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CORK CITY COUNCIL



THE CORK CITY WASTE MANAGEMENT PLAN

2004-2009

EXECUTIVE SUMMARY

1. Introduction

1.1 Background

Cork City Council has formulated this Waste Management Plan as required under the terms of the Waste Management Act 1996-2003 and the Waste Management (Planning) Regulations 1997.

The City Council is committed to the goal of promoting sustainable waste management in Cork City, in full co-operation with the city's residents, businesses, industry and other stakeholders.

Waste Management cannot be viewed in isolation from other environmental issues including conservation of resources and environmental pollution. In other words, the quantities and types of waste produced are dependent on the products bought, the length of time for which those products are used and the manner in which they are dealt with when there is no further use for them. Sustainable waste management requires the concerted and continuous effort of all of the city's waste producers, irrespective of the quantities of waste they produce. Each of us thus has a specific responsibility to introduce an element of sustainability into the way resources are used, as well as into consumption patterns and waste management choices.

The achievement of truly sustainable waste management will depend on several factors. The way in which society thinks about waste has to change. An "out of sight, out of mind" attitude is no longer acceptable. Individuals, businesses and local authorities must work together closely to achieve the degree of co-operation required to bring about an integrated sustainable Waste Management system.

A number of key objectives underpin the goal of sustainable waste management described in this Waste Management Plan. Specifically, Cork City Council will work to ensure that:

- We will introduce Pay by Use for refuse collection from 1st January 2005;
- We will endeavour to reduce the amount of waste produced through awareness raising and education;
- We optimise use of the waste that is produced;
- All waste management carried out in Cork City is completed in such a way as to minimise the risk of immediate or future detrimental environmental impact. Such impacts include land use, resource depletion and harm to human health;

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- Greater understanding and appreciation of waste management and resource depletion issues are facilitated. This will include the encouragement of public participation in the formulation, implementation and review of this Waste Management Plan;
 - By facilitating widespread consensus for the need to change, the citizens of Cork will support the positive changes planned for the coming months and years;
 - Heightened awareness is translated into action towards sustainable waste management;
 - All interested parties and persons are included, as far, as is practicable, in the waste management planning and implementation process.

Waste is an inevitable by-product of our society and managing this waste more effectively is a challenge that society as a whole has to address. There are two fundamental requirements of a sustainable waste management system: produce less waste in the first place and then develop an effective system for managing the waste still produced. That system must ensure human health and safety by preventing the spread of disease and it must also be environmentally and economically sustainable. Environmental sustainability refers to the need to reduce as much as possible the environmental impacts of waste management including energy consumption, pollution of land, air, water and loss of amenity. Economic sustainability, on the other hand, requires that a waste management system operates at a cost that is acceptable to the community (including the local authority).

In reality, however, there is always a trade-off required in order to balance environmental and economic sustainability. This balance allows us to reduce the overall environmental impacts of waste management as far as possible, within an acceptable level of cost. Deciding on that balance requires a solid foundation of accurate statistics on waste quantities and types, as well as on recycling and landfilling activities and the costs of waste collection and treatment. This information will allow us to identify the impacts which waste management are currently having and will also prompt ideas for improvement.

Traditionally in Cork City, as in the rest of Ireland, most of our solid waste has been landfilled. This situation must change as a consequence of a number of factors, which include national and EU legislation, the reduction in the amount of suitable land available for landfills and the need to exploit the inherent material and energy content of the materials we classify as wastes. A sustainable waste management system utilises a range of treatment methods from recycling and composting to thermal treatment and landfill. In order that this range of treatment methods can be used in the context of Cork City, a number of changes must be implemented. Cork City Council will provide the necessary facilities (e.g. Bring Sites, mechanical waste separation capacity and composting facilities) but it is up to each citizen to ensure that these facilities are utilised as far as possible. This means that as a society we must buy less packaging, re-use waste materials, participate in kerbside separate collection schemes and bring recyclables to Bring Sites and Civic Amenity Sites.

This Waste Management Plan describes the specific actions identified by Cork City Council as being essential in our pursuit of sustainable waste management for Cork City.

1.2 Scope

This Waste Management Plan deals only with solid waste. Liquid and gaseous emissions are not addressed. Information is provided on the current systems in place for the collection, recovery and disposal of waste in the city. Detailed statistics on the quantities of individual waste streams and fractions produced in Cork City are also provided. Finally, the Plan describes the specific actions that will be undertaken by Cork City Council over the next five years.

1.3 Key Drivers

There are a number of important drivers that impacted on this Waste Management Plan. These include the Waste Management Strategy for the Cork Region, which was completed by the City Council in conjunction with Cork County Council in 1995, and which forms the overall framework for sustainable waste management in Cork City.

The main elements of the Strategy that Cork has adopted up to the year 2020 are:

1. The expansion of the city's existing system of Bring Sites;
2. The provision of at least two large Civic Amenity Sites¹ (one of which is already in place at the Kinsale Road Landfill site and which has been considerably extended in 2000) where the public can deposit recyclable materials and other wastes which are not collected by standard refuse collection services (e.g. furniture and discarded kitchen appliances);
3. The construction of a Waste Recovery Facility² which will allow for the mechanical separation of recyclables and will divert these separate materials to the appropriate recycling facility. For example, glass will be crushed and disposed of, at the lowest possible cost, to specialist glass re-processors for recycling, whereas biodegradable wastes (such as food and garden wastes) will be composted in a cost effective manner for re-use in agriculture and gardening activities. This facility will thus reduce the quantities of waste going to landfill and increase the city's recycling rates;
4. Operating the Kinsale Road Landfill site in accordance with the terms of its Waste Licence and in such a manner as to limit its potential environmental impact (e.g. collection & use of landfill gas to generate electricity, treatment of leachate etc.);
5. The construction of a new state-of-the-art landfill site for residual wastes to replace the Kinsale Road Landfill when it has reached its full capacity;

¹ A Civic Amenity Site is an area where recyclable household waste materials are brought by the public for appropriate management.

² Comprised of a mechanical separation plant for unsorted municipal waste and a composting plant for organics.

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6. The development of the Kinsale Road Landfill site, when closed, to serve as an important recreational asset for the city. The site will also retain its Civic Amenity Site and provide other waste management activities.

Although the Cork Region Waste Management Strategy is intended to provide a framework for waste management in the region until the year 2020, the Strategy has provided for reassessment of the options chosen throughout the intervening 25-year period. Therefore, subsequent reviews of the City Council's Waste Management Plans will include examination and review of these options and the assessment of new waste management techniques and technologies that may be pertinent to Cork City. Furthermore, a review of the joint Waste Management Strategy may be warranted during the five-year period covered by this Waste Management Plan.

Besides the Waste Management Strategy, this Plan has been guided by government policy on waste management that states that local authorities must identify methods by which the following goals can be achieved:

- a) The regionalisation of waste management planning. (*It should be noted that Cork City Council has already adopted this approach by virtue of close co-operation with Cork County Council on a number of waste-related issues – including the preparation of a joint Waste Management Strategy in 1995*);
- b) A significant reduction in reliance on landfill, in favour of an integrated waste management approach (*A number of Cork City Council initiatives, including the provision of a Waste Recovery Facility and a second Civic Amenity Site will ensure that Cork City's current reliance on landfill will be reduced*);
- c) Increased participation by the private sector in the provision of waste management services;
- d) A more effective and equitable system of charging for waste services;
- e) Greater utilisation of legislative instruments; and
- f) An emphasis on the importance of public support, education and participation in waste management generally.

Irish policy on waste management is presented in the Department of the Environment Heritage and Local Government's policy statement of September 1998 (*Changing Our Ways*) and in *Taking Stock and Moving Forward* published in April 2004. These policy statements, now form the cornerstone of all waste management planning in Ireland, details the most important issues facing Ireland in the future in this regard, focussing principally on the need for a reduction in our reliance on landfill and the implications of this step.

In addition, the formulation of the Plan has been guided by the following important principles embraced by the EU, namely:

- **Polluter Pays Principle** – that those who cause waste generation should be the ones to pay for the management of that waste, including the costs of collection, treatment, disposal and the aftercare of waste disposal sites;
- **Proximity Principle** – that waste should be managed (i.e. treated and/ or disposed of) as close to where it was generated as possible;
- **Precautionary Principle** – that any risk of environmental pollution must be assessed and alleviated where required; and

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- **Principle of Shared Responsibility** – that all sectors of society should feel responsible for the environment, and as such always act responsibly towards it (including payment of the associated costs).

There are also a number of legislative tools that must be complied with by local authorities in the discharge of their duties under the Waste Management Acts, 1996 - 2003. For example, the EU **Landfill Directive** (adopted in April 1999) sets a number of stringent standards and targets for landfill operators. These include the following:

- a) A staged reduction in the quantities of biodegradable waste entering landfills. The first target which must be met relates to the year 2005, when the quantity of biodegradable municipal waste going to landfills must be reduced to 75% of the total amount (by weight) produced in 1995;
- b) Municipal Solid Waste must be treated before it is landfilled;
- c) Liquid waste, flammable or explosive waste, infectious hospital or clinical waste and used tyres can no longer be accepted at landfills;
- d) The full costs of landfilling (including set-up, operation, closure and aftercare costs) must be reflected in the gate fees levied at the site (in-line with the Polluter Pays Principle); and
- e) Disposal of hazardous and non-hazardous waste in the same site will be prohibited, and landfills must thus be classified into one of the three following categories – landfill for hazardous waste, landfill for non-hazardous waste or landfill for inert waste.

2. EXISTING WASTE MANAGEMENT IN CORK CITY

2.1 Introduction and Methodology

Cork is the second largest city in Ireland, with a population of 123,062 persons. There are 42,742 households in the city, with an average household size of 2.8 persons per household. The most important employment sectors in the city are the manufacturing industry and the professions.

2003 has been chosen as the baseline year for the compilation of waste statistics for this Plan as the data relating to this year are the most accurate and up-to-date available. Information on the quantities and types of waste being generated, recycled, disposed of or otherwise managed in Cork City have been obtained from a number of sources, the most important of which are:

- The City Council's own records and statistics relating to waste management in the city;
- Records of the quantities of waste being landfill in the Cork Region in 2003;
- The EPA National Waste Database 2001;
- The Waste Management Strategy for the Cork Region, 1995;
- Central Statistics Office;
- Information supplied from Waste Collection Contractors and permitted facilities;

- EPA Waste Licence and industrial IPC-Licence³ records;
- Various governmental data;
- The results of national and international research into waste management;
- TFS and C1 Documentation;
- Other sources.

It is important that information on both waste streams and waste fractions is included in any Waste Management Plan. This reflects the fact that *waste stream statistics* are required to enable us to monitor the performance of particular sectors with respect to waste avoidance measures, as well as providing information on waste collection requirements and other important logistics. *Waste fraction statistics*, on the other hand, are vital as they allow us to calculate the required recycling and treatment facility capacities. For example, glass is produced by all sectors in Cork City and is thus classed as a waste fraction. Understanding how much glass waste is produced each year allows the City Council to determine the size and number of bring banks that should be provided across the city. Similarly, information on the amount of biodegradable (or compostable) wastes produced in the city allows us to plan composting facility capacity.

2.2 Total Quantities of Waste Generated

Approximately 115,381 tonnes of Municipal Solid Waste were generated in the city of Cork in 2003 (equivalent of 0.94 tonnes of waste produced per person in the city).

Table 2.1 summarises information on the different waste fractions currently being generated in Cork City

Table 2.1 Waste Fractions Produced by the Household and Commercial Sectors in Cork City in 2003

Fraction	Quantity in Household Waste	Quantity in Commercial Waste	Quantity Public Cleansing Waste	Total Quantity in Cork City
Paper	11,484.44	28,331		39,815.44
Glass	2,088.08	4,132		6,220.08
Plastic	6,264.24	5,902		12,166.24
Metal	2,088.08	1,771		3,859.08
Textiles	2,088.08	590		2,678.08
Organic	16,704.64	12,395		29,099.64
Miscellaneous	11,484.44	5,902	4,156	21,542.44
TOTAL	52,202	59,023	4,156	115,381

³ EPA Integrated Pollution Control Licences are required for all large-scale industrial companies in this country. These licences require the monitoring of the emissions arising from the company's activities – including solid waste production levels.

2.3 Waste Avoidance and Public Awareness

International experience has demonstrated that stakeholder commitment is best obtained and maintained via the development of targeted and continuous **public awareness** information. This information must convince waste producers of the benefits of avoiding waste production and the negative environmental impacts of continuing current habits. As well as identifying the problem, however, this information must also include the solution to the problem, in other words, simple, easy-to-follow instructions identifying the most effective methods of avoiding waste should be included.

A great deal of emphasis is always placed on the ways in which municipal waste arisings are handled, treated and disposed of. A far more sustainable approach, however, would be to ensure that the waste is not generated in the first place (**waste prevention**). If it is not produced, it does not have to be managed, however, there will always be situations where some waste production is unavoidable. The best approach in the latter case would be to ensure that the quantity produced is as low as it can possibly be (**waste minimisation or reduction**). This approach is also in accordance with EU and National Policy.

As well as targeting the actual *quantities* of waste produced in the city, it is also important that the *pollution-potential* of waste be reduced. This requires the substitution of hazardous materials with more environmentally alternatives. This goal also requires specific, targeted public awareness efforts. Cork City Council is committed to ensuring that information on waste avoidance reaches all waste producers in the city, providing them with the information they need to make better and sustainable choices in the future.

Some of the methods by which the City Council is currently addressing the need for waste avoidance are:

- An environmental auditing scheme for schools, called the *Green Flag Award* scheme;
- The *Green Fáilte* environmental auditing scheme for hotels in the city;
- Close co-operation with Cork County Council, particularly in the development of waste prevention and minimisation initiatives;
- Cork City Council's own in-house *Green Housekeeping* Initiatives.

2.4 Waste Collection and Reception

There are two main methods by which wastes are made available to waste management facilities, namely:

- Waste collection from the waste's point of origin and its subsequent delivery to the appropriate facility – e.g. household door-to-door refuse collection by local authorities; and

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- Deposition of wastes at receptacles located centrally for that purpose – e.g. Bring Sites for domestic recyclables.

In general, the city's waste arisings can be collected and disposed of as follows:

- By Cork City Council;
- By private collection companies;
- By the waste generator themselves – be it a householder, commercial or industrial premises, or the waste division of an individual company; and
- By specialist waste collectors.

Cork City Council has a statutory responsibility to arrange for the collection and disposal of domestic refuse and litter generated within Cork City. Cork City Council operates a wheeled bin collection system for the collection of refuse. Almost all of the city's households utilise the City Council's refuse collection service, with the balance using private waste contractors.

Private waste collection contractors operate within Cork City usually using a wheeled bin system for household waste collection and skips for non-household wastes. Skips are also hired out to a wide range of establishments – hotels, pubs, hospitals and businesses – and are collected on a weekly basis, or when full.

In terms of reception capacity for recyclables, the City Council provides (in conjunction with private companies) 41 Bring Sites for a range of recyclable materials across the city. This represents a provision rate of 1 site per 3,000 people. In addition, the city also has a Civic Amenity Site located at the site of the Kinsale Road Landfill. This facility provides for the reception of a wide range of materials (including glass, aluminium cans and waste oil). The City Council plans to provide a second Civic Amenity Site to serve the north of the city over the next five years.

2.5 Waste Recovery

Components of most waste streams can be re-used or recycled if:

- a) The material is suitable – i.e. it has been segregated appropriately, resulting in a product which is not significantly contaminated; and
- b) An economically viable market exists for the secondary materials to use. A key example here is the market for recycled paper, which fluctuates quite markedly depending on the cost of virgin wood and the demand for paper products.

Cork City council is firmly committed to the goal of increasing the city's recycling rates with respect to all waste fractions. Particular emphasis will be placed over the next five years on waste paper/cardboard. This has been chosen as it is produced by all sectors of Cork society, it is the largest single waste fraction generated in the city each year and it is both biodegradable and recyclable.

The City Council will promote paper recycling by:

- Introducing a scheme for collection of dry recyclables including paper and cardboard from domestic customers in the city over the next two years;
- Recycling it's own paper;
- Raising public awareness of the need to reduce the quantities of paper waste produced and the importance of recycling;
- Pro-actively encouraging markets for recycled paper;
- Provision of reception facilities for paper waste at its Civic Amenity Site(s);
- Continuing collection of paper and card from our commercial customers;
- Enforcement of the Packaging Regulations.

2.6 Waste Disposal

The only municipal facility for the disposal of waste in Cork City is the Kinsale Road Landfill. Approximately 59461 tonnes of solid waste were landfilled in 2003 (Table 2.2). The City Council is committed to the reduction of the volumes of the city's wastes that are landfilled.

Table 2.2 Waste Entering the Kinsale Road Landfill Site in 2003.

Waste Type	Quantities Deposited (tonnes)
Household	47,594
Commercial	6,911
Non-Hazardous Sludges	800
Parks and Public Cleansing	4,156

(Source: AER 2003)

3. ACTION PLANS FOR CORK CITY

The following are the most important actions planned by Cork City Council for stabilising (and if possible reducing) the quantities of waste produced in Cork City over the next 5 years. Also included are Cork City Council's plans with respect to improved public awareness of waste management issues and avoidance of waste generation:

- **Public Awareness Measures** –Cork City Council will implement measures aimed at communicating the benefits of waste prevention and minimisation to the general public, including co-operation with government led public awareness initiatives;

- **Promote improved Waste Management in Private Industry** – Cork City Council will continue its pro-active approach to waste minimisation and prevention in private industry through presentations, participation on waste management committees, informal assistance and participation in waste management award schemes for industry;
- **Green Fáilte Award for Hotels** – The City Council will continue to support this scheme which is aimed at assisting hotels in the identification of the main environmental impacts associated with their activities, and the provision of advice on methods of reducing those impacts;
- **Schools Programme** – Cork City Council will continue to implement its school initiatives including supporting the An Taisce Green Flag Award Scheme, talks on waste management and litter, support the provision of recycling infrastructure for schools;
- **Assessment of Town Planning Applications and Enforcement of Conditions** – Cork City Council will strive to improve waste management practices in all new developments through the imposition and enforcement of conditions relating to provision of recycling infrastructure;
- **Green Housekeeping** – Cork City Council's Green Housekeeping Committee, which is responsible for the development of more environmentally responsible practices within the City Council will continue to operate;
- **Charging Policy** – In line with national policy, Cork City Council will introduce a pay-by-use refuse collection system from 1st January 2005;
- **Environmental Management System** – The City Council will continue its policy of seeking ISO 14001 accreditation for more of its activities;
- **Separate Collections** – Cork City Council will introduce a scheme for the provision of a door-to-door collection of dry recyclables from all its domestic refuse customers on a phased basis from August 2004;
- **Recycling Infrastructure**- Cork City Council will endeavour to expand its recycling infrastructure over the next 5 years;
- **Civic Amenity Site** -Cork City Council will install one new Civic Amenity Site on the northside of Cork during the lifetime of this plan;
- **Separate Collection of Household Biowaste** - Cork City Council will assess the introduction of a separate door-to-door collection of biowaste from its refuse collection customers;
- **Waste Recovery Facility**- Cork City Council will co-operate with Cork County Council in the development of a Waste Recovery Facility which will allow active segregation of a large number of waste streams for their more effective recovery and disposal;
- **Green Waste and Timber Waste Recycling**- Cork City Council will endeavour to continue the operation of its green waste and timber waste recycling facilities at the Kinsale Road Landfill Site.
- **Kinsale Road Landfill Site**-The City Council will carry out all necessary works at the Kinsale Road Landfill Site to ensure compliance with the relevant legislation and

with the conditions set in the EPA Waste Licence and in the Environmental Management System for the site.

- **Energy Recovery** -Cork City Council will continue to recover energy from the landfill gases generated at the Kinsale Road Landfill Site through the operation of the electricity generating plant located at the site.
- **Residual Landfill Site** - Cork City Council will co-operate with Cork County Council in the development of an engineered residual landfill site in Cork County. The site selection process for this landfill has been completed, approval has been granted by An Bord Pleanála and a Waste Licence has been granted by the EPA.
- **Anti- Litter Campaign** - An Anti-Litter campaign will continue with an emphasis on Cigarette Butts, Dog Fouling and Chewing Gum. An Anti-Litter Video is to be sent to all schools in 2004.
- **Litter Bins** - The City Council will continue to provide and replace Litter Bins, all of which will have facilities for cigarette and chewing gum disposal.
- **Fly Postering** -The City Council will commence a programme of providing Anti-Fly Postering covering on street furniture in the city centre from August 2004.
- **Street Cleaning** - The street cleaning programme will continue throughout the city. A street vacuum scrubber has been hired for specific use on St. Patrick Street;
- **Chemcar** -Cork City Council will continue to support the operation of the Chemcar programme for the collection of household hazardous waste in the Cork Region. The implementation of the Chemcar programme is made possible through the sponsorship received from private industry.
- **Transfrontier Shipment of Hazardous Waste** -Cork City Council will continue to operate the correct procedures for the transport of hazardous wastes within and outside of Ireland. Shipments of hazardous waste must be accompanied by a consignment note issued by the local authority of origin of the waste. Such notes must be forwarded to the EPA;
- **Provision of a WEEE Facility** – Cork City Council will endeavour to provide the appropriate reception facilities to cater for Waste Electrical and Electronic Equipment in accordance with the WEEE Directive.

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1. INTRODUCTION

Background

This Waste Management Plan has been formulated by Cork City Council to address the challenge of waste management in Cork City, the second city of Ireland in terms of economic importance and population. The Plan is born out of our goal of *Sustainability* – preventing the deterioration of society and the environment by cultivating supportable ways of living. Effective waste management is fundamental to this goal of Sustainable Development. This Plan covers the period from 2004 to 2009, and will be reviewed and updated at five-year intervals thereafter.

Moving towards a more sustainable waste management system requires a fundamental attitude and cultural change on the part of all waste producers (including householders). Local authorities have an important role to play in the promotion of sustainable waste management. In recognition of this fact, Cork City Council is committed to continuing the process commenced in 1999 – by promoting and encouraging recycling and composting and by actively reducing the city's reliance on landfill. Furthermore a number of waste reduction initiatives have been undertaken over the last five years including processing Construction and Demolition Waste, Green Waste and Timber Waste.

The City Council's education and awareness programmes, in addition, have been designed to communicate the need for change to the city's waste producers with the aim of stimulating the development of more sustainable attitudes.

The other methods by which the City Council is steering the city towards a more sustainable waste management regime include a co-operative approach with the various waste-producing sectors in Cork City. In addition, the City Council has identified a clear strategic policy direction, which sets the overall framework within which change will occur in the city. That policy approach, which is outlined in this Waste Management Plan, provides the guidance and direction required for the next five years. However, the City Council recognises the importance of flexibility in waste management planning, as changing public opinion and consumerism choices, as well as new legislation, can have significant impacts on the waste management needs of a particular region or city. As such, this Plan allows for the review and modification of the city's overall strategic policy direction if and when required.

Objectives

A number of key objectives underpin the goal of sustainable waste management described in this Waste Management Plan. Specifically, Cork City Council will work to ensure that:

- We will introduce Pay by Use for refuse collection from 1st January 2005;
- We will endeavour to reduce the amount of waste that is produced through awareness raising and education;
- We optimise use of the waste that is produced;

- All waste management carried out in Cork City is completed in such a way as to minimise the risk of immediate or future detrimental environmental impact. Such impacts include land use, resource depletion and harm to human health;
- Greater understanding and appreciation of waste management and resource depletion issues are facilitated. This will include the encouragement of public participation in the formulation, implementation and review of this Waste Management Plan;
- By facilitating widespread consensus for the need to change, the citizens of Cork will support the positive changes planned for the coming months and years;
- Heightened awareness is translated into action towards sustainable waste management; and
- All interested parties and persons are included, as far, as is practicable, in the waste management planning and implementation process.

These objectives are described in greater detail in Section 1.2 of this plan.

The Plan identifies the actions that will be undertaken by the City Council in order to:

- Implement the overall strategic waste management direction identified in the Waste Management Strategy for the Cork Region (1995); and
- Fulfil the waste management planning obligations stipulated in the Waste Management Acts 1996 to 2003 and the Waste Management (Planning) Regulations, 1997.

The Plan bridges the gap between policy and action, and has been designed to both inform the public and seek their commitment to improved waste management practice in Cork City. For example, the City Council's continuing goal of increasing the city's recycling rates and reducing the quantities of waste produced can only be achieved if the support of the public is obtained.

Waste Streams and Fractions

A Waste Management Plan covers all aspects of solid waste management from collection to recycling and final disposal. Gaseous and liquid wastes are not included. In addition, all solid waste streams and fractions are addressed. A *waste stream* is a mixture of different waste materials produced as a result of the actions of a particular sector or activity (e.g. household waste or agricultural waste). A *waste fraction*, on the other hand, is a specific material, which may be produced by a number of different sectors (e.g. glass and paper which are produced by households, businesses and industry).

All of the solid waste streams and fractions produced in the city are important, as they can have potential environmental pollution impacts if managed inappropriately. It is the aim of Cork City Council to address the largest and most problematic wastes first. This Waste Management Plan will address all waste streams but will focus on waste paper specifically.

Also discussed in this chapter are the aims and objectives of this Waste Management Plan, and the waste management policy and functions of Cork City Council.

1.1 Target Waste Streams

Waste Paper

With respect to the paper fraction of the waste generated in Cork City, the reasons for its targeting in this Plan are:

1. It is a material that is produced by all sectors of society;
2. It is biodegradable;
3. Landfilling paper contributes to the release of methane gas (a gas which is known to contribute to the Greenhouse Effect) and leachate (contaminated water which has the potential to damage drinking water supplies, habitats, and wildlife if it is not contained);
4. The Landfill Directive and the proposed Biodegradable Directive specifically targets the biodegradable fraction of waste for diversion away from landfill;
5. The production of paper utilises natural resources and contributes to the destruction of valuable habitat. Ensuring that the quantities of paper used are minimised and that maximum recycling and re use is facilitated, will limit the number of trees which must be felled to make paper products; and
6. Paper is a material that has intrinsic material and energy value – it can be recycled, composted, or otherwise treated to release energy or it can be burned to generate electricity and power. It is readily recycled to produce high-value secondary products. However, market forces can be a barrier to significant paper recycling at times.

Cork City Council has three main roles with respect to the promotion of paper recycling, namely as a producer of paper waste, as a provider and supporter of paper recycling schemes, and as a user of paper products. In recognition of these responsibilities, the City Council will promote paper recycling by:

- Introducing a scheme for collection of dry recyclables including paper and card from domestic consumers in the city over the next two years;
- Recycling its own paper waste;
- Raising public awareness of the need to reduce the quantities of paper waste produced, and the importance of recycling;
- Pro-actively encouraging markets for recycled paper (e.g. by purchasing recycled paper products wherever possible);
- Provision of reception facilities for paper waste at Civic Amenity Site;

-
- Continuing collection of paper and card from our commercial customers; and
 - Enforcement of the Packaging Regulations.

1.2 Aims and Objectives of the Waste Management Plan for Cork City

The aims of this, the second Waste Management Plan for the city, are:

- | |
|---|
| <ul style="list-style-type: none">a) To make Cork a more sustainable city, by ensuring that our waste management activities do not compromise the quality of the environment and by preparing the ground now for necessary changes which need to be made over the coming months and years;b) To sustain the change in the way we view wastes;c) To communicate the need for change in our waste management practices;d) To provide a clear policy direction for waste management in the city over the coming years, while retaining the flexibility to respond to new information and waste management approaches;e) To promote improved waste management practices by all sectors of society;f) To ensure that waste producers take full responsibility for the management of their wastes;g) To ensure in so far as is possible that there is no further increase in the amount of waste produced per city resident (i.e. per capita) over the five-year planning period covered by this Plan;h) To actively facilitate reduction of per capita waste production levels;i) To reduce the quantities of Cork's wastes which are landfilled; andj) To target paper waste for particular attention. |
|---|

In order to satisfy these aims, a number of specific objectives for the next five years have been identified, as described below.

- Objective 1** To introduce, promote and support measures including the introduction of "Pay by Use" and separate collection of dry recyclables aimed at the prevention and minimisation of Cork City's waste as far as possible.
- Objective 2** To sustain the principle known as the *Waste Management Hierarchy*, which states that the avoidance and reduction of waste production is preferable if at all possible. Following this, unavoidable wastes should be re-used and recycled, and only disposed to landfill as a last resort (Figure 1.1).
- Objective 3** To divert at least 60% of the waste produced to other waste management methods. This diversion will be achieved via:
- Banning of all construction and demolition waste from landfill; and

-
- The construction (in co-operation with Cork County Council) of a **Waste Recovery Facility**⁴ which will divert 60% of its inputs from the landfill once fully operational.

It should be noted that these initiatives will divert a combined total of 72% from landfill. However, the quantities of waste being produced nationally (and in Cork) are currently rising in-line with economic growth and higher standards of living. The National Overview of Waste Management Plans envisages a cumulative growth rate of 16.6% in commercial wastes arising and a cumulative growth rate of 30.9% in domestic wastes arising in the period to 2010. These figures take into account an estimated reduction in waste arisings through prevention programmes.⁵

- Objective 4** To maximise stakeholder participation in waste management decision-making and activities via enhanced educational and awareness campaigns and other strategic management initiatives.
- Objective 5** To apply all of the actions outlined in this Waste Management Plan to the City Council's own in-house activities, where applicable.
- Objective 6** To integrate waste management into the overall Local Agenda 21⁶ approach adopted by the City Council. In other words, waste management will not be viewed as an isolated or stand-alone activity but will be fully incorporated into other environmental improvement efforts initiated by Cork City Council.
- Objective 7** To co-operate with the major waste producing sectors in the city on waste prevention and reduction efforts – for example, industrial companies whose activities are not subject to licensing by the Environmental Protection Agency (EPA) the larger hotels and SMEs.
- Objective 8** To maximise the use of innovative technologies and approaches to waste management in the city, and to facilitate job creation.
- Objective 9** To co-operate with each of the waste-producing sectors (e.g. householders and businesses) in Cork City, and any other interested parties, with the aim of promoting more sustainable waste management, identifying waste minimisation measures and implementing the Waste Management Plan for the city.
- Objective 10** To ensure that landfilling of the city's wastes is undertaken with due regard to best environmental standards so as to prevent environmental pollution.

⁴ Comprised of a Mixed Waste Sorting Facility (which involves mechanical separation of unsorted waste) and a Composting Plant for mechanically separated and source-separated organic wastes.

⁵ National Overview of Waste Management Plans DOEHLG April 2004 Appendix 1.

⁶ Local Agenda 21 is a concept based on the premise that sustainable development for the next century is best promoted and achieved at the local level – with the identification of local solutions to local problems.

Objective 11 To administer this Waste Management Plan in accordance with current EU and Irish law, and to adapt and administer it as appropriate to comply with changes to such legislation.



Figure 1.1 The Waste Management Hierarchy

1.3 Key Drivers behind the Waste Management Plan

In addition to the City Council's aims of developing more sustainable waste management in the city by encouraging waste reduction and recycling, a number of other drivers have influenced the preparation of this Waste Management Plan, not least the Waste Management Strategy for the Cork Region which was developed in 1995. The main elements of that Strategy are described later. The other key drivers behind the development of this Plan are the statutory obligations placed on Cork City Council by the Waste Management Acts, 1996 to 2003 and their related Regulations together with Government and EU Policy. This legislation requires that local authorities prepare Waste Management Plans at five-year intervals. The specific information which must be included in a Plan is outlined in the Waste Management (Planning) Regulations, 1997. These Regulations and other relevant Irish and EU waste management legislation have been taken into consideration during the preparation of this Plan for Cork City.

Changing Our Ways

Cork City Council has taken particular note of the waste management policy statement issued in 1998 by the Department of the Environment and Local Government, entitled '*Changing Our Ways*', which emphasises the importance of local authority waste management planning. Other important elements of *Changing Our Ways* include:

-
- The importance of **regionalisation** of waste management planning, and co-operation between neighbouring local authorities for the good of the environment in order to exploit economies of scale;
 - The need for a dramatic **reduction in reliance on landfill** in favour of an integrated waste management approach, utilising a range of treatment options to deliver ambitious recycling and recovery targets;
 - The importance of increased participation by the **private sector** in the provision of waste management services. It should be noted that the Cork local authorities are co-operating with a private partner with respect to the provision of a Waste Recovery Facility⁷ for the Region;
 - The need for a more effective and equitable system of **waste charging** which promotes waste minimisation and recovery;
 - The need for greater utilisation of **legislative instruments** (e.g. use of the Litter Fine system); and
 - The importance of **public** support, education and participation in waste management generally.

Changing Our Ways also sets a number of important national waste management targets for recycling and diversion of waste from landfill. The implications of these targets for Cork City are discussed later in this Plan.

In addition, Cork City Council has noted the main points of the latest government policy statement *Taking Stock and Moving Forward* which was published in April 2004.

The main points are outlined hereunder:

- The integrated waste management approach, based on the waste hierarchy, will remain the bedrock of waste management policy in Ireland;
- Waste management planning will remain a local authority function, to be exercised in largely regional groupings;
- Biodegradable waste is to be targeted for major improvements in recycling;
- The changeover to **pay-by-use waste charging systems** to be completed by 1 January 2005;
- The successful **Producer Responsibility Initiatives (PRI's)** concept currently in place for packaging, farm plastics and C&D wastes is to be extended to newsprint and tyres by end-2004, end-of-life vehicles by end-2005 and electrical and electronic waste by August 2005;
- Waste-to-energy will remain a key element in the integrated approach. Facilities of this nature will be subject to strict planning and environmental licensing controls;
- Landfill will be relied on to a progressively decreasing extent, in line with its "residual waste" status at the bottom of the waste hierarchy. Further progress on recycling and thermal treatment is crucial to achievement of this;

⁷ Comprised of a Mixed Waste Sorting Facility (involving mechanical separation of unsorted waste) and a composting plant for mechanically-sorted and source-separated organic wastes

1.3.1 Cork City Council's Waste Management Policy

The overall approach that has been adopted by Cork City Council with respect to its waste management activities and planning is, as mentioned earlier, firmly rooted in the goal of sustainable development. The City Council's specific waste management policy is also driven, however, by the **Waste Management Strategy for the Cork Region** (which was jointly adopted by the City Council and Cork County Council in 1995).

The Waste Management Strategy concentrated on three main issues, namely the need for:

- Expansion of recycling activities in the Cork Region to achieve the recycling targets set by national policy targets;
- Reduction of the volumes of waste deposited in landfills; and
- Disposal of waste to landfill (when unavoidable) only in accordance with EU and EPA guidelines.

In order to meet these challenges, a number of waste management options for the prevention, collection, treatment, and disposal of the Region's waste were outlined. These options were then organised into three separate *scenarios*, as outlined below.

1. *Scenario One* adopted the approach of maximum recycling, and proposed large scale home composting. It also envisaged the introduction of a new engineered landfill site;
2. *Scenario Two* was an extension of Scenario One, with the addition of the concept of separation of household and commercial waste into their respective components at a mechanical separation plant (part of the Waste Recovery Facility). The wet organic fraction derived from the separation process would then be composted and the dry fraction baled and subsequently landfilled; and
3. *Scenario Three* investigated the concept of thermally treating the dry fraction produced from the Waste Recovery Facility to further reduce the volume of waste requiring landfilling.

Each scenario was subsequently assessed versus a range of environmental and financial criteria (including the effects on recycling rates and the level of diversion of wastes from landfill achieved). That assessment identified *Scenario Two*⁸ as the preferred option for implementation in the Region in the short- to medium-term, with *Scenario Three* being the long-term optimum solution for the Region.

On consultation with the public, and following publication of a Draft Strategy, the two local authorities concluded that ***Scenario Two was the most appropriate strategic direction for the Cork Region*** and chose to follow the options outlined therein. *Scenario Two* is now being implemented in the Region. It is on the basis of Scenario Two that the City Council has

⁸ It should be noted that a summary of the most important environmental impacts of *Scenario Two* is presented in the appendices to this Plan.

formulated this Waste Management Plan for the management of the City's waste until the year 2009.

The main elements of the Strategy which Cork City Council (as well as Cork County Council) has adopted up to the year 2020 are:

- a)** The expansion of the city's existing system of 'Bring Sites'⁹ (Figure 1.2),
- b)** The provision of at least two large Civic Amenity Sites¹⁰ (one of which already in place at the Kinsale Road Landfill site and which has been considerably extended in 2000) where the public can deposit recyclable materials and other wastes which are not collected by standard refuse collection services (e.g. furniture and discarded kitchen appliances) (Figure 1.3);
- c)** The construction of a Waste Recovery Facility¹¹ which will allow for the mechanical separation of recyclables and will divert these separate materials to the appropriate recycling facilities, whereas biodegradable wastes (such as food and garden wastes) will be composted for re-use in agriculture and gardening activities. This facility will thus reduce the quantities of waste going to landfill and increase the city's recycling rates;
- d)** Operating the Kinsale Road Landfill Site in accordance with the terms of its Waste Licence and in such a manner as to limit its environmental impact (e.g. collection & use of landfill gas to generate electricity, treatment of leachate etc.);
- e)** The construction of a new state-of-the-art landfill site to replace the Kinsale Road Landfill when it has reached its full capacity; and
- f)** The development of the Kinsale Road Landfill site when closed as an important recreational asset for the city. The site will also retain its Civic Amenity Site and other recycling activities.

⁹ Groups of containers for various recyclable wastes, such as green and brown glass and beverage cans.

¹⁰ A Civic Amenity Site is an area where recyclable and household waste materials are brought by the public for appropriate management.

¹¹ A facility where unsorted household and commercial refuse is taken for mechanical separation into its component elements – i.e. dry recyclables (e.g. glass), wet recyclables (e.g. paper and kitchen biodegradable wastes) and non-recyclable materials. Each of these components is then sent to the relevant recycling facility, with the exception of the wet or organic recyclables which will be composted at the composting plant which is an integral part of the Waste Recovery Facility itself.

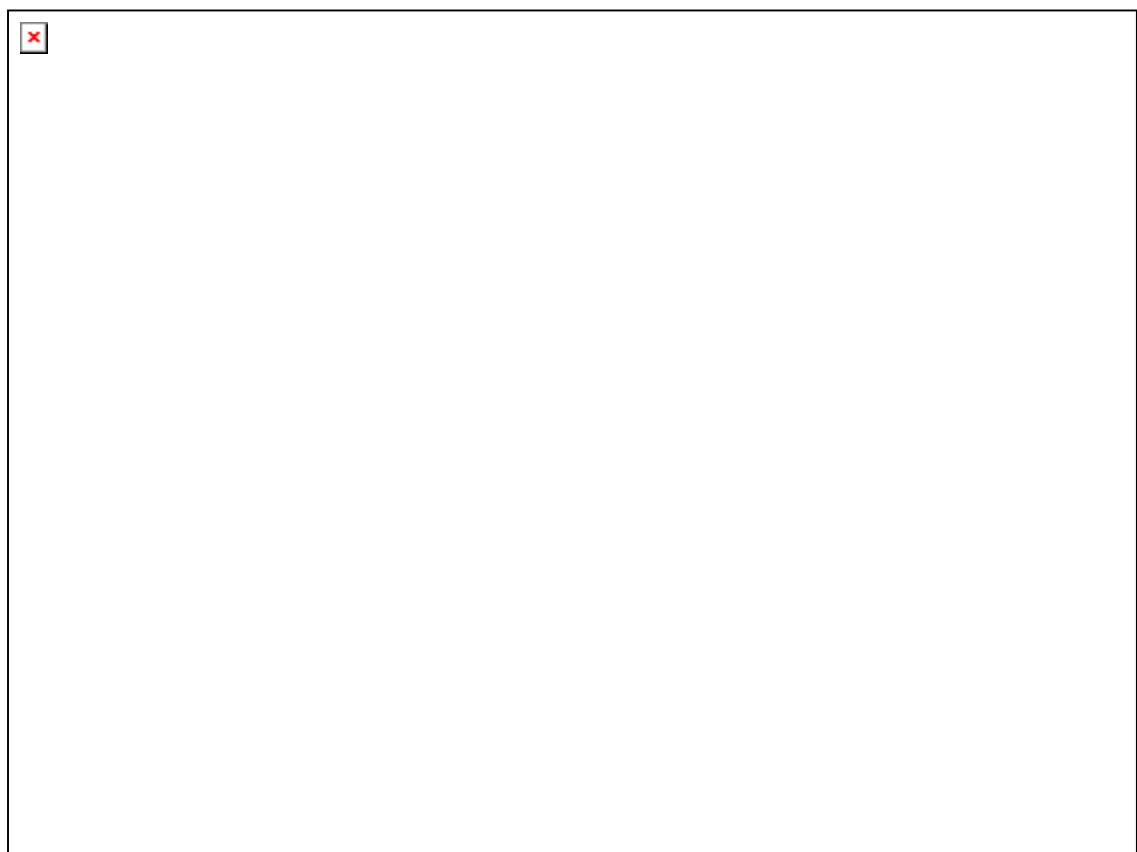


Figure 1.2 Example of a Bring Site

Although the Cork Region Waste Management Strategy is intended to provide a framework for waste management in the region until the year 2020, the Strategy has provided for reassessment of the options chosen throughout the intervening 25-year period. Therefore, subsequent reviews of the City Council's Waste Management Plans may include examination and review of these options and the assessment of new waste management techniques and technologies that may be pertinent to Cork City.

Another important source of information and guidance on waste management is the **Cork City Development Plan 2004**. The implications of the City Development Plan for this Waste Management Plan are outlined in Section 2.4. It should be noted that the Development Plans for the areas which surround the city may also impact on waste management planning choices. However, a review of the Cork County Development Plan indicated that it does not contain specific targets or measures that might impact on waste management practice and planning in Cork City.



Figure 1.3 The Civic Amenity Site at Kinsale Road

1.4 The Waste Management Section of Cork City Council

The solid waste management activities of Cork City Council are guided by the Waste Management Section, which is part of the larger Environment Division. This Section is responsible for both day-to-day operations and waste management planning. It will also be in charge of the decommissioning contracts for the Kinsale Road Landfill, as well as the implementation of the EPA's licensing conditions for the site.

Waste Management staff comprising outdoor, technical and administrative staff are responsible for day to day operations and forward planning in relation to waste matters.

With respect to the financial implications of Cork City Council's activities, day-to-day waste management *operations* are expected to cost an estimated €18.09 million in 2004, as summarised below:

<u>Day-to-Day Operations</u>	<u>Estimated Cost €2004</u>
Landfill management and upgrades	7,390,900
Refuse collection	4,125,500
Street cleaning	4,782,900
Preparation of Waste Management Plan	222,800
Waste Management Strategy (civil works, public awareness)	190,500
Recycling support	1,004,200
Miscellaneous costs	378,700
TOTAL FOR 2004	18,095,500

As well the operations listed above, there are a number of *capital works* which are currently being undertaken. These works are required as a consequence of the joint Waste Management Strategy for the Cork Region (1995) adopted by the City Council and Cork County Council, and are likely to cost an estimated €67.5million. These costs will be met by Cork City Council in conjunction with the County Council and a number of private partners.

<u>Capital Expenditure</u>	<u>Budgeted Costs Over Next 5 Years (€)</u>
Waste Recovery Facility	50 million
Development of Northside Civic Amenity Site	2 million
Decommissioning of Kinsale Road Landfill	15 million
Development of additional Bring Sites	0.5 million
TOTAL FOR 2004 -2009	€67. 5 million

The **revenues** expected in 2004 from the City Council's waste management activities total approximately €14.16 million, as summarised below.

<u>Revenues</u>	<u>Expected Revenues for 2004(€)</u>
Gate fees from the Kinsale Road Landfill	2,090,000
Collection of trade refuse	1,687,100
Public refuse charges	9,688,300
Litter fines	28,000
Royalties from the sale of electricity/green waste/timber	664,600
TOTAL FOR 2004	€14,158,000

1.5 Public Awareness and Stakeholders

Changes in waste management practices require the commitment and co-operation of all waste producers in Cork City. For example, householders will be encouraged to participate in kerbside separate collection schemes and to separate recyclable wastes (e.g. glass) out of their refuse and bring them to recycling centres. In order to ensure that each waste producer understands his/ her role in waste management in the city, the City Council will continue, and expand, its public awareness and education programmes.

The City Council has identified the following groups of people as *stakeholders* (i.e. those people who are likely to be affected by changing waste management practice). These stakeholders include:

- The general public (e.g. householders);
- The business community (e.g. shops, banks, hotels and fast-food outlets);
- The industrial sector (and in particular the smaller companies who do not fall under the jurisdiction of the EPA's licensing system (termed the *IPC-Licence System*));
- Schoolchildren – the City Council recognises that today's children are tomorrow's householders, industry leaders, and decision-makers;
- Government agencies;

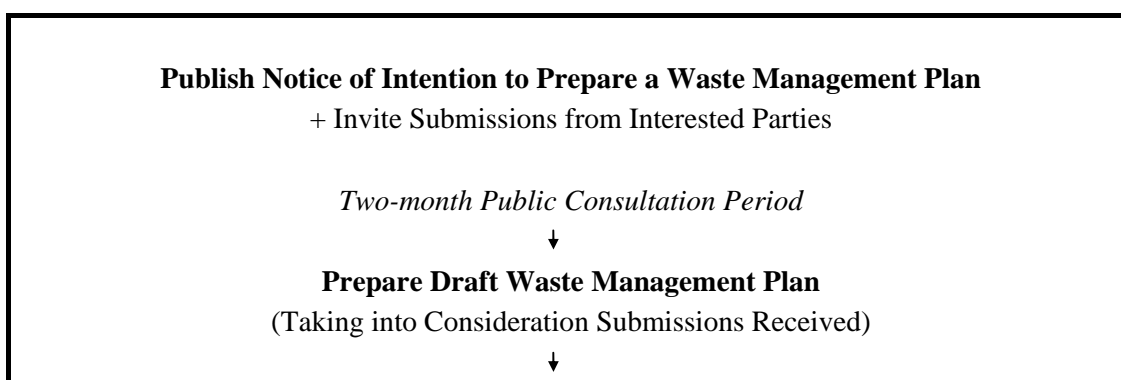
-
- Local government itself – and particularly Cork County Council and the Southern Health Board;
 - Non-Governmental Organisations and representative bodies (such as residents' associations); and
 - Miscellaneous groups.

Some of the initiatives that have been introduced by Cork City Council in order to enhance public awareness of waste management in Cork City include:

- The publication, in conjunction with Cork County Council, of a public news sheet 3 times per annum;
- A series of talks for schoolchildren aimed at raising awareness of the need to reduce waste production levels and litter;
- Talks and visits to stakeholder groups, upon request – e.g. Residents' Associations;
- Co-operation with hotels in the city with respect to the provision of advice and support for waste avoidance and recovery measures which can be adopted by this sector;
- The setting-up of a committee to tackle the litter problem in the city. Represented on this committee are stakeholders such as the Chamber of Commerce, Cork Business Association, IBEC, Secondary and Primary Schools, Garda Siochana, Cork Community Development Institute and Cork & Kerry Tourism; and
- Development of a Sustainable City Campus.

1.6 The Waste Management Planning Process

The process involved in preparing this Waste Management Plan has been as shown below. As can be seen, there are two main elements of public consultation involved – highlighting the importance of stakeholder involvement and commitment in waste management planning.



Publish Notice Announcing that the Draft Waste Management Plan is Available for Consultation

+ Invite Submissions from Interested Parties

Two-month Public Consultation Period



Revise Draft Waste Management Plan (Incorporating Submissions Received)



Publish Final Waste Management Plan, and Make Available to the Public

Submissions

Submissions were received from the following in response to statutory notice of the City Council's intention to review its Waste Management Plan:

- Indaver (Ireland)
- Cork Environmental Forum

Indaver (Ireland)

This submission reviewed Cork City Council's existing Waste Management Policy as set out in the Joint Waste Management Strategy 1995 and the city's Waste Management Plan 1999 – 2004.

It made the following recommendations:

- *The development of a comprehensive integrated waste management structure within the Region with emphasis on re-use, recycling, biological treatment, and waste to energy, and a move away from the over reliance on landfill.*
- *The provision of source separated collections of dry recyclables and organic material for householders and commercial businesses. This will improve recycling rates across the county and reduce contamination of the separated organic waste stream which will ensure that quality composted material will have a monetary value.*
- *The inclusion of Waste-to-Energy as an acceptable and necessary option for the treatment of residual non-hazardous material generated within the Region and a preferred method above landfill. This can include residues (dry-fraction) from the proposed mechanical separation plant and also mixed residual municipal waste.*

The thrust of this submission is generally in line with both City Council and County Council policy on waste management infrastructure. However, during the currency of this plan Scenario 2 of the Waste Management Strategy adopted by both Councils, which promotes recycling, mechanical separation and use of residual landfill without the heat to energy option is still the preferred option.

Cork Environmental Forum

This submission included the policy document adopted on waste management that recommends an integrated approach with an emphasis on minimisation, re use, recycling prior to final disposal.

The main points made in the submission in relation to the sustainable management of waste are covered in the plan, together with the various recommendations for bring sites, etc. The suggestion that the plan be called the Resource Management Plan to emphasise the reuse and recycling of materials is not accepted as the Act refers to a Waste Management Plan.

1.7 Structure of the Waste Management Plan for Cork City

The Plan addresses all areas of waste management – from waste prevention and minimisation, to the collection, treatment, recovery and final disposal of unavoidable wastes. It not only considers the practicalities of waste management, however, but also the issues of public education and changing concepts, as these are vital to a successful management system. The key information that is included in this Plan details:

- The waste management systems and measures currently in place, or which are planned during the five-year period covered by the Plan;
- The current status of waste management in the city (e.g. recycling rates);
- The waste management challenges facing the City Council over the next five years;
- The City Council's plans for each of the specific waste streams arising in the city over the next five years; and
- The City Council's responsibilities as laid down in the government's waste management legislation.

This Plan is laid out in a manner that broadly reflects the Waste Management Hierarchy, as follows:

- a) **Preface** – which describes the major waste-producing sectors in Cork City, and provides other relevant background information (*Chapter Two*);
- b) **Overview of Policy & Legislation.** (*Chapter Three*);

- c) Overview of current efforts towards **preventing and reducing waste** production in the city (*Chapter Four*);
- d) A description of the manner in which these wastes are **collected** and delivered to waste management facilities (*Chapter Five*);
- e) Information on the quantities and types of waste which are **generated** each year in Cork City (*Chapter Six*);
- f) The types and levels of **waste re-use and recycling** undertaken in the city (*Chapter Seven*); and
- f) The types and quantities of **waste landfilled** in the city (and in other landfills outside the Borough) (*Chapter Eight*).

Finally, the Plan identifies and discusses the likely future trends which will affect waste management in the city over the coming years (*Chapter Nine*), and presents the City Council's specific action plans for the next five years (*Chapter Ten*).

2. PREFACE

2.1 Introduction

Waste management planning in a given area is dependent on a range of different variables – such as the level of industrial and agricultural activity, number of households, and the disposal capacity remaining in landfill. This Plan gives due consideration to questions such as:

- **What are the risks to rivers, lakes and other water resources of undertaking waste storage or disposal in Cork City?** This question is answered by reviewing the nature of the bedrock that underlies the city, and the types of soil that overlay that rock. The topography of the area is also important. The combination of bedrock and soil in a given area determines the speed with which contaminated water from waste management activities might potentially reach groundwater¹² supplies, whereas the nature of the soil and the slope of the land will determine whether rivers and lakes might be affected.
- **What areas must be protected from the potential effects of waste management activities?** In-line with our goal of sustainable development, Cork City Council will protect to the maximum possible extent the environment in general, and those lands or habitats which are of particular importance. The latter includes areas and habitats which have been identified as being of local or national significance (e.g. Natural Heritage Areas), land which has been earmarked for green space or recreational development (as identified in the Cork City Development Plan), or groundwater reserves which are known to be at risk.
- **How many people live in Cork City, and how many houses do they occupy?** Local authorities must regulate the appropriate collection of household wastes, either by private collectors or by the Local Authority. It is thus vital that any planning procedure takes into consideration the numbers of households in a given area – so that refuse collection regime can be developed and the required capacity of recycling centres can be planned.
- **What are the main waste-producing sectors in Cork City?** It is important that these waste producers be identified so that effective waste management planning and public awareness programmes can be facilitated.

2.2 Cork City – General Description

Cork City is the second largest city in the Republic of Ireland, owing its origin to Saint Finbarr who founded a monastery on the south bank of the River Lee in the sixth century. The city covers an area of 3,700 hectares, through which several river systems flow to the sea at Cork Harbour – including the Rivers Lee, Curraheen, Glen and Tramore. The built fabric of Cork City is mainly post-seventeenth century. Medieval Cork developed on islands in the River Lee and its original layout survives today in the historic core of the city, centred on North and South Main

¹² Underground water reserves that are often used to extract drinking water.

Street. The eighteenth and nineteenth centuries saw further infilling of the river channels to create the current principal streets, for example, St. Patrick Street and Grand Parade.



2.3 Geology, Hydrogeology, and Water Supplies

In **geological terms**, the underlying bedrock of the city is largely *limestone*, occurring in the central belt from Ballincollig to Lough Mahon. Four main types of limestone predominate, namely:

- a) Massive pale grey biomicrite limestone;
- b) Well-bedded bioclastic shaley limestone;
- c) Poorly-bedded grey biomicrite limestone; and
- d) Poorly-bedded grey biomicrite and biosparite limestone with sparse oolitic levels.

In addition, significant bedrock deposits of *sandstone* (green and grey, and green and brown) and *siltstone* (red and purple, dark grey with thin sandy streaks, and grey with heterolithic beds) also occur (Figure 2.1). The major implication of this limestone-dominated geology is that engineering works, housing developments, construction projects, and waste storage or treatment works must take into consideration the permeable (i.e. porous) nature of the bedrock.

The soil structure in the area of Cork surrounding the Borough of Cork City can be described as being predominantly *Acid Brown Earth* and *Brown Podzolic* (Figure 2.2). Both of these soil types have good moisture-retention characteristics, and are relatively free draining. Heavy clay-like soils overlying limestone can create a natural barrier to the movement of liquids and other contaminants down to, and through, the bedrock. This is the situation at the Kinsale Road Landfill site where a thick layer of such soil effectively acts as a natural landfill liner (which is a layer of

material used to contain waste within the landfill), thus reducing the risk of downward movement of leachate at this location.

Fig. 2.1: Geology and Hydrogeology of Cork City

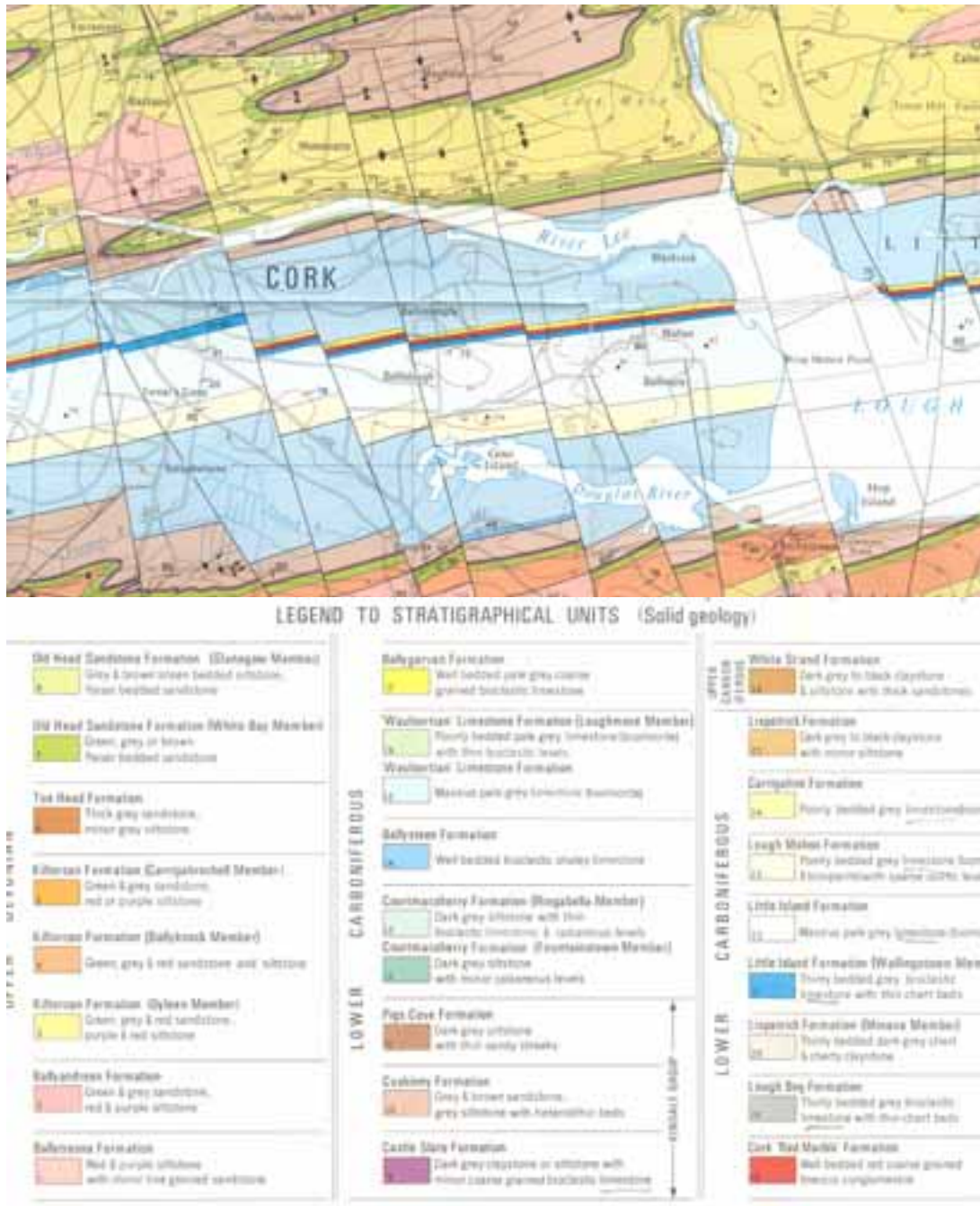
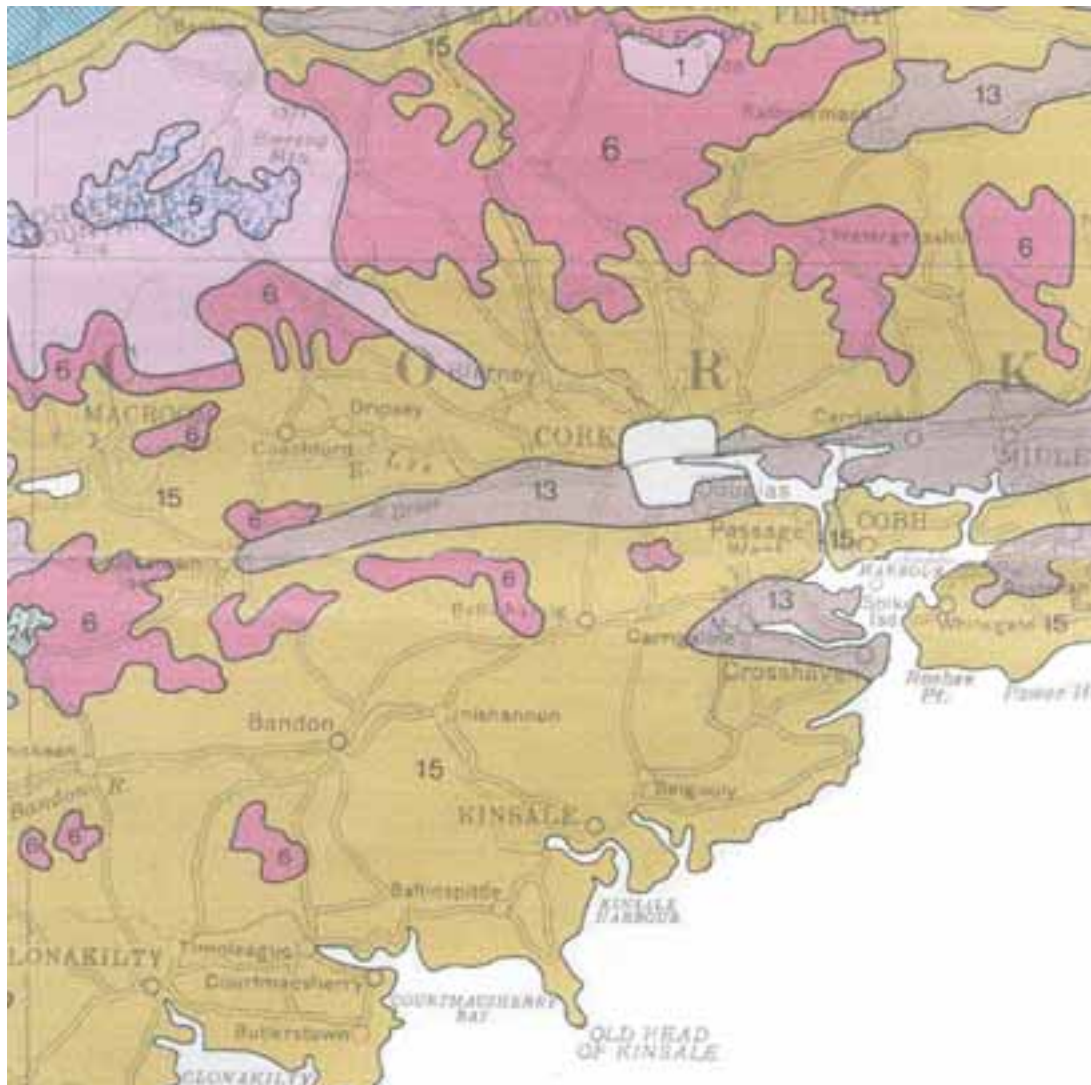


Fig. 2.2: Soil Structure of Cork City Area



Soil Association			Soil Association		
Nos.	Principal Soil	Associated Soils	Nos.	Principal Soil	Associated Soils
1	Peaty Podzols (75%) ¹	Lithocals (15%) Blanket Peat (10%)	12	Acid Brown Earths (70%) (Coarse textures)	Glays (25%) Podzols (15%)
2	Peaty Glays* (70)	Blanket Peat (20) Peaty Podzols (10)	13	Acid Brown Earths (70)	Grey Brown Podzolics (15) Glays (15)
3	Blanket Peat (75)	Shallow Brown Earths ⁴ (25)	14	Acid Brown Earths (75)	Glays (15) Brown Podzolics (10)
4	Lithocals and Outcropping Rock (70)	Blanket Peat (25) Peaty Podzols (5)	15	Brown Podzolics (60)	Acid Brown Earths (20) Glays (20)
5	Blanket Peat (High level)		16	Acid Brown Earths (90)	Glays (5), Regosols (3), Podzols (12)
6	Brown Podzolics (80)	Glays (15) Podzols (5)	17	Acid Brown Earths (80)	Glays (5) Peaty Glays (15)

The **hydrology** of an area relates to the number, type, and distribution of its rivers. In Cork City, the main river channels are those of the Lee, Glen, Tramore, Trabeg, Glasheen, and Curraheen.

The EPA surveyed the quality of Irish rivers and subsequently published the results in 2000. The quality of the River Lee upstream of Cork City continues to be 'satisfactory' (apart from Inniscarra Bridge). Downstream of the city, the estuary is moderately polluted. However the Waste Water Treatment plant for Cork City is now in operation (2004) and it is hoped that the treatment of the waste water will help restore the polluted section of the river to its original, unpolluted state.

There are no national quality standards for streams such as the Glen, Tramore, etc. around Cork City. Cork City Council has been carrying out ongoing monitoring of the Tramore and Trabeg streams adjacent to the landfill. The pollution levels in these have shown some improvement since the provision of leachate collection systems and associated engineered cap. It is hoped that the water quality level at these sites will improve in time once these mitigation measures are fully realised.

All of the **drinking water** used to supply the city of Cork is extracted from the River Lee. The Lee Road Waterworks produces 50,000 cubic meters (m³) (50 million litres) per day and Cork County Council supplies an additional 19,000 cubic meters (m³) (19 million litres) per day in to the city water network. These figures may fluctuate according to demand.

In a pro-active effort to optimise the environmental performance of the city's water supply network, Cork City Council initiated the '*Cork Water Management and Water Conservation Project*' in September 1997. The main objectives of this programme were the mapping and modelling of Cork's water supply network, and the completion of a pilot scheme aimed at detecting leaks in the system. As a result of this project the city's water network has been divided into 47 discrete areas, each of which has a district-metering system installed which can be monitored remotely via a computerised telemetry system. This system enables wastage to be detected and controlled on an ongoing basis. This water wastage minimisation project, which was financed by the EU's Cohesion Fund at a cost of approximately €2.95 million ended in December 2002.

Although **groundwater** is not significantly used to source Cork City's drinking water, it is still vital that this natural resource be protected. There is as yet no information available as to the overall quality of the groundwater underlying the city. It is thus difficult to assess how vulnerable this resource might be. Cork City Council is continually monitoring the aquifer underlying the Kinsale Road Landfill Site in accordance with the EPA Waste License 12 – 2.

Whilst the stratigraphy underlying the landfill site provides a degree of protection against the vertical movement of leachate, nevertheless ground water quality deteriorated over the years until mitigating measures were introduced to collect leachate and prevent the infiltration of rainwater through the emplacement of an engineered cap.

A leachate collection system is fully operational and approximately 40% (May 2004) of the active portion of the landfill site is now capped. This capping process will continue into the future.

The Geological Survey of Ireland is currently in the process of calculating and mapping groundwater vulnerability (the likelihood of a contamination event having a serious ecological impact) across the country. Several counties have already been mapped, but the information for Cork City has not yet been fully compiled. Details of the city's groundwater vulnerability will thus be included in the next Waste Management Plan.

It should be noted that the treatment of Cork City's drinking water supply is itself an activity which produces wastes.

Similarly, **sewage** from households and other premises also requires treatment, and solid wastes are produced as a result of this treatment.

To comply with the E.U. Waste Water Directive and the Government Environment Action Plan, Cork City Council is obliged to collect and treat all sewage discharges arising.

After exhaustive examination of the options, Cork City Council embarked on one of the largest engineering and environmental projects ever undertaken by a Local Authority in Ireland, i.e. the Cork Main Drainage Scheme (CMD). The completion of the CMD will have a major influence in improving the water quality and aesthetics in both the city and upper harbour, with resultant amenity and economic benefits.

In this scheme which is currently being commissioned, sewage will flow by gravity from the main outfall points through a large trunk sewer to a site east of the Atlantic Pond. It will then be pumped to a treatment plant at Carrigrennan, Little Island. There, the wastewater will receive intensive treatment before discharge to the deep water off Marino Point. The Plant, using some of the most advanced wastewater technology, will treat domestic and industrial wastewater from Cork City, the Tramore Valley, Little Island, Glounthane and Glanmire to a very high quality.

It should be noted that no **Water Quality Management Plan** has, as yet, been prepared for Cork City.

In regard to **Air Quality**, Cork City Council's Environment Directorate maintains a number of Air Monitoring Stations around the city where various air quality parameters are measured and an annual report is produced. The air quality in Cork City has improved considerably since the introduction of the ban of the sale of bituminous coal in the early 1990s. The widespread use of natural gas heating, unleaded petrol and the provision of The Jack Lynch Tunnel, which diverts large numbers of H.G.V.s from the city, have also contributed to the improvement of the air quality in Cork. Air Quality is well within the appropriate compliance limits in respect of each parameter monitored.

2.4 Land-use and Protected Habitats

The most important implications of planned **land-use** in the city are the impacts that it will have on the quantities and types of wastes produced – for example, household, commercial and industrial wastes. Section 2.20 of the Cork City Development Plan (2004) identified key development opportunities viz:

- Mixed use development;
- Higher density development, where appropriate;
- Good public transport provision;
- Good quality environment and services; and,
- High quality urban design.

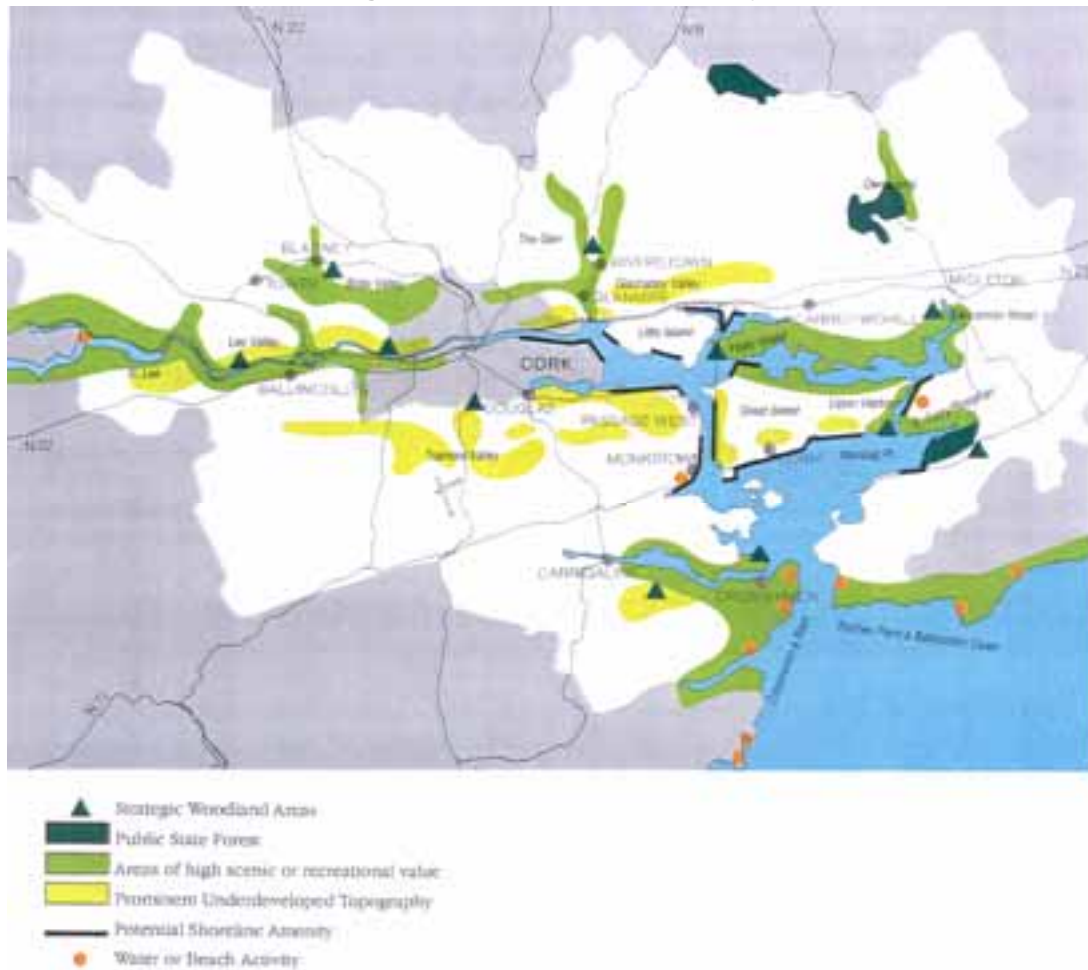
Sections 2.22 – 2.25 of the Development Plan outline the following locations as areas of growth:

- The City Centre
- Docklands
- Blackpool Valley / Kilbarry
- Mahon Peninsula

Residents of Cork City have access to a range of amenities, particularly public parks, open spaces and shoreline (along Cork Harbour and the Douglas Estuary). The Greater Cork Area is readily accessible to city inhabitants (Figure 2.3). Cork City Council provides 64 sports grounds and other facilities for public use. The Lee and Curraheen River valleys form the largest recreational areas in the city, including the Lee Fields and the Mardyke. Other key amenity assets in the city include Fitzgerald's Park, Bishop Lucey Park, Glen Amenity Park, Shalom Park and the Marina to name but a few.

A major part of the existing Kinsale Road Landfill Site will be converted into an amenity area with zones dedicated to sporting activities, nature trails, special events areas as well as dedicated areas for active and passive recreational pursuits.

Fig. 2.3: Amenities in Cork City



In terms of national nature conservation designations, Cork City incorporates proposed National Heritage Areas (NHAs) as well as other designations such as Wildfowl Sanctuary (Figure 2.4). In particular, several parts of Cork Harbour have been designated as NHAs and fall under the jurisdiction of both the Cork City Council and Cork County Council.

2.4.3. Wildlife Sanctuary

In addition to Cork Lough's designation as a Proposed NHA it has an existing status under the *Wildlife Act 1976* as a Wildfowl Sanctuary.

2.4.4. Salmonoid River

Under the EU *Freshwater Fish Directive* the River Lee is designated as a Salmonoid river from its source to the Cork City Waterworks. This imposes an obligation to maintain specific water quality standards and to control pollution.

2.5 Demographics

According to the Central Statistics Office, the 2002 Census indicates that 123,062 people were living in Cork city (127,187 in 1996). The population of Cork City reduced by 3.2% over this period whilst the population of the Cork Region showed an overall increase of 6.5%.

The Cork City Development Plan 2004 predicts that the population of the Greater Cork Area will increase by approximately 23% or 78,000 people by 2020 to give a total population of 423,150 people. During this timeframe it is anticipated there will be a growth in population of 12,010 people in respect of Cork City and a growth in dwellings of 11,090. Such a population growth in the city will constitute a reversal of the steady decline in population within the city over the past number of years. This historic decline was as a result of a fall of household size within the city and a growth in housing supply in locations outside the city boundary.

In 2000 the *Cork Area Strategic Plan, (CASP)* estimated employment figures by assuming that employment in the study area grew by 30% between 1996 and 2000 in line with national trends. Actual employment growth is not available for the study area but growth in the city in 2001 was recorded in the *Employment and Land Use Survey* carried out by Cork City Council. It reported a total of 72,193 people working in the city. This reflects the rapid economic growth that occurred from the mid 1990s to 2001, particularly in services and modern industry which are well represented in the city. All city sectors showed employment increases during the period, with the City Centre and the South West showing the greatest proportional increases, while the North West experienced the slowest growth rate.

Sustaining and increasing the current level of employment will depend on a positive economic climate and the successful development of new employment opportunities in the city, particularly in the City Centre / Docklands areas in the face of competition from suburban and out of city locations.

Table 2.1 shows the breakdown of the employment statistics in Cork City based on the 1996 Census. It is believed that whilst there may have been marginal changes in each sector, the table generally reflects the current breakdown of each employment sector in the city.

Table 2.1 Employment in Cork City

Sector	Number Employed	Percentage of Total
Retail	8,200	17
Finance	2,600	5
Public Administration and Defence	4,500	9
Professional Services	13,300	27
Personal Services	3,800	8
Entertainment and Other Services	1,000	2
Agriculture, Quarrying etc.	40	< 1
Manufacturing Industry	8,600	18
Building and Construction	1,800	4
Utility Provision	600	< 1
Wholesale	1,800	4
Transport and Communication	2,300	5
TOTAL	48,500	100

(Source: Central Statistics Office, 1996 Census)

2.6. Transport Infrastructure in Cork City

Generally the National Roads Network whilst comprising 6% of the total road length in the city, carries 35% of the traffic and a significantly larger fraction of the HGV elements.

The road network provides the principal means of private, public and freight transport into and out of the city.

Table 2.2 below details Cork City's Road Network in terms of Road Class and length

Table 2.2 Cork City's Road Network

Class of Road Length	Length (km)
National	23
Regional	38.4
Local	349.4
Total	410.8

2.6.1. Rail Infrastructure

The rail infrastructure in Cork is used mainly for intercity services between Cork and Dublin and also to Tralee via Mallow. Suburban rail services are confined to the Cork to Cobh line and to a lesser degree the Cork to Mallow line, currently represent a small but increasing portion of commuter journeys.

CASP has identified the need to reopen the Cork to Midleton line and to enhance services on the Cork to Mallow line.

The City Development Plan (2004) supports the recommendation of *CASP* in regard to the provision of dedicated **Green Routes** in certain locations in the city and the provision of Park & Ride facilities.

Cork City Council is currently constructing a 950 unit **Park & Ride** facility at the Blackash Site adjacent to the Kinsale Road Landfill Site. Part of this facility is now in operation (May 2004).

The provision of other such facilities in strategic areas around the city is being actively pursued by the City Council.

2.6.2. Cork Airport

Cork Airport is the country's third airport in terms of volume after Dublin and Shannon. It is conveniently located 5 km south of the city with efficient road access to the centre. Cork Airport is influential in the economic growth of the city.

2.6.3. Port of Cork

The Port of Cork contributes to the economic success of the region also as it provides high quality facilities for the commercial, industrial and tourist sectors. The Car Ferry Terminal at Ringaskiddy connects Cork with Swansea, Roscoff and Le Havre.

3. WASTE MANAGEMENT POLICY AND LEGISLATION

3.1 Background Policy and Legislation

As a Member State, Ireland's waste management policies are based upon and reflect those developed at European Union level. Subsequent legislation also derives from that adopted by the EU. Appropriate measures undertaken by Ireland and Cork City Council to develop waste management, including this plan, must therefore:

- Have due regard to the founding principles that form the basis of EU waste management policies and programmes;
- Be based upon and comply with the legislation developed at EU and national level; and
- Respect the obligations of the Single Market.

The principles established by the Waste Framework Directive 75/442/EEC and the EU Strategy for waste management¹³ are highly relevant in the planning process and can be summarised as follows¹⁴:

- To secure the conservation of nature and resources, waste generation must be minimised and avoided where possible (**prevention principle**);
- To secure a reduction in the impacts from waste on human health and the environment, especially to reduce the hazardous substances in waste, through the **precautionary principle**;
- To make sure that those who generate waste or contaminate the environment should pay the full costs of their actions through the **principles of the polluter pays and producer responsibility**; and
- To secure an adequate infrastructure by establishing an integrated and adequate network of disposal facilities, based on the **principle of proximity and self-sufficiency**.

The hierarchy for waste management operations was laid down in Directive 75/442/EEC and in the EU Strategy for waste management and gives waste prevention the highest priority, followed by recycling and other types of recovery. Optimum final disposal is at the bottom of this hierarchy.

¹³ Communication from the Commission on the review of the Community Strategy for Waste Management COM (96) 399 final. Council Resolution of 24 February 1997 on a Community strategy on waste management.

¹⁴ From: European Commission Environment DG; European Topic Centre on Waste and Material Flows *Preparing a Waste Management Plan A methodological guidance note* May 2003.

The EU Strategy also stresses the need for :

- Reduced waste movements and improved waste transport regulation
- New and better waste management tools such as:
 - a) regulatory and economic instruments;
 - b) reliable and comparable statistics on waste;
 - c) waste management plans; and
 - d) proper enforcement of legislation.

These are strategic means to fulfil the objectives of the Waste Framework Directive. **Waste prevention** as a strategic element in the European waste policy is becoming increasingly important. This is discussed in further detail in Section 3.2 below.

The European Union's approach to waste management is thus based on three principles:

1. **Waste prevention:** This is a key factor in any waste management strategy. By reducing the *amount* of waste generated in the first place and its *hazardousness*, then disposing of it will automatically become simpler. Waste prevention is closely linked with improving manufacturing methods and influencing consumers to demand greener products and less packaging, thus tackling the issue of waste both at *consumption* and *production* levels.
2. **Recycling and reuse:** If waste cannot be prevented, as many of the materials as possible should be recovered, preferably by recycling. The European Commission has defined several specific 'waste streams' for priority attention, the aim being to reduce their overall environmental impact. This includes packaging waste, end-of-life vehicles, batteries, electrical and electronic waste. EU Directives now require Member States to introduce legislation on waste collection, reuse, recycling and disposal of these waste streams.
3. **Improving final disposal and monitoring:** Where possible, waste that cannot be recycled or reused should be safely incinerated, with landfill only used as a last resort. Both these methods need close monitoring because of their potential for causing severe environmental damage. The EU has recently approved a Directive setting strict guidelines for landfill management. It bans certain types of waste, such as used tyres, and sets targets for reducing quantities of biodegradable rubbish. Another recent Directive lays down tough limits on emission levels from incinerators. The Union also wants to reduce emissions of dioxins and acid gases such as nitrogen oxides (NO_x), sulphur dioxides (SO₂), and hydrogen chlorides (HCL), which can be harmful to human health.

3.1.1 EU Waste Legislation

Figure 3.1 gives an overview of EU Waste Legislation currently in force. Council Directive 75/442/EEC of 15 July 1975 on waste, as amended by Council Directive 91/156/EEC of 18 March 1991 represents the overall “framework” of EU regulations. It lays down requirements for all types of waste, unless they are specifically regulated by other Directives.

The other part of the waste framework legislation is the Hazardous Waste Directive, providing for the management, recovery and correct disposal of hazardous waste. In addition to the Waste Framework Directive, a number of other directives regulate specific waste streams. These are titanium dioxide waste, packaging and packaging waste, waste oils, PCBs and PCTs, batteries and accumulators, sewage sludge, end-of life vehicles (ELV), waste electrical and electronic equipment (WEEE) as well as port reception facilities for waste from ships and cargo residues.

Finally, a group of directives regulate waste treatment operations: incineration of municipal and hazardous waste, and disposal of waste through landfilling. A specific type of permit is required for certain waste management operations under Council Directive 96/61/EC on integrated pollution prevention and control.

Council Regulation 259/93 regulates transfrontier shipments of waste.

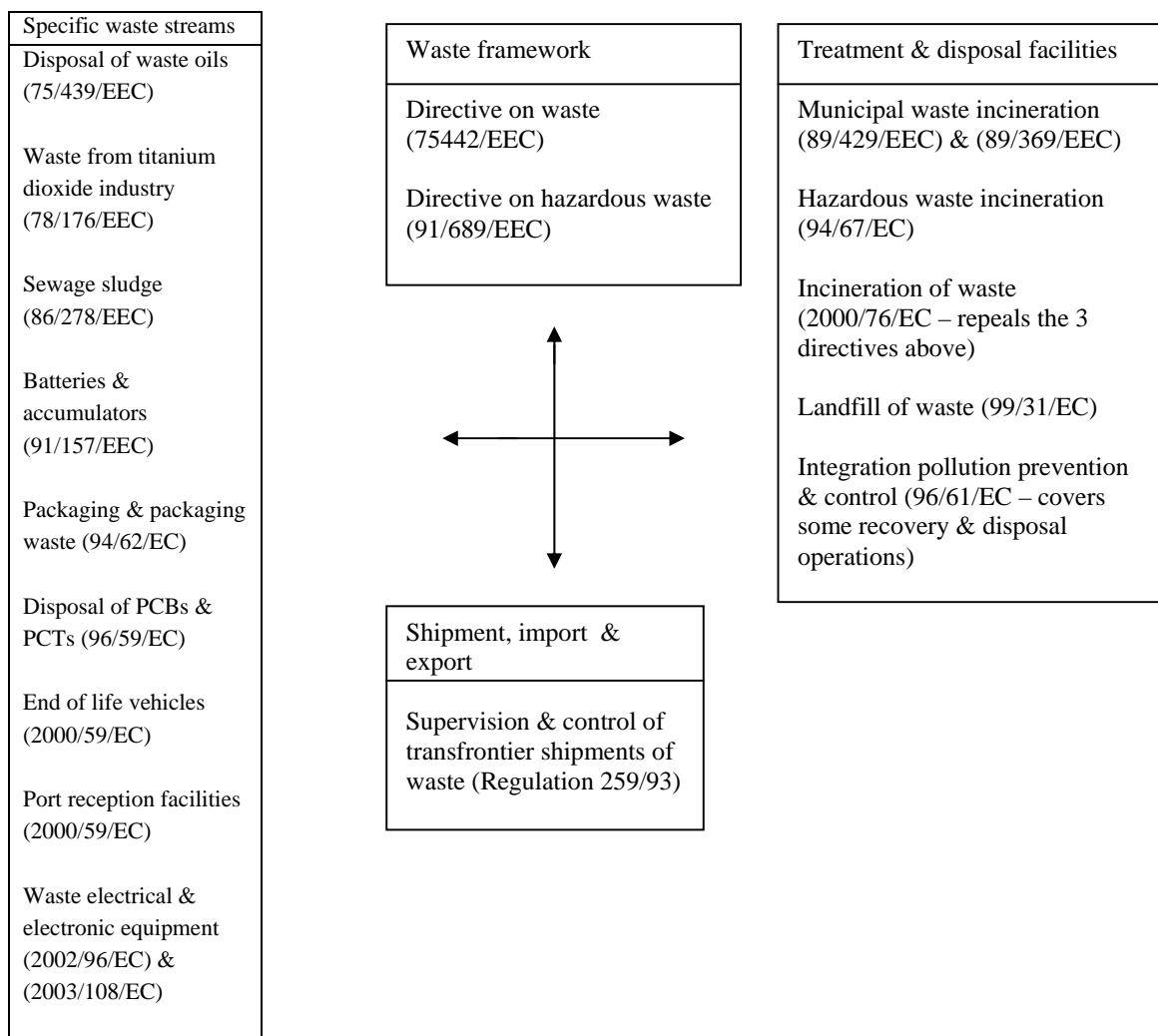


Figure 3.1: Overview of EU Waste Management Legislation

3.2 Irish Waste Management Policy

In order to manage its waste in a sustainable manner, in recent years Ireland has adopted a number of important policies in relation to resource use, waste management, sustainability and the abatement of greenhouse gas emissions. Specific policy documents include:

- A National Policy Statement on Waste Management “*Changing Our Ways*”, issued in September 1998;
- A Supplementary Policy Statement “*Delivering Change*” dedicated to the higher priority waste management practices of Prevention, Re-Use and Recycling, issued in March 2002;

- A National Hazardous Waste Management Plan designed to prevent and manage hazardous waste, adopted in July 2001;
- A National Sustainable Development Strategy “*Sustainable Development: A Strategy for Ireland*”, issued in 1997 and supplemented by “*Making Ireland’s Development Sustainable: Review, Assessment and Future Action*” issued in August 2002;
- A *National Climate Change Strategy*, issued in October 2000 and Supplemented by a *Progress Report on the Implementation of the National Climate Change Strategy* issued in May 2002;
- Waste Management Taking stock and Moving Forward (April 2004); and
- Consultation document on Biodegradable Waste.

Other important steps have also been taken to stem the growth of waste. The legislative framework has been strengthened by the Environmental Protection Agency Act (1992), the Waste Management Acts (1996 to 2003), as well as several other Regulations. The setting up of an Office of Environmental Enforcement in October 2003 is designed to improve enforcement of such legislation. Economic instruments have been applied, including the landfill levy, plastic bags levy and the setting up of the Environment Fund. Awareness levels are rising through the *It’s Easy to Make a Difference* campaign, the *Race Against Waste Programme*, ENFO and locally by Local Agenda 21 and Environmental Education Officers, the Green Flag Programme etc.

3.2.1 Changing Our Ways, 1998

The policy document *Changing Our Ways*, sets out national recovery, recycling and diversion from landfill targets, and discusses the changing role of the local authority in waste management. Emphasis is, in addition, placed on the Polluter Pays Principle, and waste related charges. The most important targets and performance indicators identified in this policy statement include:

- Diversion of 50% of overall household waste from landfill;
- Reduction, by a minimum of 65%, of the biodegradable wastes consigned to landfill;
- Recycling of 35% of Municipal Solid Waste;
- Development of composting and other feasible biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum;
- 80% reduction in methane emissions from landfill; and
- Rationalisation of the country’s 100 landfills to approximately 20 state-of-the-art facilities.

3.2.2 Delivering Change, 2002 :

The 2002 supplementary policy statement Delivering Change is dedicated to the higher priority waste management practices of Prevention, Re-Use and Recycling. It evolved from and is grounded in the 1998 policy statement Changing Our Ways and aims to ensure that Ireland meets the targets it contained by positive and effective actions including organisational change.

The document:

- highlights the necessary disciplines that must be imposed within waste management systems to secure real progress on waste prevention, re-use and recovery;
- outlines a range of measures that will be undertaken in the interests of minimising waste generation and ensuring a sustained expansion in re-use and recycling performance; and
- identifies issues and possible actions that require further systematic consideration.
- commits to the setting up of a National Waste Management Board in 2002 to co-ordinate, monitor, review and advise on all aspects of waste management policy at all levels of the waste hierarchy.

3.2.2(a) Prevention and Minimisation

Delivering Change commits to:

- The establishment of a well-resourced National Waste Prevention Programme (NWPP) to deliver substantial results on waste prevention and minimisation;
- The establishment of a "Core Prevention Team" (CPT) within the EPA to drive this initiative;
- The establishment of a Prevention Programme Steering Group, that will co-ordinate/liase with public authorities at all levels, monitor the overall thrust of the National Waste Prevention Programme, and provide strategic direction to the Core Prevention Team; and
- The introduction of a system of mandatory waste audits and waste reduction programmes for businesses which fall below the threshold for Integrated Pollution Prevention and Control licensing.

3.2.2(b) Reuse:

- The implementation of a 15 cent levy on plastic shopping bags and encouragement of their substitution by re-usable bags.

3.2.2(c) Recycling:

- The establishment of a Recycling Consultative Forum to be supported by the National Waste Management Board, and to act as a consultative and advisory body on all aspects of recycling;
- The provision of €127 million in EU/Exchequer support for waste recovery

infrastructure, including recycling infrastructure, in the period 2002 – 2006;

- The introduction of a landfill levy and the implementation of national bans on landfilling specific materials;
- The utilisation of revenues from the new plastic bag and landfill levies, through the Environment Fund (provided for under the Waste Management (Amendment) Act 2001) to assist waste recycling activities; and
- The provision of €0.635 million seed funding for establishment in 2002 of a Market Development Programme which will identify and promote markets for recyclable material.

3.2.2(d) Producer Responsibility

In co-operation with business the Government will:

- Put in place measures to support Ireland's attainment of 50% recovery of packaging waste by 2005, (including dedicated arrangements for specific materials such as PET and Tetra Pak);
- Carry out a comprehensive review of the Waste Management (Packaging) Regulations, 1997;
- Put in place measures to ensure that end-of-life vehicles and waste electrical and electronic equipment are recovered and recycled in accordance with, and within the timescales set out in, the relevant EU Directives;
- Put in place an effective system to ensure that the recycling targets for Construction and Demolition Waste, of 50% by 2003 and 85% by 2013, are met by the construction industry;
- Establish producer responsibility initiatives in 2002 to recycle newsprint, tyres and batteries;
- Where necessary, require problematic sectors to introduce waste recovery schemes using powers under the Waste Management Acts;
- Ensure an effective enforcement regime for Regulations made under the Waste Management Acts in support of producer responsibility initiatives; and
- Establish a Producer Responsibility Unit within the EPA to carry out research, monitor performance under specific producer responsibility initiatives, and secure better enforcement and promote good practice.

3.2.2(e) Biological Treatment of Organic Waste

- Draw up a National Strategy on Biodegradable Waste in the Municipal Waste Stream
- Support the provision by local authorities of infrastructure for the biological treatment of organic waste;
- Introduce product standards for compost derived from municipal waste;
- Encourage the development of markets for those products; and
- Support the development of widespread home composting.

3.2.2(f) Public Service Waste Management Programme

The Government will:

- Develop a public service waste management programme;
- Promote, in particular, the use of recycled material in public procurement policies, including ensuring that within 2 years, all public authorities use recycled paper for routine use; and
- Strengthen the green networks that exist between Government Departments and between local authority Environmental Awareness officers.

3.3 Irish Waste Management Legislation

A significant amount of Irish waste management legislation is now in place, much of which requires implementation by or with the involvement of local authorities. Much of such legislation is complex and wide ranging covering issues such as waste management (collection, recovery, disposal, etc.); transfrontier shipment; hazardous waste management and movement; packaging waste; licensing; permitting and littering; also specific waste streams such as sludges, farm plastics, etc.

A brief outline of some of this legislation follows.

3.3.1 Waste Management Acts 1996 – 2003

The purpose of the *Waste Management Acts, 1996 to 2003* is to provide a modern and comprehensive legislative framework for the prevention, management and control of waste. A system of licensing is being implemented for waste management facilities, but the Act does not apply to emissions that are already taken care of under separate controls such as emissions to atmosphere, sewage and other effluents. The Acts place an onus on persons to handle waste including its disposal in such a way as not to cause environmental pollution.

The waste management Act 1996 provides inter alia for:

- The making by a local authority of a waste management plan;
- Local authorities to collect or arrange for the collection of domestic waste and provide or make provision for the disposal of same. Local authorities may collect commercial waste;
- Measures for the prevention and minimisation of waste production including making regulations for control and management of various types of waste streams;
- The nature, composition or design and the uses of packaging;
- Various enforcement duties in relation to waste by local authorities; and
- Licencing of waste recycling, storage and disposal facilities

The *Waste Management Act, 1996 (S.I. No. 10 of 1996)* was amended by the *Planning and Development Act 2000 (No. 30 of 2000)*. The Act introduces new provisions governing the interface between planning control and licensing in relation to development under the Waste Management Act, 1996. At present only the EPA can comment on environmental issues in relation to such development. Under the Act, *An Bord Pleanála* and the planning authority

will be allowed to take environmental issues into account in deciding whether to grant permission or not to a licensed activity. However, they cannot impose conditions on such a facility. This function remains for the EPA.

3.3.2 Waste Management (Amendment) Act 2001

The aims of the Waste Management (Amendment) Act, 2001 are:

- (a) to change the procedure for the adoption of regional waste management plans;
- (b) to introduce a landfill levy, at an initial rate of up to €19 per tonne;
- (c) to introduce a plastic shopping bag levy, of up to 19 c per bag;
- (d) to introduce a general clause to prohibit/limit the recovery/disposal of specified waste streams to specified types of facilities or in a specified manner. This clause can be utilised to ban landfill of certain wastes; and
- (e) to establish an Environment Fund.

3.3.3 Protection of the Environment Act 2003

The Protection of the Environment Act 2003 makes some changes to elements of the Waste Management Act 1996 including the following:

- local authorities are being given explicit power to discontinue the collection of domestic waste in the event of non-payment of charges and to set up a system of providing evidence of such payment;
- local authorities have powers to impose, as an executive function, charges for the provision of any waste service; and
- the variation or replacement of a waste management plan will become an executive function, i.e. a matter for local authority managers.

3.3.4 National Hazardous Waste Management Plan

A National Hazardous Waste Management Plan was published by the EPA in July 2001. This plan deals with the prevention and minimisation, recovery, collection, movement and disposal of hazardous waste. Local authorities must have regard to and implement relevant recommendations contained in the plan. The plan includes:

- A target for the reduction of hazardous waste disposal to 1996 levels by a date to be agreed via negotiation with relevant sectoral representatives;
- The establishment of a Prevention Programme,
- Development of hazardous waste disposal and recovery facilities, including hazardous waste landfill and thermal treatment to reduce export reliance;
- A target for the elimination of unreported hazardous waste,

- Identification, prioritisation and remediation of historical hazardous waste disposal sites; and
- Improved collection structure for household, agricultural and SME hazardous waste.

3.4 Regulations under the Waste Management Acts

The following is a list of the main regulation made under the Waste Management Acts with a brief note on the main effects of the regulations. More detailed reference is made to the relevant regulations in the other chapters of this plan as necessary.

Waste Management (Planning) Regulations, 1997 (S.I. No. 137 of 1997)

These Regulations specify matters to be addressed in local authority waste management plans.

Waste Management (Register) Regulations, 1997 (S.I. No. 183 of 1997)

These Regulations prescribe information to be entered in public registers to be maintained by local authorities and the EPA.

Waste Management (Farm plastics) Regulations, 1997 (S.I. No. 315 of 1997)

These Regulations impose producer responsibility obligations on persons (manufacturers, and importers) who supply certain farm plastics to the Irish market.

European Communities (Licensing of Incinerators of Hazardous Waste) Regulations, 1998 (S.I. No. 64 of 1998).

These Regulations implement EU Council Directive 94/67/EC on the incineration of hazardous waste.

Waste Management (Amendment of Waste Management Act, 1996) Regulations, 1998 (S.I. No. 146 of 1998).

These Regulations amend the scope of section 51(2) of the 1996 Act, concerning the recovery of sludges and agricultural waste.

Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998).

These Regulations provide for a system of consignment notes in respect of the movement of hazardous waste within the State and transpose certain related EU requirements into Irish legislation.

Waste Management (Use of Sewage Sludge in Agriculture) Regulations, 1998 (S.I. No. 148 of 1998).

These replace 1991 Regulations made for the purpose of giving effect to Council Directive

86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture.

Waste Management (Transfrontier Shipments of Waste) Regulations, 1998 (S.I. No. 149 of 1998).

These replace 1994 Regulations made for the purposes of giving effect to Council Regulation (EEC) No. 259/93 on the supervision and control of shipments of waste within, into and out of the European Community, and provide for certain administrative details, in particular relating to enforcement.

Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998).

These Regulations update and replace a number of previous Regulations, and implement provisions of several EU directives relating to asbestos waste, batteries and accumulators, polychlorinated biphenyls (PCBs), waste oils and hazardous wastes generally.

Waste Management (Miscellaneous Provisions) Regulations, 1998 (S.I. No. 164 of 1998).

These Regulations provide for the permitting by local authorities of waste oil collection, and other miscellaneous matters.

Waste Management (Permit) Regulations, 1998 (S.I. No. 165 of 1998).

These Regulations provide for the granting of waste permits by local authorities in respect of specified waste recovery and disposal activities.

European Communities (Amendment of Waste Management Act, 1996) Regulations, 1998 (S.I. No. 166 of 1998).

These Regulations amend certain provisions of the 1996 Act for the purpose of enabling full effect.

Waste Management (Hazardous Waste) (Amendment) Regulations, 2000 (S.I. No. 73 of 2000)

The Waste Management (Hazardous Waste) (Amendment) Regulations, 2000 give effect to the provisions of Commission Directive 98/101/EC of 22 December 1998, which prohibits the marketing of all batteries and accumulators containing more than 0.0005% of mercury by weight, including those cases where the batteries and accumulators are incorporated into appliances. Button cells and batteries composed of button cells with a mercury content of no more than 2% by weight are exempted from this prohibition.

Waste Management (Licensing) Regulations, 2000 (S.I. No. 185 of 2000)

The Regulations consolidate the 1997 and 1998 Regulations, with a number of minor technical amendments, but also provide specifically for the licensing of mobile waste treatment plant to operate at more than one location.

Waste Management (Farm Plastics) Regulations, 2001 (S.I. No. 341 of 2001)

These Regulations revise and replace the regulations of 1997 and are designed to assist the

improved recovery of waste farm plastics. The Regulations impose obligations on producers and suppliers of certain farm plastics for this purpose including obligations, as appropriate, to operate a deposit and refund scheme, to collect waste farm plastics, to take steps for the recovery of such waste, to register with and provide information to local authorities and to provide information to purchasers. An exemption from these obligations is available to persons who participate in a waste recovery scheme operated by an approved body.

Waste Management (Prescribed Date) Regulations, 2001 (S.I. No. 390 of 2001)

These Regulations provide that 14 September 2001 is the prescribed date by which a waste management plan under section 22 of the Waste Management Act, 1996 must be made.

Waste Management (Licensing) (Amendment) Regulations, 2001 (S.I. No. 397 of 2001)

These Regulations amend Article 23(1) of the Waste Management (Licensing) Regulations, 2000 (S.I. No. 185 of 2000). They provide that an application for the grant or review of a waste licence may be withdrawn only where the said application concerns a proposed waste activity.

Waste Management (Collection Permit) Regulations, 2001 (S.I. No. 402 of 2001)

These Regulations prescribe that on or after 30 November 2001, the collection of waste on a commercial basis requires a waste collection permit from a relevant local authority in accordance with section 34(1) of the Act. The Regulations set out procedures for the making of permit applications, public consultation, consideration by local authorities of submissions in relation to permit applications, and the grant, refusal and review of permits by local authorities. Certain waste collection activities that are subject to controls under other legislation are exempt from the permitting requirement.

Waste Management (Environmental Levy) (Plastic Bag) Regulations, 2001 (S.I.No. 605 of 2001).

These Regulations provide for the imposition of an environmental levy of 15 cent on plastic bags from 4th March, 2002. They also provide for the arrangements for the collection of the levy and specify the times at which the levy shall be paid.

Waste Management (Licensing)(Amendment) Regulations 2002 (S.I. 336 of 2002)

European Communities (Amendment of Waste Management (Licensing) Regulations 2000) regulations 2002.

Waste Management (Packaging) Regulations, 2003

These Regulations replace the Waste Management (Packaging) Regulations, 1997 and are designed to promote the recovery of packaging waste. They are intended, in particular, to facilitate the achievement of the targets for the recovery of packaging waste established by Directive 94/62/EC on packaging and packaging waste.

4. PUBLIC AWARENESS AND WASTE AVOIDANCE

4.1 Introduction

This chapter addresses both waste avoidance and public awareness – reflecting the fact that waste avoidance measures and campaigns are ineffective without the commitment and participation of all relevant waste producers and stakeholders. International experience has demonstrated that stakeholder commitment is best obtained and maintained via the development of targeted and continuous **public awareness** programmes. This information must convince waste producers of the benefits of avoiding waste production, and the negative environmental impacts of continuing current habits. As well as identifying the problem, however, this information must also include the solution to the problem – in other words, simple, easy-to-follow instructions identifying the most effective methods of avoiding waste.

A great deal of emphasis is always placed on the ways in which municipal waste arisings are handled, treated and disposed of. A far more sustainable approach, however, would be to ensure that the waste is not generated in the first place (**waste prevention**). If it is not produced, it does not have to be managed – however, there will always be situations where some waste production is unavoidable. The best approach in the latter case would be to ensure that the quantity produced is as low as it can possibly be (**waste minimisation or reduction**). This approach is also in accordance with EU and National Policy.

As well as targeting the actual *quantities* of waste produced in the city, it is also important that the *pollution-potential* of waste be reduced. This requires the substitution of hazardous materials with more environmentally friendly alternatives. This goal also requires specific, targeted public awareness efforts.

4.2 Waste Avoidance

Reducing the amount or pollution-potential of municipal solid waste and the other wastes produced in a given area is a preventative action – and it thus has a fundamentally different function to waste management proper. Reducing waste quantities offers many potential benefits – e.g. fewer environmental problems with waste management, lower waste management costs, increased conservation, more efficient use of resources and increased public confidence in industry and government. The economic benefits of reduced raw material usage, lower energy requirements and less land utilisation for waste disposal activities are also significant.

Several obstacles have inhibited substantial waste prevention and minimisation efforts to-date in Ireland, as well as in the rest of the developed world. Some of these are cultural or economic – and are thus market-driven. For example, there has been little onus on the manufacturers of products to minimise packaging, as the latter does not enter the waste stream for some time after the finished and packed product leaves the factory. The producer, in

addition, tends to exploit the strong marketing link between attractive packaging (which often means *more* packaging) and consumer acceptance of a product. Consumers in addition have, until recently, given little thought to the need to buy products with less unnecessary packaging as there has been no financial incentive for them to do so.

Another barrier to waste prevention is our modern consumer's desire for convenience and disposable products. The latter can form a large proportion of the municipal solid waste stream but are difficult to eliminate as they serve a number of functions – including sanitation, theft prevention, public safety, weight reduction and customer appeal.

Consumption and production patterns will only improve, however, as a result of significant behavioural and cultural changes, as well as economic considerations. The main ways in which these necessary changes can be made are if:

- Public awareness of the issue is raised;
- Government (both central and local) generates guidelines or legislates for the prevention and minimisation of waste (for example, increasing landfill charges); and/ or
- The manufacturers of products make significant efforts (either forced on them by legislation or economics, or pro-actively initiated) to reduce packaging levels. Experience has shown that there are substantial financial benefits to be gained from the stream-lining of industrial and manufacturing processes to facilitate the minimisation of waste generation.

The initiation of the REPAK scheme, together with a ban on certain waste streams from landfill, is currently effecting a reduction of wastes to landfill.

4.3 Target Waste Producers

The goal of waste avoidance and reduction requires a long-term programme of public information, research and development, training events and pilot schemes. In addition, customised programmes for each of the different waste-producing sectors in the city are required. The results of such programmes, however, may require some time before they become measurable or tangible. This is particularly true of small individual waste producers such as householders and small businesses. It reflects the fact that the benefits of waste avoidance practices often accumulate only in small increments – which may in fact be so small as to be difficult to identify.

Industrial companies and other large waste producers often implement successful waste avoidance schemes relatively easily, on the other hand, reflecting the fact that the economies of scale involved make benefits more easily discernible at an earlier stage. This in turn makes such schemes more attractive to the company and more likely to be repeated.

Cork City Council recognises the individual needs of the different waste producers in the city and is committed to the development and dissemination of an aggressive long-term public awareness campaign highlighting waste avoidance measures specific to these sectors. These campaigns will target all waste producers but with particular emphasis on householders, businesses and Small and Medium Sized Enterprises (SMEs). The latter choice reflects the fact that larger industrial companies are often very pro-active in the implementation of waste avoidance measures as such activities are required by the EPA's licensing system¹⁵ for large industrial activities and also by many quality and environment improvement standards.

Smaller industrial companies fall outside this licensing net and do not, therefore, have the same incentives and/ or information to avoid waste production. Similarly, householders often feel that the small amounts of waste that they produce are unimportant relative to industrial wastes generated in a given area, for example. However, this perception must change, as the combined small quantities of household waste produced in a city such as Cork usually comprise one of the biggest single waste streams entering municipal landfills.

Effective waste avoidance requires habit-change, and can sometimes prove to be a slow and lengthy process. This acts as a disincentive for change. As tangible proof, therefore, of the City Council's commitment to waste reduction, the local authority will ensure that the waste avoidance measures communicated to the public by its information campaigns will also be fully and pro-actively adopted with respect to its own activities. In other words, Cork City Council must be treated like any other waste producer. Cork City Council thus has two main roles to fulfil with respect to its target of reducing the quantity of waste produced by Cork City. These are:

1. To support, encourage and promote waste avoidance measures; and
2. To ensure that City Hall produces less waste over the five-year period covered by this Plan.

4.4 Waste Avoidance Measures Initiated by Cork City Council

Although local authorities cannot significantly influence certain specific aspects of manufacturing and consumerism, the City Council *can* influence and guide the choices made by the public, manufacturers and landfill users in Cork City. The City Council plans, therefore, to continue and expand its current programme of disseminating waste avoidance information. In addition, a series of waste self-audits and information packs will be prepared to coincide with the needs of two specific waste producing sectors in the city – namely householders and SMEs. Waste reduction targets will also be encouraged for SMEs and hotels.

An aspirational target of reducing the quantity of industrial waste produced in the city by 10% is proposed by the City Council for the five-year period covered by this Plan. Whether or not

¹⁵ The Integrated Pollution Control (IPC) Licence System.

such a target can be achieved, however, will depend on the commitment of the companies involved as well as their current baseline performance.

Some of the methods by which the City Council has already promoted waste avoidance are summarised in the following paragraphs.

4.4.1 Waste Avoidance Education and Initiatives for Schools

Cork City Council recognises the importance of targeting waste producers at the earliest possible age. To this end, it has pro-actively developed a programme of school's visits that involve talks on different environmental and waste management issues. City Council staff develop and present this information to schoolchildren (and other waste producing sectors in the city). The aim of this information is to encourage practical waste avoidance initiatives within the school (e.g. composting projects). The City Council will continue to co-operate with Non-Governmental Organisations and businesses with respect to co-funding these initiatives.

4.4.2 The 20/20 Green Flag Scheme for Schools

City schools are currently being encouraged to minimise waste in accordance with an innovative waste audit system modelled on international quality systems such as the International Standards' Organisation's ISO 9000 programme. A successful result in the waste audit is recognised and the school is then allowed to display a flag with the recycling logo on it. The waste audit is subsequently repeated every three years.

In view of the fact that An Taisce is operating an International Award Scheme for schools Cork City Council no longer operates the original 20/20 Green Flag Scheme for schools. However the council is giving every support to schools and An Taisce to facilitate the new scheme.

4.4.3 Investment in Relevant Research

Cork City Council has forged strong links with a number of third-level educational institutions around the region – for example University College Cork, the Clean Technology Centre and the Cork Institute of Technology. The advice and research findings obtained from these co-operative efforts are subsequently incorporated into the Public Awareness programmes undertaken by the City Council. It is likely that local authorities will enter into more and more of such co-operative efforts in the future as their role changes from a waste disposal-dominated one to a more advisory/ enforcement function.

4.4.4 The Green Fáilte Programme

Cork City Council and County Council have co-operated in the development of an environmental improvement programme aimed specifically at the hotel sector. This scheme is being operated by the Cork Chamber of Commerce for the Cork region. The programme includes:

- Self-assessment questionnaires with built-in scoring systems;
- Identification of suitable improvement targets in-line with baseline performance;
- Provision of Information Packs;
- Public award ceremonies;
- Prizes for the best waste reduction ideas;
- Publication of reports outlining the types and scale of improvements which are possible – identifying ‘model’ hotels to act as incentives for the rest of the sector; and
- The completion of external audits of the hotels to verify the results of their in-house surveys.

4.5 Waste Avoidance in City Hall

4.5.1 Green Housekeeping Committee

A Green Housekeeping Committee, which meets monthly, has been set up within Cork City Council to address the entire field of sustainable development. One important element of the Committee’s responsibilities is the field of waste management – including the concepts of waste avoidance. The Committee is now pro-actively involved in all waste management decisions at City Hall.

This interdepartmental group advises all other divisions of the local authority as to their responsibilities in relation to waste management, energy usage and the environment generally. Another key function involves advising the purchasing departments of the City Council as to ways of reducing waste packaging and implementing City Council waste management policy. Successful schemes have included the returning of all computer hardware packaging waste to the supplier for recycling, the recycling of waste toner cartridges and office paper and the use of reusable envelopes for internal mail.

4.5.2 Voluntary Environmental Management System

In order to set a good example for the rest of the city, Cork City Council has implemented an Environmental Management System in City Hall. The implementation of such a system is a significant task as it involves the identification of all of the different environmental impacts occurring, and the initiation of measures to avoid those impacts. Waste management is an important element of any Environmental Management System. Cork City Council has received ISO 14001 accreditation for two of its Parks Sections and for the Kinsale Road

Landfill Site. Cork City Council will continue its policy of seeking ISO14001 accreditation for more of its activities.

4.6 Public Awareness Measures



The City Council is committed to the principle of public education concerning waste management issues and has, therefore, pursued an intensive and pro-active public information campaign since the launch of the Waste Management Strategy for the Cork Region in 1995. Other organisational procedures that have been put in place by the City Council to promote better waste management include participating in a joint public relations committee with Cork

County Council. It should be noted that the public awareness measures initiated by the City Council will be aimed not only at reducing the quantities of waste produced in the city, but also the harmful nature of that waste. In other words, information will be provided on environmentally friendly alternatives to products that would give rise to harmful or hazardous wastes materials.

Some of the other activities, which have been initiated by the local authority, are outlined in the following sections.

4.6.1 *The Cork Waste Management Strategy News – 20/20 Vision*

Cork City Council, in co-operation with Cork County Council, publishes a newsletter with widespread appeal for all sectors of the population. This publication provides information on waste management initiatives in the Cork region as well as giving helpful hints and tips for people wishing to minimise their waste production and increase their recycling activities.

4.6.2 **Public Educational Programmes**

The City Council gives many talks on waste minimisation and litter prevention to schools around the city, as international experience has shown that lifestyle change is more likely when the very young are recruited at an early stage. Green Housekeeping policies are also discussed and explained to local schoolchildren. It should be noted that this service is not just reserved for schools – rather the City Council will arrange educational events for any group which requests them (for example, national schoolteachers and small- and medium-sized enterprises). The City Council proposes to intensify and publicise these programmes which will be undertaken by the City Council staff.

The City Council utilises the available media (namely radio, newsprint and the City Council Website) to ensure that key decisions, policies and developments in the field of waste management are communicated effectively to the general public resident in the city.

5. WASTE COLLECTION AND RECEPTION IN CORK CITY

5.1 Introduction

This chapter looks at the current systems in place in Cork City for the collection, handling, and storage of solid wastes. These are necessary steps that must be taken before waste treatment can commence. For example, waste-recycling facilities can only operate if they are supplied with the appropriate types and quantities of recyclable materials. There are two main methods by which wastes are made available to waste management facilities, namely:

- Waste collection from the waste's point of origin, and its subsequent delivery to the appropriate facility – e.g. household door-to-door refuse collection by local authorities;
- and
- Deposition of wastes at receptacles located centrally for that purpose – e.g. Bring Sites for domestic recyclables.

5.2 Waste Collection by Cork City Council

The refuse collection activities currently undertaken by Cork City Council include the collection of household waste, commercial waste and public cleansing wastes. The cost of providing this collection service was €9.469 million in 2003. The revenue received from the waste collection service was in the region of €14,846 million in that year. The balance was used to help finance other waste-related activities (e.g. landfill, recycling, etc.).

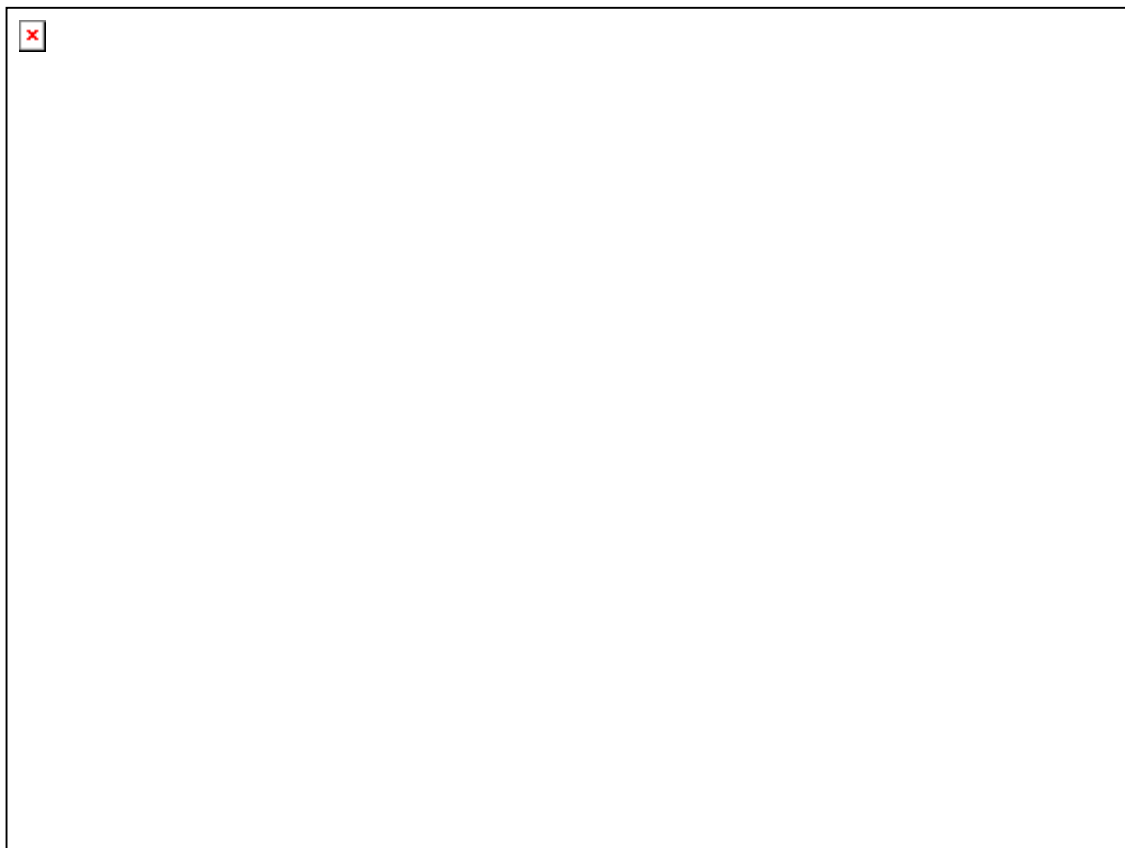
5.2.1 Household Waste Collection

Cork City Council has a statutory responsibility to arrange for the collection and disposal of domestic refuse and litter generated within Cork City. Cork City Council operates a wheeled bin collection system for the collection of refuse. Accompanying bye-laws were introduced on the presentation of refuse for collection (Cork City Council (presentation of Waste in Wheelbins) Bye-laws 2000). Thirty-three people are employed in the refuse collection section of the City Council, to service the approximately 44,000 households (as well as over 1,200 commercial premises) in the city from which the City Council collects wastes. The City Council has nine crushloader wheel bin collection vehicles¹⁶, each manned by a driver and 2 operatives.

The City Council's refuse collection service is offered to all city residents, with a take-up rate of almost 98%. Approximately 750 homes, however, have opted to have their waste collected by a private waste collection service, or to bring their waste directly to the Kinsale Road Landfill themselves.

Collections in the city are carried out on Monday to Friday mornings inclusive (nine routes per day), with wheeled bins collected on a door-to-door basis. A block collection system is in operation – with one area of the city being serviced on any one day, limiting the active

collection zone to as small an area as possible. In addition, Community and Residents Associations are provided with bags and gloves when undergoing clean-up operations in their areas and Cork City Council collects the refuse generated from such clean-ups. All of the household refuse collected by Cork City Council is deposited at the Kinsale Road Landfill site.



A Cork City Council Refuse Collection Vehicle

(i) Household Waste Collection Charges

The City Council levies a charge of €355 per household per annum (2004 charge) for their household waste collection service. This charge is made up of:

- (a) The cost of collection and transportation to the Kinsale Road Landfill Site;
- (b) The cost of disposing of the waste (this is a weight based charge which reflects all of the costs of operating the landfill including compliance with the EPA licence for the site);
- (c) The Landfill Levy (€15 per tonne of waste landfilled) which is paid directly to the Government's Environment Fund; and

¹⁶ As well as a number of back-up trucks.

- (d) The cost of providing a waste infrastructure (e.g. bring sites, civic amenity site, litter service, street cleaning, etc.);

The current refuse collection charge is levied annually. Those householders whose refuse collection charge accounts are in order are issued with a “proof of payment” sticker which they place on their bin. Customers whose refuse collection charge accounts are not in order are not collected by Cork City Council’s refuse collection crews.

The current refuse collection charge is a flat charge. However, the Minister for the Environment, Heritage & Local Government, has set 1st January 2005 as the date for the completion nationally of the changeover to pay-by-use waste charges for all households. Therefore, from January 1st 2005, Cork City Council will be required to offer a weight or volume-based waste collection service to households (i.e. pay by weight, pay by lift or tag a bin system). The aim of this scheme is to reward householders for the use of good waste minimisation methods and the reduction of the quantity of waste that they dispose to landfill each week.

(ii) Separate collection of recyclable elements of Household Waste

Cork City Council is due to begin the first phase of a kerbside collection of clean dry recyclable materials from its refuse collection customers in Autumn, 2004. The collection will be provided to customers whose refuse collection charge accounts are in order.

The collection regime will involve the provision of specially produced bags to customers who will fill the bags with dry recyclables and present them for collection once a fortnight. The collection will take place on the same day as the householder’s standard refuse bin collection. The dry recyclable materials to be collected will include mixed paper, newspapers, magazines and brochures, cardboard, drink (aluminium) cans, food (steel) cans, tetrapaks (milk and juice cartons) and plastic containers/bottles.

The bags will be collected by Cork City Council and transported to a private facility where they will be sorted and baled prior to transportation off-site for recycling. The collection will be implemented on a phased basis with the introduction of one collection truck (manned by one driver and two operatives) in autumn 2004. This truck and crew will collect approximately one third of the households in Cork City; the full implementation of the collection will require the introduction of additional trucks.

Cork City Council is also considering the introduction of a separate collection of biodegradable municipal waste in the lifetime of this Plan in order to comply with the requirements of the Landfill Directive and the draft National Strategy on Biodegradable Waste.

5.2.2 Commercial Waste Collection

The majority of the city’s commercial waste arisings are collected by either private waste contractors or the company’s own transport system. This waste is banned from disposal at the

Kinsale Road Landfill Site. This measure¹⁷ was introduced by Cork City Council as a means of preserving landfill space for domestic waste that Cork City Council has a statutory obligation to collect and dispose.

Cork City Council collects residual refuse from approximately 1,200 commercial premises in the city (the recyclable fractions are excluded from this service). The city centre area is collected twice weekly while suburban areas are collected once a week. The annual charge for this collection is based on the size and number of bins and the frequency of collection.

(i) Separate collection of recyclable elements of Commercial Waste

The introduction of wheeled bins in Cork City posed problems for some commercial customers who did not have the space to store wheeled bins and/or who were located on upper floors of buildings and could not lift the wheeled bins up and down flights of stairs. It became apparent to Cork City Council that most of the waste being presented by such customers was paper and cardboard and was in fact recyclable. Cork City Council, in partnership with a private partner introduced a bag-based collection of paper, cardboard and plastic. Under this scheme, Cork City Council sells specially produced bags to customers who fill them with paper, cardboard and plastic and present them for collection by the private contractor. The private contractor then transports the materials to a facility where they are sorted and baled prior to transport to a recycling facility.

The cost of this collection is met by the sale price of the bags (€130 for a roll of 50 bags in 2004). The collection has been very successful and has expanded from its origins in the City Centre to businesses, schools, etc. in the suburbs.

5.2.3 Street Cleaning Wastes and Litter

Cork City Council has a responsibility to clean the public roads and footpaths in Cork City – including manual and mechanical sweeping, litterbin collection and street washing.

The City Centre is swept on a scheduled basis, using a combination of manual sweepers, a compact suction-sweeper, three manually operated pedestrian sweepers and a street vacuum scrubber. The areas outside the city centre are swept using five mechanical suction sweepers and manual sweepers. The City Council currently operates 5 mechanical suction sweepers 5 days a week in the city suburbs. The compact suction sweeper operates 7 days a week in the city centre.

¹⁷ Began with a banning of 25% of commercial waste in September 2001 and progressed to a ban of 100% commercial waste in January 2004.



A City Council Street Cleaning Vehicle

The City Council's public litterbins are emptied at least once a day during the week. The litterbins in the city centre are emptied twice a day (Monday to Saturday) and once on a Sunday. Two special litter collection vehicles are used for this purpose. The City Council is currently implementing a replacement programme for litterbins and all new or replacement litterbins are fitted with a cigarette and chewing gum disposal unit.

The City Council adopted a Litter Management Plan in 1998. This Plan was reviewed in 2002; it was clear that progress had been made through the implementation of the Litter Management Plan. The most notable areas of progress were in the citywide introduction of the wheeled bin system, an increase in enforcement activity and in the introduction of a litter free zone and special litter control areas. The level of capital investment by Cork City Council in new equipment to support the Plan was also noted as an indication of the commitment of the local authority to seriously tackle litter in the city.

The City Council has introduced a freephone telephone number (1800 22 22 26) for receiving complaints regarding litter and dumping.

The City Council currently employs 4 litter wardens in the city. The purpose of the Litter Warden service is to enforce the provisions and requirements of the Litter Pollution Acts 1997 and 2003 and the Litter Management Plan (1998) and Plan Review (2002). The Litter Wardens also promote greater public awareness and education about litter and form partnerships with business, industry, schools and the community to combat litter and to create a clean outdoor environment. The City Council issued 594 litter fines during 2003.

All waste collected by the City Council from its public cleansing and litter removal activities are deposited at the Kinsale Road Landfill for final disposal. These amounted to approximately 4,200 tonnes in 2003 (or 34 kg of litter per person per annum).

5.3 Waste Collection by Private Companies

All but approximately 750 of Cork City households use the City Council's refuse collection service, whereas approximately 80% of commercial premises use alternative collection and disposal arrangements.

In general, the city's waste arisings are collected and disposed of as follows:

- By Cork City Council;
- By private waste collection companies;
- By the waste generator themselves – be it a householder, commercial or industrial premises, or the waste division of an individual company; and
- By specialist waste recyclers.

Private waste collection contractors operate within Cork City usually using a wheeled bin system for household waste collection and skips or wheeled bins for non-household wastes. Skips are also hired out to a wide range of establishments – hotels, pubs, hospitals and businesses – and are collected on a weekly basis, or when full.

In addition, private waste collection companies provide tankers for the collection of industrial sludges. Non-hazardous industrial sludges, only, are accepted at the Kinsale Road Landfill site and only by agreement with Cork City Council. It should be noted however, that many industrial companies deal with their own waste at source – either arranging for its re-use or recycling, treating it on-site by a mixture of physical and biological treatment methods, or arranging for its transfer (directly, or via the waste brokerage system) to a final treatment/disposal destination either within or outside of Ireland. Building wastes, on the other hand, are usually collected and disposed of by contractors or the builders themselves.

5.3.1 Waste Collection Permits

Under the Waste Management (Collection Permit) Regulations 2001, those intending to carry on waste collection activities in a local authority area must apply to the nominated authority for a Waste Collection Permit in order to carry on that activity in that authority. This requirement applies to individuals, companies and partnerships. Persons availing of waste collection services are advised to check that the party offering the service is duly authorised by permit under the Regulations.

Those engaged in waste collection activities in the administrative area of Cork City Council must apply for a Waste Collection Permit to Cork County Council (the nominated authority that issues permits and applies the Regulations for the Cork Region). The applicant is required to submit details of all properties and vehicles used in relation to the collection of waste. Other details submitted include the nature and type of waste collected, the areas in which the waste is collected and the location of facilities for treatment, recovery or disposal of each waste material type collected.

There were 165 permitted waste collectors operating in the Cork region in 2003. These permit holders must furnish Cork County Council with an annual summary of their activities for the preceding year.

5.4 Waste Reception Facilities

5.4.1 Civic Amenity Sites

There is currently one Civic Amenity Site in operation within the Cork City Council administrative area – at the Kinsale Road Landfill. The Civic Amenity Site accepts a wide

range of materials for recycling from the domestic sector; these include glass bottles and jars, plastic bottles, aluminium (drink) cans, steel (food) cans, paper and cardboard, newspaper and magazines, batteries, waste engine oil, metals, white goods, fridges and freezers, TVs and computers, green (garden) waste and timber waste. There is also a facility for disposal of residual waste for landfill. Most of the materials are accepted free of charge with the exception of residual waste, white goods (€15 per item - 2004 charge), green and timber waste (€10 per car, €40 per car and trailer – 2004 charges). The Civic Amenity Site is restricted for domestic use only and vans and commercial vehicles are not allowed on site.

The materials deposited at the Civic Amenity Site for recycling are collected by specialist recyclers and transported to facilities off-site where they are either recycled or bulked up for transportation to recycling facilities. The green waste and timber waste are processed at two separate recycling facilities located at the Kinsale Road Landfill Site and operated in partnership with a private company. The green (garden) waste is shredded and composted in windrows, the final compost is used on site as a soil enhancer for the development of a public park. The timber waste is shredded on site and transported off-site for use in the manufacture of fibreboard and as a boiler fuel.

During 2003, approximately 1,200 tonnes of recyclable waste was deposited at the Kinsale Road Civic Amenity Site for recycling. This approximates to 9.75kg per capita per year.

The Waste Management Strategy for the Cork Region stipulated the creation of at least one more Civic Amenity Site in Cork after the year 2001. The optimum location for such a facility must be north of the River Lee in order to provide a facility for the population in that area. Cork City Council has identified a suitable site at Tinker's Cross, Mayfield.

5.4.2. Bring Sites

A Bring Site is a dedicated area where a limited number of materials may be deposited by the domestic sector for recycling. The materials that are collected at bring sites in Cork City include glass, cans, textiles, paper and batteries (a full list of the bring sites in Cork City and the materials which they accept for recycling is given in Appendix A).

The cost of installing a bring site is typically in the region of €8,000 - €12,000 (excluding the cost of the recycling receptacles themselves). These bring sites are normally placed at central locations, such as shopping centres, and can consist of a single unit for a single material such as glass, or a collection of units for different materials. Siting of bring sites is critically important for the city – the location chosen should maximise convenience and accessibility for the householder. The site must be visible to the local community or other users, yet secure from vandalism and not visually disruptive. Bins and vehicle access to them must be on hard standing (e.g. car parks) with sufficient space and access both for householders' vehicles and the collection equipment. Sites should also be chosen so as to minimise the amount of extra car travel required to deliver materials, since long distances could expend more energy than is saved by recycling the waste material in the first place.

There are 41 bring sites in Cork City, this represents a provision rate of 1 site per 3,000 people. Approximately 10 of these were constructed during 2003 with assistance from the

Waste Management Infrastructure Grant Scheme. The quantity of materials collected at bring sites in Cork City during 2003 was 2,400 tonnes.

The installation and maintenance of bring sites in Cork City poses a number of problems for Cork City Council, these are:

- (a) *Public opposition to siting of bring sites* – While there is public demand for increased numbers of bring sites and civic amenity sites and people demand that they be as accessible as possible, there is a lack of acceptance by local residents for placement of facilities in their area. This “not in my back yard” (NIMBY) attitude to bring sites is encountered by local authorities in the identification of sites for all waste management infrastructure.
- (b) *Vandalism and littering of sites* – A significant number of bring sites in the region suffer from vandalism. This includes burning-out of bins/receptacles, overturning bins onto roads, car parks or green areas, defacing bins and breaking locks. Other problems include people putting incorrect non-recyclable materials into bins, people not filling recyclables into bins but leaving them in bags or boxes next to bins and people littering bring sites. Another factor that puts pressure on bring sites is the use/abuse of the facilities by the commercial sector (the bring sites are provided by local authorities for the domestic sector only). The problems outlined are experienced by all local authorities throughout Ireland and are difficult to solve without the backup of adequate legislation. Accordingly, Cork City Council is currently drafting bye-laws on bring sites that will address all of the problems outlined and make it possible to prosecute those that abuse the facilities provided.
- (c) *Cost of installing bring sites* – The cost of installing bring sites in Cork City has been provided primarily by Cork City Council with some financial assistance from national government and Repak during 2003. The funding of bring site installation by private enterprise is also emerging as planning conditions requiring the installation of bring sites have been placed on some developments in the region (e.g. shopping centres). This move has been facilitated by the insertion of the following clause in Cork’s City Development Plan “*Bring Sites: It is proposed to increase the number of ‘Bring Sites’ to which the public can bring their recyclable domestic waste to, in line with the Waste Recycling Strategy and also expand the range of materials these sites will accept. Such sites normally facilitate materials such as glass, paper, textiles and cans. The City Council currently has 30 sites in place and the aim is to have 1 site per 1000 population in total within the period of the Plan. It is the aim of the City Council that such sites should be integrated with housing and commercial developments rather than located in remote locations. To this end, it is proposed that larger commercial, housing and mixed use developments shall be required as a condition of planning to provide an area and infrastructure within the development which would facilitate a ‘Bring Site’ and put in place management arrangements for the operation of such sites.*”
- (d) *Cost of maintaining bring sites* The problems outlined in section (b) place a financial burden on local authorities in terms of maintenance of the sites, repair/replacement of bins, washing of bins and sites, picking litter and enforcement of the litter pollution legislation. The maintenance of bring sites is important as it is vital that recycling is presented to the public as a good clean environmentally responsible waste management option. Cork City

Council employs a member of staff equipped with a truck and power washer who is responsible for the maintenance and cleaning of bring sites. The costs of maintenance is an ongoing cost for the Council and has been partly funded by the Environment Fund in recent times (2003-2004).

- (e) *Cost of servicing bring sites* – One of the most popular public misconceptions relating to waste management is that recycling is free. Local authorities pay most recyclers to provide and service bring banks for recyclable materials at bring sites; the exceptions are aluminium cans and textiles which are collected by the recyclers free of charge. Local authorities pay recyclers for the collection of all other recyclables (e.g. paper and cardboard, glass, batteries, plastics, metals, white goods, etc). The price paid varies according to the market price of the material being collected. Local authorities receive a subsidy from Repak in respect of cardboard collected but all other materials are recycled at the expense of the Local authority.

5.4.3. Privately owned Waste Reception Facilities

A number of private waste reception/processing facilities have been permitted by Cork City Council. These are briefly described below (the list also includes facilities for which applications have been made but no decision has yet been made).

- a) *Denis Healy Ltd.*, Skehard Road, Cork – permit granted by Cork City Council for a transfer station for dry solid waste (e.g. rubble, timber, paper and cardboard). The capacity of the facility is 5,000 tonnes per year.
- b) *Keohane Pallets*, Old Whitechurch Road – has applied for a permit for a facility for the shredding of 2,000 tonnes of timber/pallets per year.
- c) *Lee Metal Co.*, Pouladuff Road – has been granted a permit for the processing of stainless steel (30 tonnes per annum), ferrous (323 tonnes per year), copper (160 tonnes per year), aluminium (200 tonnes per year) and lead (35 tonnes per year).
- d) *Rehab Recycling Partnership*, Monahan Road – has been granted a permit for the recovery of glass and aluminium (7,000 tonnes per year), steel cans (120 tonnes per year) and confidential paper (800 tonnes per year).
- e) *Cork Mini Skips*, Churchfield Industrial Estate – has been granted a permit for the recycling and/or disposal of paper and cardboard (50 tonnes per year), plastic (50 tonnes per year), Metal (800 tonnes per year), wood (500 tonnes per year), rubble (1,500 tonnes per year), top soil (1,500 tonnes per year), garden waste (300 tonnes per year), textiles (5 tonnes per year) and other waste materials (295 tonnes per year).
- f) *National Recycling Co. Ltd.*, Churchfield – has been granted a permit for the recycling and recovery of lead batteries (500 tonnes per year), discarded vehicles (100 tonnes per year), waste metal (2000 tonnes per year) and non ferrous waste (1,000 tonnes per year).
- g) *Ashgrove Plant & Skip Hire*, Togher – has applied for a permit for a waste transfer/recycling facility for the processing of construction waste (3,000 tonnes per year), wood, glass & plastic (1,000 tonnes per year), asphalt (100 tonnes per year), metals (300 tonnes per year), soil & dredging spoil (200 tonnes per year), municipal & garden waste

- (50 tonnes per year), paper (50 tonnes per year), textiles (50 tonnes per year) and miscellaneous waste types (200 tonnes per year).
- h) *Gerlan Cars & Parts Ltd.*, Rutland Street – has been granted a permit for car dismantling. The approved quantities are brake fluid (6 gallons per year), engine/gear oil (100 gallons per year), oil/water separator sludge (5 litres per year), used tyres (350 no. per year), lead batteries (30 no. per year).
 - i) *Recoverex Ltd.*, Monahan Rd. Industrial Park – has been granted a permit for the recovery of computers (800 tonnes per year) and computer parts (200 tonnes per year).
 - j) *Blarney Wheel a Bin Ltd.* – has been granted a permit for a waste recycling and transfer facility to cater for household waste (1,350 tonnes per year), paper and cardboard (300 tonnes per year), aluminium cans (50 tonnes per year), plastics (150 tonnes per year), C&D waste (200 tonnes per year), wood (100 tonnes per year), mixed metal (100 tonnes per year) and bulky household waste (300 tonnes per year).
 - k) *Fingal Recycling* – has applied for a permit for a waste recovery facility for the recovery and/or transfer of paper (300 tonnes per year), cardboard (600 tonnes per year), plastic (250 tonnes per year), metal (250 tonnes per year), wood (500 tonnes per year), IT equipment (100 tonnes per year), electronic equipment (100 tonnes per year), telephone equipment (50 tonnes per year), fluorescent tubes (5 tonnes per year) and printer cartridges (5 tonnes per year).
 - l) *OCS One Complete Solution Ltd.* - has received a permit for the handling of 90 tonnes of municipal waste per year.

In addition to the above facilities, a number of facilities have been licenced by the EPA. Most of these are just outside the city borough boundary but are mentioned because they will cater for waste arising in Cork City as well as waste arising in Cork County.

- a) *Beaumont Quarry*, Ballinlough, Cork – Cork City Council has received a Waste licence for the landfilling of 250,000 tonnes of inert construction and demolition waste in an old quarry over a two year period. The landfilling will accommodate the development of a public park at the site. Cork City Council is currently seeking expressions of interest from private companies for the operation of this facility.
- b) *Greenstar Recycling (Munster) Ltd.*, Glanmire, Co. Cork – this is a non hazardous waste transfer station where household, commercial and industrial waste is separated into the recyclable components which are taken off-site for recycling and the residual waste is landfilled. It is licensed to accept 99,017 tonnes of waste per year. The composting of 5,000 tonnes/annum of source separated biodegradable waste is also permitted under the licence.
- c) *Greenstar Recycling Holdings Ltd.*, Forge Hill, Co. Cork – this is a material recovery and transfer facility for non-hazardous commercial and industrial waste. It is licenced to accept up to 99,800 tonnes of waste per year.

- d) *Ipodec Ireland, Forge Hill, Co. Cork* – this is a material recovery and waste transfer facility for non-hazardous waste (primarily commercial). It is licenced to accept 82,000 tonnes per year.
- e) *Ashgrove Recycling, Churchfield, Cork* – This is a non-hazardous waste transfer station and recycling facility which will cater primarily for construction and demolition waste and commercial waste. It is licenced to accept 50,000 tonnes per year.

The combined capacity of the above private owned waste reception facilities is almost 500,000 tonnes per annum as summarised in table 5.1 below:

Table 5.1. Privately owned waste reception facilities

Name	Licence/permit status	Waste Materials	Total Quantity Tonnes/year
Denis Healy Ltd	Permit granted	Dry solid waste	5,000
Keohane Pallets	Permit being processed	Timber/pallets	2,000
Lee Metal Co.	Permit granted	Stainless steel, Ferrous, Copper, Aluminium and Lead	748
Rehab Recycling Partnership	Permit granted	Glass and aluminium, Steel cans, Paper	7,920
Cork Mini Skips	Permit granted	Paper and cardboard, Plastic, Metal, Wood, Rubble, Top soil, Garden waste, Textiles, others	5,000
National Recycling Co.	Permit granted	Lead batteries, Discarded vehicles, Waste metal, Non ferrous waste	3,600
Ashgrove plant & skip hire	Permit being processed	Construction, Wood, glass & plastic, Asphalt, Metals, Soil, Municipal & garden waste, Paper, Textiles, Miscellaneous	4,950
Gerlan Cars & Parts Ltd.	Permit granted	Brake fluid, Engine oil, Sludge Used tyres, Lead batteries	
Recovrex Ltd	Permit granted	Computers, Computer parts	1,000
Blarney Wheel a Bin	Permit granted	Household waste, Paper & cardboard, Aluminium cans, Plastics, C & D, Wood, Mixed metal, Bulky household waste	2,550
Fingal Recycling	Permit being processed	Paper, Cardboard, Plastic, Metal Wood, IT electronic and telephone equipment, Fluorescent tubes, Printer cartridges	2,160
One Complete Solution Ltd.	Permit Granted	Municipal waste	90
Beaumont Quarry	EPA licence granted	C& D	125,000
Greenstar Recycling (Munster)	EPA licence granted	Household, commercial, industrial, source separated biodegradable waste	99,017
Greenstar Recycling Holdings	EPA licence granted	Commercial and industrial	99,800
Ipodec Ireland	EPA licence granted	Commercial	82,000
Ashgrove Recycling	EPA licence granted	C + D, commercial	50,000
TOTAL CAPACITY			493,835

6. WASTE GENERATION IN CORK CITY

6.1. Introduction

In order to make appropriate and realistic plans for the management of waste in Cork City over the next five years, solid reliable data relating to the current situation are necessary. This section briefly outlines some of the ways in which the required background data have been gathered.

2003 has been chosen as the baseline year for the compilation of waste statistics for this Plan as the data relating to this year are the most accurate and up-to-date available. Information on the quantities and types of waste being generated, recycled, disposed of or otherwise managed in Cork City have been obtained from a number of sources, the most important of which are:

- ⇒ The City Council's own records and statistics relating to waste management in the city;
- ⇒ Records of the quantities of waste being landfilled in the Cork Region in 2003;
- ⇒ The EPA National Waste Database, 2001;
- ⇒ The Waste Management Strategy for the Cork Region, 1995;
- ⇒ Central Statistics Office;
- ⇒ Information supplied from Waste Collection Contractors and permitted facilities;
- ⇒ EPA Waste Licence and IPC-licence records;
- ⇒ Various governmental data;
- ⇒ The results of national and international research into waste management;
- ⇒ TFS and C1 documentation; and
- ⇒ Other sources.

Some assumptions and estimations have been made in order to allow for the development of a satisfactory overview of Cork City's waste management practices.

6.2. Municipal Solid Waste (MSW)

In this section the current situation with regard to the generation of Municipal Solid Waste (MSW) is discussed. This is generally the waste type of most interest to local authorities as at present, it constitutes the vast majority of the waste which is landfilled in municipal facilities. Municipal solid waste is a collective term for three waste streams, namely:

- Household waste;
- Commercial waste (from banks, schools, hotels and shops); and
- Public Cleansing (or street cleaning) and litter waste.

These three waste streams are discussed individually in the following paragraphs.

6.2.1. Household Waste Arisings

Data from the 2002 census (Central Statistics Office, 2002) indicates that there are 123,062 persons and 42,742 households (including apartments, private homes, and local authority-owned houses) in Cork City, implying an average occupancy rate for the City of 2.8 persons per household.

The EPA National Waste Database Report, 2001 estimates that the quantity of household waste arising in Cork City is 56,472 tonnes. This represents a household waste generation rate of 0.46 tonne per capita or 1.32 tonne per household.

Data from the 2003 Kinsale Road Landfill Site Annual Environmental Report indicate that the quantity of household waste being landfilled at the Kinsale Road Landfill was 47,593 tonnes. This represents all of the household waste collected by Cork City Council's refuse collection service (from approximately 98.25% of households in Cork City). The estimated household waste being landfilled from 100% of the households in Cork City is 48,441 tonnes.

The total quantity of household waste recycled in Cork City in 2003 was 3,761 tonnes. The total waste arising in 2003 therefore, for Cork City is 52,202 tonnes (= quantity landfilled + quantity recycled). This represents a total annual household waste generation rate of 0.42 tonne per capita and 1.22 tonne per household. The figure given is approximately 6,000 tonnes lower than the estimate made in the EPA National Waste Database (2001), the reason for this may be that in 2001, household waste collected in Cork County was being accepted for landfilling at the Kinsale Road Landfill Site and was incorrectly categorised as "city" waste. This is no longer the case.

6.2.2. Household Waste Composition

The composition of household waste has been determined by the EPA (National Waste Database, 2001) and is presented in Table 6.1 below. The actual quantities of each component wastestream generated by the domestic sector in Cork City have been calculated using the data for total household waste arising in Cork City and the EPA compositional data. This data is also presented in Table 6.1 below.

Table 6.1. Household Waste Composition

Material	% of total household waste (EPA, 2001)	Quantity arising in Cork City household waste (Tonnes)
Paper	22	11,484.44
Glass	4	2,088.08
Plastic	12	6,264.24
Metal	4	2,088.08
Textiles	4	2,088.08
Organic	32	16,704.64
Other	22	11,484.44
Total	100	52,202

6.2.3. Commercial Waste Arising

As mentioned in Chapter 5 (section 5.2.2), the majority of the city's commercial waste arisings are collected by either private waste contractors or the company's own transport system. This waste is no longer landfilled at the Kinsale Road Landfill. This measure began with the introduction of a ban of 25% of commercial waste from landfill in September 2001 and progressed to a banning of 100% of all commercial waste from landfill in January 2004. The measure was introduced by Cork City Council as a means of preserving landfill space for domestic waste.

The quantity of commercial waste landfilled in the Kinsale Road Landfill site in 2003 was 6,911 tonnes; this is only a fraction of the total commercial waste arisings in the city. The lack of data on commercial waste arisings from the Kinsale Road landfill site increases the dependence on the waste contractors as a data source for commercial waste arisings. All commercial waste contractors in the city and surrounding area were sent a detailed questionnaire and the information received used to compile a more complete picture of commercial waste arisings in the city.

The information provided by the waste contractors, in addition to Cork City Council's data from the Kinsale Road Landfill site, indicated that the total quantity of commercial waste arising in the city in 2003 was 43,972 tonnes. This is divided into a number of categories as illustrated in Table 6.2. below.

Table 6.2. Commercial Waste treatment

Treatment/disposal option	Quantity treated/disposed of
Landfilled at Kinsale Road Landfill site	6,911
Landfilled in Cork County landfills	2,389
Landfilled outside Cork but within the state	12,890
Exported	3,844
Recycled	17,938
Total	43,972

The EPA National Waste Database estimates the quantity of commercial waste arising in Cork City in 2001 as 66,549 tonnes. This is 22,577 tonnes more than the quantity given above. The difference may be attributed partially to the landfilling of commercial waste collected in Cork County at the Kinsale Road Landfill Site in 2001 and partially to inaccurate reporting of quantities of commercial waste collected by waste contractors in 2003.

The actual commercial waste arising is likely to be somewhere between the data generated by the waste contractors and the EPA database. For the purpose of this report, the quantity of commercial waste generated is assumed to be 59,023 tonnes¹⁸. This represents a total commercial waste generation rate of 0.48 tonne per capita and 1.38 tonne per household.

¹⁸ This assumes that two-thirds of the difference between the EPA National Waste Database data and the Waste Contractors data is due to inaccurate reporting by waste contractors in 2003 and one-third of the difference is due to landfilling of commercial waste originating in the County in the City landfill.

6.2.4. Commercial Waste Composition

The composition of commercial waste has been determined by the EPA (National Waste Database, 2001) and is presented in Table 6.3. The actual quantities of each component material generated by the commercial sector in Cork City have been calculated using the data for total commercial waste collected in Cork City and the EPA compositional data. This data is presented in Table 6.3 below.

Table 6.3. Commercial Waste Composition

Material	% of total commercial waste (EPA, 2001)	Quantity arising in Cork City commercial waste (Tonnes)
Paper	48	28,331
Glass	7	4,132
Plastic	10	5,902
Metal	3	1,771
Textiles	1	590
Organic	21	12,395
Other	10	5,902
Total	100	59,023

6.2.5. Public Cleansing (Street Cleaning) and Litter Waste

Public cleansing and litter waste arises from the emptying of litter bins throughout the city, the picking of litter from streets, bring sites and other areas and the waste arising from suction sweeping and manual sweeping operations in the city (as described in section 5.2.3). All of the public cleansing and litter waste is collected by Cork City Council's Waste Operations section and is landfilled at the Kinsale Road Landfill site. The quantity of waste arising from litter collection and street cleaning activities in 2003 and landfilled at the Kinsale Road Landfill Site was 4,156 tonnes. This is equal to approximately 80 tonnes per week or 0.03 tonnes (33.7 kg) per capita per annum.

The quantity of street cleaning waste reported in the EPA National Waste Database (2001) is 3,492 tonnes; however, Cork City Council is confident that the quantity landfilled in 2003 is the actual quantity arising as it is collected solely by Cork City Council.

It is worth noting that the quantity of this category of waste arising has decreased significantly during the period of the last Waste Management Plan (street cleaning waste was 6,000 tonnes per annum in 1997). This decrease can be attributed to the introduction of a wheeled bin system for refuse collection, the implementation of the Litter Management Plan, the employment of a Litter Warden Service for improved enforcement of litter regulations, improved public awareness of litter issues and an improved street cleaning regime.

6.2.6 Overall Quantities of Municipal Solid Waste Generated

Taking the figures detailed above for household waste (52,202 tonnes), commercial waste (59,023 tonnes) and public cleansing waste (4,156 tonnes), the total estimated quantity of

Municipal Solid Waste generated in 2003 was 115,381 tonnes or 0.94 tonnes per person living in Cork City.

6.3. Industrial Waste Arisings

The Cork Region has successfully attracted the investment of a large number of industrial operators – both national and international in origin. Nearly all of the major industrial activity, however, is focused outside of the City Borough area. Cork City Council does not accept any industrial waste at the Kinsale Road Landfill Site.

The industrial waste arising within the city boundary is either treated on-site by the industry concerned or off-site by specialist waste contractors. Cork City Council therefore, does not have any data on the quantity of industrial waste arising in the city.

The best indication of industrial waste arisings in the city may be obtained from the EPA National Waste Database, 2001. The EPA data is derived from data received from IPC and non-IPC licensed companies which was scaled-up according to sectoral employee numbers.

Industrial waste is defined in the Waste Management Acts 1996 and 2001 as including waste produced or arising from manufacturing or industrial activities or processes. Industrial waste arisings are sub-divided into non hazardous waste and hazardous waste.

6.3.1 Non-hazardous Industrial Waste

The top ten reported non-hazardous industrial wastes in 2001 according to the EPA National Waste Database, 2001 are given in Table 6.4.

Table 6.4. Top ten non-hazardous industrial waste in Ireland (2001)

EWC Code	Description
01 03 01	Tailings (from further physical processing of metaliferous metals)
01 03 03	Red mud from alumina production (from further physical processing of metaliferous metals)
01 03 99	Wastes not otherwise specified (from further physical processing of metaliferous metals)
10 01 02	Coal fly ash (from power station and other combustion plants)
02 07 99	Wastes not otherwise specified (from production of alcoholic and non-alcoholic beverages, excluding coffee, tea & cocoa)
03 01 02	Sawdust (from wood processing and production of panels and furniture)
01 01 02	Waste from mineral non metaliferous excavation (from mineral excavation)
02 02 02	Animal tissue waste (from the preparation and processing of meat, fish and other foods of animal origin)
02 02 99	Wastes not otherwise specified (from the preparation and processing of meat, fish and other foods of animal origin)
01 01 01	Waste from mineral metaliferous excavation (from mineral excavation)

According to the EPA, a total of 438,403 tonnes of non-hazardous industrial waste of the types listed in Table 6.4. were produced in Cork City and County in 2001. For the purpose of this Plan and the Cork County Waste Management Plan, Cork City Council and Cork County Council have agreed that approximately 90% of the total industrial waste arisings for the region occur in the County while only 10% occur in the City. Therefore, the total non-hazardous industrial waste arisings for Cork City are 43,840 tonnes.

6.3.2 Hazardous Industrial Waste

The top ten reported hazardous industrial wastes in 2001 according to the EPA National Waste Database, 2001 are given in Table 6.5.

Table 6.5. Top ten non-hazardous industrial waste in Ireland (2001)

EWC Code	Description
07 05 04	Organic solvents, washing liquids and mother liquors (from the MFSU* of pharmaceuticals)
06 03 99	Wastes not otherwise specified (waste salt and their solutions from inorganic chemical processes)
07 05 01	Aqueous washing liquids and other liquors (from the MFSU of pharmaceuticals)
07 05 03	Organic halogenated solvents, washing liquids and other liquors (from the MFSU of pharmaceuticals)
07 07 04	Organic solvents, washing liquids and mother liquors (from the MFSU of fine chemicals and chemical products not otherwise specified)
06 02 01	Calcium hydroxide (from waste alkaline solutions from inorganic chemical processes)
07 05 99	Wastes not otherwise specified (from the MFSU of pharmaceuticals)
07 05 07	Halogenated still bottoms and reaction residues (from the MFSU of pharmaceuticals)
07 07 08	Other still bottoms and reaction residues (from the MFSU of fine chemicals and chemical products not otherwise specified)
13 06 01	Oil waste not otherwise specified
*MFSU = manufacture, formulation, supply and use	

According to the EPA, a total of 115,347 tonnes of hazardous industrial waste of the types listed in Table 6.5 were produced in Cork City and County in 2001. It is estimated that at least 90% of this waste is produced in the Cork County area because of the high concentration of major chemical and pharmaceutical industry in the harbour area. Therefore, the quantity of hazardous industrial waste arising in Cork City is estimated to be approximately 11,534 tonnes.

6.4. Sludge Waste Production in Cork City

The types of sludge that arise in Cork City are waste water treatment sludge, water treatment sludge and sludges from industrial processes.

6.4.1. Wastewater Treatment Sludges

Over 90% of sewage effluent from Cork City is collected and transported via the Main Drainage Scheme to the wastewater treatment facility at Carrigrennan on Little Island. This facility was built by Cork City Council under a public private partnership arrangement (Design, Build and Operate) and is currently being commissioned (June 2004).

The treatment facility accepts sewage and trade effluent from Cork City and parts of Cork County. The plant is designed to accept a specified quantity and quality of effluent (including sewage and trade effluent) each day. The quantity of effluent accepted is 59,360m³ per day (62% from Cork City and 38% from Cork County). The quality of effluent accepted is defined in terms of Chemical Oxygen Demand (59 tonnes per day – 71% from city and 29% from county) and suspended solids (49 tonnes per day – 69% from city and 31% from county).

Domestic effluent accounts for 62% of the flow (36,803 m³), 44% of the Chemical Oxygen Demand (26 tonnes) and 52% of the suspended solids (25 tonnes) while the remainder is made up of trade/process effluent.

As mentioned earlier, the plant is currently being commissioned and is accepting a flow of approximately 49,000m³ per day. The treatment facility results in the production of a dewatered sludge (dry matter content of >90%) and water. The water produced is discharged into the deep water channel in Cork Harbour while the dewatered sludge is landspread as a soil conditioner. It is expected that the plant will produce approximately 15t/day dewatered sludge when it is operating at full design capacity. At present, the sludge production is 8-9 tonnes per day.

6.4.2. Water Treatment Sludges

Cork City Council treats and supplies drinking water for Cork City from its waterworks at the Lee Road. All of the city's requirements are met by abstraction points from the River Lee at the site of the waterworks and from three connections to the County Council drinking water supply. The water (approximately 45,000m³ per day) is subjected to a standard rapid gravity filtration process at the plant (which is working at more-or-less its full capacity at present) and goes through the following treatment steps:

- Initial screening;
- Flocculation;
- Sedimentation;
- Filtration;
- pH correction with lime;
- Chlorination; and
- Fluoridation.

The sedimentation and filtration processes give rise to the production of approximately 4,500 cubic metres of residual sludge and filter washwater per day, which is subsequently discharged to the river.

The development of a new/upgraded waterworks at the same site is currently being planned. This new facility will incorporate a treatment process for the water treatment sludge (this sludge cannot be accepted for treatment at the wastewater treatment plant at Carrigrennan due to a planning condition).

6.4.3. Industrial Sludges

The EPA licence that has been granted to the Kinsale Road Landfill site allows the landfilling of non-hazardous industrial sludges under controlled conditions.

However, no industrial sludges have been presented for landfill at the site in the past year. It is thought that the sludges that were being landfilled at the site in the past are now either being treated on-site by the industry themselves or off-site by specialist waste contractors. In

any case, the arisings of industrial sludges in the city are thought to be negligible as all of the sludges previously received at the landfill originated from industry located outside the City Borough boundary.

6.5. Construction and Demolition waste arisings

Construction and Demolition (C&D) waste includes new construction, repair and maintenance waste, excavated soil, demolition waste and dredging spoil.

Cork City Council accepted C&D waste for recycling at the Kinsale Road Landfill site during the period 1997-2002. The plant recycled approximately 200,000 tonnes of waste per annum during this time. The recycled material was then stockpiled for use in the conversion of the landfill to a public park. The facility is no longer in operation as the Council now has adequate material for the development of the park and there is no other market for the recycled material. The Council also operates a facility for the recycling of the timber element of C&D waste; this facility recycled approximately 3,700 tonnes of timber in 2003.

The Construction and Demolition Waste Council (NCDWC) was launched in 2002. Its objective is to facilitate the construction industry in meeting the target set in *Changing our Ways* (1998) of recycling at least 50% of C&D waste by 2003 with a progressive increase to at least 85% recycling by 2013.

The NCDWC (Annual Report 2002-2003) estimates the quantity of C&D waste arising in different regions of the country. It estimates the quantity of C&D waste generated in the south-west region (Cork & Kerry) to be 256,296 tonnes, this figure relates to new construction, repair and maintenance waste only. The quantity arising increases to 456,528 tonnes when the estimated quantities of excavated soil and demolition waste are added. Other studies (e.g. Bacon Report, 2001) estimate the C&D arisings for the Cork region alone to be approximately 500,000 tonnes per annum.

It is difficult to estimate the quantity of C&D waste arising in Cork City as the quantity arising varies enormously from year to year according to the scale and type of development taking place in the area. Cork City Council generally requires (through the planning process) that any new developments which involve demolition of old buildings, preferably crush and reuse the demolition waste on site or alternatively dispose of it to an approved facility.

For the purpose of this Plan, it is estimated that 500,000 tonnes of construction and demolition waste arise in Cork City and County each year and it is assumed that approximately 200,000 tonnes of this total arises in Cork City.

6.6. Hazardous Wastes

Hazardous wastes are those containing materials that may present:

- **Short-term hazards**, such as acute toxicity by ingestion, inhalation, or skin absorption, corrosivity or other skin or eye contact hazards or the risks of fire or explosion; and
- **Long-term hazards** including chronic toxicity upon repeated exposure, carcinogenicity, resistance to detoxification processes such as biodegradation, the potential to pollute underground or surface waters, or aesthetically objectionable properties such as offensive smells.

The Clean Technology Centre engaged by the EPA has produced a hazardous waste identification kit.

The National Hazardous Waste Management Plan (EPA, 2001) defines national policy on hazardous waste treatment and sets targets for hazardous waste prevention and recovery.

There are several different classes of hazardous waste materials – the most important being:

1. *Industrial Hazardous Wastes* (such as chlorinated solvents, wastewater from the production of pharmaceuticals and metal-containing wastes). The majority of Industrial Hazardous Waste generated in Ireland is treated, disposed-of or recovered on-site (by the waste generator) with the remaining portion being treated by specialist treatment facilities either in this country or abroad. As outlined in section 6.3.2. it is estimated that approximately 11,534 tonnes of hazardous industrial waste were generated by the industrial sector in Cork City in 2001 (this is based on the assumption that 10% of all hazardous industrial waste generated in the city and county arises in the city).

Large-scale industrial companies in this country are monitored and licensed by the EPA and not by individual local authorities. This licensing system (called the Integrated Pollution Control or IPC licence) requires that licensed companies provide detailed statistics to the EPA on their emission levels, including solid waste. There are seven IPC-licensed industries within the city – *Fronville Ltd.* of Kinsale Road, *Dulux Paints Ltd.* of Commons Road, *Millfield Textiles* of Blackpool, *Beamish and Crawford plc.* of South Main Street, *Galcan Ltd.* of Tramore Road, *Heineken Ireland Ltd.*, and the *Electricity Supply Board* of Centre Park Road.

Indaver Ireland Ltd. has received planning permission to construct an incinerator in Ringaskiddy, Co. Cork. This incinerator will have a capacity of 100,000 tonnes/annum and will accept hazardous waste and non-hazardous waste. Indaver Ireland Ltd. justifies the siting of the plant in Ringaskiddy by the fact that approximately 60% of the total amount of hazardous waste arising in Ireland is produced in Cork. The plant, when operational, will produce up to 37,000 tonnes of ash annually. Indaver expects to recover and recycle a substantial portion of this for use in the construction industry.

2. *Municipal Hazardous Waste* – which is comprised of *Commercial Hazardous Waste* (such as batteries and waste motor oil from vehicle maintenance activities, and asbestos from the demolition of old buildings) and *Household Hazardous Waste* (including materials such as batteries, waste paints, oils, glue, medicines, and light bulbs (which contain mercury)). This waste can be defined as being any material discarded by a household or business which is difficult to dispose of, or which puts human health or the environment at risk because of its chemical or biological nature. It is estimated to comprise only approximately 1% of total municipal-type refuse, but its highly polluting nature requires that it be properly disposed of. Using this 1% figure allows us to calculate that approximately 1,100 tonnes of hazardous waste were produced from the household/ business sectors in Cork City in 2003.

Traditionally, much of the Municipal Hazardous Waste generated in Ireland has been landfilled. The only municipal hazardous waste accepted at the Kinsale Road Landfill site is stable cement-bonded white asbestos arising in Cork City (as there is no risk of fibres being released from this stabilised material). The deep burial of this material is

allowed under the EPA waste licence conditions. 39 tonnes of stable cement-bonded white asbestos was deep buried at the Kinsale Road Landfill site in 2003.

In addition, the City Council operates a Household Hazardous Waste collection in conjunction with its partners Cork County Council and Cara Environmental and its sponsors (Eli Lilly, Glaxo Smithkline, Janssen Pharmaceutical Ltd., Pfizer Ireland Pharmaceuticals and Schering Plough Co). The collection accepts hazardous waste such as batteries, old medicines, paints, herbicides and pesticides, fluorescent tubes, etc. It is made available to the domestic sector only. The collection was responsible for the diversion of 5.85 tonnes of hazardous waste from landfill. The City Council also accepts batteries and waste oil at its Civic Amenity Site at the Kinsale Road Landfill site. The quantity of batteries collected during 2003 was 5.64 tonnes.

3. *Contaminated Soil* – produced from the decontamination of industrial or military lands. The contaminants in the soil depend on the original contaminating activity – for example, the site of a disused oil refinery might be contaminated with various grades of refined and unrefined oils.

6.7. Priority Waste Streams

The EC programme on Priority Waste Streams was initiated in 1991, identifying a number of waste streams targeted for particular action within the Community. These waste streams are:

- Construction & Demolition Waste;
- Waste Electrical and Electronic Equipment;
- End-of-Life Vehicles;
- Tyres;
- Batteries;
- Waste oils;
- PCBs; and
- Packaging waste.

Each of these wastes is assessed individually in the following paragraphs.

6.7.1. Construction & Demolition Waste

This wastestream has been discussed in section 6.5. It is estimated that the annual arising of construction & demolition waste in Cork City is approximately 200,000 tonnes.

6.7.2 Electrical and Electronic Equipment

This waste category covers a wide range of electrical equipment – for example, fridges, freezers, cookers, toasters, televisions, computers, electrical tools, monitoring and control

instruments and automatic instruments. The major components of these wastes include ferrous and non-ferrous metals, glass and plastics. The EPA National Waste Database (2001) estimates that the quantity of waste electrical and electronic equipment generated in Ireland is between 9 and 18 kg per person per year (varies according to methodology used to calculate quantities). This would equate to a waste electrical and electronic equipment generation level of between 1107 and 2215 tonnes per year in Cork City.

The European Directive on Waste from Electrical and Electronic Equipment (2003) stipulates that by 13 August 2005, Ireland must have a system in place to facilitate the collection of all types of waste electrical and electronic equipment (WEEE) free of charge from private households. By the end of 2006 (or 2008 if an optional derogation is taken), a national collection rate of 4kg/inhabitant/year must be achieved. Based on the population of Cork City (CSO, 2002) it is estimated that 492 tonnes of waste electrical and electronic equipment will have to be collected annually in Cork City in order to meet the 2006 (or 2008) target set by the Directive.

Cork City Council currently collects white goods from the domestic sector at the Kinsale Road Civic Amenity Site; approximately 70 tonnes of these were collected during 2003. In addition, 27 tonnes of fridges and freezers were recycled from the civic amenity site during 2003. Cork City Council is now beginning (August 2004) the collection of TVs and computers at the Civic Amenity Site.

In addition to the above facilities provided by Cork City Council for the domestic sector, there are a number of facilities in Cork City where waste electrical and electronic equipment from the commercial sector is processed (section 5.4.3). The WEEE processing capacity of these facilities is approximately 1250 tonnes (this does not include stated capacity for processing metal).

6.7.3. End-of-Life Vehicles

The EPA National Waste Database (2001) states that information provided from scrap merchants and recovery operators indicated that 155,094 end of life vehicles (ELVs) were generated in Ireland in 2001. As Cork City accounts for approximately 3.14% of the country's population, it is estimated that approximately 4,869 ELVs were generated in Cork City in 2001.

Approximately 75% of the weight of the average ELV is made up of steel and aluminium, most of which can be recycled. Potentially hazardous materials present in vehicles include lead, mercury, cadmium, hexavalent chromium, anti-freeze, brake fluid and oil. The remainder is made up of plastic.

The Directive on ELVs (2000/53/EC), that was published in October 2000, incorporates a number of significant proposals, including measures aimed at:

- (a) ensuring that relevant economic operators establish collection systems for all ELVs at no cost to the final holder;
- (b) ensuring that all collected ELVs are dismantled and recovered in a manner which does not cause environmental pollution;

- (c) preventing waste from vehicles;
- (d) increasing the recovery and recycling rates of ELVs and their components; and
- (e) minimising the use of hazardous materials/substances in vehicles.

The Directive sets out a series of specific targets to be met in relation to the reuse, recycling and recovery of end-of-life vehicles. The targets are:

- 1) By January 1st 2006, re-use and recovery of the components of end-of-life vehicles shall be increased to a minimum of 85% and re-use and recycling shall be increased to a minimum of 80%, measured by the average weight per vehicle. For vehicles produced before 1 January 1980, Member States may lay down lower targets, but not lower than 75% for reuse and recovery and 70% for reuse and recycling.
- 2) By 1st January, 2015, re-use and recovery shall be increased to a minimum of 95%, and reuse and recycling shall be increased to a minimum of 85%.

Following formal adoption of the Directive in October 2000, the Department of Environment, Heritage and Local Government has engaged with the Society of the Irish Motor Industry (SIMI), the Irish Motor Vehicle Recyclers Association (IMVRA), the Metal Merchants Association of Ireland (MMAI) and other concerned parties with a view to the development of a producer responsibility initiative in relation to ELVs. Agreement has now been reached and detailed arrangements are being put in place for the implementation of the Directive.

6.7.4. Waste Tyres

The EPA National Waste Database estimated that 34,394 tonnes of waste tyres were generated in 2001. Of this total, 52% were car tyres with the remainder from buses, lorries, aircraft, motorcycles, bicycles and other sources.

As Cork City accounts for approximately 3.14% of the country's population, it is assumed that 1,079 tonnes of waste tyres are generated in Cork City. Cork City Council does not collect waste tyres at its Civic Amenity Site. There is one car dismantling facility (Gerlan Cars & Parts) in Cork City that is permitted to recycle 300 tonnes and dispose 50 tonnes of car tyres per year.

The Landfill Directive bans the landfilling of whole tyres from July 2003 and shredded tyres from July 2006, except for use as engineering material. Some tyres are remoulded and retreaded each year by tyre recyclers. The Irish Governments policy document, "Waste Management-Taking Stock and Moving Forward" (April 2004) states that arrangements are being concluded for a Producer Responsibility Initiative for the tyre sector with a view to introduction by end of 2004.

6.7.5. Waste Batteries

There are two principal categories of battery: lead acid batteries and other (small) batteries. Lead acid batteries are typically used as vehicle batteries and are classified as hazardous waste. No recycling of lead acid batteries is being carried out in Ireland and all lead acid batteries collected by authorised contractors are exported whole for recycling. The EPA National Waste Database reports that 7,479 tonnes of lead acid batteries were exported for

recycling in 2001 and estimates that a further 7,146 tonnes were unreported. It is estimated (according to population) that 459 tonnes of lead acid batteries are generated in Cork City.

Small batteries are used in watches, calculators, torches, remote controls, mobile phones, etc. Nickel-cadmium (NiCd) batteries and mercury cells are classified as household waste. The EPA National Waste Database (2001) reports that 120 tonnes of small batteries were exported for recycling in 2001. It estimates that 2,303 tonnes were unreported and were most likely disposed of to landfill with general refuse. It is estimated (according to population) that 76.08 tonnes of small batteries are generated in Cork City per annum.

Cork City Council collected 5.64 tonnes of mixed batteries at its Civic Amenity Site in 2003. It also collected a further tonne of batteries during its household hazardous waste collection. The Council is currently sponsoring a battery recycling box in primary schools in Cork City. This scheme, which will begin in September 2004 is expected to increase the quantity of small batteries being recycled in the city.

Two privately owned facilities are permitted to accept lead acid batteries; these are National Recycling (500 tonnes) and Gerlan Car & Parts (30 no.).

6.7.6. Waste Oils

The EPA National Waste Database (2001) reports that 23,997 tonnes of waste oils were collected for processing throughout Ireland in 2001. It reports that 76 tonnes of the total were treated on-site of generation, 23,343 tonnes were treated at facilities in Ireland and 579 tonnes were exported. The EPA is confident that all waste oil generation was reported in 2001.

It is estimated (population basis) that 753 tonnes of waste oil were generated in Cork City in 2001. Cork City Council accepts waste oil from the domestic sector at the Kinsale Road Civic Amenity Site 20,000 litres per annum of waste oil is collected.

6.7.7. Packaging Wastes

Packaging waste is described in the Waste Management Acts, 1996 and 2001, as any material, container or wrapping, used for or in connection with the containment, transport, handling, protection, promotion, marketing or sale of any product or substance, including such packaging as may be prescribed. Items such as glass bottles, plastic containers, food wrappers, aluminium cans and timber pallets are all classified as packaging.

The EPA National Waste Database reports that 892,917 tonnes of packaging waste was produced in Ireland in 2001.

The Waste Management (Packaging) Regulations, 2003 have introduced a ban on the landfilling of packaging waste and also place obligations on all producers of packaging waste to segregate their back-door packaging waste and arrange for its recovery. These measures are in addition to the measures set out in the Waste Management (Packaging) Regulations (1997) which oblige all major producers to accept back packaging waste and arrange for its recovery.

National and EC targets for recovery of packaging waste are set out in the EC Packaging Directive. Repak is a voluntary industry initiative that has been set up to achieve packaging

recovery targets of 25% by 2001, 50% by 2005 and 60% by 2011. Repak expects to realise the target of 50% recovery by the end of 2005.

6.8 Miscellaneous Waste Streams

6.8.1. Healthcare Wastes

Healthcare waste from the Southern Health Board is collected, transported and disposed of under contract by Sterile Technologies Ireland (STI). STI treats all clinical/healthcare risk waste, other than that being termed “excluded” with a Sodium Hypochlorite solution and steam treatment. Treated waste is then disposed of by deep burial in a landfill site outside of Cork that is licenced to accept treated clinical waste. All “excluded” waste (e.g. pharmaceuticals) is exported for incineration.

The annual tonnage collected from Cork City is 846 tonnes (Table 6.6). It should be noted that the healthcare waste given in table 6.6. refers to that arising in hospitals only and does not include that arising from health centres, G.P.s surgeries, etc (although these groups may bring their healthcare waste to their local hospital).

Table 6.6. Healthcare waste arising in Cork City

Hospital/Institution	Quantity arising tonnes
Cork University Hospital	448
St. Finbarr’s Hospital	115
Mercy Hospital	112
South Infirmary/ Victoria Hospitals	56
Irish Blood Transfusion Service	45
Erinville Hospital	33
St. Mary’s Orthopaedic	29
COPE Hollyhill	5
COPE Mayfield	3
TOTAL	846

6.9. Summary of Waste Generation in Cork City

6.9.1. Total Waste Production

Many different waste streams have been discussed in detail in the preceding paragraphs. Various waste streams, such as priority wastes, are generally sub-sets of larger streams and will not be included in the total figures (hence avoiding double counting of data).

It has been calculated that approximately **370,755 tonnes of waste were generated in the city of Cork in 2003** (equivalent to 3 tonnes of waste produced per person in the city). The largest single elements of this total are:

- Municipal Solid Waste - 115,381 tonnes;
- Industrial Waste – 55,374 tonnes; and
- Construction & Demolition Waste – 200,000 tonnes.

7. WASTE MINIMISATION AND RECOVERY IN CORK CITY

7.1. Introduction

European and National waste management policy highlights the fact that landfilling is the least favoured method of dealing with waste. Despite this fact, national and local waste management infrastructure and systems remain heavily dependent on landfill as a means of waste management.

One of the principal objectives of any Waste Management Plan has to be the prevention and minimisation of waste going to landfill, this is required in order to:

- Comply with the EC Landfill Directive;
- Comply with national recycling targets;
- Reduce the threat to the environment posed by the landfilling of waste;
- Reduce waste management costs;
- Reduce the requirement for new landfills and increase the lifetime of existing landfills, and
- Conserve raw materials and natural resources.

The minimisation of quantities of waste being disposed to landfill is a challenge that may be addressed through the implementation of an integrated waste management system that is based on the following principles:

- 1) Prevention and minimisation of waste generation;
- 2) Provision of a recycling infrastructure;
- 3) Separate source collection of recyclable components of municipal waste; and
- 4) Centralised separation of recyclables from mixed waste.

7.2. Prevention and Minimisation of Waste Generation

The implementation of prevention and minimisation measures will not only affect the quantity of waste generated, but may also improve the quality of waste products as a result of the use of less harmful and more recyclable components in products.

The 1995 Waste Management Strategy that was adopted by Cork City and County Councils prioritises the promotion of waste prevention. The measures to be employed to achieve this objective include:

- Advertisement/education campaigns to inform the general public on the benefits of prevention and minimisation and the methods used to achieve prevention and minimisation of waste in the home, office, workplace, etc. Much progress has been made in this area through the publication of a Waste Management Newsletter (20/20 News), advertisement campaigns, schools awareness programmes, etc.;

- Incorporation of preventive and minimisation measures during the granting of planning permissions and the licensing of industrial activities. This is being carried out at present. The enforcement of relevant planning conditions has been facilitated through the inclusion of several waste management related issues in the Cork City Development Plan;
- Introduction of environmental management systems in industrial and commercial enterprises;
- Banning of certain recyclable waste streams from landfill. The only waste streams that have been banned from landfill are those for which there are easily accessible recycling markets;
- Imposition of quotas or complete bans on commercial waste. This measure was introduced as a means of protecting valuable landfill space for domestic waste (the only waste stream for which local authorities are legally bound to cater for). It has the effect of dramatically decreasing the quantities of waste being landfilled locally but may not be having the same proportionate effect on waste generation quantities; and
- Introduction of pay-by-use schemes. The Minister for the Environment, Heritage and Local Government has set a target date of 1st January, 2005 for pay-by-use refuse collection systems to be in operation throughout Ireland. This type of system may be based on a pay-by-weight or pay-by-lift methodology.

7.3. Provision of a Recycling Infrastructure

The recycling of waste is one of the most obvious methods of minimisation of landfilling of waste. In order for recycling to be a realistic alternative to landfilling, it needs to be easily accessible to different sectors and to be as (if not more) economically attractive as landfill. This is dependent on the way the following four stages interact:

1. The collection and transportation of the wastes to be recovered;
2. The separation and cleaning of the collected wastes;
3. Processing of the cleaned wastes to obtain marketable materials and products; and
4. Marketing of these end products.

The maximisation of recycling rates is dependent on the provision of an accessible infrastructure. A typical recycling infrastructure includes bring sites, civic amenity sites and specialised recycling facilities for the recycling of specific recyclables.

7.3.1. Bring Sites:

A Bring Site is a paved area that provides facilities for the collection of a number of materials such as glass, cans, textiles, paper and plastic. Bring Sites are normally placed at central locations, such as shopping centres, and can consist of a single unit for a single material such as glass, or a collection of units for different materials.

Cork City Council currently has 41 bring sites in its administrative area; this represents a bring site provision rate of 1 site per 3000 people. The City Council has adopted a bring site provision target of one per 2000 people by 2000 and 1 site per 1,000 people by 2020 (Cork Waste Management Strategy, 1995). The achievement of these targets is proving difficult due to a number of barriers that exist; these include the following:

- (a) *Public opposition to siting of bring sites* – While there is public demand for increased numbers of bring sites and civic amenity sites and people demand that they be as accessible as possible, there is a lack of acceptance by local residents for placement of facilities in their area. This “not in my back yard” (NIMBY) attitude to bring sites is encountered by Cork City Council in the identification of sites for all waste management infrastructure;
- (b) *Vandalism and littering of sites* – A significant number of bring sites in the region suffer from vandalism. This includes burning-out of bins/receptacles, overturning bins onto roads, car parks or green areas, defacing bins and breaking locks. Other problems include people putting incorrect non-recyclable materials into bins, people not filling recyclables into bins but letting them in bags or boxes next to bins and people littering bring sites. Another factor that puts pressure on bring sites is the use/abuse of the facilities by the commercial sector (the bring sites are provided by Cork City Council for the domestic sector only). The problems outlined are experienced by all local authorities throughout Ireland and are difficult to solve without the backup of adequate legislation. Cork City Council is presently drafting bye-laws on bring sites that will address all of the problems outlined and make it possible to prosecute those that abuse the facilities provided;
- (c) *Cost of installing bring sites* – The cost of installing bring sites is significant and has been provided primarily by Cork City Council with some financial assistance from national government (Environment Fund) and Repak during 2003. The funding of bring site installation by private enterprise is also emerging as planning conditions requiring the installation of bring sites have been placed on some developments in the region (e.g. shopping centres). This move has been facilitated by the insertion of the following clause in Cork’s City Development Plan “Bring Sites: It is proposed to increase the number of ‘Bring Sites’ to which the public can bring their recyclable domestic waste to, in line with the Waste Recycling Strategy and also expand the range of materials these sites will accept. Such sites normally facilitate materials such as glass, paper, textiles and cans. The City Council currently has 30 sites in place and the aim is to have 1 site per 1000 population in total within the period of the Plan. It is the aim of the City Council that such sites should be integrated with housing and commercial developments rather than located in remote locations. To this end, it is proposed that larger commercial, housing and mixed use developments shall be required as a condition of planning to provide an area and infrastructure within the development which would facilitate a ‘Bring Site’ and put in place management arrangements for the operation of such sites.”;
- (d) *Cost of maintaining bring sites*: The problems outlined in section (b) place a financial burden on local authorities in terms of maintenance of the sites, repair/replacement of bins, washing of bins and sites, picking litter and enforcement of the litter pollution legislation. The maintenance of bring sites is vital as it is vital that recycling is presented to the public as a good clean environmentally responsible waste management option. The

costs of maintenance are ongoing costs for Cork City Council and have been partly funded by the Environment Fund in recent times; and

- (e) *Cost of servicing bring sites* – One of the most popular public misconceptions relating to waste management is that recycling is free. Cork City Council pays most recyclers to provide and service bring banks for recyclable materials at bring sites; the exceptions are aluminium cans and textiles which are collected by the recyclers free of charge. Cork City Council pays recyclers for the collection of all other recyclables (e.g. paper and cardboard, glass, batteries, plastics, metals, white goods, etc). The price paid varies according to the market price of the material being collected. Cork City Council receives a subsidy from Repak in respect of cardboard collected but all other materials are recycled at the expense of the local authority.

In addition to the provision of greater numbers of recycling facilities, the City Council also endeavours to expand the recycling infrastructure by increasing the range of materials being accepted for recycling at these facilities. At present all bring sites accept glass and aluminium cans, while some also accept paper, cardboard and plastics and a smaller number accept batteries. As Cork City Council proposes to implement a kerbside collection system for a range of dry recyclables in the autumn of 2004 the continued acceptance of such materials at these bring site will be under constant review.

7.3.2. Civic Amenity Sites

A Civic Amenity Site is basically an expanded Bring Site that accepts a greater range of materials for recycling and is operated and staffed under strict conditions. Cork City Council currently operates one Civic Amenity Site that is located at the Kinsale Road Landfill Site. The Civic Amenity Site is of a high quality and is staffed by three members of staff during opening hours (8.00a.m. - 3.45p.m. Monday to Friday, 8.00a.m. - 12.45p.m. Saturdays).

The range of materials being accepted for recycling include glass, aluminium cans, paper and cardboard, TVs, computers, plastics, tin cans, waste oils, batteries, mixed metals, green waste, timber waste and white goods. The range of goods being accepted is constantly expanding as new recycling markets open up.

Cork City Council has adopted a target civic amenity site provision rate of 2 for the city (one on the south side and one on the north side). A suitable location for a Civic Amenity Site in the northside of the city at Tinkers Cross Mayfield has been identified. It is proposed to construct an enclosed facility on a section of this site of approximately 1.1 Ha. The proposed access to the site will be from the North Ring Road and the exit will be to the Old Youghal Road subject to approval from the City Council's Roads Department. The proposed facility will accept a range of materials for recycling from domestic users only such as glass, paper, cardboard, cans, white goods, televisions, electrical goods etc. The range of goods to be accepted may expand as new recycling markets are developed. Appendix Three includes a site location map. This facility will cost approximately €2 m. to develop and an application will be made to the DOEHLG for funding at the appropriate time.

7.3.3. Cork City Council Recycling Initiatives

Cork City Council operates a number of recycling initiatives in its administrative area from time to time. These initiatives include the following:

- (a) *Christmas Tree Recycling* – each year Cork City Council arranges for the acceptance of Christmas trees from the general public at a number of different sites located throughout the city during the month of January. The trees are then recycled at the green waste composting recycling facility that is located at the Kinsale Road Landfill Site. The quantity of Christmas trees recycled is approximately 85 tonnes (approximately 20,000 trees);
- (b) *Compost Bin Sales* – Cork City Council subsidises the sale of compost bins to the general public from time to time. These sales are usually organised to coincide with other events (e.g. environmental awareness weeks). Cork City Council is currently considering the sale of compost bins on a continuous basis from a location within the city; these bins would be available at a subsidised rate; and
- (c) *Schools recycling initiatives* – Cork City Council continuously gets requests from schools for the supply/sponsorship/subsidisation of recycling in schools. Most schools in Cork City are involved in the implementation of environmental improvement plans that include waste minimisation/recycling initiatives. Cork City Council endeavours to assist schools in so far as is possible within budgetary constraints. Cork City Council sponsors paper and cardboard recycling bins in a number of schools throughout the city. In addition, the City Council has offered compost bins and battery recycling bins to all primary schools in the city.

7.3.4. Specialised recycling facilities

A number of recycling facilities have been provided for the recycling of specific waste materials in Cork City. These have been introduced under a public private partnership arrangement between the City Council and a private partner.

The recycling facilities that have been introduced include the following:

- (a) *Construction and Demolition Waste Recovery Facility* – This facility was established at the Kinsale Road Landfill site in partnership with Loftus Civil Engineering Ltd. The City Council accepted construction and demolition waste for recycling at the Kinsale Road Landfill site during the period 1997-2002. The plant recycled approximately 200,000 tonnes of waste per annum during this time. The recycled material was then stockpiled for use in the conversion of the landfill to a public park. The facility is no longer in operation as the Council now has adequate material for the development of the park and there is no other market for the recycled material.

The City Council has received an EPA licence for the filling of a quarry within its administrative area (Beaumont Quarry, Ballinlough) with 250,000 tonnes of inert construction and demolition material over a two-year period. The filling of the quarry will facilitate the development of a public park at the site. The Council is currently seeking expressions of interest from private companies for the operation of this facility;

- (b) *Green Waste Recovery Facility* – Cork City Council currently operates a green waste recycling facility at the Kinsale Road Landfill Site in partnership with a private company (CTO Environmental Solutions Ltd.). The facility accepts green (garden) waste from horticultural contractors and the domestic sector at a cost of €75 per tonne (2004). The green waste is shredded and composted in windrows. The compost (which is produced over an eight-week cycle) is used as a soil improver for the conversion of the landfill site to a public park. The facility recycled approximately 950 tonnes of green waste in 2003; and
- (c) *Timber Waste Recovery Facility* – Cork City Council also operates a timber waste recycling facility at the Kinsale Road Landfill Site in partnership with CTO Environmental Solutions Ltd. The timber waste is accepted from the commercial and domestic sectors at a cost of €60 per tonne (2004). The timber is shredded on site and transported off-site for use in fibreboard manufacture or as a fuel. The facility recycled approximately 3,700 tonnes of timber in 2003.

7.3.5. Separate Source Collection of Recyclable Components

The separate source collection of recyclable components is a method that is increasingly being used to minimise waste quantities going to landfill and maximise recycling rates and facilitate compliance with the Landfill Directive and the National Biodegradable Waste Strategy. A number of these schemes have been implemented in Cork City, these include:

- (a) *Commercial paper and cardboard collection* - Cork City Council operates a paper and cardboard collection in conjunction with a private waste collector (Cork Recycling Co.). Under the scheme, specially branded plastic bags are sold to customers who fill them with paper and cardboard. These bags are then collected by the private waste collector and taken to a waste management facility where they are separated and baled prior to transport to a recycling facility. The sale price of the bags covers all of the costs (i.e. production and distribution of bags, collection, transport, processing and recycling of waste). The collection system is available to commercial customers who are prepared to pay for the service. It began in the city centre but its popularity among the commercial sector and schools has seen its extension to the city suburbs;
- (b) *Chemcar collection* - Cork City and County Councils in partnership with a number of pharmaceutical companies in the Cork area, operate a Chemcar collection for domestic hazardous waste. Approximately 12 chemcar collections are held throughout the year, these are advertised locally by a number of media. The chemcar collects hazardous waste such as batteries, old medicines, paints, herbicides and pesticides, fluorescent tubes, etc. It is made available to the domestic sector only. This collection is made possible through the ongoing support for the scheme from a number of local pharmaceutical companies (Eli Lilly, Glaxo Smithkline, Janssen Pharmaceutical Ltd., Pfizer Ireland Pharmaceuticals and Schering Plough Co).

While the operation of the chemcar collection does not alter the quantities of waste going to landfill in a significant way, it does improve the quality of waste going to landfill through the removal of the most hazardous components of the domestic wastestream;

- (c) *Dry recyclable waste collection* - Cork City Council is to introduce a separate door-to-door collection of dry recyclable waste in Cork City in August 2004. Specially branded plastic bags will be distributed to householders who will fill them with a range of dry recyclables (paper, cardboard, plastic bottles, tetrapaks, food cans and drink cans). The bags will be collected on a fortnightly basis by Cork City Council's refuse collection section and delivered to a private waste management facility where they will be segregated and baled prior to transportation off-site for recycling. It is anticipated that this system, once fully operational in the city will result in the diversion of at least 5,000-5,500 tonnes of household waste from landfill; and
- (d) *Bio-waste collection* - Cork City Council is considering the introduction of a separate door-to-door collection of bio-waste. Such a system would involve the collection of biowaste in wheeled bins and delivery to a waste management facility for composting. No decisions have yet been made as to when such a system might be introduced or how it might be organised. The introduction of such a system in the region would result in a significant diversion of waste from landfill.

7.3.6. Centralised Separation of Recyclables from Mixed Waste

The sorting and separation of co-mingled waste at a centralised facility (Materials Recovery Facility) forms part of the Waste Management Strategy that was adopted by Cork City and County Councils in 1995. This Strategy provided for the collection of co-mingled household and commercial waste in the local authority's administrative areas and delivery of the mixed waste to a Materials Recovery Facility where it would be separated into a number of different fractions. The fractions include (i) recyclable fraction, (ii) biodegradable fraction and (iii) residual fraction. It was envisaged that the recyclable fraction of the waste would be recycled, the biodegradable fraction would be composted and the residual fraction would be landfilled in a residual landfill site. The Materials Recovery Facility has not yet been realised although it remains an integral part of the waste management strategy. Both local authorities are working towards the realisation of this strategy.

A number of private Waste Recovery Facilities have been licenced by the EPA in or immediately adjacent to Cork City. These facilities are described in section 5.4.3 and summarised in table 7.1 below.

Table 7.1. EPA licenced Waste Recovery Facilities – privately owned

Name	Licence/permit status	Waste Materials	Total Quantity Tonnes/year
Greenstar Recycling (Munster)	EPA licence granted	Household, commercial & industrial wastes, source separated biodegradable waste	99,017
Greenstar Recycling Holdings	EPA licence granted	Commercial and industrial waste	99,800
Ipodec Ireland	EPA licence granted	Commercial waste	82,000
Ashgrove Recycling	EPA licence granted	Construction and demolition waste, commercial waste	50,000
TOTAL CAPACITY			330,817

7.4 Quantities of Waste Recycled in Cork City

This section outlines the quantities of waste recycled in Cork City through the recycling infrastructure detailed in the previous section. The data for recycling of domestic waste is obtained from Cork City Council in respect of Bring Sites and the Civic Amenity Site. The data for recycling of commercial waste is mostly obtained from commercial waste contractors as well as some information from the local authority's own records.

7.4.1. Recycling of Domestic Waste

The national recycling rate for domestic waste was 5.6% in 2001 (EPA National Waste Database, 2001).

The quantities of domestic waste being recycled in Cork City are consistently increasing. The domestic waste being recycled is collected from the general public the Civic Amenity Site and Bring Sites. The quantities recycled in 2003 are given in Table 7.2. below. The quantity of waste being recycled is equal to 7.2% of the total household waste arising in City. This is higher than the national recycling rate of 5.6%.

Table 7.2. Domestic waste recycled (tonnes) from bring sites and civic amenity sites in Cork City)

Material	Quantity arising Tonnes	Quantity recycled	% recycled
Paper/cardboard	11,484.44	1,068.57	9.30
Glass	2,088.08	1,481.93	70.97
Plastic	6,264.24	8.9	0.14
Metal	2,088.08		
Drink (aluminium) cans		8.36	5.34
Scrap metal		103.24	
Textiles	2,088.08		
Organic	16,704.64		
Green waste		202.76	4.32
Timber waste		519.38	
Others	11,484.44	259.14	2.92
White goods		69.56	
Fridges and Freezers		27.1	
Household hazardous waste		6.49	
Batteries (CA Site)		5.64	
Total	52,202	3,761.07	7.14%

It is evident from the table above that householders in Cork City are very efficient at recycling glass. This may be attributed to the fact that Cork City Council provides glass recycling

facilities at each of its 41 bring sites. Other common household wastes (e.g. paper/cardboard, aluminium cans, plastics) are also catered for at Bring Sites and at the Civic Amenity Site but not at the same frequency as glass bottles. This is reflected in the low levels of recycling of these materials.

The challenge for Cork City Council is to increase the level of recycling of household waste materials. This may be achieved by the provision of increased numbers of Bring Site and Civic Amenity Site facilities, the introduction of additional recycling schemes such as kerbside collection of household recyclable elements and other measures such as pricing mechanisms and pay-by-use schemes.

As mentioned earlier, Cork City Council is introducing a separate collection of dry recyclables from the domestic sector in August 2004. This collection will involve the collection of paper/cardboard, aluminium cans, tin cans, plastic bottles and tetrapaks from Cork City Council's refuse collection customers. This collection should dramatically improve the levels of recycling of materials from the domestic sector and allow Cork City to rise well above the national recycling rate.

7.4.2. Recycling of Commercial Waste

The quantities of commercial waste arising and quantities recycled in Cork City in 2003 are given in Table 7.3. below.

Table 7.3. Commercial waste recycled (tonnes) in Cork City)

Material	Quantity Arising	Quantity Recycled	% Recycled
Paper/cardboard	28,331	2,124	7.49
Glass	4,132	1,383	33.44
Plastic	5,902		
Metal	1,771		0.09
Drink (aluminium) cans		1.65	
Textiles	590		0
Organic	12,395	3,497	31.6
Timber		422	
Green waste			
Other	5,902	9,789	165.85
Total	59,023	17,216.65	29.16%

Most of the information presented in the table above is sourced from waste collection operators. It appears that the categorisation of waste streams by the waste contractors may not be accurate; this is illustrated by the fact that high proportions of the materials recycled are categorised as "other".

Nevertheless, it can be seen that the level of recycling of commercial waste in Cork city is very high (the overall level of recycling is 29.16% compared with the national recycling rate of 23.8% reported in the EPA National Waste Database, 2001).

This illustrates the capability of the commercial sector to develop recycling processes and markets when faced with the problem of increased landfill costs and quotas for landfill. Cork City Council no longer accepts commercial waste for landfilling at the Kinsale Road landfill site. This ban was introduced by the City Council in order to increase the lifetime of the landfill and to allow the Council to fulfil its obligations in relation to the collection and disposal of domestic waste.

The recycling of commercial waste is easier than recycling of domestic waste as the waste tends to be clean and unmixed. Recycling of commercial waste has been further encouraged by the introduction of the Waste Management (Packaging) Regulations, 2003 which oblige all producers of packaging waste to segregate their back-door packaging waste and to arrange for its recycling.

In addition to recycling, the commercial sector has also had to pursue other means of treating waste in order to reduce the quantities being landfilled locally. The “other means” include landfilling outside the administrative area in which the waste is produced and export for incineration. In Cork City, approximately 7% of the total commercial waste produced in the administrative area was exported for thermal treatment while approximately 28% of the total commercial waste produced was landfilled elsewhere within Ireland.

8. WASTE DISPOSAL IN CORK CITY

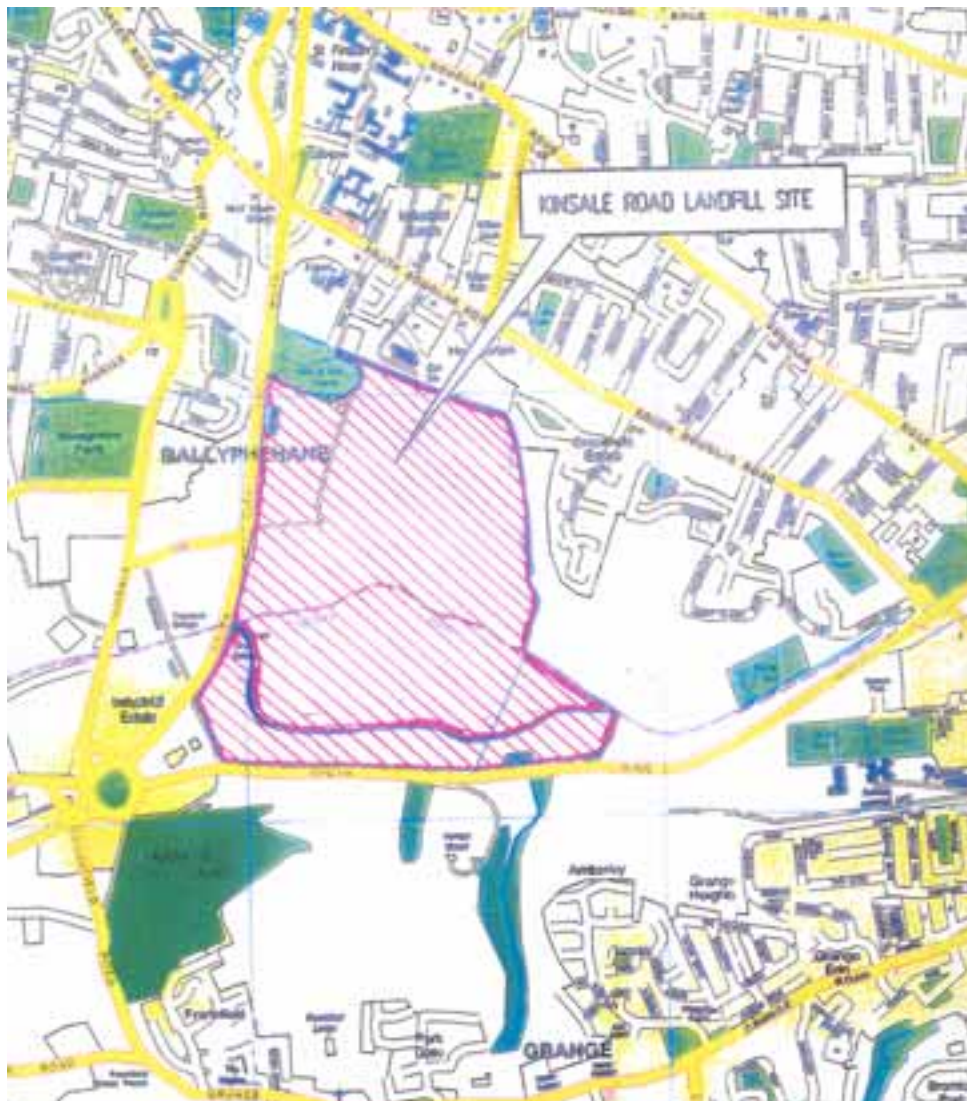
8.1. Introduction

Included in this chapter is an overview of the principal waste disposal facility operating in the Cork City Council administrative area – namely, the Kinsale Road Landfill as well as waste diversion facilities available on this site.

8.2. Waste Disposal at the Kinsale Road Landfill Site

This landfill is the primary waste disposal facility for the city's domestic waste fraction and is situated on 66 hectares (163 acres) of the Tramore Valley to the east of the South City Link Road and to the north of the South Ring Road (Figure 8.1).

Fig. 8.1. Location of Kinsale Road Landfill Site



The landfill site is owned by Cork City Council and has been in operation since the early 1960s. An application for a Waste Licence for the activities ongoing at the site was made to the EPA in September 1997 and was approved on the 2nd February 2000. This EPA Licence (12-1) listed the conditions under which the facility had to operate. All aspects of the operation of the facility were covered by the Licence, including the parameters and frequencies of environmental monitoring, waste quantities and waste types to be accepted, management structures, financial provisions and all operational procedures necessary for the smooth and efficient running of the facility. An Annual Environmental Report (AER) is required by the EPA under the licence conditions. The AER describes the activities carried out on site in a given year including site development works, incidents and complaints, an environmental management programme, and a summary and interpretation of environmental monitoring data and results. A review of the Licence was granted on 29th November 2002. Kinsale Road Landfill Site now operates under EPA Licence 12-2.

Approximately 283,000 tonnes of solid waste (including Construction & Demolition Waste) were deposited in the landfill in 1997 (Waste Quantification Survey, 1997). Approximately 66,000 tonnes was landfilled in 2002 and 54,500 were landfilled in 2003. (Sources AER 2002, AER 2003). The reduction in inputs was due to a number of factors including the removal of Construction & Demolition Waste from the Landfill under a recycling project DEMCON 20/20, the implementation of a quota system for commercial waste and a total ban of same in 2004. Furthermore Cork City Council has increased the number of recycling facilities available to the general public and this in turn has also reduced the quantity of waste being landfilled. The Kinsale Road Landfill Site is only accepting domestic waste generated in the Cork City Council's administrative area. Improved waste handling techniques on site have also optimised the rate of use of available void space. Based on current inputs (May 2004), work practices on the site and available void space, it is estimated that the life of the facility is up to 4-5 years.

Only non-hazardous wastes collected by / on behalf of Cork City Council are accepted at the landfill. Furthermore, the Civic Amenity Site accepts domestic waste for disposal at the landfill. Waste Licence 12-2 allows for the disposal of cement bound asbestos. The landfill accepts small quantities of same under very strict conditions from contractors operating in Cork City.

Table 8.1 Waste Entering the Kinsale Road Landfill Site in 2003

Waste Description	Quantity (tonnes)
Domestic	47594
Commercial	6911
Non-hazardous sludges	800
Park & Cleansing	4156

(Source: AER 2003)

The waste acceptance procedures in operation at the site are in accordance the EPA Waste Licence 12-2 as well as the procedures outlined in the Environmental Management System

for the ISO14001 accreditation process (2003). The Environmental Management System proposed was accepted when the site received ISO 14001 accreditation in December 2003.

8.2.1. Waste Handling Procedures at Kinsale Road Landfill Site

Waste is accepted at Kinsale Road Landfill Site between the hours of 8:00 a.m. and 3:45 p.m. Monday to Friday and 8:00 a.m. to 12:45 p.m. on Saturdays. All waste vehicles entering the site are directed to the weighbridge. The weighbridge operator records the vehicle registration, the company name, the source of the waste, the description of the waste and the on-site destination of the waste on the weighbridge computer. This information must correspond to any relevant paperwork accompanying the load. Green waste and timber loads are directed to the appropriate recycling areas as out-lined below. Waste for disposal is directed to the tip face. Loads are visually inspected to ensure that the contents of the vehicle match those listed on accompanying documentation. The waste is then pushed and compacted into place by a steel-wheeled landfill compactor. The landfill compactor (see figure 8.2) makes several passes over the waste to achieve maximum compaction.

Figure 8.2 – Landfill Compactor



A target compaction rate of 1.1 tonnes per cubic metre is required. Having ejected its load the vehicle returns to the weighbridge to be weighed out by the weighbridge operator. Electronic and written records are maintained. After the last load of waste has been compacted at the end of the day the tip face is covered with a hessian cloth. The hessian is rolled out in strips covering the active face to prevent litter from blowing away, to prevent birds from feeding and to reduce visual intrusion. The following day new waste is placed directly on top of the previous day's hessian and the entire process is repeated. On Fridays and Saturdays all waste and hessian is covered with soil, which controls odours and prevents flies from hatching.

8.2.2. Strengths of the Kinsale Road Landfill Site

The Kinsale Road Landfill site has excellent waste management systems already in place and has a number of key factors in its favour.

- The geographical location of the site is excellent (adjoining east-west and north-south national road linkages), with almost the entire City area being within a five-mile radius;
- It has an electricity generating facility with capacity to collect landfill gas and generate 1.8 megawatts of electricity;
- A leachate collection system has been in place since 2001. A pretreatment facility improves the quality of leachate prior to discharge to the sewerage system;
- A surface water collection system has been put in place to collect the run-off from the site. Surface water is being collected in surface water lagoons and is passed through a system of reed-beds prior to discharge into the nearby Tramore River;
- An engineered cap incorporating a gas collection system is being placed on the active section of the site on an ongoing basis. Approximately 40% of the active area of the site has now been capped (May 2004). Further capping contracts will take place in parallel with landfilling;
- A totally enclosed flare is being constructed adjoining the electricity generating facility. This flare will act as a standby for the plant as required and will treat the gases arising on the site over the next 15 years as these gases become less potent and unsuitable for electricity generation;
- A Civic Amenity Site is in operation at Kinsale Road Landfill Site. It allows the public to recycle many waste fractions including glass, paper, cardboard, plastic, metal, timber, green waste, oil, batteries, waste electrical and electronic equipment etc. this list of recyclables accepted is constantly under review in accordance with public demand and value for money; and
- A state of the art laboratory and administration building have been constructed on the site.

8.2.3. Challenges for the Kinsale Road Landfill Site

Some of the management challenges facing Cork City Council with respect to the Kinsale Road Landfill Site are as follows:

- *Management of Void Space:* Available void space must be maximised until alternative facilities are available in the region to cater for wastes generated in Cork City.
- *Protection of Ground Water & Surface Water:* Parts of the landfill are situated on limestone bedrock, which would render the underlying groundwater vulnerable to contamination. However the thick protective layers of peat and clay overlying the limestone deposits act as a buffer reducing the potential for groundwater contamination.

Leachate is produced as a result of rainwater infiltration through the waste and other processes, and can pose a threat to the underlying groundwater. This is a problem

common to almost all landfill sites. Cork City Council recognises the need to protect not only the groundwater at the site but the quality of the surface waters passing through or near to the landfill – specifically, the Tramore and Trabeg Rivers, and the Douglas Estuary into which they flow. The latter is the site of a wildlife sanctuary and it is important that it is protected as far as is possible by the City Council. In addition, the Department of Fisheries has a long-term objective of re-establishing a fishery in the Tramore River. To this end, the course of the river was altered to prevent it travelling through the landfill site proper. It now flows along the borders of the site, further protecting its quality. Monitoring of the quality of the river is carried out at several points along its length, and at points both upstream and downstream of the landfill (in order to assess the effect of the landfill on the water quality).

8.2.4 Financial Aspects of the Kinsale Road Landfill Site

One of the most important principles adopted by the EU with respect to waste management is that termed the *Polluter Pays Principle*. This requires that the full cost of waste management be levied on the producer. International experience has shown that full implementation of the Polluter Pays Principle facilitates the identification and adoption of effective waste avoidance measures by waste producers. In other words, if we must pay in full for the collection and disposal of our waste, we are less likely to produce waste. In order to comply with EU and national waste management legislation and policy, therefore, Cork City Council must ensure that the gate fees levied at the Kinsale Road Landfill fully reflect the actual costs incurred by them in the management of the site.

To this end, increases in the gate fees charged at the Kinsale Road Landfill have been necessary in order to fund the infrastructural development being made at the site and to reach compliance with all relevant landfill legislation. It should be noted, for example, that the Landfill Directive states that all landfill operators are obligated to levy the full cost of waste disposal on the waste producer, to include for the costs associated with the development, operation and aftercare of such facilities.

Table 8.2 shows the gate fees charged at Kinsale Road from 1998 to 2004. As can be observed from this comparison, significant increases in landfill gate fees have been applied in recent years – in line with the Polluter Pays Principle and increased landfill management costs. It is likely that further incremental increases may be required during the lifetime of this Waste Management Plan in order to implement monitoring systems (it must be remembered that the environmental monitoring regime at a landfill will be maintained for many years after the closure of the site) and other post-Licence compliance requirements.

Table 8.2 – Increasing cost of Waste Disposal

Year	Cost per tonne for refuse disposal
2004	€15
2003	€15
2002	€39.68 (increased to €54.68 on June 1 st due to Landfill Levy)
2001	€9.05 (IR£46.50)
2000	€8.42 (IR£46.00)*
1999	€43.29 (IR£34.08)*
1998	€39.37 (IR£31.00)*

*Volume related charges applied

Cork City Council estimates that a sum of at least €30 million is required to comply with the EPA Licence to decommission and restore the site in accordance with best environmental standards. Approximately half of this sum has been expended to date (June 04). The remainder of these funds will be expended over the next five years. When the facility is fully decommissioned it is estimated that the sum of €1.5 million per annum (based on current estimates) will be required on an on-going basis to maintain and monitor the environmental infrastructure on site.

8.2.5. Waste Diversion Measures for the Kinsale Road Landfill Site

- (a) *Construction and Demolition Waste Recycling Facility:* Cork City Council entered into a partnership with Loftus Civil Engineering Ltd. to recycle Construction and Demolition Waste (C&D). This project was part funded by the *EU Life Programme*. C&D material was accepted free of charge at Kinsale Road Landfill Site. It was then crushed and screened to produce stone separated into sizes of 6 inch to 4 inch, 4 inch to 2 inch, and 2 inch down. The 2-inch down material is used as a temporary cover for the landfill on an on-going basis and also makes up part of the 850mm of subsoil required to permanently cap the site. The larger stone is used on an ongoing basis for haul roads and on-site drainage. It was also used in part of the final cap as a gas collection layer (300mm) beneath the impermeable membrane, and a drainage layer (300mm) above the impermeable membrane.
- (b) *Timber Recycling Facility:* In an effort to preserve void space, divert material from landfill and encourage recycling, Cork City Council introduced a quota system on commercial customers in 2001. By the start of 2002 commercial waste inputs were reduced to 25%. To ensure that only residual, non-recyclable waste was being landfilled a landfilling ban was introduced on materials that were deemed to be readily recyclable. Included in the list of materials banned was timber. This created a niche in the market that was filled by CTO Environmental Solutions Ltd. A site adjacent to the weighbridge at the landfill was identified and a timber recycling facility was developed. For a charge of €60 per tonne (2004), clean timber is accepted for recycling from existing and new customers. Approximately 400 tonnes of timber is now recycled every month at the timber recycling facility. This recycled timber is used as boiler fuel and in the manufacture of MDF and chipboard.
- (c) *Composting Facility:* In a further effort to preserve void space and encourage recycling, Cork City Council included green waste in the list of banned materials. This created a niche in the market for green waste recycling. A site adjacent to the Civic Amenity Site was identified and a Green Waste Recycling Facility was developed in partnership with CTO Environmental Solutions Ltd. For a charge of €75 per tonne (2004) clean green waste material is accepted for recycling from existing and new customers. Approximately 1,000 tonnes per annum is recycled at this facility. The processed material (compost) is used as a soil enhancer in converting the landfill into a park.

It is proposed that both the timber recycling facility and the composting facility will be retained on the site. The continued processing of these materials is dependent on the economic sustainability of each fraction and the level of inputs to the facilities.

- (d) *Civic Amenity Site*: The current Civic Amenity Site was relocated to the southern part of the landfill in 2001 at a cost of approximately €1 million. A wide range of materials are accepted here for recycling. Bulky items and domestic waste are also accepted for landfilling. The following range of materials is accepted for recycling.

Figure 8.3. – Timber Recycling Facilities at Kinsale Road Landfill Site



Glass, paper, cardboard, drink cans, batteries, oil, plastic bottles, tetra paks, magazines, books, videos tapes, CDs, spectacles, fridges, metal, soil and rubble etc. are accepted free of charge from domestic users only.

Green waste and timber are charged at a rate of €10 per car or €40 per single axle trailer. White electrical goods e.g. cooker, washing machine etc., are charged at the rate of €15 each. Televisions and computers are also charged at the rate of €15 each. (2004 charges).

Cork City Council proposes to construct the appropriate reception facilities to facilitate the implementation of the WEEE Directive at the Kinsale Road Landfill Site.

The range of materials being recycled at the Civic Amenity Site is constantly under review and is dependent on markets for recyclables and consumer demand.

Table 8.3 – Material Recycled (tonnes) at the Civic Amenity Site at Kinsale Road Landfill Site in 2003.

White goods	Plastic	Paper	Metal	Fridges	Green Waste	Timber	Glass	Drink Cans
69.56	8.9	165.62	103.24	27.1	519.38	202.76	66	8.64

8.2.6. Post-closure Plans for the Kinsale Road Landfill

The landfill will be filled on a phased basis to achieve final contour levels (post-settlement) of 23 metres (OD Malin) at the highest point (25m OD pre-settlement). After closure, the landfill will be fully capped in accordance with detailed specifications to include for surface water and landfill gas collection. The drain constructed around the base of the landfill to remediate surface water contamination will be left in place to re-route surface water through a storm-water retention pond. The active gas extraction system will remain in place and will probably reach its maximum output only after closure of the landfill. The enclosed flare will then deal with gases unsuitable for electricity generation. Likewise, the leachate collection, pre-treatment and disposal facilities will continue to operate as will the Civic Amenity Site, composting and timber recovery facilities. Environmental monitoring will be continued (as stipulated in the EPA Licence).

Upon completion of these works environmental, recreation and amenity facilities will be established at the site. These facilities will be developed on approximately 50 ha of the decommissioned landfill. It will include a wildlife area and an area dedicated to circuses and fairs, as well as pedestrian, cycle and bridle paths. Furthermore, areas will be dedicated to active recreation e.g. pitches (GAA, soccer and rugby). Car parking will be generally catered for on site but during peak events such as circuses the nearby Park ‘n’ Ride facility will be used. Pedestrian access from same to the site will be via an underground culvert or pedestrian controlled crossing near the main gates to the existing landfill site. Pedestrians will also be able to access the facilities at various locations around the site.

An energy trail will, in addition, demonstrate different forms of renewable energy (e.g. solar panels, wind turbines and energy crops). This trail will be linked to and interpreted at the Visitor Centre in the Sustainable City Campus Facility currently under construction at the Lee Road. Innovative concepts such as a sculpture trail, gardens of the world, etc. will be assessed. In order to develop a wetland reserve, a part of the closed landfill site will be cordoned-off and a wetland area containing reed beds created. This will subsequently provide a protected habitat for a range of wildlife and plant species. The reserve will be comprised of a pond and reed beds connected to each other and to the Tramore River.

8.2.7. The Environmental Impacts of the Kinsale Road Landfill

The main environmental impacts of waste disposal activities at Kinsale Road are outlined in below in Table 8.4.

Table 8.4 – Environmental Impacts of Kinsale Road Landfill

Impact	Cause	Remediation / Mitigation Measure	Implementation
Effect on surface water	Leachate	Leachate collection and pre-treatment	2001
	Storm water runoff	Collection of stormwater and diversion to retention pond	2004
Effect on ground waters	Leachate	Leachate collection and pre-treatment	2001
Emissions to atmosphere	Landfill gas	Energy recovery facility	1997 – 2020
		Enclosed flare	2004 – 2020
Noise	Equipment and vehicle operation	Best operational practices and site management	On-going
Dust	Vehicular movements, equipment operation and construction of engineered cap	Good operational and environmental procedures	On-going
Odours	Active filling of tip face	Reduced areas of active fill, bi-weekly soil cover of all exposed areas, daily cover with hession and when vacating cell temporary cap followed by permanent engineered cap.	On-going
	Leachate	Leachate collection and pre-treatment system	On-going
Litter	Wind-blown waste	Capping as out lined above, best site operational practices, fixed and moveable litter netting	On-going
Landscape impact	Visual effect of active cells	Capping as outlined above	On-going
Birds	Visually unattractive	Employ services of bird control specialist	On-going
Vermin	Potential health hazard	Eliminate vermin by employing services of pest control firm	On-going

8.3. Disposal of Cork City Wastes at Landfills Other than Kinsale Road

Commercial and industrial waste is collected from producers by commercial waste collectors. This activity is authorised under the Waste Management (Collection Permit) Regulations 2001. The nominated authority for the issuing of waste collection permits in Cork City and county is Cork County Council. Collected waste is transported to various facilities both in and outside the city. These facilities are approved either by the local authority under the Waste Management (Permit) Regulations 1998 and/or by Waste License issued by the EPA under the Waste Management Act 1996. Waste is segregated at these facilities. Individual waste streams e.g construction & demolition waste, timber, glass, plastic, and metal, are transported on to further facilities for processing. Residual waste following recovery is shipped under transfrontier shipment procedures to facilities outside the state for further treatment or alternatively landfilled within licensed facilities within the state. Also, mixed dry recyclable waste is similarly shipped for further recovery and recycling. Provided that the relevant waste facilities and waste collectors hold valid permits and licenses there are no restrictions on the movement of non hazardous waste within the state. The proximity principle is applied in regard to the approval of shipment of waste.

8.4 Healthcare Waste

Collection, transport and disposal of Clinical Waste for the Southern Health Board is undertaken by Sterile Technologies Ireland (STI), of 430 Beech Road, Dublin 12, following an EU procurement process run by the Joint Waste Management Board for a Joint North/South Tender for the Collection, Transport, Treatment and Disposal of Clinical/Healthcare Risk Waste. Tenders were invited on the 14th May 2003, with an agreement signed by both representatives of the Department of Health & Children and STI. This agreement came into effect on 1st November 2003 and is operational until 31st October 2013.

The contractor, STI, undertakes the collection, loading and unloading, transport, processing, treatment and disposal of all clinical waste arising from the specified collection sites within the Southern Health Board region. STI provides all necessary containers for the storage of clinical waste awaiting collection. This employs the use of yellow bags, sharps containers and rigid plastic containers. The Southern Health Board has responsibility for grading, packaging and delivering the clinical waste to the collection points, and for the provision of a secure area for the storage of such containers.

STI provides facilities at the plant for the verification of the tonnage of clinical/healthcare waste delivered for disposal, and provides electronic tracking of all waste collected. The company has a fully compliant Environmental Protection Agency licence. All clinical /healthcare risk waste, other than that being termed 'excluded', is treated with a Sodium Hypochlorite solution and steam treatment. Treated waste is then disposed of by deep burial in a landfill site that specifically accepts treated clinical waste. All 'excluded' waste, (e.g. pharmaceuticals) is exported for incineration, for which destruction certificates are provided.

The annual tonnages for Cork City locations only in respect of clinical waste are given in Table 8.5.

Table 8.5. Clinical Waste Cork City

Source	Quantity collected (tonnes)
Cork University Hospital	448
St. Finbarr's Hospital	115
Mercy Hospital	112
South Infirmary/Victoria	56
Irish Blood Transfusion Service	45
Erinville Hospital	33
St. Mary's Orthopaedic	29
COPE Holyhill	5
COPE Mayfield	3
TOTAL	846

A procurement process will commence shortly to appoint a contractor to separately collect, transport, treat and dispose of clinical healthcare waste arising from GP surgeries etc.

8.5. Closed Landfill Sites in Cork City

The Waste Management Act, 1996 requires that sites that have been used for waste disposal activities in the past be identified and assessed in order to identify the potential for environmental pollution arising from the site.

There are thirteen known sites within Cork City upon which waste disposal activities have been carried out in the past. All thirteen sites were used for landfill and have since been reclaimed for alternative uses (Table 8.6).

Table 8.6. Closed landfill sites in Cork City

Approximate Location	Area (ha)	Current use	Comment
<i>Carrigrohane Rd</i>	<i>13.2</i>	<i>Playing pitches</i>	<i>In use 1940-1975</i>
<i>Garrane Lane</i>	<i>1.6</i>	<i>Housing</i>	<i>Closed 1966</i>
<i>Black Ash</i>	<i>3.3</i>	<i>Park n' Ride 2004</i>	<i>Closed 1987</i>
<i>Curragh road</i>	<i>2.6</i>	<i>Housing</i>	<i>Closed pre 1950</i>
<i>Douglas road</i>	<i>0.5</i>	<i>Park / Amenity</i>	<i>Old quarry</i>
<i>Ballinlough road</i>	<i>0.55</i>	<i>housing</i>	<i>C&D material deposited here</i>
<i>Church Yard Lane</i>	<i>0.08</i>	<i>Open space</i>	
<i>Church road</i>	<i>0.15</i>	<i>housing</i>	<i>Waste removed and landfilled at Kinsale Road Landfill Site in 1994</i>
<i>Ballinure Road</i>	<i>0.56</i>	<i>Park / Amenity</i>	<i>Closed in 1967</i>
<i>Banduff Road</i>	<i>0.7</i>	<i>Grazing</i>	<i>1955 – 1970</i>
<i>Cahergal park</i>	<i>0.04</i>	<i>Park / Amenity</i>	
<i>Mallow Road</i>	<i>1.2</i>	<i>Open space</i>	<i>Closed in 1946</i>
<i>Ardmahon estate</i>	<i>0.26</i>	<i>Park / Amenity</i>	

8.6. Proposed Residual Landfill Site

Since 1998, Cork County Council has been working towards the provision of a new residual landfill with a capacity of over 5 million tonnes to serve the Cork region for approximately 20 years. The following is a list of steps taken to date:

- Process started in February 1998 with the publication of a map using GIS to attract sites in specified geographical areas in the county;
- Shortlisting of sites from 44 to 15 to 6 to 3;
- Announcement of 3 short-listed sites in October 1999
 - Lyradane, Grenagh
 - Bottlehill, Burnfort
 - Kearney's Cross, Watergrasshill;
- Establishment of consultative forum;
- Preferred site announced in June 2000 (Bottlehill, Burnfort);
- Variation of Cork County Development Plan (May 2001) (oral hearing);
- Application for Waste Licence from EPA (August 2001);
- Proposed decision on EPA Licence (24th July 2002);
- EPA oral hearing, Mallow (December 2002 / January 2003);
- Application for approval to An Bord Pleanála (May 2003);
- An Bord Pleanála Oral Hearing, Mallow (October 2003);
- An Bord Pleanála decision granted (18th February 2004);
- EPA Licence Approval (June 2004).

It is proposed that Cork County Council on behalf of both Cork authorities will seek tenders for the construction of the facility. It is anticipated then that the waste arisings in the city will be treated in the proposed waste recovery facility and the residual materials will be landfilled in accordance with planning and EPA licence conditions at Bottlehill.

9. ANTICIPATED DEVELOPMENTS AND TRENDS

9.1 Prevention

Society as a whole is beginning to realise the importance and benefits of prevention and minimisation of waste. There are many areas where prevention of specific waste streams has come about due either to legislation or genuine awareness among the people of Cork City.

One waste stream where concerted prevention efforts are evident is packaging waste. Manufacturers recognise the savings in raw materials that can be made in the area of product packaging. Shoppers realise that often the price of a product (e.g. vegetables) is significantly less when available loose rather than packaged. This change in attitude will gradually result in a reduction in packaging waste. More importantly, the new Packaging Regulations require proper management of packaging waste, penalising large producers of packaging waste, which will encourage producers to reduce the quantity of packaging produced each year. In general, therefore, it is likely that quantities of waste packaging being generated per capita in Cork City will reduce gradually over the coming years. Cork City Council proposes to employ subject to funding Enforcement Officers to ensure proper compliance with the Packaging Regulations.

The prohibition of marketing of certain types of batteries (e.g. batteries with more than 0.4% lead by weight) under the Waste Collection (Hazardous Waste) Regulations will reduce the quantities of this type of waste arising.

The efforts currently being made to prevent the use of disposable plastic bags at supermarkets by the use of the plastic bag levy will result in fewer tonnes of this type of waste arising in Cork City each year.

9.2 Demographic Trends

The Cork City Development Plan 2004 predicts that the population of the Greater Cork Area will increase by approximately 23% or 78,000 people by 2020 to give a population of 423,150 people. During this timeframe it is anticipated there will be a growth in population of 12,010 people in respect of Cork City and a growth in dwellings of 11,090.

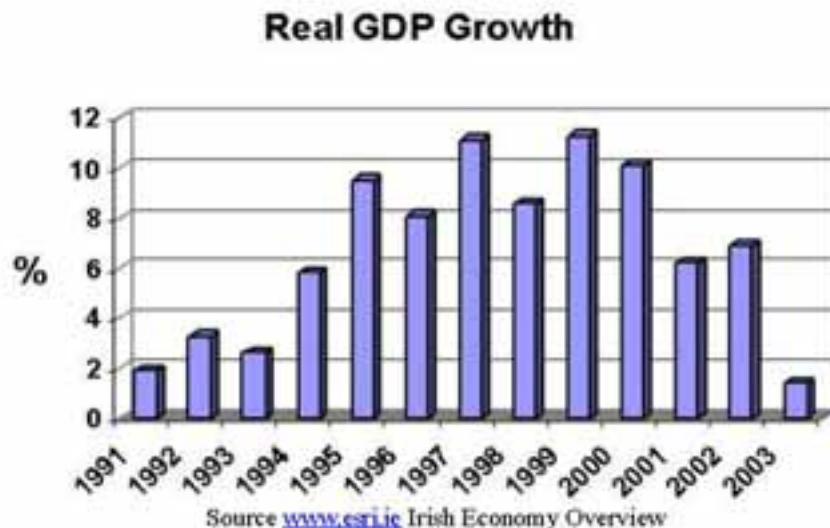
According to the Central Statistics Office, the 2002 Census indicates that 123,062 people were living in Cork City. The population of Cork City reduced by 3.2% over this period whilst the population of the Cork Region showed an overall increase of 6.5%. Even if the economic growth of the city were to have no effect on the quantities of waste being produced per capita, total quantities of waste produced can be expected to grow with the

population.

9.3 Economic Trends

It has long been established that production of waste is strongly correlated with economic activity and income levels. Although many predictions of the rate of economic growth have proven in the past to be unreliable, the ERSI has been consistently accurate in estimating economic growth in the past.

Over the last decade, unprecedented economic growth has seen the level of Irish real GDP almost double in size. There have been many reasons advanced for Ireland's success, which in combination can help explain the exceptionally strong growth rates experienced. They include EU membership and access to the Single Market; Ireland's low corporation tax rate and a large multinational presence; a high proportion of the population of working age; increased participation in the labour market especially by females; a reversal of the trend of emigration toward immigration; sustained investment in education and training; co-ordinated social partnership agreements and a more stable public finance position.



Ireland's remarkable growth performance throughout the late 1990s and into the start of the new millennium has led to rapid convergence of output per capita with the EU average which has been driven by exceptionally strong growth in employment. The rate of unemployment has, as a consequence, dropped to historically low levels in recent years. The rapid growth in the economy and the weakness in the Euro exchange rate led to price inflation in Ireland rising significantly to well over double the rate of the Euro area. However, lower growth, a stronger currency together with the need to regain lost competitiveness has led to moderation in price increases in more recent years.

Dedicated waste prevention efforts and other factors such as the packaging directive and the landfill directive will have specific influences on waste streams and sectors, and it is therefore of

little value to estimate an overall growth in waste quantities arising. Figure 3.1 illustrates the close relationship between Ireland’s GDP, GNP and municipal waste generation and collection. It can be seen that all factors have grown significantly between 1995 and 2001. The figure clearly shows that household and commercial waste collection rates up to 2000 closely matched increasing GDP. Municipal waste on the other hand grew at a slower rate between 1995 and 1998 but accelerated between 1998 and 2001. The correlation between waste collection and GDP up to 2000 is striking and suggests that waste collection rates are a good measure of Ireland’s consumer society – as individuals have more spending power, more waste is left out for collection, reflecting a throwaway attitude.

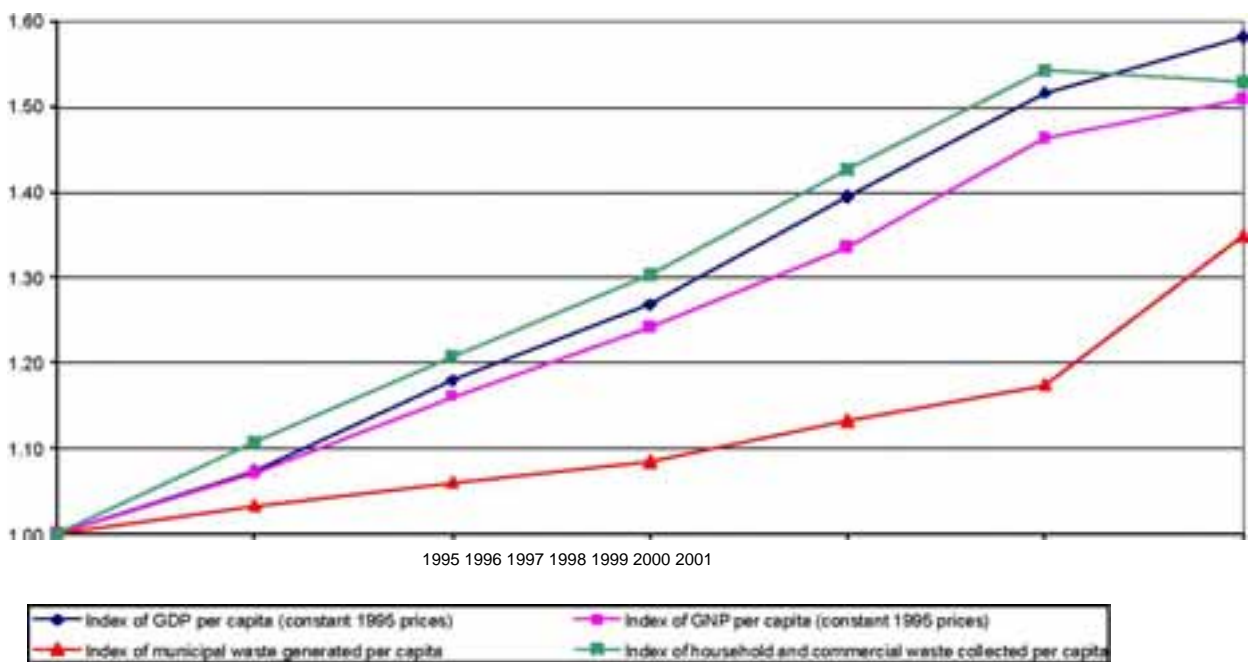


Figure 3.1 Comparison of GDP and GNP with Municipal Waste Data, 1995 to 2001 Source: Environment Protection Agency, 2003, *National Waste Database Report 2001*.

The EPA has prepared a series of forward-looking projections to 2015 to illustrate the situation that could prevail into the future.

Figure 3.2 is based on gross municipal waste generation and its growth rate since 1995 while Figure 3.3 is based on municipal waste generation per capita and the growth of this factor since 1995. Per capita rates differ to gross generation due to population changes in the same period. Both figures show that at 1998-2001 growths, municipal growth rates could increase to a worst case scenario of 11 million tonnes per annum or over 2 tonnes per capita, by 2015. While an unlikely scenario, it illustrates how the situation could become unmanageable in a short time.

More moderate scenarios, bar one, show increasing municipal waste generation. The sole negative growth scenario shows that if pre-2001 rates are to be seen again and assuming a gross waste growth of 3.8% per year, then a 5% reduction target per annum must be achieved.

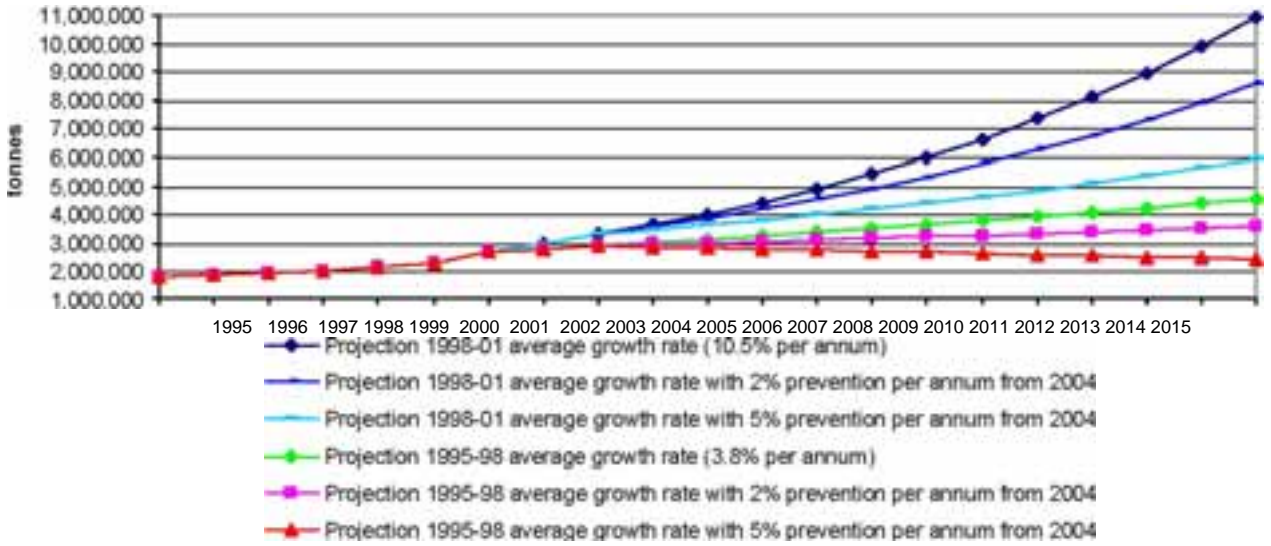


Figure 3.2 Generation of Municipal Waste – Projected to 2015 (tonnes) Source EPA 2001

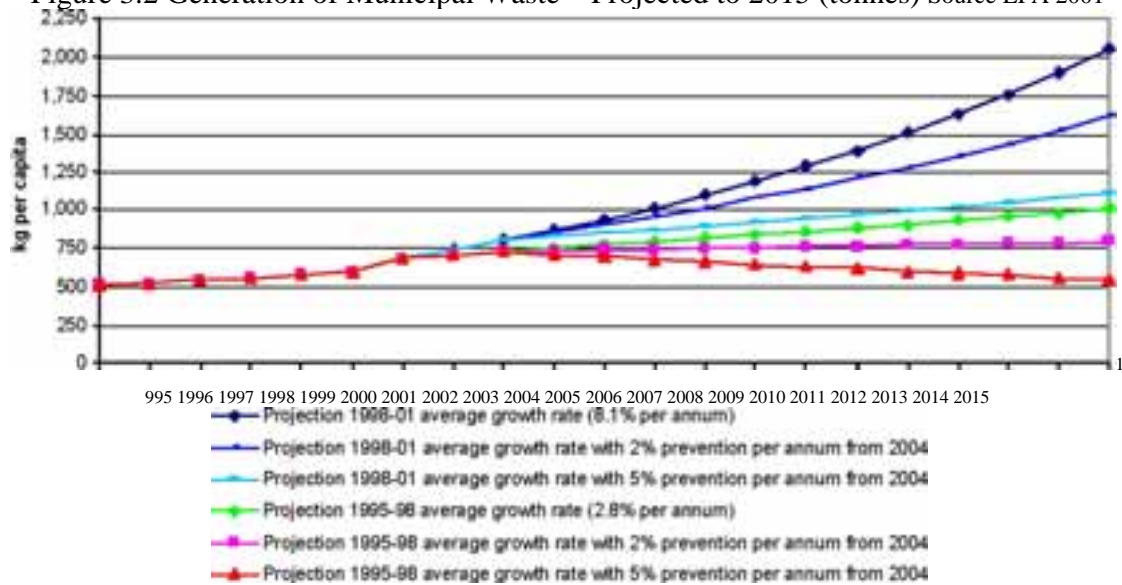


Figure 3.3: Generation of Municipal Waste – Projected to 2015 (kg per Capita) Source EPA 2001

In the context of projections of possible future waste arisings, possible scenarios were identified by the EPA in the National Waste Database Report 2001 as outlined in figures 3.2 and 3.3.

9.4 Waste Management Trends

9.4.1 Waste Collection/Treatment Trends

Cork City Council is due to begin the first phase of a kerbside collection of clean dry recyclable materials from its refuse collection customers in Autumn, 2004. The collection will be provided free of charge to customers whose refuse collection charge accounts are in order.

The collection regime will involve the provision of specially produced bags to customers who will fill the bags with dry recyclables and present them for collection once a fortnight. The collection will take place on the same day as the householder's standard refuse bin collection. The dry recyclable materials to be collected will include mixed paper, newspapers, magazines and brochures, cardboard, drink (aluminium) cans, food (steel) cans, tetrapaks (milk and juice cartons) and plastic containers/bottles.

The bags will be collected by Cork City Council and transported to a private facility where they will be sorted and baled prior to transportation off-site for recycling. The collection will be implemented on a phased basis with the introduction of one collection truck (manned by one driver and two operatives) in autumn 2004. This truck and crew will collect approximately one third of the households in Cork City; the full implementation of the collection will require the introduction of additional trucks.

Cork City Council is also considering the introduction of a separate collection of biodegradable municipal waste in the lifetime of this Plan in order to comply with the requirements of the Landfill Directive and the draft National Strategy on Biodegradable Waste.

9.4.2 Waste Disposal Trends

Waste management is now a fast developing industry in Ireland. Although landfills for the disposal of waste have been available for many years, other waste management facilities are generally new enterprises. Indeed public waste management facilities in Ireland have traditionally solely consisted of landfills, with few or no other outlets available for municipal waste.

However, in recent years, obvious trends in waste management are evident. Due to the international recognition of the problem of waste generation and management, funding has been made available (particularly on an EU level) for research and development of waste management technologies, giving rise to an increasing number of private waste management enterprises. Now there are outlets for many waste streams both in Ireland and in our neighbouring countries.

Although waste recycling technologies are generally regarded as acceptable, the preference for different disposal technologies is quite variable. Incineration is generally frowned upon by the public, often due to the little knowledge people have of the technology. However, the acceptance of the waste management hierarchy has meant that waste disposal with energy recovery is more desirable than disposal without energy recovery and therefore waste-to-energy facilities in the form of incinerators which generate electricity and heat for homes in its immediate area are becoming popular. Some local authorities are currently carrying out feasibility studies in this area.

The landfill directive has resulted in changes in the way waste is landfilled in Ireland also, resulting in more engineered, safer landfills than ever before.

9.4.3 Private Sector

Over the past number of years, the private sector has had an increasing involvement in waste management. This sector has moved from being mainly transporters of waste to landfill, to being involved in all aspects of waste management – collection, segregation, recycling and disposal.

This trend is likely to continue into the foreseeable future and is a welcome development as it increases the options available to waste generators.

In the case of Cork City Council partnerships have developed with the private sector in regard to

- i) The Collection and treatment of Dry Recyclables;
- ii) The treatment and disposal of recycled timber at the Civic Amenity Site; and
- iii) Composting of Green materials at the Civic Amenity Site.

Furthermore Cork County Council is co-operating with a private sector partner in procuring a Waste Recovery Facility for the region.

It is anticipated that the door to door collection of Domestic Dry Recyclables will be carried out by Cork City Council and the treatment of same will be contracted to a private sector partner.

The provision of private sites to facilitate Bring Sites is a further example of practical and meaningful co-operation between the local and authority and the private sectors.

Following from the Irish Waste Management Association and Greenstar submissions it is proposed to hold regular formal meetings between the Association and City Council to explore various ways of further cooperation and also addressing matters of mutual interest such as wastes arising, infrastructure, enforcement, compliance, etc.

9.4.4 Liability Trends

The polluter pays principle is becoming increasingly important to waste management across the EU. The trend is, therefore, to penalise the waste producer and promote waste prevention by increasing the costs of waste disposal and applying them to those that are responsible for the waste being generated. This trend will result in increasing costs for consumers and waste generators (most notably producers of high quantities of packaging) at waste disposal sites, with lesser penalties being imposed on recycling and recovery of waste. Significant progress has been made in this regard over the past five years.

Efforts to increase the penalties on large waste producers and decrease those on small producers are being investigated. One method which is popular is the 'Pay-by-Weight' system which has been tried and tested in Cork county, whereby each wheeled bin has a micro-chip, detailing its ownership and each refuse collection vehicle has the facility to weigh each bin and record its details. Each waste producer is then billed accordingly, resulting in direct implementation of the polluter pays principle and an incentive for waste minimisation for each householder. Cork City Council proposes to introduce an equitable pay by use system by 2005.

9.4.5 EU Policy

Certain issues regarding waste legislation and policy are very much on the EU agenda.

Any changes in policy will of course have a significant affect on Irish environmental policy, as most of our policy is EU-based.

The waste management hierarchy, which is described by the EU as a "basic rule that needs to be applied with a certain flexibility" is often debated in relation to the proper placing of various technologies on it.

Although any major changes to EU environmental policy are unlikely to occur hastily, as most decisions would require agreement of the EU Commission, Parliament and Council, any changes will have a significant effect on Ireland's waste management policy and on Cork City Council's future Waste Management Plans.

9.4.6 Forthcoming Legislation

Protection of the Environment Act 2003 - The 2003 Act makes amendments to the Waste Management Act 1996 to strengthen its provisions, including in relation to enforcement matters. Some of the provisions of the 2003 Act which relate to local authorities and waste management, and have not yet been brought into effect include:

- A requirement for planning permissions to include conditions where necessary for facilities within developments for storage, separation of recyclable materials and collection of waste;
- Requires a landfill operator to levy landfill charges so as to ensure recovery of the full costs of the facility concerned;
- Introduces a presumption, for the purposes of prosecutions, that the carrying on of a waste activity other than under and in accordance with any requisite authorisation shall be deemed likely to cause environmental pollution, unless the contrary can be shown;
- Producer responsibility for free treatment and recovery of end-of-life vehicles;
- Replace BATNEEC in waste management with BAT; and
- New powers for bye-laws covering issues such as the provision and use of supermarket trolleys and placing obligations on businesses to wash the public area outside of their premises.

Directive 99/31/EC on the Landfill of Waste -Aspects of the Directive which have yet to be implemented include a step-wise reduction of the biodegradable content of municipal waste going to landfill over a period of years. Member States must have a National Strategy in place by July 2003. The total biodegradable waste going to landfills will be limited to 75% by 2006, 50% by 2009, and 35% by 2016, of the total levels of biodegradable waste produced in 1995. Ireland has been given a four-year derogation.

Directive to be Proposed on Biodegradable Waste -This proposed Directive would address the management of biodegradable wastes to help implement the landfill Directive. Separate collection schemes would have to be set up for biodegradable waste in urban areas, within 3 years for pop. > 100,000, and within 5 years for pop. > 2,000.

EC Decision 2003/33/EC Establishing Criteria and Procedures for the Acceptance of Waste at Landfills-The 2003 EU Decision sets out a procedure to determine the acceptability of waste at landfills, sets limit values and other waste acceptance criteria for different classes of landfills, and defines the test methods for determining the acceptability of waste at landfills.

Directive 2002/96/EC on Waste Electrical and Electronic Equipment -The Directive aims to prevent waste electrical and electronic equipment (WEEE), and in addition, improve the re-use, recycling and other forms of recovery of WEEE so as to reduce the disposal of waste. It covers the electrical and electronic waste stream in general. The Directive requires an average collection rate of WEEE from private households of min. 4 kg per inhabitant per year by 31 December 2006. Collected equipment has to be brought to treatment facilities unless they are going to be reused as a whole. Waste Management Plans are required to have a chapter on WEEE. The disposal of WEEE together with unsorted urban waste will not be allowed.

Proposed Directive on Packaging Waste Recovery and Recycling Target -Under the 1994 packaging waste Directive, the original recovery and recycling targets were required to be revised after the first five years of operation for the period 2001-2006. Proposed new targets are an overall 55 - 80% recycling target (was 25 – 45%); with differentiated recycling targets for specific materials: paper/cardboard 60%, metals 50%, glass 60%, wood 15%, and plastics 22.5% (by mechanical and/or chemical recycling only). Ireland has again been given a derogation and would have until end of June 2009 to reach these targets, although this may be put back even further to 2012.

Proposed Directive on Batteries and Accumulators -Relevant aspects of the Directive include lay down procedures for collection, as well as targets for collection and recycling (proposed recycling target for nickel cadmium batteries is 75%, for lead acid batteries is 65%, and for other batteries is 55%). There would be bans on industrial and automotive batteries entering landfills.

9.5 Developments in Other Local Authorities

Changes and developments in Cork County Council in particular will effect choices made by Cork City Council in relation to waste management. The two authorities are already working together insofar as they have produced a joint Waste Management Strategy (1995), are co-operating very successfully in the area of public awareness and education and are continually examining the possibility of waste management facilities which will cater for the region as a whole. Other likely trends include the Waste Management Plans of Kerry, Waterford, Limerick and Tipperary County Councils.

Waterford -Separate collection of waste began in County Waterford in November 2001 and currently the scheme serves 12,500 customers in both rural and urban locations. This scheme is run entirely by the county council. It utilises a 240 litre wheeled bin for refuse or residual waste for disposal and a 80 litre clear bag for dry recyclables. These are collected on alternate weeks. The householder purchases tags to be placed on bags and wheeled bins for collection. Dry recyclables collected are taken to a Materials Recovery Facility (MRF) in Lismore. A new council owned MRF is currently at an advanced stage of building and dry recyclables will be taken here in the future (in 2004). The County Council has also noticed a significant rise in the quantities of glass taken to bring banks in the county since the pay by lift scheme was introduced.

Killarney, Co. Kerry -Kerry County Council designed and implemented a 'door to door' collection scheme for approximately 2,650 accounts in Killarney Town. The scheme was implemented during 2002 and was fully operational by June 2002. Previous experience gained in Tralee, showed that the introduction of a three-stream collection system is required before an alternate weekly collection of residual waste and recyclable and compostable waste is feasible. The alternate weekly collection is required in order to make any scheme economically feasible. By introducing the separate collection of dry recyclables sufficient capacity is generated in the black bin or residual waste collection to allow the waste to be collected every two weeks.

Along with the new collection service came an extensive period of education. Two people were deployed full-time to examine the contents of the waste and, in cases of non-compliance, visit the households to further educate. They have a high compliance rate. Killarney also has a separate organic collection service for its hotels. The results of the scheme have been very encouraging.

9.5.1 Inter-Regional Co-operation

This Plan allows for the management of waste arisings from the Cork Region (City and County) and is based on the provision of recovery facilities and a single landfill at Bottlehill when existing landfills reach capacity. The Plan complies with the proximity principle in that the facilities will be located close to the major sources of waste.

The Government policy document *Waste Management – Taking Stock and Moving Forward* (April 2004) states that ‘An examination of the issues arising in terms of the interrelationship between regional boundaries and waste facilities will be completed with a view to providing guidance to the relevant authorities by end-Summer 2004’. In that regard, Cork City Council will take account of such guidance.

10. WASTE MANAGEMENT ACTIONS FOR 2004-2009

10.1 Introduction

This chapter summarises the specific waste management actions that Cork City Council intends to undertake in the period 2004-2009. The actions are broadly grouped into the following categories, in-line with the Waste Management Hierarchy:

1. Waste prevention and minimisation;
2. Waste collection;
3. Waste recovery;
4. Waste reception and disposal;
5. Litter; and
6. Hazardous Waste Management.

10.2. Proposed Actions

The actions described in this section reflect the commitment of Cork City Council to the goal of stabilising (and if possible reducing) the quantities of waste produced in Cork City over the next five years. They are aimed at all sectors of Cork City society. Also included in this section are the Cork City Council's plans with respect to the need for improved public awareness of waste management issues in general, and of the need to avoid waste generation in particular.

Action 1: "Public Awareness Measures"

Cork City Council will implement Public Awareness measures aimed at communicating the benefits of waste prevention and minimisation to the general public.

One of the primary measures is the continuation of the 20/20 vision public awareness programme that is operated in partnership with Cork County Council under the aegis of the joint Cork Waste Management Strategy (1995-2020). This joint programme involves the publication of a newsletter three times per year as well as various schools activities and advertising campaigns.

The City Council also undertakes to establish a Campus for the dissemination of information on best environmental practice (including waste management practices) to a wide audience (including industry, schools, families, etc.). The Campus will be established on the site of the old Lee Road Waterworks.

Action 2: “Co-operation with Government awareness raising initiatives”

Cork City Council will co-operate with government led public awareness initiatives (e.g. Race Against Waste Campaign) that are aimed at promoting better waste management practices.

Action 3: “Promote improved waste management in private industry”

Cork City Council will continue its pro-active approach to waste minimisation and prevention in private industry through a number of measures. These include:

- formal visits/presentations on waste management to industry;
- participation on waste management committees in private industry;
- informal assistance to companies that are addressing waste management within their own business; and
- participation in waste management award schemes for industry.

Action 4: “Green Fáilte Award for Hotels”

The Green Fáilte Award Scheme is an environmental award for the hospitality sector. It rewards companies for the implementation of improved waste management practices. The award scheme is run by the Cork Chamber of Commerce and funded by a number of local waste management companies, Cork County Council and Cork City Council.

Cork City Council has delivered training modules on waste management and relevant legislation to participants in the award scheme. The City Council will continue to support the scheme.

Action 5: “Schools Programme”

Cork City Council will continue to implement its schools initiatives that are aimed at promoting awareness of waste management issues and facilitating improved waste management practices in schools; these measures include:

- Support the An Taisce Green Flag Award Scheme for schools – there are currently 12 schools registered for the scheme in Cork City;
- Visit schools to give talks on waste management and litter;
- Organise competitions (e.g. debating competition, art competitions, etc.);
- Facilitate school visits to landfill site;
- Support alternative means of communicating message of waste prevention and minimisation (e.g. puppet shows, videos, activity books, etc.); and
- Support the provision of recycling infrastructure for schools (e.g. composting bins, battery recycling boxes, paper and cardboard recycling bins, etc.) in accordance with available budget.

Action 6: “Assessment of Town Planning Applications and Enforcement of Conditions”

Cork City Council’s Environment Department assesses all applications for planning permission and where appropriate recommends conditions relating to provision of recycling infrastructure, recycling of construction and demolition waste and preparation and implementation of a waste management plan for the proposed development including inter alia Draft Best Practice Guidelines and Circular Letter WPR 7/04 from the DOEHLG.

Cork City Council will strive to improve waste management practices in all new developments through the imposition and enforcement of such conditions.

Action 7: “Green Housekeeping”

Cork City Council’s Green Housekeeping Committee will continue to operate. The Committee is responsible for the development of more environmentally responsible practices within the City Council. Some of the waste-related actions carried out by the Committee include:

- Incorporation of bring sites in City Council staff car parks;
- Introduction of hazardous waste recycling bins for printer cartridges, toners, batteries and other hazardous wastes arising within City Council offices;
- Introduction of green purchasing policies for some items;
- Raising awareness among City Council staff of better waste management practices (e.g. double-sided printing, use of recycled paper, etc.); and
- Introduction of recycled paper, reusable envelopes, recycling of office paper, etc. to City Council offices.

The Green Housekeeping Committee will continue to implement new measures to increase the levels of waste prevention and minimisation within the City Council.

Furthermore, the City Council will endeavour to promote the concept of establishing Green Housekeeping Committees in private industry and other establishments.

Action 8: “Cork City Council Website”

Cork City Council will use its website to disseminate information of waste prevention and minimisation measures and initiatives that are of interest to the general public.

Action 9: “Legislation”

Cork City Council will comply with and implement all EU and national waste legislation and policy.

Action 10: “Charging Policy”

In line with national policy, Cork City Council will introduce a pay-by-use refuse collection system from January 1st 2005. This system should encourage waste prevention and minimisation among the general public.

Action 11: “Environmental Management System”

Cork City Council has received ISO 14001 accreditation for two of its Parks Sections and for the Kinsale Road Landfill Site. These ISO 14001 systems incorporate a wide range of waste prevention and minimisation measures.

Cork City Council will continue its policy of seeking ISO 14001 accreditation for more of its activities.

Action 12: “Separate Collections”

Cork City Council will introduce a scheme for the provision of a door-to-door collection of dry recyclable waste from its domestic refuse collection customers. One third of the city will be collected from mid August 2004, the second third will commence in September 2004 with the final third being introduced in 2005.

Action 13: “Recycling Infrastructure”

Cork City Council will endeavour to expand its recycling infrastructure over the next five years. It is intended that this be carried out in two ways, namely:

- Expanding the number of recycling facilities provided in Cork City, and
- Extending the range of recyclables being accepted for recycling.

The ability of Cork City Council to fulfil this objective is dependent on (i) available budgets and grant assistance programmes and (ii) the availability of outlets for recycling of materials.

Action 14: “Bring Site Provision”

Cork City Council will install 35 new bring sites over the next five years. This will enable the Council to work towards its stated objective of providing 1 bring site per 1,000 inhabitants by the year 2020 (Waste Management Strategy, 1995).

This action is dependent on the availability of funds (either internal Cork City Council funds, external grant aid and/or private funding).

Action 15: “Civic Amenity Site”

Cork City Council will install one new civic amenity site on the northside of Cork City during the lifetime of this Plan. The location of this proposed facility is at Timker’s Cross, Mayfield. This will enable Cork City Council to achieve its objective of providing two civic amenity sites (one on the northside of city and one on the southside of the city) by 2020 (Waste Management Strategy, 1995)

Action 16: “Separate Collection of Household Dry Recyclables”

Cork City Council will facilitate the recovery of dry recyclable waste from all of its domestic refuse collection customers through the provision of a door-to-door collection of dry recyclable materials from the domestic sector.

Two routes will be introduced in 2004 and a final route will be introduced in 2005. The continuation of this collection is dependent on the availability of funds. It is expected that full implementation of this scheme will result in the recovery of 5,000-5,500 tonnes of dry recyclable waste per annum from the household sector.

Action 17: “Separate Collection of Household Biowaste”

Cork City Council will assess the introduction of a separate door-to-door collection of biowaste from its refuse collection customers once the dry recyclable collection is in place. This assessment will include costs, collection methodology required, possible diversion rates, impacts on the planned Waste Recovery Facility and impacts on the refuse collection system.

The introduction of such a collection scheme would allow the City Council to comply with the aims of the National Strategy on Biodegradable Waste and the Landfill Directive.

Action 18: “Waste Recovery Facility”

Cork City Council will co-operate with Cork County Council in the development of a Waste Recovery Facility that will allow active segregation of a large number of waste streams for their more effective recovery and disposal.

The facility will incorporate mechanical separation for the separation of dry recyclables, ferrous and non ferrous metal separation and a baling or compaction facility to provide for the bulk haul of the recovered/residual components. A composting facility will also provide for the composting of the separated Wet Organic Fraction. It will also be designed to accept 35,000 tonnes per annum of separately collected biowaste.

The introduction of the Waste Recovery Facility is an integral part of the Cork Waste Management Strategy (adopted by both local authorities in 1995) and will allow Cork City Council to work towards compliance with the Landfill Directive and the targets set in the National Strategy on Biodegradable Waste.

Action 19: “Commercial Paper, Cardboard and Plastic Collection”

Cork City Council will continue to operate the collection of paper, cardboard and plastic from the commercial sector in Cork City and its suburbs. This collection facilitates the recovery and recycling of significant quantities of paper, cardboard and plastic from businesses in Cork City.

Action 20: “Christmas Tree Recycling”

Cork City Council will continue to operate a scheme for the recycling of Christmas trees from the domestic sector in Cork City during the month of January each year.

The Christmas trees will be accepted at a number of collection points throughout the city and will be composted at the green waste composting facility at the Kinsale Road Landfill Site.

Action 21: “Compost Bin Sales”

Cork City Council will consider organising the sale of compost bins from a dedicated site within the city. It is anticipated that compost bins would be offered for sale to Cork City customers at a subsidised rate. The purpose of such an initiative will allow the promotion of composting as a means of diverting biodegradable waste from landfill.

Cork City Council will continue to hold compost bin sales days in parallel with specific events (e.g. environmental awareness weeks, etc) in accordance with demand.

Action 22: “Promote Vermiculture”

Cork City Council will promote the concept of vermiculture to the general public through its public awareness campaign and through the operation of a small-scale demonstration wormery at the Kinsale Road Landfill Site.

Action 23: “Green Waste and Timber Waste Recycling”

Cork City Council will endeavour to continue the operation of its green waste and timber waste recycling facilities at the Kinsale Road Landfill Site. This will allow the diversion of significant quantities of organic waste from landfill and will allow Cork City Council to work towards achieving the objectives of the Landfill Directive and the National Strategy on Biodegradable Waste.

Action 24: “Kinsale Road Landfill Site”

The City Council will operate and carry out all necessary works at the Kinsale Road Landfill Site to ensure compliance with the relevant legislation and with the conditions set in the EPA Waste Licence and in the Environmental Management System for the site.

Furthermore, the City Council will decommission the Kinsale Road Landfill Site once its final contours have been reached; it shall be decommissioned in accordance with the EPA licence.

The decommissioned site will form a major recreation, wildlife and amenity centre for the city. The site will contain the upgraded Civic Amenity Site as well as a public park and a wetlands reserve.

Action 25: “Energy Recovery”

Cork City Council will continue to recover energy from the landfill gases generated at the Kinsale Road Landfill Site through the operation of the electricity generating plant located at the site and the geothermal heating of buildings on site will continue.

Action 26: “Residual Landfill Site”

Cork City Council will co-operate with Cork County Council in the development of an engineered residual landfill site in Cork County. The site selection process for this landfill has been completed, approval has been granted by An Bord Pleanála and a Waste Licence has been granted by the EPA.

The development of this site is in accordance with the joint Cork Waste Management Strategy and the Irish Government policy document “Changing our Ways” which recommends the reduction of the number of landfills throughout the country from 120 local landfills to 20 regional landfills.

Action 27: “Waste-to-Energy Feasibility”

Cork City Council will examine the feasibility of employing thermal waste-to-energy processes for the treatment of residual waste.

This study will be in accordance with the Waste Management Hierarchy which lists waste-to-energy treatment as being more favourable than landfilling of waste and will take into account environmental impacts and available infrastructure.

Action 28: “Illegal Burning of Waste”

Cork City Council will deal with the illegal burning of waste in accordance with the Waste Management Act, 1996-2003.

Action 29: “Issue of Waste Permits”

Cork City Council will continue to assess all applications for waste permits from facilities within Cork City where waste reception, disposal and/or treatment activities are carried out. The Council will issue permits (with conditions) where appropriate to such facilities.

Action 30: “Illegal Dumping”

Cork City Council will use its powers under the Waste Management Acts to prosecute those involved in the illegal dumping of waste.

Action 31: “Abandoned Vehicles”

Cork City Council shall endeavour to ensure that all abandoned vehicles within its administrative area are removed and disposed of in a proper way in accordance with the Waste Management Act, 1996.

Action 32: “Anti- Litter Campaign”

An Anti-Litter campaign will continue with an emphasis on Cigarette Butts, Dog Fouling and Chewing Gum. An Anti-Litter Video is to be sent to all schools in 2004.

Action 33: “Litter Bins”

The City Council will continue to provide and replace Litter Bins, all of which will have facilities for cigarette and chewing gum disposal.

Action 34: “Fly Postering”

The City Council will commence a programme of providing Anti-Fly Postering covering on street furniture in the city centre from August 2004.

Action 35: “Street Cleaning”

The street cleaning programme will continue throughout the city. A street vacuum scrubber has been hired for specific use on St. Patrick Street.

Action 36: “Chemcar”

Cork City Council will continue to support the operation of the Chemcar programme for the collection of household hazardous waste in the Cork Region. The implementation of the Chemcar programme is made possible through the sponsorship received from private industry.

Action 37: “Transfrontier Shipment of Hazardous Waste”

Cork City Council will continue to operate the correct procedures for the transport of hazardous wastes within and outside of Ireland. Shipments of hazardous waste must be accompanied by a consignment note issued by the local authority of origin of the waste. Such notes must be forwarded to the EPA.

Action 38: “Co-operation with the EPA”

Cork City Council will co-operate with the EPA in the collection of data on hazardous wastes and in the operation of any programmes devised by the Prevention Team of the EPA. The targets of the Prevention Team are to ensure that:

- There will be no increase in hazardous waste disposal over 1996 quantities; and
- There will be elimination of unreported hazardous waste.

Action 39: “Provision of a WEEE Facility”

Cork City Council will endeavour to provide the appropriate reception facilities to cater for Waste Electrical and Electronic Equipment in accordance with the WEEE Directive.

Action 40: “Waste Enforcement”

Cork City Council is committed to dealing with illegal waste activity. In particular it will continue to cooperate with the Office of Environmental Enforcement of the EPA to ensure illegal waste activity is effectively dealt with.

APPENDIX ONE
ENVIRONMENTAL IMPACTS OF THE CHOSEN WASTE MANAGEMENT
SCENARIO FOR THE CORK REGION

TABLE A.1 The Environmental Impacts of Scenario Two of the Cork Region Waste Management Strategy of 1995

Facility/ Service Provision	Positive Impact	Negative Impact*
Waste Recovery Facility – <ul style="list-style-type: none"> • Mechanical Separation Plant • Composting 	<ol style="list-style-type: none"> 1. Reduction in volumes of waste going to landfill 	Impacts of noise, odour and traffic – common to all waste treatment or disposal facilities.
	<ol style="list-style-type: none"> 2. Reduction in size of biodegradable fraction with the added advantages of: <ul style="list-style-type: none"> • reduced leachate production and potency; • fewer landfill gas problems. 	
	<ol style="list-style-type: none"> 3. Recovery and re-use of Waste 	
Bring sites or Civic Amenity Sites	<ol style="list-style-type: none"> 1. Reduction in volumes of waste going to landfill 	1. Noise, odour and traffic creation
	<ol style="list-style-type: none"> 2. Provision of facilities for priority waste streams such as obsolete Electronic and Electrical Equipment. 	2. Litter
	<ol style="list-style-type: none"> 3. Recovery and re-use of 'waste' materials 	
Provision of a wheeled-bin collection service	<ol style="list-style-type: none"> 1. Safer for both operatives and users of the Bins than current refuse sack and bin collection system. 	Slight initial increase in volumes of waste disposed to wheeled-bins (according to international experience).
	<ol style="list-style-type: none"> 2. Cleaner operation - less litter generation 	
	<ol style="list-style-type: none"> 3. Reduced traffic impacts (as a result of a more efficient collection service). 	
	<ol style="list-style-type: none"> 4. Direct and indirect improvement in the sweeping regime in operation in the city 	

* It is Cork City council's policy to ensure that these negative impacts are avoided.

APPENDIX TWO
LOCATION OF CORK CITY COUNCIL'S BRING SITES

LOCATION	CATEGORIES OF WASTE ACCEPTED
Ballinlough Park	Glass Bottles, Drink Cans, Textiles, Paper & Cardboard, Plastic
Ballyhooley New Road	Glass Bottles, Drink Cans
Ballyvolane, Dunnes Shopping Centre	Glass Bottles, Drink Cans
Bishopstown GAA Car Park	Glass Bottles, Drink Cans
Blackpool Shopping Centre	Glass Bottles, Drink Cans, Paper & Cardboard, Plastic
Blackrock, Pier Head	Glass Bottles, Drink Cans
Castle Road, Mahon	Glass Bottles, Drink Cans, Paper & Cardboard, Plastic
City Hall Car Park, Anglesea Street	Glass Bottles, Drink Cans, Newspapers & Magazines, Batteries
Clashduv Park	Glass Bottles, Drink Cans
College Road, Brookfield Holiday Village	Glass Bottles
College Road, UCC Car Park	Glass Bottles, Drink Cans
Cork Institute of Technology Car Park	Glass Bottles, Drink Cans
Curraheen Road, junction with Rossa Avenue	Glass Bottles, Textiles
Curraheen Road, Dunnes Shopping Centre	Glass Bottles, Drink Cans, Textiles
Distillery Field, North Mall	Glass Bottles, Drink Cans
Fairfield Road, Fair Green	Glass Bottles
Hollyhill Shopping Centre	Glass Bottles
Knockfree Avenue, Sam Allen Sports Complex	Glass Bottles, Drink Cans, Textiles
Lee Fields Car Park	Glass Bottles, Drink Cans, Textiles
Mayfield Shopping Centre	Glass Bottles, Drink Cans
Monahan Road, Rehab Industries	Glass Bottles, Drink Cans, Textiles
Murphys Farm, Bishopstown	Glass Bottles
Navigation House	Glass Bottles
North Ring Road, Glen Amenity Park	Glass Bottles
Patricks Quay rear of Metropole Hotel	Glass Bottles
Pearse Road, near Allied Irish Bank	Glass Bottles, Drink Cans
Rossa Avenue, Leisureworld	Glass Bottles, Drink Cans, Paper & Cardboard, Plastic
Skehard Road, Clover Hill Park	Glass Bottles, Drink Cans
St. Finbarres multi storey car park – 3 levels	Glass Bottles
The Marina near Pairc Ui Caoimh	Glass Bottles, Drink Cans
Togher Road, Supervalu Shopping Centre	Glass Bottles
Tory Top Road, Tory Top Park	Glass Bottles, Drink Cans
Union Quay junction with Anglesea Street	Glass Bottles
University College Cork, Aras na Laoi Car Park	Glass Bottles, Drink Cans
Victoria Cross, Statoil Petrol Station	Drink Cans,
Wellington Square, Magazine Road	Glass Bottles
Western Road, Jurys Hotel	Glass Bottles
Wilton Shopping Centre	Glass Bottles, Drink cans, Textiles, Paper & Cardboard, Plastic

1. APPENDIX FOUR

SUBMISSIONS

Following on the period for public consultation 5 No. submissions were received as follows:

Irish Waste Management Association

Greenstar

Green Party

Sinn Fein

Cork Environmental Forum

Four of the groups also made oral submissions.

All the submissions received have been examined in detail and amendments to the text of the plan have been made to reflect some of the issues raised in the submissions.

There were a number of points raised which properly refer to National and local waste management policy and are not commented on.

APPENDIX FIVE

NATIONAL HAZARDOUS WASTE MANAGEMENT PLAN

Section 26 of the Waste Management Act, 1996 requires that the Environmental Protection Agency prepare a National Hazardous Waste Management Plan.

The E.P.A. commenced this Plan which commenced in 1997 with a proposed plan being published for public consultation in 1999.

The plan was finalised in July 2001 with the next review scheduled for July 2006.

Section 28 (8) of the Waste Management Act requires Local Authorities to set out in their own Waste Management Plans the manner by which the policies to be contained in the Hazardous Waste Plan are to be implemented in the area covered by the plan.

PRIMARY OBJECTIVE OF THE NATIONAL HAZARDOUS WASTE PLAN

“The Primary objective of the National Hazardous Waste Management Plan is to prevent the production of hazardous waste and to minimise the effect of hazardous waste on the environment.

The secondary objective is to manage hazardous waste in such a manner is to ensure that environmental pollution is minimised and not transferred from one medium to another; in other words to bring about a qualitative reduction in the quantity of hazardous waste requiring management”.

Objectives of the National Hazardous Waste Plan

- “to describe and predict the type, quantity and origin of hazardous waste, its movement within, into and out of the country and facilities available for the collection, recovery and disposal of the waste.
- to specify objectives and where appropriate, targets in relation to the prevention and minimisation of the production of hazardous waste, the minimisation of the harmful nature of such waste and the recovery or disposal of such waste.
- to provide for, as appropriate, the identification of sites at which waste disposal activities that to a significant extent involved hazardous waste have been carried on, the assessment of any risk of environmental pollution and the recommending of measures to prevent or limit such pollution and to identify remedial measures.
- to have regard to the need to give effect to the polluter pays principle.
- to have regard to the precautionary principle in relation to the potentially harmful effects of emissions and the risk of environmental pollution.
- to make Recommendations, as respects the management of hazardous waste, regarding
 - priorities, measures and programmes which could be pursued,
 - infrastructure, facilities or other physical resources considered to be necessary,
 - the functions of any relevant public authorities.
- to specify policies which the Agency proposes to pursue”.

SUMMARY OF THE POLICIES IN THE HAZARDOUS WASTE PLAN

(a) Prevention of the Production of Hazardous Waste

The Hazardous Waste Plan place emphasis on the need for the prevention of the production of hazardous waste in the first instance.

This is in order to reduce the production of hazardous waste to 1996 thus nullify the increases from 1996 to 2001 caused by economic growth during this period.

The plan proposes a budget of €56 m over seven years to enable the success of an extensive programme.

(b) Elimination of unreported hazardous waste

The plan advises that significant quantities of hazardous waste are unquantified and do not pass to approved outlets for environmentally acceptable disposal or recovery.

The E.P.A. considers that approximately 74,000 TPA are unreported. This is approximately 25% of the total hazardous waste arising in Ireland.

Much of these materials arise from small waste generators such as household agriculture etc.

In general these materials are mixed with other wastes and disposed in this manner to landfill.

(c) Collection of “unreported” hazardous waste.

The E.P.A. indicates the need for an effective collection network to ensure unreported waste ends up in the appropriate location for treatment/disposal.

It emphasises the need to provide information to generators on the obligations for the correct handling to ensure it is properly segregated and separately collected.

Household hazardous waste should be segregated from the remaining household waste stream prior to disposal.

The report indicates that each Local Authority should make provision for a household hazardous waste collection service.

(d) Enforcement of ‘unreported’ hazardous waste.

The Hazardous Waste Plan states that an important aspect of correctly managing unreported hazardous waste is improved regulatory enforcement.

This is seen as the key to attaining the target of eliminating unreported hazardous waste.

(e) Export of Hazardous Wastes.

The plan states that Ireland has become increasingly reliant on the export of hazardous waste to specialist facilities in Europe.

In line with E.U. policy in relation to international waste movement for disposal, the plan recommends that Ireland becomes self sufficient in disposal sites.

The Plan sees the lack of hazardous waste disposal capacity as a ‘major bottleneck in terms of security of disposal outlets for hazardous waste’.

The Plan also supports national self-sufficiency in regard to hazardous waste recovery infrastructure.

(f) Disposal and Recovery Infrastructure for Hazardous Waste

The plan advises that nationally there are 17 facilities authorised to store, recover or dispose of hazardous waste. These facilities have been subject to State Grant assistance in the past and the continuation of such assistance is stressed.

The E.P.A. also assesses the adequacy of capacity to deal with certain waste types and shows that a number of key waste streams are not being correctly managed.

The Plan states that there is now sufficient hazardous waste generated in Ireland to justify the establishment of a hazardous waste incinerator as well as two hazardous waste landfills to be situated in the regions where most hazardous waste is generated – Cork and Dublin.

(g) Closed Hazardous Waste Facilities

The Plan indicates a number of closed hazardous waste facilities exist in the state.

Some may be presenting significant environmental problems. The Plan estimated 3,000 contaminated land sites in Ireland, of which 487 may be contaminated by Waste Management activities. It is estimated that 84 of these sites may still be operating.

The Hazardous Waste Plan makes it clear that the onus is on Local Authorities to identify sites where Waste Management activities have taken place, assess the risk of environmental pollution and propose appropriate remediation.

Section 22 (7) (h) of the Waste Management Act requires that Local Authority Waste Plans must embrace sites that have been previously used for waste disposal purposes.

The E.P.A. set out a methodology whereby Local Authorities can identify hazardous waste sites and prioritise them in respect of possible environmental impacts. The Plan requires each Local Authority to set up a register which is specific to sites which have accepted hazardous waste.

Hazardous Waste Management Plan – Methodology for developing a Register for Hazardous Waste Disposal Sites.

STAGE 1: Develop a list of the industrial, commercial or agricultural activities most likely to have resulted in the generation of hazardous waste which would subsequently have required disposal either on or off-site.

STAGE 2: Assess historical land-use with particular reference to the contaminative uses identified in Stage 1. This will require a desk study to identify the waste disposal activities likely to have been carried out and whether these took place on-site or off-site.

STAGE 3: Identify which of the locations identified in Stage 2 are most likely to have been used for the disposal of hazardous waste.

STAGE 4: Compile a 'section 26 register' of all suspected or known hazardous waste disposal sites.

STAGE 5: Carry out a preliminary risk assessment based on the desk study procedure in Stages 1 to 4. The assessment will allow suspect sites to be provisionally allocated to one of three priority categories (A, B or C), thereby assigning each site included in the Local Authority register to a preliminary priority rating.

STAGE 6: Undertake an intermediate risk assessment, based on a literature review and a visual inspection of the site. The results of this procedure will allow suspect sites to re-allocated, as appropriate, to a more relevant priority category. The resultant priority rating will allow identification of those sites which must be subjected to Stage 7 investigations, as well as ranking them in order of priority.

STAGE 7: Carry out a detailed risk assessment, based on actual site investigation work. Stage 7 investigations will verify the presence or absence of contaminants and will provide the information to be used in identifying an appropriate remediation strategy.

Having developed the register, a risk assessment process must be applied to prioritise the urgency of clean-up. This will result in three categories of site:

Category A (high priority)

- 1) Sites known to have been used for hazardous waste disposal.
- 2) Sites suspected to have been used for hazardous waste disposal and for which there is strong evidence that environmental pollution is occurring.

Category B (medium priority)

- 1) Sites suspected to have been used for historical hazardous waste disposal and for which there is some evidence that environmental pollution is occurring.
- 2) Sites about which very little information is available but which are considered to be suspect. It is consistent with the precautionary principle that these sites be included in this category as there is no evidence to suggest that they do not represent an environmental risk.

Category C (low priority)

- 1) Sites which are known to have been used for historical waste disposal but which are unlikely to contain significant deposits of hazardous waste
- 2) Sites which are suspected to have been used for historical waste disposal but for which there was no significant incidence of historical contaminative activities in the catchment area.

(h) Implementation of the Hazardous Waste Plan

The EPA recommends that a national “implementation committee” is set up to ensure that there is progress on implementing the recommendations of the Hazardous Waste Plan. This committee is to be composed of statutory bodies, commercial sector providers of waste management services and hazardous waste producers. The committee is also envisaged as guiding the waste prevention team mentioned earlier.

(i) Resources to Implement the Hazardous Waste Plan

The EPA states that three main types of resources are needed to ensure that the Hazardous Waste Plan is fully implemented. These are for:-

- Hazardous waste prevention and the prevention programme set out in the Plan
- Providing new or upgraded hazardous waste management infrastructure
- Local authorities and the EPA in ensuring the enforcement of the hazardous waste legislation and in providing hazardous waste management services for householders and small businesses.

(j) Hazardous Waste Plan: Priorities 2001 – 2006

The following key immediate priorities are set out in the Hazardous Waste Plan:-

1. The establishment of the implementation committee by the Department of the Environment and Local Government.
2. The establishment of the hazardous waste prevention team.
3. The elimination of unreported hazardous waste arisings.
4. The identification and prioritisation of closed hazardous waste sites.
5. The establishment of improved collection systems for hazardous waste generated by householders, by small businesses and by agricultural activities.
6. The allocation of financial and technical assistance to address capacity deficits in national hazardous waste management infrastructure.
7. The development of both hazardous waste landfill and incineration capacity.
8. New public awareness initiatives on hazardous waste issues.
9. The further development of a number of current initiatives, particular those which relate to “clean technology”.

(k) Hazardous Waste Plan: Targets

The Hazardous Waste Plan proposes two key targets:

- A “standstill scenario” for hazardous waste passing to disposal, which means that the amount of hazardous waste arising in Ireland is to be reduced to its 1996 level.
- The elimination of the existence of the ”unreported” hazardous waste.

(l) The role of Local Authorities

The National Hazardous Waste Plan emphasises the key role that local authorities are to play in the implementation of the Plan. It is noted that the EPA views local authorities as having a role in the prevention of the production of hazardous waste.

Hazardous Waste Plan – the Local Authority Role

“Local authorities have a significant role in implementing the Plan, generally within the scope of local or regional Waste Management Plans. Except where a particular facility is licensed by the Agency, local authorities are responsible for hazardous waste regulation within their functional areas. It is envisaged that local authorities will take an increasing role in the promotion of hazardous waste prevention”.

As noted earlier, one of the two key targets sets by the EPA is the elimination of “unreported” hazardous waste. The EPA views this as being attainable by the correct and comprehensive enforcement of the national environmental legislation. Given that the primary role in this matter is placed up local authorities, these bodies are seen to exert a key role in this function.

HAZARDOUS WASTE ARISING

Table 3.2 of the National Waste Plan advised 132, 084 tonnes of hazardous waste was reported in the Cork Region in 1996 and 137106 tonnes was reported in 1998. These figures indicate the Cork Region produced approximately 60% of the national arising.

The EPA National Waste Database indicate that 115347 tonnes of hazardous industrial wastes were produced in Cork City and County in 2001 (see section 6.3.2 Waste Management Plan 2004 – 2009). It is estimated that on 10% of this material is produced in Cork City i.e. approximately 11534 tonnes. Accordingly, it is estimated as an indicative figure approximately 12,000 TPA Industrial Hazardous Waste Materials are generated in the Cork City Administrative area.

The Hazardous Waste Plan estimates the cost of waste disposal to industry and commerce in Ireland.

The cost of off-site disposal of hazardous waste is shown as €343/tonne in 2001.

Applying this estimate to the estimated 12,000 TPA generated in Cork City suggests the cost to local industry to be approximately €4.2 million p.a. (2001 costs).

RESPONSE TO THE POLICIES IN THE HAZARDOUS WASTE PLAN

The main stakeholders dealing with the implementing the plan are Central Government, Local Authorities, EPA, Waste Contractors and Industry.

In order to ensure policies of the Plan are met, a multi faceted involvement and co-operation from all stakeholders must work together on bodies and structures as recommended by the Plan.

Some of the proposals in the Plan are contingent on the structures being established nationally and Central government funding being allocated and distributed.

ELIMINATION OF UNREPROTED “HAZARDOUS WASTE”

The possibility that some hazardous waste generated by households, industry and small businesses may not always be managed correctly in Cork City is acknowledged.

However, it should also be stated that at least some of the “unreported” waste may be due to a relatively crude estimation technique in compiling the statistics.

The EPA take the view that notwithstanding the levels of “unreported” hazardous waste, there is little evidence that these materials end up in illegal dumps.

Moreover the EPA reiterates the fact that most of these materials are mixed with other wastes and end up in landfill.

Therefore there is a need for each Local Authority to produce more reliable information on unreported hazardous waste and to this end Cork City Council will endeavour to:

- (1) Closely monitor waste movements by way of C1 Forms and TFS notifications.
- (2) Ensure all generators of hazardous waste are identified.
- (3) Provide information on the correct management of hazardous waste to households, SME's, industry etc.

- (4) Continue the current regime of vigilant checking of waste being accepted at Kinsale Road Landfill Site.
- (5) Ensure that relevant legislation is enforced comprehensively and ensure non-compliances are detected, followed up and where appropriate prosecuted.
- (6) Impose Planning Conditions on developers to ensure where appropriate each developer “shall submit to the Planning Authority full details of quantity and composition of any and all hazardous waste anticipated to arise in the proposed development and full details of the disposal of same for the prior written agreement of the Planning Authority”

and also

“all hazardous waste shall be disposed of in a manner agreed by Cork City Council and should not be presented for refuse collection or for disposal at any sanitary landfill site.

Prior to the commencement of the development the developer shall submit to the Planning Authority for its written agreement, proposals for disposal of this waste”.

CLOSED HAZARDOUS WASTE FACILITIES

Cork City Council will endeavour to identify all significant hazardous waste sites as part of its statutory function to compile a register of closed waste disposal sites.

The methodology for the selection and prioritisation of this register will follow that set down in the Hazardous Waste Plan.

Where sites have been identified as having priority environmental impacts, Cork City Council will look to its statutory powers to ensure that such impacts are mitigated by those responsible.

APPENDIX SIX

POPULATION OF CORK CITY BY AREA

	1996	2002	% Change
City			
Centre	10,657	11,949	12.1%
South			
East	24,148	24,328	-0.7%
South			
Centre	20,827	19,318	-7.2%
South			
West	20,204	18,931	-6.3%
North			
West	26,955	24,981	-7.9%
North East	24,398	23,555	-3.4%
	127,189	123,062	-3.2%

Source: Census 2002 Summary Report 2004 -
Cork City Planning Department