Draft
Waste Management Plan for Waitakere City

Introduction

Waitakere City has a population of 168,750 (2001 census) comprising 56,172 households. Each year the city's Refuse and Recycling Transfer Station receives around 120,000 tonnes of waste with about 90,000 going to landfill. The Council provides a weekly household collection service for waste and recyclables, a yearly inorganic collection, and commercial waste and litter removal in the City's town and local centres.

Waitakere was amongst the first cities to adopt the 5Rs approach to waste management (reduce, re-use, recycle, recover and residual disposal). Composting of green waste at the Council's transfer station began in 1991, kerbside recycling was introduced in July 1992 and extended to "household " business waste in 1999. Council adopted its first solid waste plan in 1995. This was reviewed in 1999, principally to ensure a framework for the adoption of user pays for bag collection. The decision was made to retain the transfer station as a strategic waste management tool in 1999 and since that time considerable progress has been made in extending the range of waste recovered at the station. Waitakere continues to develop an innovative waste diversion and cleaner production programme.

During 2002 the Council undertook a waste audit throughout the whole organisation and is preparing in-house changes to minimise waste further. These will be addressed through the development of the Corporate Sustainability Strategy in 2003/4. This, and the management of organic wastes is a key focus for the next few years.

Waitakere City Council's Solid Waste Management Plan 1999 became due for review in June 2002. In March 2002, the New Zealand Waste Strategy was released and issued guidelines for New Zealand to move towards zero waste to landfill. The strategy now requires waste plans prepared by local government to address liquid and gaseous as well as solid waste.

Waitakere City Council collects wastewater via its reticulated wastewater network and holds a contract with Watercare Services Limited to pump wastewater from the network via the Western Interceptor to the Wastewater Treatment Plant at Mangere.

The Council also operates a cremator at Waikumete Cemetery, which discharges gaseous waste to air, and a series of Vertical Composting Units at the transfer station, which discharge carbon dioxide and water vapour.

Under the Local Government Act 2002, a local authority should ensure prudent stewardship and the efficient and effective use of its resources in the interests of its district or region. In taking a sustainable development approach, a local authority should take into account:

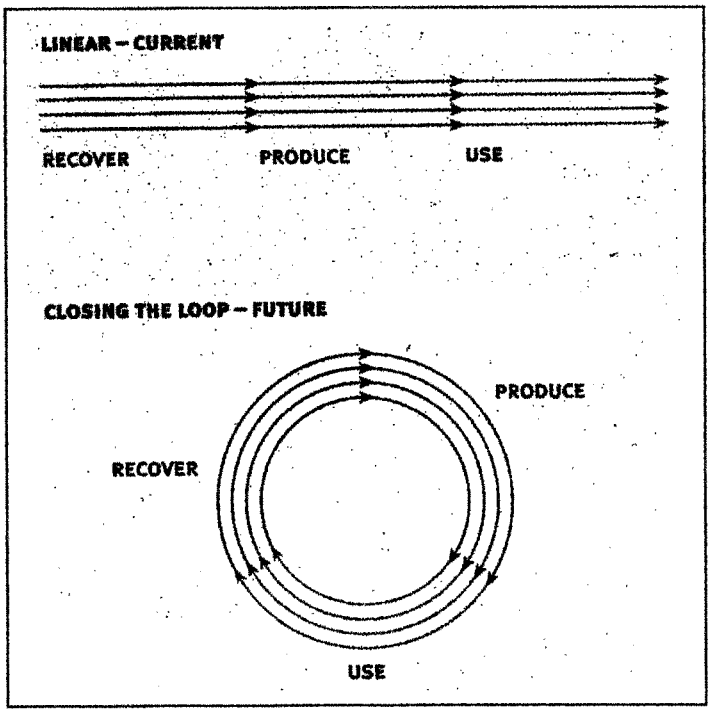
- The social, economic and cultural well-being of people and communities; and
- The need to maintain and enhance the quality of the environment; and

- The reasonably foreseeable needs of future generations.

It is under these general principles that Council's zero waste strategic platform has been adopted. Although much analysis and review of waste pricing, cost recovery and Council's funding policy is needed before any major advance in waste reduction can be made.

Waitakere City Council adopted a goal of "zero waste by 2020" at its meeting of 12 November 2002. The concept of zero waste is "closing the loop" on resource use and waste generation. Figure 1 shows two approaches to resource use. The current linear approach considers waste a natural part of production and consumption. The cyclical approach no longer accepts waste as a normal part of doing business.

Figure 1. Linear versus cyclical approaches to resource use (from the NZ Waste Strategy).



Legislative Context

Under the Local Government Act 1974, as amended in 1996, the City adopted its Solid Waste Management Plan in 1999. The overall objective in the Plan was to promote effective and efficient waste management and to minimise the quantity and toxicity of solid waste in Waitakere City.

This plan is now under review to meet the requirements of The New Zealand Waste Strategy released in March 2002. A waste plan under the New Zealand Waste Strategy is now required to take account of liquid and gaseous as well solid wastes.

The vision of this Strategy, which is towards zero waste and a sustainable New Zealand, requires us all to rethink our view of wastes as resources to be re-used and not discarded. It sets a series of targets for the government and local authorities to

work towards, and requires the councils to report regularly on progress towards these targets.

This change in the way we look at "waste" will require commitment from our residents, our schools, our businesses and manufacturers as well as the Council to meet this challenge. By working together as a community to reuse or recycle, and so eliminate waste, we can create a clean and healthy city. One that we can be proud of and that serves as a model to others.

Targets of the New Zealand Waste Strategy

The targets in the New Zealand Waste Strategy are set out under three priority areas:

Waste minimisation, with specific targets set for:

- Organic wastes
- Special wastes
- Construction and demolition wastes

Hazardous wastes, with specific targets set for:

- Contaminated sites
- Organochlorines
- Trade wastes

Waste disposal

Targets set are goal statements at this stage, rather than mandatory requirements. Of the twenty-eight targets, eighteen are under the direct responsibility of local authorities and two are shared responsibility with the regional council. The relevant targets and how well the Council is currently meeting these set down in Appendix 1.

Purpose of this Plan

This plan is a short-term operational guideline of how the Council intends to manage the waste it generates, collects and receives at its Refuse and Recycling Transfer Station over the next three to five years. However, a more comprehensive review is anticipated before the end of 2005 to fully review pricing and other tools to take the city towards zero waste to landfill.

Targets
Progress on the targets in this Waste Plan will be reported quantitatively in the Annual Report.

Vision

From the Zero Waste Strategic Platform the vision is:

Waitakere will be a clean and attractive city that turns all its waste into resources.

From the Greenprint 1994 Principles:
Council aims its actions to be:

- **Holistic:** recognising all stages of the production and consumption cycle.
- **Innovative:** smoothing the way for new technologies, and for new solutions to old problems.
- **Responsible:** setting an example in its own actions by being frugal in its use of resources and careful in its management of wastes.
- **Empowering:** encouraging people and businesses to take responsibility for their own actions and to find their own ways to conserve resources and avoid waste.
- **Responsive:** furthering its aims by advice and co-operation wherever possible.
- **Considered and Careful:** adopting a precautionary approach which gives high priority to avoiding environmental damage and to safeguarding natural resources, which are the birthright of future generations.

Key Measures:

- Residents are satisfied with Council's waste services and take an active part in clean-ups.
- All waste is turned to beneficial use.
- Domestic and inorganic waste, litter, and dumping in Waitakere City are reduced.
- There are no adverse environmental effects resulting from landfill or former waste sites.

This vision for waste is strongly supported by the strategic platforms for Three Waters, Sustainable Energy and Clean Air, Strong Innovative Economy and Sustainable Development. In particular, the goals

- Continue to reduce water use and wastewater generation.
- Strongly advocate for first-world vehicle and fuel standards.
- Continue to work with businesses to improve environmental quality.
- Support national sustainable development programmes of action for New Zealand and the region.

Goal

Over the next ten years Council will:

1. Support the New Zealand Waste Strategy by advocating a waste management structure for New Zealand that will provide incentives for waste minimization and disincentives for waste.

2. Work collaboratively and creatively towards a Zero Waste target

3. Use and encourage best practice and innovative methods of waste management and waste reduction using the 5 R's hierarchy – reduce, reuse, recycle, recover and, as a last resort, residual to landfill.

4. Identify and develop local business and employment opportunities based on better resource use.

5. Help strengthen and enhance the economic, social and environmental performance of the recycling and re-manufacturing industries.

6. Manage the environmental impacts of all closed landfills and other contaminated sites that are the Council's responsibility, and develop a framework for management of privately owned contaminated sites.

7. Endeavor to be a good role model in the management of its own properties and services

Waste Disposal

Disposal to landfill

Excluding kerbside recycling, the amount of domestic waste together with litter and dumping generated from Waitakere City and deposited at the transfer station equates to 154 kg per person or 450 kg per household. This figure has been a decreasing since the1998/99 peak of 218 kg per person. A substantial proportion of this waste (25% in 2000/01) is recycled or composted, with the remainder (75%) currently going to landfill outside the City.

The main types of waste by weight 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.

Target
By 2010, 30% or more waste entering the Refuse and Recycling Transfer Station (from within and outside the city) is diverted from landfill through recycling, recovery or composting.

Discharges to Air

The Council operated cremator at Waikumete Cemetery discharges directly to air under a general authorisation. However, a new cremator to be installed in 2003 will discharge through an afterburner set to meet new air quality standards to reduce contaminants to air. The discharge to air will require consent from the Auckland Regional Council.

Application has been lodged with the Auckland Regional Council for consent to discharge emissions from the composting process using kitchen waste mixed with green waste in the Vertical Composting Units located at the Refuse and Recycling Transfer Station.

Waste Minimisation

Education

The Waitakere Waste Minimisation Learning Centre, opened in April 1999, is located at the Recycling and Refuse Transfer Station. The Learning Centre's education programme is aimed at school children aged 8-12 years in the belief that the best way to change public attitudes about the solid waste problem is by educating school children. The programme caters for school groups and includes a tour of the transfer station so the students can see that much more can be done with waste than just burying it. Students are given hands on experience in making compost and worm farming. They are taught what can be recycled and what is made from the material they recycle.

Schools are also encouraged to take their own waste minimisation initiatives, particularly by installing worm farms to handle the organic waste that their school generates.

The Learning Centre is a valuable resource for demonstrating good practice and is sponsored by Onyx through paper recycling and by the Zero Waste NZ Trust. A total of 4750 visitors attended the Learning Centre during 2002, including some international/senior citizen groups.

Cleaner Production works closely with businesses and schools to assist them with resource efficiency, waste minimisation, recycling, and implementing safer environmental practices. Currently, one school in Waitakere City is also trialing the EnviroSchool programme, as part of a national programme.

Cleaner production is also piloting the nationally developed Sustainable Households Programme. This programme takes householders through fortnightly modules focusing on sustainability around the home and includes waste minimisation.

Council's partnership with Keep Waitakere Beautiful advocates and assists the community to raise awareness of the problem with litter and dumping.

Actions for waste education
Council will continue to educate school children on "hands-on" methods of composting and worm farming at the Waste Minimisation Learning Centre. The participating schools are also provided with free worm farms and worms to compost food waste at schools.

Provide a demonstration project in a new subdivision for good waste management practice and separation of waste streams at source.

Develop a Waste Communication Plan.

Extend the availability of the EnviroSchools and Sustainable Households education programmes.

Transfer Station

Waitakere City Council resolved in 1999 to continue to own and operate a major waste handling facility. By keeping control of the transfer station, the Council considers that it can play a more effective role in meeting its waste management objectives.

The transfer station is a facility that assists in the handling, separating and disposal of waste. Separate disposal points are provided at the transfer station for different materials such as green waste, metal, cleanfill and timber brought in separately. Mixed refuse brought to the transfer station is emptied on to the tipping floor. Transfer station workers then remove materials that can be reused or recycled. The remainder is transferred to bulk haulage vehicles, which then take the refuse to landfill.

Litter

Litter bins are installed throughout public areas within the city, and emptied on a daily basis in commercial centres. Litter is also removed from city streets (63.4 tonnes in 2001/2002).

Illegal Dumping and Abandoned Vehicles

116.2 tonnes of illegally dumped refuse was investigated and removed during 2001/2002 and 422 litter infringement notices were issued.

More than 700 abandoned vehicles are recovered from the city's streets each year.

Target
By June 2005,the volume per capita of litter, dumping and domestic waste (including inorganic waste but excluding kerbside recycling) generated from Waitakere City and deposited at the transfer station will be less than 151 kg per person, and less than 145 kg by 2010.

Household Refuse Collection

Council provides residents with an efficient and inexpensive refuse and recycling collection service. Independent contractors are licensed and engaged to collect household refuse and recyclables from the kerbside on a weekly basis.

Business "housekeeping" waste is collected, six days a week, in all the city's commercial areas. "Housekeeping" waste includes refuse from desk side rubbish bins and lunchrooms used by staff.

Residents, and businesses using this service for housekeeping waste, are required to purchase prepaid refuse bags and can reduce their waste costs by reducing the amount of refuse they produce and by recycling.

Actions for household refuse and recycling collection
Council will continue to provide a weekly refuse and recycling collection service to households.

Council will continue the six-day-a-week collection of "housekeeping" waste for businesses.

Council will license refuse and recycling collectors operating within Waitakere City and ensure a quality service to residents and ratepayers.

Council will set up a working party through Local Government New Zealand to support the New Zealand Waste Strategy and carry out any investigations necessary to support its implementation.

Recyclables

Householders and commercial premises within the city are provided with 45-litre recycling bins for setting out recyclables for collection on a weekly basis. The materials collected are glass bottles and jars, aluminium and tin cans, plastic containers (class 1 or 2) and paper and cardboard.

The kerbside recycling collection service is funded from the waste charge, which is included in the rates.

Actions for recyclables
Council will continue to provide a weekly refuse and recycling collection service to households and businesses, and will look at the introduction of 60 litre bins.

Council will liaise with contractors, businesses and other councils to secure markets for additional recyclable materials.

Targets
By June 2005, district plan rules will incorporate reference to space allocation for appropriate recycling facilities in multi-unit residential and commercial buildings, as is currently the case for medium density housing, to further encourage recycling.

Household Inorganic Waste

An annual inorganic collection is provided for all households within the city. Household inorganic waste refers to large household items such as furniture, appliances, bicycles etc. Much of the material collected is potentially reusable and a Resource Recovery Centre has been established at the transfer station to take advantage of this.

Actions for inorganic waste
Council will continue to collect household inorganic waste annually.

A Resource Recovery Centre for inorganic resources will continue to operate at the Transfer Station.

Development of additional bays at the transfer station for more efficient resource recovery.

Targets
By June 2004 the establishment of a reuse park within the city.

By June 2005 inorganic waste collected within the city is reduced to 29 kg or less per person as the reuse park begins to operate.

By June 2006 develop a second Resource Recovery Centre for schools where businesses can drop off "waste" that can be used by schools.

Organic Waste

Waitakere City Council accurately measures green waste quantities that are separated on arrival at the transfer station. Organic waste is also found in the household and commercial bag collection, domestic vehicles (cars and trailers) in rubbish and industrial/commercial waste. It is co-mingled with other rubbish, and therefore cannot be weighed separately.

A Solid Waste Analysis Protocol (SWAP) analysis using samples is done once per year to determine compositions of other waste streams. Kitchen food waste quantities in domestic bags, for example, are estimated using the results of the SWAP analysis. This method of measurement gives an adequate understanding of the quantities of other organic waste streams.

Organic material is the largest proportion of waste found in domestic rubbish bags entering the transfer station and is a significant landfill management issue when disposed of as it generates methane on breaking down. For that reason, it is considered a priority in terms of minimising waste. While there appears to be some level of composting of garden waste and food waste happening in the city, a large amount of organic waste is being disposed of by households into the domestic bag collection system. Council has been successful in recovering the garden waste arriving at the transfer station by trailer. However, it is almost impossible at this stage to extract organic waste from bags and approximately 10-11,000 tonnes per year is transferred directly to landfill from the transfer station.

Ten Vertical Composting Units (VCU) were installed at the transfer station in May 2001. The VCUs are capable of processing 30 tonnes of green waste into organic compost per cycle, and 7,500 tonnes are composted per year. It is hoped that food waste can be co-mingled and processed with the green waste pending a resource consent from Auckland Regional Council.

The composting unit requires a certain ratio of green waste to food waste in order to operate properly. The consents that are currently being applied for in order to extend the composting operation to take food waste will only enable the composting unit to deal with domestic quantities of food waste. In order to compost commercial food waste as well, a larger composting facility and significantly more green waste would be needed.

Council's Cleaner Production partnership with a local food waste collector has resulted in an estimated 500 tonnes of food waste from commercial operators per year being diverted from landfill.

Actions for organic wastes
Green waste will continue to be separated and composted at the transfer station.

Domestic kitchen waste collection for composting is established.

Cleaner Production will continue to work with businesses that produce organic waste to promote reduction and recycling initiatives.

Council will continue to promote the use of home composting and worm bins through the Waste Minimisation Learning Centre.

Targets
By June 2003, a measurement programme to identify existing organic waste quantities will have been instituted, and targets set for diversion from disposal.

By June 2005, 55% or more of the City's green waste and collected organic waste will be composted in the VCUs (32% currently and restricted by the 80:20 green waste to food waste ratio required).

By June 2005, 100% of all compostable green waste arriving at the transfer station (except that in the bag collection service) is recycled for further use. Some green waste, for example bamboo and flax, cannot be composted satisfactorily.

By June 2005, recyclables will constitute 45% of all kerbside collected refuse with no recyclables in the bag audits.

By June 2005 domestic waste collected within the city is reduced to 114 kg or less per person through the organic waste initiatives.

Special Wastes

By assisting businesses to review their business practice, Cleaner Production has supported several companies participating in the cleaner production printing industry project, to take producer responsibility for special wastes. Two companies collect waste ink that would otherwise be disposed of, and refine it for sale as recycled black ink. One of the companies also works with its customers to introduce mineral-oil free inks as an alternative product to mineral-based inks. As a result of that initiative, all of Council's preferred printers make at least some use of mineral-free inks, with some using them for all print jobs.

Through the boat-building project, Cleaner Production will be seeking to work with suppliers and recyclers to identify opportunities for producer responsibility with local boat building businesses and their suppliers.

Note that the Refuse Transfer Station currently recycles the special waste categories of tyres, gas bottles and some computer parts. Useful vehicle parts including tyres, mag-wheels and metals are extracted and recycled from delivered derelict vehicles and the abandoned vehicles collection programme.

Target
By June 2005, Cleaner Production will have enabled 500 or more businesses to operate producer responsibility pilot programmes for the collection and reuse, recycling, or appropriate treatment and disposal of special wastes.

Construction and Demolition Material

Approximately 3,000 tonnes of construction and demolition waste per year are received by the transfer station via domestic vehicles. This represents only a fraction of the building waste generated. The issue is how to encourage separation of materials so as to increase the opportunity for processing at the transfer station. This will require discussion with builders and to find some way to ensure collection without mingling of materials. At this stage, the emphasis is on designing a process that will allow builders and sub-contractors to participate with minimum disruption.

The transfer station currently separates and extracts concrete and rubble, steel, cardboard and seasonal firewood as it arrives. It further separates and extracts reusable timber, non-ferrous metals, glass bottles and bric-a-brac from the tipping floor.

Actions for construction and demolition material
Council will trial construction and demolition recycling from its own development projects.

Council will work with the construction industry to support and encourage separation of construction and demolition material at source.

Targets
By June 2005, 10% of all construction and demolition waste arriving at the transfer station (except that in the bag collection service) is recycled for further use.

By June 2008, 70% of all construction and demolition waste arriving at the transfer station is diverted from landfill for further use.

Business Waste

The Council does not provide a collection service for business waste but does work with businesses to minimise waste through its Cleaner Production unit.

Actions for business waste

Cleaner Production will continue to work with businesses on resource efficiency, waste minimisation and pollution prevention.

Council will continue to identify opportunities to minimise waste and return resources to market or process from its own activities.

Wastewater

Wastewater from the Inner Drainage Area is collected in the sewerage system operated by Ecowater Solutions and transported via the Western Interceptor Sewer to the Wastewater Treatment Plant at Mangere; both operated by Watercare Services Limited. Management of the City's wastewater infrastructure is detailed in the Waitakere Wastewater Plan, October 2000.

Sewage from private wastewater treatment systems is collected under contract for disposal on a three-yearly cycle.

Key waste management issues for wastewater have been identified as:

- Excessive infiltration and direct entry of stormwater during wet weather events.
- High occurrence of overflows from manholes and spills from constructed overflows during wet weather events.
- Predictions indicate that that the annual wastewater volumes conveyed by the system to the wastewater treatment plant will increase by approximately 25% by 2020, attributable to growth and asset deterioration.