



Report to

Ministry for the Environment

**e-Waste Survey
for eDay 2007**

Zwimpfer Communications Limited
November 2007

NATIONAL SUPPORTERS



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Executive Summary

A 2006 report on electronic waste in New Zealand, prepared by the Computer Access New Zealand (CANZ) Trust drew attention to the growing number of obsolete computers and computer-related equipment.¹ The report estimated that there were around sixteen million computer and television devices in New Zealand with nearly a million being added each year. In the absence of a national collection and recycling scheme for the safe disposal of this equipment, it is assumed that this electronic waste is ending up in landfills or being stored at homes and businesses, creating a potential environmental hazard.

To draw attention to this issue and alert the general public to the potential hazards of landfilling electronic waste, CANZ with the support of Dell and other partners, organised New Zealand's first eDay in September 2006. This provided an opportunity for households to drop-off old computers free of charge to a centralised collection point so that they could be disposed of in an environmentally friendly way. This first eDay was held in Wellington and just over 50 tonnes of e-waste were collected. As a result of the high publicity for the day, other councils asked to be included in a future eDay.

In September 2007, CANZ organised the first national eDay, with 12 locations participating. As in 2006, the day was extremely successful with some 400 tonnes of e-waste being collected. All the equipment collected was sent for recycling. The recycling operators in Auckland, Melbourne and Singapore all have processes that ensure no more than 5% of the e-waste ends up in landfills.

Key findings from the 2007 eDay

- On 29 and 30 September 2007, 6,974 cars dropped off over 26,200 pieces of computer equipment at 12 venues across New Zealand.
- Of the total tonnage collected nationally, Wellington collected 27%, the largest amount.
- Of the total tonnage of equipment collected, monitors made up the largest contribution by weight at 50%.
- The top four manufacturers for the branded equipment surveyed were: HP, Compaq, Philips and Dell.
- Of the equipment surveyed in Wellington, 37% were 'other' brands and 9% were 'unbranded', ie, no easily identifiable manufacturer branding.
- Of the drivers surveyed, 82% said the equipment they were dropping off had been used by the household, 16% said business use.
- Of the drivers surveyed, 37% said they think computer manufacturers should pay for the safe recycling and disposal of computer equipment and 25% said the customer/user.
- Of the drivers surveyed, 42% said that using a recycling centre was the easiest way to recycle their computer waste and 39% said a collection event.

¹ John MacGibbon and Laurence Zwimpfer, "e-Waste in New Zealand: Taking Responsibility for end-of-life computers and TVs", July 2006.

eDay 2007

In September 2006, a pilot eDay, supported by Dell Computers, was held in Wellington to raise public awareness about e-waste. Electronic waste, commonly known as e-waste, covers a wide range of equipment, including computers and computer peripherals, television sets, home entertainment equipment and other electronic appliances. For practical reasons, the 2007 eDay was restricted to computer and computer-related equipment, such as printers, scanners, fax machines and computer peripherals such as mice and keyboards. The 2007 eDay also collected unwanted mobile phones.

eDays are community-based events, supported by corporate partners, local and central government as well as a large number of volunteers. They provide an opportunity for households to drop-off obsolete computer equipment at no charge, knowing that the equipment will be safely recycled. The purpose of eDay is to raise awareness about the hazardous substances in computer equipment and provide an alternative to landfill disposal.

A total of 53 tonnes of e-waste was collected at the 2006 eDay and sent to Melbourne for processing. This high level of participation confirmed the need for an e-waste disposal scheme. Fourteen communities from Invercargill to North Shore City expressed an interest in holding local eDays on the weekend of 29–30 September in 2007. After some months of planning, two centres withdrew (Dunedin and Christchurch) mainly because of the lack of a suitable collection venue. Ten centres held an eDay on Saturday 29 September and the two Auckland centres (Manukau and North Shore) on Sunday 30 September.

The events were advertised as “cars-only” events. A special promotion to schools in the collection areas provided an option for the disposal of bulk equipment during the week preceding eDay.

Surveys

Three surveys were administered as part of eDay 2007:

- (1) Driver Survey: to identify the level of public awareness about the potential environmental impacts of inappropriate disposal of e-waste, especially computers and mobile phones.
- (2) Equipment Survey: to identify the mix of equipment by brand being dropped off.
- (3) Equipment Totals: survey data from each drop-off site was reported in each hour to a central data entry site and used to provide aggregated summary data to the website and to the media.

Equipment collected

Information gathered on eDay indicated that just under 300 tonnes of e-waste was collected from the 12 participating centres. However, shipping data indicates the actual volume of e-waste was 415 tonnes. The discrepancy was caused by the high traffic volumes at some collection sites where volunteers were unable to maintain an accurate equipment count. Summary national statistics based on the eDay surveys are as follows.

Number of cars	6974
Total number of:	
Monitors	8938
Miscellaneous equipment	5364
Cellphones	1279
Computers	6498
Printers	4229
Total e-waste tonnage	294

The total weight of equipment shipped for recycling was as follows:

CRT monitors:	189 tonnes
Computers and computer peripherals:	226 tonnes

The total tonnage of equipment collected, as recorded on eDay, is as follows. This is compared with the projected tonnage, which was used for planning purposes. The projected figure was based on a simple ratio of the number of households compared to the volumes collected in Wellington in 2006 (53 tonnes).

	Projected tonnage	Total tonnage per area
North Shore	57	38
Manukau	86	27
Tauranga	32	26
Whakatane	10	16
Hamilton	36	42
Rotorua	19	7
Wanganui	11	23
Wellington	53	79
Wanaka	3.5	5
Queenstown	3.5	3
Alexandra	6	6
Invercargill	16	21
Total	333	294 ²

The quantity of equipment collected in each centre is summarised below.

² Compared with shipping statistics of 415 tonnes. Wellington accounts for a large part of the difference. The final count for Wellington was 130 tonnes compared to 79 tonnes counted on eDay.

	Working monitors 15" and 17"	Non-working monitors and all other monitors	Total monitors	Miscellaneous	Cell phones	Computer equipment	Printers	No. of cars
North Shore	690	678	1368	639	183	668	445	774
Manukau	555	345	900	341	284	574	404	959
Tauranga	586	228	814	429	78	576	429	673
Whakatane	293	172	465	264	83	362	240	313
Hamilton	750	267	1017	1631	82	781	610	834
Rotorua	147	76	223	48	59	194	118	167
Wanganui	396	297	693	446	133	456	422	481
Wellington	2068	380	2448	1288	197	1911	845	2243
Wanaka	82	76	158	109	17	83	111	56
Queenstown	56	53	109	17	13	98	28	59
Alexandra	69	169	238	54	0	118	99	78
Invercargill	432	73	505	98	150	677	478	337
New Zealand total	6124	2814	8938	5364	1279	6498	4229	6974

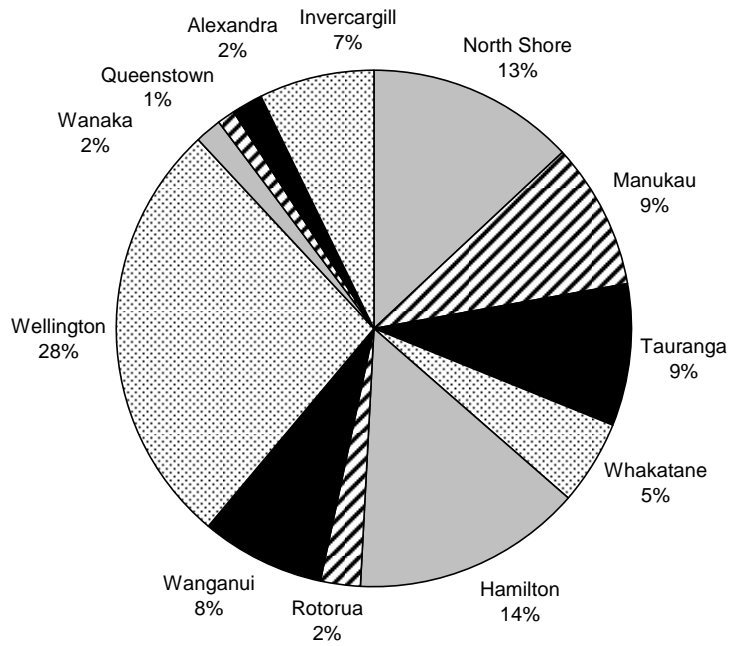
The following average equipment weights were used to calculate the total tonnage for each collection point:

Monitors	16.5 kg
Desktop computer	12.46 kg
Peripheral	6.84 kg
Cellphone	0.1 kg

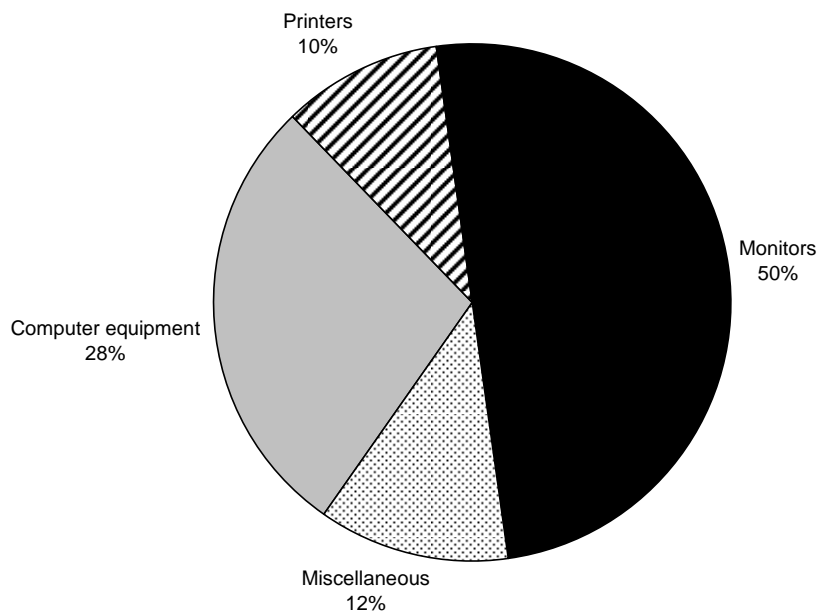
The total tonnage for each site is summarised below and then presented as a pie chart.

	Working monitors 15" and 17"	Non-working monitors and all other monitors	Miscellaneous	Cell phones	Computer equipment	Printers	Total equipment (tonnage)	Total tonnage per area
North Shore	11385	11187	4370.76	18.3	8323.28	3043.8	38328.14	38
Manukau	9157.5	5692.5	2332.44	28.4	7152.04	2763.36	27126.24	27
Tauranga	9669	3762	2934.36	7.8	7176.96	2934.36	26484.48	26
Whakatane	4834.5	2838	1805.76	8.3	4510.52	1641.6	15638.68	16
Hamilton	12375	4405.5	11156.04	8.2	9731.26	4172.4	41848.4	42
Rotorua	2425.5	1254	328.32	5.9	2417.24	807.12	7238.08	7
Wanganui	6534	4900.5	3050.64	13.3	5681.76	2886.48	23066.68	23
Wellington	34122	6270	8809.92	19.7	23811.06	5779.8	78812.48	79
Wanaka	1353	1254	745.56	1.7	1034.18	759.24	5147.68	5
Queenstown	924	874.5	116.28	1.3	1221.08	191.52	3328.68	3
Alexandra	1138.5	2788.5	369.36	0	1470.28	677.16	6443.8	6
Invercargill	7128	1204.5	670.32	15	8435.42	3269.52	20722.76	21
								294

Tonnage of ewaste by area

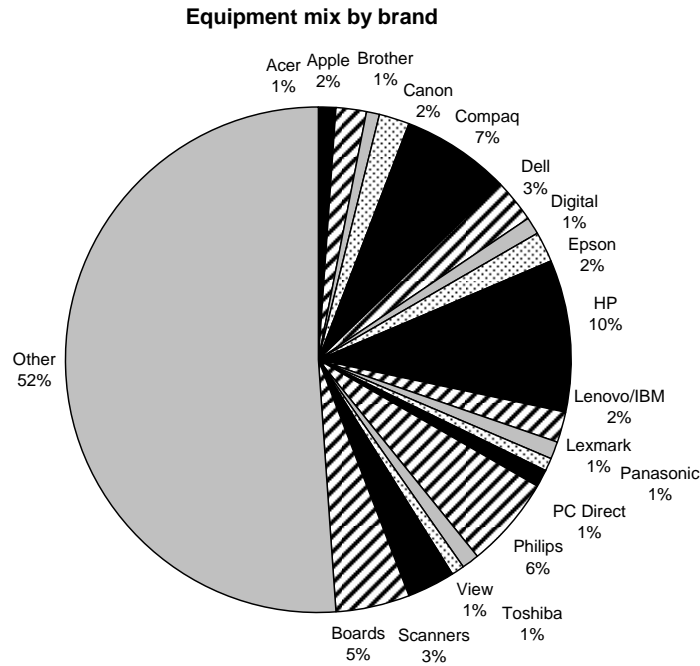


Tonnage weight representation



Equipment mix – national

Special efforts were made to record the brands of equipment dropped off at each site. It was not possible to record all equipment, especially at the larger sites, because of the high volumes. However, sufficient numbers were recorded to provide an indication of the mix.

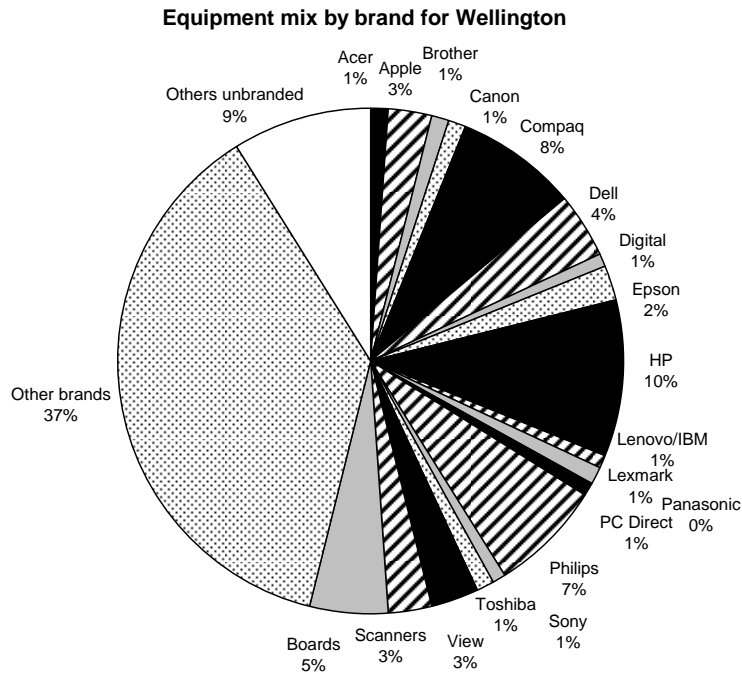


The data in the above chart is based on is the “total” equipment column in the table below, and as such includes all equipment, including monitors, computers, printers and other peripherals.

Brand	Monitors	Miscellaneous	Computers	Printers	Total	Percentage
Acer	138	0	86	0	224	1%
Apple	249	0	247	0	496	2%
Brother	0	0	0	241	241	1%
Canon	0	0	0	448	448	2%
Compaq	775	0	844	0	1619	7%
Dell	362	0	269	0	631	3%
Digital	154	0	0	0	154	1%
Epson	0	0	0	587	587	2%
HP	535	0	492	1282	2309	10%
Lenovo/IBM	152	0	268	0	420	2%
Lexmark	0	0	0	217	217	1%
Panasonic	30	0	0	128	158	1%
PC Direct	285	0	0	0	285	1%
Philips	1396	0	0	0	1396	6%
Toshiba	54	0	68	0	122	1%
View	307	0	0	0	307	1%
Scanners	0	677	0	0	677	3%
Boards	0	1289	0	0	1289	5%
Other	3908	3358	4265	982	12513	52%
	8345	5324	6539	3885	24093	100%

Equipment mix – Wellington

For the Wellington equipment survey the “other” category was split into “other branded” equipment and “other unbranded”. The results are summarised below.



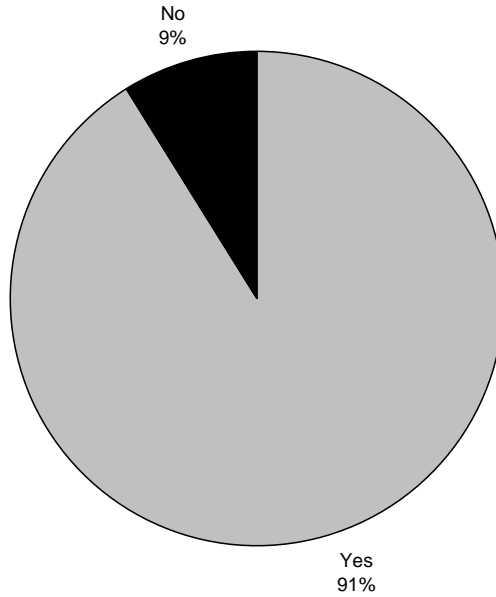
The above graph is based on the following equipment counts.

Brand	Monitors	Miscellaneous	Computers	Printers	Total	Percentage
Acer	67	0	41	0	108	1%
Apple	114	0	89	0	203	3%
Brother	0	0	0	76	76	1%
Canon	0	0	0	91	91	1%
Compaq	297	0	339	0	636	8%
Dell	183	0	147	0	330	4%
Digital	60	0	0	0	60	1%
Epson	0	0	0	151	151	2%
HP	225	0	176	326	727	10%
Lenovo/IBM	30	0	53	0	83	1%
Lexmark	0	0	0	107	107	1%
Panasonic	9	0	0	28	37	0%
PC Direct	58	0	0	0	58	1%
Philips	564	0	0	0	564	7%
Sony	22	0	16	0	38	1%
Toshiba	6	0	48	0	54	1%
View	99	0	99	0	198	3%
Scanners	0	191	0	0	191	3%
Boards	0	394	0	0	394	5%
Other brands	814	716	963	74	2767	37%
Others unbranded	257	0	414	0	671	9%
Total	2888	1332	2445	879	7544	100%

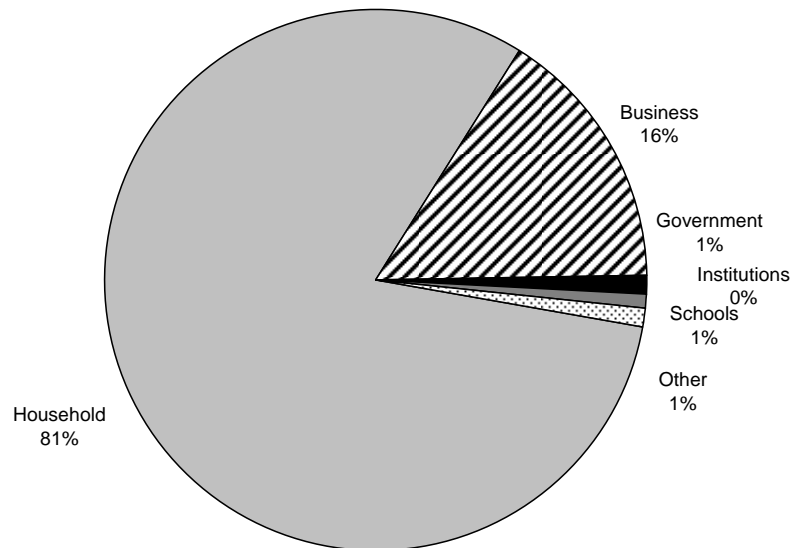
Driver survey

Drivers dropping equipment off on eDay were asked to complete a short questionnaire. The results are summarised below.

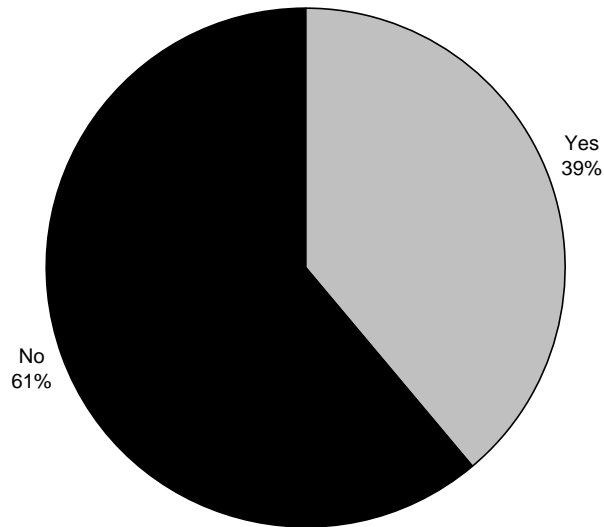
Were you aware computer equipment contains hazardous materials that if disposed of incorrectly can be harmful to our groundwater and drinking water?



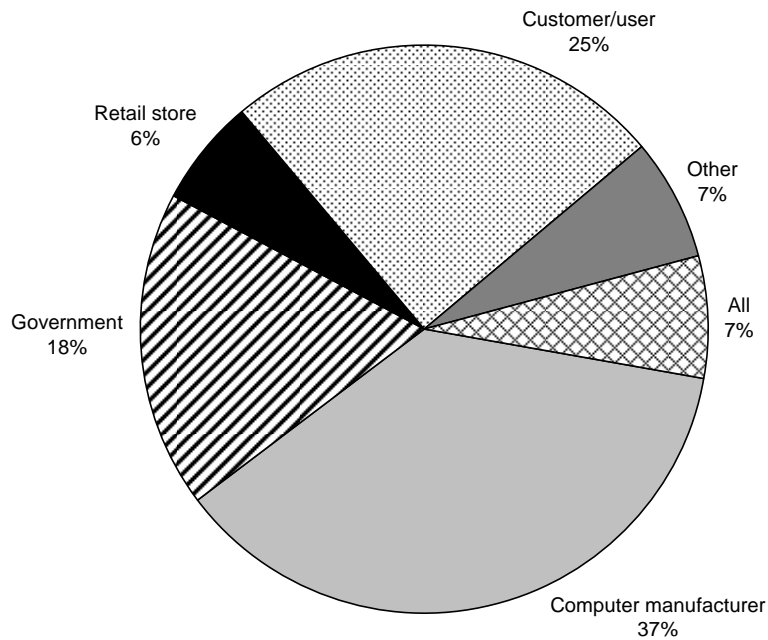
Who used the computer equipment you brought in today?



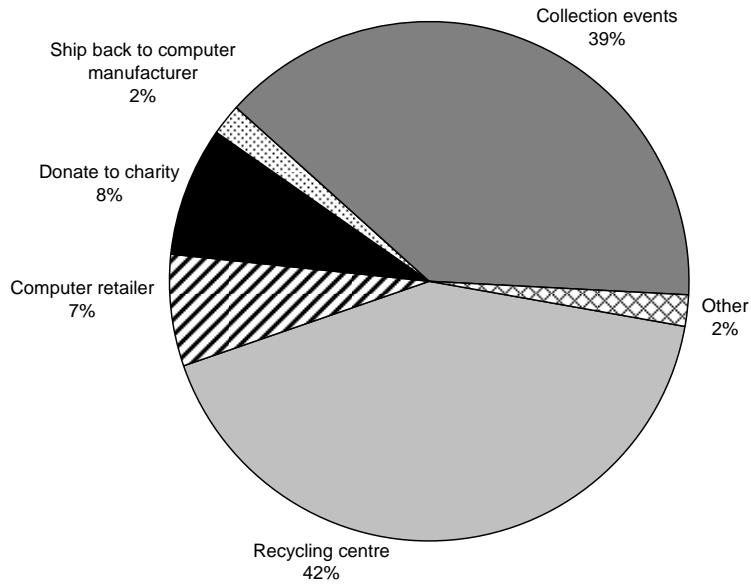
Do you have other ewaste such as TVs that you would like to have brought with you?



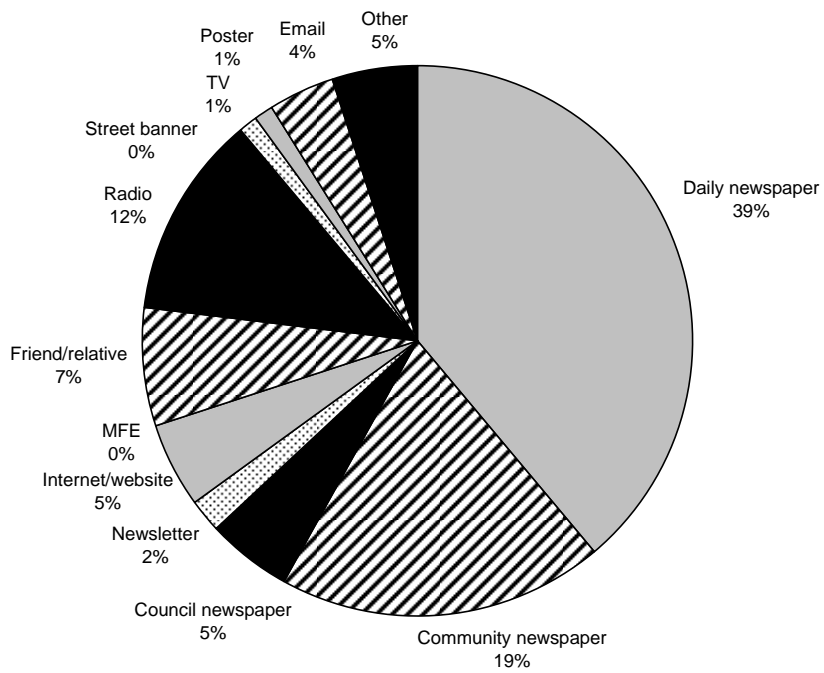
Who do you think should pay for the safe recycling and disposal of computer equipment?



What would be the easiest way to recycle your computer waste?



How did you hear about eDay?



Equipment disposal

Ninety-seven percent of the e-waste collected on eDay will be diverted from landfills.

The desktop computers are manually disassembled – plastics, scrap metal and electronic components (circuit boards) separated – and shipped to waste processors. Computer monitors are disassembled with metals and plastic being extracted for re-use.

Monitors collected from the two Auckland sites were sent to RCN & Associates, a North Shore computer recycler. RCN has a partnership with Abilities Group Limited and Rose Engineering to disassemble the monitors and recycle the materials – plastic, copper, aluminium, printed circuit boards, leaded and unleaded glass.

All other monitors were sent to TIC Group, a computer recycler in Melbourne, Australia.

All the other equipment collected (computers, printers, cellphones) was sent to a recycling plant in Singapore, operated by TES-AMM.

Future eDays

As a result of the high media profile achieved for eDay 2007, the Computer Access New Zealand Trust has received enquiries from another 10 communities that would like to participate in a future eDay. Planning is already underway for eDay 2008, to be held on 27 September 2008.