



# The Auckland Region Household and Agricultural Hazardous Waste Programme 2008/09 Annual Report

August

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This report represents the annual activities of the Auckland region household and agricultural hazardous waste programme. The programme is a collaborative undertaking of the Auckland City Council, Auckland Regional Council, Franklin District Council, Manukau City Council, North Shore City Council, Papakura District Council and Rodney District Council. Previous editions of this report can be found on the Hazmobile website (<http://www.hazmobile.govt.nz>).

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# The Auckland Region Household and Agricultural Hazardous Waste Programme

2008/2009 Annual Report

Sandi Murray

**Prepared by the**

Auckland Regional Council in conjunction with the Auckland City Council, Franklin District Council, Manukau City Council, North Shore City Council, Papakura District Council and Rodney District Council (Hazmobile Working Group).

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# 1 Executive Summary

The activities undertaken as part of the household and agricultural hazardous waste programme by the Auckland Regional Council and Territorial Authorities are reported for the 2008/2009 financial year. Household and agricultural hazardous waste is collected through providing four services:

- the urban-based HazMobile Programme;
- the rural-based AgChem Collection;
- transfer station cleanouts of household hazardous waste and agrichemicals at the Warkworth (Snells Beach) and Silverdale transfer stations; and
- agrichemicals clean outs at the Waitakere Transfer station.

In addition, provision of educational material and engagement with business, industry and public about waste, cleaner production and waste disposal is undertaken. Product stewardship initiatives are also reported herein.

## HAZARDOUS WASTE

Between July 2008 and June 2009 the HazMobile, Agricultural Chemical (AgChem) and transfer station clean out programmes diverted a total of 135,490 kg of hazardous waste from inappropriate (i.e. without prior treatment) disposal to landfill. The HazMobile programme, with 8,216 customers, contributed the largest amount of the overall waste stream (130,266kg or 96%). The AgChem collection (14 properties) collected 2,147kg (1.6%) and household hazardous waste drop-off facilities collected 3,075kg (2.3%) of the total.

The 2008-2009 year was the first full year without paint collections due to the introduction of an industry led product stewardship scheme and the cessation of paint collections via the HazMobile in January 2008. This has resulted in a significant decline in both the total amount of waste collected, and the numbers of users of the HazMobile service. With paint no longer accepted, waste oil is now the largest waste stream collected (72,000 litres or 55.3% of hazardous waste collected).

**Table ES1:** Waste types and quantities of hazardous waste collected by the HazMobile in 2008/2009

Waste Type	Quantity (kg)	% of Total
Waste oil	72,000	55.3%
Dry-cell batteries	2,117	1.6%
Lead-acid batteries	47,770	36.6%
Household chemicals	5,564	4.3%
Intractable chemicals	2,207	1.7%
Fluorescent and energy-saving lights	625	0.5%
<b>TOTAL HAZARDOUS WASTE</b>	<b>130,283</b>	<b>100%</b>
LPG bottles	24,306	56.8%
Aerosols	3,194	7.5%
Packaging waste	15,292	35.7%
<b>TOTAL NON-HAZARDOUS WASTE</b>	<b>42,792</b>	<b>100%</b>

## PRODUCT STEWARDSHIP

When the hazardous waste programme was established in 2000, the intention was to actively work towards reducing the amount of hazardous waste generated in the region through product stewardship initiatives, so that increasing amounts of waste could be diverted from landfills and the waste stream in future years. Paint was the first material subject to this approach.

In 2008 two waste streams were identified as a priority for product stewardship development: waste oil and electronic waste (e-waste). Scoping reports were prepared for these two waste streams and the recommendations identified. Continued development of product stewardship and market driven waste disposal options commenced in 2008/2009 and will continue throughout 2009/2010.

## INTRODUCTION

This report provides information about the Auckland Region's waste programme. It presents the amount and types of unwanted hazardous materials that were collected between July 2008 and June 2009 through the urban-based HazMobile programme and the rural AgChem collections. It also outlines how many people used these services during that time, provides information on the RENEW waste exchange and product stewardship programmes. Data from previous years is also presented to demonstrate the changes the programme has undergone since its inception in 2000

### 1.1 Disposal Information

Waste from the Hazardous Waste Programme is collected and disposed of with the intention of diverting as much material from landfill as possible, within the following priority disposal mechanisms preferred by the ARC:

Reuse / re-issue of un-used materials, e.g. materials which come in to a collection in unopened containers.

Recycling of appropriate non-hazardous materials e.g. paper, steel etc.

Treatment and disposal at an appropriate facility. Treatment and disposal is prioritised by preference as follows:

- Within Auckland.
- Within New Zealand.
- International where there is no other alternative disposal site.
- Disposal to landfill, where there is no other local or international disposal option.

The Hazardous Waste Programme ensures that all waste collected is reused, recycled or disposed of in a manner that minimises adverse impacts on the environment and (where possible) keeps Auckland waste in Auckland or in New Zealand.

More specifically:

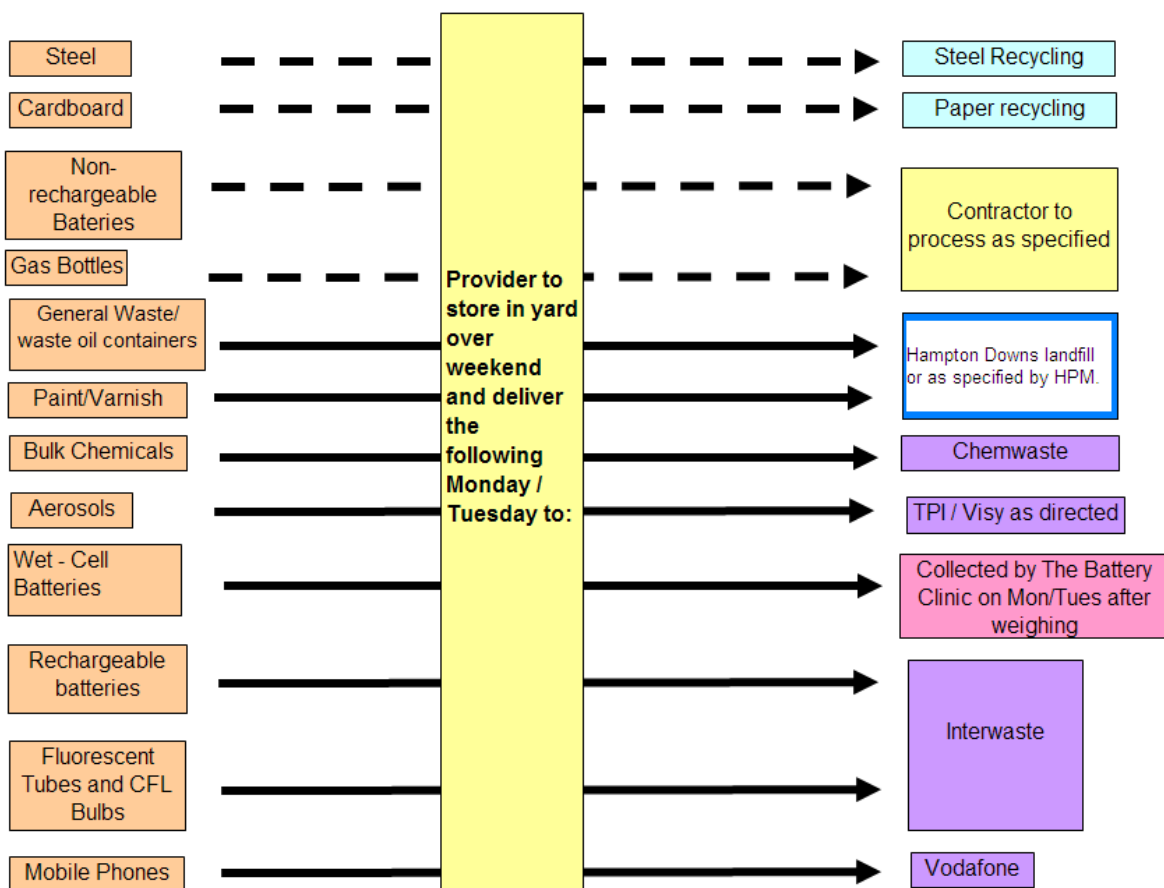
- The wet cell (car) batteries are refurbished and re-used (or recycled if they are not able to be refurbished).
- Hazardous chemicals and materials such as PCB ballasts are sorted and either sent to a company to be treated and made safe, or if no process is available in NZ, sent overseas for treatment and safe disposal.
- Small batteries (e.g. rechargeable, NiCad and lithium ion) are sent to France for treatment as no facility exists in New Zealand.
- Cell phones and cell phone batteries are sent to the Starship Foundation to be on-sold as part of a fundraising initiative (where they are shipped offshore for recycling).
- The used oil and solvents are sent to local companies who use it in the production of bitumen or burn it in approved incinerators to generate electricity.
- Fluorescent light bulbs and energy saving bulbs are sent to a local company for safe dismantling and disposal.
- Cardboard and steel containers are recycled.
- A small amount of non toxic rubbish is taken to landfill (approx 4% in 2008-2009).

- Flares are taken to the coastguard or fire service for disposal. Explosives, guns and ammunition (which we do not take but which people sometimes bring in) are referred to the Whenuapai Air base.
- Some materials are donated to community groups if appropriate - e.g. good quality kerosene is donated to schools.
- In some instances more than one of these disposal methods may be used, e.g. LPG cylinders are sent to a disposal agent to be de-gased, and then recycled as steel.

The Hazardous Waste Programme ensures that all materials are disposed of appropriately and all documentation confirming appropriate disposal is obtained, including documentation to ensure that whatever is shipped overseas for disposal is undertaken in accordance and would be acceptable under New Zealand laws. Wherever possible shipping materials overseas is avoided; however some materials are simply not able to be treated in New Zealand as there are no facilities.

**Chart 1:** Bin Movements showing disposal options for hazardous waste collected through the HazMobile.

**Bin Movements - HazMobile Collections:**





## 2 Hazardous Waste

### 2.1 The HazMobile

The Auckland region councils introduced regular collections of household hazardous waste in 2000. Residents are invited to take their unwanted hazardous materials to one of 14 – 18 collection events in any given year. The collections are always held on a Saturday from 10 am to 2 pm at a suitably located car park, and are free of charge.

In 2008/2009, the councils offered 14 collections, as shown in Table 1.

**Table 1:** HazMobile collections in 2008/2009

#	Location	Date	Number of customers <sup>1</sup>
1	Auckland City – Penrose	19 July 2008	300
2	Auckland City – Three Kings	16 August 2008	418
3	Manukau City - Howick	6 September 2008	660
4	North Shore City - Birkenhead	20 September 2008	467
5	Franklin District Council - Pukekohe	4 October 2008	259
6	Auckland City – Western Springs	18 October 2008	545
7	Papakura District - Papakura	8 November 2008	567
8	Manukau City - Manurewa	22 November 2008	445
9	North Shore City - Albany	6 December 2008	699
10	Manukau City - Pakuranga	21 February 2009	550
11	Auckland City – Glen Innes	7 March 2009	879
12	North Shore City – Takapuna	21 March 2009	543
13	Auckland City – Western Springs	4 April 2009	593
14	Manukau City - Papatoetoe	9 May 2009	169
15	Auckland City – Western Springs	23 May 2009	469
16	Auckland City – Penrose	6 June 2009	336
17	North Shore City – Takapuna	26 June 2009	317
	Total number of customers		8,216

1. Based on the number of vehicles and individuals arriving on foot, but not taking into account that one customer may dispose of waste from several households.

Note that there are no HazMobile collections in Waitakere City, which has its own collection service at its transfer Station.

**Figure 1:** Number of HazMobile customers from 2000 to 2009 by area

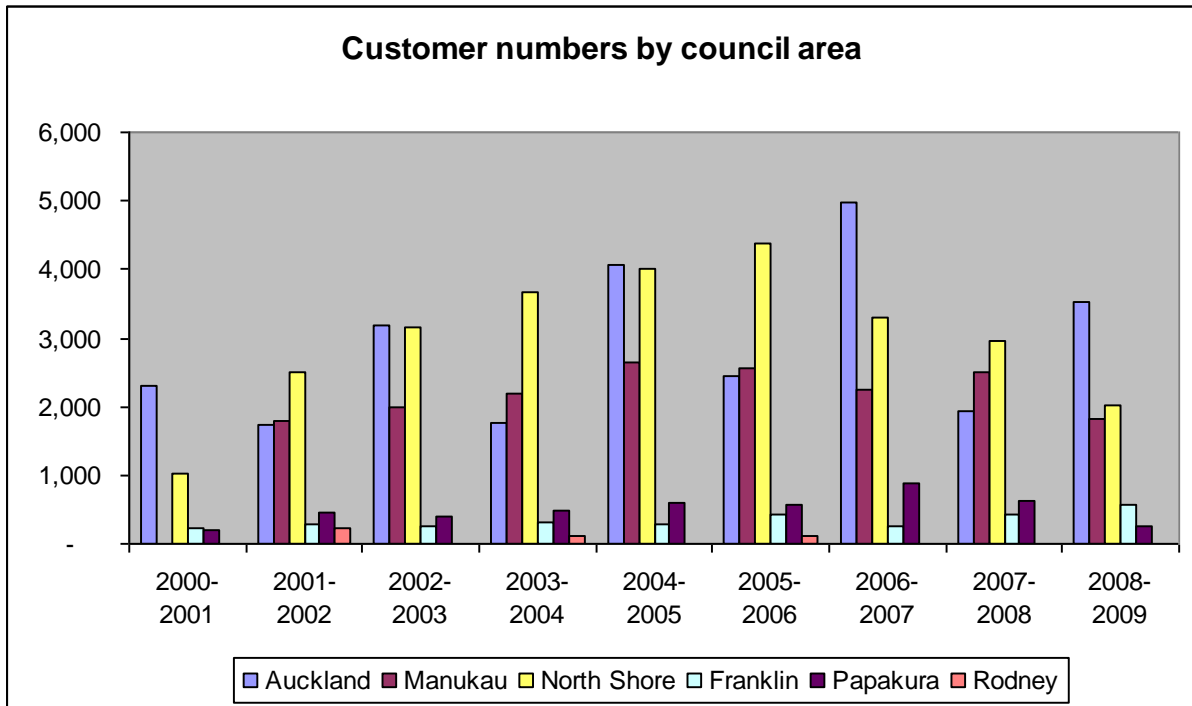


Figure 1 compares the customer numbers for each area with previous years. It clearly shows a fluctuating pattern for Auckland City, which is caused by the biannual inorganic refuse collections. Customer numbers tend to be low in years without an inorganic refuse collection because the HazMobile is less widely advertised. The lower numbers this year despite the inorganic collections are due to the cessation of paint collections.

Customer numbers in Franklin District have again increased slightly because of increased advertising of the collections by Franklin District. Tuakau and Waiuku data are not included in this report as ARC did not run these collections in the 2008/2009 year.

The Manukau City area has shown a small decline in numbers. Numbers are still within the expected variation caused by the cessation of paint.

The North Shore area has continued a pattern of declining numbers over the last three years. This may partly be due to the cessation of paint collections in 2008. However, it is unlikely that this is the sole reason for the decline and increased advertising may be required.

Finally, Papakura District has shown a decline in residents visiting the HazMobile compared over the last two years. This decline has come despite substantial advertising – a full mail out with rates notices as well as the usual flier and public notice.

**Figure 2:** Number of HazMobile customers in the Auckland region from 2000 to 2009

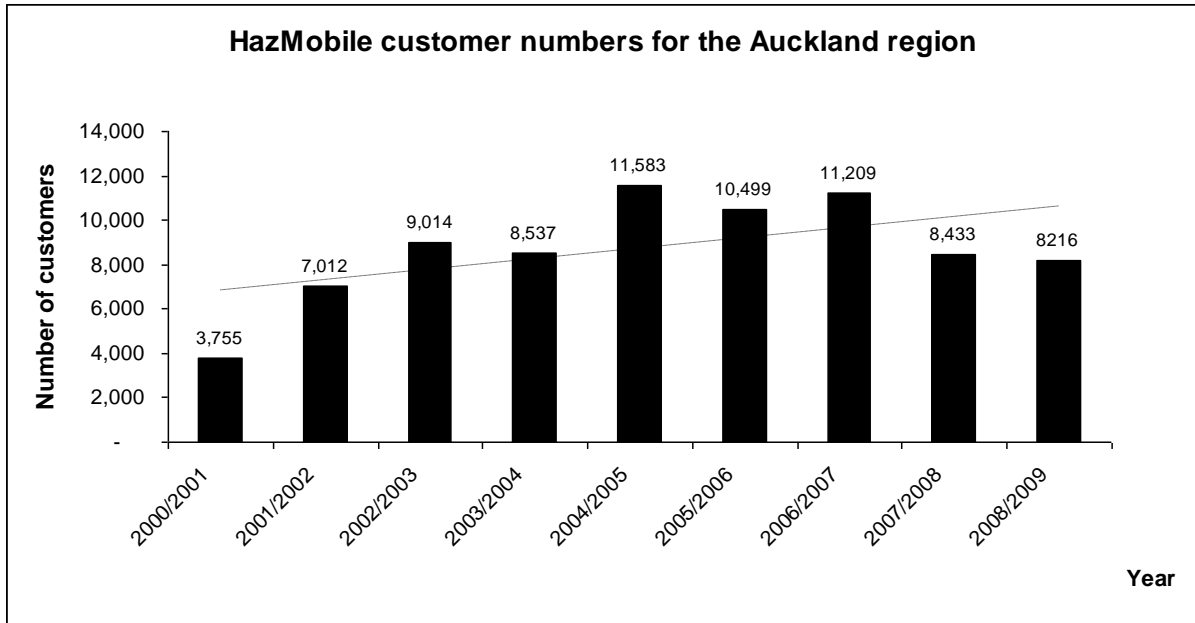
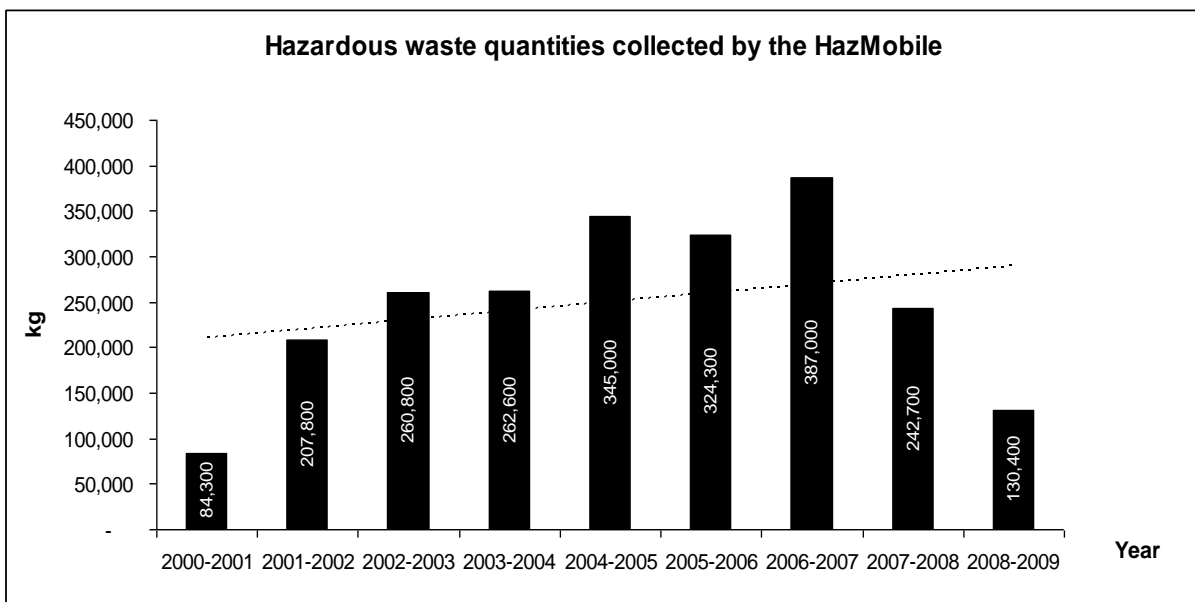


Figure 2 shows how many customers have used the HazMobile service every year across the Auckland region since it was established in 2000. The 25% decrease in customer numbers in the 2007/2008 year is largely a reflection of the cessation of paint collections in January 2008.

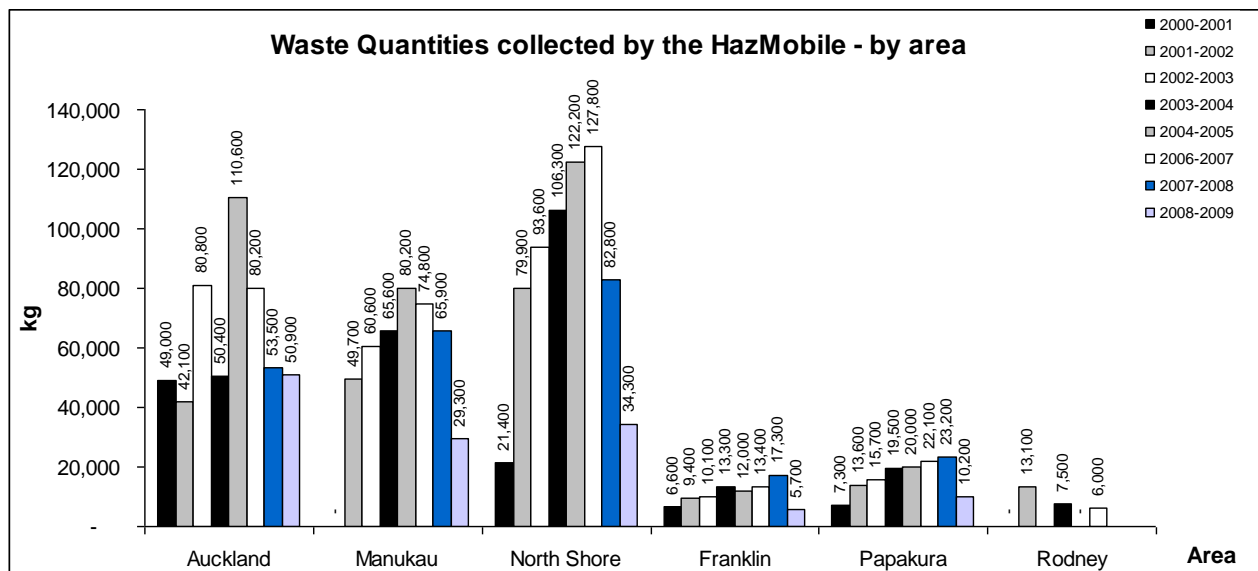
In the 2008/2009 year, customer numbers have not declined to the extent anticipated as a result of a full year without paint collection services. The 2008/2009 figures are only 2.5% less than 2007/2008 numbers.

**Figure 3:** Waste Quantities Collected by the HazMobile from 2000 to 2009



There was a 46% decrease in waste volumes collected from 2007/2008 to 2008/2009, primarily due to the cessation of paint collections (previously approx 50% of the waste stream), despite 2008-2009 being a Auckland City Council inorganics year. This follows a 34% decrease in the 2007/2008 year. The 2008/2009 volume collected is the lowest volume of waste collected since 2000/2001.

**Figure 4:** Volume of Hazardous Waste Collected at HazMobiles by Area



The volume of hazardous waste collected has decreased in all areas except the Auckland City area – which has remained constant due to the inorganic collection.

Significant decreases in collected hazardous waste can be seen in Manukau and the North Shore.

## 2.2 The AgChem Collection

The AgChem collection is a service for the rural residents of the Auckland region. Anyone with old and unwanted agricultural chemicals stored on their property could register with the Auckland Regional Council to have these chemicals picked up free of charge. The collection was offered twice in 2008/2009, in February and in August.

An as-needed collection service is also available for emergency pick ups, for example in deceased estates where a large volume of agrichemicals are found, or instances where an amount of agrichemicals are found in a degraded or dangerous state. This service was used only three times in 2008/2009.

The number of properties using the service has decreased substantially (65%) in the 2007-2008 year and has declined another 48% in the 2008-2009 year, as shown in Figure 5.

The sharp decline in numbers may be attributed to an overall “clean out” of properties that have unwanted agrichemicals. Available evidence suggests that the majority of chemicals collected are recently purchased chemicals, for example where a grower has changed to organic practices or changed brands to avoid resistance by pest species.

Data analysis carried out in 2008 indicated that the majority of chemicals collected were current chemicals (currently manufactured or on sale). While legacy chemicals remained a steady percentage of chemicals collected (at around 9%), the declining volumes of chemicals collected have resulted in only a small volume of legacy chemicals being collected by the service in 2008-2009 (see Figure 6 below).

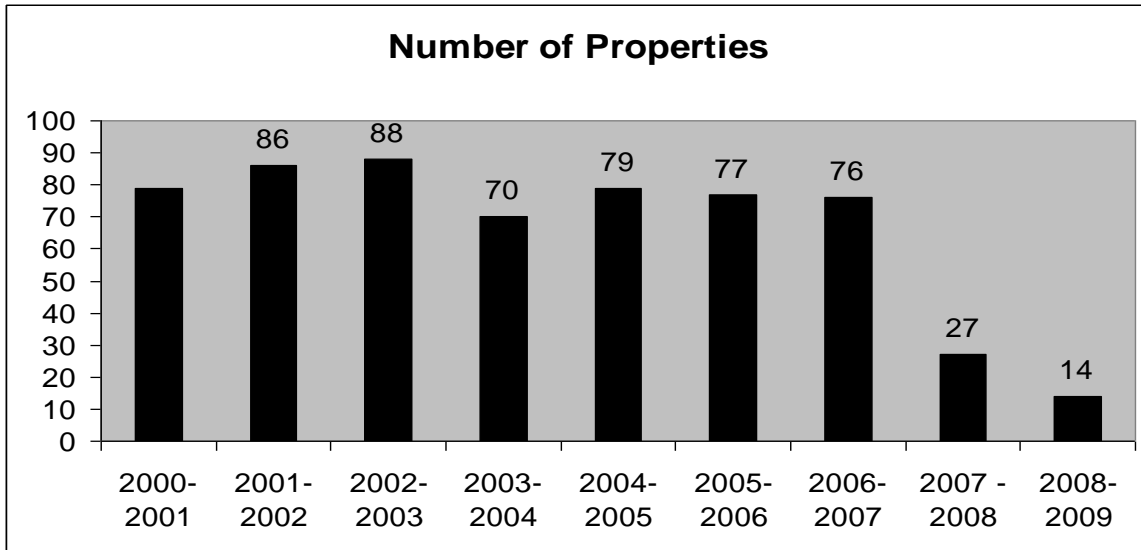
The report concluded that:

The total collected quantity of agricultural chemicals and related materials such as veterinary medicines, detergents and fertilisers appears to be declining. Quantities declined by almost half in 2007/2008, and had been decreasing steadily since 2002/2003 (see Figure 7 below).

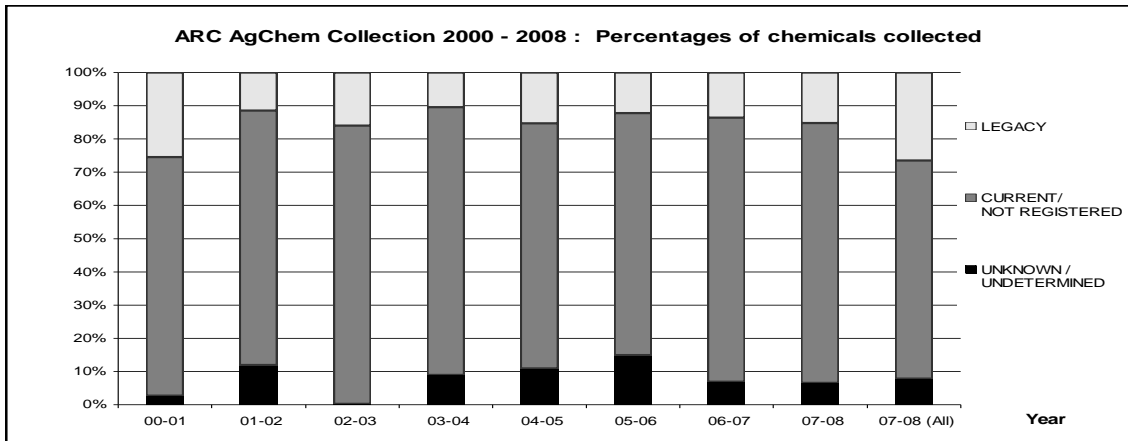
Around 41% (on average) of the material collected can be classified as ‘Miscellaneous’, meaning it consists of fertilisers, detergent, surfactants, veterinary medicines and other materials commonly

associated with rural activities. In two of the collection years, this component was over 50%.

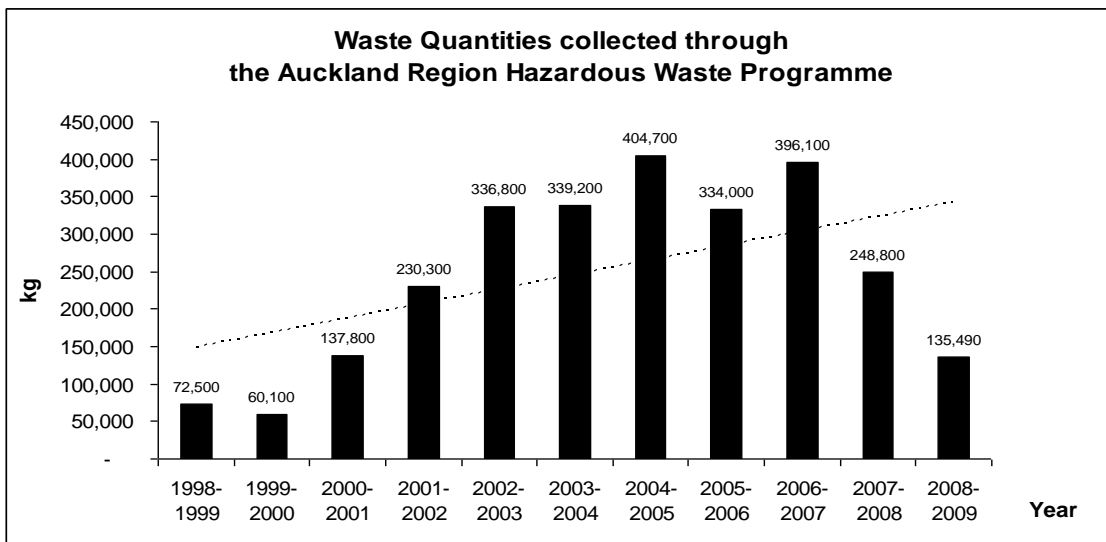
**Figure 5:** Number of properties using the Auckland region AgChem Collection



**Figure 6:** Percentages of chemicals collected by AgChem collections



**Figure 7:** Total quantities of hazardous waste collected by the HazMobile



The percentage of chemicals that can be classified as legacy chemicals appears to remain more or less steady. On average, it is 9% of the amount of agricultural compounds collected, or 15% if miscellaneous substances are not considered. There was a sharp decline of legacy chemicals collected in 2007/2008, but this is closely correlated with the overall drop in chemical quantities. The percentage of 7% in 2007/2008 was only slightly below the average of 9%.

Of the chemicals classified as legacy, an average of 61 kg or 14% (ranging from 2% to 23% over the eight years) are Persistent Organic Pollutants' (POPs). The remainder are chemicals that are no longer manufactured or are otherwise banned or withdrawn.

The full report on the Auckland Agricultural Chemical Collections 2007-2008 is in Appendix 4.

As a result of declining participation, and the introduction of an industry led product stewardship scheme (Agrecovery), the ARC ceased AgChem collections from 1 July 2009.

### 2.3 Household Hazardous Waste Drop-off Facilities

The third element of the Auckland region's Hazardous Waste Programme is a small network of drop-off facilities that accept household and agricultural hazardous wastes. These have been established at transfer stations in areas where the HazMobile and the AgChem collection are not the best options, namely in the Rodney District (Warkworth and Silverdale). A new drop-off facility has been negotiated at the Waitakere Transfer Station for Agrichemicals only. This allows residents in the west and lower north of the region to drop agrichemicals off rather than use the more expensive pick-up service.

Drop-off facilities on the Gulf Islands (Waiheke and Great Barrier) have now come under the management of Auckland City Council and have not been cleaned out by the ARC since 2007-2008.

Due to the nature of the operation, it is not possible to determine how many people use the service. The information provided in this report is therefore limited to the amount of chemical waste that was received. Other waste types such as paint, waste oil and batteries are not recorded as the management and disposal of these wastes are at the discretion of the transfer station operator.

As a result of the introduction of an industry led product stewardship scheme (Agrecovery), the ARC will cease collecting agricultural chemicals from the Warkworth and Silverdale Transfer Stations, and cease all collections from the Waitakere Transfer Station from 1 September 2009.

## Hazardous WASTE STATISTICS

### 4.1 The HazMobile

For the HazMobile Programme, the types of hazardous waste collected are broken down into seven categories, as shown in Table 2. Information is also available on the amount of gas bottles, aerosols and packaging waste that was collected, although this is considered to be non-hazardous waste and therefore not included in the total amount of waste. A detailed description of each waste category is provided in Appendix 1.

**Table 2:** Waste types and quantities collected by the HazMobile in 2008/2009

Waste Type	Quantity (kg)	% of Total
Waste oil	72,000	55.3%
Dry-cell batteries	2,117	1.6%
Lead-acid batteries	47,770	36.6%
Household chemicals	5,564	4.3%
Intractable chemicals	2,207	1.7%
Fluorescent and energy-saving lights	625	0.5%
<b>TOTAL HAZARDOUS WASTE</b>	<b>130,283</b>	<b>100%</b>
LPG bottles	24,306	56.8%
Aerosols	3,194	7.5%
Packaging waste	15,292	35.7%
<b>TOTAL NON-HAZARDOUS WASTE</b>	<b>42,792</b>	<b>100%</b>

Table 2 demonstrates that the largest component of the wastes received by the HazMobile was used oil, followed by lead acid batteries.

Despite being a relatively large component of the HazMobile waste stream, lead-acid batteries create revenue for the HazMobile programme, via sale to scrap metal recyclers and others.

The total amount of hazardous waste received by the HazMobile since it was first established is shown in Figure 7 above. There is a substantial decrease in the total amount of waste collected due to the cessation of paint collections. This was anticipated as paint collections were 50% of the waste collected at HazMobile collections prior to the industry led product stewardship schemes through Resenes and PlaceMakers.

**Figure 8:** Average amount of hazardous waste delivered by each customer

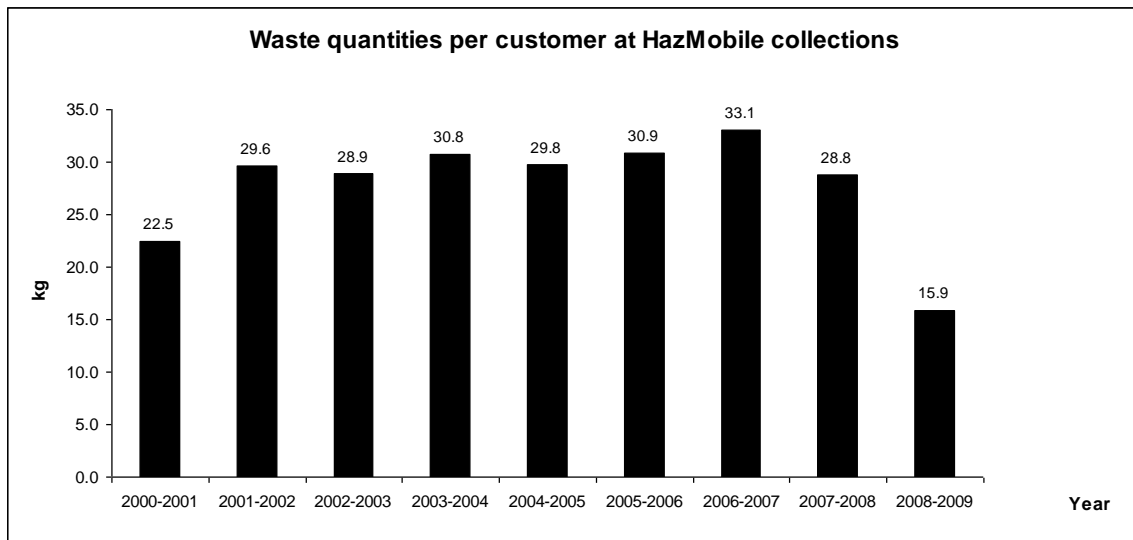


Figure 8 shows the average amount of waste disposed of by each customer. There has been a substantial decline in the amount of waste per customer in the 2008-2009 year, due to the cessation of paint collections.

Detailed information on costs and materials per council area is available in Appendix 3.

## 4.2 The AgChem Collection

Similar to the decline in the number of properties using this service, the waste quantities received through the rural AgChem collection have declined substantially, as seen in Figure 9.

This may indicate that the un-wanted chemical stockpiles that were present in the rural communities have largely been “cleaned out”.

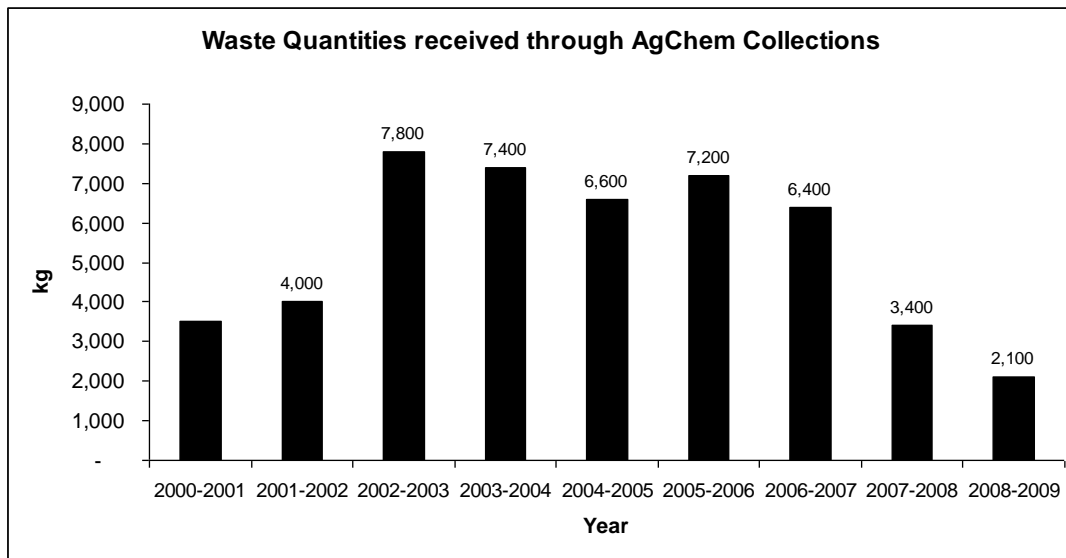
Figure 10 shows that, over time, volumes of intractable materials appear to be relatively constant at around one third of the material collected.

Costs associated with the AgChem collections are related to numbers of properties. It is more economical to visit many properties in an area rather than a small number scattered over a wide area. The decline in customer numbers has resulted in a sharp increase in the cost per property (Figure 11), but an overall decline in total cost due to declining numbers (Figure 12).

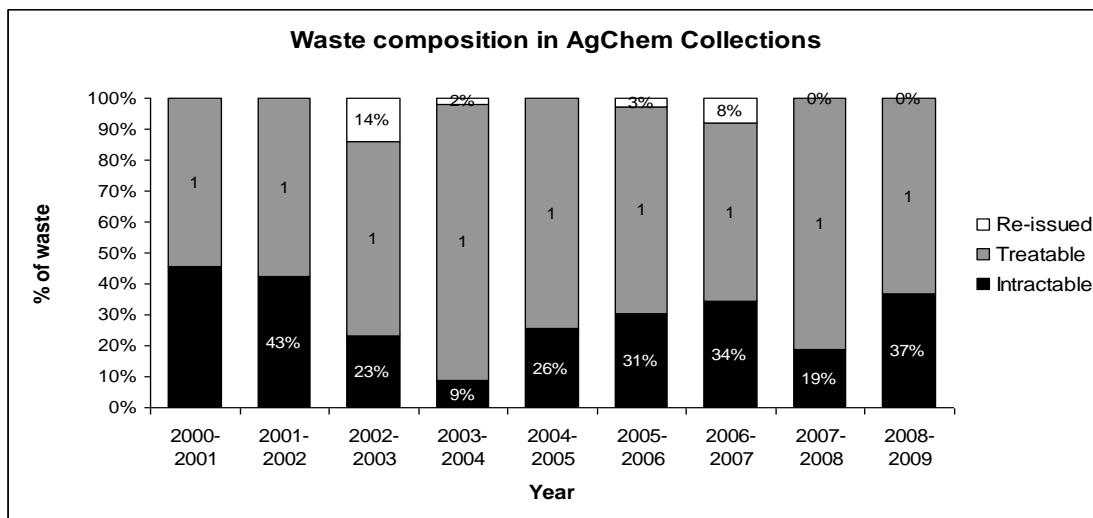
As a result of declining participation and the introduction of an industry led product stewardship scheme (Agrecovery), ARC ceased AgChem collections from 1 July 2009.



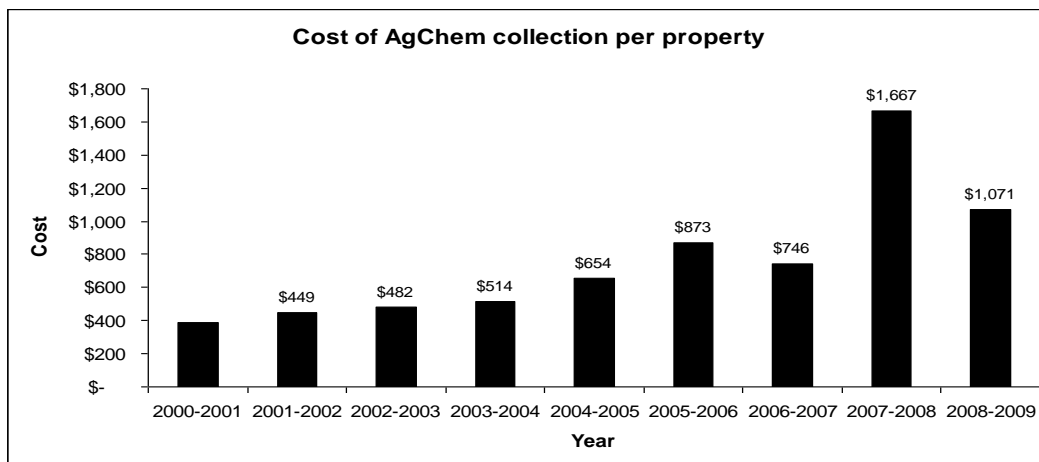
**Figure 9:** Quantities of hazardous waste received by the AgChem Collection



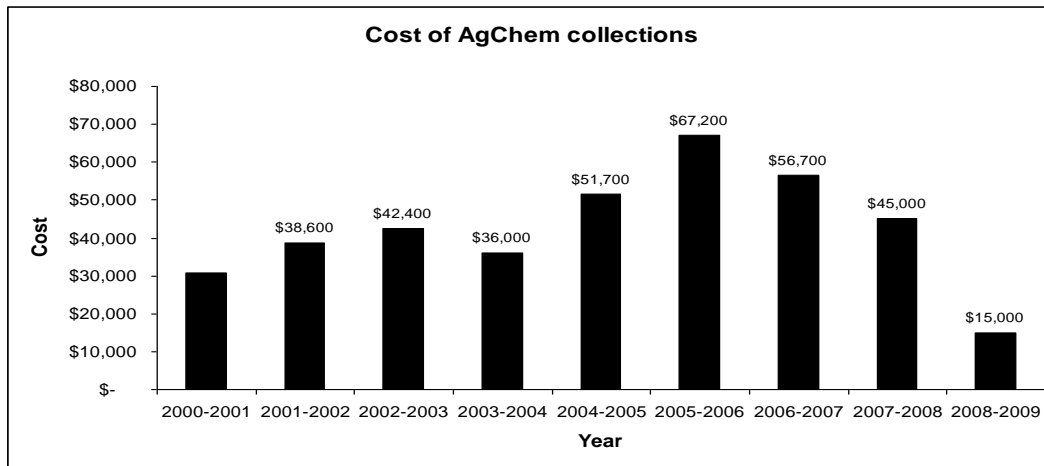
**Figure 10:** Composition of hazardous waste received by the AgChem Collection



**Figure 11:** Cost per property



**Figure 12:** Total cost of AgChem collections



### 4.3 Household hazardous waste drop-off facilities

Figure 13 shows the amount of household and agricultural chemicals that were collected by the Rodney District and Gulf Islands drop-off facilities since 2003.

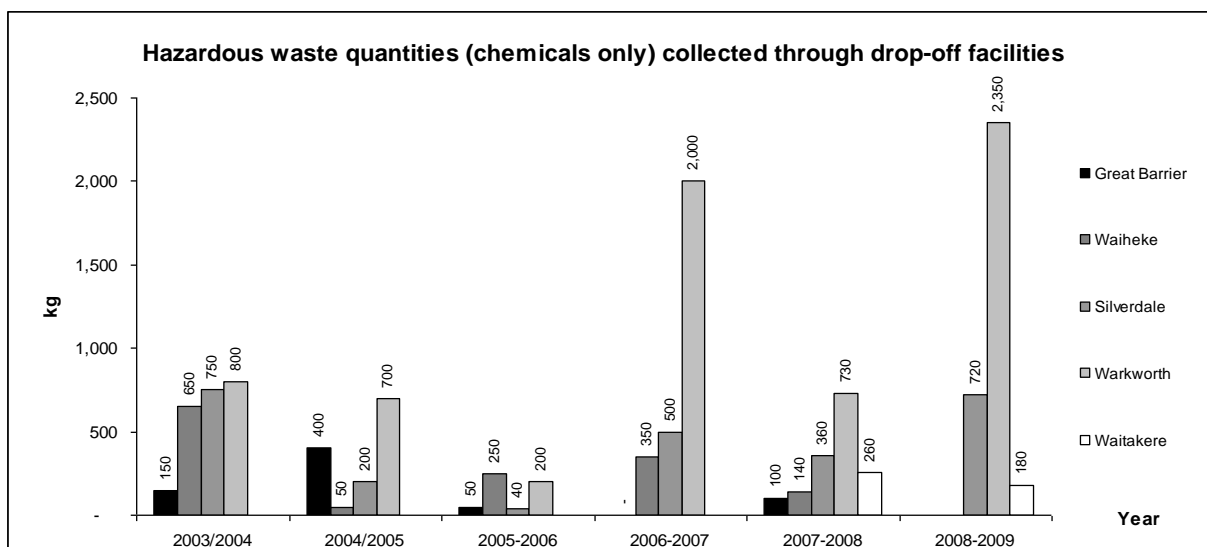
Because the quantity that had accumulated on Great Barrier Island was not sufficient to warrant the expense of cleaning out the facility, the Island was not visited in 2006/2007.

In the 2008 financial year responsibility for Great Barrier and Waiheke Island was transferred to the Auckland City Council. Data for these drop-off facilities is for 2007 only.

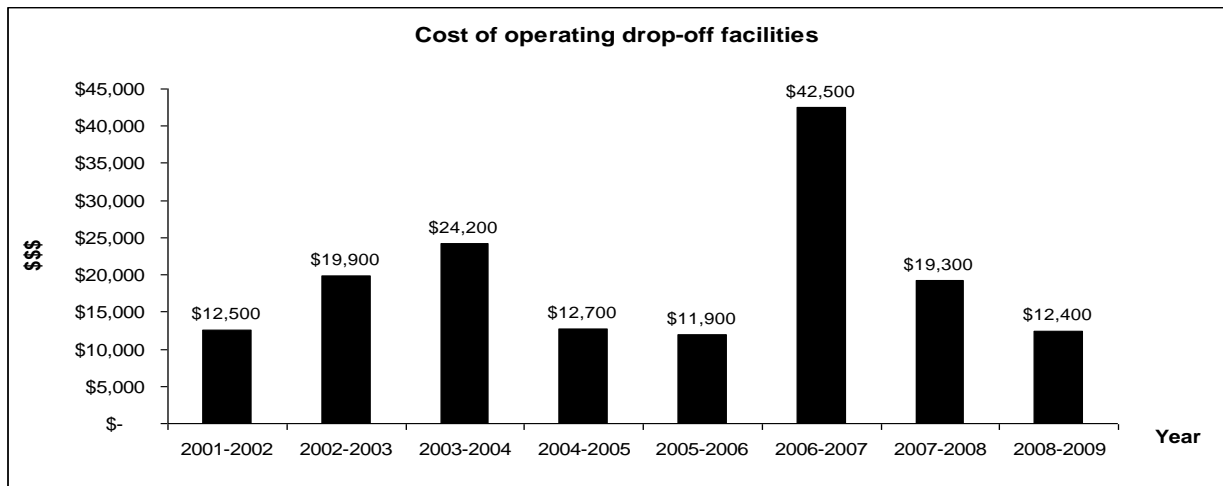
In 2008 Waitakere Transfer Station agreed to become a drop off point for agrichemicals only, assisting the AgChem collection process.

The Silverdale and Warkworth drop-off facilities also accept hazardous wastes other than chemicals, but these are generally not removed by the hazardous waste contractor during the scheduled facility clean-outs. Paint is either re-used or treated on site, and batteries and waste oil are managed by the transfer station owners, and are therefore not included in the recorded quantities.

**Figure 13:** Quantities of hazardous waste received by drop-off facilities



**Figure 14:** Cost of operating transfer station drop off facilities



The cost of providing the transfer station drop off facilities has remained relatively stable since clean-outs began (Figure 14). The value of this service in areas where there are no HazMobile collections is high to rural residents, who would otherwise have no safe alternative disposal option.

Due to the introduction of an industry led product stewardship scheme (Agrecovery), the ARC ceased accepting agricultural chemicals via the transfer station drop offs from 1 September 2009.

It is anticipated that this will reduce the volume of material collected and the cost of cleaning out each transfer station.

The Waitakere Transfer Station will cease to have clean-outs as only agricultural chemicals are collected from Waitakere.

#### 4.4 Total Waste Quantities

As can be seen in Figure 15, the total quantities of hazardous waste collected in the Auckland region increased steadily (allowing for the fluctuations generated by Auckland City Council HazMobile collections) since the programme was established in its present form in 2000. However, volume has declined since the 2007/2008 year due to the cessation of paint collections.

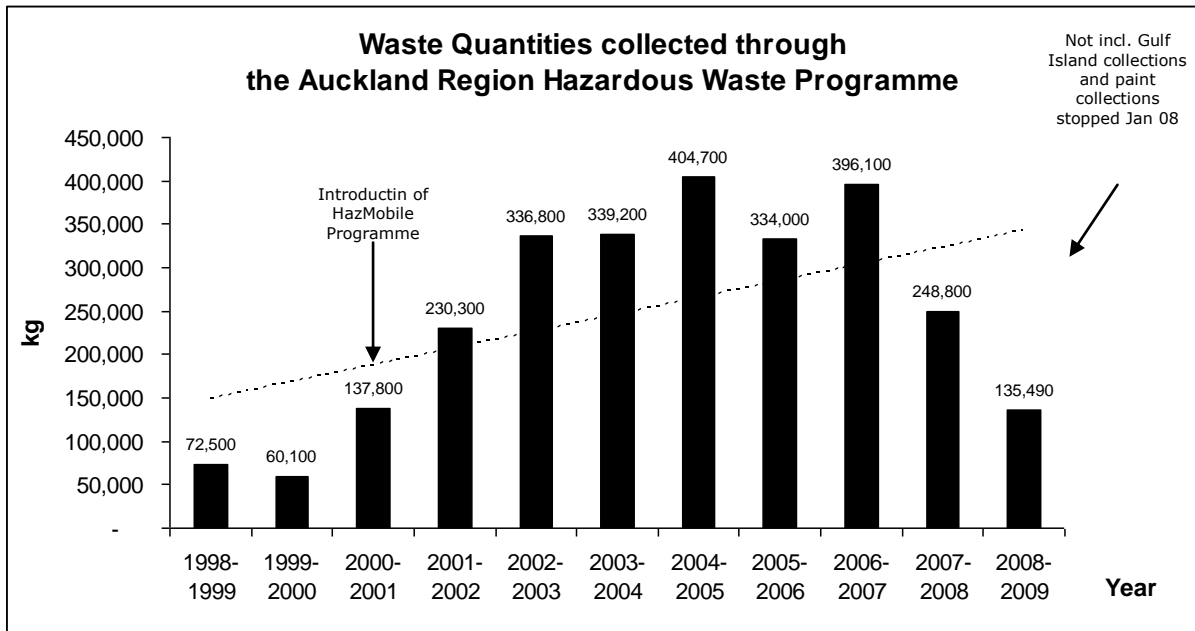
When considering the data represented in the graph, it should be noted that the 2000/2001 year includes wastes that have been received through the previous system of drop-off facilities at various transfer stations throughout the region, as well as those wastes that were collected by the HazMobile. From 2001/2002 onwards, wastes received from drop-off facilities only include chemicals received on the Gulf Islands and in Rodney District. In 2008 the ARC stopped being responsible for the collection of hazardous waste from the Gulf Islands and the data therefore does not include waste collected from the Gulf Islands from 2008.

Between July 2008 and June 2009 a total of 248,767 kg of hazardous wastes was collected. This is 147,806 kg (37%) less than in the previous year. This was expected as HazMobile customer numbers have also decreased significantly due to the cessation of both paint collections and collection of hazardous waste from the Gulf Islands.

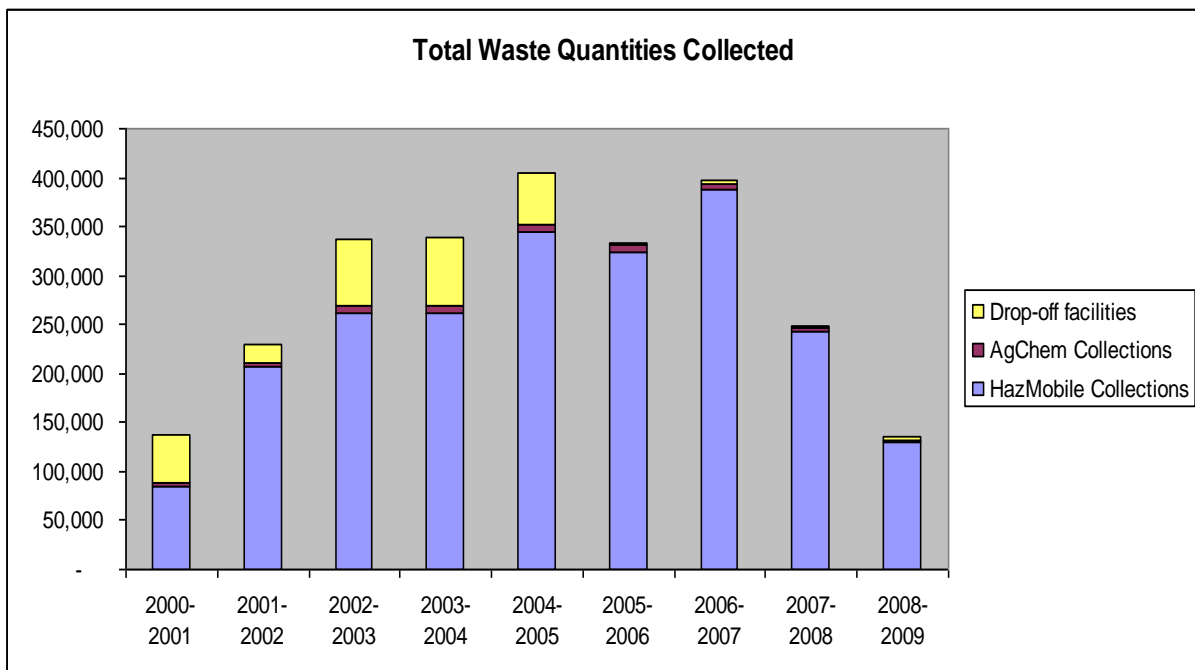
Future decreases in waste collected are anticipated due to the development of industry led product stewardship schemes for agricultural chemicals (commencing 1 July 2009) and household used oil (under development).

Fluctuations in waste streams are also pronounced as materials such as steel and lead change value. This resulted in an increased volume of LPG cylinders and wet cell batteries being brought into the Hazmobile for disposal, as steel prices declined sharply in 2008/2009.

**Figure 15:** Quantities of hazardous waste collected through the Auckland Region's Hazardous Waste Programme



**Figure 16:** Total waste quantities collected



### 3 Hazardous Waste Public Awareness

The HazMobile exists for two reasons – to educate the residents of the Auckland region about the different kinds of hazardous waste they may be storing in their homes, and to provide them with an opportunity to dispose of these wastes safely. To spread this message, the HazMobile was publicised widely (including on radio) in its early years, until it became evident that public uptake of the service was such that the operation was being stretched to its limits.

With the cessation of paint collections, promotion in the 2008-2009 financial years was increased. Articles were placed in the Woman's Weekly (Australian Edition) and Spasifik magazines, mail drops of HazMobile calendars occurred in some areas, flyers for inorganic collections included HazMobile information, an item on the Hazmobile was on Pacific Beat Street (a TV program targeting Pacific peoples) and was also loaded onto UTube. Articles and information also occurred in Homestyle magazine and Regionwide online, on various council-run websites, Spasifik website (article and banner ad with a 5.9% click through rate) and inclusion on the information section of the Department of Housing website.

In addition to the above, the regular promotion of the HazMobile occurred through the:

- Distribution of 100,000 HazMobile Calendars (Appendix 2) through relevant retail outlets such as garden centres, hardware stores and paint shops, as well as community centres, citizens' advice bureaux, transfer stations and libraries.
- The HazMobile website [www.hazmobile.govt.nz](http://www.hazmobile.govt.nz).

The HazMobile website has shown an 18% increase in visits over the last year compared to 2007-2008 (Figure 17).

The top 5 downloads from the site are:

- |   |                  |
|---|------------------|
| ▪ HazMobile calendar                          | 10,537 downloads |
| ▪ (Average = 878 per month)                   |                  |
| ▪ Recycler Directory – Households             | 3,049 downloads  |
| ▪ Recycler Directory – Business               | 1,795 downloads  |
| ▪ Healthy Alternatives to Household Chemicals | 751 downloads    |
| ▪ E Waste FAQ                                 | 51 downloads     |

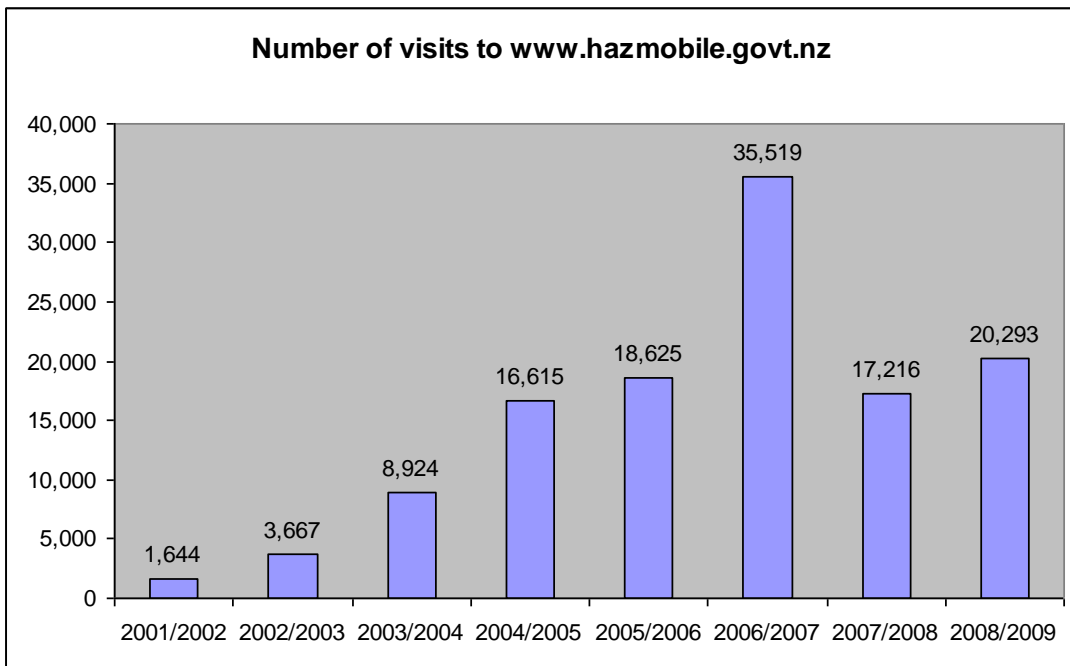
The most common entry page to the site is via the waste paint page. This is the most frequently visited page on the HazMobile website (other than the downloads page for the calendar).

The most common referral sites (where they came from) are Google (#1 every month), MCC, ACC or NSCC websites, ARC website, RENEW waste exchange and the Paintwise website (order varies each month).

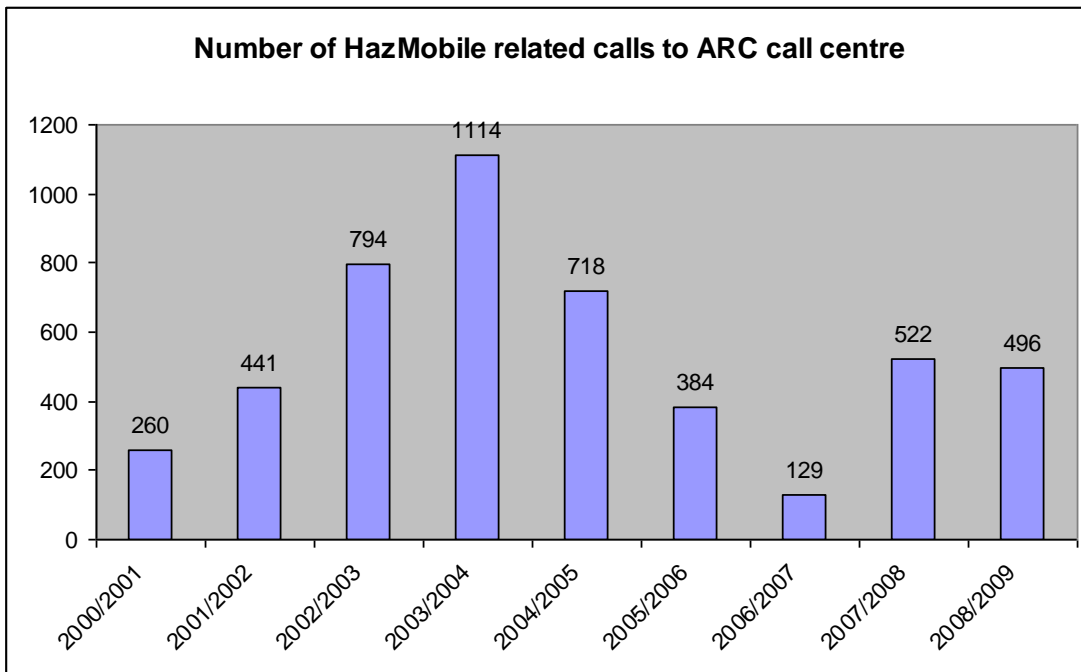
Hazardous waste related calls to the Auckland Regional Council call centre have decreased slightly (5%), compared to the previous year (Figure 12).

This figure is still considerably increased compared to the 2006/2007 figures and is likely to be related to changes created by the end of paint collections, i.e. people not knowing about the HazMobile website and people wanting a person to talk to about changes to the service.

**Figure 17:** Visits to the HazMobile website



**Figure 18:** Hazardous waste related calls received by the Auckland Regional Council call centre



## 4 Product Stewardship

In 2008 two waste streams were identified as being a priority for product stewardship development: waste oil and e-waste. Scoping reports were prepared for these two waste streams and the recommendations identified. Continued development of product stewardship and market driven waste disposal options commenced in 2008-2009 and will continue throughout 2009-2010.

### Waste Oil

The scoping report into household waste oil was completed in December 2007. The relevant recommendations from the report are as follows.

That the Auckland councils' aim to improve the recovery of used oil from the domestic sector continues to be on a collective basis, to ensure that whatever service is provided to residents of the Auckland region is as efficient and consistent as possible.

That the Auckland councils continue to collect used oil through the HazMobile programme, at least until sufficient and well-known alternatives are in place.

That the councils approach companies selling vehicle lubricating oil with a view to establishing a public-private partnership to develop a product stewardship programme for this material, that will eventually be owned and operated by the private partner.

The Ministry for the Environment named used oil as a potential priority product in its discussion document in March 2009. This has impacted on the development of the scheme as industry groups reassessed their involvement.

A used oil product stewardship scheme will continue to be a priority in 2010. The HazMobile service continues to collect household waste oil and will do so until viable alternatives are available.

### Electronic Waste

The scoping report into e-waste (electronic waste) was completed in December 2008. This report recommended watching the IT&TV product stewardship group and seeking ways to support product stewardship. With the passing of the Waste Minimisation Bill into law, it now seems more likely that e-waste product stewardship will be implemented within a short number of years.

Continuing to develop over the year was the introduction of companies in the Auckland region who viewed e-Waste as a valuable commodity. Companies who are willing to collect or allow drop-offs of e-waste for free or a low fee have increased and there is now the availability of six days per week disposal services.

This issue will continue to be monitored in 2009/2010.

The 2008 e-Day, organised by CANZ, was held at Tamaki Campus on 4 October 2008.

CANZ reported that 1,233 cars deposited 64 tonnes of e-waste at the e-Day.

## 5 Appendix 1: Description of waste categories

Waste oil is used motor oil. This waste stream also includes flammable substances such as petrol, diesel or kerosene. It does not include cooking oil, which is vegetable-based and cannot be mixed with mineral oils, to avoid contamination of the waste oil as a fuel source.

Dry-cell batteries include non-rechargeable alkaline and other battery types that are used in household appliances, as well as rechargeable batteries used in power-tools, mobile phones, laptop computers and many other applications.

Lead-acid batteries are those that are used in cars, boats and trucks. This category also includes sealed lead-acid batteries used in various types of machinery.

Household chemicals includes items such as cleaners, polishes, insecticides and those garden chemicals that are currently in common use and which can be treated and disposed of in New Zealand.

Intractable chemicals are mainly old pesticides for which no treatment options are available in New Zealand, such as DDT. This waste category also includes PCBs, which is still occasionally found in capacitors of old fluorescent light fittings.

Fluorescent and CFL's (energy-saving light bulbs) of all kinds contain small amounts of mercury, which is why they are accepted by the HazMobile.

LPG bottles are typically the 9 kg gas bottles that are a common household item. However, old CNG cylinders from cars and camping gas bottles are also accepted and included in this category.

Packaging waste includes empty containers of all kinds. Cardboard is recycled, as are all steel and aluminium cans. This includes recyclable contaminated plastic containers bought in to the HazMobile with waste oil. This material was recycled from March 2008 until March 2009, when facilities ceased to be available.



# 6 Appendix 2: HazMobile schedule 2009

## Collection days are Saturdays from 10-2pm

### the Haz mobile 2009

MONTH	AREA	LOCATION	ADDRESS	DATES
January	No Hazmobile Collections			
February	Manukau City	Pakuranga	Public carpark in Lloyd Elsmore Park, near the netball court on Sir Lloyd Drive	21st February
March	Auckland City	Glen Innes	Glen Innes Community Centre carpark, Line Road	7th March
	North Shore City	Takapuna	Telstra Clear carpark, Smales Farm Office Park, Corner Taharoto and Northcote Roads	21st March
April	Auckland City	Western Springs	Public carpark on Motions Road, near the Zoo entrance	4th April
May	Manukau City	Papatoetoe	Public carpark on Eric Baker Place, behind the Papatoetoe Shopping Centre	6th May
	Auckland City	Western Springs	Public carpark on Motions Road, near the Zoo entrance	23rd May
June	Auckland City	Penrose	Mt Smart Stadium, Maurice Road Entrance	6th June
	North Shore City	Takapuna	Telstra Clear carpark, Smales Farm Office Park, Corner Taharoto and Northcote Roads	20th June
August	Auckland City	Three Kings	Public carpark on Graham Road Drive, near the Fickling Centre	15th August
September	Manukau City	Howick	Public carpark in Lloyd Elsmore Park, near the netball court on Sir Lloyd Drive	5th September
	North Shore City	Birkenhead	Public carpark on Rawene Road, near the Birkenhead Shopping Centre	19th September
October	Franklin District	Pukekohe	Franklin District Council Carpark, Manukau Road	3rd October
	Auckland City	Western Springs	Public carpark on Motions Road, near the Zoo entrance	17th October
November	Papakura District	Papakura	Public carpark on Elliot Street, near the RSA and Ray Small Park	7th November
	Manukau City	Manurewa	Public carpark at the Homai Railway Station, corner of Dalgety Road and Browns Road	21st November
December	North Shore City	Albany	Horton carpark on Oteha Valley Road, off Mills Lane	5th December



- Disinfectants • Polishes • Solvents • Glues • Pesticides • Herbicides • Fertilisers • Waste oil • Petrol • Diesel • Brake fluid
- Fluorescent tubes • Meths, Turps, Kerosene • 9kg LPG cylinders • Batteries - all types • Mobile phones

# 7 Appendix 3: Additional Statistical Analysis of HazMobile Data.

Additional statistical data on the collection costs (total and management vs disposal costs by area) and material type (volumes by area)

## 1.0 Collection cost data

Collection costs are separated into management and disposal costs. Management costs remain relatively consistent for all collections, as the requirements of running a collection are generally the same regardless of the location or size of a collection (e.g. staff, transport, equipment).

Disposal costs are dependent primarily on customer numbers and cannot be estimated well in advance.

All the disposal facilities used by the HazMobile have increased their costs by 10-20% over the 2008-2009 year.

## 1.1 Total collection cost data

Figure 19 shows the total costs of HazMobile collections from 2000 – 2009. The decline in total costs in 2007 – 2008 is associated with the cessation of paint collections.

**Figure 19:** Total costs of HazMobile Collections

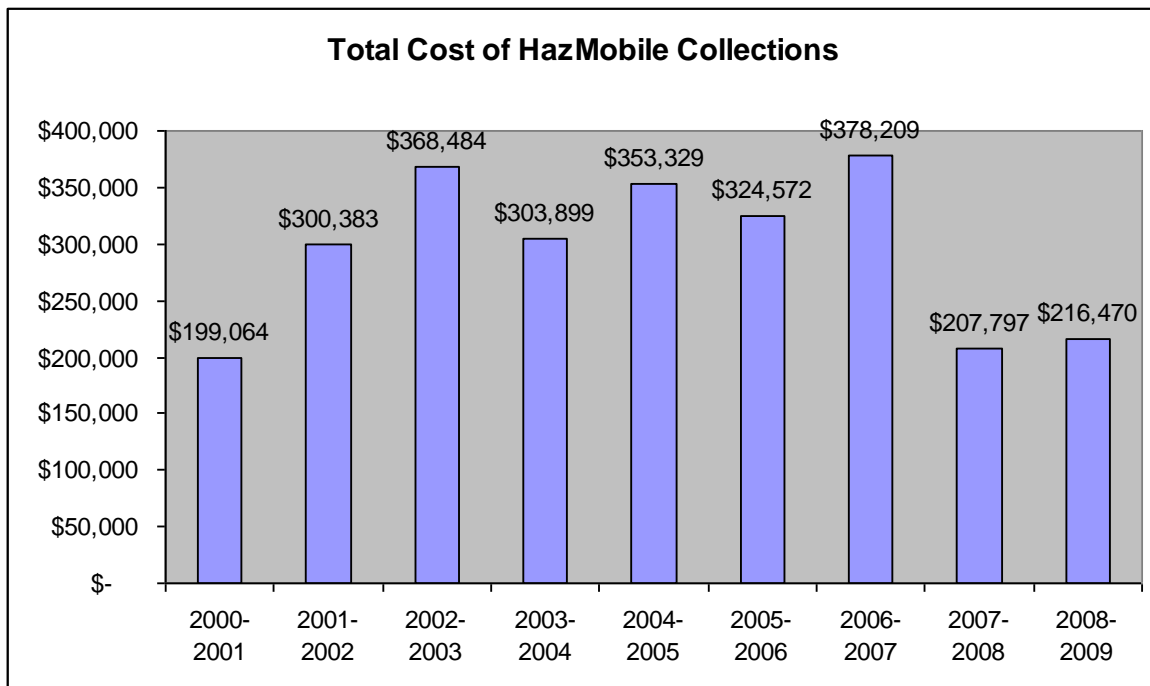


Figure 20 shows that site management costs have remained approximately the same, despite the cessation of paint collections. The fluctuating pattern in management costs is associated with Auckland City's bi-annual inorganic collection as they have more collections in years with inorganic collections than those without.

**Figure 20:** Total Site Management costs of HazMobile Collections

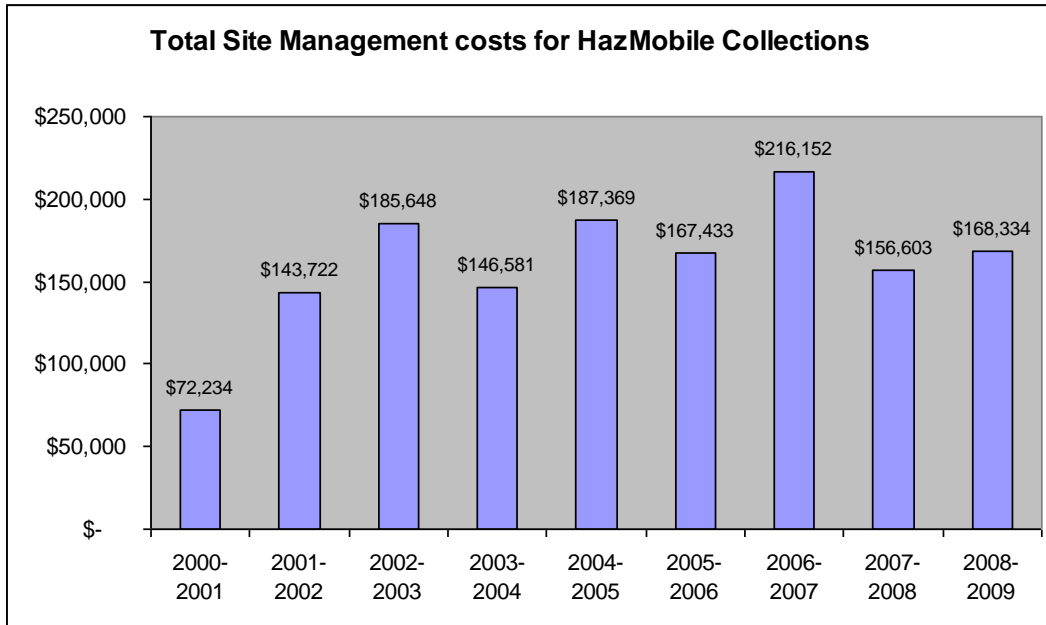
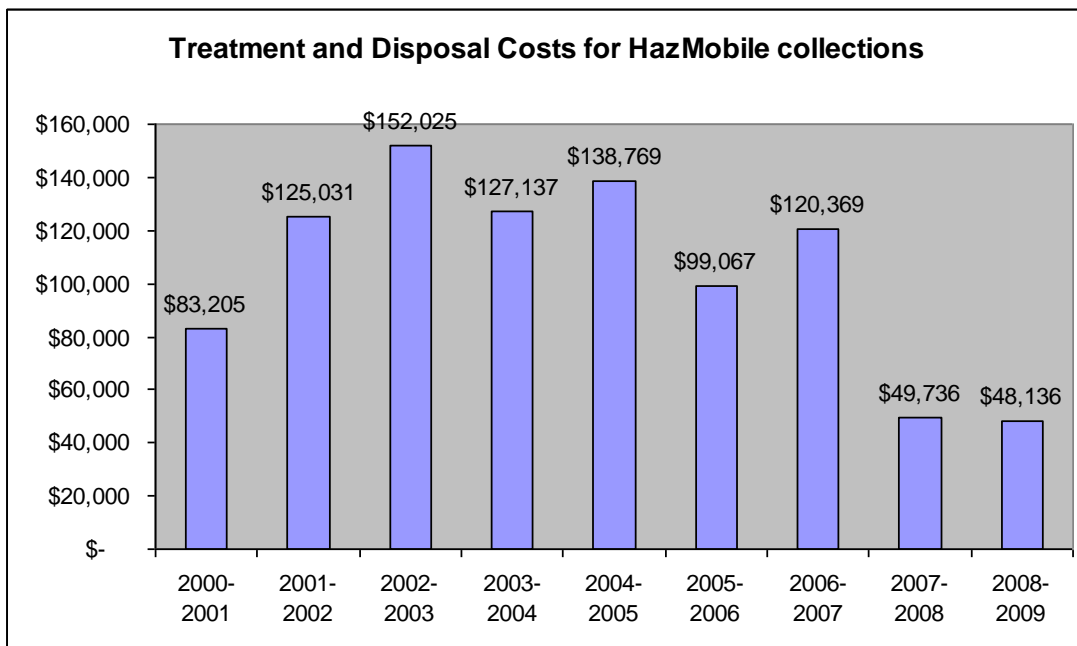


Figure 21 shows a significant decrease in treatment and disposal costs in the 2007-2008 and 2008-2009 years due to the cessation of paint collections. This was anticipated as paint made up 50% of waste collected.

**Figure 21:** Total Treatment and Disposal costs of HazMobile Collections

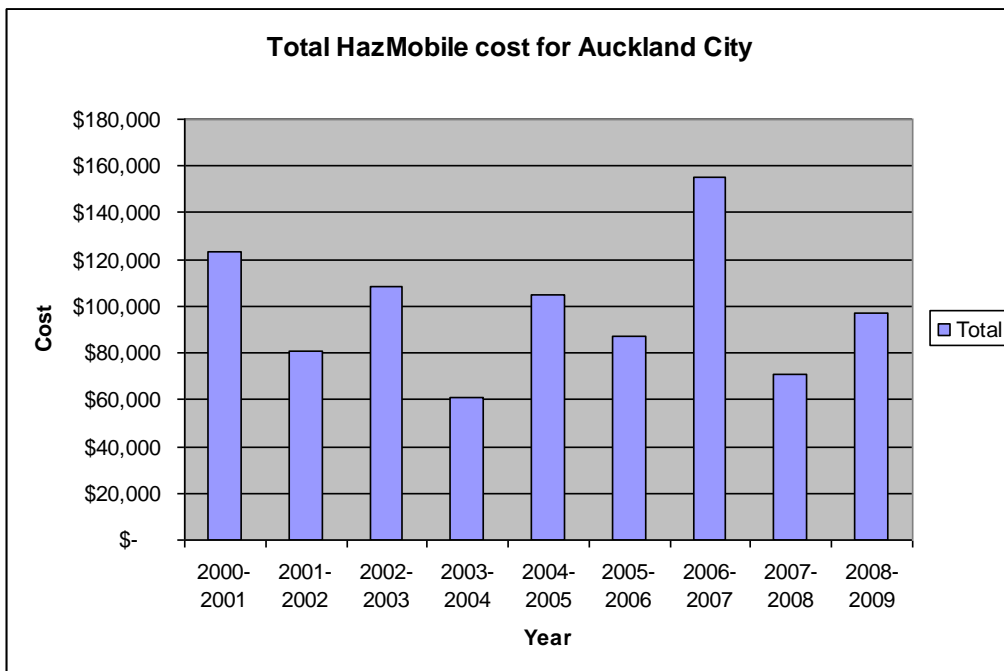


1.2 Collection cost data – Auckland City Council

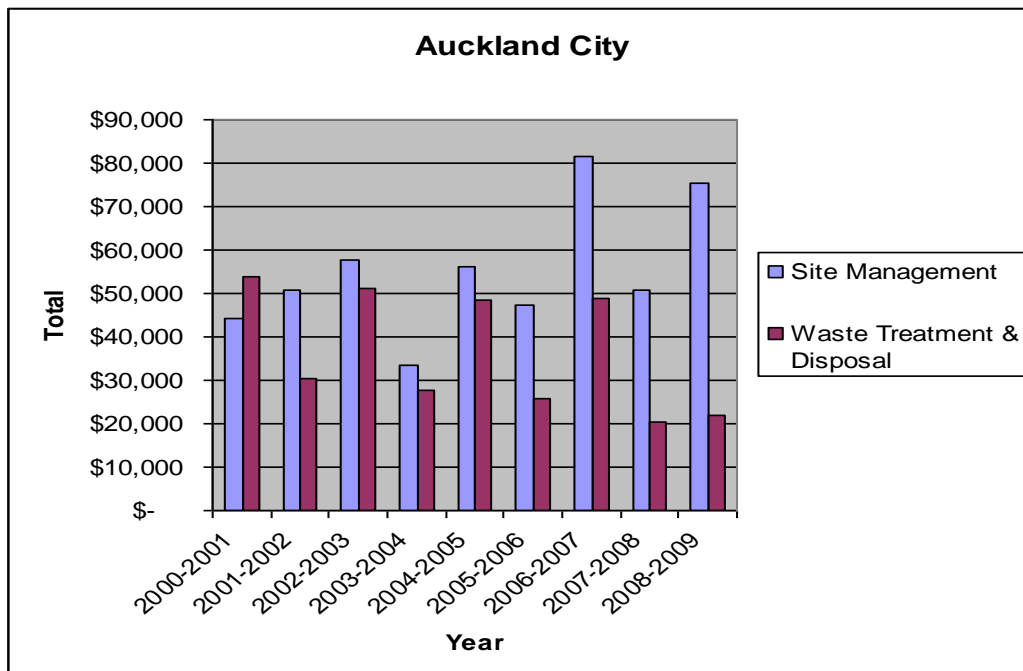
Figure 22 shows the total HazMobile cost for Auckland City and Figure 23 shows the fluctuating pattern associated with Auckland City Council’s biannual inorganic collections, and the anticipated decline in treatment and disposal costs due to the cessation of paint collections.

The increased management costs for the 2006-2007 and 2008-2009 years indicate the increased number of collections Auckland City undertook in those years.

**Figure 22:** Total HazMobile Costs for Auckland City Council



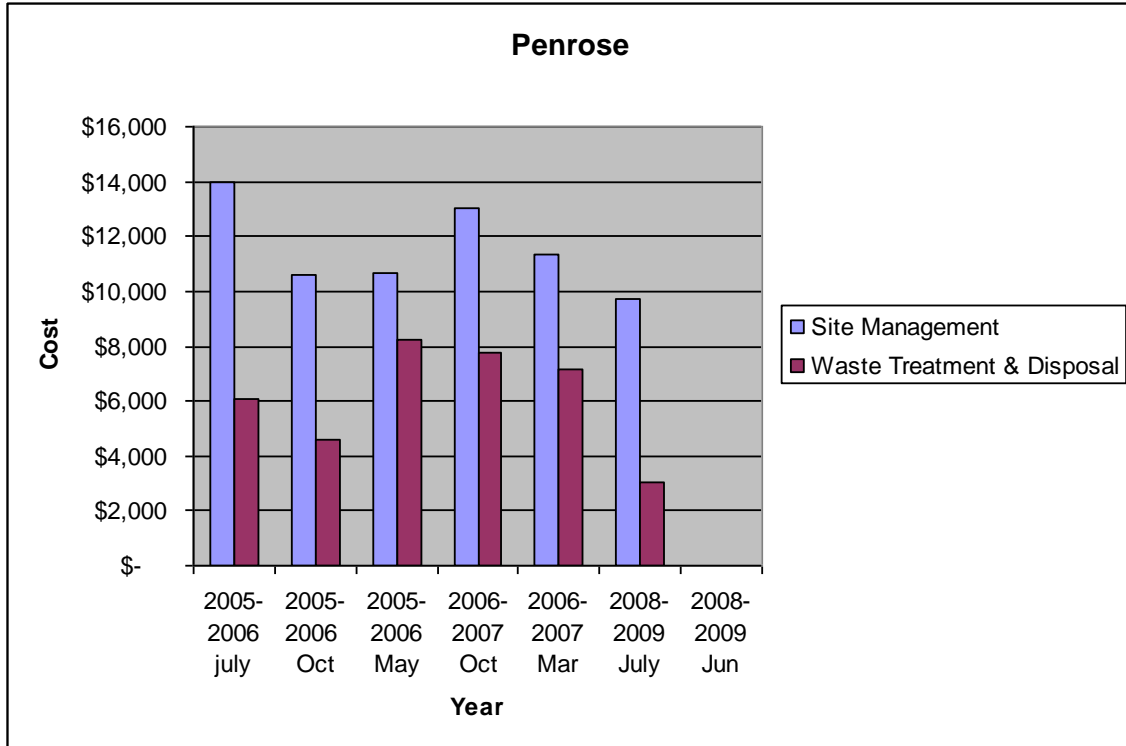
**Figure 23:** Site Management and Treatment and Disposal HazMobile Costs for Auckland City Council



Figures 24a-d (below) show the management, treatment and disposal costs for the four sites used in 2008-2009.

In three of the sites (Penrose, Three Kings and Western Springs), management costs showed a slight decrease in 2008-2009, and treatment and disposal costs showed a significant decline.

**Figure 24a:** Penrose Site Costs



**Figure 24b:** Three Kings Site Costs

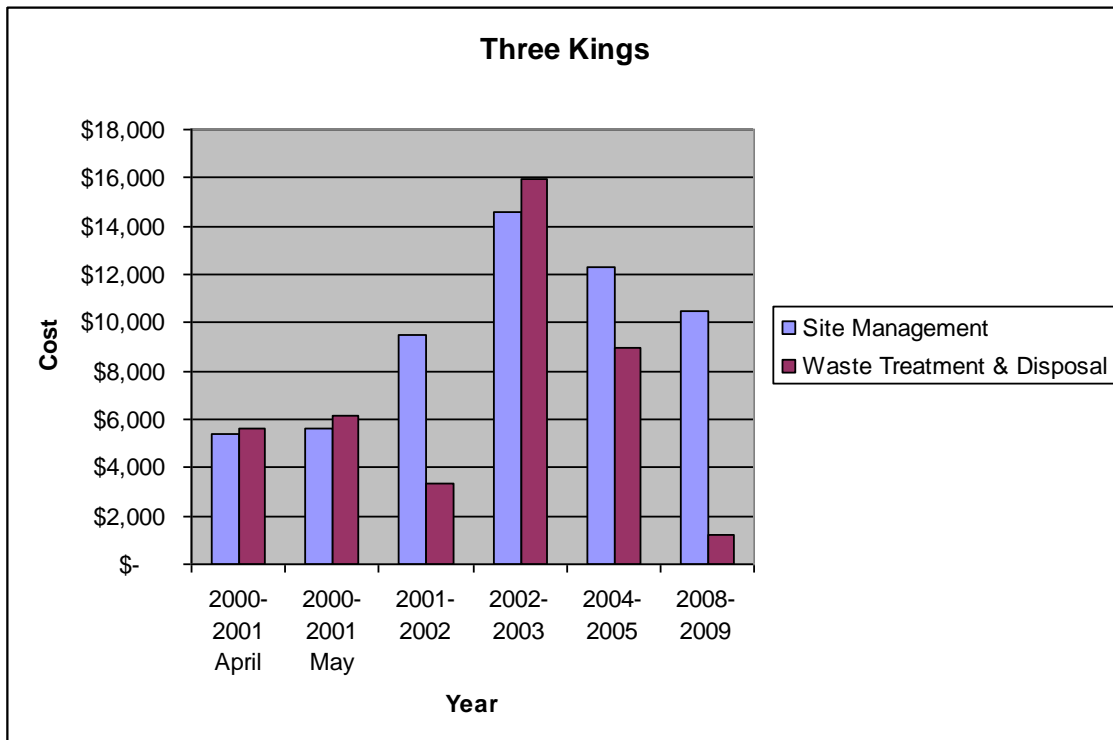
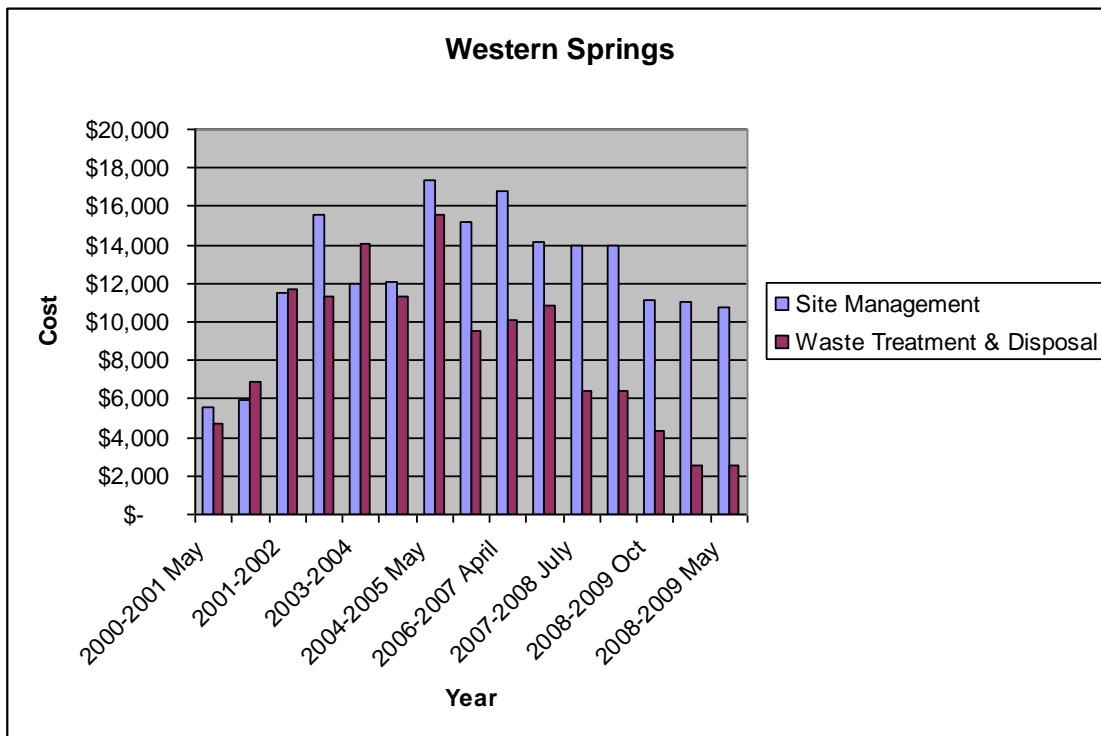
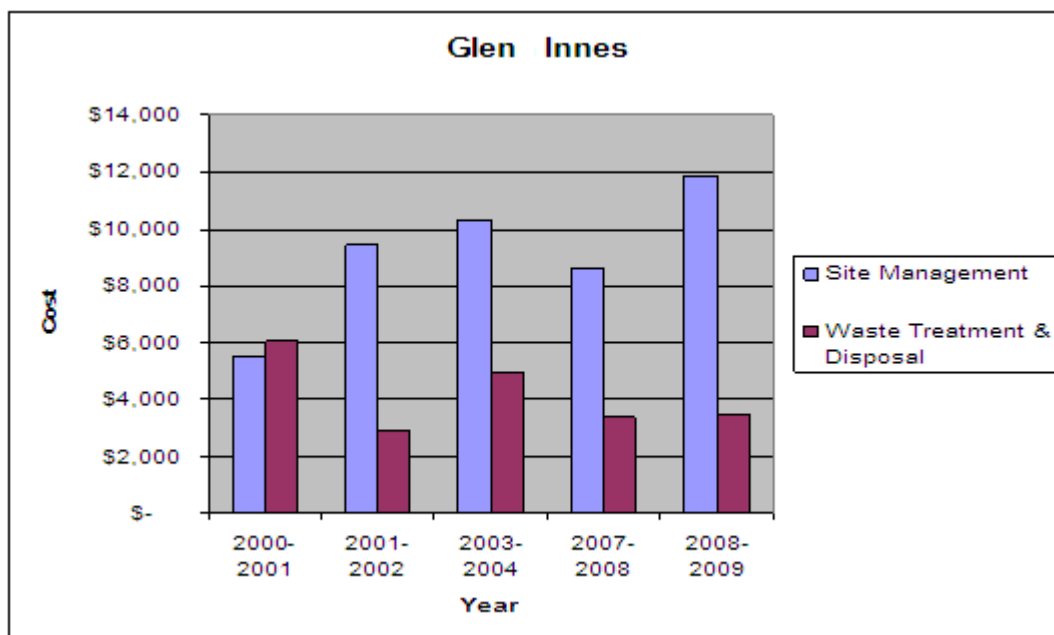


Figure 24c: Western Springs Site Costs



The fourth site, Glen Innes, showed an increase in site management costs and stable treatment and disposal costs between 2007-2008 and 2008-2009. This is due to extra staff and equipment being required at this site in 2008-2009. In the previous year, difficulties managing the public and the site in general required changes in the way the site was managed, to reduce health and safety risks. This site has an unusually high number of people walking through the site and trying to park at the site. It is a small site with little room for traffic to form a queue. Demographic considerations, such as the high number of people with English as a second language, also require special consideration when operating a hazardous waste collection in the area. This site also experienced an unprecedented increase in the volume of chemicals collected, likely to be due to the advertisement in the Australian Woman's weekly.

Figure 24d: Glen Innes Site Costs



### 1.3 Collection cost data – Manukau City Council

HazMobile costs have steadily declined for Manukau City Council collections since 2004. This is partly due to cessation of paint collections in January 2008, but the decline began prior to this time.

**Figure 25:** Total HazMobile Costs for Manukau City Council

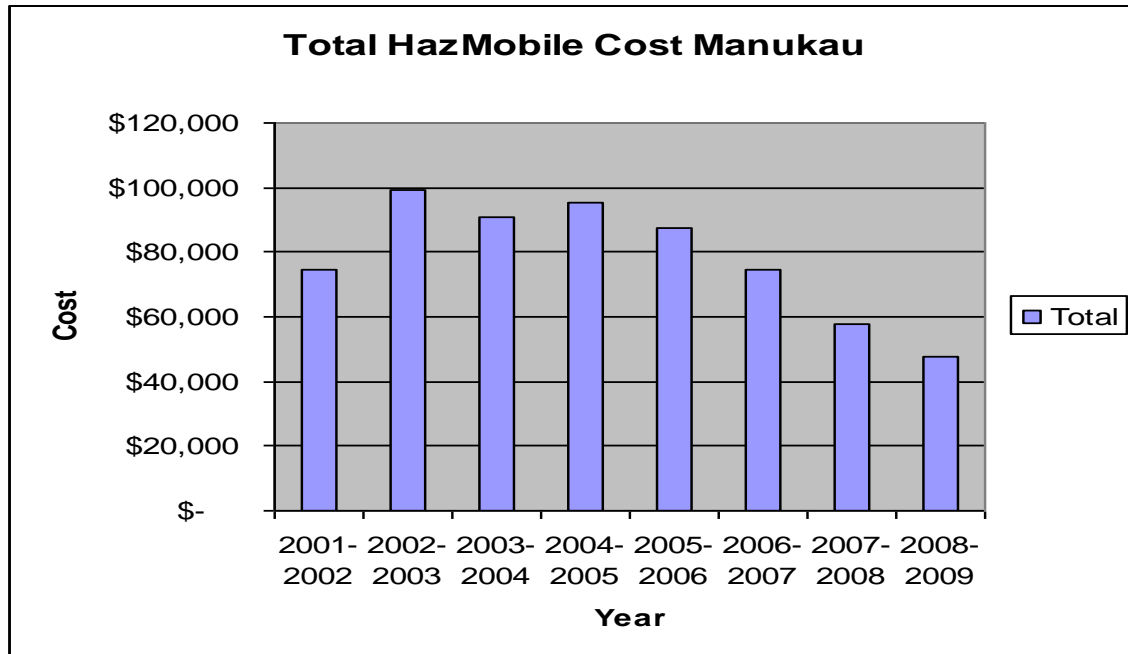
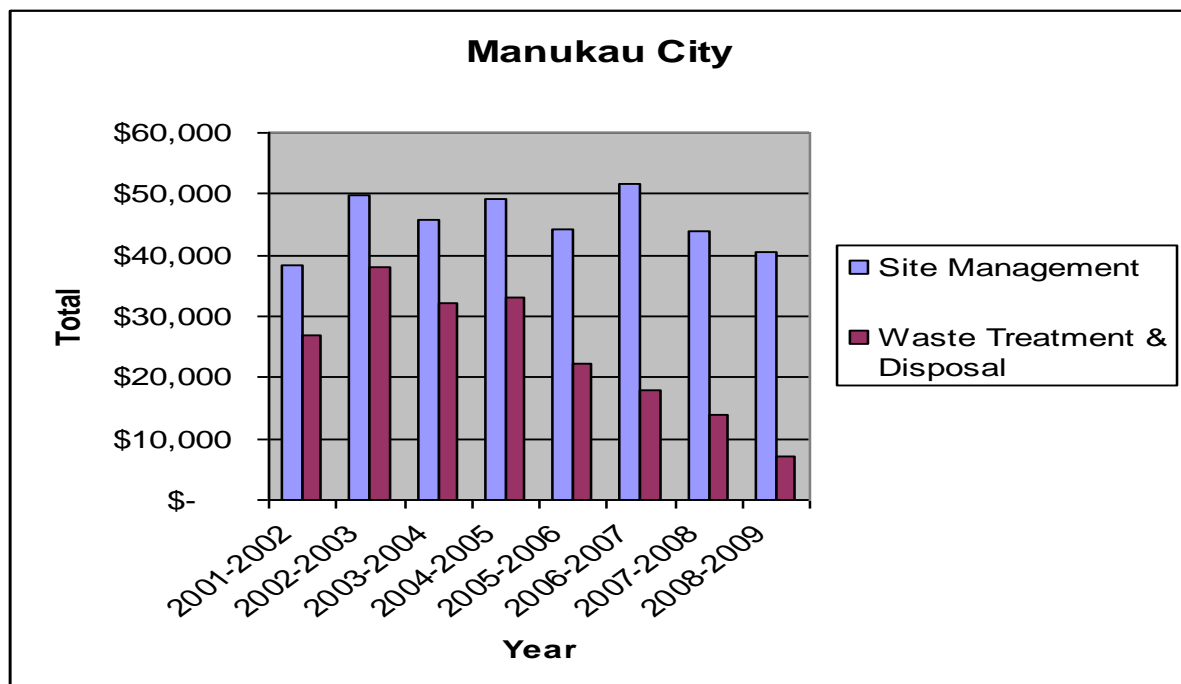


Figure 26 shows that site management costs have remained approximately the same for Manukau City Council HazMobiles, but there has been a decline in disposal costs since 2004. Paint collections ceased in 2008 but the decline in disposal costs was evident prior to this time.

**Figure 26:** Site Management and Treatment & Disposal HazMobile Costs for Manukau City Council



This decline cannot be attributed to customer numbers or waste quantities, which have remained consistent until 2008 when paint collections ceased. The most likely reason is due to changes in the price of wet cell batteries. The HazMobile sells these to offset the cost of disposal of materials. Over the 2008-2009 year scrap metal prices rose significantly for a period of time. Manukau returns a high volume of batteries and this would have reduced the disposal costs overall.

Figures 27 a – d show the site management and treatment and disposal HazMobile costs for Manukau City Council by site.

The four Manukau City HazMobile sites used in 2008-2009 show similar patterns in cost. Site management costs have stayed approximately the same while disposal costs have significantly decreased due to cessation of paint collections.

**Figure 27a:** Howick Site Costs

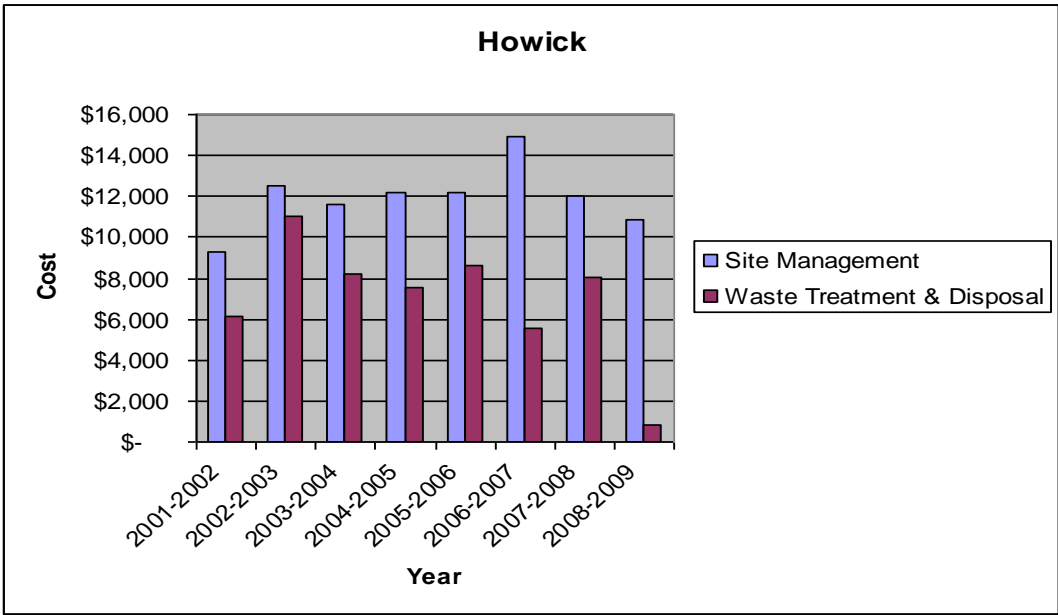




Figure 27b: Pakuranga Site Costs

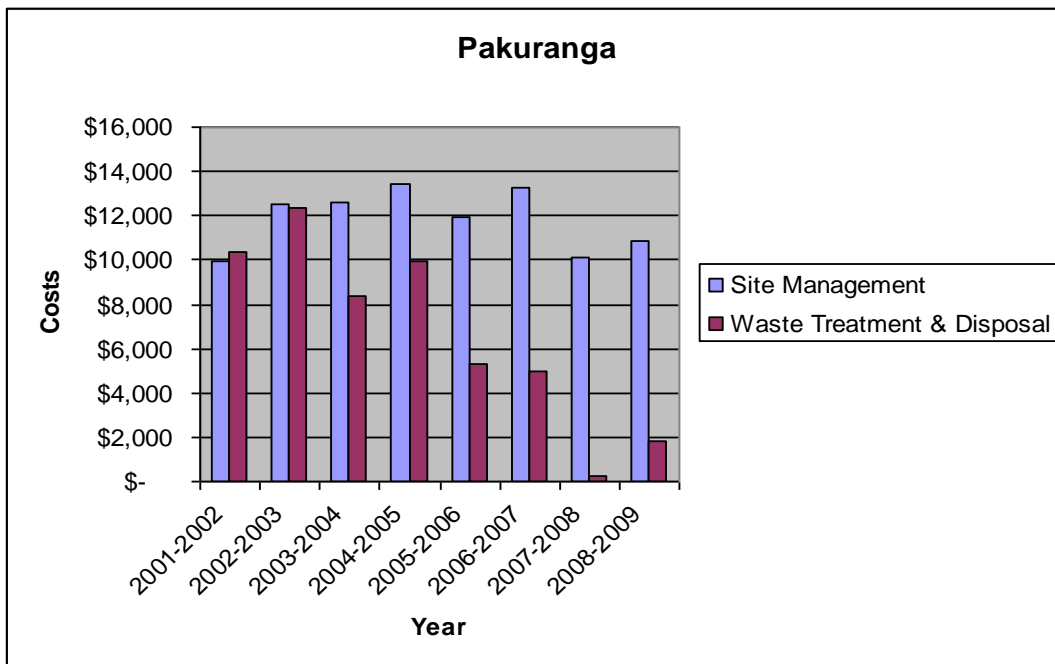
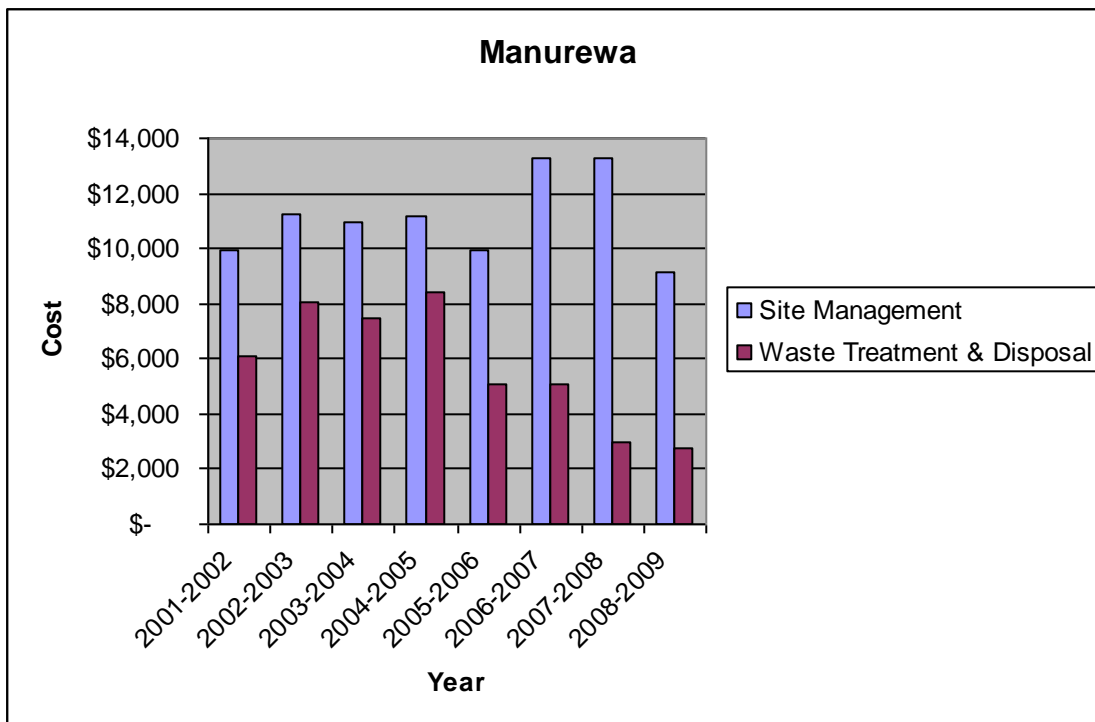
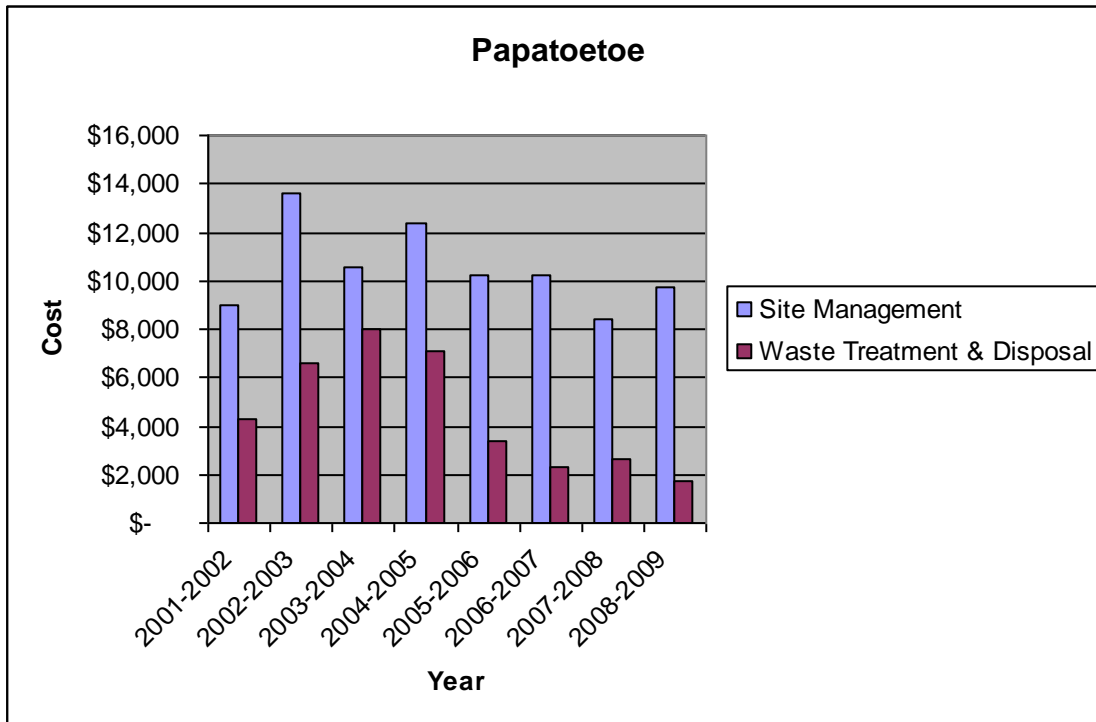


Figure 27c: Manurewa Site Costs



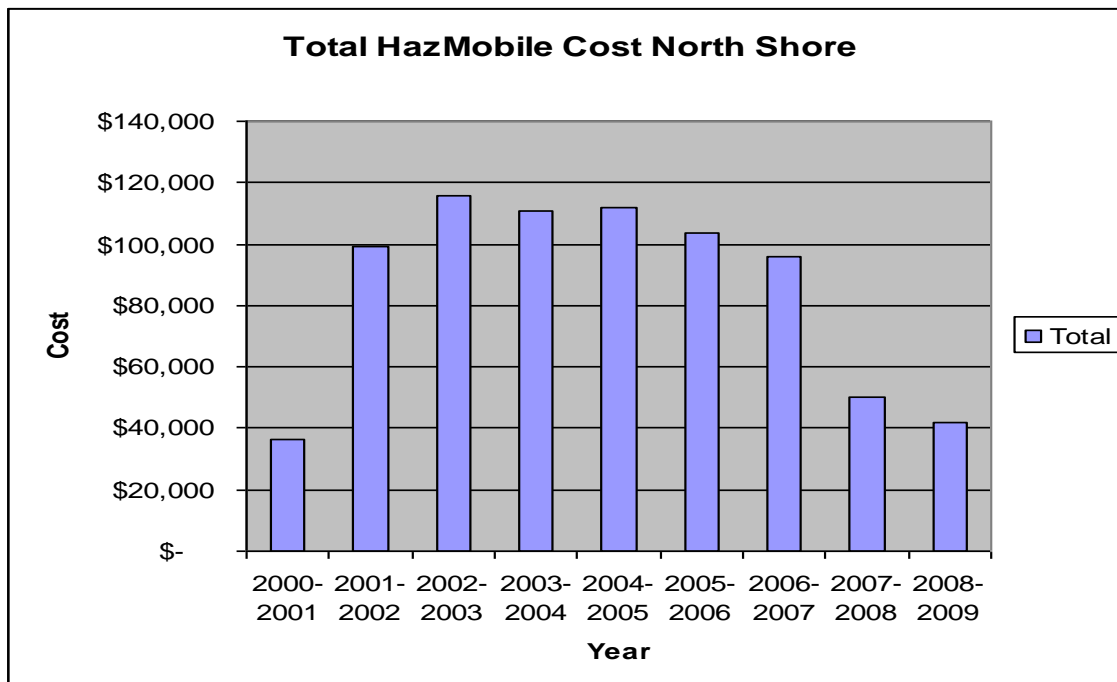
**Figure 27d:** Papatoetoe Site Costs



1.4 Collection cost data – North Shore City Council

As expected, overall costs of HazMobile collections have significantly decreased since the cessation of paint collections. This is also partly due to the overall decline in customer numbers seen at North Shore City collections.

**Figure 28:** Total HazMobile Costs for North Shore City Council



**Figure 29:** Site Management and Treatment & Disposal HazMobile Costs for North Shore City Council

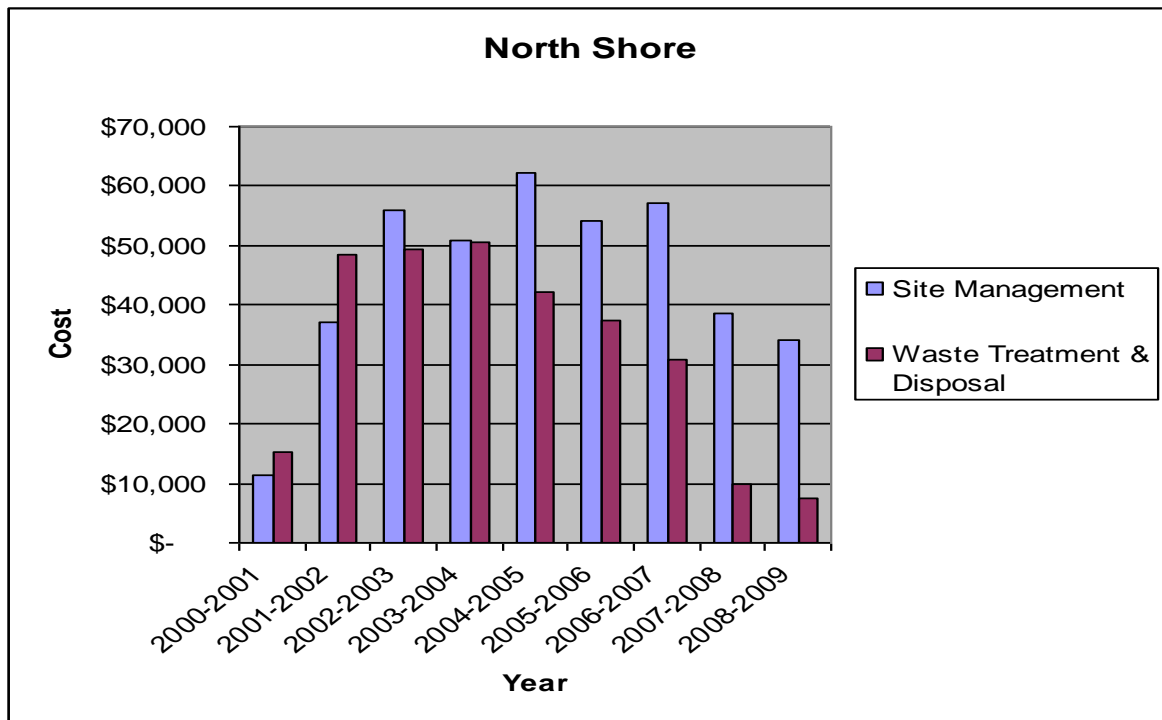


Figure 29 shows that both management and disposal costs have decreased significantly since the cessation of paint collections. However, the general trend of declining disposal costs is indicative of the decline in customer numbers over the same period.

Figures 30 a-c show site management costs have remained approximately the same over the period that collections have occurred on the North Shore.

As expected, treatment and disposal costs have significantly declined since the cessation of paint collections.

**Figure 30a:** Birkenhead Site Costs

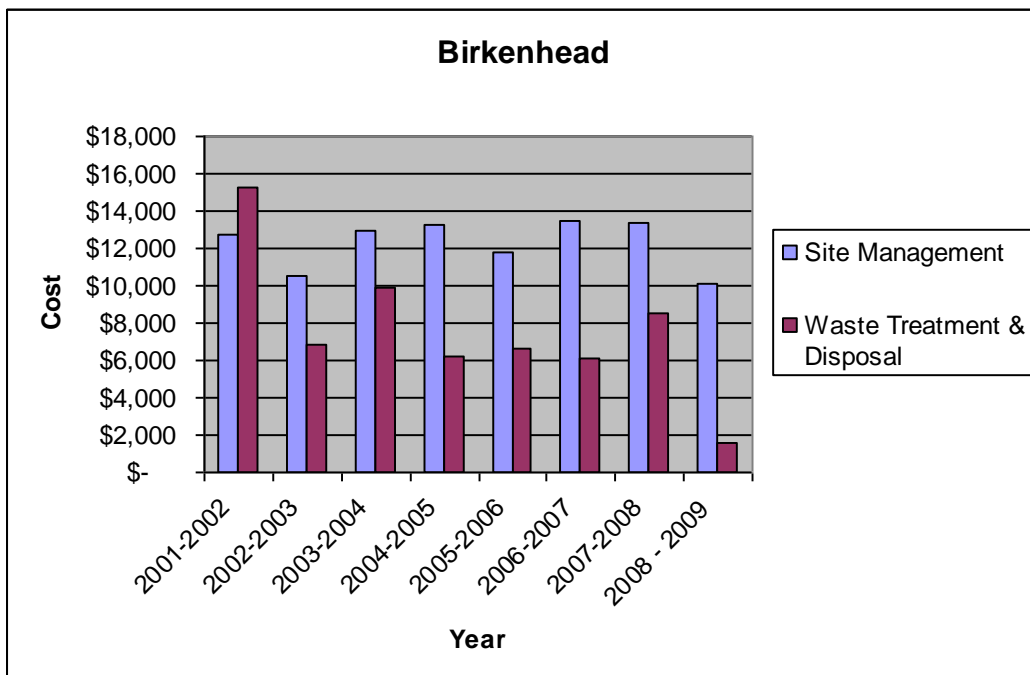
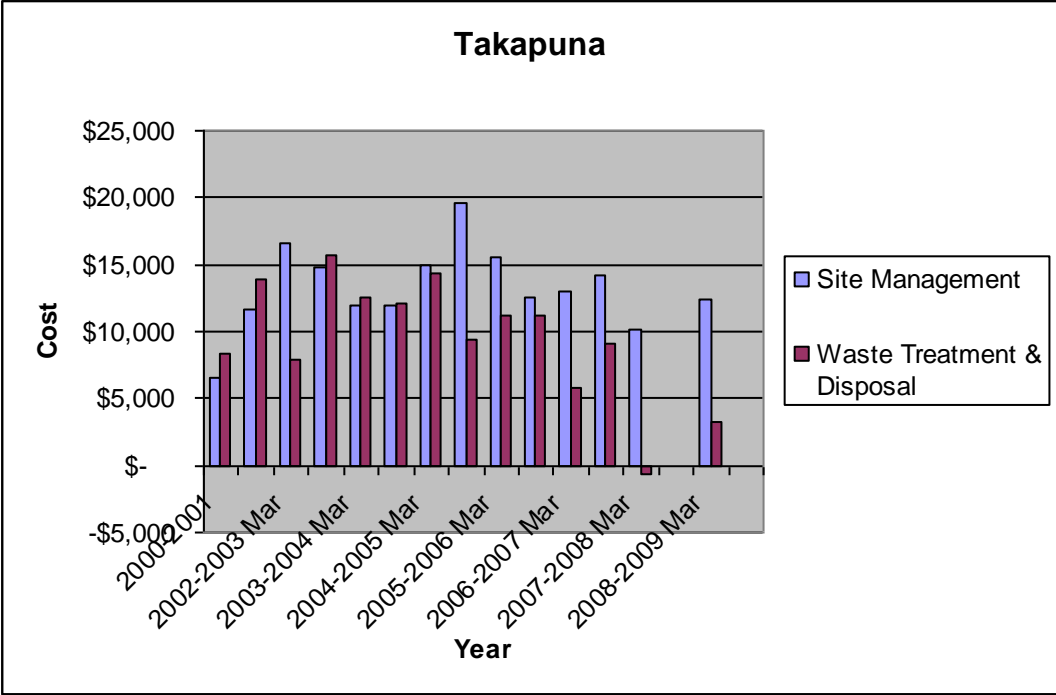
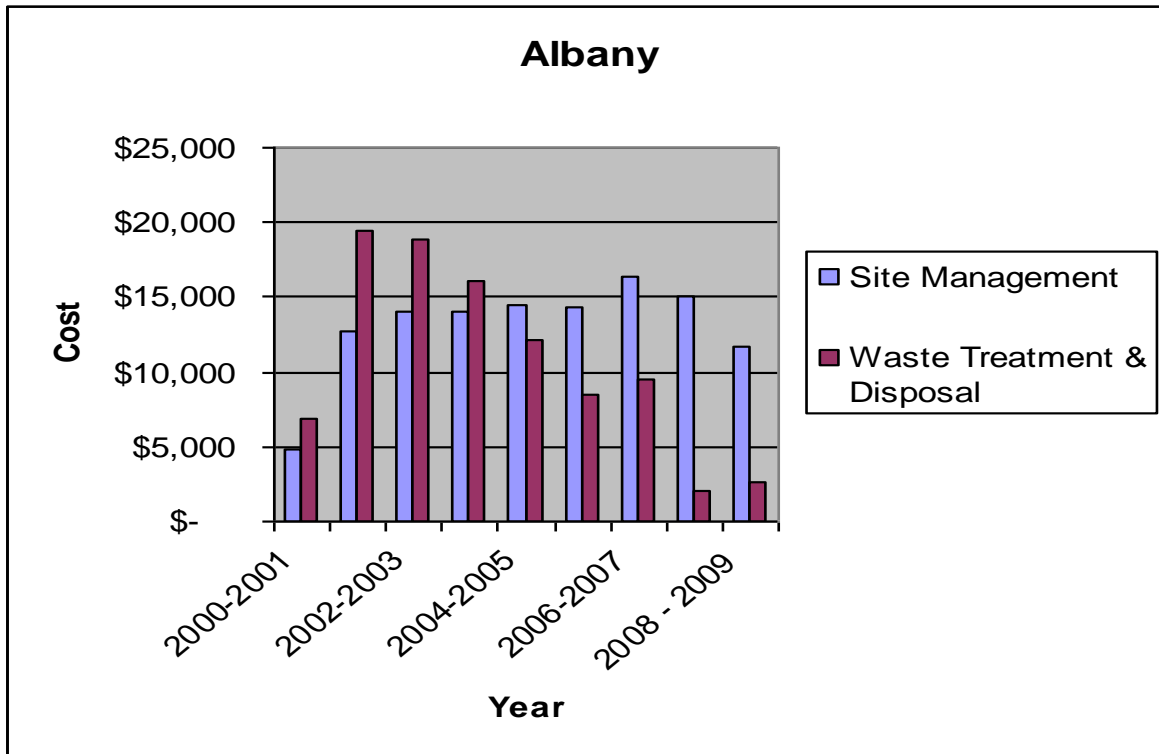


Figure 30b: Takapuna Site Costs



The 2008 collection showed a profit was made overall. This was due to very high recoveries being made on wet cell batteries. On this collection the recovery from batteries returned more than the cost of disposal of all the waste collected.

**Figure 30c:** Albany Site Costs



1.5 Collection cost data – Franklin District Council

As expected, Figure 31 shows a decline in overall costs associated with the Franklin District Council HazMobile collection since the cessation of paint collections.

**Figure 31:** Total HazMobile Costs for Franklin District Council

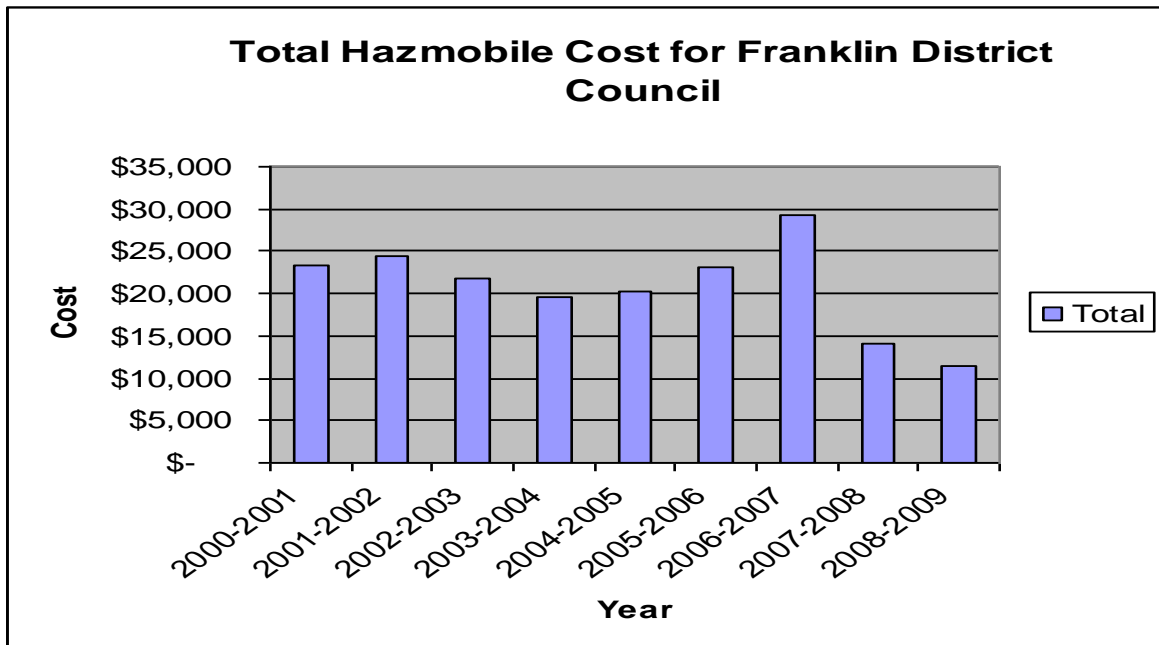
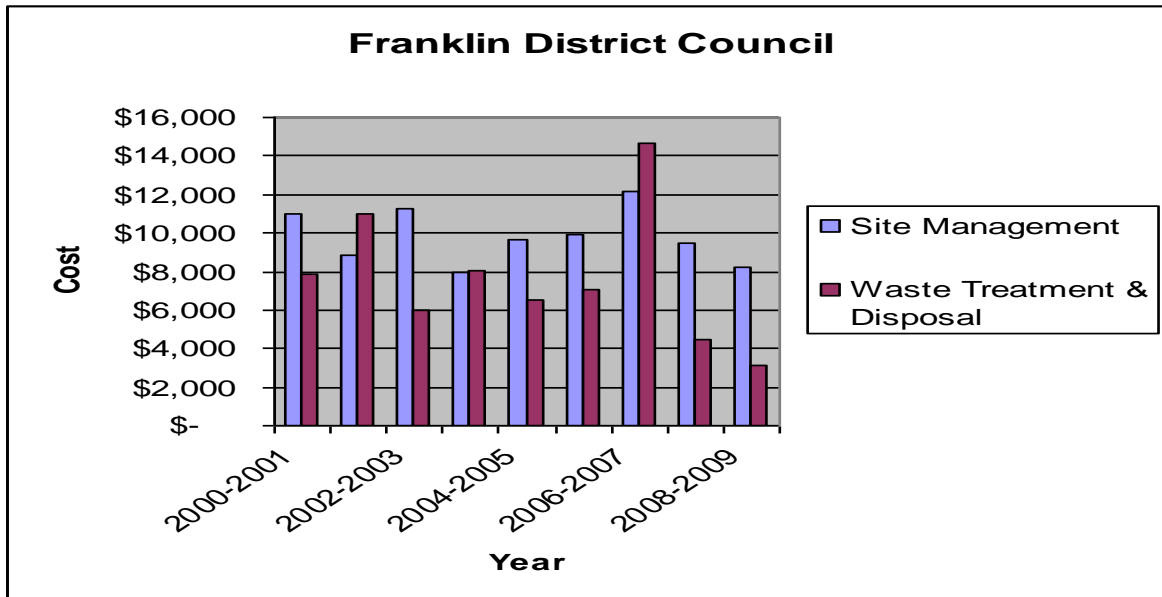
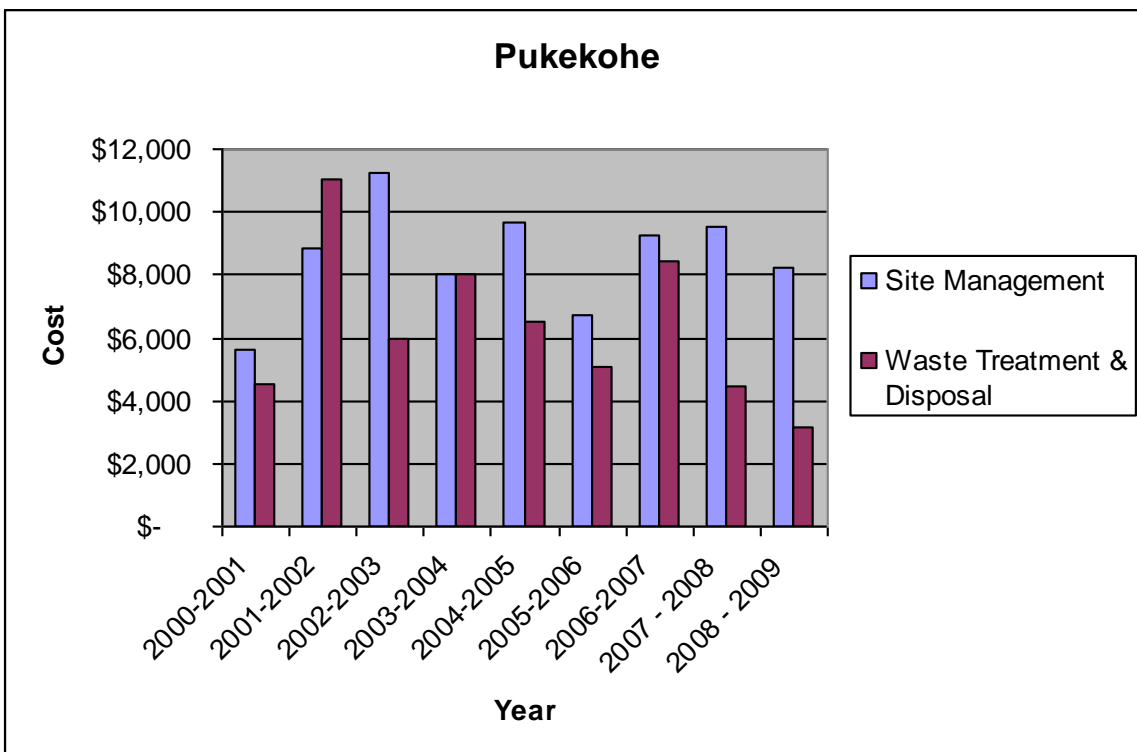


Figure 32 shows that the decrease in costs can be associated with a decline in treatment and disposal costs. This was expected as a result of the cessation of paint collections and the decline in customer numbers.

**Figure 32:** Site Management and Treatment & Disposal HazMobile Costs for Franklin District Council



**Figure 33:** Pukekohe Site Costs

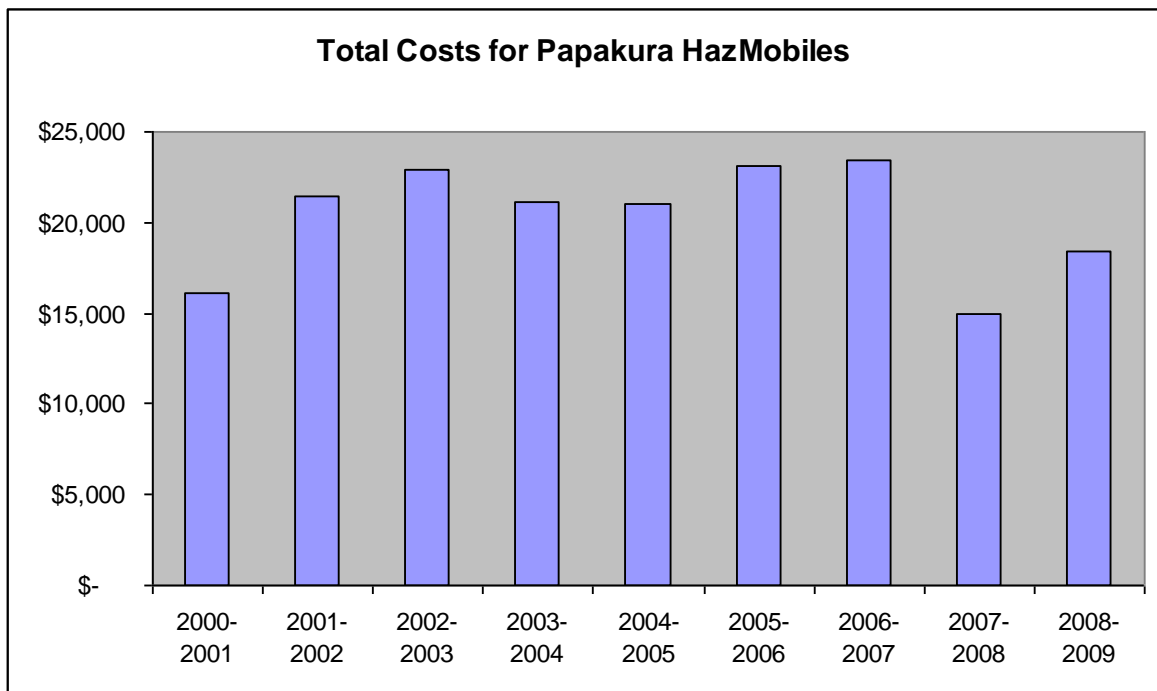


#### 1.6 Collection cost data – Papakura District Council

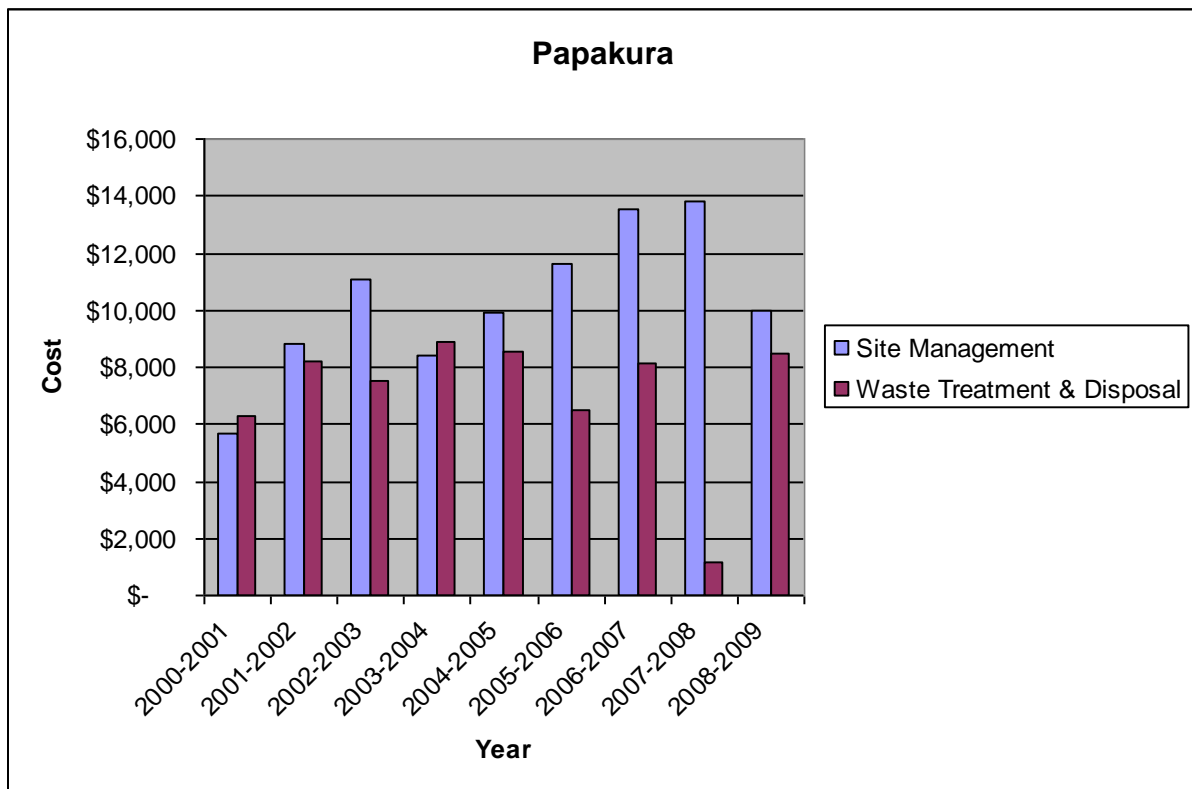
Site management costs have stayed relatively stable over time for Papakura. Unusually, treatment and disposal costs rose significantly in 2008-2009.

This was due to an unexpectedly high volume of intractable chemicals coming in the Papakura HazMobile. This was unexpected and is not anticipated to be repeated in 2009-2010.

**Figure 34:** Total HazMobile Costs for Papakura District Council



**Figure 35:** Site Management and Treatment & Disposal HazMobile Costs for Papakura District Council

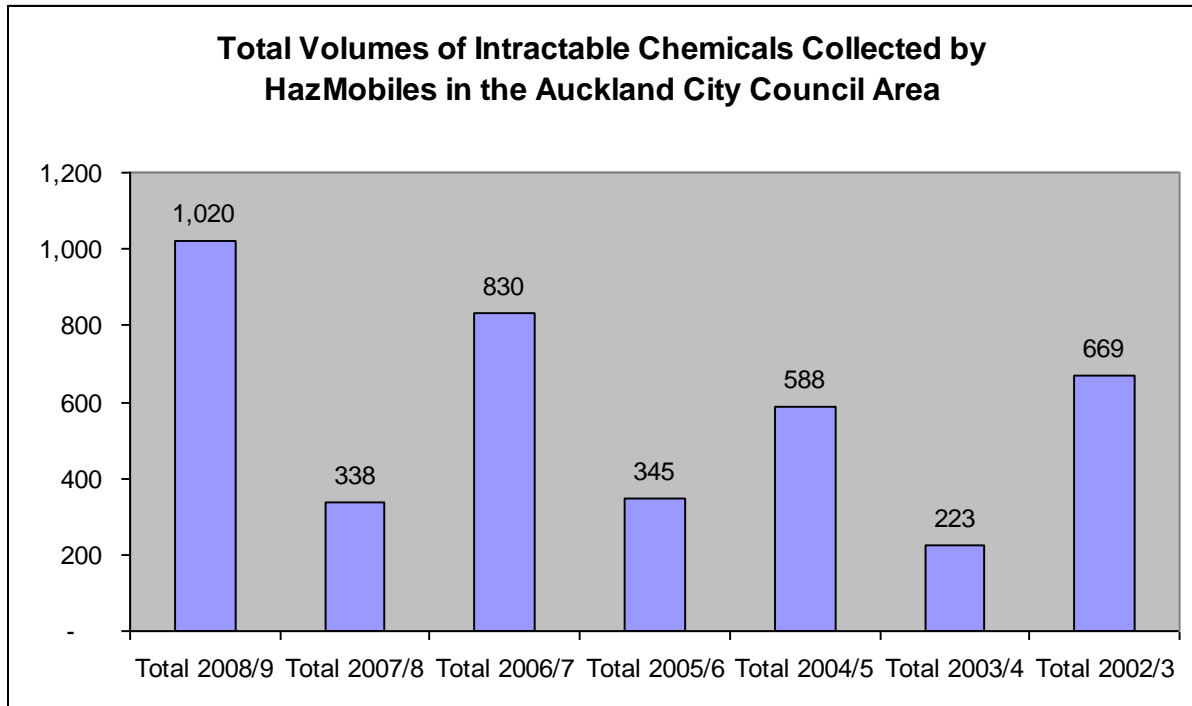


## 2.0 Waste type and volume data

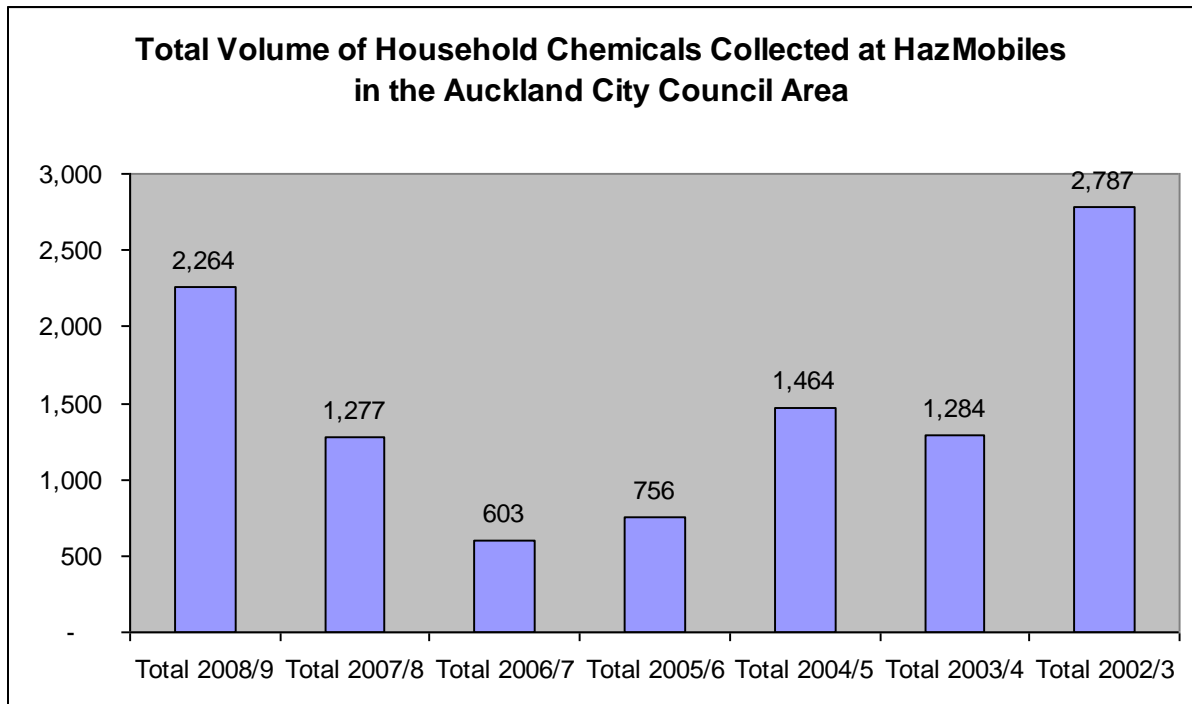
### Auckland City Council Waste Streams

Note that the fluctuating pattern is a result of the bi-annual inorganics collection.

**Figure 36a**



**Figure 36b**



Note the significant increase in household chemicals collected since 2007/8. This is likely to be related to increased advertising which has been possible since the cessation of paint collections.



The increase seen in Auckland City Council area is different to the trend in all other areas, where significant decreases in the volume of household chemicals can be seen.

Figure 36c

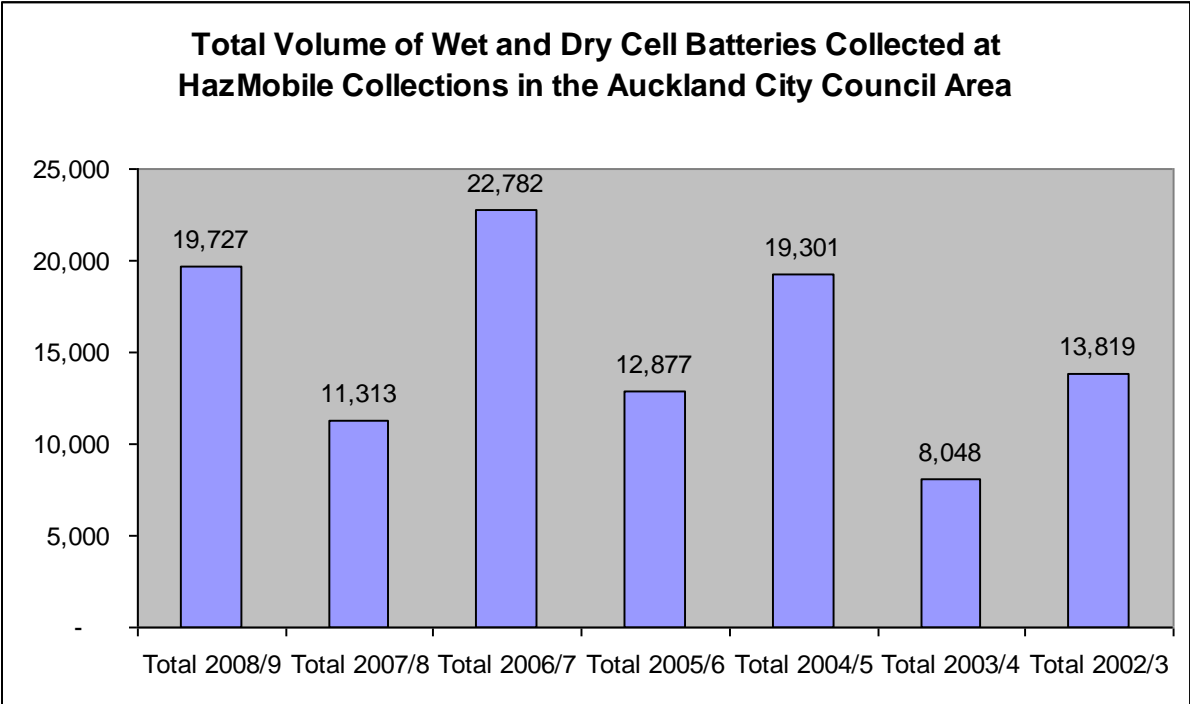
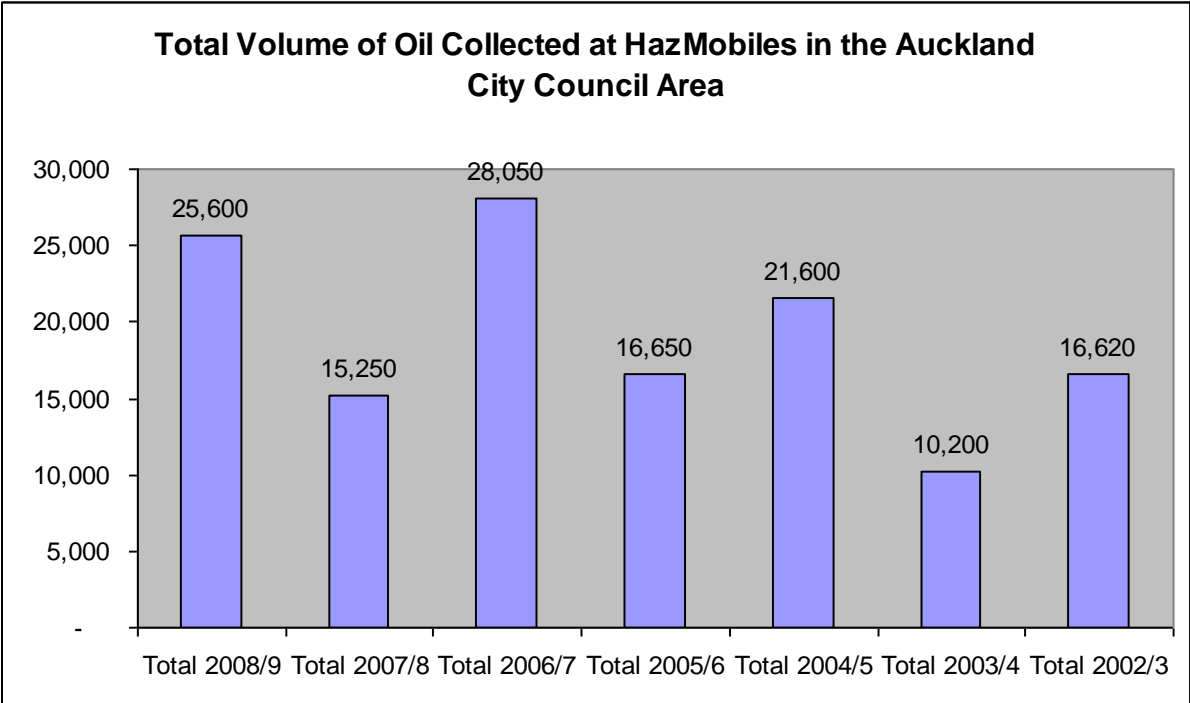


Figure 36d



North Shore City Council Waste Streams:

Figure 37a

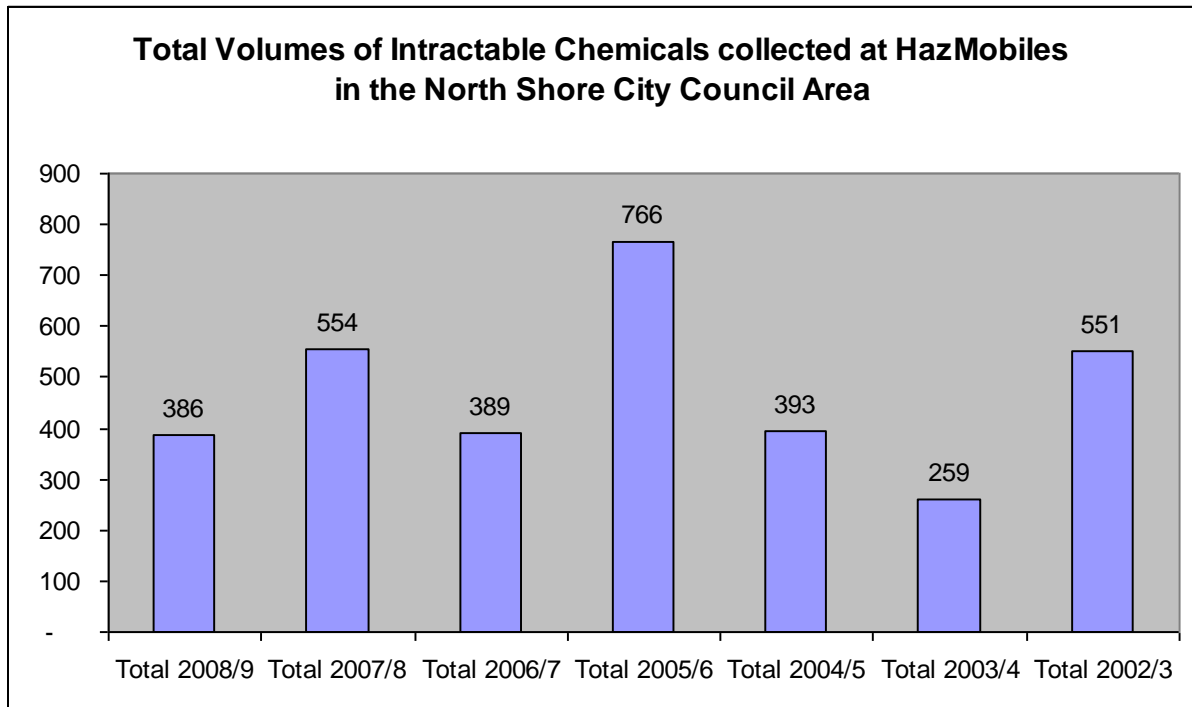
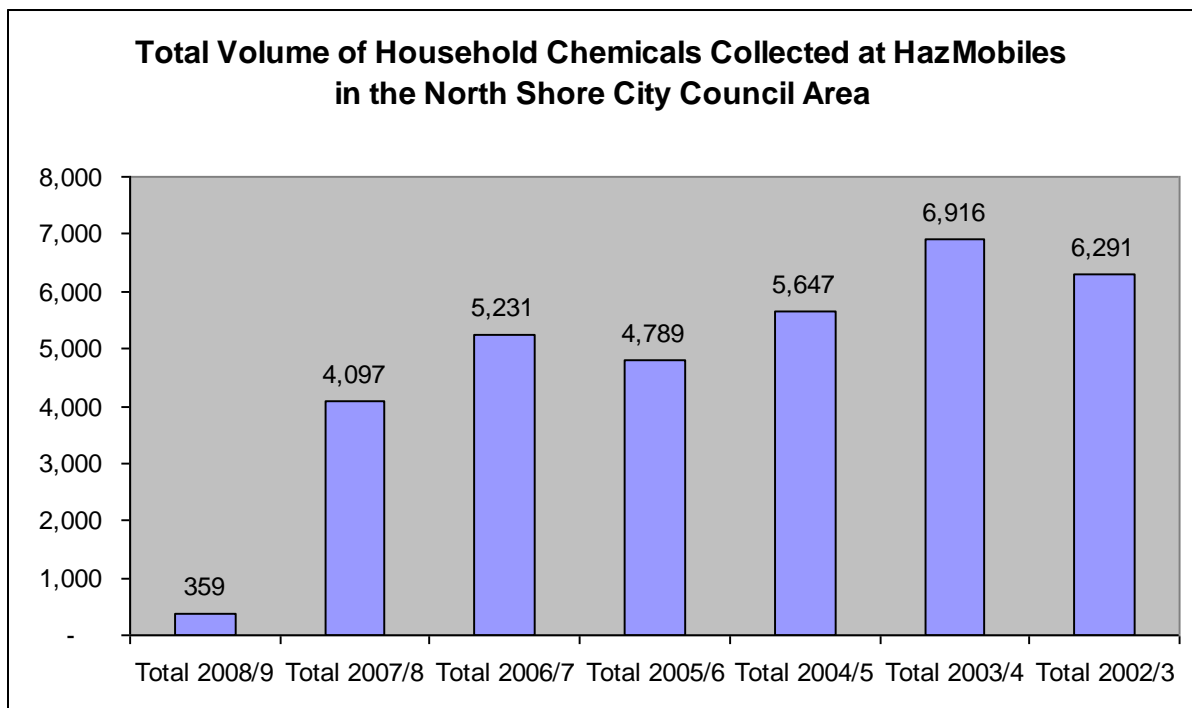


Figure 37b



Note the significant decrease in household chemicals collected since 2007/8. This is seen in all areas except Auckland City Council, and it is unclear why this significant decrease has occurred.

Figure 37c

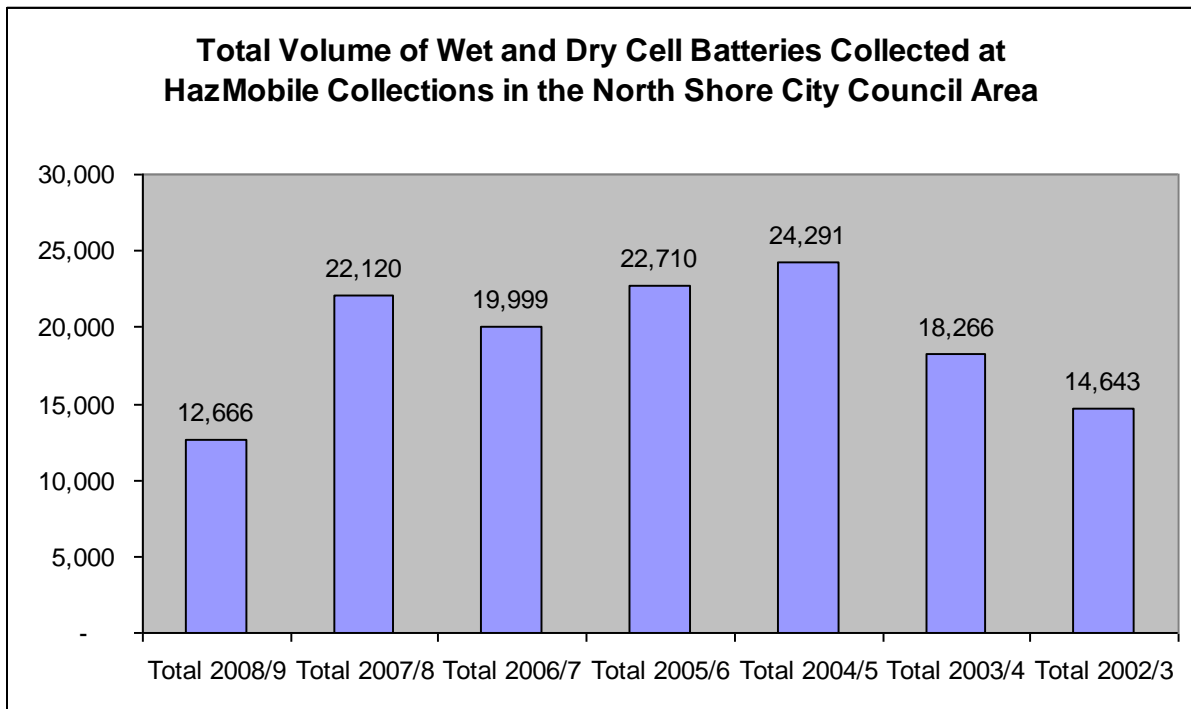
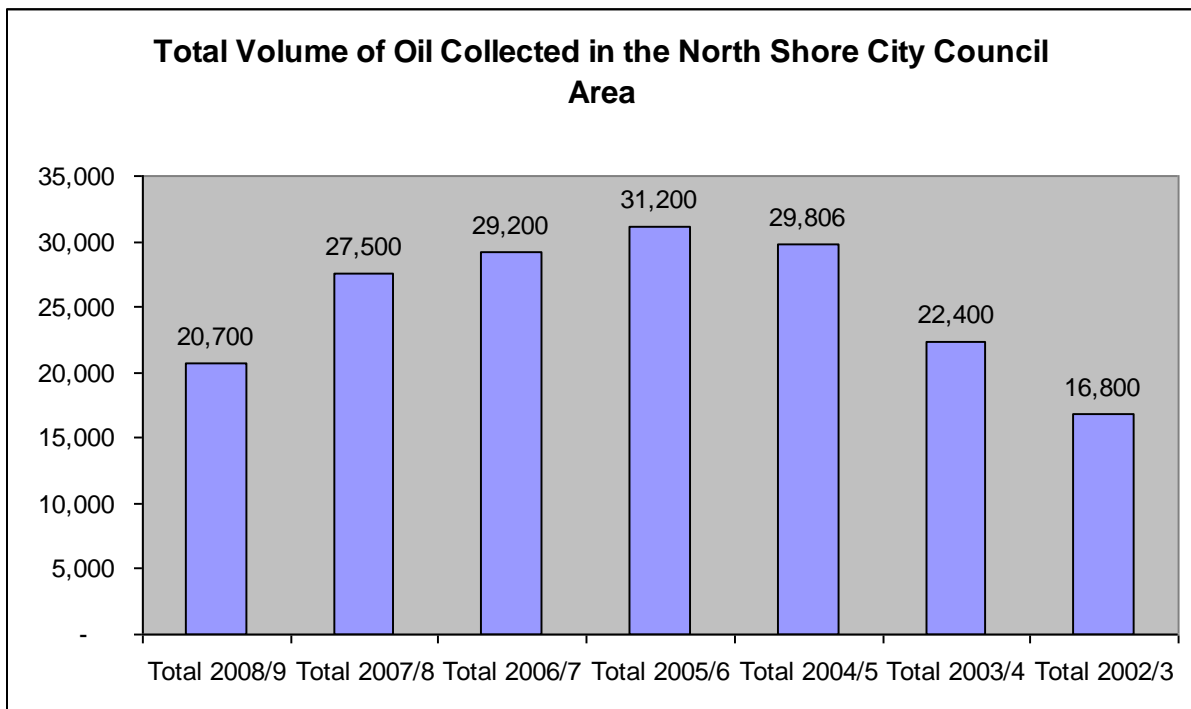


Figure 37d



Manukau City Council Waste Streams:

Figure 38a

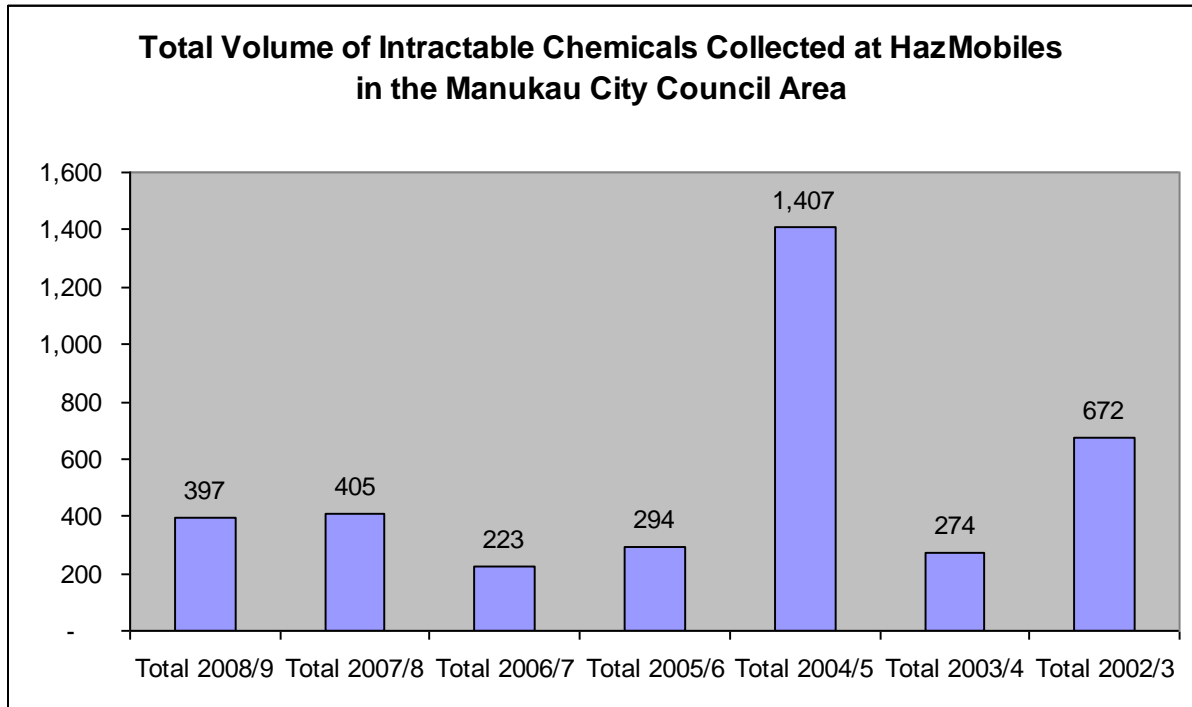
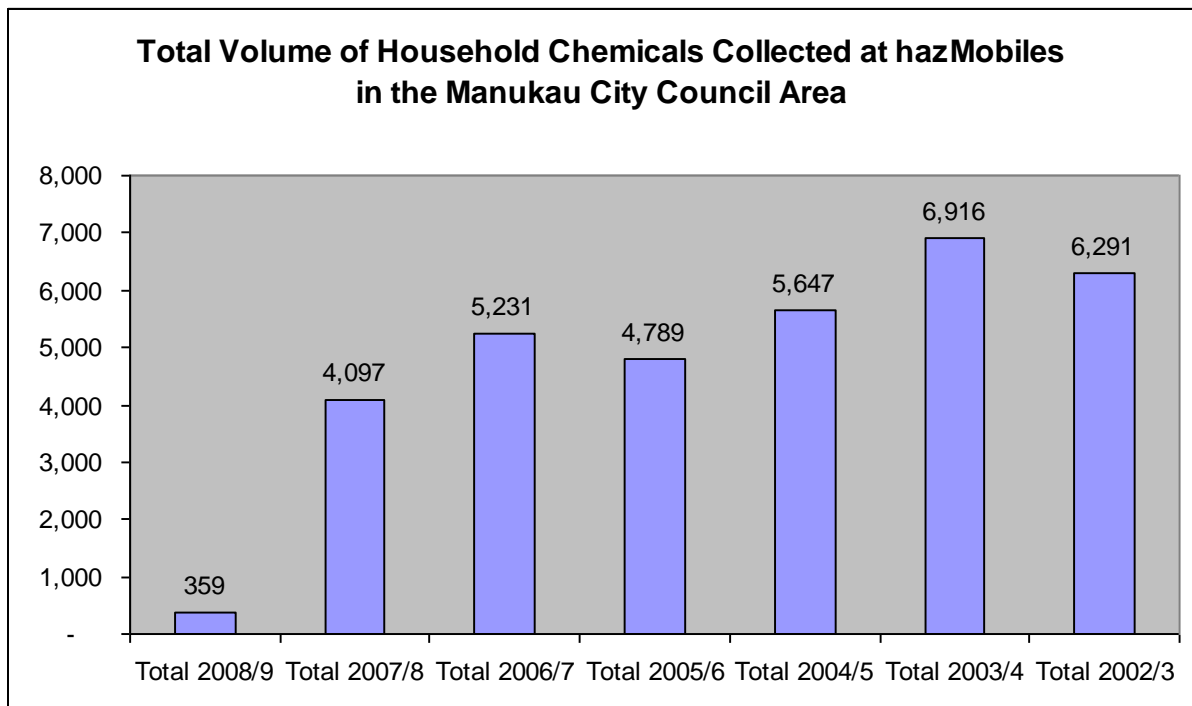


Figure 38b



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Figure 38c

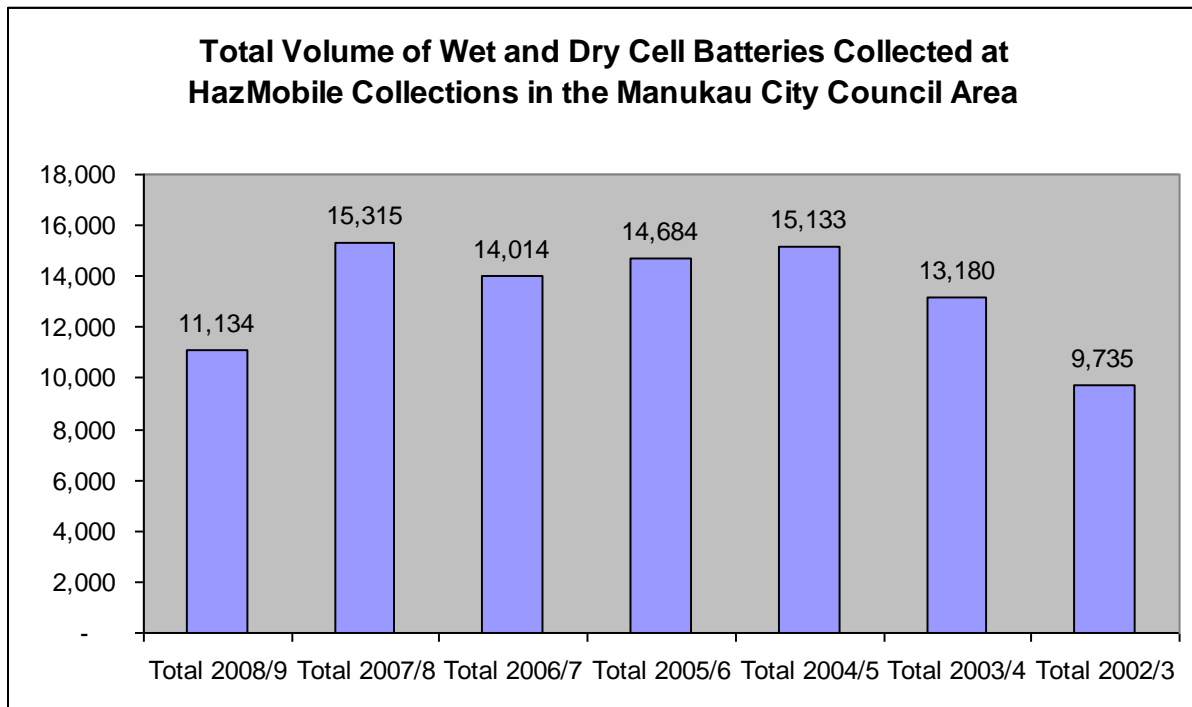


Figure 38d

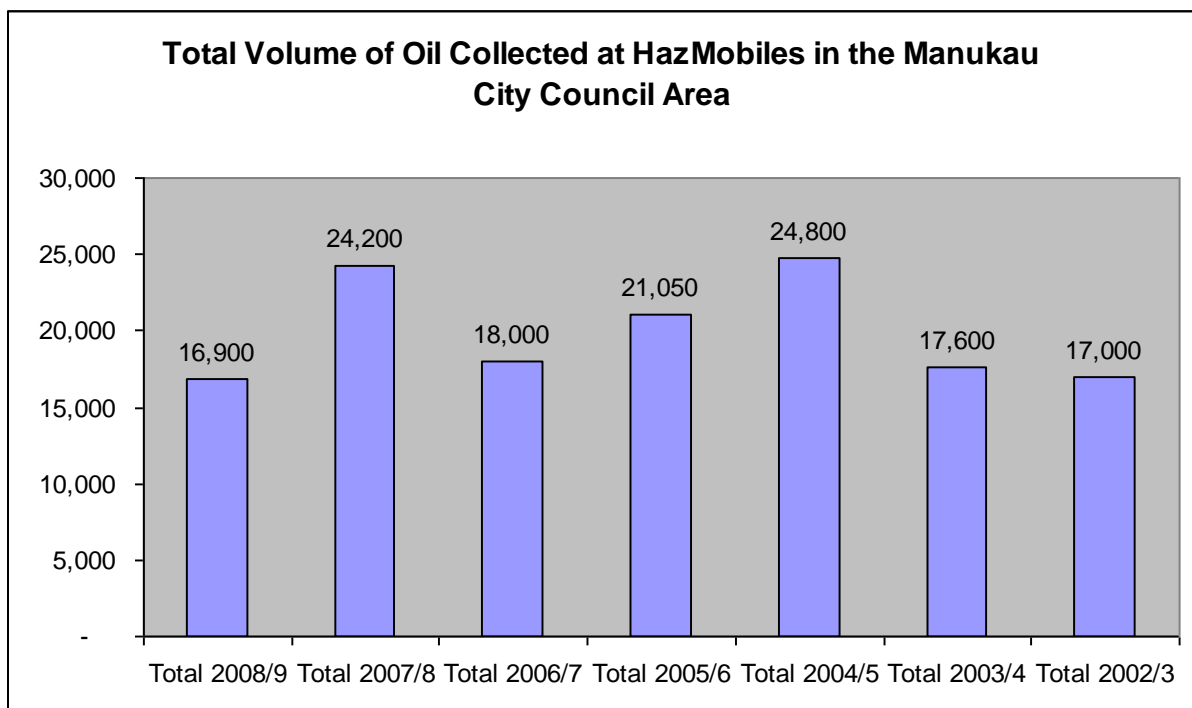


Figure 39a

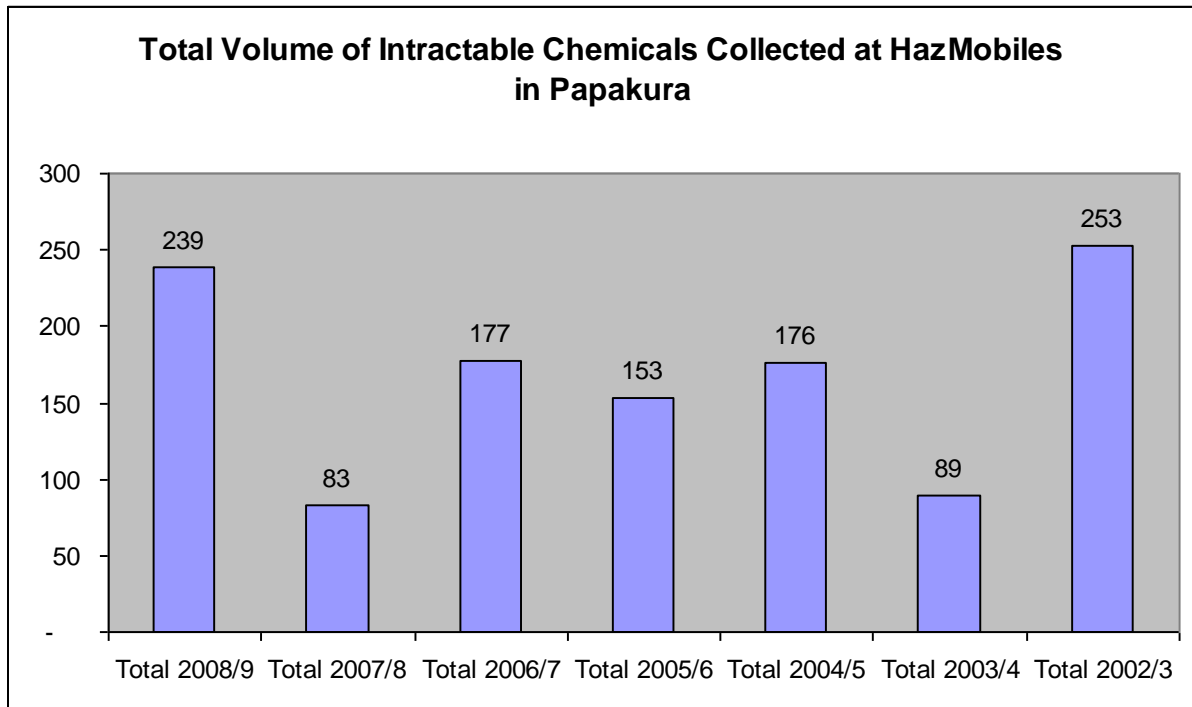
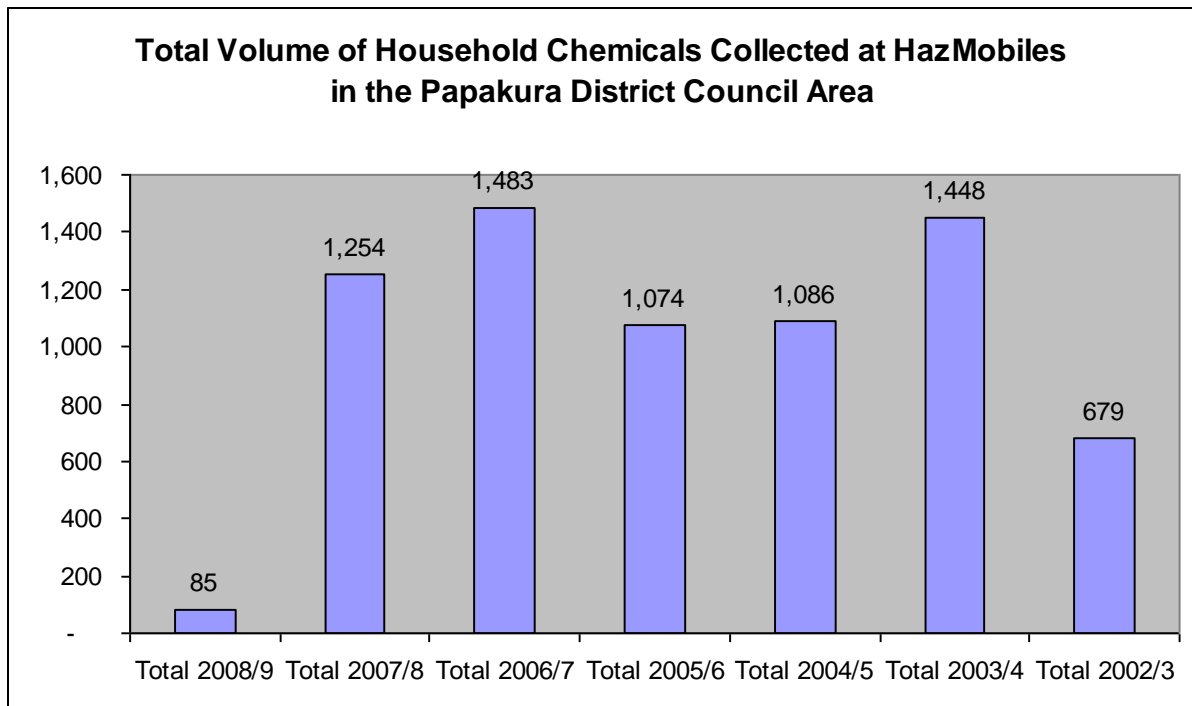


Figure 39b



Note the significant decrease in household chemicals collected since 2007/8. This is seen in all areas except Auckland City Council, and it is unclear why this significant decrease has occurred.

Figure 39c

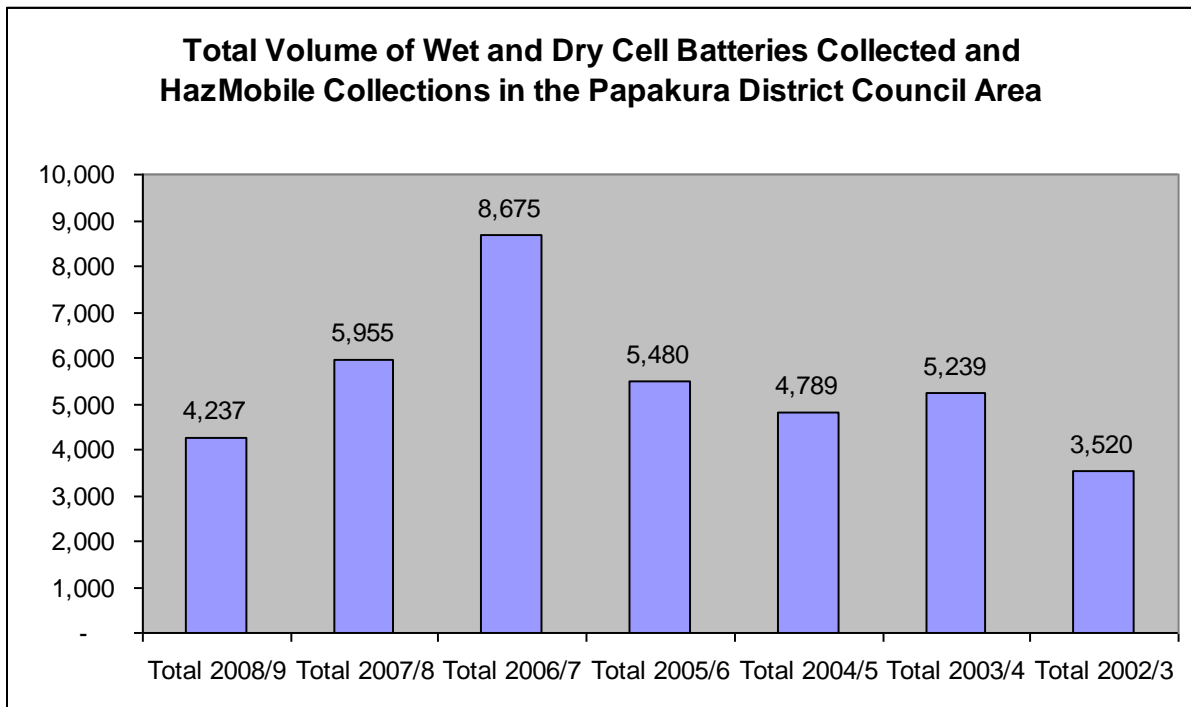


Figure 39d

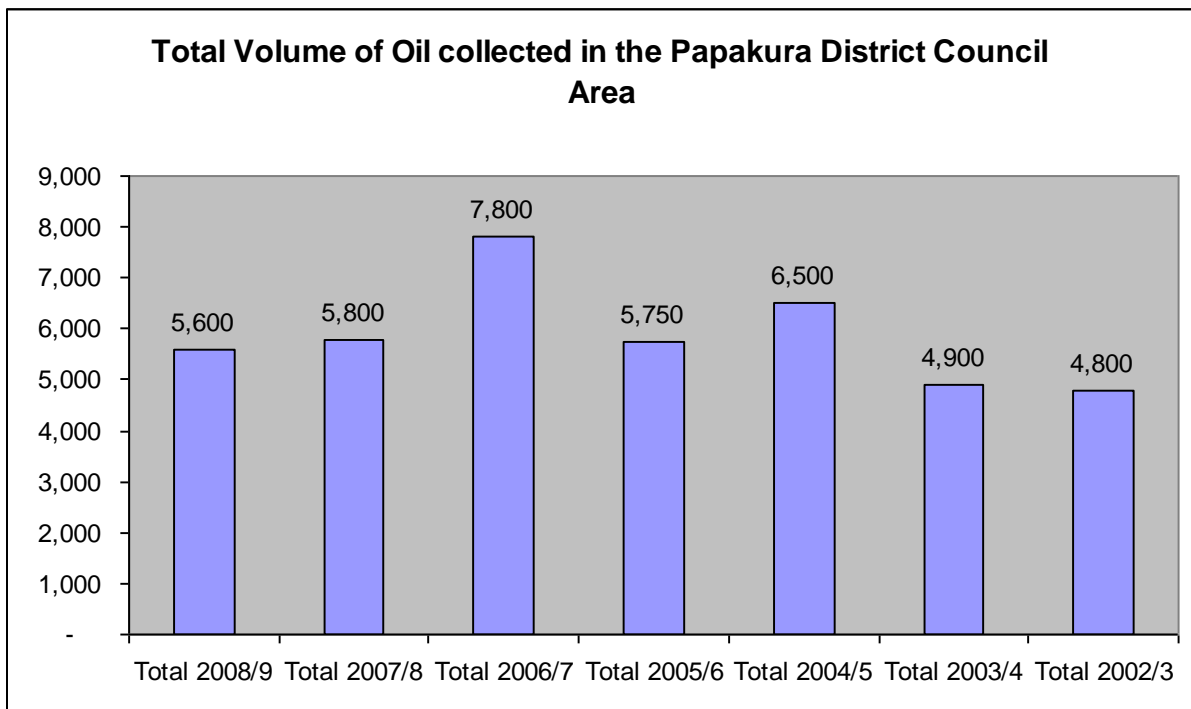


Figure 40a

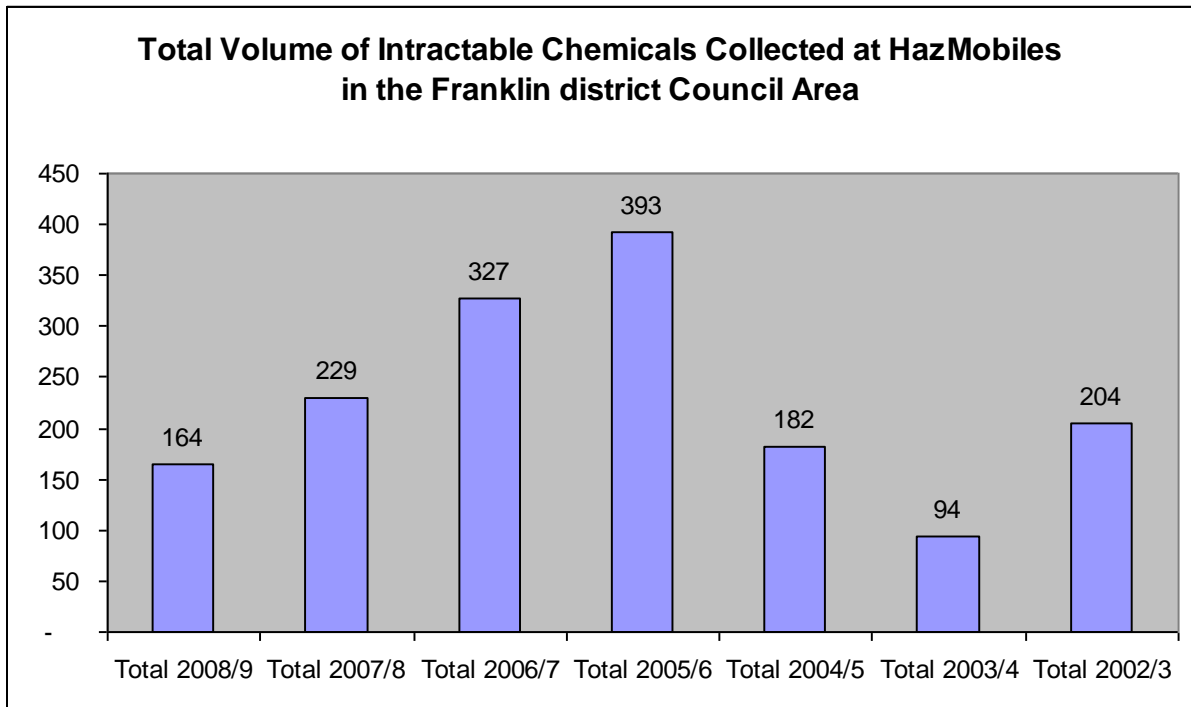
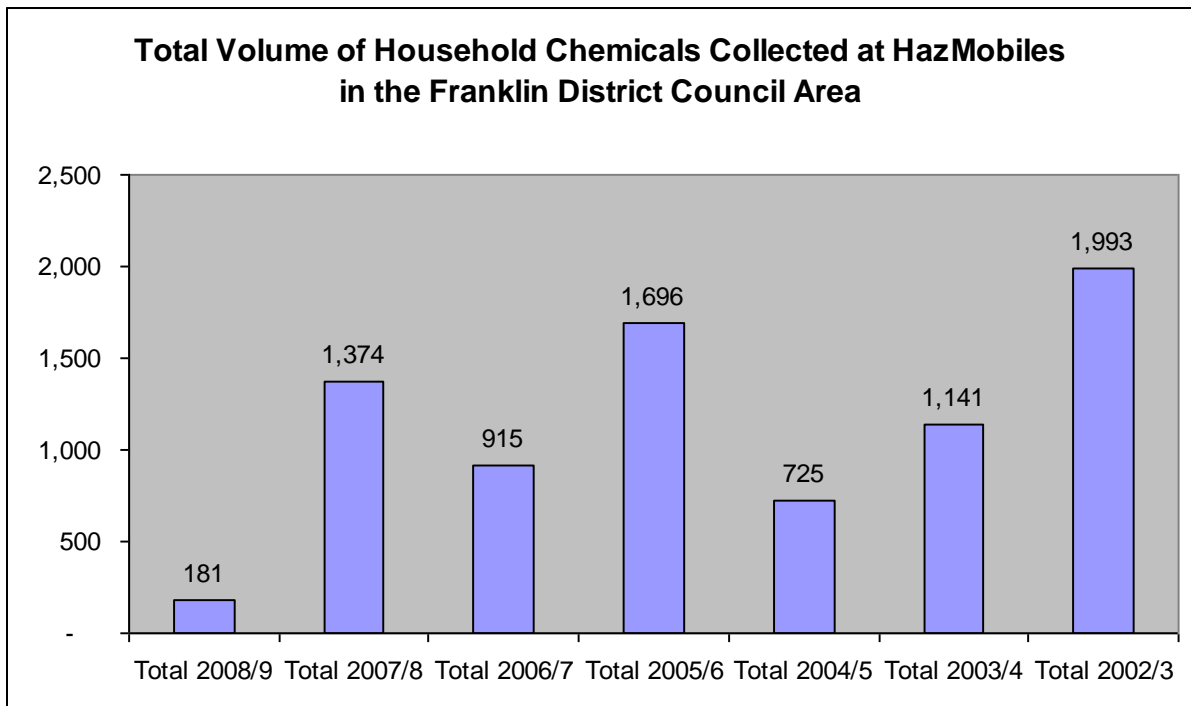


Figure 40b



Note the significant decrease in household chemicals collected since 2007/8. This is seen in all areas except Auckland City Council, and it is unclear why this significant decrease has occurred.



Figure 40c

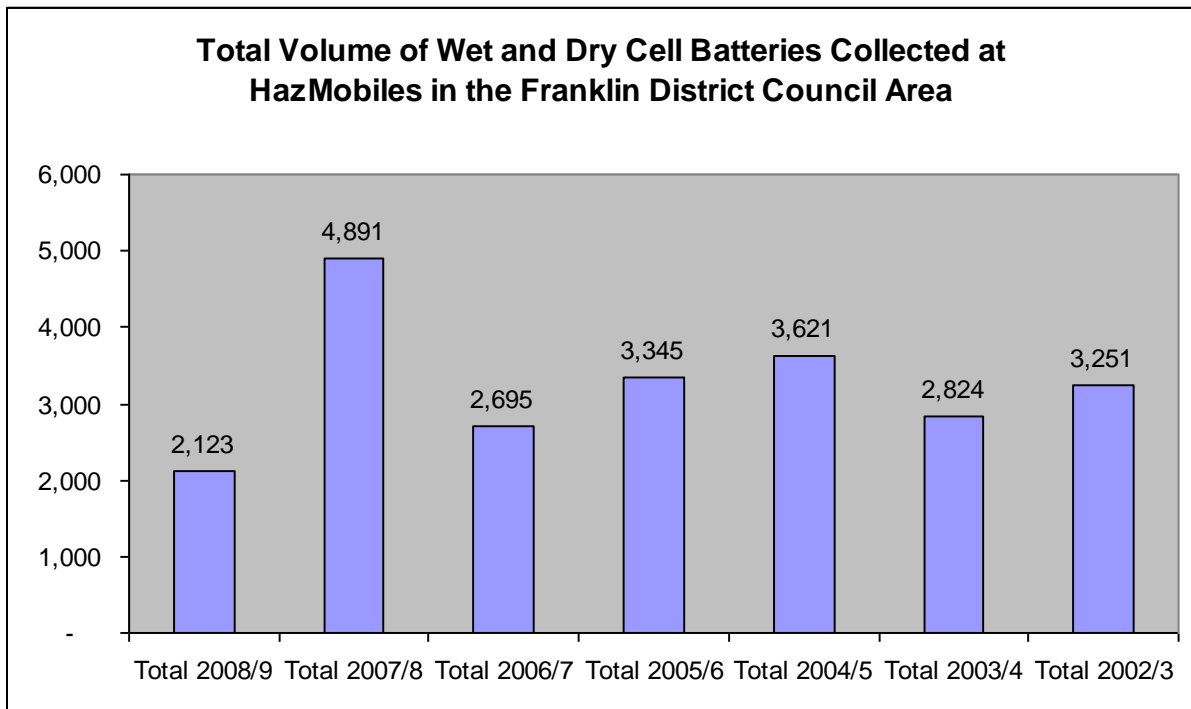
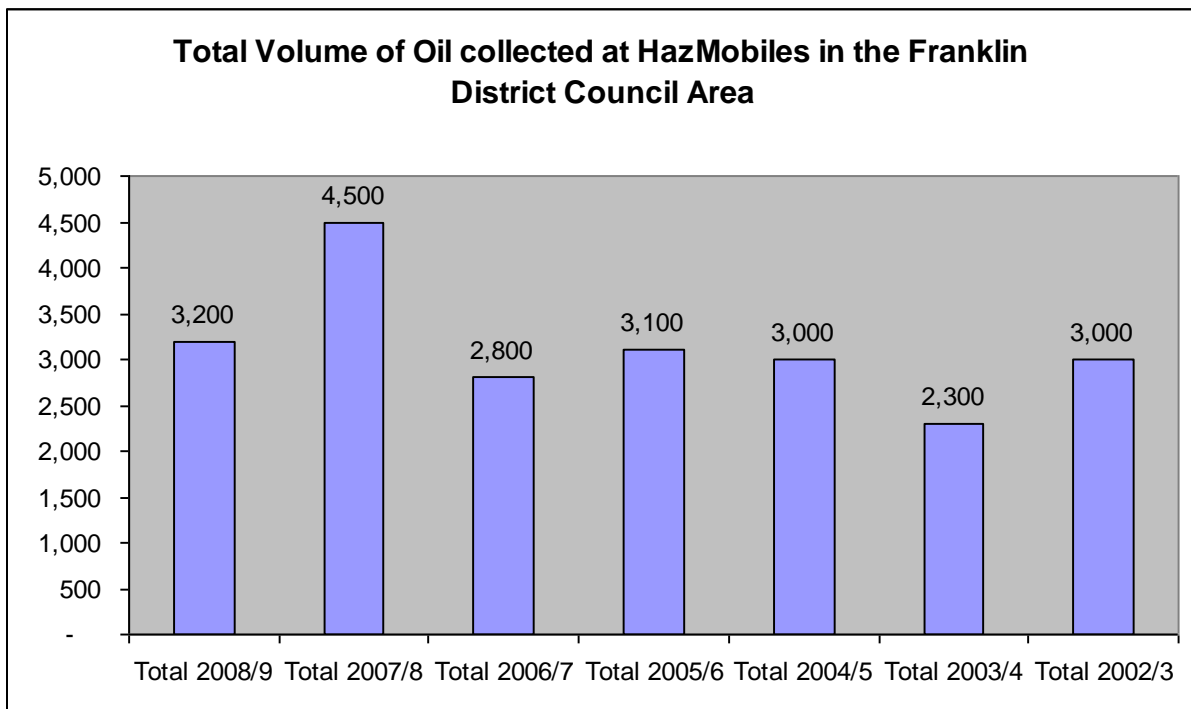


Figure 40d



# 8 Appendix 4:

AUCKLAND REGION  
AGRICULTURAL CHEMICAL COLLECTION 2000 – 2008

QUANTITIES OF  
LEGACY vs CURRENT CHEMICALS

October 2008

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## 1. INTRODUCTION

This report is a preliminary analysis of raw data detailing the quantities and types of chemicals and other substances collected by the Auckland Regional Council (ARC) in its Agricultural Chemical (AgChem) Collections since 2000. It has been undertaken to obtain an estimate of how many of the chemicals collected are historic (or legacy) chemicals, and how many are still in current use, to allow the ARC to determine future management options for this type of waste.

## 2. METHODOLOGY

The data available consists of lists of chemicals and other substances collected during the regular AgChem collections that have been offered in rural parts of the Auckland region since October 2000. A typical example of data is shown below.

Ref no	UN no	Class	Product	Active Ingredient	Form	Type	Man	Vol	Cont	Fate
EM11/1	3155	6	mosskiller	PCP	L	H	S	5.0	S	I
EM11/2	3018	6	vapona	dichlorvos	L	I	S	0.4	S	I
EM11/3	2902	6	landmark		L	SA	FCC	0.5	P	R
EM11/4		6	jeyes fluid		L	DF		0.4	S	L
DB11/3	2757	6	pirimor	pirimicarb	S	I	ICI	1.2	P	I

The relevant information (as highlighted) is product name, active ingredient and volume, and on this basis the chemical lists have been coded as follows.

CURRENT	Any product registered under the Agricultural Compounds and Veterinary Medicines Act (ACVM) as on 8 January 2008 (the most recent database). There are approximately 3,000 compounds that have been registered after that date; this database has not been checked due to the low likelihood of any such recently registered substances having been collected. Chemicals that did not have a specific product name but where the active ingredient is still in use have also been classified as CURRENT.
NOT REGISTERED	Any product not listed on the ACVM database, but where the active ingredient is listed on that database.
LEGACY	Any chemical where neither the product name nor the active ingredient is listed on the ACVM database.
LEGACY - POP	Chemicals that are named by the Stockholm Convention (including PCP), specifically Lindane, Chlordane, DDT, Dieldrin, Aldrin and PCP.
MISCELLANEOUS	This category includes substances that are not strictly agricultural chemicals but which are used in a rural context, and includes but is not limited to, surfactants, trace elements, fertiliser, rinse water, veterinary medicines, growth hormones, cleaners and detergents (such as formaldehyde, acids, caustic soda and borax) and marker dyes.
UNKNOWN	These are substances where no active ingredient is known, or that were unlabelled or otherwise unidentifiable.
OTHER WASTE	Materials that are not part of the AgChem collection but have been taken as a service to the customer. This includes waste oil, paint, pool chlorine, glues, bitumen, linseed oil etc.
UNDETERMINED	Substances that could not be classified due to missing information about active ingredient/s, or mis-spelling of product name or similar.

Data is presented on an annual basis (financial years), and is for the AgChem collection only (i.e. do not include quantities that have been collected through rural drop-off facilities or the HazMobile collections). An exception has been made for 2007/2008, where two data sets are presented – one for the AgChem collection only, showing that quantities collected have decreased by about 50%, and another (labelled 2007-2008 All) that includes wastes removed from drop-off facilities and accepted at the HazMobile.

It is important to note that this analysis is preliminary only and that wrong codings for current and legacy chemicals are possible. Although every effort has been made to be as accurate as possible, approximately 20-25% of the chemicals listed would have required further research to code them accurately, and due to time constraints this was not possible. However, a broad overview of the nature of chemicals collected over the 8-year period the ARC AgChem collection has been in place is still useful, even without complete accuracy of coding.

### 3. RESULTS AND ANALYSIS

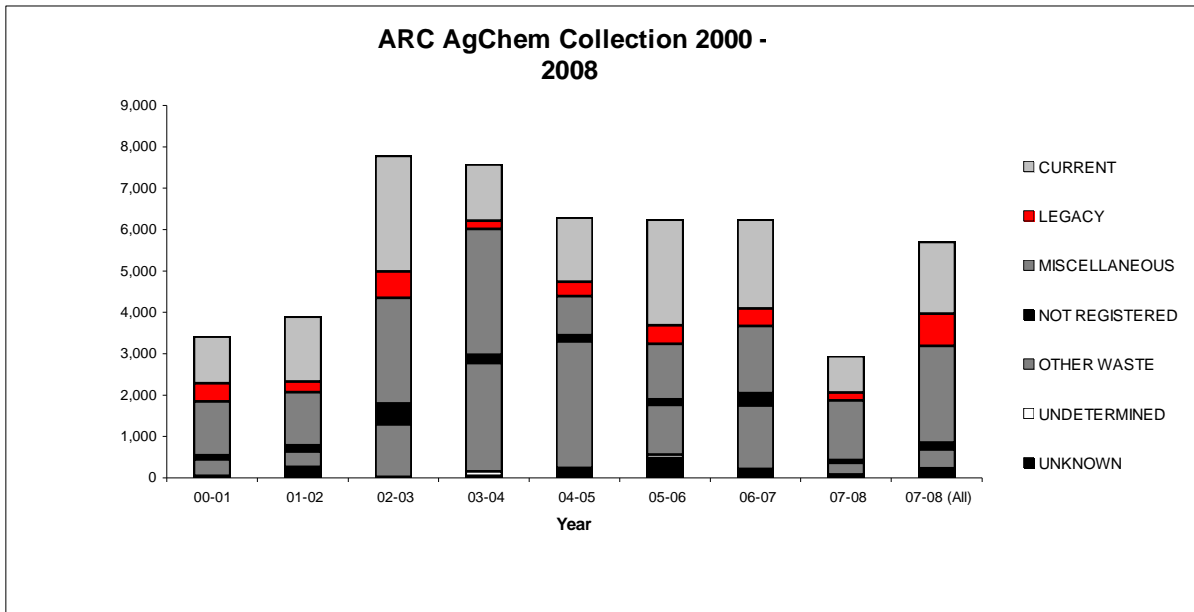
A summary of the quantities and relative percentages of the materials collected is shown in Table 1.

**Table 1:** Waste types and quantities collected through ARC AgChem Collections 2000 - 2008 (in kg)

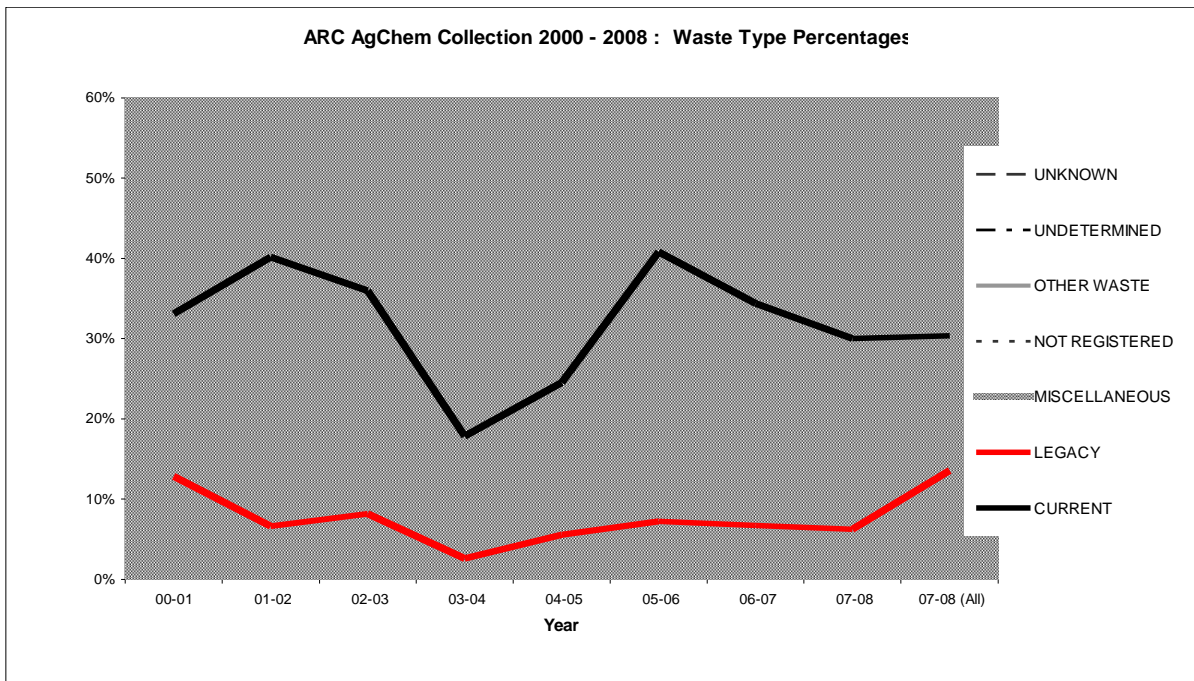
	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	07-08 (All)
Unknown	1	240	12	49	200	482	195	80	229
	0%	6%	0%	1%	3%	8%	3%	3%	4%
Undetermined	48	29	14	107	43	77	18	0.5	5.4
	1%	1%	0%	1%	1%	1%	0%	0%	0%
Other waste	402	371	1,269	2,621	3,052	1,203	1,537	283	453
	12%	10%	16%	35%	49%	19%	25%	10%	8%
Not registered	100	149	503	197	150	137	299	71	166
	3%	4%	6%	3%	2%	2%	5%	2%	3%
Miscellaneous	1,295	1,284	2,551	3,045	947	1,342	1,626	1,442	2,339
	38%	33%	33%	40%	15%	22%	26%	49%	41%
Legacy-Total	438	258	637	199	350	451	419	184	775
	13%	7%	8%	3%	6%	7%	7%	6%	14%
Legacy-POP	101	6	153	25	35	66	95	4.1	41
Legacy-Other	337	252	483	173	315	385	324	181	733
Current	1,131	1,564	2,800	1,354	1,544	2,546	2,145	884	1,732
	33%	40%	36%	18%	25%	41%	34%	30%	30%
TOTAL	3,414	3,896	7,785	7,572	6,287	6,238	6,239	2,945	5,699

Figure 1 shows the relative quantities of the different waste types collected, with legacy chemicals highlighted in red. Overall, quantities are declining, although the legacy component does not appear to decrease (Figure 2).

**Figure 1:** Quantities of all waste types (kg)



**Figure 2:** Percentages of all waste types



In order to 'clean-up' the data and obtain a clearer picture, the category of 'Other Waste' (which has contributed 22% of the material collected on average) was removed as it is not relevant to this analysis (Table 2).

**Table 2:** Agricultural chemicals and related materials collected through ARC AgChem Collections 2000 - 2008 (in kg)

	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08
Unknown	1 0%	240 7%	12 0%	49 1%	200 6%	482 10%	195 4%	80 3%
Undetermined	48 2%	29 1%	14 0%	107 2%	43 1%	77 2%	18 0%	0.5 0%
Unregistered	100 3%	149 4%	503 8%	197 4%	150 5%	137 3%	299 6%	71 3%
Miscellaneous	1,295 43%	1,284 36%	2,551 39%	3,045 62%	947 29%	1,342 27%	1,626 35%	1,442 54%
Legacy	438 15%	258 7%	637 10%	199 4%	350 11%	451 9%	419 9%	185 7%
Current	1,131 38%	1,564 44%	2,800 43%	1,354 27%	1,544 48%	2,546 51%	2,145 46%	884 33%
TOTAL	3,012	3,524	6,516	4,951	3,234	5,035	4,702	2,662



Figure 3 shows the composition of collected materials that remain, as an average over the eight years of the collection. This shows that 41% of the substances collected are not in fact agricultural chemicals but other products routinely used in a rural context, such as detergents, surfactants, fertiliser, veterinary medicines and similar materials. Around 5% were unknown or unidentifiable from the description in the database, and 53%, on average, of the material collected were actual pesticides, herbicides and vertebrate poisons.

**Figure 3:** Average percentage of agricultural chemicals and related materials, over eight years of AgChem Collections

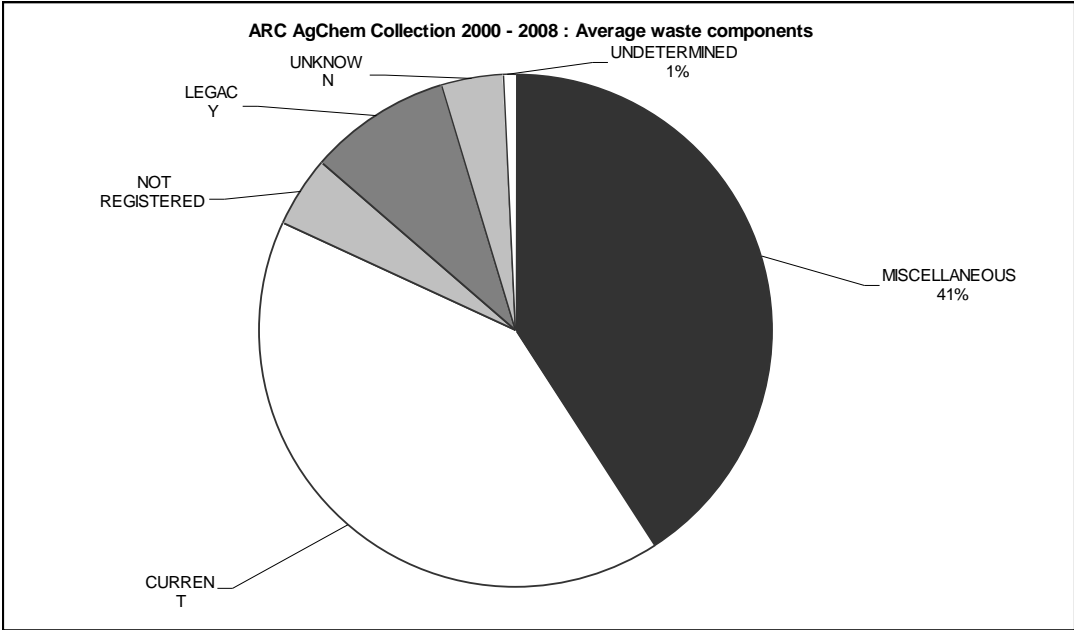
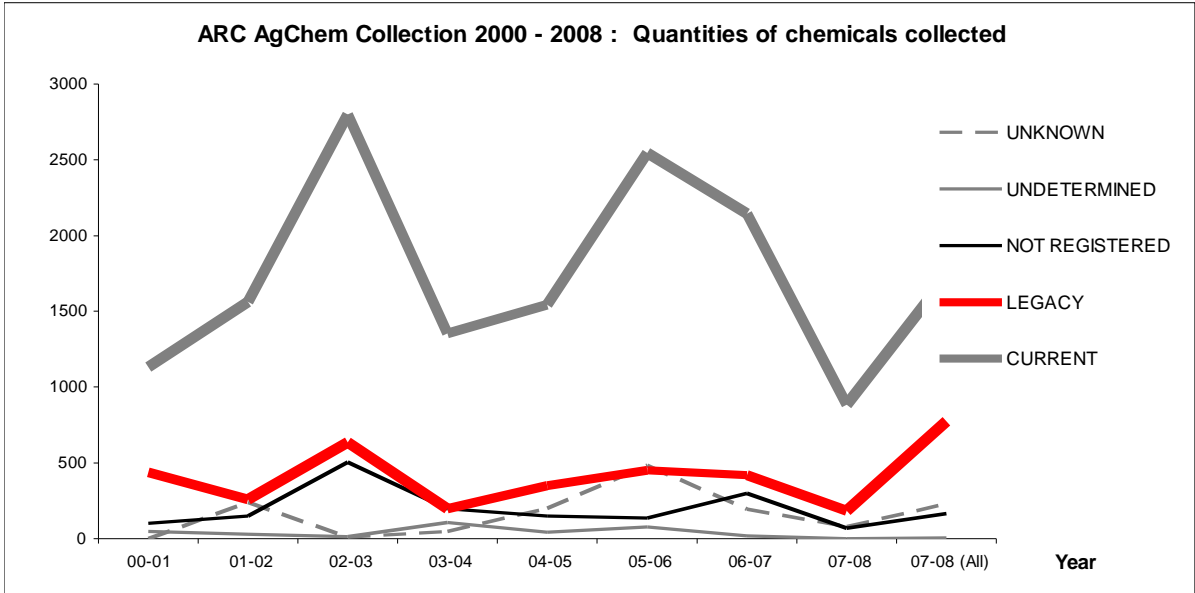


Figure 4 and Table 3 show the quantities of agricultural chemicals collected, and Figure 5 presents the relative percentages of the three main groupings of chemicals, namely current and non-registered chemicals, legacy chemicals and those that were unknown or that could not be determined.

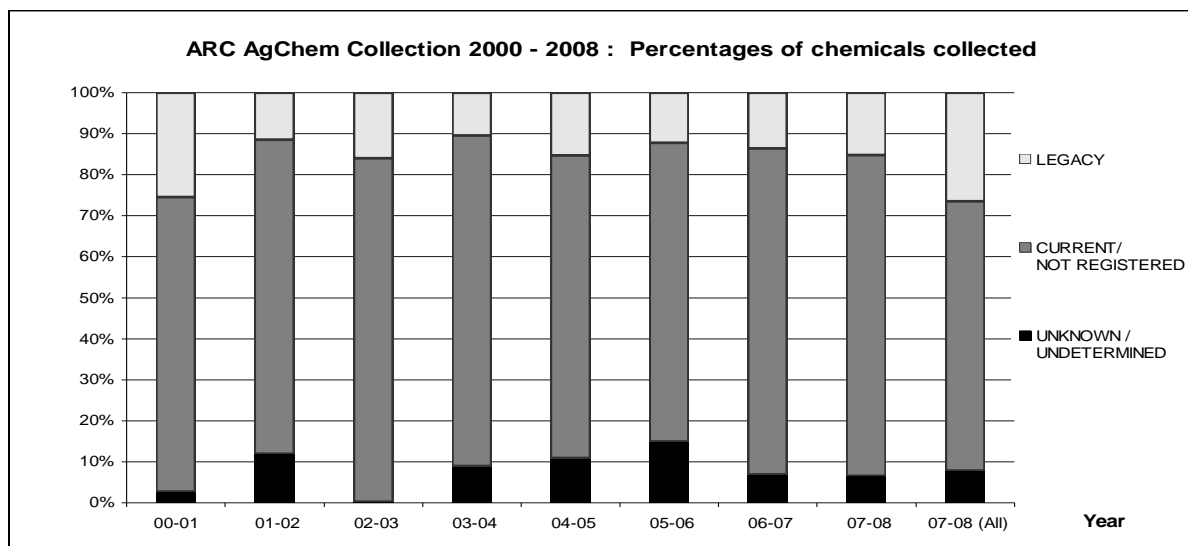
**Figure 4:** Quantities of agricultural chemicals collected (in kg)



**Table 3:** Quantities of agricultural chemicals collected (in kg)

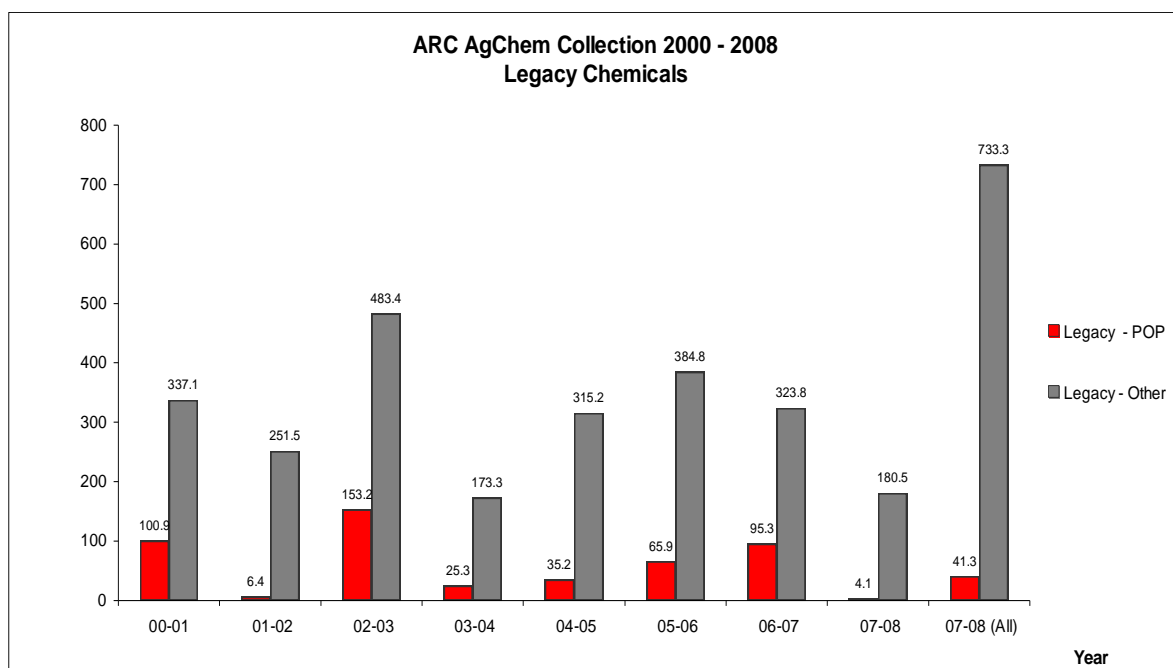
	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	07-08 (All)
Unknown	1	240	12	49	200	482	195	80	229
	0%	11%	0%	3%	9%	13%	6%	7%	8%
Undetermined	48	29	14	107	43	77	18	0.5	5
	3%	1%	0%	6%	2%	2%	1%	0%	0%
Not registered	100	149	503	197	150	137	299	71	166
	6%	7%	13%	10%	7%	4%	10%	6%	6%
Legacy	438	258	637	199	350	451	419	185	775
	26%	12%	16%	10%	15%	12%	14%	15%	27%
Current	1,131	1,564	2,800	1,354	1,544	2,546	2,145	884	1,732
	66%	70%	71%	71%	67%	69%	70%	72%	60%
TOTAL	1,718	2,240	3,965	1,906	2,287	3,693	3,076	1,220	2,907

**Figure 5:** Relative percentages of agricultural chemicals collected



Finally, Figure 6 shows the amount of legacy chemicals that are persistent organic pollutants (POPs) as defined by the Stockholm Convention, as opposed to other legacy chemicals that are no longer manufactured, such as arsenic compounds. On average, POPs account for 14% of the collected legacy chemicals, ranging from as little as 2% in 2001/2002 and 2007/2008 to as much as 24% in 2002/2003.

Figure 6: POPs and other legacy chemicals



#### 4. CONCLUSION

The total collected quantity of agricultural chemicals and related materials such as veterinary medicines, detergents and fertilisers appears to be declining. Quantities declined by almost half in 2007/2008, and had been decreasing steadily since 2002/2003 (Figure 7).

41% (on average) of the material collected can be classified as 'Miscellaneous', meaning it consists of fertilisers, detergent, surfactants, veterinary medicines and other materials commonly associated with rural activities. In two of the collection years, this component was over 50%.

The percentage of chemicals that can be classified as legacy chemicals appears to remain more or less steady. On average, it is 9% of the amount of agricultural compounds collected, or 15% if miscellaneous substances are not considered. There has been a sharp decline of legacy chemicals collected in 2007/2008, but this is closely correlated with the overall drop in chemical quantities. The percentage of 7% in 2007/2008 was only slightly below the average of 9%.

Of the chemicals classified as legacy, an average of 61 kg or 14% (ranging from 2% to 23% over the eight years) are POPs. The remainder are chemicals that are no longer manufactured or are otherwise banned or withdrawn.

**Figure 7:** Total quantity of agricultural chemicals and related materials (excludes other waste) collected through AgChem Collections between 2000 and 2008

