which is an indication of efficiency of system performance) can only decrease further. The efficiencies that are now being delivered through mature kerbside recycling systems in Victoria have been realised through the cooperation and achievements of local governments in delivering the TZW targets.

The environmental benefits alone from recycling these materials together with the lower economic cost of collecting and sorting recyclables provides a significant incentive to collectors to do the right thing. Nearly 277,016 tonnes of greenhouse gas abatement was achieved, which is equivalent to taking about 46,000 cars off the road annually.

Local governments have shown a willingness to improve their kerbside services by extending the number of households serviced and introducing best practice systems for kerbside recyclables. The majority of local governments now use a best practice recyclables bin system and have consequently improved the collection of recyclables by 20,000 tonnes or 3.7% from the previous year and by 224,000 tonnes or 66% since the benchmark survey of 2000–01.

The best performing local governments in terms of diversion rate clearly have common features of kerbside systems in place which contribute to increase household recycling rates and to the reduction of waste. The 240L recyclables bin fortnightly and the 120L weekly bin systems produce greater yields of recyclables. When matched with an 80L or 120L garbage bin the recycling rate is further improved. The best diversion rates are achieved by those local governments that also offer a regular green organics service, i.e. 120L weekly, 240L fortnightly or monthly bin system. Sixteen of the top 20 local governments offered some form of green organics collection service. Nillumbik Shire Council this year had the highest diversion rates of 67%, well above the state average of 41%. Local governments with a green organics service have correspondingly lower quantities of garbage and higher diversion rates.

Including drop-off material collected from transfer stations this year has improved the diversion rate for a number of rural waste management groups. For example, Desert Fringe has increased its diversion rate from 14% to 20%. Delivering efficient, cost-effective and high-yielding services in rural areas, given the greater transport distances between households and end-markets, is one of the challenges faced by local governments. Future publications will endeavour to widen the current calculation of diversion rate to include drop-material recovered from transfer stations.

Sustainability Victoria emphasises that other factors such as population density, length of time a system has been established, education programs, and distances to sorting facilities and end-markets can have significant impacts on yields and costs. The performance of local governments will therefore be impacted by all these factors, and their corresponding diversion rates should not be judged in isolation from these variables.

Appendix A Methodology

Coverage

The target population of the survey was all 79 local governments. The survey was completed by the local governments on Sustainability Victoria's website.

The data collection is completely enumerated; that is, the data collection included all 79 Victorian local governments, 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 79 participating local governments.

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

> household green organics collection and processing

> litter bin and litter trap collection and disposal

> litter clean up services

> street sweeping

> hard waste collection services

> commercial and industrial recyclables collection services

> landfill and transfer station operations

Diversion rate

The diversion rate is calculated by comparing the tonnes recycled to the tonnes collected, and includes garbage, recyclables and green organics recovered from kerbside services only.

In 2006–07, drop-off material was reported for the first time in the survey. For comparative purposes, the diversion rate which includes recyclables and green organics is the current official method used in this publication to benchmark councils and waste management groups against the state average diversion rate. That is, the state average rate of 41% is the official figure that should be quoted for 2006–07. Until councils become better at collecting and reporting data for drop-off material collected through transfer stations / resource recovery facilities, the diversion rate will always be expressed as a percentage in terms of tonnes of recyclables and green organics recycled (processed) over garbage, recyclables and green organics collected. It is envisaged that over time, future calculations of the diversion rate will expand to include drop-off material when the data is considered to be more reliable.

Presentation of data

The data has been provided in full to regional waste management groups and their respective member local governments for verification and for their use in waste planning and reporting.

In this report, the data is presented in aggregated form. This reduces the impact of statistical anomalies on the findings. The 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* (Sustainability Victoria, November 2000)

> metropolitan/non-metropolitan classifications

> waste management group

> collection system type

> collection frequency

Please note, since the 2005-06 publication, the definition of metropolitan has changed slightly with the exclusion of Mornington Peninsula Shire Council. This is explained in more detail in Appendix B – Glossary, under regional waste management groups.

Survey limitations

Sustainability Victoria has sought to verify information provided in data collection returns by through rigorous follow-up with individual local governments to validate data entries. In addition, Sustainability Victoria circulated extracts containing individual local government returns to regional waste management group executive officers and regional education officers to verify data. Through these steps and extensive data analysis, Sustainability Victoria has identified and corrected a significant number of anomalies.

However, Sustainability Victoria 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

Annual service cost

The service cost refers to the collection, sorting, processing and disposal costs of providing a waste service, as well as the annualised depreciated bin costs. 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 for providing the kerbside service, such as bins, 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. All capital expenditure costs associated with the construction and commissioning of infrastructure are excluded. Only the annual operating expenses of providing a kerbside service are included.

Cigarette bins

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

Diversion rate

The diversion rate is calculated by dividing the tonnes of recyclables and green organics recycled by the tonnes of recyclables, green organics and garbage collected, or dividing the tonnes of recyclables by the tonnes of recyclables and garbage collected. This is in contrast to the calculations in 2002–03, which only analysed the quantity collected.

In-line and side entry traps

Traps act as filters in the stormwater drains 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 drains. 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, miscellaneous containers (glass, aluminium, steel), and plastic containers. Few local governments are able to report down to the detailed level such as clear glass versus brown glass.

On call services

Many local governments provide an on-call service for green organics collection. The most common number of free services allowed per household was once or twice per year.

Penalty Infringement Notices

Penalty infringement notices (PINs) are issued for littering under Part VIIA of the *Environmental Protection Act* 1970. Council appointed litter enforcement officers may be based in a range of council units such as local laws, traffic, building and planning. This part of the Act includes a range of offences, such as littering (including dumping rubbish), bill posting, leaving advertising material on vehicles, delivering of unwanted advertising material, failing to comply with litter abatement notices and several others.

Plastic Coding System

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 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:

> PET (polyethylene terephthalate) – plastic identification code 1, used for soft drink bottles

> HDPE (high density polyethylene) – plastic identification code 2, used for milk and juice bottles

> PVC (polyvinyl chloride) – plastic identification code 3, used for juice and cordial bottles

> PP (polypropylene) – plastic identification code 5, used for ice-cream containers

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 the most common within the municipality. 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.

Recyclable collection systems

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

> two-crate system – refers to a crate for the collection of crate or commingled containers and a crate for the collection of paper, or one crate that is used to collect containers and paper mixed together

> crate and tied bundle – refers to a crate for the collection of containers and a tied bundle 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 but is segmented to accept both recyclables streams

> split garbage and recyclables – refers to the collection of recyclables (commingled containers and paper) together with garbage in one collection system but is segmented to accept the two different streams

Waste Management Groups (WMG)

There are currently 13 waste management groups (WMG), which cover all 79 Victorian local governments, divided into metropolitan and non-metropolitan areas. They vary in the number of local governments they include, ranging from one local government to 30 local governments. Each WMG is responsible for coordinating the planning of waste management activities for its member local governments. Prior to the 2005–06 publication, there were 16 WMGs with 31 local governments in metropolitan defined boundaries and the remainder (48) in non-metro areas of Victoria. On 1 October 2006, the metropolitan waste management group (MWMG) came into effect through the amalgamation of the four former metropolitan WMGs, namely, Northern, Eastern, South-Eastern, and Western. The legislation (*Environment Protection (Amendment) Act* 2006) provided for the MWMG to be successor in law to the four metropolitan groups. The MWMG represents the 30 metropolitan local governments of Melbourne. To avoid confusion, since the 2005–06 publication, metropolitan or metropolitan service provision categories will now refer specifically to the 30 local governments aligned to the MWMG and will no longer include the Mornington Peninsula Shire Council unlike the previous reports prior to 2005-06.

Resource recovery

Resource recovery is 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, tyres 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. Includes metropolitan and non-metropolitan local governments. 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, 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, and 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, and 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 Sustainability Victoria are:

1 cubic metre is equivalent to:

Paper/cardboard	0.10 tonne
Household garbage/garden/vegetation/	0.15 tonne
Wood/timber	0.30 tonne
Glass	0.347 tonne
Plastics	0.013 tonne
Steel cans	0.052 tonne
Aluminium cans	0.026 tonne
Commingled recyclables, i.e. plastic/glass/steel/aluminium	0.063 tonne

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 cost per household refer to the total residential and commercial and industrial premises serviced.

Appendix C Table of local governments in alphabetical order

The following table lists all local governments in alphabetical order and by region, service provision category and metropolitan/non-metropolitan classification.

Table 27 Victorian local governments, Victoria 2006–07

Local government	Regional Waste Management Group	Service Standard Category	Metro/Non-metro classification
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	Metropolitan WMG	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	Metropolitan WMG	Outer Metropolitan	Metro
Benalla Rural City Council	North Eastern RWMG	Small Provincial	Non-metro
Boroondara City Council	Metropolitan WMG	Outer Metropolitan	Metro
Brimbank City Council	Metropolitan WMG	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	Metropolitan WMG	Melbourne Fringe	Metro
Casey City Council	Metropolitan WMG	Outer Metropolitan	Metro
Central Goldfields Shire Council	Highlands RWMG	Small 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	Metropolitan WMG	Inner Metropolitan	Metro
East Gippsland Shire Council	Gippsland RWMG	Small Provincial	Non-metro
Frankston City Council	Metropolitan WMG	Outer Metropolitan	Metro
Gannawarra Shire Council	Central Murray RWMG	Rural Township	Non-metro
Glen Eira City Council	Metropolitan WMG	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	Metropolitan WMG	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

Table 27 continued

Local government	Regional Waste Management Group	Service Standard Category	Metro/Non-metro classification
Hindmarsh Shire Council	Desert Fringe RWMG	Rural Township	Non-metro
Hobsons Bay City Council	Metropolitan WMG	Inner Metropolitan	Metro
Horsham Rural City Council	Grampians RWMG	Small Provincial	Non-metro
Hume City Council	Metropolitan WMG	Outer Metropolitan	Metro
Indigo Shire Council	North Eastern RWMG	Small Provincial	Non-metro
Kingston City Council	Metropolitan WMG	Outer Metropolitan	Metro
Knox City Council	Metropolitan WMG	Outer Metropolitan	Metro
Latrobe City Council	Gippsland RWMG	Small Provincial	Non-metro
Loddon Shire Council	Central Murray RWMG	Rural Township	Non-metro
Macedon Ranges Shire Council	Calder RWMG	Melbourne Fringe	Non-Metro
Manningham City Council	Metropolitan WMG	Outer Metropolitan	Metro
Mansfield Shire Council	North Eastern RWMG	Rural Township	Non-Metro
Maribyrnong City Council	Metropolitan WMG	Inner Metropolitan	Metro
Maroondah City Council	Metropolitan WMG	Outer Metropolitan	Metro
Melbourne City Council	Metropolitan WMG	Inner Metropolitan	Metro
Melton Shire Council	Metropolitan WMG	Outer Metropolitan	Metro
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	Metropolitan WMG	Outer Metropolitan	Metro
Moonee Valley City Council	Metropolitan WMG	Inner Metropolitan	Metro
Moorabool Shire Council	Highlands RWMG	Melbourne Fringe	Non-Metro
Moreland City Council	Metropolitan WMG	Inner Metropolitan	Metro
Mornington Peninsula Shire Council	Mornington Peninsula RWMG	Melbourne Fringe	Non-Metro
Mount Alexander Shire Council	Calder RWMG	Small Provincial	Non-Metro
Moyne Shire Council	South Western RWMG	Rural Township	Non-Metro
Murrindindi Shire Council	Goulburn Valley RWMG	Rural Township	Non-Metro
Nillumbik Shire Council	Metropolitan WMG	Melbourne Fringe	Metro
Northern Grampians Shire Council	Grampians RWMG	Small Provincial	Non-Metro
Port Phillip City Council	Metropolitan WMG	Inner Metropolitan	Metro
Pyrenees Shire Council	Highlands RWMG	Rural Township	Non-Metro
Queenscliffe Borough Council	Barwon 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	Metropolitan WMG	Inner Metropolitan	Metro

Table 27 continued

Local government	Regional Waste Management Group	Service Standard Category	Metro/Non-metro classification
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
Wangaratta Rural City Council	North Eastern RWMG	Small Provincial	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	Metropolitan WMG	Outer Metropolitan	Metro
Whittlesea City Council	Metropolitan WMG	Outer Metropolitan	Metro
Wodonga Rural City Council	North Eastern RWMG	Major Provincial	Non-Metro
Wyndham City Council	Metropolitan WMG	Outer Metropolitan	Metro
Yarra City Council	Metropolitan WMG	Inner Metropolitan	Metro
Yarra Ranges Shire Council	Metropolitan WMG	Melbourne Fringe	Metro
Yarriambiack Shire Council	Grampians RWMG	Rural Township	Non-Metro

Appendix D Waste generation and diversion rate per household through kerbside collection services

All local governments with a garbage and recyclables kerbside collection services are listed below and are ranked by diversion rate.

Table 28 Diversion rate through kerbside services for local governments, Victoria 2006–07

Rank	Local government	Diversion rate (%) net of contamination*
1	Nillumbik Shire Council	67
2	Monash City Council	55
3	Maroondah City Council	55
4	City of Greater Geelong	54
5	Manningham City Council	51
6	Latrobe City Council	51
7	Casey City Council	51
8	Boroondara City Council	51
9	Bayside City Council	50
10	Banyule City Council	50
11	Kingston City Council	50
12	Knox City Council	50
13	Frankston City Council	48
14	Moyne Shire Council	48
15	Surf Coast Shire Council	46
16	Baw Baw Shire Council	46
17	Greater Dandenong City Council	46
18	Darebin City Council	44
19	Moonee Valley City Council	43
20	Greater Shepparton City Council	43
21	Wangaratta Rural City Council	43
22	Swan Hill Rural City Council	42
23	Whitehorse City Council	42
24	Maribyrnong City Council	41
25	Melton Shire Council	41
26	Hobsons Bay City Council	41
27	Warrnambool City Council	41
28	Yarra City Council	39
29	Moreland City Council	39

Table 28 continued

Rank	Local government	Diversion rate (%) net of contamination*
30	Stonnington City Council	39
31	Mornington Peninsula Shire Council	38
32	Hepburn Shire Council	38
33	Moorabool Shire Council	37
34	Wyndham City Council	37
35	Brimbank City Council	36
36	Macedon Ranges Shire Council	35
37	Wodonga City Council	34
38	Corangamite Shire Council	33
39	Moira Shire Council	33
40	Southern Grampians Shire Council	33
41	Glen Eira City Council	32
42	Mitchell Shire Council	32
43	Bass Coast Shire Council	32
44	Yarra Ranges Shire Council	31
45	Campaspe Shire Council	31
46	Gannawarra Shire Council	31
47	South Gippsland Shire Council	30
48	Ballarat City Council	30
49	Queenscliffe Borough Council	30
50	Cardinia Shire Council	29
51	Port Phillip City Council	29
52	Whittlesea City Council	29
53	Wellington Shire Council	29
54	Glenelg Shire Council	28
55	Hume City Council	28
56	Mount Alexander Shire Council	28
57	Mansfield Shire Council	28
58	Indigo Shire Council	27
59	Alpine Shire Council	27
60	Benalla Rural City Council	27
61	Colac Otway Shire Council	26
62	Strathbogie Shire Council	26
63	East Gippsland Shire Council	26
64	Pyrenees Shire Council	26

Table 28 continued

Rank	Local government	Diversion rate (%) net of contamination*
65	Greater Bendigo City Council	25
66	Ararat Rural City Council	24
67	Mildura Rural City Council	24
68	Murrindindi Shire Council	23
69	Northern Grampians Shire Council	23
70	Buloke Shire Council	22
71	Golden Plains Shire Council	21
72	West Wimmera Shire Council	20
73	Melbourne City Council	20
74	Central Goldfields Shire Council	20
75	Towong Shire Council	19
76	Yarriambiack Shire Council	17
77	Horsham Rural City Council	16
78	Hindmarsh Shire Council	10
	State average	**41%**

* Diversion rate equals tonnes of recyclables and green organics collected (less contamination) divided by tonnes of garbage, recyclables and green organics collected

This table includes those 78 local governments that had a kerbside garbage and recyclables service. Of these, 45 local governments also had a kerbside green organics service. Loddon did not provide a kerbside recyclables service and therefore is not included in this table.

The table below lists the annual household yield (kg) of recyclables collected through kerbside services by all local governments in alphabetical order.

Table 29 Recyclables household yield (kg) by local government, Victoria 2006–07

Local government	Predominant bin type	Household Yield (kg)
Alpine Shire Council	240L commingled	264
Ararat Rural City Council	240L commingled	216
Ballarat City Council	240L commingled	235
Banyule City Council	240L commingled	324
Bass Coast Shire Council	240L commingled	142
Baw Baw Shire Council	240L commingled	240
Bayside City Council	240L commingled	327
Benalla Rural City Council	240L commingled	289
Boroondara City Council	120L commingled	364
Brimbank City Council	240L commingled	274
Buloke Shire Council	240L commingled	231
Campaspe Shire Council	240L commingled	248
Cardinia Shire Council	240L commingled	263
Casey City Council	240L commingled	293
Central Goldfields Shire Council	240L & crate	92
City of Greater Geelong	240L commingled	308
Colac Otway Shire Council	240L commingled	226
Corangamite Shire Council	Crate & tied bundle	126
Darebin City Council	240L commingled	265
East Gippsland Shire Council	240L commingled	269
Frankston City Council	240L commingled	320
Gannawarra Shire Council	240L commingled	280
Glen Eira City Council	240L commingled	227
Glenelg Shire Council	240L commingled	216
Golden Plains Shire Council	240L commingled	184
Greater Bendigo City Council	240L commingled	233
Greater Dandenong City Council	240L commingled	258
Greater Shepparton City Council	240L commingled	284
Hepburn Shire Council	240L commingled	152
Hindmarsh Shire Council	240L commingled	47
Hobsons Bay City Council	240L commingled	283
Horsham Rural City Council	240L commingled	189
Hume City Council	240L commingled	290

Table 29 continued

Local government	Predominant bin type	Household Yield (kg)
Indigo Shire Council	240L commingled	134
Kingston City Council	240L commingled	296
Knox City Council	240L commingled	267
Latrobe City Council	240L commingled	244
Macedon Ranges Shire Council	240L commingled	280
Manningham City Council	240L commingled	305
Mansfield Shire Council	240L commingled	323
Maribyrnong City Council	240L commingled	246
Maroondah City Council	240L commingled	296
Melbourne City Council	120L commingled	80
Melton Shire Council	240L commingled	286
Mildura Rural City Council	240L commingled	243
Mitchell Shire Council	240L commingled	261
Moira Shire Council	240L commingled	289
Monash City Council	240L commingled	278
Moonee Valley City Council	240L commingled	260
Moorabool Shire Council	240L commingled	261
Moreland City Council	120L commingled	235
Mornington Peninsula Shire Council	240L commingled	277
Mount Alexander Shire Council	240L commingled	202
Moyne Shire Council	240L commingled	209
Murrindindi Shire Council	240L commingled	218
Nillumbik Shire Council	240L commingled	282
Northern Grampians Shire Council	240L commingled	171
Port Phillip City Council	240L commingled	428
Pyrenees Shire Council	240L commingled	156
Queenscliffe Borough Council	120L commingled	160
South Gippsland Shire Council	240L commingled	210
Southern Grampians Shire Council	120L commingled	229
Stonnington City Council	240L commingled	251
Strathbogie Shire Council	240L commingled	284
Surf Coast Shire Council	240L commingled	247
Swan Hill Rural City Council	240L commingled	466
Towong Shire Council	240L commingled	201
Wangaratta Rural City Council	240L commingled	368

Table 29 continued

Local government	Predominant bin type	Household Yield (kg)
Warrnambool City Council	240L commingled	369
Wellington Shire Council	240L commingled	201
West Wimmera Shire Council	Crate & tied bundle	169
Whitehorse City Council	240L commingled	313
Whittlesea City Council	240L commingled	296
Wodonga City Council	240L commingled	169
Wyndham City Council	240L commingled	285
Yarra City Council	120L commingled	301
Yarra Ranges Shire Council	240L commingled	304
Yarriambiack Shire Council	240L commingled	65
State average		271

Loddon Shire Council provides drop-off facilities for recyclables instead of a kerbside service. Drop-off facilities can be more cost efficient in providing communities in low density areas with access to diverting waste form landfill.

The following table lists the annual household yield (kg) for garbage of all local governments in alphabetical order.

Table 30 Garbage household yield (kg) by local government, Victoria 2006–07

Local government	Predominant bin type	Household Yield (kg)
Alpine Shire Council	80L	454
Ararat Rural City Council	120L	493
Ballarat City Council	140L	433
Banyule City Council	80L	431
Bass Coast Shire Council	120L	283
Baw Baw Shire Council	120L	421
Bayside City Council	140L	463
Benalla Rural City Council	140L	453
Boroondara City Council	120L	566
Brimbank City Council	140L	583
Buloke Shire Council	120L	625
Campaspe Shire Council	140L	518
Cardinia Shire Council	120L	596
Casey City Council	120L	472
Central Goldfields Shire Council	80L	405
City of Greater Geelong	120L	392
Colac Otway Shire Council	240L split garbage and green organics	796
Corangamite Shire Council	120L	509
Darebin City Council	120L	425
East Gippsland Shire Council	240L	550
Frankston City Council	80L	405
Gannawarra Shire Council	120L	511
Glen Eira City Council	240L	623
Glenelg Shire Council	120L	330
Golden Plains Shire Council	240L	612
Greater Bendigo City Council	240L	633
Greater Dandenong City Council	140L	529
Greater Shepparton City Council	80L	527
Hepburn Shire Council	120L	310
Hindmarsh Shire Council	120L	315
Hobsons Bay City Council	120L	495
Horsham Rural City Council	240L	641

Table 30 continued

Local government	Predominant bin type	Household Yield (kg)
Hume City Council	140L	714
Indigo Shire Council	140L	413
Kingston City Council	120L	453
Knox City Council	120L	504
Latrobe City Council	120L	404
Loddon Shire Council	140L	746
Macedon Ranges Shire Council	140L	440
Manningham City Council	120L	496
Mansfield Shire Council	240L	347
Maribyrnong City Council	120L	555
Maroondah City Council	120L	424
Melbourne City Council	120L	397
Melton Shire Council	120L	477
Mildura Rural City Council	120L	445
Mitchell Shire Council	120L	446
Moira Shire Council	120L	469
Monash City Council	240L	403
Moonee Valley City Council	120L	465
Moorabool Shire Council	120L	401
Moreland City Council	80L	446
Mornington Peninsula Shire Council	80L	361
Mount Alexander Shire Council	140L	460
Moyne Shire Council	120L	933
Murrindindi Shire Council	120L	660
Nillumbik Shire Council	120L	299
Northern Grampians Shire Council	240L	488
Port Phillip City Council	240L	344
Pyrenees Shire Council	120L	386
Queenscliffe Borough Council	120L	391
South Gippsland Shire Council	120L	427
Southern Grampians Shire Council	120L	356
Stonnington City Council	120L	433
Strathbogie Shire Council	120L	519
Surf Coast Shire Council	120L	311
Swan Hill Rural City Council	120L	478

Table 30 continued

Local government	Predominant bin type	Household Yield (kg)
Towong Shire Council	140L	722
Wangaratta Rural City Council	140L	408
Warrnambool City Council	80L	436
Wellington Shire Council	120L	376
West Wimmera Shire Council	120L	594
Whitehorse City Council	120L	466
Whittlesea City Council	120L	646
Wodonga City Council	140L	544
Wyndham City Council	140L	536
Yarra City Council	80L	386
Yarra Ranges Shire Council	120L	465
Yarriambiack Shire Council	120L	634
State average		474

Sustainability Victoria

1300 363 744

Urban Workshop

Level 28, 50 Lonsdale Street

Melbourne Victoria 3000 Australia

resourcesmart.vic.gov.au