

Energy Resources and Waste

Waitakere City is unusual in importing almost all its energy, and most of its other resources, with the one exception of water.

Since 1996 when the local landfill site closed, all residual waste from Waitakere City is sent to the Redvale landfill on the North Shore.

Still, Waitakere City’s eco city approach involves taking responsibility for the resources we use and the waste we produce. This chapter collects together the information available on Waitakere City’s resources and waste and outlines the following issues:

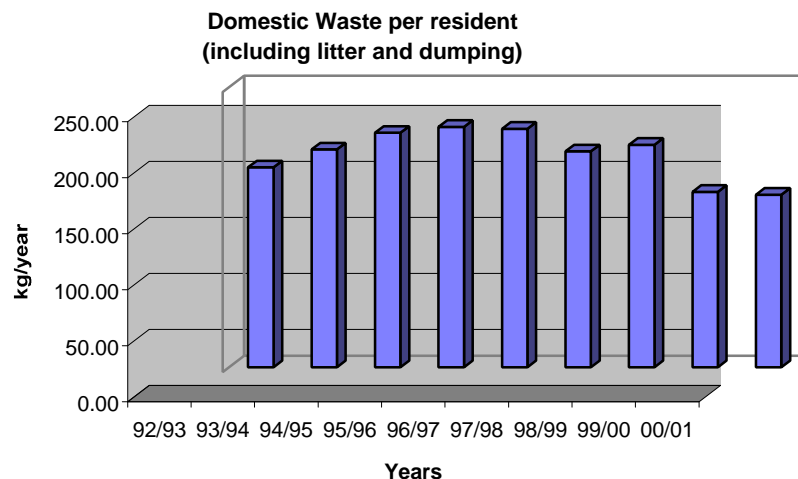
1. ENERGY USE
2. RESOURCES AVAILABLE
3. WASTE

KEY INDICATOR

Amount per resident of litter, dumping and domestic waste (including inorganic waste but excluding kerbside recycling) generated from Waitakere City and deposited at the Transfer Station – 154.0 kg per person in 2000/01 (156.6 kg per person in 1999/2000).

The impact of user pays (introduced in July 1999) is apparent in the very low figures for 2000 and 2001. However, the downward trend in waste per resident began in 1997 (see the graph opposite).

Updated as at 1 September 2002
 Updates @ www.waitakere.govt.nz



Source: Waitakere City Transfer Station August 2001.

Waste per household in Waitakere City compares very well with the other Cities in the region, in particular Auckland City where residents generate over 900 kg of waste per household per year compared with 450 kg per household (150 kg per resident, excluding illegal dumping) in Waitakere City.

1. ENERGY USE

Use of energy is a key national and international issue, but very little information is available about local differences in energy use. In the Auckland Region the main uses of energy are for households, transport and storage, basic metal products and the wholesale and retail trade. Of the energy used by households, around half is used for transport (petrol and diesel for cars) and the remainder is used in the home for hot water heating, cooking, space heating and lighting.

■■■■■■■■■■

■■

Apart from a very small proportion of energy which is generated from wind or solar power, all energy used in Waitakere City is produced outside the City.

■■■■■■■■■■

In the 2001 census, 47% of homes in Waitakere City were heated by electricity, 25% by wood, and 20% by bottled gas. Coal, mains gas and other energy sources account for the remainder of homes. Over the last 10 years there was a 20% increase in heating from bottled gas, a 9% decrease in heating by electricity and a 5% decrease in wood heating. Since 1991, trends in building permits show that new homes are less likely to have fireplaces, which is consistent with the drop in wood fires as a means of home heating.

Apart from a very small proportion of energy that is generated from wind or solar power, all energy used in Waitakere City is produced outside the City. This includes electricity – mainly from hydroelectric generation but also from coal and diesel-powered generation plants – imported petrol and diesel, and natural gas from New Zealand gas fields.

Use of petrol and diesel in cars has significant local environmental impacts, and also contributes to global warming, as documented in the Air chapter. Car ownership and car use are increasing, so the overall trend in Waitakere City is likely to be the same as the trend for the rest of New Zealand, with increased energy use overall and a growing proportion of energy use being in the transport sector.

On the positive side, there has been a trend towards building smaller houses developed closer to shops, places of work and community areas. Residents of New Lynn’s “medium density housing” are more likely to walk or to use bus or rail for their transport than other City residents. The “terraced” style houses are also more efficient to heat as they have fewer outside walls.

2. RESOURCES

- **WATER RESOURCES**

The City is bounded on three sides by water – the wild beaches of the Tasman coast to the west, and the estuaries, mangroves, beaches and tidal flats of the Manukau and Waitemata Harbours to the south and east.

The most significant resource in the Waitakere area is water, with a third of the Auckland Region's water supplied from five dams in the Waitakere Ranges (located on the Waitakere River, the Huia Stream and three on the Nihotupu Stream). The substantial watershed of the Waitakere Ranges has provided a water supply to the Auckland region since 1907.

The dams have significantly altered the landscape of the Waitakere Ranges. The Te Henga wetland developed in what was a swift flowing river valley. The Nihotupu stream dam located close to the coast blocks the migration of fish. However, the sustainable supply of high quality water is vital to the City and to the region.

Waitakere City is fortunate in that it still retains a large proportion (over 800 kilometres) of its streams, even in the urban area. In contrast, in some of the other cities of the region, many of the urban streams have been piped underground – the hidden streams. There are still significant lengths of stream piped in some suburbs, such as New Lynn, Massey and West Harbour (refer to the map in the chapter on State of our Water).

■■■■■■■■■■

••

The most significant resource in the Waitakere area is water, with a third of the Auckland Region's water supplied from dams in the Waitakere Ranges.

■■■■■■■■■■

- **TIMBER, GUM AND CLAY**

The early European history of Waitakere City was dominated by the timber industry, with gum digging and brick making also important. These industries are documented in the Heritage chapter of this report. None of these resources are extracted today.

- **ROADING METAL**

A small quarry on Te Henga Rd in the north of the City supplies metal for roading and other purposes to Waitakere City Council and its other customers. The quarry has been operating since at least the 1950s and its resource consent expires in 2020.

- **OTHER RESOURCES**

Apart from water, Waitakere City is not self-sufficient in any major resource. The City's main export is workers, who travel to jobs elsewhere in the Auckland Region. The city's economic future is not expected to depend on resource extraction, but on tourism, filmmaking and other activities that benefit from the natural beauty of the City and from its strong environmental track record. The Waitakere Ranges, the coast and the bushclad streams of the City are Taonga or treasures, rather than resources.

3. WASTE

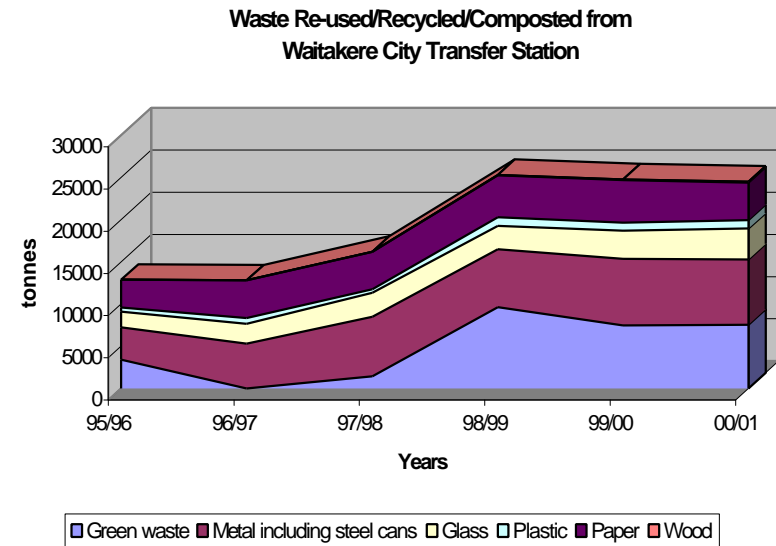
Households, businesses and other organisations in Waitakere City generate waste. The Council has a strong role in planning for the City's solid waste management and in arranging for the collection of household waste and, in some cases, commercial waste.

Waitakere was among the first cities in the world to adopt a "reduce, re-use, recycle" approach to waste management. Composting of green waste at the Council's transfer station began in 1991, and kerbside recycling was introduced in July 1992. Following a brief experiment with contracting out the solid waste service, the Council has chosen to directly control the City's Transfer Station, where most of the City's waste is brought for processing. A substantial proportion of this waste (25.0% in 2000/01) is recycled or composted, with the remainder being trucked to landfill outside the City.

“
 Waitakere was among the
 first cities in the world to
 adopt a 'reduce, re-use,
 recycle' approach to waste
 management.”

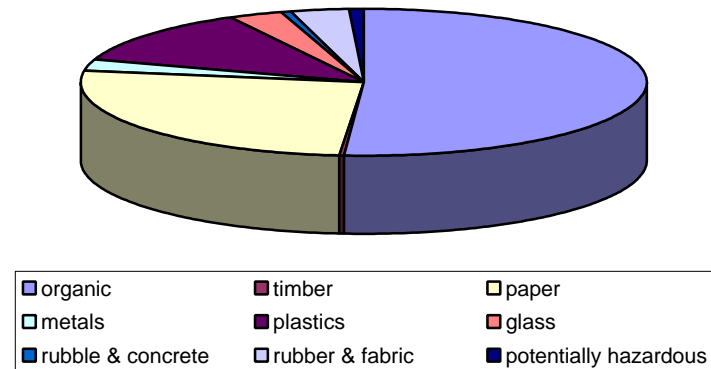
The main types of waste that do not go to landfill are metal (both from the recycling collections and metal recovered from the tipping floor) and green waste, which is separately collected at the gate and composted.

Further improvement is expected in the proportion of green waste that is composted once the City's new composting plant is installed at the Transfer Station. The Council will also explore the option of kerbside collection of organic waste. This has the potential to dramatically reduce the amount of waste disposed of to landfill, as organic material makes up over half of all domestic waste.



Source: Waitakere City Transfer Station August 2001.

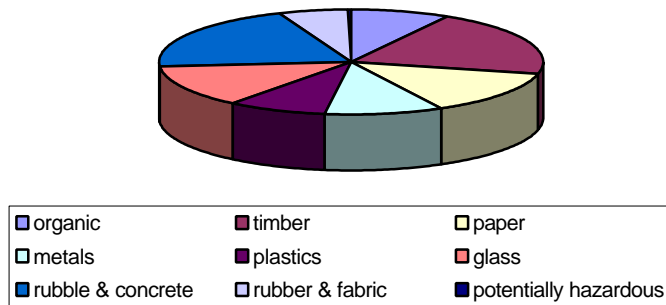
Composition of Domestic Rubbish Bags Waitakere City 2000



Source: Waitakere City Transfer Station August 2000.

Commercial waste is very different in composition, with organic material making up only 10% of the commercial waste stream.

Composition of Commercial Waste brought to the Transfer Station



Source: Waitakere City Transfer Station August 2000.

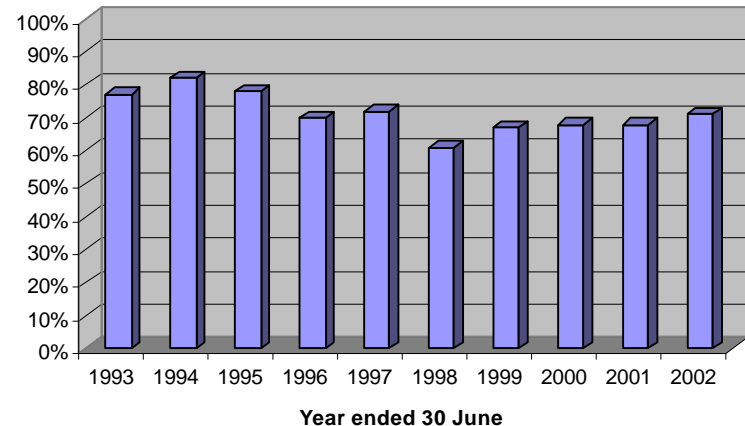
Waste recycling is only one aspect of reducing waste to landfill. Other initiatives to reduce waste generation, or to encourage waste reuse, are also significant. For example, the Council's partnership with a local food waste collector has resulted in an estimated 500 tonnes/year being diverted from landfill, of which 200 tonnes/year is due to Cleaner Production and Clean Retail education and referrals.

In July 1999, Waitakere City introduced a "user pays" system for solid waste, which has resulted in substantial decreases in the amount of refuse the Council pays to collect and process. From a peak in 1998/99, the first year of user charges (1999/2000) saw a reduction in Council collected waste from residential areas of 25% and from commercial areas of 69%.

Interestingly, the introduction of user pays coincided with a slight increase in resident satisfaction with the solid waste service.

Updated as at 1 September 2002
 Updates @ www.waitakere.govt.nz

Resident Satisfaction with Council's Solid Waste Management



Source: Postal surveys of a sample of residents, with a margin of error of +/- 4%.

● **HAZARDOUS WASTE**

Hazardous waste refers to substances that can't be recycled and need to be safely disposed of, separate from the main waste stream. Specific hazardous items include paint, herbicides and other garden products, some cleaning products and a wide range of industrial chemicals.

The Council is developing a hazardous substances database that identifies the quantities and method of reuse and disposal in relation to businesses in Waitakere City.

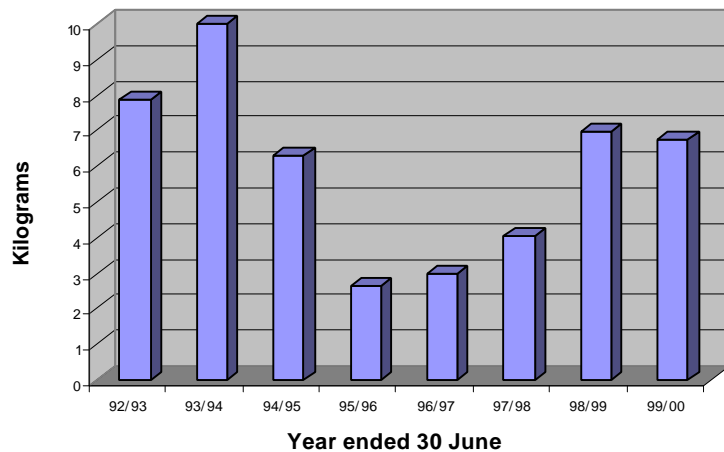
A sample of domestic rubbish bags in 2000 found that around 0.7% of household waste collected in domestic rubbish bags is potentially hazardous. This means that up to 150 tonnes per year of hazardous waste could be going directly to landfill, instead of being separately disposed of. A hazardous waste collection service operates at the Council's Transfer Station, and is free to residents. This service collected 9,503 kg of waste in 1999/2000 and arranged for its safe disposal.

• **LITTER**

Litter, illegal dumping, and abandoned vehicles are all waste that has not been properly disposed of. Education about correct ways to dispose of waste, enforcement of litter and dumping bylaws, and providing alternative methods of waste disposal that people can use are all important in reducing the amount of litter and dumping that occurs.

“ the amount of illegal dumping actually decreased slightly with the introduction of user pays in July 1999.”

Litter & illegal dumping per resident, Waitakere City

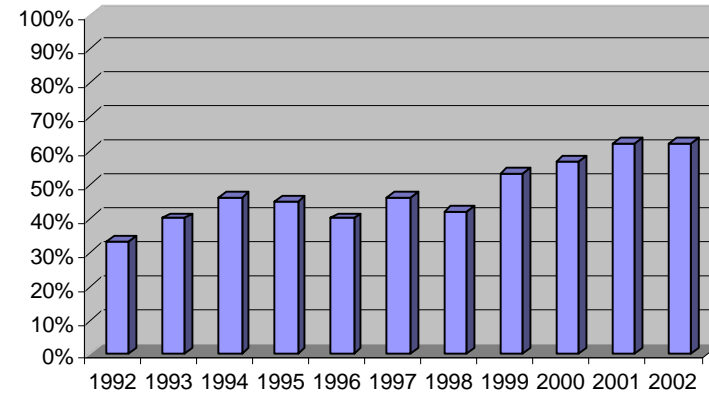


Source: Waitakere City Transfer Station August 2000.

When user pays rubbish collection was introduced, extra enforcement officers had the task of ensuring that people did not escape the charge by simply dumping their waste. However this does not seem to have been a significant issue for people as the amount of illegal dumping actually decreased slightly with the introduction of user pays in July 1999. This is reinforced by residents' surveys, which show that overall satisfaction with litter and illegal dumping services increased after the introduction of user pays.

Updated as at 1 September 2002
Updates @ www.waitakere.govt.nz

Resident Satisfaction with Council's Litter Services



Source: Postal surveys of a sample of residents, with a margin of error of +/- 4%.

The Council encourages community responsibility for litter, and has assisted in 135 community cleanups in 2000/01 (110 in 1999/2000). There are also 135 ongoing projects where businesses and schools work in partnership with the Council in litter abatement practices.

Dumping of used cars is an increasing problem. With cheap imported vehicles meaning that old cars are worth little or nothing, vehicles are being left where they fall by owners who do not want to meet the costs of disposing of them. This is an ongoing problem, and the Council believes that Central Government should bear the costs of disposing of these vehicles.

Table 1: Number of abandoned vehicles removed, 1996-2000

1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
626	901	922	1,212	781

Source: Waitakere City Council records.

E n e r g y , R e s o u r c e s & W a s t e

CASE STUDY

RECYCLING OF GREEN WASTE

[From an article in NZ Local Government Magazine, July 2001]

Waste minimisation has taken a significant step forward with the Waitakere City Council commissioning a world-first composting facility to turn its mountains of green waste into environmentally friendly organic compost.

The new facility, called a Vertical Composting Unit (VCU), has been installed at the Council's Transfer Station in Henderson. It uses a unique, fully enclosed system, which is capable every day of processing 30 tonnes of green waste into organic compost.

At the final commissioning of the facility, Mayor Bob Harvey spelled out the need for the facility: "124,000 tonnes of waste comes into the Waitakere Waste Transfer Station each year, with about 90,000 tonnes going to landfill." The VCU system will also save the Council \$100,000 per annum in disposal costs.

... capable every day of
processing 30 tonnes of green
waste into organic
compost.

Of the three systems investigated by the Council, the VCU system was selected and Perry Waste Services were awarded a 15-year composting contract to install, own and operate the VCU system. By the end of 2002 it is hoped that food waste can be commingled and processed with the green waste.



The VCU's simplicity is a significant advantage. Where other systems rely on heavily engineered designs to provide the necessary composting functions of pathogen destruction, oxygen supply, agitation and odour and leachate control, the VCU harnesses natural forces to do the work, resulting in very low energy use.

Presently the compost is being blended with sand to produce a mix for golf greens. It is believed that by expanding the commercial viability of the end product, this facility should become a flagship for showing the way to making waste minimisation a financially sustainable reality.

WHAT THE COUNCIL IS DOING:

- Waste minimisation programmes.
- Cleaner Production programmes and waste audits for local businesses.
- Recovery of resources at the Transfer Station including metals, paper and cardboard, and hardfill.
- Recovery of metals from car bodies at the Transfer Station.
- Learning Centre at the Transfer Station.
- Education and Partnerships e.g. Keep Waitakere Beautiful, working with schools and businesses.
- Emptying litter baskets in main shopping centres.
- Graffiti control.
- Weekly kerbside collection of domestic refuse.
- Collection of inorganic refuse.
- Collection of non-trade waste from industrial and commercial areas.
- Recycling and composting facilities at the Transfer Station.
- Managing closed balefill and landfill sites.
- Disposal of hazardous waste deposited at the Transfer Station.
- On-demand response to litter, refuse, and graffiti problems.
- Whare Ora Ecofit project – energy efficiency advice e.g. wrapping water cylinders, energy efficient bulbs.
- Homes for the elderly.
- Eco friendly home.

“
Recovery of resources at
the Transfer Station including
metals, paper and cardboard,
and hardfill.”

WHAT YOU CAN DO:

At home

- Start a compost for garden and food waste.
- Install energy efficient light bulbs.
- Gather paper, cans, glass and plastic for recycling.
- Turn of the tap when brushing your teeth.
- Turn off lights and appliances when not being used.

“
Turn off the tap when
brushing your teeth; separate
paper, cans, glass & plastic
for recycling.”

At work

- Turn off computer screens and lights during meetings and at night.
- Reuse scrap paper for notepaper.
- Bring your own mug into work to avoid using disposable cups.
- Carpool with co-workers to and from work or use public transport.
- Separate paper, cans, glass and plastic for recycling.