

Canterbury Hazardous Waste Management Strategy

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Executive summary

Currently within New Zealand there is no comprehensive or integrated statutory framework covering the management of hazardous waste. The Canterbury Hazardous Waste Management Strategy has been developed as part of the commitment by local authorities in Canterbury to improve the management of hazardous wastes.

Overseeing the implementation of the Strategy falls to the Canterbury Hazardous Waste Working Party co-ordinated by Environment Canterbury. The Strategy is primarily designed to provide direction for local authorities, but it will also provide guidance for generators and those individuals or organisations involved in the waste management industry.

Investigations of hazardous waste in Canterbury provide a basis of determining priorities within this strategy. These investigations prioritised hazardous wastes based on the potential to cause adverse environmental effects. Seven hazardous waste streams were recommended as a high priority for management, these are:

- industrial wastes,
 1. cyanide wastes,
 2. chlorinated solvent sludge wastes,
 3. metal processing wastes,
 4. boron and copper, chromium and arsenic timber treatment sludge wastes,
- agrichemical wastes,
- domestic hazardous wastes,
- waste oil.

The Strategy aims to address the issues relating to these wastes.

Part I of the Strategy outlines the hazardous waste management issues and the strategies that will be needed to address these issues. Part II outlines the programmes that will implement the Strategy and Part III indicates how the Strategy will be monitored.

Public comment was sought on the Strategy late in 2000. The Strategy has been amended to reflect the comments.

The vision for hazardous waste management in Canterbury is:

Zero hazardous waste by 2020

Hazardous wastes are wastes that exhibit properties such as corrosiveness, explosiveness, flammability, toxicity, ecotoxicity or capacity to oxidise, and have the potential to adversely affect human, animal or other species and natural resources.

This vision of zero hazardous waste means that by the year 2020, materials that are currently viewed as wastes would be utilised as resources for other processes. If this cannot be achieved, then the hazardous properties of the material would be managed so that there are no significant actual or potential environmental effects, and therefore would not be a hazardous waste.

The long-term objective of this hazardous waste management strategy is:

**To eliminate the adverse effects of hazardous waste
on the environment**

While there are benefits in reducing the volumes of hazardous wastes produced, the Strategy is based on progressively reducing and ultimately eliminating the adverse effects of hazardous waste on the environment as the reduction of waste volumes will not necessarily lead to a reduction in environmental effects. This objective will be met by improving waste management practices within the region and by applying the following waste management hierarchy;

- **Reduce**
- **Reuse**
- **Recycle**
- **Recover**
- **Residual management.**

Although, the key element in hazardous waste management is the minimisation of hazardous waste being generated, there is an immediate and continuing requirement to manage the disposal of hazardous waste. As the amount of hazardous waste generated is reduced, there will be less waste to manage using other methods in the waste management hierarchy.

The implementation programmes cover the spectrum of the waste management hierarchy with some targeted to specific waste types and others generic to all hazardous wastes. Each programme is identified along with its proposed timeframe and external goods and services costs. As many programmes are dependent on the successful completion of another, not all programmes can be implemented at once. Therefore, commencement of the programmes is staggered across a number of years. Initially, emphasis will be given to programmes that are easily implemented and capable of making a significant improvement in hazardous waste management practices.

Prior to the commencement of each programme outlined within this report the Staff Group will develop a detailed plan, stating goals and timeframes for completion.

Monitoring will be undertaken to ensure that objectives are being met and outcomes produced. Future changes to legislation and regulations may also require the review of the hazardous waste management techniques employed in the implementation of this Strategy.

The Strategy will be reviewed after it has been in operation for 5 years, to assess the need for changes to the vision, objectives, policies and the implementation programme. However, reviews will be undertaken by both the Staff Group and the Working Party during this time to ensure that the objectives are being met. Via this process, modification of the Strategy including the implementation programmes will be carried out when deemed necessary.

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1 Introduction

1.1 Purpose of the strategy

This hazardous waste management strategy has been developed as part of the commitment by local authorities in Canterbury to work together to achieve integrated and environmentally sound management of hazardous wastes. It is not a statutory document but seeks to provide guidance for local authority statutory plans, service delivery and regulation. While the Strategy is primarily designed to provide direction for local authorities, it will also provide guidance for hazardous waste generators and those individuals or organisations involved in the waste management industry.

It is intended that the Strategy will be implemented and monitored by local authorities through relevant district and regional plans, appropriate bylaws, contractual arrangements, local authority service provision and related charging, and annual plan provisions.

In presenting this strategy to local authorities, business and the community it is recognised that there is a need to progressively implement appropriate changes to move towards long-term economic, environmental and social sustainability. The Strategy aims to promote these changes through the development of implementation programmes that will be considered in line with current sustainability philosophies. The Christchurch City Council, one of the eleven local authorities participating in this strategy is actively progressing along this path and has adopted the current philosophies proposed by The Natural Step.

1.2 Legislation for hazardous waste management

There is currently no comprehensive or integrated statutory framework covering the management of hazardous waste as may be the case in many other OECD countries. The current management of hazardous waste in New Zealand is subject to a complex array of statutes, bylaws and regulations; policy documents and waste management plans, including the: Resource Management Act 1991, Local Government Act 1974, Health Act 1956 and Hazardous Substances and New Organisms Act 1996. A description of the relevant sections of these provisions is contained in Appendix A.

There are international agreements on hazardous waste to which New Zealand is a signatory. It is central government's responsibility to implement the requirements of these agreements. In complying with national provisions any international obligations to which New Zealand has committed, will be met.

Under the current statutory framework, territorial authorities (TA) and the Canterbury Regional Council, here after referred to as Environment Canterbury, have functions and powers to enforce legislation relevant to the management of hazardous waste, in particular, the Resource Management Act and Local Government Act. This enables regional and territorial local authorities to require appropriate standards for hazardous waste sites. It is envisaged, however, that the use of enforcement is not a primary method for implementation of this Strategy, but will complement the strategies and implementation initiatives identified.

The Ministry for the Environment (MfE) currently has a number of initiatives relating to the management of hazardous wastes; an outline of these programmes is given within Appendix A. It is envisaged that any developments by the government in this area will provide a basis for this regional strategy, this would include links with national objectives if applicable.

1.3 Strategy development and responsibilities

In 1996 a Joint Committee comprising representation from all territorial authorities in the Canterbury region was established to investigate options for integrated management of solid

waste in Canterbury. Environment Canterbury was involved as an observer on the Joint Committee.

The primary purpose of the Joint Committee was to develop a management framework for solid waste, including waste minimisation and options for regional disposal. The Joint Committee also identified the need to work toward improved management of hazardous waste. In conjunction with the ongoing work of this Committee, Environment Canterbury co-ordinated investigations into hazardous waste management practices in the region, and this information has formed the basis for the development of this strategy.

The Joint Committee was reconstituted in to the Canterbury Waste Sub-committee, and a working party (Canterbury Hazardous Waste Working Party) was established to enable all Canterbury local authorities to work towards the development and implementation of this Strategy.

Responsibility for overseeing the implementation of the Strategy falls to the Canterbury Hazardous Waste Working Party (Working Party) co-ordinated by Environment Canterbury. Public comment was sought on the Strategy late in 2000. The Strategy has been amended to reflect the submissions.

1.4 Regional co-ordination

Co-ordinated management of hazardous waste within and beyond the region is needed to ensure:

- information flows freely and is developed with minimum duplication
- hazardous waste management controls are used throughout the region
- cross boundary issues are minimised
- small resources are aggregated for maximum effect
- a strong collective voice is established to advocate to central government about hazardous waste matters
- all parties support and implement the Strategy
- the outcomes sought by implementing the Strategy can be monitored with the Strategy modified as necessary.

Three ways have been identified to ensure co-ordinated management of hazardous waste occurs in Canterbury:

- development of guidelines for use by local authorities
- management of the strategy itself and its implementation
- advocating to central government and other parties for appropriate hazardous waste management practices and controls.

Details of these programmes are given in Appendix B

1.5 Hazardous waste definition

There are several definitions and classification systems for hazardous wastes in use internationally. In New Zealand there is currently no single, national definition for hazardous wastes. However, hazardous wastes are covered within the definitions of waste, contaminant and hazardous substances in relevant legislation (Resource Management Act 1991, Local Government Act 1974, Health Act 1956 and Hazardous Substances and New Organisms Act 1996).

For the purpose of this Strategy, the definition of hazardous waste is,

Hazardous wastes are wastes¹ that exhibit properties such as corrosiveness, explosiveness, flammability, capacity to oxidise, toxicity or ecotoxicity, and have the potential to adversely affect human, animal or other species and natural resources.

The Ministry for the Environment is currently developing a national definition of hazardous waste. This definition will enable the identification and classification of hazardous wastes. When this definition has been finalised this strategy will adopt the national definition in preference to the one given above.

1.6 Hazardous wastes covered by this strategy

The definition for hazardous wastes covered by this Strategy is very general and inclusive. Refinement of this definition may be required if the adopted definition is shown to be inadequate during the implementation of this strategy. In addition, when a national definition for hazardous wastes is developed, this strategy will adopt the national definition.

While this Strategy is aimed at management of hazardous wastes in Canterbury, at this stage it does not include management of trade wastes discharged to municipal sewerage systems, or sewage. However, any appropriate principles and methods proposed in this Strategy could be used in the consideration of management requirements for those wastes and applied at some future time. The Strategy will however, include, the reduction and management of hazardous wastes up until the point they are discharged to a reticulated municipal sewerage system (at which point they will be covered by a trade waste bylaw).

The Strategy does not cover the management of contaminated sites². However, if waste material from contaminated sites was identified as hazardous, it would be included in the hazardous wastes covered by this Strategy. Finally, this Strategy does not cover radioactive waste, which is the subject of specific national legislation (Radiation Protection Act 1965).

1.7 Structure of the strategy

The Hazardous Waste Strategy comprises three parts, Part I contains the Policy Framework for the Strategy, Part II the Implementation Programme and Part III outlines how the Strategy will be monitored.

Part I contains the vision, objective and guiding principles for the Strategy. It then outlines the hazardous waste management issues and the strategies that will be needed to address these issues.

¹ Wastes are materials which are unwanted or surplus to process requirements that the holder discards, or intends to, or is required to discard.

² Refer to the Canterbury Regional Council Contaminated Site Information Management Strategy, February 1997.

Part II has been constructed directly from the Part I strategies, the activities have been grouped into implementation programmes. Some address generic issues associated with hazardous wastes with an emphasis placed on priority hazardous wastes³, while others are specific to individual waste streams. It identifies the resourcing commitments of local authorities and the activities to be undertaken, to implement the Strategy.

1.8 Timeframes

The timetable for implementing the Strategy has been developed using financial years, which run 1 July through 30 June each year, and is based on a commencement date of 1 July 2000. A number of programmes have already been initiated e.g. the Reduction Programme. While the Strategy covers a 10-year time frame, the implementation programme is indicative for the first 5 years only due to the current uncertainties involved. The initial two years of the implementation programme (2000/2001 and 2001/2002) have been formulated in some detail. This work involves analysis of technical issues and the implementation of specific initiatives to reduce the impact of hazardous waste within the Canterbury region. The external goods and services budget for this has been estimated at \$160,000 for each of the first two years. It will be necessary to regularly review future budgets based on information gathered during the first two year's programmes. This information will enable more accurate identification of the work programmes and associated costs required to meet the objective of eliminating the adverse effects of hazardous waste on the environment.

1.9 Monitoring and review

The effectiveness of the Strategy in achieving its objectives will be monitored. Details of the proposed monitoring may be found within Part III. The Strategy will be reviewed after it has been in operation for 5 years, to assess the need for changes to the vision, objectives, policies, priority wastes and the implementation programme. However, reviews will be undertaken by both the Hazardous Waste Staff Group (Staff Group) and the Working Party during this time to ensure that the objectives are being met.

³ Based on information from recent regional investigations of hazardous waste. These investigations prioritised hazardous wastes on the potential to cause adverse environmental effects. Seven types of hazardous waste from several waste streams were recommended as a high priority for management, these are:

- Industrial wastes:
 1. cyanide wastes;
 2. chlorinated solvent sludge wastes;
 3. metal processing wastes; and
 4. boron, copper, chromium and arsenic timber treatment wastes,
 - Agrichemical wastes,
 - Domestic hazardous wastes,
 - Waste oil.
-

1.10 Waste volumes and impacts

Information on current waste production within the region is limited. One recent report that has been used in the development of this Strategy is the Canterbury Regional Council Technical Report titled "*Hazardous Waste Management Options for Canterbury Region*" November 1997 prepared by Opus International Consultants. The following information was taken from that report.

Cyanide Wastes	Chlorinated Solvents	Agrichemicals	Timber Treatment Sludges	Waste Oil	Household Hazardous Waste	Metal Processing Wastes
~8,200L/yr	~26.3 T/yr.	~60 T stockpiled ~10 T/yr.	CCA 26.8T/yr Boron 2.3T/yr	2780 – 3790 T/yr.	~95 T/yr.	Heavy metals ~56.5 T/yr. Organics 2,000 L/yr. Acid/alkali 18,000L/yr

The report provided indications of volumes of wastes produced for each of the priority waste streams. Its data was predominately based on extrapolation of data derived from other regional studies and interviews and questionnaires with generators and TA officers. It is provided to give an indication of waste volumes at the time the investigation was undertaken. The information will not indicate the present situation within the region.

The reduction of waste volumes will not necessarily lead to a reduction in adverse environmental effects. While there are benefits in reducing the volumes of hazardous wastes produced, the Strategy is based on progressively reducing and ultimately eliminating the adverse effects of hazardous waste on the environment. This objective will be met by improving waste management practices within the region, by applying waste minimisation techniques and regulating where appropriate.

Data collection and hazardous waste monitoring is an important part of the Strategy both in the determination of priorities and in monitoring the effectiveness of the strategy in delivering on the objective.

1.11 Local authority contributions

In developing a local authority funding model to implement the Strategy, the key principle is that of the common benefit derived from the joint development and implementation of the programmes regardless of whether the waste type addressed by each programme is present in all districts or not. For example, a particular district may not have issues with a specific waste stream. However, they would contribute to the joint programme, on the basis that they would achieve cost-benefits in other programmes for those waste streams, which were present in the district.

Participating councils will meet their internal costs of implementing the Strategy. The following funding model has been adopted for sharing external goods and services costs associated with the various implementation programmes.

Local authority	Percentage contribution for each council in each group
Environment Canterbury	50%
Christchurch City Council	20%
Timaru District Council	7%
Waimakariri District Council	5%
Ashburton District Council, Selwyn District Council	4%
Banks Peninsula, Hurunui, Kaikoura, Mackenzie and Waimate District Councils	2%

It differs from the funding model adopted by the Canterbury Waste Sub-committee for solid waste management that was based on population. The model above has a lower contribution by Christchurch City Council (CCC) in relation to the other territorial authorities if based on population. This is appropriate given that CCC provide key services in the region for management of hazardous waste at no cost to other authorities at present. The model also groups similar-sized authorities as having the same percentage contribution. Work will be undertaken to identify the internal costs of implementing the Strategy and this will be considered in determining the most appropriate funding model in the future.

With the development of implementation programmes for each financial year, the funding model will be reassessed and appropriate recommendations for modification made.

Note that the model is applicable to all programmes involving all the above councils in Canterbury. Where the Environment Canterbury has no legal mandate or discretion to be involved, shared funding will be split proportionally between the other councils on the basis of the Canterbury Sub-Committee Solid Waste Management Model.

Tables listing the programmes, provisional budgets and proposed local authority contributions are provided within Appendix C.

1.12 Acknowledgements

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Part I Policy framework

2 Vision, objective and guiding principles

2.1 Vision

The vision for hazardous waste management in Canterbury is:

Zero hazardous waste by 2020

Hazardous wastes are wastes that exhibit properties such as corrosiveness, explosiveness, flammability, capacity to oxidise, toxicity or ecotoxicity, and have the potential to adversely affect human, animal or other species and natural resources.

This vision of zero hazardous waste means that by the year 2020, materials that are currently viewed as wastes would be utilised as resources for other processes. If this cannot be achieved, then the hazardous properties of the material would be managed so that there are no significant actual or potential environmental effects, and therefore would not be a hazardous waste.

2.2 Objective

The long-term objective of this hazardous waste management strategy is:

To eliminate the adverse effects of hazardous waste on the environment

- Including:
- to reduce and eliminate risks to people and the environment resulting from generation, storage, transport, treatment and disposal of hazardous waste
 - to prevent the creation of contaminated sites from inappropriate management of hazardous waste.

2.3 Guiding principles of development and implementation

The following principles were used to guide the development of this strategy and will be used in the development of decisions on its implementation.

2.3.1 A regional approach

Local authorities in Canterbury through the Joint Local Authority Committee, have identified the need to work together to achieve integrated management of hazardous waste in Canterbury. This regional approach recognises that there are issues relating to the

management of hazardous wastes, which extend across territorial boundaries within the region, and across the regional boundary. While this approach should address the intraregional issues it will not necessarily address interregional ones. Therefore there is a requirement to work with other regions and MfE to establish national standards and systems.

2.3.2 Waste management hierarchy

The management of hazardous wastes will use prioritised programmes, which reflect the following waste management hierarchy:

Reduce - Reuse - Recycle - Recover – Residual Management

2.3.3 Changing management requirements

While the key element in hazardous waste management is the minimisation of hazardous waste being generated, there is an immediate and continuing requirement to manage the disposal of hazardous waste. As the amount of hazardous waste generated is reduced, there will be less waste to manage using other methods in the waste management hierarchy.

Future changes to legislation and regulations may require review of the hazardous waste management techniques employed in the implementation of this strategy.

2.3.4 Consultation

Consultation on the development and implementation of this strategy will be undertaken with specific stakeholder groups in the community including Tangata Whenua, in particular, with generators, transporters and disposers of hazardous wastes.

2.3.5 Treaty of Waitangi

The principles of the Treaty of Waitangi will be taken into account in the implementation of this strategy by identifying and responding to issues of significance to Tangata Whenua.

2.3.6 Charges

Charges for hazardous waste management will be established to promote economic incentives/disincentives to maximise hazardous waste minimisation.

Charges should include a hazardous waste minimisation component, which should be redistributed as resourcing for programmes for elimination and reduction of hazardous waste through cleaner production, and other waste minimisation initiatives.

When establishing charges for hazardous waste management the principle of generator pays needs to be evaluated against community benefit. The fundamental principle is that the generators, handlers, disposers or owners of hazardous waste should pay the costs of waste services including social, environmental and economic costs. However, charges should not be an impediment to appropriate management of hazardous waste.

It is likely that generators will tend to dispose of their wastes within districts where charges are the lowest. In order to reduce the potential for inconsistent charging between Canterbury local authorities it is important that these charges be consistent throughout the region. Future co-operation through the Canterbury Waste Subcommittee could assist in managing these issues.

2.3.7 Responsibility for waste

Generators, handlers, disposers and owners of hazardous waste should ensure that waste is appropriately managed at all times.

2.3.8 Priority waste requiring management

Investigations⁴ of hazardous waste in Canterbury provide a basis of determining priorities within this strategy. These investigations prioritised hazardous wastes based on the potential to cause adverse environmental effects. Seven hazardous waste streams were recommended as a high priority for management, these are:

- Industrial Wastes
 1. cyanide wastes
 2. chlorinated solvent sludge wastes
 3. metal processing wastes
 4. boron and copper, chromium and arsenic timber treatment sludge wastes
- agrichemical wastes
- domestic hazardous wastes
- waste oil.

The two reports that have been produced have not identified the risks associated with each of the waste streams. This will require further attention, as it is important to identify which waste stream or components of a waste stream pose the greatest risk to the environment due to current management practices.

⁴ *Canterbury Regional Council Technical Report: Hazardous Waste Management Options for Canterbury Region November 1997 Report Number: U97/62/1, Opus International Consultants; and Regional Hazardous Waste Management Investigation, Canterbury Regional Waste Working Party, October 1996, Royds Consulting.*

3 Common issues

This section identifies issues for hazardous waste management which are common throughout the waste management hierarchy. These issues have been grouped together to avoid repetition in the waste management hierarchy sections which follow.

Effects on the environment

- 3.1 The risk of adverse effects on the environment (including human health) resulting from the generation and management of hazardous wastes in Canterbury.
- 3.2 Community concern with effects on the environment from hazardous waste.
- 3.3 Concerns of Tangata Whenua about the effect of hazardous waste on taonga including soil, air, water, ancestral land, mahinga kai and sacred sites.
- 3.4 Ease of access to, and difficulties detecting, uncontrolled disposal locations, due to inadequate legislation and enforcement.

Economic incentives/disincentives

- 3.5 The cost to generators, disposers, or owners for disposal of hazardous waste, controlled or uncontrolled, can be less than the cost to reduce, reuse, recycle or recover hazardous waste.

Information

- 3.6 Insufficient information on the types, quantities and locations of hazardous waste.
 - 3.7 Lack of awareness of appropriate management for hazardous waste.
 - 3.8 Limited information available to waste generators, handlers and disposers on options, and availability of options, for hazardous waste management.
 - 3.9 Difficulty accessing information on techniques for reducing hazardous waste generation, and recycling, recovery and treatment of hazardous waste.
 - 3.10 Possible technical limitations to reduction, reuse, recycling, recovery or disposal of some hazardous waste.
 - 3.11 The sharing and co-ordination of information from lead agencies/authorities (e.g. central and local government) who deal with hazardous waste.
-

Management systems

- 3.12 Hazardous wastes are not always being managed appropriately.
 - 3.13 Hazardous waste management systems, which recognise differences in types and quantities of hazardous waste, are required.
 - 3.14 Logistical constraints to management of numerous small quantities of hazardous waste distributed throughout the community.
 - 3.15 Lack of integrated hazardous waste management systems in the Region which provide for the varying resources and requirements of territorial authorities.
 - 3.16 Existing regulatory control measures are not yet consistently or effectively utilised throughout the Region, including the need to integrate hazardous waste management strategies with regional and district plans.
 - 3.17 Lack of integrated legislation is impeding effective management of hazardous waste.
 - 3.18 Programmes for some hazardous waste management will need local authorities to facilitate, promote and fund initiatives.
 - 3.19 There will be insufficient resources to support all hazardous waste management programmes.
 - 3.20 Barriers to reuse, recycling and recovery of hazardous wastes due to dispersed and small quantities of some hazardous wastes.
 - 3.21 The safe transportation of hazardous wastes along identified transportation routes.
-

4 Common strategies

This section identifies strategies which stem from the common issues identified in section 3. The strategies are appropriate for most of the following waste management hierarchy sections. These strategies have been grouped together to avoid repetition in the waste management hierarchy sections which follow.

General

- 4.1 Ensure that the systems developed for the management of hazardous wastes are integrated, and reflect the hazardous waste management hierarchy.
- 4.2 Liaise with Tangata Whenua to identify issues of specific concern.
- 4.3 Local authorities will lead by example to their communities by applying the waste management hierarchy with respect to the management of their hazardous wastes.

Information & advice

- 4.4 Encourage the provision and co-ordination of information and advice between lead agencies.
- 4.5 Provide a regional hazardous waste information and advisory service to provide technical and practical assistance to producers and managers of hazardous wastes in Canterbury.
- 4.6 Promote public understanding and awareness of hazardous waste management by providing information to the community on hazardous waste management, options and availability of options, including self-management of hazardous waste.
- 4.7 Develop guidelines on the use of local authority powers, e.g., under the Local Government Act (1974) and Resource Management Act (1991), to achieve regional consistency in hazardous waste management systems including the use of bylaws, district and regional plan provisions, enforcement mechanisms and licensing.
- 4.8 Develop guidelines for local authorities on systems of incentives/disincentives to encourage appropriate hazardous waste management.
- 4.9 Identify the generators, users, managers, transporters, and disposers of hazardous waste, their locations, and the quantities of hazardous wastes generated, handled or disposed of, and investigate the development and implementation of a hazardous waste tracking system and adequacy of current licensing controls.
- 4.10 Identify opportunities to improve hazardous waste management systems.
- 4.11 Evaluate national and international strategies, guidelines, practices and technologies for hazardous waste management, and consider use of these locally.

Resourcing

- 4.12 Facilitate funding and promotion of programmes that will assist the implementation of this Strategy.
- 4.13 Develop criteria for assessment of resourcing requests for hazardous waste management programmes.

Regulation

- 4.14 Develop agreed methods on the use of local authority powers, e.g., under the Local Government Act (1974) and Resource Management Act (1991), to achieve regional
-

consistency in hazardous waste management systems including the use of bylaws, district and regional plan provisions, enforcement mechanisms and licensing.

- 4.15 Where appropriate, undertake or advocate to central government or other stakeholders, e.g., land owners/managers, waste operators, or local authorities, for changes to legislation and regulation for hazardous waste management.

Management systems

- 4.16 Where necessary and appropriate ensure the collection and storage of hazardous waste for reuse, recycling, recovery and/or disposal.
- 4.17 Utilise economic instruments to promote the waste management hierarchy where appropriate.
- 4.18 Improve the integration of hazardous waste management systems within the region.
- 4.19 To advocate for the provision of suitable routes for the transportation of hazardous waste through the Regional Land Transport Strategy.
- 4.20 Advocate for the establishment of a national hazardous waste manifest system by all generators, handlers and disposers of hazardous waste
-

5 Reduce

Objective

To reduce⁵ or eliminate at source the degree of hazard or quantity of hazardous waste produced.

Issues

- 5.1 Hazardous waste reduction programmes are dependent upon the co-operation of generators to implement.
- 5.2 Economic factors can impede the reduction of hazardous waste, e.g. capital investment, economies of scale or material substitution required.

Strategies

- 5.3 Facilitate and promote hazardous waste reduction programmes for industry in the Region.
- 5.4 Provide information to the community on options and availability of options for reduction of hazardous waste.
- 5.5 Assess the need for regulatory controls to enhance the position of reduction in the hazardous waste management hierarchy.

⁵ The most effective way of managing hazardous waste is not to produce it. Waste minimisation aims to reduce, eliminate or minimise hazardous waste generation at each point in the production cycle. This can be done by analysing the design, manufacture and use of products in an effort to reduce the quantity and hazardous characteristics of waste produced during manufacturing and when the products reach the end of their useful lives.

6 Reuse

Objective

Maximise the reuse⁶ of hazardous waste as close to the generation source as possible.

Issues

- 6.1 Uncertainty about the suitability of hazardous waste for reuse.
- 6.2 Limited market acceptance of reused hazardous waste.
- 6.3 Limited markets for reusing hazardous waste
- 6.4 Uncertainty over legal requirements and potential liability for hazardous waste generators and reusers.

Strategies

- 6.5 Facilitate the development of hazardous waste exchange programmes.
- 6.6 Ensure technical support on hazardous waste characteristics and suitability for reuse is provided for in the operation of waste exchange programmes.
- 6.7 Assess legal requirements and potential liability associated with the reuse of hazardous waste and develop guidelines for the reuse of hazardous waste.
- 6.8 Local authorities will aim to stimulate the establishment and/or development of reuse opportunities for hazardous wastes.

⁶ Reuse is the repeated or continued use of hazardous wastes. Reuse of hazardous waste occurs with or without the waste being treated.

7 Recycle

Objective

maximise recycling⁷ of hazardous wastes as close to their generation source as possible.

Issues

- 7.1 Uncertainty of the suitability of hazardous wastes for recycling.
- 7.2 Limited market acceptance of recycled hazardous waste.
- 7.3 Limited markets for recycled hazardous waste

Strategies

- 7.4 Facilitate recycling of hazardous waste, including through the development and support of hazardous waste exchange programmes and/or drop off points.
- 7.5 Ensure technical support on hazardous waste characteristics and suitability for recycling is provided for in the operation of waste exchange programmes.
- 7.6 Local authorities will aim to stimulate the establishment and/or development of recycling opportunities for hazardous wastes.

⁷ Recycling is the processing of hazardous waste into new or different products, this could include treatment processes.

8 Recover

Objective

Maximise the recovery⁸ of hazardous wastes as close to their generation source as possible.

Issues

- 8.1 Limited suitability of hazardous waste for recovery due to waste characteristics e.g. not all hazardous waste has energy value.
- 8.2 Recovery of hazardous waste is dependent upon market demand and is influenced by economy of scale and availability of primary resources.
- 8.3 Limited availability of facilities for the appropriate recovery of hazardous waste in the region and nationally.
- 8.4 Limited market acceptance for recovered hazardous waste.

Strategies

- 8.5 Facilitate recovery of hazardous waste through the development and support of appropriate hazardous waste exchange programmes and/or drop off facilities.
- 8.6 Ensure technical information on hazardous waste characteristics and suitability for recovery is available to generators of hazardous waste.
- 8.7 Advocate for a national approach for hazardous waste where no suitable facilities are available regionally or nationally.
- 8.8 Local authorities will aim to stimulate the establishment and/or development of recovery opportunities for hazardous wastes.

⁸ Hazardous waste may contain energy and materials that could be recovered before disposal, this could include treatment processes.

9 Disposal

Objective

To eliminate the adverse effects on the environment from the disposal⁹ of hazardous waste.

Issues

- 9.1 Limited availability of facilities for the appropriate disposal of hazardous waste in the region and nationally.
- 9.2 Lack of regional consistency and appropriate application of acceptance criteria for hazardous waste at disposal facilities. The Ministry for the Environment are currently developing national acceptance criteria for certain hazardous wastes.

Strategies

- 9.3 Ensure, as far as reasonable, that suitable disposal facilities are available in appropriate locations, for the disposal of hazardous waste.
- 9.4 Develop regionally consistent minimum acceptance criteria for disposal sites, which provide appropriate environmental controls.
- 9.5 Develop and implement a regionally consistent hazardous waste recording system, that includes generator and carrier information for appropriate waste types and volumes at disposal sites.
- 9.6 Advocate for a national approach for intractable¹⁰ hazardous waste where no suitable disposal facilities are available regionally or nationally.

⁹ Disposal may require treatment processes that change the character of the waste to minimise its impact on the environment.

¹⁰ Intractable hazardous wastes are wastes for which there are no practicable, accessible or acceptable treatment and disposal processes available.

10 Storage

Objective

Ensure secure storage¹¹ of hazardous waste is available.

Issues

- 10.1 The quantity, location and security of intractable hazardous waste in Canterbury is presently unknown.
- 10.2 The need for long term or temporary centralised storage is not defined.
- 10.3 Potential liabilities for centralised storage may be significant.
- 10.4 Difficulties with availability of, and accessibility to, disposal methods for some hazardous waste.

Strategies

- 10.5 Investigate the amount of, options for and liabilities of storage of hazardous wastes to determine whether collection and centralised storage, either short- or long-term, is needed.
- 10.6 Develop and distribute guidelines for safe transport and storage of hazardous wastes.
- 10.7 Develop regionally consistent minimum criteria for storage facilities.

¹¹ Methods of storage include, self storage of wastes by generators, handlers, disposers, or owners; and centralised storage facilities provided by or on behalf of local authorities. Centralised storage may include facilities for short term or longer term storage of wastes as an intermediary step prior to other management methods.

Part II Implementation

11 Implementation programmes

The implementation programmes cover the spectrum of the waste management hierarchy with some targeted to specific waste types and others generic to all hazardous wastes. Cross-referencing between the programmes and the waste types are outlined in Section 11.2 below. The programmes are designed to:

- to meet the vision and objectives of the strategy
- document current practice
- assess needs
- examine the use and possible expansion of existing economic and statutory controls
- examine and monitor the effectiveness of economic tools
- examine the need for, and where necessary stimulate investigations and/or, the establishment of services or facilities
- provide services or facilities
- provide information, including guidelines
- monitor hazardous waste generation movement, and disposal
- co-ordinate and integrate the management of hazardous wastes in Canterbury
- ensure, as far as practicable, consistency throughout the region.

Programmes will be assessed to determine:

- how successfully they have been implemented
- what they have done to reduce environmental risks posed by hazardous wastes within Canterbury.

Each year, the Staff Group will identify at least three programmes to be implemented that year. In the first year of the programme (2000/2001) the Hazardous Waste Reduction Programme is implemented via the two-year appointment of the Hazardous Waste Reduction Co-ordinator (Reduction Co-ordinator). The following additional programmes have also commenced:

- booklets have been produced and disseminated on alternatives to the use of hazardous substances in the home
- deficiencies in the provision of centralised drop-off facilities for waste oil are identified and addressed
- drop-off points for some types of domestic¹² hazardous waste are established at Christchurch transfer stations.

¹² Domestic Waste is defined as waste derived from any domestic residential property, community building, camp site or properties used by charities.

Each programme is identified along with its proposed timeframe and external goods and services costs¹³ in the following tables. A more detailed indication of each programme's actions, requirements, outcomes, and its justification, are provided within Appendix B. Not all programmes can be implemented at once, with many dependent on the successful completion of another. Therefore, commencement of the programmes is staggered across a number of years. Initially, emphasis will be given to programmes that are easily implemented and capable of making a significant improvement in hazardous waste management practices.

Prior to the commencement of each programme outlined within this report a detailed plan will be developed stating goals and timeframes for completion. The Staff Group will undertake this development with each programme reviewed on an annual basis.

¹³ Costs indicated are those to be met by contributors to the strategy. Where no cost is indicated these are either dependent on investigation findings and therefore not quantified at this time or are to be met by individual TAs.

11.1 Implementation programmes

IMPLEMENTATION PROGRAMME		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
		99/00	00/01	01/02	02/03	03/04	04/05
Reduction programme		19,075	32,500	20,000			
i.	Review Royds and Opus reports	B.1					
ii.	Identify target groups and waste streams	B.1					
iii.	Develop and implement action plans	B.1					
iv.	Facilitate waste audits	B.1					
v.	Stimulate initiatives for cleaner production	B.1					
vi.	Develop best practice industry benchmarks	B.1					
vii.	Develop regional waste reduction networks	B.1					
Information dissemination							
i.	Technical advisory service provided by CCC	B.2					
ii.	Reference guide for TA officers	B.2		10,000			
iii.	Reference material for generators and handlers	B.1 B.2	20,000	40,000	20,000	40,000	
Facilitate waste minimisation							
i.	Assess viability and liability of minimisation	B.3	27,500				
ii.	Facilitate aggregation	B.4					
a.	Assess potential for aggregation	B.4	25,000	15,000	15,000		
b.	Collection facilities for aggregation	B.4					
iii.	Hazardous waste exchange	B.5		20,000	20,000		

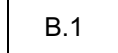
Programme implementation



Potential continuation of programme



Indicates where the programme may be found within the appendices

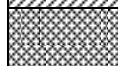


IMPLEMENTATION PROGRAMME (cont.)		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
		99/00	00/01	01/02	02/03	03/04	04/05
Provision of disposal facilities							
i.	Continuity of service	B.6					
ii.	Review of disposal facilities	B.7	35,000	10,000			
Management of intractable wastes							
i.	Assess management options	B.8		20,000	20,000		
ii.	Implement options	B.8					
Review of controls							
i.	Minimum hazardous waste management criteria	B.9			25,000		
ii.	Assess regulatory controls	B.10		10,000			
iii.	Assess potential economic incentives	B.10		10,000			
Regional co-ordination							
i.	Guidelines for local authorities	B.11			20,000		
ii.	Co-ordinated management of the strategy	B.12	10,000				
iii.	Advocate to central government and other parties	B.13					

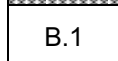
Programme implementation



Potential continuation of programme



Indicates where the programme may be found within the appendices



11.2 Programmes for waste streams

This section provides a summary of the implementation programmes that will be undertaken for specific waste streams. These are the same programmes as given within Section 11.1 above, but arranged to show which waste stream/s they will address.

		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
		99/00	00/01	01/02	02/03	03/04	04/05
INDUSTRIAL WASTES:		cyanide, chlorinated solvent sludge, metal processing and timber treatment wastes					
Assess existing information and identify priority waste streams	B.1						
Establish industry groups for priority waste streams	B.1						
Establish auditing process to identify reduction opportunities	B.1						
Assess reuse or recycling opportunities	B.3						
Facilitate reuse opportunities	B.5						
Provide information to generators	B.1 B.2						
Develop self auditing, monitoring and reporting programme	B.1						
Adopt identified control measures	B.9 B.10						
AGRICHEMICAL WASTES							
Assess existing information	B.3						
Establish stakeholder groups	B.8 B.12						
Assess reuse or recycling opportunities	B.3						
Facilitate reuse opportunities	B.5						
Provide information to generators	B.1 B.2						
Collection, storage and disposal assessed	B.8						
Collection, storage and disposal facilities provided, if appropriate.	B.8						
Adopt identified control measures	B.9 B.10						

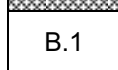
Programme implementation



Potential continuation of programme

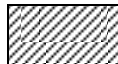


Indicates where the programme may be found within the appendices



Waste stream programmes cont.		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
		99/00	00/01	01/02	02/03	03/04	04/05
DOMESTIC HAZARDOUS WASTE							
Drop-off facilities at CCC Transfer Stations							
Requirement for drop-off facility in other districts assessed	B.4						
Drop-off facilities provided in other districts, as appropriate	B.4						
Provide information to generators	B.1 B.2						
Adopt identified control measures	B.9 B.10						
WASTE OIL							
Assess existing information and collection programmes	B.4						
Liase with existing collection operators	B.4						
Develop extension of existing network and facilities	B.4						
Provide information to generators	B.2						
Establish monitoring programmes							
Adopt identified control measures	B.9 B.10						

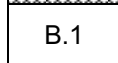
Programme implementation



Potential continuation of programme



Indicates where the programme may be found within the appendices



Part III Monitoring

Monitoring is required to ensure that objectives are being met and outcomes produced. It is needed to quantify the state of waste management practices and shows trends that can be used as the basis of decision making and amending policy.

Two forms of monitoring are necessary within the strategy:

- monitoring the implementation of the strategy
- monitoring hazardous waste management practices or reduction of risks resulting from strategy programmes.

12 Monitoring the strategy and implementation plan

The strategy is a new approach to hazardous waste management in Canterbury that is intended to co-ordinate resources and integrate controls. However, it requires ongoing review to ensure that it is achieving its objectives and providing new goals and opportunities. The process of monitoring, reviewing and modifying future programmes will ensure that the strategy is continually improved. This will enable any changes required either internally (through the implementation plan) or externally (application of national directives etc.) to be addressed.

Monitoring of the programmes will be undertaken by the Staff Group who will report their findings to the Working Party. The monitoring will identify whether the targets, timeframes and budgets of the programmes have been met, and where appropriate constraints and opportunities identified. This information will be used to improve subsequent programmes in order to ensure the most effective use of resources.

Anticipated outcomes

- Effectiveness of the strategy is identified
- The implementation programmes address the issues and satisfy the guiding principles outlined in Part I
- Strategies outlined within the Part I are implemented
- Constraints and opportunities are identified and used to improve future programmes
- Opportunities for improvements in hazardous waste management are identified and addressed
- Risks to people from the generation, storage, treatment and disposal of hazardous wastes are reduced
- The creation of contaminated sites is reduced.

Programme requirements

- Continued local authority co-operation
 - Effective information collection and interpretation.
-

13 Monitoring improvements in waste management practices

To monitor the effectiveness of the strategy it is necessary to regularly assess quantifiable improvements in the management of hazardous wastes within Canterbury.

The following indicators of hazardous waste management within the region will be monitored and evaluated against the objective in Section 2.2:

- number of reported instances of illegally disposed hazardous waste including type and quantity
- number of unauthorised disposal facilities identified and addressed
- number of facilities complying with regional guidelines (when developed)
- number of facilities complying with regional acceptance criteria (when developed)
- instances of non-compliance with relevant resource consent conditions concerning hazardous waste
- number of legal actions undertaken by councils due to the inappropriate management of hazardous waste.

Subject to available information other indicators may be used. These include, but are not limited to:

- volumes of hazardous waste generated, diverted, disposed, stored
- number of legal actions undertaken by Occupation Safety and Health Service due to the inappropriate management of hazardous waste
- where practicable volumes of hazardous wastes reduced due to the implementation of the Reduction Programme
- number of legal actions undertaken by the Police or other authorities, due to the inappropriate management of hazardous waste
- volume of priority hazardous waste streams disposed to landfill
- volume of hazardous waste disposed to landfill.

Other indicators will be developed based on information gained and programmes undertaken within the plan.

Anticipated outcomes

- Effectiveness of the strategy in improving waste management practices within Canterbury determined
- Effectiveness of the strategy in minimising the adverse effects of hazardous waste on the environment.

Programme requirements

- Continued local authority co-operation
 - Co-operation of waste management industry
 - Effective information collection and interpretation.
-

Appendix A

Legislation and policy documents

LEGISLATION

The following Acts although not specific to the management of hazardous waste, provide useful guidance for the development of appropriate waste management.

A.1 Resource Management Act 1991

Under provisions of the RMA central government can issue National Environmental Standards and/or a National Policy Statement concerning hazardous waste management. At present there are no national standards or policy statements for hazardous waste.

The Resource Management Act 1991 (RMA) is concerned with the management of natural and physical resources. Under sections 30 and 31 of the RMA local authorities are given specific responsibilities for management of hazardous substances (including hazardous wastes). These responsibilities are for both regional and district councils, and are to control adverse effects on the environment from the use of land for the storage, use, disposal or transport of hazardous substances. Regional Councils also have responsibility to control discharges of contaminants into or onto land, water and air. In controlling adverse effects from use of land, objectives, policies and rules are required in district and/or regional plans. In controlling discharges¹⁴, the Regional Council can make provisions in regional plans, require resource consents, and take enforcement action.

Implementation of this Strategy will be consistent with the provisions of the Resource Management Act 1991, and will support the purpose of the Act, to promote the sustainable management of natural and physical resources.

A.2 Local Government Act 1974

Territorial local authorities

The Local Government Act 1974 (LGA) is concerned with the provision of services. Section 538 of the LGA requires every territorial authority to promote effective and efficient waste management within its district. Waste management includes the management of hazardous wastes. Effective and efficient waste management is achieved through the development of waste management plans, which must provide for collection, reduction, reuse, recycling, recovery, residual management and treatment and disposal of waste. The LGA empowers territorial authorities to own, build, and operate facilities for the management of waste, including hazardous waste. Territorial authorities may also transfer their waste management services to another territorial authority. Territorial authorities can make bylaws for controlling hazardous waste management.

Regional authorities

The only role in waste management for the Regional Council under the LGA is from section 37SB of that Act which gives regional councils the power to fund, establish and manage sites for the regional disposal of hazardous wastes. This function is not mandatory for a regional council and can be transferred to territorial authorities, with their agreement, under procedures set out in the LGA.

¹⁴ *In some cases of discharges to land or air, a rule in a regional plan is needed before resource consents can be required.*

The objectives, principles and methods in this Hazardous Waste Management Strategy seek to ensure that territorial authorities can fulfil their role in respect of hazardous waste management. Therefore, the development and implementation of this Strategy is consistent with the provisions of the LGA.

A.3 Hazardous Substances and New Organisms Act 1996

The Hazardous Substances and New Organisms Act 1996 (HSNO) establishes a framework for managing the life cycle of *imported* or *manufactured* hazardous substances. The substances within the framework of HSNO do not include by-products of manufacturing or other processing. Therefore, hazardous waste, which has not been imported or deliberately manufactured, is not covered by the HSNO Act. Controls on hazardous substances applied under the HSNO Act by the Environmental Risk Management Authority (ERMA) may be administered and implemented by territorial authorities.

The management system developed under HSNO will have a big impact on the way hazardous waste is managed, particularly for human safety. However, most hazardous waste is not likely to be subject to HSNO Act controls.

ERMA are currently developing Environmental Exposure Limits (EELs) for the implementation of HSNO. These will be equivalent to National Environmental Standards for the receiving environment with any standards set under the RMA must be equivalent or higher than the EELs. Therefore these EELs will impact on the management of hazardous waste by any disposal facility (e.g. landfills, wastewater treatment facility).

POLICY DOCUMENTS

A.4 Regional Policy Statement

The Regional Policy Statement, prepared by Canterbury Regional Council under the provisions of the RMA became operative on 26 June 1998. The Policy Statement provides an overview of the resource management issues of the region. It sets out how natural and physical resources are to be managed in an integrated way to promote sustainable management.

The Canterbury Regional Council has responsibility under section 30(1)(c) of the RMA to control land use for the prevention or mitigation of any adverse effects of the storage, use, disposal or transportation of hazardous substances. The Regional Council also has responsibility under section 30(1) (f) to control the discharge of contaminants into the environment. As part of the fulfilment of these responsibilities the Regional Council has developed objectives and policies for solid and hazardous waste management in the region.

The Regional Policy Statement in Chapter 18 Solid and Hazardous Waste Management contains;

Objective 1

Avoid, remedy or mitigate the adverse effects on the environment from past, present and future solid and hazardous waste management practices.

Policies to support the objective include:

Policy 1

Promote the implementation of the concepts of clean production, waste reduction, re-use, recycling and resource recovery.

Policy 2

A co-ordinated approach to waste management in Canterbury should be developed and implemented.

A.5 New Zealand's Waste Management Policy

In 1992 the Ministry for the Environment produced *The Government Waste Policy and Ministry for the Environment Waste Work Programme* (MfE 1992). While the RMA provides the framework for dealing with the effects on the environment from the management of all wastes, the government waste management policy is focussed on reducing waste generation. The policy deals primarily with solid waste, sourced mainly from households and commercial generators, and excludes sewage, mine tailings and slag.

The New Zealand Waste Management Policy is:

1. to ensure that as far as practicable, New Zealand's waste generators should meet the costs of the waste they produce; and
2. to encourage the implementation of the internationally recognised hierarchy of reduction, reuse, recycling, recovery and residual management by all involved in waste generation and management in New Zealand."

Other hazardous waste management initiatives

A.6 Ministry For The Environment – Hazardous Waste Programme

In November 1998 the Ministry for the Environment released "Managing Hazardous Waste - A Discussion Paper". This document was the culmination of work undertaken by the Ministry since September 1989 when it received funding to address the management of hazardous wastes in New Zealand.

The Ministry has collated issues identified by recent studies into waste management by the Ministry, Regional Councils and the Parliamentary Commissioner for the Environment, as well as in a report on New Zealand's environmental performance by the OECD. The issues identified the potential for serious adverse environmental effects due to:

- inconsistent management of hazardous waste by local authorities
- inconsistent definitions of hazardous waste
- lack of information about hazardous waste disposal or generation
- concern about the lack of regulations for hazardous waste management
- lack of knowledge about hazardous waste.

The programme aims to identify and implement a national management system for hazardous waste and presents a number of options for achieving the objectives based around the following key issues:

- defining hazardous waste
 - controlling hazardous waste
 - monitoring and enforcing hazardous waste controls.
-

Information on the Draft National Hazardous Waste Management Strategy

Goal

A comprehensive, cost effective hazardous waste management system which reduces the adverse effects of hazardous waste on human health and the environment.

Objectives

- 1 To develop an integrated and cohesive national hazardous waste management policy framework.
- 2 To provide direction and co-ordination for the range of policy initiatives at regional and local government.
- 3 To prevent the creation of contaminated sites from poor management of hazardous waste.

International experience shows that four key elements are required to achieve an effective management of hazardous waste; information, a legislative framework, management controls and funding/economic incentives. Other essential ingredients include; the need to raise the bar of performance across all disposal media to encourage waste minimisation, and the need for a waste management industry able to treat hazardous waste.

The Ministry's current work programme includes:

Information

- NZ Definition of hazardous waste
- Online Information System supporting the definition for hazardous waste
- Hazardous waste indicators for New Zealand.

Legislative framework

- Assess the fit of the hazardous waste management system within existing legislation RMA, HSNO and LGA.

Management controls

- Record keeping
- Waste acceptance criteria for landfills.

The programme has strong links with the proposed New Zealand waste minimisation strategy (due in June 2001) being developed by the Waste Minimisation and Management Working Group.

A.7 Centre for Advanced Engineering

The Centre for Advanced Engineering at the University of Canterbury has recently released two guidelines, "*Management of Hazardous Waste*" and "*Landfill Guidelines*".

The Management of Hazardous Waste guideline aims to "*bring together information relating to the current legislation and good practice...to all involved in the generation, lifecycle management, treatment and disposal of hazardous waste in New Zealand*".

The Landfill Guidelines have been written to provide "*guidance on operations and monitoring at all landfills*".

These documents provide an excellent resource for practical hazardous waste management and landfill management. They should be used and adopted by all involved in the waste management industry.

Appendix B

Implementation programmes

Information gathering and assessment of that information is critical to establish current hazardous waste management practices, to explore other options and to monitor the effectiveness of those options. Programmes should also identify targets for their respective objectives. The attainment of these targets will be addressed as part of the ongoing monitoring of the Strategy.

B.1 Reduction programme

Justification

Reducing the production of hazardous wastes at source is seen as the key to the vision of Zero Hazardous Waste. There is presently no legislation, which either requires or provides an incentive for generators to reduce their wastes, so all gains within this area will be the result of voluntary actions. Generators need to be made aware of the importance of reducing hazardous waste at source and how this has both economic and environmental benefits.

Description of programme

The programme will be undertaken by the Hazardous Waste Reduction Co-ordinator (Reduction Co-ordinator), a position funded for two years by a Sustainable Management Fund grant with contributions from local authorities within Canterbury¹⁵. Initially, the Co-ordinator will be based at the Christchurch City Council (CCC) Offices.

The Reduction Programme aims to reduce the production of hazardous waste. The Industrial sector was chosen as its primary focus based on an evaluation of risk, quantity, and potential for reduction success of all the seven identified priority waste types. As a result, four of the waste types have been recognised as a high priority by the programme. The domestic and agrichemical waste streams will be addressed primarily with the provision of educational material.

This pragmatic approach recognises the inherent difficulties in reducing any waste stream at source. The strategy, however, allows for the inclusion of the Hazardous Waste Reduction Co-ordinator (and the Reduction Programme) in the development of each detailed plan prior to the commencement of other programmes.

The programme will target the generators in the following ways:

- Industrial - through industry sector groups, and established business networks such as the Target Zero Business Network. Existing and new networks will identify industries and companies interested in having their processes audited. These audits will identify potential improvements in production processes, handling, and storage, of hazardous substances to prevent hazardous waste generation. Audits will also provide information on responsible management of wastes either stockpiled presently, or unable to be reduced.
- Domestic and Agrichemical - through separate awareness raising programmes by providing information about how affected parties can reduce and manage their own hazardous waste.
- Used oil - will not be an immediate priority for the Reduction Programme

¹⁵ 50% SMF, 25% CRC, 25% Canterbury TAs

Programme results

- Participation in the project, and waste production self audits conducted by key waste producers
- Identified reductions in hazardous waste generated by key waste producers
- Development of industry benchmarks for hazardous waste production
- Adoption of benchmarks by relevant sector groups
- Utilisation of the outcomes of the project by the Ministry for the Environment for the assessment of the need, if any, of the need for further legislation; and the degree to which a self sustaining network can be established following completion of the project, with input from all stakeholders.

Programme requirements

- The appointment of a Reduction Co-ordinator
- Co-operation of industry groups
- Pragmatic identification of key waste streams and waste types for programme
- Monitoring of the project undertaken by the Staff Group.

B.2 Dissemination of information on waste management options

Justification

Information on potential options for hazardous waste management is a prerequisite to its appropriate management. By providing information on appropriate options, generators are able to make informed decisions on how to manage their hazardous waste. Responsible management choices will ensure that the potential impacts on the environment of hazardous waste should be significantly reduced.

Currently, advice is provided by the CCC Hazardous Waste Advisory Service on an informal basis to staff of territorial local authorities within the Canterbury region. The formalisation of this service would greatly improve its effectiveness and further reduce potential environmental impacts

Description of programme

This service will ensure the availability of relevant information about appropriate management options to minimise or dispose of hazardous wastes. With time, information will move toward options for reuse, recycling and recovery of hazardous wastes.

Where possible all information developed under the Strategy will be generic, useable, and accessible, anywhere within Canterbury. All information developed will acknowledge the contribution of all participating parties. To promote hazardous waste practices at the top end of the 5R's waste hierarchy, any information focusing on waste minimisation will carry a common brand.

Three specific services are proposed:

1. Hazardous Waste Advisory Service

The CCC Environmental Services Unit (CCC ESU) currently provides a technical advisory service to generators, handlers and disposers of hazardous waste within Christchurch City, and to other district councils in the region via requests from TA officers. The service is offered on an "as-required" basis and no fee is charged. Information is provided on options available for reuse, treatment, or disposal, of the material as well as acceptance criteria for disposal through any of the CCC's disposal facilities, i.e., treatment works, or Burwood landfill. (When disposal at the landfill is required a waste manifest system is initiated).

This service is available to all generators, handlers and disposers of hazardous waste regardless of the community sector but is generally limited to those within Christchurch other than calls conducted via TA officers. In this Strategy, the relevant information for industrial sector generators would be provided by the Reduction Co-ordinator with CCC ESU advice. For agrichemical and domestic generators, awareness of the availability of this advisory service is required. However, the promotion of the service is not proposed at this stage because of the resourcing burden this may place on CCC staff. Both promotion and monitoring of the service require assessment.

2. Reference guide for territorial authority waste officers

To improve information about hazardous waste management options within the region, a reference guide for TA Waste Officers will be produced. For ease of access and updating, it is likely that this guide will be Internet based.

3. Reference material for generators and handlers

Reference material containing information about district/regional treatment, disposal and minimisation options for hazardous wastes are needed but the specific details about demand and type of information is ill defined. Demand for such information will vary between the waste sectors and with time. Information gathered by the Reduction Co-ordinator and via the region's solid waste exchanges will determine the type of information required by the industry sector about hazardous waste.

Due to the large number and dispersed nature of generators within the agrichemical and domestic sectors the provision of information can be potentially expensive. Consideration will be given to developing reference material accessible electronically, e.g., within a web site with limited hard copies available at TA offices and libraries throughout the region. This will keep publishing costs to a minimum and allow easy updating.

The first information produced will be directed at individual householders to try and raise individual responsibility that may flow into their working environments in other sectors. Hardcopy booklets about alternatives to hazardous substances that can be used in the home will be developed based on existing information. These will be available from all Council offices, libraries and transfer stations in the region.

Programme results

- Improved hazardous waste management by industry and community
- Improved access to information about hazardous waste management options
- Production of regional guidelines for TA Waste Officers
- Provision of information for domestic and agrichemical streams
- Production and maintenance of Internet-based reference material
- Provision of electronically based information.

Programme requirements

- Continued technical advisory service provided by CCC
 - Ensure that district council officers are aware of the advisory service
 - Increase the advisory services effectiveness by formalising its process, monitoring, and reporting systems and auditing those systems
 - Reviewing the operation of this service in Year 3 to consider extension of the service through public promotion
 - Establish demand and type of reference material sought by different sectors
-

- Production and maintenance of electronically accessible reference material
- Information produced to conform to waste minimisation brand.

B.3 Assess viability And liability of minimisation

Justification

There are two reasons for these programmes:

- to determine the level of service provision required in districts to facilitate minimisation of specific waste streams
- to identify any liabilities associated with provision of these services, in particular for reuse of hazardous wastes.

Description of programmes

This programme consists of assessing:

- the availability of services and suitability of the priority hazardous wastes for reuse, recycling, recovery
- ways to stimulate increased use of reuse, recycling and recovery facilities/services
- the link between short term interim storage of aggregated wastes and access to reuse, recycling, recovery and/or disposal facilities/services
- the need for local authorities to provide short term interim storage facilities to facilitate access to reuse, recycling, recovery and/or disposal facilities/services
- the legal requirements and liabilities of reuse of hazardous wastes
- the viability of operating a hazardous waste exchange programme.

Programme results

- Access to reuse, recycling, and recovery facilities/services is assessed
- Service provision requirements are determined
- Local authority's liability identified.

Programme requirements

- Co-operation of local authorities
 - Discussion with local authorities currently providing these types of services, to obtain estimates of costs etc.
-

B.4 Facilitate aggregation

Justification

The provision of interim storage facilities at strategic locations enables the aggregation of small, dispersed quantities of hazardous waste, into quantities for which transportation to end-markets¹⁶ outside the source district is economically viable. This aggregation will enable waste management alternatives such as, reuse, recycling and recovery services to be carried out, or transfer to disposal locations if there is no end market for particular waste types.

Description of programme

This programme will identify the requirements and viability of providing centralised interim storage/drop-off points to enable aggregation of small quantities of hazardous waste for reuse, recovery, recycling or disposal. Following this, collection and transport arrangements will also be determined. Storage will only be undertaken for those wastes for which end-points have been arranged.

Where practicable, TA will then provide and maintain containers appropriate to the waste type at transfer stations (or other locations by arrangement), and publicise the availability of this service.

Programme results

- Requirements for aggregating intractable wastes are quantified
- Increase in the volumes of hazardous wastes aggregated for reuse, recycling, recovery or disposal
- Reduction of unauthorised accidental or deliberate release of small quantities of hazardous wastes
- Provision of aggregation services by TA, where practicable.

Programme requirements

- Information available on:
 - i) Availability of management options
 - ii) Availability of available services for particular waste types
 - iii) Requirements of particular districts.
- Determine appropriate containers and locations for specific waste types
- Where practicable, TA to provide collection facilities.

B.5 Hazardous waste exchange

Justification

Exchanging waste between parties allows it to be reused as a resource. According to the waste hierarchy, where waste cannot be reduced at source, reuse is the preferred method of waste minimisation. For reuse to be a successful management tool in Canterbury, hazardous waste exchanges must be accessible to enable the transfer of information on available and required materials. However, reuse of hazardous wastes is fraught with potential technical

¹⁶ "end-markets" would include a user prepared to reuse a particular type of hazardous waste and would include treatment or disposal facilities for particular types of hazardous waste, which may exist in Canterbury, or outside the region.

and legal constraints and liabilities. These will be explored, and if they are surmountable, a waste exchange will be established for hazardous wastes building on the experiences of existing solid waste exchanges in Canterbury.

Description of Programme

This programme will be dependent on the findings of the programme “*Assess Viability and Liability of Minimisation*” outlined in Appendix B3 above, which will identify whether hazardous waste exchanges are viable.

If viable, this programme aims to identify the most suitable party(ies) to provide a hazardous waste exchange. The scheme will provide information on availability and requirements for materials and assist potential users including industry and landcare groups. The potential exchange schemes are:

1. centralised information brokering
2. information brokering through generator groups.

Centralised information brokering

There are three solid waste exchange programmes operating in the region that could be expanded to include hazardous waste or used as models for an alternative hazardous waste exchange scheme. These exchanges are currently supported by their respective TA, and all are supported by funding from the Environment Canterbury. By administrating a database of available materials these exchanges act as brokers, by publicising materials available and materials wanted within their districts. They also share information to ensure cross-district exchanges where appropriate. All of the exchanges focus on generators in the industrial sectors and all emphasise the need to promote exchange by actively working with industry generators and potential users.

Information brokering through generator groups

Generator networks such as industry or agrichemical groups will be encouraged to discuss/identify/provide information on hazardous wastes available or wanted that are viable for reuse.

Promotion within the industrial sector could be facilitated by the Reduction Co-ordinator and by networks established under that programme. For the agrichemical waste generators, existing Landcare groups would be targeted via existing systems such as the liaison with Environment Canterbury staff, presentations at field days, and workshops.

Technical support on the suitability of particular materials for exchange maybe provided to generator networks through the Technical Advisory Service on request.

The waste exchanges would also tie in closely with the aggregation programme, by identifying potential end markets for aggregated wastes.

Programme results

- The feasibility of reusing certain hazardous waste types is known
 - Quantification of hazardous waste for exchange
 - Viability of hazardous waste exchange(s) is established
 - Identification of legal liabilities of reusing hazardous waste
 - Linkages are established between solid and hazardous waste exchanges, if the latter are established
 - Linkages are established between aggregation facilities and hazardous waste exchanges, if the latter are established.
-

Programme requirements

- Maintain support for existing exchanges
- Investigations on viability of reuse of waste types and legal liabilities of reuse
- Determine appropriate operational models for exchange
- Facilitate establishment of appropriate exchange programmes
- Provision of technical support – ongoing provision of information and training.

B.6 Provision of disposal facilities

Justification

There is a requirement to ensure environmentally safe management for all hazardous wastes. This is a requirement laid down for Territorial Authorities within the Local Government Act 1974.

Currently within the region, there are two disposal facilities, Redruth Landfill (Timaru District) and Burwood Landfill (Christchurch City), that will accept treated hazardous waste from all generators. This is hazardous waste that has been treated so that its hazardous properties have been removed or reduced to levels that are in accordance with acceptance criteria for appropriate disposal. Other district landfills only accept hazardous waste as a component of the domestic waste stream. Disposal of hazardous waste into on-farm pits is prohibited under the Resource Management Act however, the majority of the pits are unauthorised and therefore their location is unknown.

Description of programme

This programme initially focuses on maintaining the existing level of disposal service provided by TAs. It will then address potential opportunities identified within the review programme, outlined in 0 below, and implement the initiatives identified where practicable. These may include but are not limited to:

- reduction of unauthorised disposal of hazardous wastes within the region
- unauthorised activities either authorised or discontinued
- Information on waste generator, handler, type and quantity of waste, collected and retained by disposal or storage facilities
- adoption of minimum acceptance criteria and management practices throughout the region.

The programme aims to ensure access for all, to appropriate disposal facilities for all non-intractable waste. It is accepted that there will be some intractable¹⁷ wastes for which no suitable disposal facility is currently available, either within the region or nationally, and that storage of these wastes will be necessary.

Programme results

- Consistent minimum acceptance and management criteria for hazardous waste disposal throughout the region
- Information on waste generator, handler type and quantity of waste, collected and retained by disposal or storage facilities
- Information on intractable wastes refused admission by disposal facilities.

¹⁷ *Intractable hazardous wastes are wastes for which there are no practicable, accessible or acceptable treatment and disposal processes available.*

Programme requirements

- Maintenance of existing service
- Co-operation of disposal facilities
- Systems established to gather and convey information.

B.7 Review disposal facilities**Justification**

Appropriate disposal services are not available in all parts of the region and in some cases inappropriate facilities are operating because no other facilities are available.

This is a key programme, with information obtained during this programme used in other programmes, including:

- reference material on availability of disposal facilities
- evaluating the requirement to provide interim storage facilities
- evaluating the requirement to provide additional disposal facilities
- evaluating the need for long term storage for intractable wastes.

Description of programme

This programme will identify existing disposal facilities authorised (consented and unconsented) and unauthorised within the region. For authorised disposal facilities information will be compiled on:

- hazardous waste acceptance criteria and operational procedures (including identification, recording and response procedures) used at each facility
- identify deficiencies in their availability and operation
- evaluate and compare the consistency of conditions of the resource consents
- identify volumes and types of wastes being disposed
- establish ability to record information on waste type, characteristics, generator and transporter.

For on-farm or on-site disposal, documentation of individual locations may not be appropriate. However, a limited survey and assessment would provide an indication of the overall use made of these facilities and of the types and quantities of hazardous waste involved.

Information gathered will assist in the development of regionally consistent acceptance criteria, operational procedures, and charging regimes. It will also identify the need for short-term storage facilities to aggregate wastes and evaluate the need for long term storage of intractable wastes.

Programme results

- Information about the location and management of disposal facilities collated and assessed
 - Information on disposal volumes and sources of wastes obtained for other programmes
 - Unauthorised activities either authorised or discontinued
 - Information on waste generator, handler, type and quantity of waste collected and retained by disposal or storage facilities
 - Information on intractable wastes refused admission by disposal facilities.
-

Programme requirements

- Co-operation of disposal facilities
- Systems established to gather and convey information
- Scoped programme proposal
- Co-operation of relevant staff in local authorities.

B.8 Management of intractable waste**Justification**

Currently within Canterbury the safe self-storage of intractable waste by the generator has been promoted rather than a collection and central storage within districts. This programme aims to identify the best storage option until treatment facilities are established within New Zealand, or access to international facilities is arranged.

Description of programme

To identify the best practicable environmental option of storing intractable wastes that cannot currently be treated for disposal within Canterbury. The two potential options are:

- centralised storage, either locally, regionally or nationally
- self-storage by generator.

Programme results

- Long term solution to the management of intractable wastes determined
- Safe storage of intractable waste within Canterbury prior to final disposal.

Service requirements

- Quantification of volumes and types of intractable wastes and their locations within Canterbury
- Identification of best practicable environmental option for intractable waste.

B.9 Minimum hazardous waste management criteria**Justification**

Currently there are no national standards on what wastes are acceptable for disposal at landfills. Although the Ministry for the Environment has indicated that it intends to establish a programme to address this. Currently in the Canterbury region, criteria for acceptance of hazardous waste at landfills is imposed via resource consent conditions. For those consented landfills with acceptance criteria for hazardous waste, the standard for acceptance varies. But in most cases hazardous waste is not accepted at any of these sites, and only two 'consented' landfills are authorised to accept hazardous waste.

In order to ensure that districts within the region are not perceived as easy dumping grounds and therefore attract more than their fair share of wastes, a regionally consistent approach to waste disposal is required. The production of minimum operational procedures and acceptance criteria will aid in minimising potential adverse effects of waste on the environment.

Description of programmes

This programme will investigate:

- a regionally consistent minimum hazardous waste acceptance, treatment, and recording system
- operational procedures for hazardous waste deposition for all disposal sites accepting hazardous waste
- actions needed to bring sites up to the minimum standard.

This programme involves the development of minimum hazardous waste management criteria including acceptance criteria and operational procedures for current treatment and disposal facilities. It will be based on reviewing of existing facilities, examining internationally accepted waste management criteria, and identification of criteria to be applied in Canterbury. This may involve identifying the need for new facilities.

If national criteria become available they will be implemented as a minimum requirement at Canterbury sites. Until that time, within the Canterbury Region, the Centre for Advanced Engineering's Landfill Guidelines will be used as a guide for the Canterbury sites.

Programme results

- Regionally consistent minimum acceptance criteria identified and/or determined
- Regionally consistent minimum operational generic procedures developed and guidelines produced.

Programme requirements

- Reviews of current disposal facilities practices undertaken.

B.10 Review of controls

Justification

A number of controls exist to manage hazardous waste, yet their use and efficacy is variable throughout the region. Constraints on resources and access to information gives rise to inconsistencies in applying controls so that some areas suffer the adverse effects of hazardous waste more than others. Stronger integration is needed in the use of controls between districts, and between forms of control, so that one hazardous waste management method does not give rise to other adverse effects that are not adequately addressed.

Description of programme

Two areas will be addressed in this programme:

Use of current statutory powers

Includes:

- assessment of relevant provisions in Health Act, RMA etc. controlling hazardous waste management and the ability for local authorities to regulate generators, handlers, and disposers
- legal advice on interpretation and recommendations in guidelines.

Use of economic instruments

Includes:

- assessment of economic incentives / disincentives to achieve hazardous waste minimisation, and appropriate waste management where this cannot be achieved
-

- recommendations of those incentives / disincentives to be adopted in Canterbury. Each of the programmes would consist of:
- an assessment of current powers or standards
- current implementation of these powers or standards within territorial authorities in the region
- an assessment of national policy or programmes under development
- consider options for integration within the region
- develop guideline documents for use by local authorities.

Programme results

- Changes to regulatory, planning and economic framework needed to implement controls are identified
- Controls are used to their fullest extent and implemented where practicable throughout the region.

Programme requirements

- Co-operation of Local Authorities
- Co-operation of waste management industry.

B.11 Guidelines for local authorities

Justification

Local Authorities require easily accessible information to enable hazardous waste management controls to be used to their full potential throughout the region. Controls need to be used reasonably consistently to prevent cross-boundary issues and ensure that they are enforced. The co-ordinated approach to waste management by the Canterbury Waste Subcommittee will assist in ensuring consistency.

Description of management approach

Information compiled via the programmes will be developed into a set of guidelines for use by local authorities. These guidelines will encourage regional consistency in undertaking and regulating waste management activities via maximum application of:

- existing statutory powers
- economic instruments, i.e., incentives and disincentives
- acceptance criteria and operational procedures at disposal facilities.

The form and provision of the guidelines will be developed by the Staff Group.

Programme results

- Hazardous waste management practices are as consistent as is practicable across the region
- Generic information is available to all councils in Canterbury
- Acceptance criteria and operational procedures at disposal facilities meet minimum criteria throughout the region.

Programme requirements

- Access to relevant staff and information in local authorities, i.e., resource consents, enforcement, planning, bylaw regulations, economic analysts etc.
-

- Discussion with local authorities about their information needs and most effective delivery of information.

B.12 Co-ordinated management of the strategy

Justification

The Strategy has been developed by all councils in Canterbury (excepting Waitaki) and it is appropriate that they are all kept informed of developments and have an ongoing say in its implementation. Furthermore, it is this group who will provide advice and ongoing information about changes occurring through the Strategy's implementation. That is, they will provide information to monitor the success of the programmes and provide appropriate review and modification of the Strategy and its implementation.

Description of management approach

Joint local authority co-ordination through the Working Party and the Canterbury Waste Subcommittee will continue to ensure co-ordination of implementation, monitoring and review of the Strategy. Budgetary provision for its implementation has been agreed and provided for in detail for at least the first two years of the programme.

The Staff Group will continue to meet regularly to review the programmes and provide information. Responsibility for co-ordinating and convening both groups rests with the Environment Canterbury via the Hazardous Substances and Waste Management Officer. To implement programmes, tasks may be undertaken by that officer, delegated to other members of the Staff Group or other Council staff, or contracted out to appropriate consultants or community groups. The appropriateness of this management approach will be reviewed annually.

Programme results

- Continued local authority co-operation
- Implementation and review of Strategy undertaken
- Information flows freely between all councils in Canterbury to enable informed decisions to be made about hazardous waste management.

Programme requirements

- Ongoing co-operation between authorities
- Ongoing financial support for external goods and service costs associated with the Strategy and its implementation.

B.13 Advocate to central government and other parties

Justification

The management of hazardous wastes both within Canterbury and nationally currently relies on voluntary initiatives. This requires liaison between parties and exchange of information and advice. There are situations where voluntary approaches are not successful and change is needed to legislative and/or economic controls to improve hazardous waste management practices or improve process.

Description of management approach

Advocating for appropriate hazardous waste management practices and integrated management regime to central Government and other parties, including industry and community groups, will occur through a number of methods:

- submissions to the Ministry for the Environment on specific programmes
-

- participation on technical working groups
- presentation of information about the development of the Strategy and ways it is being implemented to affected parties and interest groups
- advising central government and other parties about legal and technical changes required to address inappropriate hazardous waste management practices and disjointed management
- advocate the requirement for a national solution to the management of intractable waste.

Programme results

- There is an increased awareness of the need for appropriate hazardous waste management practices and integrated management throughout the regional community and nationally
- Increased information flow between affected parties
- Deficiencies in the national approach to hazardous waste management are addressed.

Programme requirements

- Ongoing co-operation between authorities
 - Information flows freely between all councils in Canterbury
 - Identification of parties with whom appropriate hazardous waste management mechanisms can be developed
 - Opportunities and improvements in hazardous waste management are identified and conveyed.
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Appendix C – Detailed budget

			Environment Canterbury	Christchurch City Council	Timaru District Council	Waimakariri District Council	Ashburton and Selwyn District Councils**	Banks Peninsula, Hurunui, Kaikoura, Mackenzie and Waimate District Councils**	Total
IMPLEMENTATION PROGRAMMES									
Reduction programme ‡	99/00	Year 0	9,538	3,815	1,335	954	763	382	19,075
	00/01	Year 1	16,250	6,500	2,275	1,625	1,300	650	32,500
	01/02	Year 2	10,000	4,000	1,400	1,000	800	400	20,000
	02/03	Year 3							
Dissemination of information about waste management options ‡	99/00	Year 0	10,000	4,000	1,400	1,000	800	400	20,000
	00/01	Year 1	20,000	8,000	2,800	2,000	1,600	800	40,000
	01/02	Year 2	15,000	6,000	2,100	1,500	1,200	600	30,000
	02/03	Year 3	20,000	8,000	2,800	2,000	1,600	800	40,000
Assess viability and liability of minimisation	99/00	Year 0							
	00/01	Year 1	13,750	5,500	1,925	1,375	1,100	550	27,500
	01/02	Year 2							
	02/03	Year 3							
Facilitate aggregation	99/00	Year 0							
	00/01	Year 1	12,500	5,000	1,750	1,250	1,000	500	25,000
	01/02	Year 2	7,500	3,000	1,050	750	600	300	15,000
	02/03	Year 3	7,500	3,000	1,050	750	600	300	15,000
Hazardous waste exchange *	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2	10,000	4,000	1,400	1,000	800	400	20,000
	02/03	Year 3	10,000	4,000	1,400	1,000	800	400	20,000
Provision of disposal facilities	99/03	Year 0-3							
Review disposal facilities	99/00	Year 0							
	00/01	Year 1	17,500	7,000	2,450	1,750	1,400	700	35,000
	01/02	Year 2	5,000	2,000	700	500	400	200	10,000
	02/03	Year 3							
Management of intractable wastes	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2	10,000	4,000	1,400	1,000	800	400	20,000
	02/03	Year 3	10,000	4,000	1,400	1,000	800	400	20,000
Minimum hazardous waste management criteria	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2							
	02/03	Year 3	12,500	5,000	1,750	1,250	1,000	500	25,000
Review of controls	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2	10,000	4,000	1,400	1,000	800	400	20,000
	02/03	Year 3							
Guidelines for local authorities	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2							
	02/03	Year 3	12,500	5,000	1,750	1,250	1,000	500	25,000
Co-ordinated management for strategy †	99/00	Year 0	5,000	2,000	700	500	400	200	10,000
	00/01	Year 1							
	01/02	Year 2							
	02/03	Year 3							
Advocate to govt. & other parties †	99/03	Year 0-3							
STRATEGY MONITORING									
Monitoring strategy	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2	5,000	2,000	700	500	400	200	10,000
	02/03	Year 3	7,500	3,000	1,050	750	600	300	15,000
Monitoring improvements in waste management practices	99/00	Year 0							
	00/01	Year 1							
	01/02	Year 2	7,500	3,000	1,050	750	600	300	15,000
	02/03	Year 3	7,500	3,000	1,050	750	600	300	15,000

‡ Year 0 project already underway

* Dependent on investigation outcomes

† Internal costs other than dissemination of Strategy

** The costs indicated are to be met by each council individually not combined.

Notes

The costs indicated for Years 0,1 and 2 are defined within the budget envelope. Year 3 is indicative only as it will depend on programmes undertaken in Years 1 and 2

Annual Totals	
Year 0	49,075
Year 1	160,000
Year 2	160,000
Year 3	175,000

