Dublin City
Baile Átha Cliath

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

South Dublin
County Council

Fingal County Council
Comhairle Contae Fhine Gall

November 2005

WASTE MANAGEMENT PLAN FOR THE DUBLIN REGION

2005-2010

Made on
11th November 2005

WASTE MANAGEMENT PLAN
Working for the Dublin Region

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ABBREVIATIONS

AER	**Annual Environmental Report**
ANSWER	**A New Solid Waste Environmental Response**
BAT	**Best Available Technologies**
BATNEEC	**Best Available Technologies Not Entailing Excessive Costs**
BMW	**Biodegradable Municipal Waste**
BPEO	**Best Practicable Environmental Option**
C & D	**Construction and Demolition**
C & I	**Commercial and Industrial**
CCI	**Chambers of Commerce of Ireland**
CCN	**Community Composting Network**
CCRI	**Clondalkin Community Recycling Initiative**
CHP	**Combined Heat and Power**
CSO	**Central Statistics Office**
DCC	**Dublin City Council**
DED	**District Electoral Division**
DEHLG	**Department of the Environment, Heritage and Local Government**
DLRCC	**Dun Laoghaire Rathdown County Council**
DUMP	**Disposal of Unused Medications Properly**
EAO	**Environmental Awareness Officer**
ELVs	**End of Life Vehicles**
EPA	**Environmental Protection Agency**
ERTDI	**Environmental Research Technological Development & Innovation**
ESRI	**Economic and Social Research Institute**
EWC	**European Waste Codes**
FCC	**Fingal County Council**
FRN	**Furniture Reuse Network**
GDP	**Gross Domestic Product**
GNP	**Gross National Product**
GPS	**Global Positioning System**
IBEC	**Irish Business and Employers Confederation**
IFFPG	**Irish Farm Film Producers Group**
IPC	**Integrated Pollution Control**
IPPC	**Integrated Pollution Prevention and Control**
LA	**Local Authority**
LAPD	**Local Authority Prevention Demonstration**
MBT	**Mechanical Biological Treatment**

MRF	**Materials Recovery Facility**
NCDWC	**National Construction and Demolition Waste Council**
NGO	**Non-Governmental Organisation**
NHWMP	**National Hazardous Waste Management Plan**
NRA	**National Roads Authority**
NWPP	**National Waste Prevention Programme**
OEE	**Office of Environmental Enforcement**
PCB	**Polychlorinated biphenyl**
PPP	**Public Private Partnership**
PRIs	**Producer Responsibility Initiatives**
RAPID	**Revitalising Areas through Planning Investment & Development**
R & D	**Research and Development**
RPGs	**Regional Planning Guidelines**
SDCC	**South Dublin County Council**
SME	**Small-to-Medium Enterprises**
SMP	**Sludge Management Plan**
SWAHB	**South Western Area Health Board**
TFS	**Trans-Frontier Shipments**
TPA	**Tonnes per annum (also tpa)**
WEEE	**Waste Electrical and Electronic Equipment**
WTE	**Waste To Energy**

FOREWORD

The Waste Management Plan was prepared under the guidance of the Dublin Regional Waste Steering Group. The collaboration, assistance and provision of information from all involved is gratefully acknowledged, including the officers in the Environment and Waste Management Services departments of each Local Authority.

We would like to thank all stakeholders – including the members of the public, public representatives, other organisations and waste management companies - who made submissions and participated during the consultation process.

The members of the Dublin Regional Waste Steering Group are:

Mr. Matt Twomey, (Chairman), Assistant City Manager, Dublin City Council

Mr. John Singleton, Project Engineer, Dublin City Council

Mr. Con Coll, Executive Manager, Dublin City Council

Mr. Gilbert Power, Director of Environment, Fingal County Council

Ms. Mary Pyne, A/Director of Environment, South Dublin County Council

Mr. Frank Austin, Director of Environment, Dun Laoghaire-Rathdown County Council

The Plan was prepared by RPS Consulting Engineers with the assistance of COWI, Mazars, Clean Technology Centre and Mary Murphy Associates.

The Plan was made on November 11th, 2005 by Order of the Dublin City Manager, Fingal County Manager, South Dublin County Manager, and Acting County Manager of Dun Laoghaire Rathdown County Council

100% Recycled Post Consumer Waste Paper

Totally Chlorine Free. Approved by Environmentally Responsible Approach (UK)

STRUCTURE OF REPORT

The Waste Management Plan is divided into specific sections in accordance with the Waste Management (Planning) Regulations of 1997.

The structure is as follows:

Executive Summary	**A Summary of the Plan content**
Part 1	**Preface - Background information on the Dublin Region** (population, land-use, transport etc.)
Part 2	**Present Position** regarding waste management in the Dublin Region (arisings, recycling, disposal etc.)
Part 3	**Anticipated Developments over the period of the Plan** (growth in population and waste, emerging practices etc.)
Part 4	**Waste management policy** (options, details of the review of the previous plan, detailed policies and objectives etc.)
Part 5	**Implementation of the plan** (priorities, actions and ongoing consultation measures etc.)
Appendices	The appendices form part of the Plan and contain supporting information and other relevant details.

PART 1

BACKGROUND

1 INTRODUCTION

1.1 MANAGING WASTE IN DUBLIN

As the capital city, Dublin has been at the heart of Ireland's economic resurgence in the past decade. This leading European Region continues to attract new residential, commercial and industrial developments. The influence of the capital is extending into the hinterland counties of Meath, Kildare, Wicklow and beyond. While the National Spatial Strategy envisages a more balanced growth in Ireland in the years ahead, there is no doubt that Dublin will continue to grow and compete in an international environment. Maintaining a high quality environment against this backdrop of growth is a significant challenge.

A high quality environment is defined by clean water, fresh air and clean soil, by the level of noise and the quality of light – all of these natural resources come under pressure in a society that is increasingly concerned with cycles of production and consumption, mobility, and economic expansion.

Managing waste in a *sustainable* manner is one of the key challenges for the Region, and one in which every citizen has a role to play. How we manage our waste says a lot about how highly we value our environment. There is consensus that we should minimise impact on the environment; this can be achieved by working to minimise the amount of waste we generate, and managing the waste we do create in the best manner possible.

The Dublin Region comprising Dublin City Council, Dun Laoghaire Rathdown County Council, Fingal County Council and South Dublin County Council adopted a coherent and ambitious *Waste Management Strategy* in 1997, setting out to replace a system that relied on landfill disposal with a new approach based on integrated waste management. The first Regional Waste Management Plan was made in 1998 (subsequently re-adopted in 2001), and the first formal Review of the Plan has taken place during 2004-2005.

In the intervening period significant progress has been made throughout the Region, in particular the improved recycling performance will be acknowledged by all householders and businesses. Nevertheless, many elements of the Strategy remain to be fully delivered. Further effort is required in the challenge to prevent, minimise and reduce waste. There are still gaps in the collection and recycling systems proposed. Delivery of infrastructure to achieve energy recovery and waste disposal capacity is behind schedule. This underlines the need for continued urgent and co-ordinated action to continually improve waste management across the Region in the years ahead.

This Waste Management Plan sets out a policy to implement a balanced, sustainable and affordable waste management system in the Region.

1.2 PURPOSE OF THE PLAN

The objective of this Plan is to answer a number of simple questions as follows:

- **Where are we now?** - Detail current performance in waste management and outline areas for **improvement**

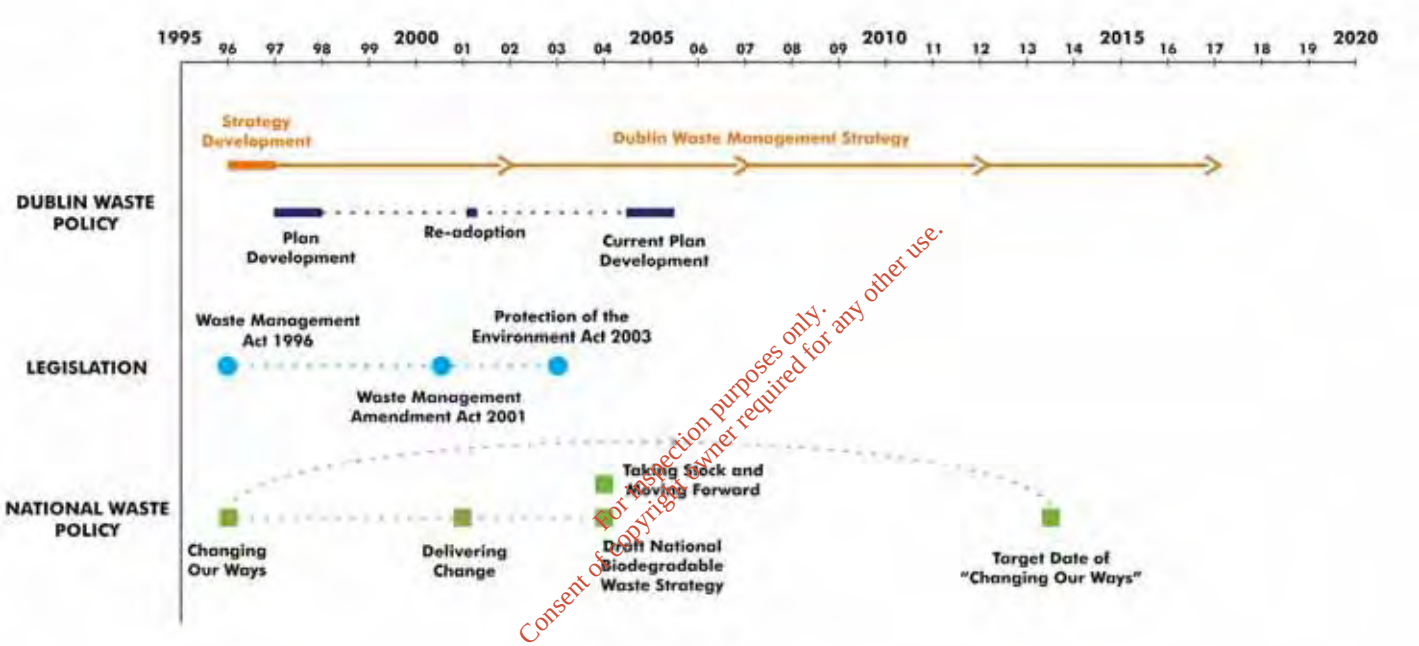
- **What are our options?** - Reflect on recent and future developments in waste management and how the Region can benefit from these

- **Where are we going?** - Outline the future strategy for managing waste in the Region, detailing the policies and objectives to be pursued

- **How will we get there?** - Set out the roles and responsibilities in Plan Implementation, including those of the Local Authority and the private waste management sector, as well as the means of financing the strategy

- **How will we monitor progress?** - Set targets for the future and identify the mechanisms by which these will be monitored

Figure 1.1 Overview of Dublin Waste Policy Development

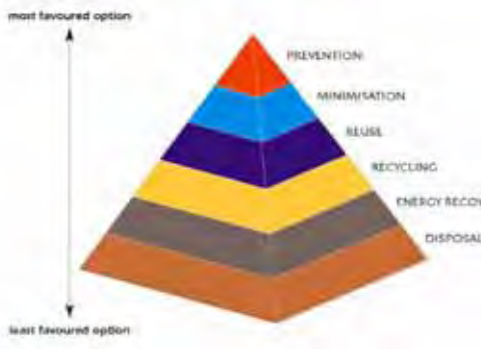


1.3 CONTEXT OF THE WASTE MANAGEMENT PLAN

This Plan can be viewed in two overlapping contexts: the waste management policy context and the planning and development context.

Waste Management Context

In terms of Waste Management Policy, the Plan falls into a hierarchy of policy derived from EU and National Level, and complies with national legislation on waste management plans.



EU waste management policy is set out in a series of Directives and more recently 'Thematic Strategies'. The EU Landfill Directive of 1999 sets the agenda for much of the changes in municipal waste management. Directives such as the Waste Electrical and Electronic Equipment Directive and the End Of Life Vehicle Directive require a new producer responsibility approach to be implemented across all Member

States. Much of the EU policy can be conveniently abbreviated by the 'waste management hierarchy' picture.

Irish Waste Management Policy has been set out in a series of Policy Statements, starting with 'Changing Our Ways' in 1998, which has been expanded and updated by 'Delivering Change' (2002) and 'Taking Stock and Moving Forward' (2004). The Draft National Biodegradable Waste Strategy of 2004 also sets new goals and objectives for municipal waste management. It is these policies that provide the overall waste planning framework, supporting the Regional waste management approach and other key concepts such as implementation of the 'polluter pays principle' and the 'producer responsibility' framework for several key waste streams.

The governing legislation for waste is provided by the Waste Management Act, 1996, as amended by the Waste Management Amendment Act 2001, and the Protection of the Environment Act, 2003. The 1996 Act has been brought into effect by the making of a series of Regulations, covering aspects such as waste collection, authorisation of waste facilities, transfrontier shipment of waste and specific waste streams such as packaging and farm plastics. The format and content of Plans is governed by the Waste Management (Planning) Regulations 1997.

Planning and Development Context

The National Spatial Strategy sets out the overall strategic framework for Ireland's development over the period 2002-2020. Development needs to be co-ordinated at a Regional level, and a series of 'Regional Planning Guidelines' (RPGs) have been prepared during 2003 – 2004. These Guidelines inform and guide Regional development including key infrastructural considerations, setting the overall objectives for the Region and helping to shape the City and County Development Plans of individual Local Authorities. **Map 1** outlines the greater Dublin Region as set out in the National Spatial Strategy.

The Regional Planning Guidelines for the Greater Dublin Area were published in 2004. Recognising the spatial influence of the Region, the Greater Dublin Area includes the four Dublin Local Authorities and also Counties Meath, Kildare and Wicklow.

The Guidelines make a number of general recommendations in terms of waste management, namely:

"A Regional approach to waste management should be adopted in the GDA which will:

Promote the development of new integrated waste management facilities in the GDA in the short term;

Permit inter-Regional transfer of waste to give appropriate economies of scale to new waste management facilities;

Provide for growth in capacity to mitigate the escalating costs of waste disposal;

Develop biological treatment facilities for organic waste, further recycling and waste to energy plants to serve the needs of the GDA."

The Regional Waste Management Plan therefore aims to fit into the RPG framework and to satisfy this element of the overall Spatial Planning policy of the Region. While counties Meath (part of the North East Waste Planning Region), Kildare and Wicklow lie beyond the boundary of the 'waste management Region' which comprises the four Dublin Local Authorities for the purpose of this Plan, significant levels of co-operation already exist, and waste movements into and out of Dublin are commonplace. Consultation with these Local Authorities has formed part of the Plan development.

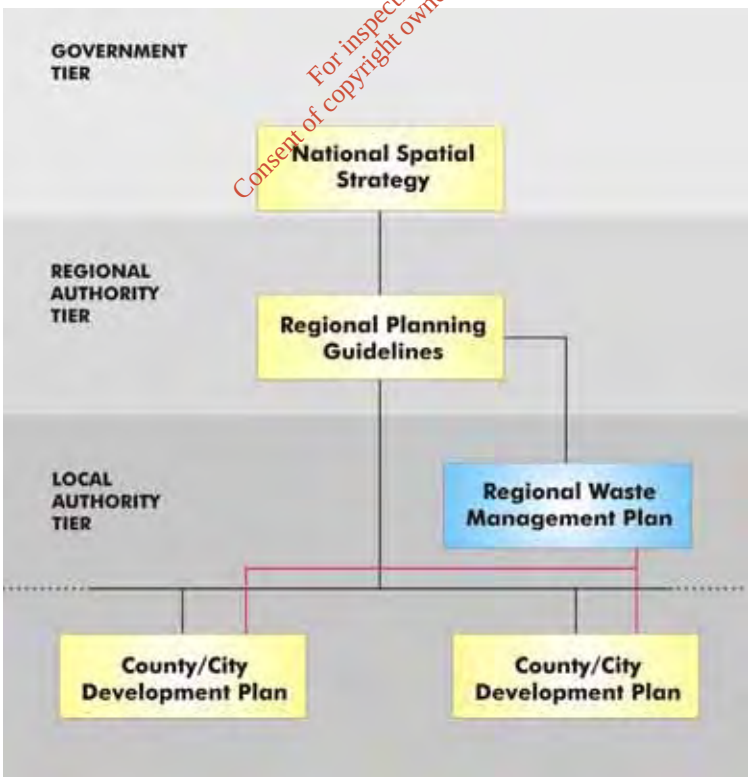
The primary purpose of the *Planning and Development Act 2000* is to establish a legal framework within which the planning system can operate efficiently. In relation to waste management, the *Planning and Development Act 2000* altered some elements of section 98 of the EPA Act 1992 to further encourage sustainable development and environmental protection.

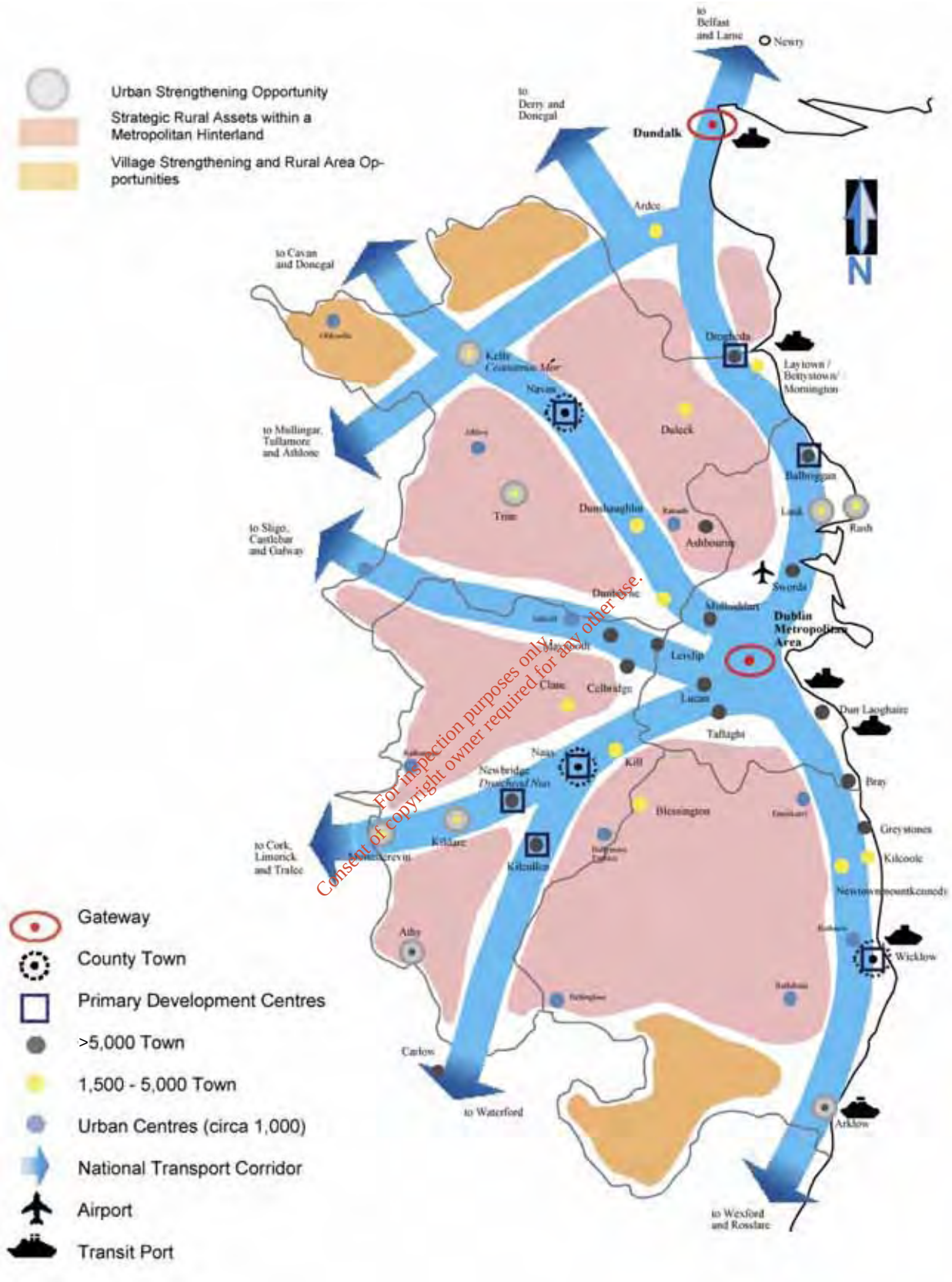
In terms of Planning and Development Policy, under the Protection of the Environment Act 2003 the Waste Management Plan plays a significant role in terms of future development of waste infrastructure. The 2003 Act set out to redress some uncertainties that had emerged in a range of recent environmental legislation, which includes changes to the *Planning and Development Act 2000* and the *Waste Management Acts 1996-2003*. Previous uncertainties had led to planning decisions which highlighted barriers to the development of waste management infrastructure.

Section 26 of the Act makes the review, variation or replacement of a Waste Management Plan an Executive Function of the City or County Manager, rather than a Reserved Function of the Elected Representatives. Policies in the Waste Management Plan become de-facto planning policies, and in cases where conflicting objectives are found, the Waste Plan effectively supersedes the County or City Development Plan. This places extra importance on setting clear policies within the Waste Management Plan, including details of locations for proposed waste facilities. In this Plan any proposed locations for waste management facilities have been included in so far as these have been identified at the time of preparation.

Figure 1.2 illustrates the current planning framework in Ireland. Whilst the National Spatial Strategy and the Regional Planning Guidelines are not binding in law, this Waste Management Plan has where appropriate taken the relevant polices and objectives into account.

Figure 1.2 Planning Context





Source: Dublin Regional Authority
Regional Planning Guidelines

Project	***Dublin Waste Plan***	**Figure**	**Map 1**
Title	**Dublin Region - Spatial Planning**		

Waste Management Plan
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

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The City and County Development Plans have also been taken into account, and regard has been had to the following strategies and plans:

- Dublin City Development Plan 2005 - 2011
- Dun Laoghaire Rathdown County Development Plan 2004-2010
- Fingal County Development Plan 2005-2011
- South Dublin County Development Plan 2004-2010
- Air Quality Management Plan for the Dublin Region 1999
- National Climate Change Strategy, October 2000
- National Hazardous Waste Management Plan (EPA) 2001
- The Seven EU 'Thematic Strategies' (see next Section)

1.4 EUROPEAN CONTEXT

The EU Sixth Environment Action Programme sets out objectives in the shape of Europe's future environment at the start of the 21st century. This vision "Environment 2010: Our Future, Our Choice" seeks the following aims.

- To decouple the generation of waste from economic growth by establishing more sustainable
- consumption patterns.
- For waste generated, these should represent very low risks to the environment and our health.
- We should maximise recycling and bring "final disposal to an absolute minimum"
- Waste should be treated as close as possible to where it is generated ("proximity principle")

Seven 'Thematic Strategies' were introduced as a way to tackle seven key environmental issues, which require a holistic approach because of: their complexity, the diversity of actors concerned and the need to find multiple and innovative solutions. The Seven Thematic Strategies are:

- Clean Air For Europe (CAFE)
- Soil protection
- Sustainable use of pesticides
- Protect and conserve the marine environment
- Waste prevention and recycling
- Sustainable use of natural resources
- Urban environment

The most advanced of these currently is the *Thematic Strategy on the Prevention and Recycling of Waste*. Among the many issues discussed was the development of material based recycling targets in articulation with end-of-life products based targets, the use of economic instruments (such as the plastic bag levy in Ireland) and to ensure that recycling is both easy and clean to maximise the resource value of waste.

In 2000 the Lisbon Strategy set out an ambitious agenda of economic and social reforms to create a highly dynamic and competitive knowledge-based economy. In 2001 a broad Strategy for Sustainable Development was founded by the European Council in Gothenburg and in 2002 its external dimension was defined in Barcelona ahead of the UN's World Summit on Sustainable Development. On 9th February 2005 the EU Commission presented a Communication in the 2005 Review of the EU Sustainable Development Strategy. The Sustainable Development Strategy and the Lisbon Strategy share the same ultimate goal, namely to improve welfare and living conditions in a sustainable way for present and future generations.

Among the issues of relevance to the Regional Waste Management Plans in the 2005 Review of the Sustainable Development Strategy are the following: -

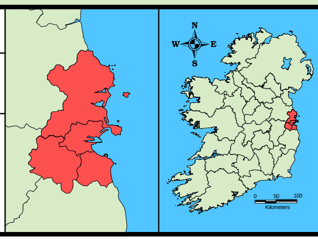
- Managing our natural resources – protecting our water, air and land from threats to our biodiversity
- Protecting public health and environment
- Minimising poverty and social exclusion
- Tackling priority waste streams setting targets and monitoring performance
- Identifying policies to encourage creation of markets

Opportunities may exist to implement waste prevention and recycling in partnership with community networks to maximise resource recovery and provide employment thus minimising social exclusion. To maximise recycling markets at home, the pursuance of "green procurement policies" need to be encouraged in the plan to help create sustainable markets. We also need more recycling centres and parks to collect household, commercial, and selective industrial waste. (e.g. construction/demolition, electronic, packaging and end of life bulky items).

Project	Dublin Waste Plan	Figure	Map 2
Title	Dublin Region Location and Topography Map		

WASTE MANAGEMENT PLAN
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie



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2 STUDY AREA

2.1 DESCRIPTION OF THE DUBLIN REGION

The study area for the Regional Waste Management Plan consists of the administrative areas of Dublin City Council (DCC), Dun Laoghaire – Rathdown County Council (DLRCC), Fingal County Council (FCC) and South Dublin County Council (SDCC) as shown on **Map 2**. The Region covers a total of approximately 92,227 hectares – 1.3% of the area of the country. However the Region has a population of 1,122,821 (CSO, 2002), which represents approximately 29% of the national population. The Irish Sea forms the eastern boundary of the area, to the south, Wicklow borders with Dun Laoghaire – Rathdown and South Dublin, Kildare lies to the west, and Meath borders with Fingal to the north and northwest.

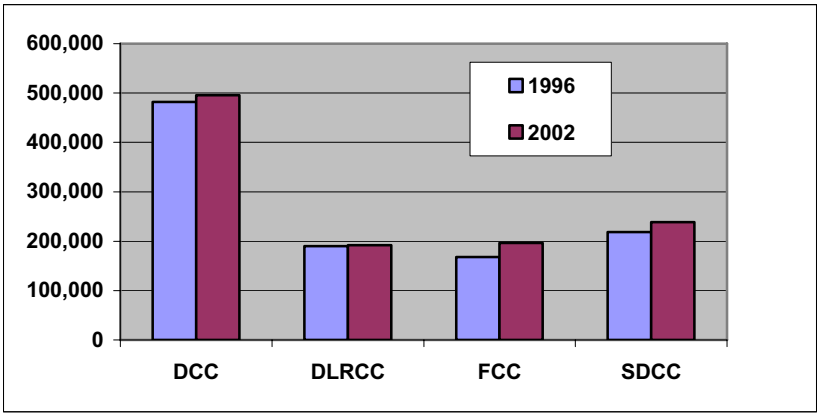
2.1.1 Population

The population of the Region is 1,122,821 (CSO, 2002) an increase of 64,557 or 6.1% since the previous census in 1996. Table 2.1 and **Map 3** shows the population for each Local Authority area. The most recent census figures (2002) show that the population growth in the Dublin Region is slightly below the national average of 8%.

Table 2.1 Change in Population Figures 1996-2002

Local Authority	1996	2002	Increase
DCC	481,854	495,781	2.9%
DLRCC	189,999	191,792	0.9%
FCC	167,683	196,413	17.1%
SDCC	218,728	238,835	9.2%
Total	**1,058,264**	**1,122,821**	**6.1%**

Figure 2.1 Population of the Four Local Authorities, 1996 and 2003



2.1.2 Households

The total number of households in the Region is 379,372 (CSO, 2002) giving an average occupancy of approximately 2.96 people per household. Table 2.2 shows the number of households per Local Authority.

Table 2.2 Change in Number of Households for the Region 1996-2002

Local Authority	1996	2002	Increase
Dublin City	173,085	180,852	4.5%
Dun Laoghaire-Rathdown	61,649	64,132	4.0%
Fingal	47,721	60,872	27.5%
South Dublin	61,809	73,516	18.9%
Total	**344,264**	**379,372**	**10.2%**

While the number of new residential units provided in DLRCC is relatively modest, the other 3 authorities have each accommodated between 12,000 and 17,000 new units in the intercensal period, with the percentage growth in Fingal and South Dublin being the most dramatic. This scale of growth is obviously influencing waste generation and increasing the capacity required for all infrastructure including waste. Map 3 demonstrates the population density in the District Electoral Divisions (DEDs) in the region.

2.1.3 Urban Rural Population Distribution

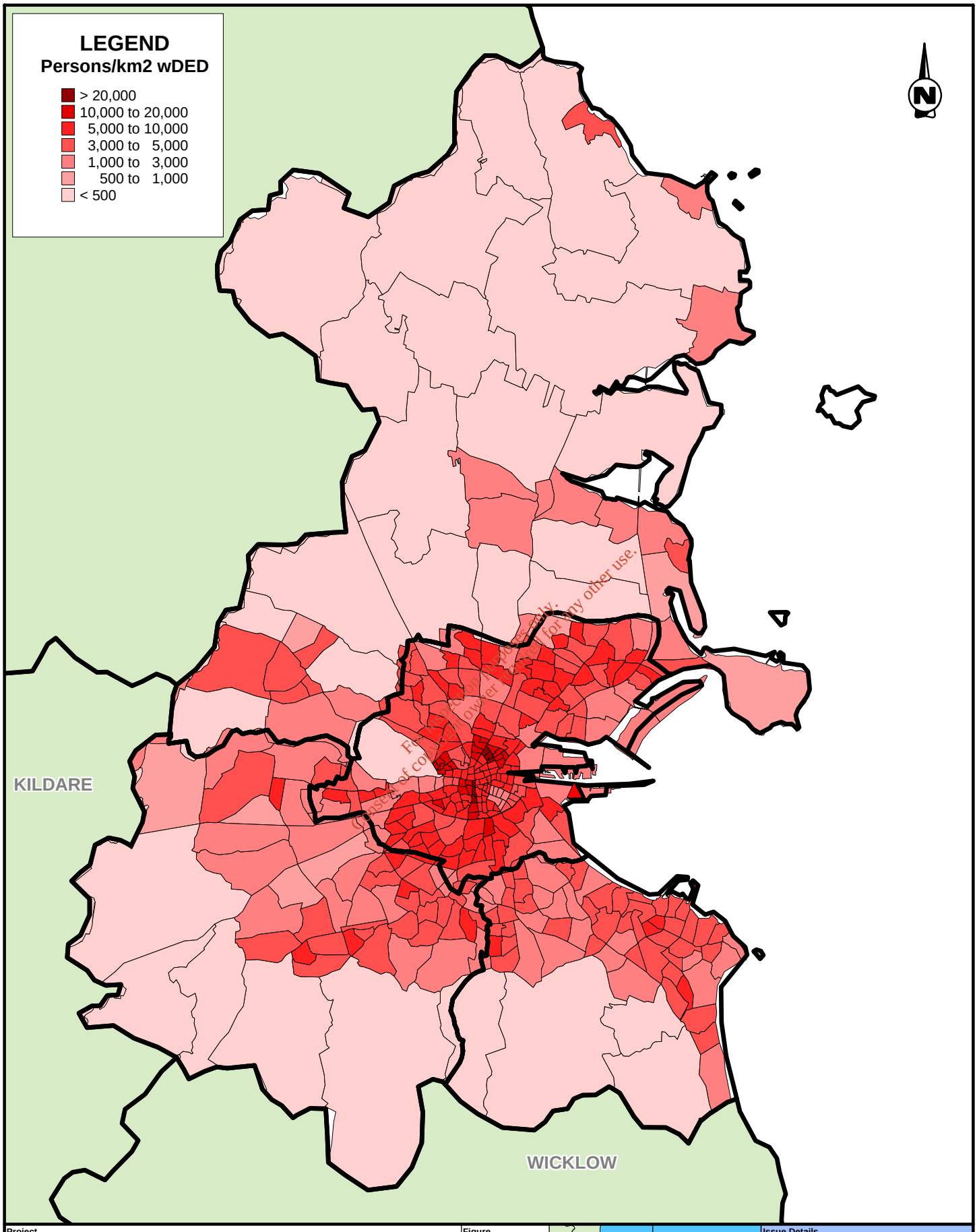
The most recent Census figures show that 98% of the population are urban dwellers and 2% live in the rural areas. Whilst 2% of the population appears relatively small, it equates to approximately 27,000 people or 9,100 rural households. Table 2.3 summarises the Urban/Rural population distribution for each Local Authority Area.

Table 2.3 Urban/Rural Population Distribution in the Region

Local Authority	Urban 2002	Rural 2002
Dublin City	495,781	0
Dun Laoghaire-Rathdown	189,590	2,202
Fingal	178,746	17,667
South Dublin	231,680	7,155
Total	**1,095,797**	**27,024**

2.1.4 Employment

According to the 2002 Census there was a total of 508,030 people employed in the Region. Table 2.4 shows the breakdown of the number of employees for each Local Authority in 2004.



Project	*Dublin Waste Plan*	Figure	Map 3
Title	**Dublin Region - Population Map**		

Waste Management Plan
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

Issue Details

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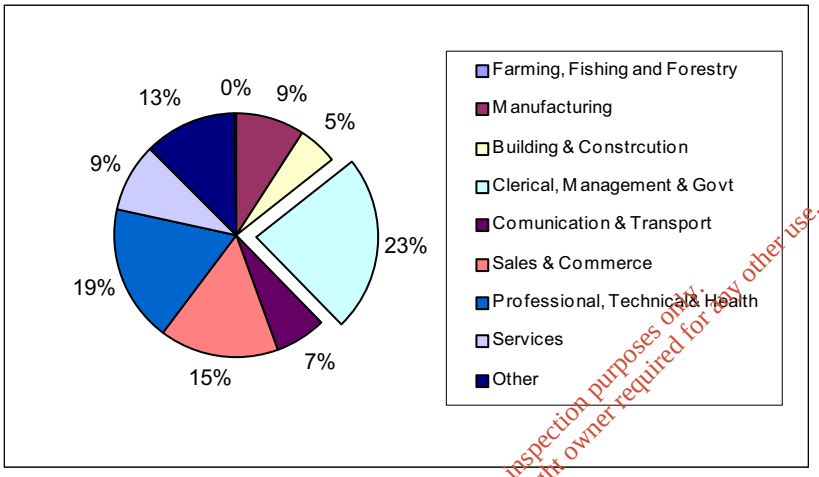
Table 2.4 Number of Employees in the Region in 2004

Local Authority	Number Employed
Dublin City	224,300
Dun Laoghaire-Rathdown	81,930
Fingal	91,699
South Dublin	110,101
Total	**508,030**

Figure 2.2 shows that the highest percentage of employment is in the Clerical, Management and Government sectors accounting for 23% of the total employment in the Region. It also shows that farming, fishing and forestry accounts for the lowest percentage (0.4%) of employment in the Region.

Figure 2.2 Employment by Sector

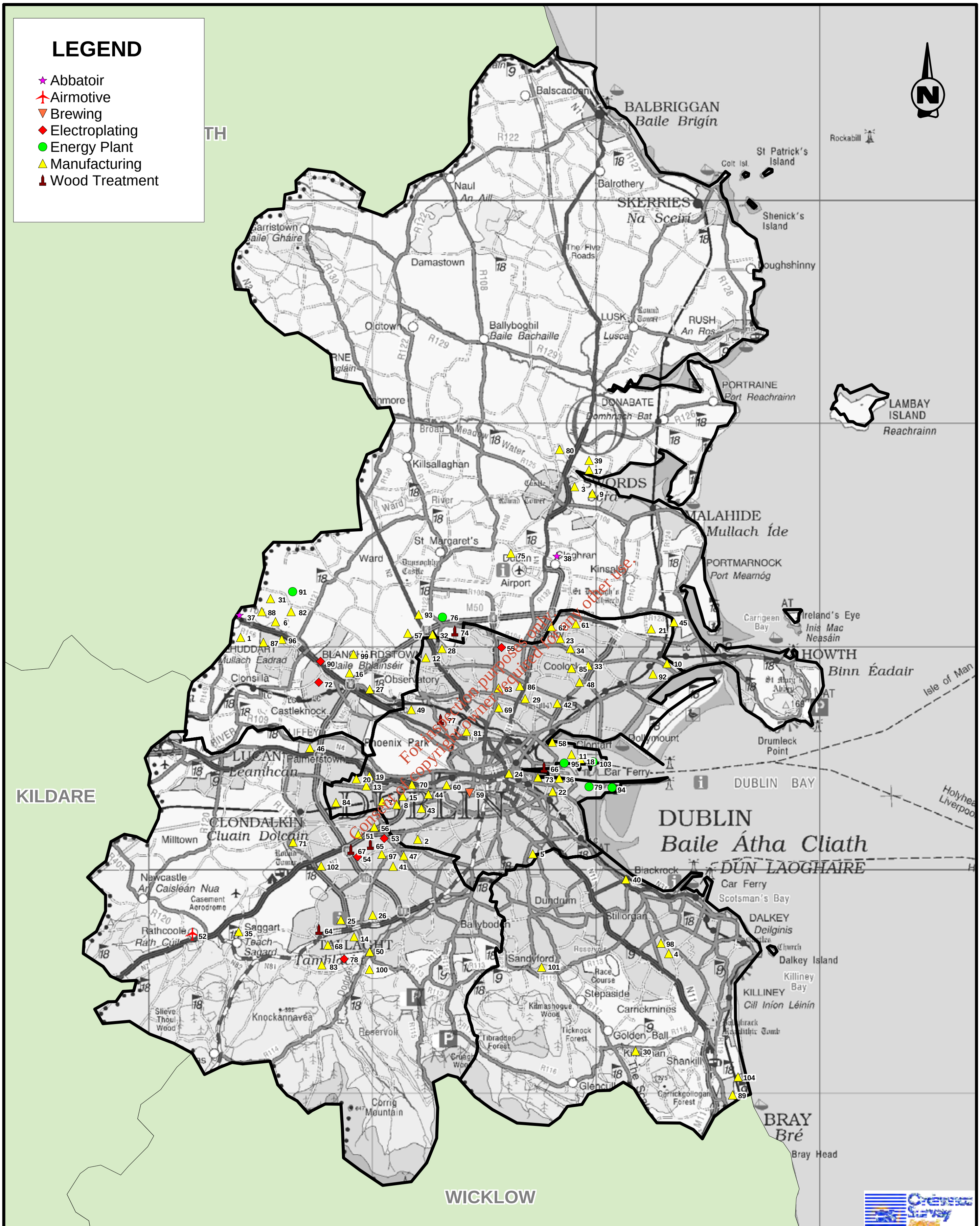


The sectors in the chart above, which could be regarded as being Commercial, are: Clerical, Management & Government, Communication & Transport, Sales & Commerce, Professional, Technical & Health, Services and Other. This gives a 86% employment rate in the commercial sector, compared with the national average of 66%.

The sectors which could be regarded as being Industrial are: Farming, Fishing and Forestry, Manufacturing and Building and Construction. This gives a 14.6% employment rate in the Industrial sector.

2.1.5 Commerce and Industry

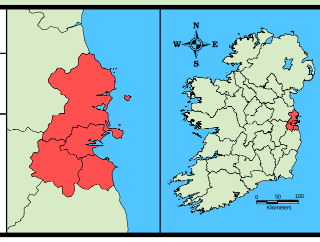
Dublin City Centre remains the largest location for employment in the State. Located within the general city centre area are clusters of specialised industrial/commercial activity such as the Port, the Irish Financial Services Centre and the emerging high technology cluster focused on the digital hub in the Liberties. It is envisaged that the City will remain the prime location of employment, particularly office based. Decentralisation of Government Departments could have an impact on the City Centre. Outside of the City Centre there are significant employment clusters in the surrounding Metropolitan Area, which have grown significantly over the last twenty years. These include Dublin Airport, the North Blanchardstown area, City West and the Sandyford area. **Map 4** shows the main industries in the Dublin Region.



Project: *Dublin Waste Plan*

Figure: Map 4

Title: Dublin Region - IPPC Sector Industries



WASTE MANAGEMENT PLAN
Working for the Dublin Region

RPS MCOS

Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

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ID	INDUSTRY NAME	LOCATION	REG NO	INDUSTRY TYPE
1	Yamanouchi Ireland Co. Ltd.	Mulhuddart, Dublin 15	7	Manufacturing
2	Leo Laboratories Ltd.	Cashel Road. Crumlin, Dublin 12	8	Manufacturing
3	Swords Laboratories	Watery Lane, Swords, Co. Dublin	14	Manufacturing
4	Pfizer Ireland Pharmaceuticals	Pottery Road., Dun Laoghaire, Co. Dublin	19	Manufacturing
5	Smurfit Paper Mills	Clonskeagh, Dublin 6	32	Manufacturing
6	Mallinckrodt Medical Imaging	Damastown, Mulhuddart, Dublin 15	50	Manufacturing
7	BOC Gases Ireland Ltd.	Bluebell, Dublin 12	51	Manufacturing
8	Kayfoam Woolfson	Bluebell Ind. Estate, Dublin 12	58	Manufacturing
9	Arch Chemicals B.V.	Watery Lane, Swords, Co. Dublin	60	Manufacturing
10	Reheis Ireland	Kilbarrack Road, Dublin 5	71	Manufacturing
11	Alumina Chemicals Ltd.	Tolka Quay, Dublin 3	74	Manufacturing
12	Burgess Galvin & Co. Ltd.	Jamestown Road, Finglas, Dublin 11	75	Manufacturing
13	Loctite (Ireland) Ltd.	Ballyfermot, Dublin 10	78	Manufacturing
14	Loctite (Ireland) Ltd.	Whitestown, Tallaght, Dublin 24	79	Manufacturing
15	Colfix (Dublin) Ltd.	Bluebell Ind. Estate, Dublin 12	80	Manufacturing
16	Irish Asphalt Ltd.	Rosemount Business Park, Blanchardstown	81	Manufacturing
17	Evode Industries Ltd.	Newtown, Swords, Co. Dublin	83	Manufacturing
18	Irish Tar & Bitumen Suppliers	Alexandra Road, Dublin 1	86	Manufacturing
19	Ultra Packaging Ltd.	Kylemore Road, Dublin 10	92	Manufacturing
20	CVP Ltd.	Kylemore Road, Ballyfermot, Dublin 10	94	Manufacturing
21	Newport Synthesis Ltd.	Baldoyle, Dublin 13	97	Manufacturing
22	Van Leer Ireland Ltd.	Beggars Bush , Dublin 4	107	Manufacturing
23	Global Switch Property Ltd.	Clonshaugh, Dublin 17	109	Manufacturing
24	Independent Newspapers	90 Middle Abbey Street, Dublin 1	111	Manufacturing
25	C-Fab Ltd.	Tallaght Business Park, Dublin 24	114	Manufacturing
26	Print & Display Ltd.	Tallaght, Dublin 24	116	Manufacturing
27	Kinerton Ltd.	Blanchardstown Industrial Park, Dublin 15	117	Manufacturing
28	Alcan Packaging Dublin Ltd.	Jamestown Road, Finglas, Dublin 11	119	Manufacturing
29	Lithographic Web Press Ltd.	Glasnevin, Dublin 9	120	Manufacturing
30	International Coatings Ltd.	Ballycorus, Kiltiernan, Dublin 18	122	Manufacturing
31	Helsinn Chemicals Ireland Ltd.	Damastown, Mulhuddart, Dublin 15	125	Manufacturing
32	Mouldpro International Ltd.	Jamestown Road, Finglas, Dublin 11	131	Manufacturing
33	Wood-Printcraft Ltd.	Coolock Ind. Estate, Dublin 17	143	Manufacturing
34	Modus Media International	Clonshaugh, Dublin 17	149	Manufacturing
35	Brittas Plastics Ltd.	Saggart, Co. Dublin	150	Manufacturing
36	The Irish Bottle Co. Ltd.	Ringsend, Dublin 4	164	Manufacturing
37	Kepak Clonee	Clonee, Co. Dublin	167	Abbatoir
38	AIBP T/A AIBP Dublin	Cloghran, Swords, Co. Dublin	189	Abbatoir
39	Swords Laboratories	Watery Lane, Swords, Co. Dublin	206	Manufacturing
40	Synthesis Ltd.	Woodbine Road, Blackrock, Co. Dublin	216	Manufacturing
41	Irish Printed Circuits Ltd.	Ballymount Drive, Walkinstown, Dublin 12	217	Manufacturing
42	Everlac Paints Ltd.	Fairview, Dublin 3	220	Manufacturing
43	BASF Printing Systems Ltd.	Bluebell Ind. Estate, Dublin 12	228	Manufacturing
44	Sun Chemical Inks Ltd.	Bluebell, Dublin 12	230	Manufacturing
45	IBC Ltd.	Baldoyle Ind. Estate, Baldoyle, Dublin 13	231	Manufacturing
46	Coates of Ireland Ltd.	Palmerstown, Dublin 20	241	Manufacturing
47	Circle Paints Ireland Ltd.	Greenhills Road, Walkinstown, Dublin 12	245	Manufacturing
48	Crown Berger (Ireland) Ltd.	Malahide Road, Coolock, Dublin 17	248	Manufacturing
49	Manders Coatings & Inks Ltd.	Ashtown, Dublin 15	250	Manufacturing
50	INX International Ink Co. Ltd	Cookstown Ind. Estate, Tallaght, Dublin 24	252	Manufacturing
51	Packaging Inks & Coatings	Western Ind. Estate, Naas Road, Dublin 12	253	Manufacturing
52	Lufthansa Airmotive Ireland Ltd.	Naas Road, Rathcoole, Co. Dublin	275	Airmotive
53	Hitech Plating Ltd.	Ballymount Ind. Estate, Walkinstown	276	Electroplating
54	Just The Plating Co. Ltd.	Mulcahy Keane Estate, Dublin 12	277	Electroplating
55	Computer Plating Specialists Ltd.	Santry Avenue Industrial Estate, Santry	278	Electroplating
56	Galco Steel Ltd.	Ballymount Road, Walkinstown, Dublin 12	284	Manufacturing
57	W.I. Ltd.	Jamestown Road, Finglas, Dublin 11	293	Manufacturing
58	Cahill Printers Ltd.	East Wall Road, Dublin 3	298	Manufacturing
59	Diageo Ireland	St. James Gate, Dublin 8	301	Brewing
60	B.G. Flexible Packaging Ltd.	South Circular Road, Dolphins Barn, Dublin 8	305	Manufacturing
61	Forest Labs Ireland Ltd.	Clonshaugh Ind. Estate, Dublin 17	306	Manufacturing
62	Barclay Chemicals Ltd.	Lilmar Ind. Estate, Dublin 9	317	Manufacturing
63	Protim Abrasives Ltd.	Tolka Ind. Park, Glasnevin, Dublin 11	326	Manufacturing
64	T.J. O'Mahony & Sons Ltd.	Ballymount Cross, Tallaght, Dublin 24	336	Wood Treatment
65	Heiton Buckley Ltd.	Robinhood Road, off Longmile Road, Dublin 22	340	Wood Treatment
66	Brooks Thomas Ltd.	Upper Major Street, Dublin 1	345	Wood Treatment
67	CCM Ltd. T/A/ Kenn Truss	Greenhills Road, Walkinstown, Dublin 12	346	Wood Treatment
68	Cross Vetpharm Group Ltd.	Airton Close, Tallaght, Dublin 24	357	Manufacturing
69	Lithographic Web Press Ltd.	57 Botanic Road, Glasnevin, Dublin 9	381	Manufacturing
70	Jamestown Metal Resources Ltd.	Jamestown Road, Inchicore, Dublin 8	392	Manufacturing
71	Metal Processors Ltd.	Station Road, Clondalkin, Dublin 22	401	Manufacturing
72	Hitech Plating Ltd.	Ballycoolin Business Park, Blanchardstown	434	Electroplating
73	Everlac Paints Ltd.	Hanover Quay, Dublin 2	468	Manufacturing
74	Patrick Kelly Timber Ltd.	Kilshane Cross, North Road, Finglas, Dublin 11	474	Wood Treatment
75	FLS Aerospace (Irl) Ltd.	Dublin Airport, County Dublin	480	Manufacturing
76	Huntstown Power Co. Ltd.	Huntstown Quarry, Finglas, Dublin 11	483	Energy Plant
77	James McMahon	North West Business Park, Ratoath Road	484	Wood Treatment
78	APW Enclosures Ltd.	Airton Road, Tallaght, Dublin 24	485	Electroplating
79	Synergen	Ringsend Generating Station, Dublin 4	486	Energy Plant
80	Swords Laboratories	Watery Lane, Swords, Co. Dublin	492	Manufacturing
81	Colorman (Ireland) Ltd.	Broombridge Ind. Estate, Broombridge Dublin 11	496	Manufacturing
82	Barclay Chemicals Ltd.	Damastown, Mulhuddart, Dublin 15	522	Manufacturing
83	Loctite (Ireland Ltd.	Whitestown, Tallaght, Dublin 24	523	Manufacturing
84	Circle Syntalux Ltd.	Park West, Gallanstown, Dublin 10 & 24	524	Manufacturing
85	Diamond Innovations Operations	Clonshaugh Ind. Estate, Coolock, Dublin 17	532	Manufacturing
86	Rentsch Dublin Ltd.	33 Botanic Road, Glasnevin, Dublin 9	537	Manufacturing
87	Yamanouchi Ireland Co. Ltd.	Damastown, Mulhuddart, Dublin 15	549	Manufacturing
88	Swords Laboratories	Cruiserath Road, Mulhuddart, Dublin 15	552	Manufacturing
89	Nypro Ltd.	Corke Abbey, Bray, Co. Dublin	567	Manufacturing
90	Hitech Plating Ltd.	Ballycoolin Business Park, Blanchardstown	568	Electroplating
91	Ireland Power Energy Ltd.	Damastown Ind. Estate, Mulhuddart, Dublin 15	569	Energy Plant
92	Reheis Ireland	Kilbarrack Road, Dublin 5	574	Manufacturing
93	Burgess Galvin & Co. Ltd.	Jamestown Road, Finglas, Dublin 11	575	Manufacturing
94	Electricity Supply Board	Poolbeg Generating Station, Dublin 4	577	Energy Plant
95	Electricity Supply Board	North Wall Generating Station, Dublin 1	579	Energy Plant
96	Mallinckrodt Medical Imaging	Damastown, Mulhuddart, Dublin 15	601	Manufacturing
97	Galco Steel Ltd.	Ballymount Road, Walkinstown, Dublin 12	632	Manufacturing
98	Becton Dickinson Ltd.	Pottery Road, Dun Laoghaire, Co. Dublin	648	Manufacturing
99	Irish Asphalt Ltd.	Rosemount Business Park, Blanchardstown	653	Manufacturing
100	Microprint	Airton Ind. Estate, Tallaght, Dublin 24	659	Manufacturing
101	Flight Group Ltd.	Sandyford Ind. Estate, Dublin 18	674	Manufacturing
102	Takeda Pharma Ireland Ltd	Grange Castle Busines Park, Dublin 22	693	Manufacturing
103	Electricity Supply Board	North Wall Generating Station, Dublin 1	714	Energy Plant
104	Nypro Ltd.	Corke Abbey, Bray, Co. Dublin	667	Manufacturing

In Dublin City and Dun Laoghaire/Rathdown there is a particular trend towards the redevelopment of brownfield sites with a consequent increase in the plot ratio of development. An example of this is the evolution of Sandyford industrial estate. Within the Dublin Region there are significant areas of land that are zoned for industry but as yet undeveloped.

Day to day commerce (shops, restaurants, services) is still strong in the city centre. There is an even distribution of shopping and town-centres located in suburban districts and towns outside the city area. A number of shopping-mall type facilities situated near the peripheral M-50 road have been established, such as the Blanchardstown and Tallaght shopping centres and more recently Liffey Valley and Dundrum.

The banking and financial aspect of commercial activity is a major employer in the area. The flagship for such institutions is the International Financial Services Centre, in the city centre area. Headquarter buildings for several major banks, insurance and legal firms are located in the city area. However, these are distributed more evenly over the study area. A recent trend has been the establishment of *"Business Parks"* by the IDA, often closely located with light industrial businesses in suburban areas of the city.

Educational facilities are again centred on the City area, with several third-level colleges in the core of the city centre, and further on the northern and southern periphery of the city. These swell the day-time users of a given area and influence other businesses such as shops, restaurants etc. Second-level and primary level schools are relatively evenly distributed according to population.

The major healthcare facilities are becoming less centralised, for example the city centre hospitals of Meath, Adelaide and Harcourt Street hospitals have relocated to a new Tallaght Hospital in June 1998. Apart from two principal hospitals (St. James's and Mater) the acute and casualty hospitals are located towards the edge of the city area. The Eastern Regional Health Authority-(formerly Eastern Health Board) is responsible for a number of smaller hospitals and clinics distributed over the study area. Altogether there are between 30 and 40 hospitals in the study area.

2.1.6 Integrated Pollution Prevention Control Sector Companies

A system of Integrated Pollution Prevention Control (IPPC) Licensing applies to certain industrial sectors in Ireland, covering large employers and activities with a potential to create pollution. The licensing procedure is administered by the Environmental Protection Agency, and progressively various industrial production scenarios are being included in this system. The licence will only be issued on the basis that environmental impact including waste is minimised, and typically the applicant will be required to undertake regular environmental audits or implement a complete environmental management system. The IPPC Sector companies in Dublin are shown on **Map 4.**

2.1.7 Transport

The Dublin Transport Office (DTO) has undertaken a number of Integrated Framework Plans for Land Use and Transport, in association with the Local Authorities. These allow for higher density development at local level, improved walking and cycling environments, and local bus services. The Integrated Framework Plans for Urban Transport are expected to inform the review of the City/ County Development Plans in the Region, and have been a successful joint initiative. The following key transport infrastructure is shown on **Map 5.**

Project	*Dublin Waste Plan*	Figure	Map 5
Title	**Dublin Region - Transport Network**		

WASTE MANAGEMENT PLAN
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

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Road

Progress has been made on transport priorities with the completion of the Southern Cross section of the M50, the M1 upgrading between the M50 and Dundalk, the Celbridge Interchange on the N4 and the second West Link toll bridge. Significant improvements and upgrades of the non-national road network within the M50 have also occurred.

By the end of the current NDP (2006) the M50 and the Dublin Port Tunnel are likely to have been completed and further improvements to the major inter-urban routes into the capital will have taken place (incl. the Kildare Bypass on the N7, and the Kilcock-Kinnegad motorway on the N4). Outstanding priorities at that stage are likely to include the widening of the M50 and upgrading of its interchanges, and the proposed Eastern bypass.

Public Transport

Public transport improvements have included the introduction of LUAS, new and additional DART capacity and improvements to the DART network, substantial increases to the Dublin Bus fleet, improvements to various parts of the suburban rail network and capacity, and notable achievements in traffic management areas including Quality Bus Corridors, cycle routes and park and ride facilities.

The outstanding public transport priorities seem likely to include the METRO project (including a heavy rail link to the airport), extensions to the LUAS system, a possible heavy rail link to Navan, other improvements to the suburban rail system including the possible electrification of western lines, and ongoing increases in the suburban bus capacity.

LUAS

Luas, a light rail system, is in cost terms the largest public transport infrastructure project ever undertaken in Dublin.

Line B – Heuston St to Sandyford is operational
Line C – Tallaght to Connolly is operational and will be extended to the Docklands.
Line C1 - Public consultation phase is underway on - Connolly – Docklands.
Line B1- Sandyford to Cherrywood - Detailed design work has been undertaken and consultation is underway

Rail

A national strategic rail review was published in February 2003. This is the largest review of the network in the last two decades. A major programme of investment is recommended up to 2022.

Suburban Railway

The suburban railway is capable of delivering peak hour passenger line flows of in excess of 12,000 along each of the routes subject to the necessary development works being undertaken. These need to be addressed as a priority. Iarnród Éireann is currently preparing a priority investment programme for the period 2003 – 2008. There have been significant improvements in DART in recent years. Phase 1 of a capacity upgrade is underway, and will see capacity for DART and commuter services increase from 11,800 to 16,000 passengers per hour per direction. The Kildare route Project is currently underway – this involves increasing the capacity of the network between Kildare and Heuston Stations, including the laying of new tracks and physical improvements to platforms and

stations on the line. Rail freight continues to play a role in logistics in the Dublin Region, the main hubs are at Dublin port and Heuston Station.

Bus

Quality Bus Corridors were first introduced in 1997. There are now 9 Quality Bus Corridors in full operation. There are a significant number of additional bus priority measures in the process of implementation by the recently formed Quality Bus Network Project Office. Numbers using Dublin Bus in the morning peak hour have increased by over 46% since 1997. Results in 2002 show for the first time that the bus mode is increasing its market share. Almost 85,000 of the 464,000 morning hour peak commuters now use the bus to travel to work.

Cycling and Pedestrian

There are 170 kilometers of two-way cycle route existing in the Greater Dublin Area. A total of €19.6 million was spent on the provision of cycling facilities since 1994. Cycle facilities are also an integrated part of the design of Quality Bus Corridors in which €72 million has been invested. The objective is to achieve a target of 10% of all trips of less than 6 km being made by bicycle by 2006. Almost 20,000 of peak hour commuters now cycle to work.

2.1.8 Tourism

In 2003 over 4.5 million people visited the Dublin Region, according to figures compiled by Bord Fáilte. Of these, 24% were Irish visitors, with the overseas visitors comprising British, Europeans and North Americans in that order. This tourism brought approximately €1.2 billion into the economy. Of these tourists 44% came to the Region on holiday, 27% for business or conferences, and 22% to visit family relatives. The most popular season to visit Dublin is Autumn through to Spring. Tourism activity is mainly focussed on the city centre where the bulk of accommodation and commercial facilities are also located, although there are a number of high-profile visitor attractions throughout the Region, including sport and recreation, heritage and the arts, and natural amenities.

Viking Splash Tours in the Grand Canal Basin

2.1.9 Topography

The relief in the Dublin Region is varied. To the south, the Dublin Mountains form the natural physical boundary with much of Co. Wicklow. The high ground extends westward forming the border between South Dublin and Kildare. The western and northern boundaries of the study area merge evenly with the agricultural plains of Kildare and Meath. The River Liffey valley runs west-east through the centre of the Region and is subject of a Special Amenity Area Order.

The Dun Laoghaire-Rathdown boundaries take in the variable coastline to the elevated areas in the Dublin mountains. There are some rural communities in the south of the county along the boundary with Co. Wicklow. The elevated ground of South Dublin falls gradually towards the city centre. The terrain of Fingal is characterised by level fertile agricultural land stretching towards Co. Meath. There are a number of hills of less than 200m elevation in north Fingal, towards Garristown and Naul. There are a number of rivers in the north of the county, which drain independently eastwards towards the sea.

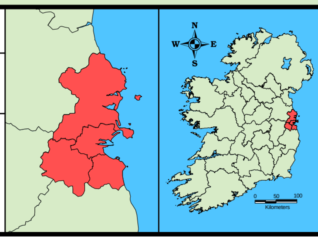
Project: **Dublin Waste Plan**

Figure: **Map 6**

Title: **Dublin Region - Environmental Map**

Waste Management Plan — Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie



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2.1.10 Coastline

Much of the coastline of the study area is classified as a Natural Heritage Area as shown in **Map 6**. Fingal's coastline comprises mud, sand and shingle banks, with a small number of beaches and three seaside towns. Two separate estuaries -Malahide and Rogerstown- along with North Dublin Bay are proposed candidate Special Areas of Conservation.

Dublin Bay arcs from Howth Head in the north to Killiney Head in the south. The Port area which extends into the Bay is largely reclaimed land. The southern shore of the Bay is predominantly sandy. Further south, the coast between Killiney and Bray has sandy and rocky stretches.

Bull Island lies in north Dublin Bay. Accessible by bridge it is the subject of a Special Amenity Area Order (1994), as Is Howth Head. There are a number of small uninhabited islands close to the coast of the study area, including the Skerries Islands, Lambay, Irelands Eye, and Dalkey Island, all of which are classified as National Heritage Areas.

2.1.11 Land Use

It is the policy of each of the Local Authorities that environmentally sensitive and high amenity areas be protected and this aim is highlighted in each of their respective County Development Plans. This is usually done by imposing planning restrictions to these areas. The Department of Environment Heritage and Local Government (Formerly Dúchas Heritage Service) has also designated some environmentally sensitive areas as proposed National Heritage Areas. **Map 6** and Table 2.5 show the location of environmentally sensitive and protected areas in the Region.

Table 2.5 National Heritage Areas, Special Areas of Conservation and Special Protection Areas

Rockabill Island	Feltrem Hill	South Dublin Bay
Skerries Islands	Sluice River Marsh	Booterstown Marsh
Knock Lane	Ireland's Eye Spa	Dalkey Coastal Zone and Killiney Hill
Bog of the Ring	Santry Demesne	Dodder Valley
Loughshinny Coast	Howth Head	Fitzsimon's Wood
Rogerstown Estuary	North Dublin Bay	Lugmore Glen
Lambay Island	Royal Canal	Slade of Saggart and Crooksling Glen
Portrane Shore	Liffey Valley	Glenasmole Valley
Malahide Estuary	Grand Canal	Loughlinstown Woods
Ballyman Glen	Dolphins, Dublin Docks	Dingle Glen
Wicklow Mountains	Knocksink Wood	Ballybetagh Bog

Special Amenity Area Orders:
Liffey Valley - Lucan Bridge to Palmerston (Confirmation Order) S.I. No. 59 of 1990
North Bull Island (Confirmation Order) S.I. No. 70 of 19951994
Howth Head 1999

2.1.12 Geology

The bedrock geology of County Dublin can be summarised into five basic groups:

Upper Paleozoic Rocks.
Kilcullen Group.
Ribband Group.
Bray Group.
Granite.

The Bray Group is the oldest sequence of rocks in the Region and occurs on Howth and in the south eastern part of the Region. It consists of greywackes and quartzites, and is Cambrian in age. This is overlaid by the Ribband Group which comprises mudstones, siltstones and associated quartzites, and volcanics. This is upper Cambrian to lower Ordovician in age. The Kilcullen Group is Silurian in age and consists of greywackes and shales, primarily deposited as turbidities.

The dominant rock group is the upper Paleozoics which occur throughout Fingal County, Dublin City and much of South Dublin. This group is entirely composed of calcareous shales and limestones. They range however from basinal facies through ramp facies and into shallow water limestones.

2.1.13 Hydrology

The River Liffey catchment covers a large part of the Dublin Region; the river rises in the Dublin Mountains near Brittas and loops around through Counties Wicklow, Kildare and Meath over 129 Km before entering Dublin Bay. The principal tributaries near Dublin are the Camac to the south and the Rye-Water to the West. There are two hydroelectric generating plants on the Liffey, at Golden Falls and Leixlip.

The other main rivers to discharge to Dublin Bay are the Dodder and the Tolka. The former drains part of the southern city suburbs and enters the Liffey estuary at Ringsend. The Tolka flows from Meath through the north of Dublin City and into Dublin Bay at Fairview. The Santry River is a short river flowing from the northern city suburbs into the Bay near Bull Island.

Fingal has a number of smaller rivers, typically draining directly west to the Irish Sea from a distance of no more than 30 Km inland. The River Mayne flows into Portmarnock estuary and the Broadmeadow River and the Ward River enter the Malahide estuary near the town of Swords.

In the southern part of the Region, the Kill of the Grange Stream and the Shanganagh River are the more important flows which drain Dun-Laoghaire Rathdown. The catchment of the River Dargle covers the southern edge of the Dublin Region.

Regard has also been had to the following documents:

- Draft River Liffey Water Quality Management Plan 1993
- Three Rivers Final Report 2002
- Eastern River Basin District Draft Initial Characterisation Report 2005

2.1.14 Hydrogeology

Aquifer

In general the aquifer potential of the Dublin Region is poor. To date, the Geological Survey of Ireland (GSI) have not drawn up an aquifer protection plan for the Region, and there is no published Regional aquifer protection map. However, a National Draft Bedrock Aquifer Map and a National Draft Gravel Aquifer Map are available for viewing on line at www.gsi.ie and give an indication of aquifer potential for the Region.

Permeable strata exist within the limestone bedrock which are responsible for higher than expected yields, for example, within the Clondalkin Formation. The North Dublin Fault zone has an associated aquifer within which a water supply has been developed at Bog of the Ring in Fingal County. The granite and metamorphic sediments are classified as poor aquifers with groundwater flow confined to localised discontinuous systems, most of which occurs in the upper weathered zone.

Where significant sands and gravels occur they provide good water yields for example in Dublin City (10-20m), in Tallaght (35-42m) and the Glencullen and Dargle Valleys (up to 45m).

The Eastern River Basin District Study, currently underway, is in the process of delineating groundwater bodies in the Dublin Region. This forms part of the work being undertaken to meet the objectives of the EU Water Framework Directive.

Groundwater Supplies

In the absence of a national system of registration or licensing of groundwater abstraction, a detailed description of groundwater users in the county is not possible. Geological Survey and data held within the four Local Authorities indicates that a public water supply scheme is abstracting from the groundwater at Bog of the Ring in Fingal County Council. In addition there is a public water supply at Glencullen in Dun Laoghaire-Rathdown. The Clondalkin aquifer has records of industrial abstraction and the Tallaght aquifer also has potential for groundwater supply.

Groundwater Protection

The GSI in conjunction with Fingal County Council have delineated source protection zones for the Bog of the Ring public water supply, which is abstracted from a limestone aquifer. Fingal County Council is developing a protection plan for this source. In the meantime, in the absence of defined aquifer protection schemes, aquifer vulnerability must be inferred from the overburden (Quaternary Geology) map, which details soil type and depth of cover of bedrock and appropriate protection strategies applied.

3 CONSULTATION

3.1 PRE DRAFT CONSULTATION

Public consultation forms a fundamental part of the waste planning process. In order to fulfil the statutory requirements for consultation for the review of the Waste Management Plan the Local Authorities must comply with Section 23 of the Waste Management Act. This provides an opportunity for all stakeholders in the Region to raise issues, however in reality the statutory periods often result in a limited number of submissions. To ensure that feedback is more reflective of all sectors within the Dublin Region, consultation was proactively sought from all audiences, using a number of methods.

3.2 CONSULTATION PROCESS

People in the Dublin Region have been targeted to get their views on how waste management should be planned and implemented in the Region. This was done in a three-phase approach:

- Newspaper advertisement calling for written public submissions
- Consultation days for the waste industry
- Regional Stakeholder Meeting

In addition consultation with Elected Members of the Region took place by means of a meeting in November 2004 where all four Councils were invited to a presentation on the Review process with a subsequent discussion.

3.2.1 Public Submissions

A newspaper advertisement was placed in the Irish Independent with a deadline of August 31, 2004.

The Local Authorities also advertised the call for submissions through their local community groups/newsletter, local newspapers, and on their websites. The deadline was then extended to October 15 and re-advertised in the same media. In total 27 submissions were received from 12 individuals, 12 organisations (political, community, NGO) and from 3 waste collectors or waste treatment operators.

3.2.2 Consultation with Waste Industry

Whilst many of the waste contractors operate on a national basis, the opportunities, barriers and situations vary from Region to Region. Therefore to get a clear picture of the present and future role all waste collection permit holders were invited to discuss what questions, issues and concerns they have regarding the plan. 14 service providers attended, representing waste collectors/disposal companies, recycling operators, End of Life Vehicles companies and transfer station operators.

Separate meetings were held with the Irish Waste Management Association (which represents a number of larger waste management companies) and REPAK (packaging Industry umbrella group).

3.2.3 Regional Stakeholder Meeting

Potential participants for the Regional Stakeholder Group were identified through the Regional Steering Group and Local Authority Environmental Awareness Officers. The group was be made up of a variety of organisations, to represent the interests of specific sectors within the Region. The following organisations were represented:

Irish Waste Management Association Construction Industry Federation
REPAK - Packaging Industry Umbrella Group
ACRA – Residents Representative Group
University College Dublin
FAS – Govt. Training & Employment Body
Dublin Airport Authority
Eastern Health Board
VOICE – Environmental NGO
Dublin Chamber of Commerce

The meeting was chaired by an independent facilitator and the purpose of the meeting was not to build consensus but rather to proactively engage with as many sectors as possible so a wide variety of views could be considered.

3.3 KEY ISSUES RAISED

The variety of consultation methods used in the review process allowed individuals, business, community and industry an opportunity to comment on the previous Plan and play a role in how the revised Plan will be shaped and implemented. The submissions and meetings provided constructive criticism and numerous ideas and initiatives worthy of inclusion in the revised Regional Waste Management Plan. The issues that were common to all audiences were:

- Planning/Permit Process
- Prevention/Awareness
- Regulation and Enforcement / Charging Systems
- InterRegional Movement of waste
- Infrastructure/Facilities

The following summarises the general comments and views expressed.

3.3.1 Permitting System

- Lack of consistency in issuing waste permits across the Region.
- Discrepancies are apparent from Local Authorities within the same Region and the information provided on permitting/ regulation varies from each Local Authority.
- The waste permits need to be streamlined, they are generally too complicated and there are too many conditions relative to the scale of the facility.

- Several service providers are keen to provide infrastructure, but believe the authorisation process (Planning, & Permit or Licence) needs to be streamlined and provide for quicker turn-around times to not increase the cost of overall project.

- Need for a centralised waste collection permit system to be introduced to assist operators who are collecting waste across all Regions.

3.3.2 Regulation and Enforcement/ Charging Systems

This topic was often split into enforcement for the private sector i.e. commercial/industrial and the public sector namely householders. The submissions strongly believe that the often publicised illegal dumping of construction and demolition wastes must be eliminated and those responsible must absorb the full environmental cost of the clean up of the site(s). The submissions believe that effective enforcement to reduce the number of illegal dumpings of household wastes must be a combination of fines, warnings and incentives. The waste industry still feels far more needs to be done to ensure there is a level playing field and that regulations are properly implemented to ensure consistency across the Region in all areas. Suggestions include:

- Enforcement at permitted facilities is required to ensure only the permitted materials are accepted.

- Enforcement of the collection permits is required to ensure that only permitted collectors are collecting waste. Otherwise 'cowboy' operators will undermine the bona-fide operators.

- Enforcement of illegal dumping in particular around bring banks needs to be increased. The situation has gotten worse since pay-by-use was introduced.

- Enforcement of the Landfill Directive and in general the policies set out in the 1998 Plan need to be enforced e.g. Extended Producer Responsibility for newspaper industry, Packaging Regulations, IPC licensing etc

- For EOLV facilities, the standards are not always upheld and more enforcement needed

- More consistency is desirable in the Local Authorities across the region in terms of charging mechanisms for waste services

3.3.3 Prevention/Awareness

Engagement with the business, community, commercial and industrial sectors is seen as crucial to developing greater rates of waste prevention and minimisation. Several submissions note that the Local Authority Environmental Awareness Officers are a valuable resource and their role should be expanded to assist the enterprise sector particularly the SME's. The main suggestions for the way forward in prevention and public awareness of the waste issues were:

- Promotion of successful projects and systems that have been implemented throughout the Region and Nationally.

- The education focus must change from *awareness raising* to the practicalities of implementing the waste management strategies laid out in the plan.

- The public need to be better informed on how they can be involved in the waste management plan review process, so that they may become stakeholders in the decision making process.

- Targeted community education has been proven to work best if delivered by members of the community.

3.3.4 Infrastructure/Facilities

Concern was expressed with the lack of infrastructure in the Region, in particular; bottle banks, civic amenity sites, WEEE facilities, composting centres and/or systems and bulky waste collections. They felt that the number of these facilities/systems needs to be addressed in the Plan. It was also stated that the range of materials accepted at each site needs to be increased and promoted. Other issues raised were:

Biological Treatment Capacity

Some concerns expressed about household 3-bin system, collection and facilities have some problems in other countries. Mixed collection possible with use of 'product' as landfill cover. A wet bin/ dry bin system could work successfully.

Waste To Energy (WTE)

Criticism of WTE proposals, suggesting that alternatives should be provided.

- Potential obstacles/barriers to WTE need to be addressed. There should be no landfill tax on landfilling of bottom ash
- Green Subsidies need to be confirmed/ guaranteed for electricity produced by WTE, since it is preferable to fossil fuels – more certainty needed.
- The long life of the contract for waste to be delivered to the site. The submissions believe that this will reduce the incentive to reduce and recycle and potentially Local Authorities will be forced to pay if recycling rates are high and can therefore not deliver the agreed waste tonnages.
- Dioxins – the submissions express concern over the robustness of the EIA carried out and do not have faith that the promised low level of dioxin emissions will be monitored accurately and regularly or will even be achievable based on overseas experiences and reports.

C&D Waste

- The provision of skips on C&D sites for source separation will not happen until there is an economic advantage in doing so.
- Option to use quarries/ former quarries as C&D recycling locations should be explored.

Recycling

- Planning for siting of bring banks is too restrictive (i.e. max of 5) and is hampering recycling opportunities, for the public.
- There needs to be a consistency in the appearance of bring banks to increase awareness.
- Green bin service needs to be improved i.e. frequency, information, number of materials accepted.

- Concern has been expressed about the fate of recyclables sent abroad for recycling, and there is general support for reprocessing more of our waste in Ireland.

3.3.5 Commercial/Industrial Waste

- Recognise commercial and industrial waste infrastructural needs
- Recognise changes in waste arisings and update the approach to waste management accordingly

3.3.6 Inter-Regional Movement of Waste

- We need a Regional framework and the waste plans will provide opportunity to lay some guidance.
- The interregional issue is being used as a tool to obstruct planning permission for new facilities
- The new Strategic Planning Guidelines for the Greater Dublin Area must be taken into account – these enable use of GDA facilities for Dublin waste
- No problem with a facility serving a Region but should not be used to preclude other Regions
- Careful not to preclude private sector investment - the NDP relies on private investment to deliver waste facilities.
- Scale of new centralised facilities should reflect the capacity needs of the Region.
- The Waste Plan should clearly outline the respective roles of public and private sector and no ambiguity or conflicting objectives should exist.

The consultation process prior to writing the Plan was comprehensive and effective in ensuring feedback was received from all sectors with the Dublin Region.

3.4 DRAFT PLAN CONSULTATION

In accordance with statutory requirements the Proposed Replacement Waste Management Plan was available to the public for comment from April 25th to June 30 2005.

The Plan was available on the Regional Waste Management Site www.DublinWaste.ie and copies were on display and available for purchase from each of the Local Authority offices. A Summary Guide was also produced that outlined the achievements made since the last plan and the proposals for the next five years. The public could either send in written submissions or fill in the feedback form that was attached to the Summary Guide.

A total of 45 Written submissions and 90 feedback forms were received.

Whilst many of the issues raised in the pre draft consultation were raised again in these submissions the focus has moved significantly

such that the majority of submissions requested that the Plan address the following issues in more detail:

- Packaging
- Green waste
- The Brown Bin
- Construction and Demolition Waste
- Polluter Pays Principle
- Role of the Local Authorities
- Role of the private sector
- Contingency for disposal
- Waste to Energy

A comprehensive Draft Plan Consultation Report has been produced which acknowledges the issues raised in the submissions and feedback forms, responds to them and where appropriate makes recommendations for changes to the Plan.

The following provides an overview of the general comments and views expressed:

3.4.1 Packaging

The main issues raised in the submissions with respect to packaging were two-fold, the public are becoming frustrated with the volume of packaging they must dispose of due to excessive or unnecessary packing of products and the submissions request that the Local Authorities exert pressure on Repak, the packaging industry, manufacturers and retailers to take more responsibility for the packaging that is placed on the market, through take back schemes, packaging design reuse schemes and penalty and incentive schemes. The public are confused as to what plastics can and cannot be recycled and/or accepted at the recycling centres or bring banks, and would like to see a simpler method of identifying the plastics.

3.4.2 Green Waste

There were a number of submissions from the private sector gardening and landscaping organisations concerned about the imminent closure of Esker Lane and the lack of proposed facilities for drop –off of both household and commercial green waste within the Region.

3.4.3 Brown Bin

The submissions were generally in favour of the proposed Brown Bin for the collection of household kitchen and garden waste, however there were concerns over the frequency of collection, size of the bins and the cost of collection.

3.4.4 Construction and Demolition Waste

The submissions generally requested clarification on details relating to material flows, specific sites or facilities, definitions of recovery and recycling and the impact of several of the objectives. Concern was also raised regarding the use of permitted sites, which may work against the development of material recovery facilities for construction and demolition waste.

3.4.5 Polluter Pays Principle

The submissions questioned how the Polluter Pays Principle would be applied particularly with regards to the proposed brown bin and other proposed waste facilities e.g. Recycling Centres and Materials Recovery Facilities. The submissions were also concerned that there is a significant inequality where by the commercial/industrial sector is subsiding the cost of household waste services, therefore contradicting the Polluter Pays Principle.

3.4.6 Role of the Local Authorities

Several submissions raised the issue of the dual role of the Local Authority as both providers of waste services and enforcers of the regulations that govern these facilities and services and clarification of their role was requested.

3.4.7 Role of the Private Sector

The submissions felt that the private sector achievements over the past five years had not been fairly acknowledged, in particular their contribution to provision of waste facilities and services and the current recycling rate at both the household and commercial/industrial level.

3.4.8 Contingency for Disposal

Many submissions expressed concern over the lack of a contingency plan if the proposed facilities e.g. Waste to Energy Facility or the Fingal landfill are delayed and do not come on line within the suggested timeframe.

3.4.9 Waste to Energy

There was a significant shift in the views expressed in the Draft Plan submissions compared to the pre draft submissions. In some cases there is now an acknowledgment or acceptance that Waste to Energy has a role to play in the regions integrated approach to waste management and some submissions were supportive of Waste to Energy but concerned about delays. However others are still concerned with the proposed location and the risk associated with only one large incinerator to service the region (as opposed to two smaller facilities) and also the effects it will have on for example transport. The possibility of alternative treatment methods was also raised.

There were several other issues expressed in the submissions and feedback forms and the Dublin Regional Waste Steering Committee has considered all the issues raised in the submissions and feedback forms and amendments have been made to the Draft Replacement Waste Management Plan as a result of this feedback.

The four Local Authorities wish to express their appreciation to those who made submissions, viewed the displays and purchased or downloaded the Draft Replacement Waste Management Plan.

The Waste Management Plan for the Dublin Region 2005-2010 will be formally adopted by the City/ County Manager of each Local Authority.

PART 2

PRESENT POSITION

4 WASTE GENERATION

4.1 DUBLIN REGIONAL WASTE QUANTITIES

Since the adoption of the previous Waste Management Plan (1998) waste arisings have continued to grow in the Region reflecting the national trend. Since then the reporting and recording mechanisms for waste data have improved significantly for household, commercial and construction & demolition waste streams. Nevertheless there is significant room for improvement in waste reporting, particularly for the private waste management sector.

The waste quantities presented in this Plan are for the year 2003 and were obtained from numerous sources that are referenced throughout this document. The key sources include:

- Local Authority (EPA) National Waste Database Returns 2003;
- Waste Licensed Facilities – Annual Environmental Reports (AERs) 2003;
- Waste Collection Permits – AERs 2003;
- EPA National Hazardous Waste Management Plan 2001;

The format for the presentation of waste quantities is set out in the Waste Management (Planning) Regulations, 1997.

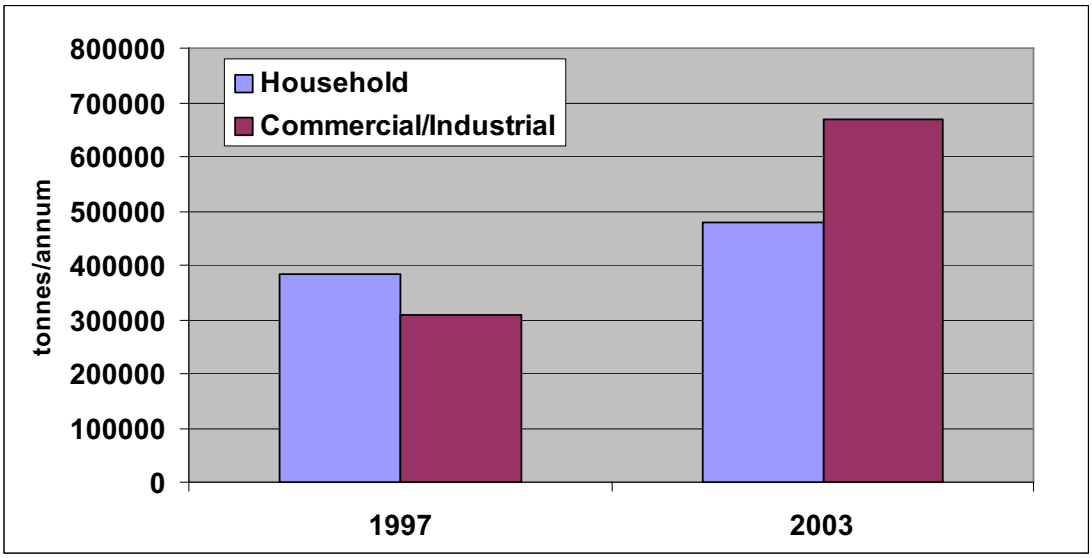
Table 4.1 outlines the key waste categories, and corresponding waste arisings reported to each Local Authority in Dublin Region for the year ended 2003.

Table 4.1 Waste Arisings in the Dublin Region, 2003

Waste Type	Total (Tonnes)	Source
Household Waste Arisings	459,579	*Local Authority data. See Table 4.3*
Litter and Street Sweepings	30,235	*Local Authority Questionnaires*
Commercial Waste	480,682	*Waste Collection Permits AER, Waste Permitted and EPA licensed sites AERs*
Industrial Waste not elsewhere specified	188,910	*Waste Collection Permits AER, Waste Permitted and EPA licensed sites AERs*
Construction and Demolition Waste	3,965,922	*Local Authority data including the GDA, plus private facility data/ contact*
Contaminated Soils	179,416	*Local Authority data – from waste TFS and C1 Forms*
Ash and Incinerator Residues	536	*ESB and waste collection company AERs*
Mining and Quarry Waste	5,468	*Estimated using employee numbers and EPA per capita factor*
Healthcare Waste	13,253	*Contact with health boards, private companies managing healthcare waste*
Sewage Sludges	23,228	*Local Authority data. Expressed as tonnes of dry solids*
Water Treatment Sludges	1,500	*SDCC Leixlip plant*
Industrial Sludges	1,485	*AERs from waste collection companies*
Agricultural Waste	22,676	*Agricultural census and waste generation factors. Expressed as tonnes of dry solids*

Note – sludge and agricultural waste is expressed as 'Tonnes Dry Solids' which is the dry weight equivalent of the material.

Figure 4.1 Summary of Municipal Waste Growth, 1997 – 2003*



**Note – reporting for commercial/ industrial waste has changed, which accounts for some of the steep increase in this sector.*

4.1.1 Household Waste

The quantity of household waste generated in the Region in 2003 is estimated at 459,579 tonnes. This is 20% higher than in 1997. The increase is due to the growth in the number of households, and a growth of 1.6% per annum in the amount of waste each household is generating. Table 4.2 details household waste growth since 1997, and Table 4.3 presents a breakdown of household waste by category. (A further breakdown of household waste generation is provided in Table 7.1).

Table 4.2 Growth in Household Waste Arisings* 1997 – 2003

Local Authority	Household Waste 1997 (Tonnes)	Household waste 2003 (Tonnes)*
DCC	173,333	201,133
DLRCC	69,292	81,587
FCC	61,601	78,181
SDCC	78,846	98,678
TOTAL	**383,072**	**459,579**
Waste per Household	***1.10***	***1.21***
HH Waste per Capita	***0.36***	***0.41***

*Refer to Table 7.1 for more detail on the breakdown of household waste.

Table 4.3 Breakdown of Household Waste by Category, 2003

Category	Tonnage
Household Waste Collected	369,786
Household Waste Delivered to Bring and Other Facilities	89,793
Other Household Waste	0

4.1.2 Commercial Waste

With the exception of some commercial waste collected by Dublin City Council, the majority of commercial waste is collected and handled by private waste companies. In 2003, 480,682 tonnes of commercial waste was generated in the Region, this is 56% (171,036 tonnes) more than what was quoted in the last Plan (1997 data). This figure needs to be viewed with caution however, as it is likely that a large volume of industrial waste is being reported as 'commercial'. In addition improved reporting by private waste collectors through the waste collection permitting system has lead to the marked increase in the quantity of commercial waste being reported. In Table 4.4 below we have included estimated data for the waste collected in both Commercial and Industrial sectors, although the split between C&I is estimated in some cases.

In general, there is a poor differentiation between waste defined as *Commercial* (generated by commercial enterprises such as shops, offices, administration etc.) and *Industrial* (generated by industry). Much of the non-process waste generated by industries is similar to that generated in commerce, and is collected by private or 'commercial' waste companies. Such waste includes packaging, office waste, canteen waste etc. and hence is dealt with at the same facilities as municipal waste.

Table 4.4 Commercial/Industrial Waste Arisings 2003 (Tonnes)

Source	Commercial Waste	Industrial Waste*	C&I Total
Private Collection	440,789	188,910	629,699
Local Authority Collection	39,893	0	39,893
Total	**480,682**	**188,910**	**669,592**

* The figure presented includes industrial waste collected by main waste contractors.

4.1.3 Industrial Waste

The industrial waste quantity of 188,910 tonnes presented in Table 4.4 represents the total amount of non-hazardous industrial waste reported by the Local Authorities for the Region in 2003. This figure is primarily the industrial waste that enters the 'municipal' waste collection system and which is reported through the collection permits and permitted facility Annual Environmental Reports (AERs).

In 1997, an estimated 408,156 tonnes of industrial waste was generated, this figure was estimated from employee numbers, so cannot be directly compared with the 2003 figure. In future it is recommended that the actual quantities of commercial/ industrial waste reported by waste management companies be used as the basis for waste planning, as reported in Table 4.4 above.

4.1.4 Construction and Demolition (C&D) Waste

The primary source of data regarding the generation of C&D waste is from the records of licensed facilities and permitted sites (incl. data from counties Kildare, Meath and Wicklow). The best estimate of C&D waste arisings for the Region in 2003 is 3.96 million tonnes. A major difference in the management of this waste stream is the treatment of C&D waste in landfills. In 1997 1,223,013 tonnes were disposed of in landfills, in 2003 715,000 tonnes was sent to landfill, however the vast majority of this material was reported as being used in landfill engineering or site restoration works. One other factor in the large increase in the estimate of C&D waste has been the volumes of material sent to sites under Waste Permit. Records indicate that large volumes of material are being deposited in Counties Kildare, Wicklow and Meath, as well as in Fingal and to a lesser extent in South Dublin and Dun Laoghaire-Rathdown. More details are provided in Section 10.

4.1.5 Agricultural Waste

The principal agricultural wastes in the Region are as follows:

- Agricultural Sludges (Animal slurries/manure)
- Spent Mushroom Compost
- Farm Plastics

Table 4.5 Agricultural Waste Quantities Generated in the Dublin Region, 2003

Waste Type	Tonnes Dry Solids per Annum
Agricultural Sludge	22,083*
Spent Mushroom Compost	593*
Regional Total	**22,676***

*Expressed as tonnes dry solids
Source: Sludge Management Plans for FCC and DLRCC and through personnel at DCC.

4.1.6 Mining and Quarrying

An estimated 5,468 tonnes of waste is generated in this sector. This is based on the employee numbers, using a per capita waste generation factor for the sector.

4.1.7 Sludges (Municipal/Industrial)

The Waste Management (Planning) Regulations, 1997 require that the Plan specify to the extent possible the quantities of waste arising within the relevant functional area, classified under categories in Table 4.6.) Operational Sludge Management Plans have been prepared for both DLRCC and FCC. SDCC has not prepared a plan as no waste water/water treatment sludge is generated within the county and the water treatment sludge from the Leixlip Plant is incorporated into the FCC Plan. Dublin City Council's sludge planning arrangements have been set out in the planning and environmental impact assessment of the Ringsend facility, which includes details on the policy for treatment and disposal of sludge. Approximately 17,954 tonnes (dry-solids) of non-hazardous sludge (municipal and industrial sludge) are generated within the Region per annum according to the aforementioned reports, details of which are outlined in Table 4.6.

Table 4.6 Sludge Quantities Generated (Tonnes, 2003)

Sludge Type	Regional Total
Municipal Wastewater Sludge*	18,144
Water Treatment Sludge	3,599
Industrial Sludge*	1,485
Total	23,228

*Expressed as tonnes dry solids
Source: Sludge Management Plans for FCC and DLRCC and through personnel at DCC

4.1.8 Packaging Waste

Dublin City Council Cardboard Recycling

Packaging waste arisings are calculated from the quantity of packaging waste landfilled plus the quantity of packaging waste recovered, both of which are derived from household and commercial/industrial (C&I) packaging waste quantities. Packaging waste arisings for the Dublin Region for 2003 are estimated at 483,896 as outlined in Table 4.7 below. More details are provided in Chapter 9.

Table 4.7 Estimated Packaging Waste Arisings Tonnes for the Region 2003 (Tonnes)

Waste Type	Landfilled (Tonnes)	Recovered	Arisings (Tonnes)	Recovery Rate %
Packaging Waste	321,190	190,548	511,738	37.24%

4.1.9 Ash Residue

In 1998 a total of 121 tonnes of ash/incinerator residue was reported in the Dublin Region. This figure was obtained from specific enquires related to the last plan. In 2003 this figure has risen to 536 tonnes of ash/incinerator residue. Table 4.8 shows the breakdown of ash/incinerator residue for the Region in 2003. Of the 536 tonnes of ash residue generated, 531.42 tonnes was exported for treatment to Great Britain, Belgium or Germany, while the remaining 4.7 tonnes was landfilled. The majority of the ash/incinerator residue (99.1%) is reported by two companies in the Dublin Region, MinChem in Dublin City Council's functional area and Metal Processes Ltd. in South Dublin County Council's functional area. The remaining ash is generated at ESB operated power stations in the Region.

Table 4.8 Ash/Incinerator Residues for the Dublin Region 2003

Type of Residue	Tonnes	Percentage
Lead Ash & Residues*	449.28	83.8%
Tin Ashes*	18.92	3.5%
Incinerator Lining*	63.22	11.8%
ESB Power Stations**	4.70	0.9%
Total	**536.12**	**100.0%**

*Source: Local Authority NWD Returns, 2003.**Source: ESB.

4.1.10 Contaminated Soil

In 1998 a total of 16,000 tonnes of contaminated soil was produced in the Dublin Region. In 2003 a total of 179,416 tonnes of contaminated soil was reported in the Dublin Region. The majority of this was produced in the Dublin City Council functional area and almost 70% of this was generated by brownfield regeneration projects. Table 4.9(a) shows the quantity of contaminated soil arisings sent for export (reported in TFS forms) and Table 4.9(b) shows contaminated soil reported in C1 Forms and treated in Ireland.

Table 4.9(a) Contaminated Soil Arisings in the Dublin Region 2003 – TFS Forms

Local Authority	Company	Tonnes	Percentage
DCC	Cara Environmental Technology Ltd.	30.00	0.02%
	SITA Environmental Ltd. (other)	40.00	0.02%
	MinChem Environmental Service Ltd.	82.50	0.05%
	Ashden Ltd.	1,593.78	0.93%
	Dee Environmental Services Ltd.	8,216.42	4.81%
	Haytonvale Developments	13,360.86	7.83%
	SITA Environmental Ltd. (docklands)	15,565.13	9.12%
	Fabrizia Developments Ltd.	28,866.21	16.91%
	Dublin Docklands Development Authority	102,962.64	60.31%
FCC		0.00	0.00%
DLRR		0.00	0.00%
SDCC	Irish Environmental Services	10.79	0.01%
Total		**170,728.33**	**100.00%**

Source: Local Authority National Waste Database Returns, 2003.

Of the contaminated soil generated in the Dublin Region in 2003 and sent for export, 90.73% went to Germany for treatment, 9.26% to Holland and 0.01% to Finland. Contaminated soil is not generated on a continual basis and tends to result from once off construction projects. For this reason it is impossible to predict the quantities that may be generated in the future. Due to the nature of the material and the cost of remediation it is difficult to manage within Ireland and specialised treatment is required abroad.

Table 4.9(b) Contaminated Soil Arisings in the Dublin Region 2003 – C1 Forms

Local Authority	Tonnes
DCC	6,682.59
FCC	1,798.23
DLRCC	206.85
SDCC	0
Total	8,687.67

Adding soil treated abroad and in Ireland, the total quantity reported for 2003 was 179,416.1 tonnes.

4.1.11 Healthcare Waste

Healthcare Waste comprises *non-risk waste* and *healthcare risk waste (HCRW)*. The former is similar to commercial waste, whilst risk waste which would include potentially hazardous material, is separated at source and subject to different management controls. HCRW from public hospitals is currently handled on an all-Ireland (32 counties) basis following the establishment of a Joint Waste Management Board that represents the Department of Health and Children, in the Republic of Ireland and the Department of Health and Social Services in Northern Ireland. The contract began in April 2000 and covers the collection, treatment and final disposal of HCRW to the highest environmental and health and safety standards. Sterile Technologies Ireland (STI) has secured the first contract for the management of HCRW from all of the state-funded hospitals and sources of HCRW and Clinical waste. Private hospitals employ specialised contractors to manage most waste. The non-risk

healthcare waste is collected from the relevant facilities by Local Authorities or private contractors. Table 4.10 shows the total Health Care Waste generated in the Dublin Region.

Table 4.10 Estimated Healthcare Waste Generated in the Dublin Region 2003 (Tonnes)

	Non-Risk waste	Risk Waste (HCRW)	Total
Tonnes arising in 2003	9,378	3,875	13,253

Source: HSE Waste Management Unit, Sterile Technologies Ireland Ltd (STI) and Ecosafe Systems.

4.1.12 Litter and Street Sweepings

The quantity of litter and street sweepings for the Region totalled 30,235 in 2003. This data comes from the Local Authority landfill records.

4.2 HAZARDOUS COMPONENT OF WASTE ARISINGS IN THE DUBLIN REGION

In accordance with the Waste Management (Planning) Regulations, 1997 it is required that the hazardous component, if any, of the wastes in Table 4.11 are identified.

Table 4.11 Hazardous Component of Wastes Arising in the Region (Tonnes 2003)

Waste Type	Total	Source of Estimate
Household Waste	5,049	Special municipal waste component of household waste collected in Dublin: Total 'black bin' waste collected multiplied by % 'special waste' identified in 2004 characterisation studies, carried out according to EPA Municipal Waste Characterisation Manual.
Litter and Street Sweepings	903	Estimated using Local Authority Questionnaires and Street Litter-Bin surveys
Commercial and Industrial Waste	27,678	Reported in C1forms to Local Authority
Construction and Demolition Waste	163	Local Authority Questionnaires
Contaminated Soils	179,416	Assumes all arisings to be hazardous
Ash and Incinerator Residues	512	Local Authority Ash/Incineration Residue data
Mining and Quarry Waste	1,836	Local Authority Questionnaires
Healthcare Waste	3,875	HEA Waste Management Unit –all risk waste assumed to be hazardous for simplicity
Sewage Sludges	0	Local Authority Questionnaires
Water Treatment Sludges	0	Local Authority Questionnaires
Industrial Sludges	9,212	Local Authority Questionnaires (bulk tonnes)
Agricultural Waste	N/A	No information available-

The following list outlines where Hazardous Wastes are referred to throughout the Plan:

- Table 4.12 (b): Movements of Hazardous Wastes
- Chapter 7: Section 7.6 Hazardous Waste Recovery and Recycling (for Households)
- Chapter 19: Policy on Hazardous Waste Collection, Disposal Requirements and Section 26 Registers
- Chapter 20 – Reference to National Hazardous Waste Management Plan

4.3 NON-HAZARDOUS WASTE MOVEMENTS TO & FROM DUBLIN REGION

Table 4.12 summarises the estimated movement of non-hazardous waste quantities into and out of the Region for household, commercial, industrial, and C&D waste as recorded by the Local Authorities in 2003. The quantities shown represent the majority of the waste movements into and out of the Region.

Table 4.12(a) Estimated Non-Hazardous Waste Movements to & from the Dublin Region (2003)

Waste Type	Quantity Imported into Region Tonnes	Quantity Exported from Region Tonnes
Household	50,000-100,000	200,000-250,000 (Arthurstown)
Commercial	75,000-125,000	300,000-350,000
C&D	50,000-100,000	2,600,000
Industrial	25,000-50,000	100,000-150,000

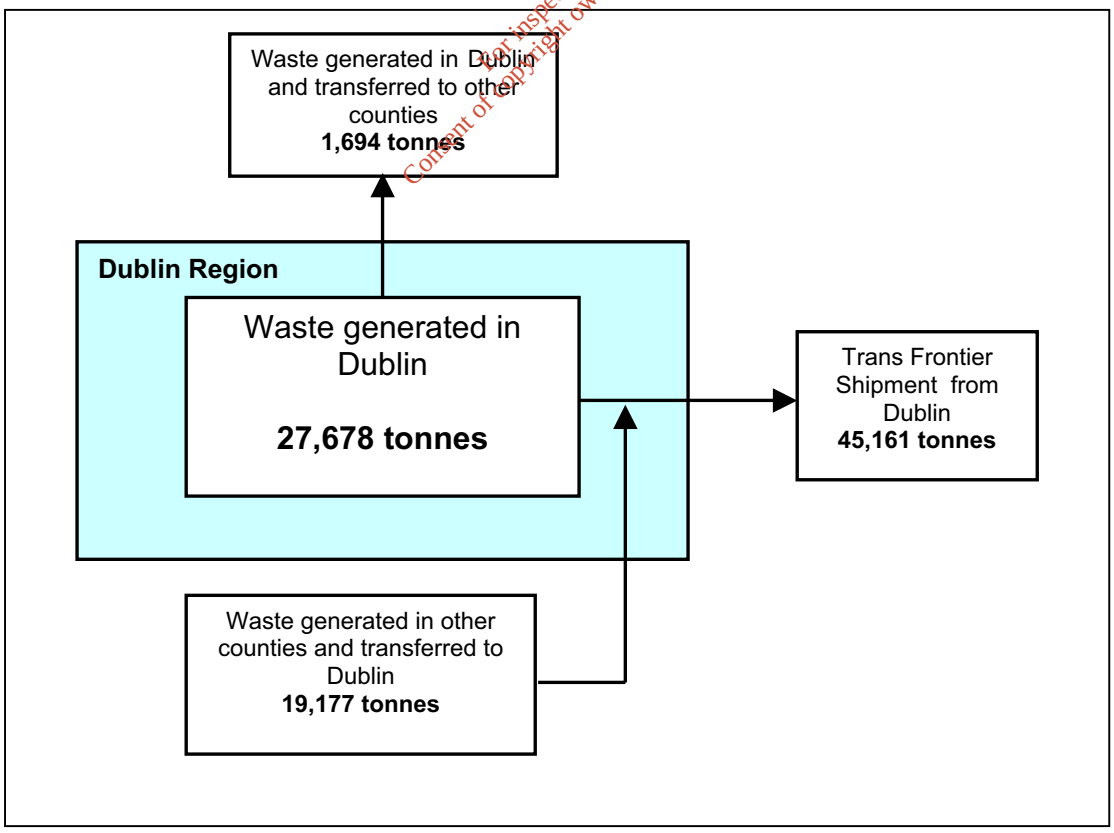
Source: Waste Collection permits, Waste Permits and EPA licences Annual Environmental Reports

Table 4.12(b) Hazardous Component of Waste Moving to and from the Dublin Region (2003)*

Description	Total (Tonnes)
Trans-Frontier Shipment of hazardous waste from Dublin (notified in TFS forms)	45,161
Hazardous waste generated in Dublin (notified in C1 forms)	27,678
Hazardous waste transferred to Dublin from other counties	19,177
Hazardous waste generated in Dublin transferred to other counties (notified in C1 forms)	1,694

*Excludes contaminated soil referred to in Table 4.9

Figure 4.2 Hazardous Waste Flow to and from the Dublin Region 2003



4.4 WASTE COMPOSITION IN DUBLIN REGION

Surveys have been carried out in the Dublin Region in 2004 on the composition of household waste in both the household grey/black bin and household green bin collection system. The results are summarised in Table 4.13 below. The last column presents the composition of commercial waste reported nationally by the EPA.

Table 4.13 Dublin Region Waste Composition (RPS-MCOS 2004)

Waste Categories	Household Grey/Black Bin (Residual Waste)	Household Green Bin (Dry Recyclables)	Commercial Waste (EPA data 2001)
Food& Garden Waste	34%	2%	21%
Papers & Cards	20%	88%	49%
Textiles	8%	1%	1%
Plastics	14%	2%	10%
Glass	6%	0%	7%
Metals	4%	3%	3%
Others	11%	4%	9%
TOTAL	100%	100%	100%

4.5 PRIORITY WASTE STREAMS

The EU Resolution of May 7th, 1990 on Waste Management Policy within the Community considered that it was desirable to establish programmes to deal with certain types of wastes. In 1991, the Commission initiated its programme on Priority Wastes Streams whereby project groups were established to determine solutions for a number of waste streams. Table 4.14 estimates the waste arisings for the wastes that have not already been referenced.

Table 4.14 Estimated Quantities of Priority Waste Arising in the Dublin Region, 2003

Waste Type	Total	Source
Waste Electrical and Electronic Equipment	11,822 – 29,374	"Waste from Electrical and Electronic Equipment: A Status Report" (EPA, 2001)
Batteries and Accumulators	4,887	EPA NWD 2001 using kg-per-capita to calculate figure
Oils	6,878	EPA NWD 2001 using kg-per-capita to calculate figure
PCBs	0.03	Local Authorities 2003 NWD returns \(C1 forms)
Tyres	8,554	Extrapolated from CSO import statistics and ELV calculation (as per EPA methodology)
End of Life Vehicles	56,493	Calculated as per Method 3 in "End of Life Vehicles in Ireland: A Sectoral Report" (EPA, 2002)

4.6 DEFICIENCIES IN WASTE STATISTICS

Since the adoption of the previous Dublin Waste Management Plan in 1998/ 2001, there has been a significant improvement in the reporting systems for waste arisings in the Region. The Waste Collection Permit and Waste Facility Permit mechanisms are in place to ensure that waste collectors report waste collected and treated on an annual basis. Figures for household wastes in particular have improved. However, there remains a lack of reliable data for key waste streams such as commercial and industrial; C&D; and priority waste such as WEEE, Batteries and accumulators, PCBs, Tyres, Sludges and Waste Oils.

Improvement in data reporting and analysis is required in the following areas:

- AERs from permitted waste collection companies
- AERs from permitted waste facilities
- Reporting of commercial and industrial waste separately
- Reporting of C&D waste: differentiate between soil/stones and other C&D waste, recording of the sector of origin
- Local Authorities – recording of various waste streams at Recycling Centres.

Currently Local Authorities submit annual reports detailing waste quantity arisings to the EPA that feed into the National Waste Database. These returns were used as the primary source of data for this Plan.

There is a lack of information on former waste management sites including former landfill and recovery facilities – this is due to the absence of comprehensive regulatory systems for waste management prior to 1996.

5 WASTE PREVENTION AND MINIMISATION

5.1 INTRODUCTION

Prevention has the highest priority in the EU Waste Management Hierarchy. Whilst progress in waste minimisation and prevention over the life of the current plan has been positive, waste prevention and minimisation will be a key target area for further improvement, particularly with the development of national programmes and initiatives whose underlying goal is to decouple waste generation from economic growth.

Some of the main barriers to waste prevention have been the low level of understanding of the concept and the lack of a standardised definition and method of measurement. A major aim of this Plan is to increase such an understanding and to promote and utilise a standard definition.

Currently, the National Waste Prevention Programme is developing a national definition for waste prevention. The definition recommended in the Clean Technology Centre Prevention Framework Document was:

Prevention: Elimination or reduction at source of material and energy consumption, waste arisings (solid, gaseous, heat and liquid), and harmful substances

It is clear from this definition that the primary emphasis should be on prevention, reduction at source, and re-use of products. Although considerable attention has been paid to recycling in Ireland in recent years, it can be seen that this is a lower priority. However, it is still defined as a form of waste minimisation and so should be promoted.

5.2 PROGRESS TO DATE AND INITIATIVES

Waste Prevention was in its infancy as a waste management option both regionally and nationally, during the period 1997/1998 when the individual waste strategies were being developed. Most Local Authorities at the time had very little experience of prevention. Similarly there were neither clear national definitions of prevention, nor any coherent guidelines for Local Authorities. The plan outlined a number of potentially effective measures for prevention/minimisation for the Dublin Region over the plan period. There has been positive progress made in this area over the course of the plan since its adoption.

5.2.1 Household/Community Level

The achievements in waste prevention and minimisation have improved greatly since the appointment of the Environmental Awareness Officer (EAO) in each Local Authority. The EAOs have had a positive impact on waste minimisation and prevention on their primary focus group – the public. The EAOs are responsible for raising awareness among the public on best practice in waste management, consequently awareness and education programmes have been developed and are being implemented in each Local Authority.

Home composting workshop organised by DLRCC

School Green Bin Launch

To date, waste minimisation initiatives in Dublin Region have primarily been aimed at diverting waste from disposal by encouraging the use of kerbside recycling, bring banks, recycling centres and home compost bins which are provided at a reduced price to encourage diversion of organic waste. The EAOs have played an important role in the progress achieved to date. Tables 5.1-5.3 outline the achievements of each Local Authority with respect to Green Schools, home compost bins and Local Agenda 21 Funded projects.

Dublin City Council also has an Environmental Liaison Officer located in each of the five electoral areas of the City Council. These Officers assist in the co-ordination of waste management matters at a community level, particularly matters relating to the recycling of household waste. These positions have the potential to become more involved with prevention projects at the community level.

Table 5.1 Green School Registrations and Green Flags Awarded (2004)

Local Authority	Total Number of Schools in each Local Authority			Number of Schools Registered (Sept 2004)			Green Flags Awarded (Sept2004)
	Primary	Secondary	Total	Primary	Secondary	Total	
DCC	220	105	325	83	21	104	19
SDCC	92	39	131	60	20	80	10
DLRCC	61	36	97	48	22	70	16
FCC	84	28	112	44	15	59	9
TOTAL	**457**	**208**	**665**	**235**	**78**	**313**	**54**

A new generation of children is emerging for whom waste prevention, minimisation and recycling behaviour is becoming second nature. The An Taisce Green Schools Programme has played a major role in changing children's attitude towards waste and environmental issues. Due to the efforts of the pupils and teachers, assisted by the EAOs, a total of 313 schools in the Region are now engaged in the programme, and 54 'green flags' have been awarded.

Table 5.2 Number of Compost Bins Sold through each Local Authority (2001-2004)*

Year/Council	2001	2002	2003	2004	Total bins sold (2004)
DCC	1,320	1,803	5,279	8,324	16,726
SDCC	200	200	300	2,466	3,166
DLRCC	NA	500	650	1,305	2,455
FCC	1,200	1,179	527	654	3,560
TOTAL	**2,720**	**3,682**	**6,756**	**12,749**	**25,907**

* An additional 10,614 bins have been sold in the region as of September 2005.

The number of bins sold at a subsidised rate or given away each year continues to increase and is well supported by home composting courses and workshops throughout the Region. In 2004 the 12,749 bins supplied above will have led to an estimated 2,550 tonnes** of organic waste being diverted from landfill each year.

**based on estimate in the Draft National Biodegradable Waste Strategy that one home compost bin diverts 0.2tonnes of organic waste each year from landfill

Table 5.3 Local Agenda 21 Environment Fund 2004 Projects and Funding

Local Authority	Total number of projects (Sept 04)	Total spend on funding (Sept 04)	Waste related projects
DCC	13	€21,320.00	10
SDCC	9	€9,304.60	6
DLRCC	9	€15,069.80	7
FCC	12	€11,932.00	9
TOTAL	**43**	**€57,626.40**	**32**

The Local Agenda 21 Environment Fund promotes sustainable development by assisting small-scale environmental projects at the local level which involve partnerships between Local Authorities and local community groups, schools and environmental NGO's. Almost 75% of the projects have been waste related.

5.2.2 Waste Charges

The previous Waste Management Plan in accordance with the Polluter Pays Principle, supported the introduction of use related charges in order to encourage waste reduction and recycling. Since 1st January 2005 use-related charges have been introduced to householders across the country either through a weight or volume based system and to date has been effective in reducing the quantity of waste disposed of in the grey/black bin. The Local Authorities are operating a variety of systems in accordance with the Polluter Pays Principle, refer to Chapter 7, Table 7.5 for details of the different household charging systems.

5.2.3 Industry and Commerce

With regard to waste prevention within commerce and industry the achievements have been modest, with some exceptions. While some success has been achieved with IPC Licensed companies through the work of the EPA, waste prevention is still not being widely implemented within Small to Medium Sized Enterprises (SMEs) and this needs to be addressed. However some private waste companies do provide on-site education to their commercial customers.

The primary aim of IPC licensing is to prevent or reduce emissions to air, water and land, to reduce waste and to use energy efficiently and to secure, from licensees an Annual Environmental Report (AER) on these issues. In the Dublin Region 107 companies have applied for or been issued IPC licenses, since this system was implemented. This constitutes approximately 17% of all licences issued nationally.

The IPC licensing system, implemented by the EPA, has brought about a major change in environmental practices in a wide spread of companies across several sectors in the Dublin Region and elsewhere. It has mainstreamed the concept of cleaner production (CP) in these sectors and CP includes waste prevention as a central tenet. It has also brought about a new level of transparency and openness in how private companies meet their environmental requirements and responsibilities. It is perceived internationally as an excellent example of a legislative-based system for the promotion of pollution prevention.

Several worthwhile initiatives and actions with regard to business were proposed in the previous Plan, but progress in this sector has been less than for the household sector. Most progress was achieved in the Dun Laoghaire-Rathdown area, where a designated Green Business Officer was appointed, whose sole role was to support business in improved waste management, through various initiatives and activities. These included awareness raising programmes and events for business, visits and support to companies, training, a waste characterisation study, promotion of best practice examples and the setting up of a green business network in the Region. Table 5.4 shows the achievements in SME waste prevention for each Local Authority.

Table 5.4 Local Authority Achievements in SME Waste Prevention

Local Authority	Initiatives
DLRCC	Hospital Waste Reduction Course Presentation to local businesses Green Business Network Waste Characterisation Study (42 businesses)
FCC	Green Fingal Week Waste Characterisation Study (35 businesses) Green Business Forum Distribution of "Small Change Guide"

5.2.4 Within the Local Authority

An Environmental Management System (EMS) provides business with a framework to systematically evaluate, manage and minimise the environmental impacts of its activities. The four Dublin Local Authorities are major organisations within the Region and it is considered essential that each Local Authority develops a comprehensive EMS in order to lead by example to the business community.

Within the Local Authorities themselves, the environment departments - especially the EAOs - have been active in the promotion of better waste management approaches; in particular the promotion of higher recycling levels. Each of the four Local Authorities has reported that informal (non-certified) green procurement strategies and/or environmental policies have been developed but progress on implementation is slow. Some green procurement is evident, in particular regarding the purchasing of recycled paper and toners, as well as double-sided photocopiers and printers. However this is mainly in the Environment Departments and is not formally or systematically applied throughout the Local Authorities. In general in Ireland, the Local Authorities need to progress further in providing the kind of exemplary behaviour that would support change in the general public and among businesses.

Table 5.5 EMS Progress in Local Authorities

Local Authority	Environmental Management System	Progress
DLRCC	EMS for all council buildings	Draft environmental policy written. Training of staff & councillors
	Green Purchasing Policy	Green procurement strategy has been developed
	Sustainable Energy Policy	Improved energy management has been addressed
FCC	EMS for all council buildings	No developments to date
DCC	City of Dublin Energy Management Agency	Energy efficiency programme in place in Civic Offices
SDCC	EMS for all council offices and depots	Interdepartmental team developed. Waste auditing and procurement underway

5.2.5 Regional Website – Dublin Regional Waste Awareness Campaign

The www.dublinwaste.ie website, a joint venture with the four Local Authorities, was launched in May 2004. The aim of the website was to create a central point of information for the four authorities that would provide householders with good information on Regional waste management issues. The website search engine provides information on prevention, minimisation, collections systems for household rubbish, recycling and hazardous waste and locations of bring banks and Recycling Centres. There are also regular updates on Regional activities and new facilities. The site has had 46,446 hits since May 2004 with 10,500 in January 2005 coinciding with the introduction of use related charging.

5.2.6 National Programmes and Initiatives

A number of national initiatives have been introduced since the publication of the previous Dublin Waste Management Plan. Amongst these are:

- The Environment Partnership Fund;
- Environmental Research Technological Development and Innovation Research Programme (ERTDI);
- Cleaner Greener Production Programme;
- National Waste Prevention Programme
- Enforcement Legislation;
- Race Against Waste.

The Environmental Partnership Fund (Local Agenda 21) promotes sustainable development by assisting small-scale environmental projects at local level, which involve partnerships between Local Authorities and local community groups, schools and environmental NGOs.

The ERTDI Research Programme is conducted by the EPA and supports R&D projects through grants. The *Cleaner Greener Production Programme* would fall under this programme, with a specific focus on cleaner more sustainable production in SMEs.

In April 2004, the Minister for the Environment Heritage and Local Government launched the National Waste Prevention Programme (NWPP). The Programme will be implemented by the Environmental Protection Agency and aims to deliver substantive results on waste prevention and minimisation and will integrate a range of initiatives addressing awareness raising, technical and financial assistance, training and incentive mechanisms. Currently the most relevant component of the NWPP for the Dublin Waste Management Plan is the development of the Local Authority Prevention Demonstration Programme (LAPD). This programme to be launched in early 2006 provides Local Authorities with an opportunity to apply for funding for prevention projects/programmes that demonstrate practical measures for preventing waste.

It is anticipated that the introduction of the EPA Office of Environmental Enforcement and Pay by Use waste collection services at household level over 2004/2005 will have an effect on waste prevention and minimisation at every level, as householders, business and industry attempt to reduce waste costs by reducing their waste volumes.

The introduction of the Plastic Bag Levy in Mach 2002 whereby shoppers are charged 15 cent per plastic bag has had a dramatic impact on Irish shopping lifestyles and has resulted in a significant decrease in the quantity of plastic generated. It is a successful economic tool which at the same time increases public awareness of the need to reduce waste on a daily basis.

5.2.7 Race Against Waste Campaign

In 2003 the DOEHLG launched a national level drive at improved awareness of the waste issues and to dispel misconceptions about waste. The Race Against Waste campaign has gathered momentum and support since its launch. The Dublin Local Authorities have engaged well with the campaign and have carried out a supporting awareness campaign of its own assisted by DOEHLG funding, together with using the Race Against Waste branding. This engagement and branding should continue and Local Authorities will see benefit from the high profile advertising and media campaign. The communications campaign consists of number of programmes and tools, which can be used both now and in the future to target several different sectors including the householder. The website www.raceagainstwaste.ie and the hotline should be promoted and linked through the Local Authorities as they provide relevant information for householders, business and others alike. The various programmes provide a ready-made platform into which Local Authorities should tap are outlined below.

Small Change for Businesses

The Small Change programme launched in February 2004 was developed with input from stakeholders within the SME sector and is a partnership with the Chambers of Commerce of Ireland (CCI). The programme consists of:

- A guide – outlines how to carry out a waste audit and set up an action plan, tips on how to reduce, reuse and recycle business waste, how to deal with waste contractors and a synopsis of waste legislation as it applies to SMEs;
- A website – the website provides backup to the guide, posters available to download along with a variety of case studies, which give information on what businesses around the country are doing.
- Seminars – these are run in partnership with local Chambers of Commerce and are an important element of the programme, bringing the information out to the public.

Programme for Action (Large Organisations)

The Programme for Action launched in March 2005,targets organisations such as the health service, third level institutes, government departments, prisons, The Defence Forces, Gardaí, transport services and Local Authorities themselves and has been developed with representatives from these sectors. The programme is similar to the Small Change programme and consists of:

- A guide – to help organisations set up a waste team, carry out an audit, put a programme of action in place, address green procurement and how to deal with specific waste streams;
- A website – part of www.raceagainstwaste.ie, as above.
- Seminars – these are an important element of the programme. These seminars are sectoral in nature and have been organised together with various representative organisations to bring the information out to their members/staff.

Tidy Towns – Race Against Waste Module

The Race Against Waste module of the Tidy Towns competition was first introduced for the 2004 competition. It was an optional pilot component of the competition for 2004 and will stay in this format for the 2005 competition with a view to integrating it into the competition proper following that. It aims to put across the message about working together as a community, with each sector targeting their own areas and working with other sectors. The criteria for the competition are based around the various sectors of the community:

- Schools – number of Green Schools;
- Business – number implementing Small Change;
- Residents – household composting, recycling;
- Institutions – implementing Programme for Action.

5.2.8 Other Initiatives and Activities that support Prevention and Minimisation

A number of other organisations and companies are helping to promote sustainable lifestyles and waste prevention/minimisation in the Region. The Local Authorities recognise the positive impact this bottom-up movement for change can have. Examples include:

Cultivate Centre

The Cultivate Sustainable Living Centre is a Sustainable Ireland project. The Centre is located in Temple Bar and has:

- A resource centre with regular exhibitions featuring sustainable solutions
- A large selection of books and products to help you make the shift to a more sustainable and satisfying lifestyle,
- Regular workshops, talks, and cultural events throughout the year
- A resource and information hub for the network of projects and individuals across the island working to create a more sustainable world.
- The Dublin Green Map Project is a major feature of the Cultivate Centre – The map locates recycling centres, environmental business, and eco organisations in Dublin.

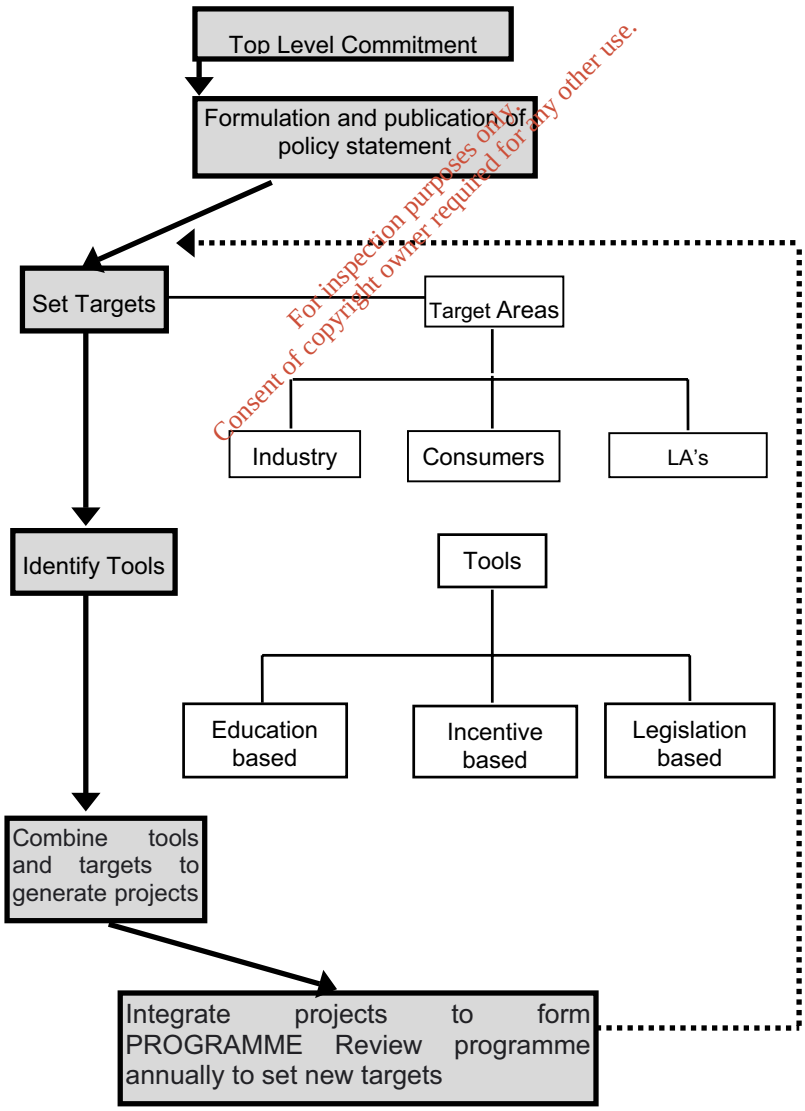
St. Andrew's Resource Centre

This co-operative centre on Pearse Street hosts a market each Saturday which features sustainable and organic products. The centre enables networking and exchange of information on issues such as waste management.

5.3 WAY FORWARD

It is important that a waste prevention programme is developed by the Local Authorities (EAOs and GBOs and GSOs) for the Dublin Region. This plan will require top level support, the formulation and publication of a policy the setting of targets and key performance indicators (Chapter 22), identifying the tools necessary to meet these targets, combining the tools and targets to generate projects and actions, integrating these actions into a coherent programme and reviewing the results of the programme for future revision and adaptation. Figure 5.1 provides an overview of the stages of a waste prevention programme.

Figure 5.1 Waste Prevention Programme



6 COMMUNITY BASED WASTE MANAGEMENT PROJECTS

6.1 INTRODUCTION

Community based waste management initiatives are slowly evolving in Ireland. Many of these are serving to increase employment and minimise social exclusion. To date we have several case studies of small-scale projects that have got off the ground due to partnerships with Local Authorities, FAS or through central government funding. There are bound to be many more examples happening throughout the country but due to limited funds, advertising, media and annual reports are not readily available or accessible.

The new Waste Management Plans for Ireland need to address the role the community can play in reducing the quantity of waste buried in landfill. Excellent kerbside recycling schemes have been rolled out the length and breadth of the country, however there is still a need for householders to think twice before they put electrical goods, bulky waste (furniture), books, scrap metal/parts toys, clothes etc in the rubbish bin. This 'trash' can be another man's 'treasure'.

Community groups/partnerships and Not for Profit groups are in an ideal position to set up small-scale facilities to receive this waste. The opportunities for repair and resale are great and will go a long way towards diverting waste from landfill and improving the local environment and is also an effective way of creating a strong sense of identity and community spirit.

The previous plan included objectives to promote community partnerships and initiatives, below are three examples of successful community recycling/recovery schemes in Dublin that have emerged since the previous plan.

6.1.1 Sunflower Recycling - Dublin

Sunflower Recycling was established to create employment in Dublin's inner city in 1995. The project employs 26 long-term unemployed via Community Employment and 3 through the Full Time Jobs Initiative. The project collects recyclable material from inner city offices and community groups. These are brought back to the depot to be sorted, graded and baled. The main funding for the project is through FAS and the project is operated in partnership with the Dublin City Council.

The project has achieved a lot in a relatively short period. Two separate EU Projects were created, INTERGRA and YOUTHSTART both aimed at training the long-term unemployed. 42 people have been employed within the recycling industry, 39 have trained and moved on to further employment and 9 have gone on to further education. The project has also gained recognition for recycling as an option for future job creation.

6.1.2 Project HeatSun

This project is funded under the European Commission's LIFE Environment programme and brings together Dublin City Council, Dun Laoghaire/Rathdown Council, Fingal County Council, Fingal Recycling, Micropro, Sunflower Recycling and SwITch*. It is an innovative partnership initiative to tackle the problem, and harness the opportunity, of waste IT management. The aims of the Project based on the recommendations of the WEEE Directive are:

- Reduction of waste IT equipment
- Re-use of waste IT equipment
- Recycling of waste IT equipment

With support from FáS, the project is also creating training opportunities and jobs in a sustainable recycling enterprise, (SwITch) and promoting the setting up of state-of-the-art installations for:

- Re-use of equipment and components
- The recycling of what cannot be re-used
- The safe disposal of what cannot be recycled, and
- The reduction of waste and hazardous materials in a new Green Computer design

The project aims to demonstrate that dealing with social and environmental priorities is sustainable and can make good business sense. The project aims to employ 20 people and provide 20 training opportunities during its life span (currently 2001-2005). During this time the project aims to recycle 10,000 units of IT equipment and to make available 2,000 reusable computer to local training and community organisations.

*Created under Project HeatSun, swITch (Saving Waste IT Can Help) is a computer refurbishment company benefiting businesses and the environment. swITch endeavours to collect, recycle and refurbish I.T. equipment to sell back in to the community.

6.1.3 Clondalkin Community Recycling Initiative

The Clondalkin Partnership with support from South Dublin County Council and under the auspice of the FAS Social Economy Programme has created the successful Clondalkin Community Recycling Initiative. 10 staff from the South Dublin Area are trained and employed to collect white and electrical goods for recycling and resale. This initiative is providing a necessary service to those who cannot access a recycling centre or suitable service. The scheme has put South Dublin at the top of the league for management of WEEE in the Region and Nationally.

6.1.4 Unused Medicines - D.U.M.P project

'The Disposal of Unused Medications Properly' project was initially started, by the South Western Area Health Board (SWAHB), to combat the high rate of parasuicide attempts involving drug overdoses and also the number of accidental poisoning of small children (10% of accidental deaths in childhood relate to poisoning).

A significant number of people are unaware that pharmacies will dispose of unused medicines for them (however, the pharmacies are not obliged to do this). Consequently medication accumulates in the home thus being present for attempted suicide or as a risk of accidental poisoning. Alternatively, it would appear that people flush unused medication down the toilet or dispose of them in the rubbish bin, which can pose a significant risk to the environment

A publicity campaign aimed at the catchment area of the Region was run, with the six pharmacies involved in the project provided with waste disposal containers. The general consensus amongst the pharmacists was that the campaign was a success. The results of the trial are as follows:

- The average collection yielded 9 kg per pharmacist per collection. To put this into perspective, if the trial had been carried out with the 168 pharmacies in the whole SWAHB Region, the quantity per collection would have been 1,512 kg. Other estimates suggest an annual collection of 35.15 kg per pharmacist per annum
- A correlation was observed between the medication returned and the medication of choice as a method of overdose.

Recommendations as a result of the trial:

- The prescribing and dispensing practices of medicines, that have a high return rate, should be reviewed
- There is a need to raise awareness about why unused medicines should be returned

The East Coast Area Health Board (the East Coast Area ranges from Ringsend in the north to Carnew in the south, and from the east coast of Wicklow to the borders of West Wicklow and Carlow) intends to begin a DUMP project in 2005 with the help of the Shared Services Eastern Region. There are 76 pharmacies in this area and several will be in the DCC, DLRCC and the SDCC Regions.

6.1.5 Charity/Second Hand Shops

Charity shops such as the Irish Cancer Society, Oxfam, Cerebral Palsy, Barnados, Gorta and St Vincent de Paul, provide outlets for second hand clothing and in some cases furniture and household goods to be sold for reuse. There are also a number of textile bins throughout the Region, which supply a number of charity and second hand shops with reusable clothing. These activities contribute to the reuse of significant volumes of materials. These shops are generally manned by volunteers and where possible involvement in these facilities should be encouraged as they provide both a successful way to prevent waste and also support community involvement in waste prevention and reuse.

6.2 WHERE TO FROM HERE?

The research has shown that what is found lacking in Ireland and is perhaps hindering the progress of other community initiatives (both large and small scale) is the lack of a robust support structure to ensure the community groups initiatives are successful and most importantly sustainable.

In Europe there are many examples of community initiatives in action and their longevity and success is due to the support networks available to them from the initial planning stages through to ongoing funding and ultimately assisting other community groups to do the same.

The following organisations from the UK provide three examples of support structures that have led to many successful community composting and recycling initiatives:

6.2.1 Community Composting Network

The Community Composting Network (CCN) provides help and support to over 200 community groups which are in some way involved in organic waste management. CCN is a member's organisation self managed by an elected committee of members. The CCN has expertise in the following

- Establishment and development of composting projects
- Promotion of home composting
- Composting policy and legislation
- Development of innovative composting solutions
- Centralised composting
- Building links with the sector and local, Regional and national government

Ultimately CCN provide:

- Information and support to new and existing community composting projects.
- Promote community composting at a national level (government and public)
- Put new groups in touch with experienced composters
- Provide a consultancy service to members
- Provide basic business support and funding advice

www.communitycomposting.org

6.2.2 Community Recycling Services

Community Recycling Services Ltd (CRS) is a partnership of seven leading edge practitioners from the community and not-for-profit sectors. It is dedicated to providing high quality services to Local Authorities. The aim is to support and develop local community based solutions to meet current and future sustainable 'waste' resource management methods. CRS works closely with existing organisations to build their capacity or to establish new ones with local partners to deliver recycling and reuse services.

www.communtiyrecyclingservices.co.uk

6.2.3 The Furniture Reuse Network

The FRN is a co-ordinating body for furniture recycling projects that collect a wide range of household items to pass onto people in need. The objectives are to:

- Provide information services, training and support to furniture recycling projects.

- Promote the reuse of unwanted furniture and household effects for the alleviation of need, hardship and distress.
- Promote a national identity for furniture recycling and to be the media contact on generic rules.
- Campaign and raise public awareness on those issues that affect the FRN members and those people in receipt of their services.
- Promote good practice and high quality standards of service delivery from member projects and those people to which they provide a service.

www.frn.org.uk

These models can be considered when building upon the good progress already made in the Dublin Region

Reuse Centre in Germany

St Andrews Resource Centre, Dublin

7 HOUSEHOLD WASTE COLLECTION AND RECYCLING

7.1 HOUSEHOLD REFUSE COLLECTION SERVICE

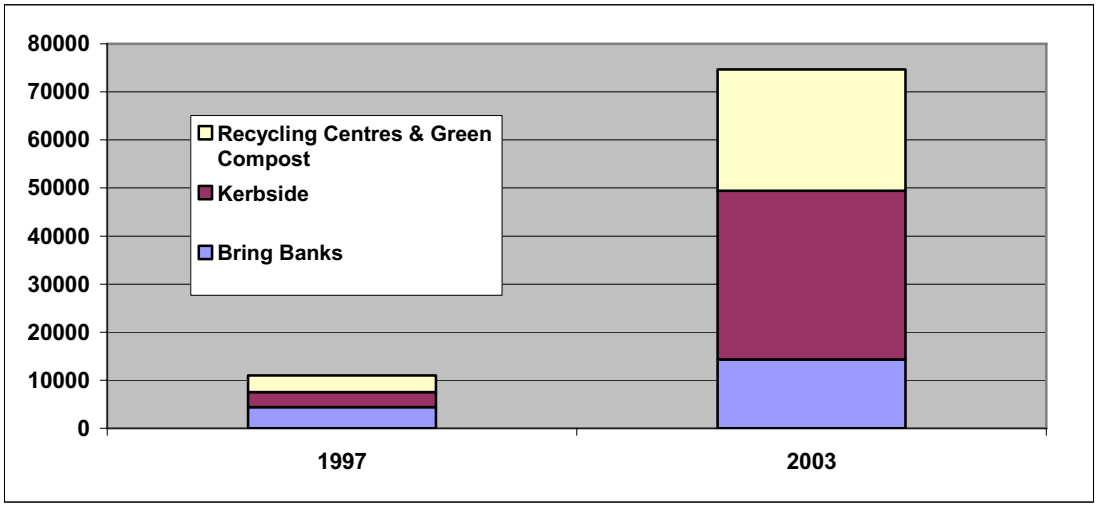
Household waste generated in the Dublin Region is collected, treated and disposed of through an increasingly integrated system, which has developed since the completion of the previous Waste Management Plan (1998). Householders now have a separate green bin for mixed dry recyclables as well as the normal grey bin for mixed household waste. In addition a comprehensive network of recycling centres and bring banks have been developed in the Region and recycling of household waste is increasing. Table 7.1 summarises the situation in the Dublin Region regarding household waste in 2003. The household recycling rate for the Region in 2003 is 16%, and this is expected to have increased further during 2004. Figure 7.1 below outlines the rise in household recycling tonnages since 1996/1997.

Table 7.1 Recycling Rate for Household Waste in 2003

Waste Source	DCC	DLRCC	FCC	SDCC	Region
Bring Banks	4,856	4,424	3,346	2,003	14,629
Recycling Centre & Green Composting	17,215	508	444	7,068	25,235
Kerbside	14,252	6,398	7,243	7,967	35,860
Mobile Hazardous Waste Collection	25	6	0	8	39
Total Recycled	**36,348**	**11,336**	**11,033**	**17,046**	**74,714**
Residual waste kerbside collection	164,785	64,558	62,916	77,527	369,786
Delivered for disposal		5,693	4,232	4,105	14,030
Total Disposed	**164,785**	**70,251**	**67,148**	**81,632**	**383,816**
Total Arisings	**201,133**	**81,587**	**78,181**	**98,678**	**459,579**
Recycling Rate %	**18%**	**14%**	**14%**	**17%**	**16%**

Source: Local Authority 'National Waste Database' questionnaires 2003

Figure 7.1 Recycling Tonnages for Household Waste: 1997 and 2003



7.1.1 Household Collection Service

Household waste collection in the Dublin Region is predominantly operated directly by the individual Local Authorities for residual household waste. In 2002, the Central Statistics Office reported a total of 379,372 households in the Dublin Region and the majority of these households avail of the service. Table 7.2 outlines the approximate number of households serviced as of 2005.

Table 7.2 Number of Households provided with a waste collection service (2005)

Local Authority	Households Served
DCC	165,000
SDCC	81,000
DLRCC	65,000
FCC	80,000
TOTAL	**391,000**

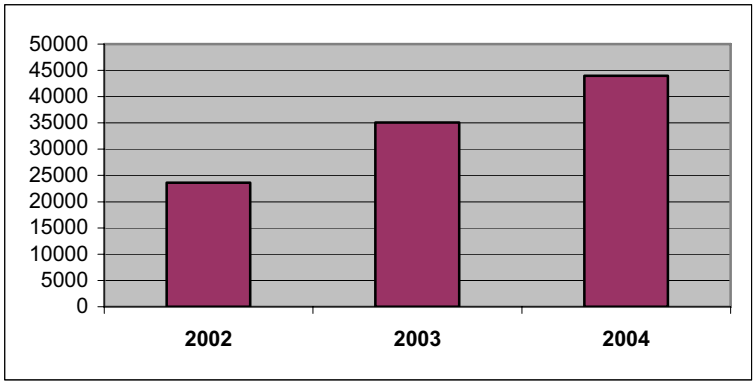
7.2 HOUSEHOLD KERBSIDE RECYCLING COLLECTION

The four Local Authorities have developed a multi year contract to collect, process and market dry recyclables. The service is currently carried out by Oxigen Environmental Ltd and Bailey Waste Paper Ltd. The (240 litre) monthly 'Green Bin' recycling service is now offered to 289,214 households in the Dublin Region. The Oxigen 'Green Bin' collection for households collects approximately 35,073 tonnes per annum. A commercial service was also begun in 2001 with a phased roll out since then. Table 7.3 shows the recyclables collected per Local Authority and Figure 7.2 shows the change in the quantities of recyclables collected since 2002.

Table 7.3 Kerbside Recyclables Collected per Local Authority 2003

Local Authority	Kerbside Recycling Collection 2003 (tonnes)
DCC	14,252
SDCC	7,967
DLRCC	6,398
FCC	7,243
TOTAL	**35,860**

Figure 7.2 Recyclables Collected by the 'Green Bin' Service 2002-2004 (Tonnes/Annum)



Initially the 'Green Bin' service was available to single households that could accommodate a wheeled bin. Over 2003-2004 this has been extended to apartments in Dublin City Council, South Dublin and in 2005, Fingal. In DCC the service has extended to include 'green bags' for appropriate terraced housing. As a result the tonnage collected is rising steadily.

Public Information
The Environmental Awareness Officers will be responsible for regular targeted information campaigns at both local and regional level for current and proposed recycling collections. The campaigns using a variety of media; radio, newspaper, brochures, mail drops, community groups, neighbourhood champions etc will ensure that the public are motivated to recycle and are well informed of where, how and when they can recycle.

7.3 RECYCLING CENTRES

There are currently 7 full scale Recycling Centres (previously known as Civic Amenity Centres) operating in the Dublin Region and a further 9 are Bring Centres at a community level. A list of the Recycling Centres is presented in Table 7.4. Recycling Centres are distinct from Bring Banks in that they are generally located within purpose built sites, are manned by permanent full-time staff – either from the Local Authority or private contractor, have restricted opening hours, and accept an extensive range of materials. The waste quantities collected through the Regional recycling centres in 2003 are reported in Table 7.4.

Table 7.4 Recycling Centres in the Region (as of 2004)

Local Authority	Name/Location	Waste Collected 2003 (Tonnes)
DCC	**Shamrock Terrace, North Strand Road**	17,215 (all centres including green waste from St Anne's)
	Pigeon House Road, Ringsend	
	Collins Avenue Extension	
	Oscar Traynor Road, Coolock	
	Upper Grangegorman Road	
	Gullistan Terrace, Rathmines	
	London Bridge Road, Ringsend	
	Orwell Road, Rathgar	
	Windmill Road, Crumlin	
	Eamon Ceant Park	
	Kylemore Park, North Ballyfermot	
	Sweeney's Terrace	
FCC	**Balleally Landfill**	479 (444 recycled)
	Coolmine	
	Balbriggan (open 2005)	
SDCC	**Ballymount**	6,528 (2,068 recycled)
DLRCC	**Ballyogan**	6,201 (508 recycled)

(Full scale Recycling Centres in bold)

With the exception of facilities at Ballyogan, Ballymount and Balleally, all of these facilities have been opened within the last 2-3 years, the most recent being Coolmine which opened on the 2nd January 2004 and Pigeon House Road, Ringsend which opened on the 26th February 2004. Coolmine replaced the facility at Dunsink which closed at the end of December 2003. The Recycling Centres at Ballyogan and Balleally have both been in existence as part of the landfilling operations for at least 20 years operating as 'Civic Amenity Sites', but now the emphasis is firmly on recycling.

Shamrock Terrace Recycling Centre

Ballyogan Recycling Park

This facility has been developed by Dún Laoghaire Rathdown County Council as part of the overall approach to the closure of Ballyogan Landfill and the implementation of the integrated recycling elements of the Dublin Waste Plan. The development was complete in 2004. Operation has been contracted to Greenstar Ltd.

The BRP comprises a new Recycling Centre (Civic Waste Facility) accepting an extensive range of recyclable materials from householders. Since opening it has met with great success in particular improving recycling rates and collection of priority wastes streams.

The facility also comprises a municipal baling station accepting waste for baling and transfer to Arthurstown Landfill. Once fully commissioned this will enable closure of the municipal landfill which has been in operation since 1975.Further elements of the BRP which will be realised over 2005 – 2007 include an Organic Waste Composting Plant, and potentially a Materials Recovery Facility for recyclable waste.

7.4 BRING BANKS

In 1996 there were 134 bring banks in Dublin Region. The development of bring banks has continued to grow steadily over the last 5 years. In 2003 there were 263 bring banks in the Region. This represents a 2-fold increase in since 1996. The management costs are borne by the Local Authorities, however Repak provides part capital funding in conjunction with the DoEHLG to provide 100 containers and is committed to funding another 100 containers in 2004/2005. Table 7.5 shows the number of bring banks and tonnes collected in each Local Authority area. The current bring bank

density is one per 4,445 persons. The previous Plan recommended one bring bank per 1,000 population not serviced by segregated collection.

The majority of bring banks consist of receptacles for glass and cans only, with other materials such as textiles and paper being accepted to a much lesser degree. SDCC have recently introduced receptacles for plastic bottles to 8 of their bring banks, with an additional 2 planned in the near future. Two of the bring banks in DCC also accept plastics. Bring banks are operated by a number of different companies, with the contracts either made by each Local Authority (Rehab Recycling Partnership, Greenstar) or on a Regional basis (recent Oxigen bring banks). The operating costs are mainly financed by the Local Authority with some contribution from Repak. Some banks have been established with capital funding from DOEHLG and Repak.

Table 7.5 Number of Bring Banks and Tonnes Collected in each Local Authority Area

Local Authority	Bring Banks 2003	Tonnes collected 2003
DCC	73	4,856
SDCC	50	2,003
DLRCC	64	4,424
FCC	76	3,346
TOTAL	**263**	**14,629**

7.5 WASTE CHARGES

Since 1st January 2005 use-related charges have been introduced to householders across the country either through a weight or volume based system. The development of direct user charges was supported by the previous Waste Management Plan and aims to encourage waste reduction and recycling. In the Dublin Region each of the Local Authorities are operating a variety of weight/ volume based systems. Table 7.6 provides details of the current household charging system. Local Authorities have fixed costs in relation to collection and management of waste – such as staff, vehicles, depots, equipment etc. – as well as variable elements (e.g. landfill charges per tonne of waste). It is therefore appropriate for Local Authorities to have a fixed element in their charging systems in addition to a variable element.

7.5.1 Use-Related Charging for Household Waste

During the preparation of the first set of Regional Waste Management Plans, a common theme in the submissions from the Public was the need to link waste charges to the amount of waste generated. This represents a logical way to implement the 'polluter pays principle', and can offer a real incentive to waste producers to minimise waste. The introduction of use-related charges became a policy of the Plans. In 2004 the Minister for Environment Heritage and Local Government, Mr Martin Cullen requested Local Authorities to implement use-related charging for household waste in their areas by January 1st 2005. The policy was given further elaboration in the 2004 Government Policy Statement 'Taking Stock and Moving Forward'. The positive impacts of use-related charging for household waste are:

- It provides an impetus for reduction of waste, by changing shopping and lifestyle habits;
- Householders have an incentive to recycle as much waste as possible;
- The need for a full 'integrated' range of recycling collections becomes more important.

The Local Authorities and waste collection companies will respond to this new system, by providing support and information to householders on how best to reduce and recycle waste. This means an extra demand on the Environmental Awareness activities of the Local Authorities. Some negative side

effects may occur when use-related charging is introduced. Householders may be tempted to reduce waste bills by inappropriate use of recycling bins, or illegal dumping or burning of waste. The Local Authority has a role in ensuring that waste is managed responsibly, which will require additional regulation and enforcement for waste. Householders need clear information on what forms of waste management are or are not acceptable. The general public ultimately has the role of ensuring household waste is managed responsibly.

It is possible that charging mechanisms and collection systems may change over the coming years as new recycling services are introduced.

Table 7.6 Household Waste Use-Related Charging Schemes (2005)

DCC	The billing of the wheelie bin service consists of a Standing Charge per year and a Charge per Lift. 240l €80 per year standing charge and €5 per collection. 140l €65 per year standing charge and €3 per collection. A Pre-paid tagging system is in place for bags and Eurobins. The charge for a bag tag is €2.50 and a Eurobin tag is €28
DLRCC	Fixed standing charge of €80 per annum per household availing of the service plus charge per bin lift @ €4.00 per lift for each 140/240 litre bin or €18 for each 1,100 litre bin plus charge per Kilogram of household waste collected @ 20 cent per Kilogram
FCC	Householders with a 240L grey/black wheelie bin must put a €6 bin tag on the bin each time it is put out for collection. Householders with the smaller 140L grey/black bin must put a €3 bin tag on the prior to collection. A reduced charge of €3.50 applies for the 240L bin and €1.75 for the 140L bin, where green bins have not yet been delivered.
SDCC	In February 2004 council introduced a pay by volume/use system with pre paid tags for wheelie bins 240l bin €6 and 120l bin €3

The household waste charges are levied against the grey bin service, but the money collected is used to support all other forms of household waste management (collection and disposal), including Bring Banks, Recycling Centres, the 'Green Bin' Service, Mobile Collections, and Bulky Waste Collections.

Other household charges - most Recycling Centres are currently free of charge for the householder bringing recyclable waste, but fees apply to waste that is deposited for disposal and for specific items e.g. bulky waste. The Local Authorities will continue to employ, adjust and introduce user fees for waste services and facilities provided in order to deliver a cost effective and affordable system having regard to the polluter pays principle.

WEEE Regulations - On August 13, 2005, the new Waste Electrical and Electronic Equipment (WEEE) Regulations came into effect, transposing the EU WEEE Directive into Irish law. The new Regulations are based on the principle of producer responsibility and include specific provisions for householders and retailers. As a result a new Environmental Management Cost (EMC) will be applied to the retail price of new electrical and electronic equipment. The extent of the EMC is relevant to the type of material being purchased.

Householders can recycle WEEE free of charge at any of the 6 major Recycling Centres across the Dublin Region or can take back WEEE to retailers free of charge. Take back will be on a one-for-one basis only, provided the WEEE returned is of a similar type or performed the same function as the new item purchased.

Retailers can bring the take back WEEE to a designated Local Authority Recycling Centre for recovery provided they have registered their shop/retail unit with the relevant Local Authority. Any retailer who has not registered with their Local Authority will not be able to bring WEEE to a designated Collection Centre.

7.6 HAZARDOUS WASTE RECOVERY AND RECYCLING

Two systems are in place to collect household hazardous waste from households: through Recycling Centres (where batteries, oil, fluorescent tubes can be deposited) and also through a mobile service.

Up to 2003, three of the four Local Authorities uses a privately operated mobile collection service ('Cara ChemCar') to provide a drop off facility for household hazardous waste. Fingal County Council also commenced the service in 2004. The Chemcar is available at publicised sites throughout the Region during the year, and is manned by a trained and experienced chemical operator. Hazardous materials are accepted, packed and segregated for transfer to facilities that can properly treat these substances. Table 7.7 shows the waste accepted at the Chemcar and how each is treated.

Table 7.7 Waste Acceptance and Treatment through Cara ChemCar

Waste Type	Treatment	Location
Energy Saving Lights, Fluorescent Lights, Thermometers	Recycling	Ireland
Cleaning Agents, Disinfectants, Cleaners, Bleaches, Caustic Soda	Energy Recovery	Denmark
Waste Medicines, Waste Cosmetics	Energy Recovery	Denmark
Antifreeze, Herbicides, Pesticides, Weed Killer, Insecticides, Poisons, Fungicides	Energy Recovery	Denmark
Aerosols	Energy Recovery	Denmark
Paints, Paint Stripper / Thinner, Varnishes	Energy Recovery	Germany/Denmark
Wastes Oils (engine, gear & lubricating)	Energy Recovery	Denmark
Batteries (Lead, Ni-Cd, Mercury Dry Cells)	Recycling	Ireland
Electrolyte from batteries & accumulators	Recycling	Denmark

Source: Cara Chemcar Ltd.

Table 7.8 shows the number of collections and the quantity of hazardous waste collected in each Local Authority area, while Table 7.9 presents the total collected at Recycling Centres in 2004.

Table 7.8 Number of Mobile Collections and Tonnages of Household Hazardous Waste 2003

Council	Number of Collections 2003	Weight (Kg) 2003
DCC	22	24,870
SDCC	5	7,601
DLRCC	2	6,368
FCC	*	*
TOTAL	**29**	**38,839**

*Commenced 2004

Table 7.9 Household hazardous waste collected via Recycling Centres (2004)

Waste Type	Tonnes collected 2004
Batteries	125
Oils	194
Fluorescent tubes	3
Other Hazardous waste	273
Subtotal	595

(Source- Local Authorities)

7.7 BULKY WASTE COLLECTION

Bulky household waste is collected by one of two methods: either by delivery to recycling centres (formerly Civic Amenity Sites) or by Local Authority collection.

South Dublin County Council operate a periodic collection of bulky waste from households. This takes place from October – December each year in 'RAPID' areas, and every five years in other areas. Customers are notified in advance and leave material out for collection.

Fingal County Council commenced a bulky waste collection in 2004 on a call-out basis.

Dublin City Council operates a city-wide bulky waste collection service for its household customers – this operates on a 3-yearly cycle. In Dun Laoghaire Rathdown, Bulky Waste is delivered to Ballyogan Recycling Park.

7.8 RECOGNITION OF RECYCLING ACHIEVEMENTS

The annual Repak Recycling Awards which acknowledge: Best Practice (in packaging reduction recovery and recycling) in Small, Medium and Large Companies, Small Retailers and the Hospitality Industry along with the Repak National Recycling Week, Repak Cash for Cans Education Programme, Repak Green Christmas all assist in raising awareness of recycling and provide an incentive to get involved in recycling.

8 COMMERCIAL & INDUSTRIAL WASTE COLLECTION AND RECYCLING, & PRIORITY WASTES

8.1 COMMERCIAL AND INDUSTRIAL WASTE

Since the previous Plan recovery and recycling rates have increased significantly in the C/I waste stream. This is in part due to legislative and enforcement measures such as the implementation of the Waste Management (Packaging) Regulations, 2003, and waste acceptance restrictions on certain waste streams at landfills. These factors coupled with the dramatic rise in landfill gate charges have seen waste collectors reduce their reliance on landfill.

Dublin City Council has responsibility for issuing and renewing Waste Collection Permits on behalf of the four Local Authorities. There are more than 400 companies holding Collection Permits, these cover a range of materials including household, commercial/ industrial and construction/ demolition waste (Appendix D).

The private waste collection sector has responded positively and proactively towards achieving the recycling targets through provision of materials recovery facilities and separate collection systems. Several companies have invested in facilities and technologies aimed at extracting resources from waste and minimising landfill.

Table 8.1 shows the commercial and industrial waste quantities generated and recovered in the Dublin Region in 2003. The quantities are based on Annual Environmental Reports from the main licensed and permitted C/I waste facilities.

Table 8.1 Commercial/Industrial Waste Recycling in the Region in 2003

Waste Type	Tonnes Collected	Tonnes Recycled	% Recycled
Commercial	480,682	159,526	33%
Industrial	188,910	68,368	36%
C/I Total	669,592	227,894	34%

Source: Annual Environmental reports

The main materials recovered by the C/I recyclers is summarised in Table 8.2. It has been assumed that the separately collected C/I fraction is recovered/recycled in Ireland or abroad. Based on these assumptions, the recovery rate for C/I waste generated in the Region is estimated to be approximately 34%.

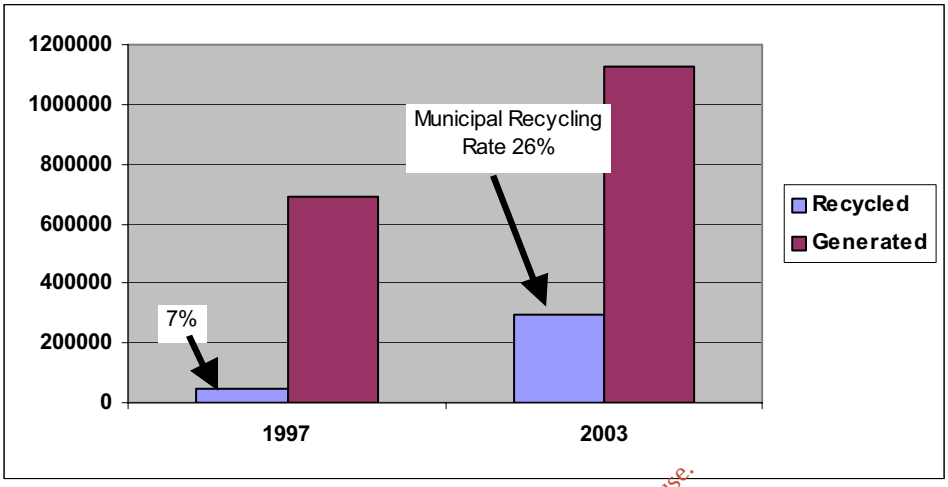
Table 8.2 Materials Recovered from Commercial/Industrial Waste (Tonnes/Annum 2003)

Garden	Organic	Paper/ Cardboard	Plastic	Glass	Metal	Timber	Other	Total
5,219	6,500	172,623	6,049	2,465	12,615	22,422	-	227,894

Local Authority charging mechanisms are in accordance with the Polluter Pays Principle in that the charges for collection of separated recyclable waste are favourable compared to residual waste. Charging for residual waste is according to use, which provides an incentive to reduce waste. In general it is believed that the private waste collection companies also follow this approach although details of costs and charging systems are generally held as confidential.

By combining the household and commercial/industrial waste streams a figure for overall municipal waste recycling in the Region can be presented, as in Figure 8.1 below. The current municipal recycling rate is 26% when household and commercial recycling is combined. Comparison with 1997 data is not entirely accurate, since a different level of data was available in 1997 and the C/I recycling rate has been estimated.

Figure 8.1 Municipal (Household & C/I) Recycling Rate – 1997 and 2003



8.2 RECOVERY OF SPECIFIC WASTES

8.2.1 Electrical and Electronic goods

Waste Electrical and Electronic Equipment (WEEE) generated by households is currently accepted at 6 of the Recycling Centres in the Region and the SDCC Clondalkin Community Recycling Initiative collects WEEE directly from householders and commercial premises for a small charge. The figures recorded at each Recycling Centre are inconsistent, with some recording the number of units and others recording tonnages. Table 8.3 shows the WEEE arising at each Recycling centre for 2003. In addition, WEEE generated by business is handled by private waste management companies.

In terms of WEEE from commercial/ industrial activities, a number of private companies collect and manage this waste stream. The local authority database for C1 forms (movement of hazardous waste) reports 500.81 tonnes of fridges and other hazardous white goods and 91.63 tonnes of other WEEE being managed in 2003.

Table 8.3 WEEE Arisings* at Recycling Centres in the Region 2003

	Ballymount	CCRI (May-Dec 03)	Ballyogan	Shamrock Terrace	Ringsend	Coolmine	Balleally
Fridges	1153	5000	1742	2490	Open 2004	Open 2004	216
TVs	549			3437			431
White Goods	1603	4500					1027
Other Large Appliances				119.79 tonnes			
PC Monitors/ VDUs	437						214
Other ITC	18						305
Mixed WEEE	14.546 tonnes			35.55 tonnes			740

* Numbers are in units of WEEE unless otherwise specified

8.2.2 Batteries and Accumulators

Batteries (domestic and car) are accepted at 6 of the Recycling Centres in the Dublin Region. The CaraChem Car also accepts batteries and accumulators. In 2003 7.8 tonnes of batteries and accumulators were collected using the Chemcar service. An estimated 125 tonnes were collected from recycling centres in 2004.

Commercial and Industrial Sector – the reported arisings of batteries and accumulators in 2003 was 1,259.26 tonnes, which includes a variety of battery types mainly from commerce (e.g. garages) and industry.

8.2.3 Oils

The household hazardous waste drop off service provided by the Cara Chemcar accepts among other hazardous chemicals most forms of oil. In 2003 a total of 6.9 tonnes of waste oil was collected using this service. Waste Oils are also accepted at the following Recycling Centres, North Strand, Ringsend, Ballyogan, Balleally and Ballymount, however quantities of waste oil delivered to these sites is not available. An estimated 194 tonnes was collected at such facilities across the region in 2004.

Commercial and Industrial Sector – the reported arisings of waste oils are 1894.69 tonnes in 2003, with an additional 3848.45 tonnes of other hydrocarbon related hazardous material (oily sludge, oil-contaminated soil etc.) also being reported.

8.2.4 PCBs

The reported arisings for 2003 was 30 Kg (0.03 tonnes) for containers contaminated with PCB materials.

8.2.5 Vehicles

There are currently 11 facilities registered in the Dublin Region involved in the recovery and dismantling of end-of-life vehicles. They are not permitted to shred the ELVs. There are only 4 shredding facilities on the island of Ireland, and only one of these is in Dublin (Hammond Lane Metal Company, Ringsend, Dublin 4). At these facilities, the metal is shredded and processed to required

standard before shipping to recyclers abroad. It is estimated that there was a total of 56,560 End of Life Vehicles arising in the Dublin Region in 2003.

At present, all 4 Local Authorities in the Dublin Region have services that cater for the removal of ELVs. There are 3 types of situations that arise:

1. **Removed with the owner's consent –** the owner of an EOLV can contact the Local Authority and ask to have their vehicle removed, at a cost, i.e. currently €50 in South Dublin and Dun Laoghaire/Rathdown or €30 in Fingal and Dublin City. A contracted company is given the details of the vehicle and they deal with its collection and anything else thereafter.
2. **Abandoned vehicles –** abandoned vehicles are brought to the attention of the Litter Warden Section in the Local Authority. The litter warden investigates and obtains whatever details it can about the owner of the vehicle. The owner is then notified and given 21 days to remove the vehicle or have it removed, after which time, the details will be passed onto the Gardaí so as to protect the Local Authority from potential litigation for losses in removing the abandoned vehicle. A 7-day notice is placed on the vehicle and then removed by the company contracted to the Local Authority, and the owner prosecuted.
3. **Burnt out vehicles –** the vehicle would be investigated, but in the case of burnt out vehicles, there is generally no means of identifying the owner. The contracted company then removes the vehicle as litter, and the Local Authority has to foot the bill. This also applies if the vehicle has been abandoned, but not burnt out, and there's no way of identifying the owner.

The four Local Authorities in the Dublin Region dealt with, approximately 6,200 ELVs, in 2003. It is estimated that the costs for only 3,480 of these are covered to any extent. Assuming a real cost of €60/car, the system costs the 4 Local Authorities in Dublin in excess of €160,000 annually (not including the administrative time involved).

8.2.6 Tyres

It has been estimated that in 2001, 34,934 tonnes of waste tyres were generated in Ireland. 17,860 tonnes (52%) would have been from cars whilst the remaining 48% would have come from buses, bicycles, motorcycles etc. An estimated 2 million tyres are discarded each year and only 5% of these are being recycled, whilst the rest are kept in depots or used in agriculture on silage pits. It is estimated that 8,554 tonnes of scrap tyres were generated in the Dublin Region in 2003. (Data estimated from CSO data on total national imported tyre numbers and vehicle registration numbers and apportioned to Dublin based on end-of-life vehicle figures)

8.3 COMMERCIAL AND INDUSTRIAL INFRASTRUCTURE

From a position in 1997/1998 when almost all C/I waste was delivered to municipal landfills and recycling was very low there is now approximately 34% recycling of the C/I waste stream. Most of this has been achieved by the private waste sector, who have also managed to deliver significant MRF capacity.

In order to achieve greater recycling rates for C/I waste in the Dublin Region additional infrastructure is required in the following areas:

- Materials Recovery Capacity - for dry recyclables from Commerce and Industry, will be required as collection services are phased in
- Recycling Parks for C&I waste for small scale producers to deliver waste for recycling and treatment.

- Biological Treatment Capacity – Source separated collection for commercial organic waste is to be introduced and treatment capacity will be required as the roll out progresses.

8.4 CASE STUDIES OF COMMERCIAL WASTE MANAGEMENT

The following case studies highlight the achievements and contributions the commercial/industrial sector is making towards waste minimisation and recycling in the Dublin Region. These examples are taken from the Race Against Waste 'Small Change' brochure for business.

EASON - Dun Laoghaire, County Dublin

Before implementing their recycling system, Eason of Dun Laoghaire were buying one packet of trade waste labels per month from the council at 300. Now they only use one or two packets a year! That's a reduction in waste to landfill of almost 90% and a saving of 3,150. These savings more than cover the cost of recycling collections which are approximately 2,360 for the year (weekly collections at 45.40 inc. VAT). According to the Shop Manager, Michelle Delaney, 'We are at least breaking even now if not saving money as compared to when we sent everything to landfill. The company that collects is very flexible and has met all our needs'. The materials separated out for recycling are: plastic sheeting and strips, paper and cardboard. Newspapers supplied by Eason Wholesale division are returned for recycling. Other non-returnable newspapers are included in the recycling collections. The store now creates about 12 units of recyclables a week (bags or bundles) and 2 bags for landfill.

Spar Supermarket – Clonskeagh, Dublin 14

The shop has 2,000 square foot of sales and storage space with an annual turnover in excess of 3m, a staff of 20-25 and is open 7am- 10pm seven days a week. In 1999 an instore compactor was installed to reduce and bale cardboard to allow more product to fit in the bins. However, continued escalating waste costs alerted management to the need for more change. In March-June 2001 their monthly bill rose from £800 to £1,200 due to increased landfill costs passed on. Everything then was going straight into the bin and then into landfill. A waste audit showed they produced 90% cardboard, 5% plastic and 5% residual waste. The cardboard and plastic was mainly packaging from suppliers, with most residual waste produced in store, including staff food leftovers and a small amount of metal. They looked at various waste management companies offering a recycling service for clients who separated their waste and shopped around for the best deal. "We are paying out two thirds less than two years ago - a 65% saving. In terms of management, there is ongoing staff education, but as I say, we keep it simple, it's not rocket science and the staff are committed to it too," – Anthony Walsh, Manager. So began the new regime. Cardboard is torn and placed in the compactor for baling; there are white sacks for plastic waste and black sacks for residual rubbish. The shop now bales plastics as well. The compactor can take 10-12 sacks, which greatly reduce the volume for disposal. Surplus newspapers and magazines are also recycled.

Children's University Hospital, Temple Street

The Children's University Hospital (TCUH) convened an Environment Committee in September 2003, which included representatives from across the board within the hospital. In February 2004 a complete waste audit of all hospital waste was undertaken to establish how much is generated. Two porters weighed all waste for the month of February gathering details of the amount of clinical and non-clinical waste arising from each area of the hospital and the amount of recyclable waste. The waste was then examined and categorised and potential recyclable components were identified. The hospital engaged the assistance of its existing domestic waste contractor. This contractor now takes cardboard, non-confidential waste paper, plastic, aluminium and polystyrene for recycling along with residual domestic waste. In addition to this the hospital undertook to contract with other specialist waste contractors for recycling services for the following materials: glass, clinical waste, batteries, confidential waste, electronic and electrical equipment. To date there has been a significant diversion of waste from landfill to recycling with an increase in recycling rates from 12% to 38% in less than a year. There also has been a reduction in clinical waste of approximately 15% and a reduction in the associated risk.

9 PACKAGING WASTE

9.1 INTRODUCTION

Packaging is defined in the Waste Management Act, 1996, 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". Hence this includes a very broad amount of waste ranging from food wrapping and shopping bags to the containers and boxes used in industry. The European Commission considers packaging waste a priority waste.

9.2 LEGISLATIVE ENVIRONMENT

9.2.1 European Packaging Waste Directive

European Parliament and Council Directive 94/62/EC 1994, as amended in February 2004 sets out targets for the recovery of packaging waste. Ireland (together with Greece and Portugal) received a derogation resulting in less stringent targets than those imposed on other member states. This derogation recognises Ireland's situation with respect to demographics, geography and lack of infrastructure with approximately 80% of packaged goods being imported. Ireland's targets are as follows:

Table 9.1 European Packaging Waste Directive Targets

Date	Target
30th June 2001	25% recovery of packaging waste by weight (achieved)
31st December 2005	50% to 65% recovery of packaging waste by weight
	25% recycling of packaging waste by weight
	15% recycling for each packaging material
31st December 2011	60% recovery of packaging waste by weight
	55% recycling of packaging waste by weight
	60% recycling by weight for glass
	60% recycling by weight for paper and board
	50% recycling by weight for metals
	22.5% recycling by weight for plastics (applies exclusively for material that is recycled back into plastics)
	15% recycling by weight for wood

The Directive also emphasises prevention and reuse of packaging in Articles 4 and 5 respectively. Article 13 of the Directive states that measures must be taken within two years of 30th June 2001 (in the case of Ireland) to ensure that users of packaging, including, in particular, consumers, obtain necessary information about the following:

- The return, collection and recovery systems available to them
- Their role in contributing to reuse, recovery and recycling of packaging and packaging waste

- The meaning of markings on packaging existing on the market
- The appropriate elements of the management plans for packaging and packaging waste to be incorporated into Waste Management Plans (i.e. Articles 4 & 5).

9.2.2 Waste Management (Packaging) Regulations, 2003

The Waste Management (Packaging) Regulations 2003 which supersedes the 1997 Regulations are focussed on ensuring that the end of 2005 target of 50% packaging waste recovery is met. The Regulations place an onus on producers/suppliers of packaging or packaged products to take back packaging waste from customers. Producers with a company turnover greater than €1M and who place 25 tonnes or more of packaging onto the Irish Market each year are considered to be a "Major Producer" and are bound by the requirements of the Regulations.

Specified categories according to the Regulations include glass, aluminium, steel, paper and fibreboard, plastics, wood and textiles or such other categories as may be specified by the Minister. A further Amendment to the Packaging Regulations was issued by the Minister for the Environment in late 2004, the main changes were to increase the registration fees payable by self complying Major Producers to Local Authorities, and to advertise the take back facilities operated by self complying Major Producers. Local Authorities are responsible for enforcing the Regulations, which is now overseen by the EPA.

9.3 REPAK

REPAK is the only approved packaging compliance scheme in the country. It was established by a voluntary agreement between industry and the Department of the Environment and Local Government in response to the EU Directive on Packaging and Packaging Waste (94/62/EC).

REPAK's role is to fulfil the recycling and recovery obligations for packaging waste on behalf of industry. One of the ways this is achieved is by funding recycling by means of a subsidy to individual waste recovery operators for each tonne of commercial packaging waste that they demonstrate they have sent for recovery and/or recycling. The level of subsidy is based on the material type, recovery activity for that material, the market value of the material and the tonnage that REPAK is committed to achieving within the current year. The subsidy is paid on six of the specified packaging materials: glass, paper, plastic, steel, aluminium and wood.

In recent years, most of the progress across Ireland has been in the commercial sector, but subsidies for these materials have gradually been scaled back. In the short term the subsidy will be concentrated more on the household sector.

Under the Repak Payment Scheme (RPS), Repak and its members have invested €73 million country-wide in packaging support and infrastructure in Ireland in the past five years. A significant portion of this has been invested in the Dublin Region and has significantly contributed to the continuing positive recovery and recycling rates for packaging waste.

9.4 PACKAGING WASTE ARISINGS

Packaging waste arisings are calculated from the quantity of packaging waste landfilled plus the quantity of packaging waste recovered, both of which are derived from household and C/I packaging waste quantities. Packaging waste arisings for the Dublin Region for 2003 are outlined in Table 9.2.

Table 9.2 Estimated Packaging Waste Arisings for the Dublin Region 2003 (Tonnes)

	Landfilled	Recovered	Arisings	Recovery Rate
Packaging Waste	321,190	190,548	511,738	37.24%

In 2001, Ireland recovered 25.3% of packaging waste, thus achieving our target. The recovery rate for the Dublin Region for 2003 of 37.24% indicates that the Region is contributing positively to Ireland achieving its 2005 targets (50%-65% recovery by weight).

9.5 ESTIMATE OF PACKAGING WASTE LANDFILLED

The quantity of packaging waste landfilled is determined using data compiled from composition studies carried out on household and C&I municipal waste. For household waste, the composition data is taken from studies carried out on the 'black bin' by the Dublin Local Authorities in 2004. For C&I waste, the composition data is taken from studies on waste destined for landfill, commissioned by the EPA in 2001, as outlined in the EPA National Waste Database Report 2001. Table 9.3 outlines the packaging factors and the proportion of packaging waste, determined from these composition studies.

Table 9.3 Packaging Factors for Landfilled Household and C&I Waste

Packaging Material	Household[1] %	C/I[2] %
Paper & Cardboard	7	30.1
Plastic	12	7.9
Glass	6	1.2
Metals	3	1.9
Wood	0	1
Textiles	0	0.1
Composites	1	-
Other	1	2.6
TOTAL %	30	44.8

1 Source: RPS-MCOS 'Black Bin' Waste Composition Study 2004 (DCC area)
2 Source: EPA National Waste Database Report 2001

Table 9.4 outlines the quantity of packaging waste landfilled in 2003, which is estimated by applying the above factors to the total quantities of household and commercial waste landfilled.

Table 9.4 Quantity of Packaging Waste Landfilled in Dublin Region in 2003

	Household	Commercial/Industrial	Street Cleaning
Total Waste Landfilled (Tonnes)	383,816	441,698	30,235[1]
% Packaging	30	44.8	-
Packaging Waste Landfilled (Tonnes)	115,145	197,881	8,164
Total Packaging Waste Landfilled	**321,190**		

1 Source: Local Authority EPA Questionnaires.

9.6 PROGRESS AGAINST TARGETS

The Dublin Waste Management Plan 1998 adopted the targets set down under the EU Packaging Directive (94/62/EC). Under a voluntary agreement between Industry and the DEHLG, Repak

undertook to achieve these targets. The initial target of 25% recovery of packaging waste by December 2001 has been achieved, and with an estimated 39.7% recovery achieved in the Dublin Region by the end of 2003, Ireland is well on the way to achieving at least 50% recovery by December 2005.

Public awareness campaigns run by the DEHLG, Local Authorities and Repak have contributed to the achievement of the targets, as has the steady increase in the number of bring banks and recycling facilities and in particular the growing coverage of the 'Green Bin' kerbside collection scheme. Improvements in enforcement of the Regulations by the Local Authorities, as well as the provision of energy recovery capacity which will contribute significantly to the continued increase in recovery of packaging waste through to 2011 and beyond.

With respect to prevention and minimisation of packaging waste, as mentioned above, public awareness campaigns have been stepped up a great deal since 1998. The introduction of the plastic bag levy in March 2002 has resulted in a significant decrease in the quantity of plastic generated.

9.7 FUTURE DIRECTION

It is recognised that industry, primarily through Repak, is actively improving the situation as regards recovery of packaging waste by financial support of public and private sector initiatives. However the majority of the costs of household packaging waste recycling schemes are financed by Local Authorities, the funds sourced mainly from user-fees, and businesses themselves bear the bulk of their packaging waste recovery costs.

There is scope for improvement by industry in a number of key areas. The following suggestions are proposed as methods by which *producer responsibility* can be further advanced by industry.

Prevention and Minimisation of Packaging – applying research and technology to avoid or reduce packaging waste

Reuse schemes for Packaging – high profile examples of reuse of packaging at consumer level to be developed

Making Packaging Recyclable in practice – we continue to produce many forms of packaging that aren't recyclable in the practical sense: i.e. there is no current effective recycling system in Ireland. The variety in packaging materials, and use of composite packaging containers, may suit marketing and brand differentiation, but it makes it more difficult for consumers to identify and separate out packaging for recycling. Separation and grading of packaging, particularly plastics and composites, is difficult and in some cases mixed packaging streams are impossible or too expensive to recycle and instead are sent for recovery. Many of the most common day to day consumer goods - water, milk, bread, for example, are largely packaged here in Ireland. There is an opportunity to introduce a consistency in packaging materials and to limit packaging to categories that can be recycled in practice.

The Local Authorities for their part are committed to a vigorous enforcement of packaging legislation and the continued improvement of packaging recycling for both households and business.

Further details on the development of policies and actions for prevention/minimisation and recovery of packaging from household, commercial and industrial waste can be found in Chapters 18 and 19.

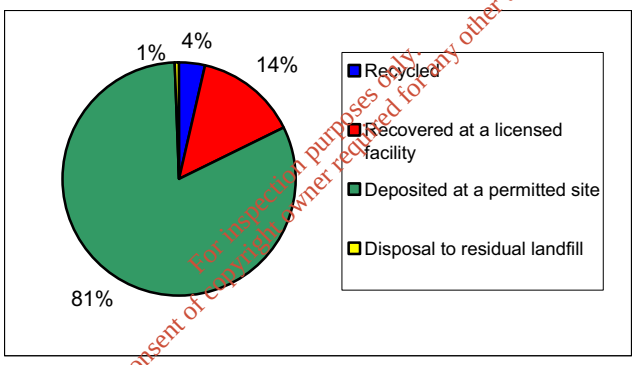
10 CONSTRUCTION AND DEMOLITION WASTE

10.1 CURRENT MANAGEMENT METHODS

The C&D waste stream is very significant in terms of meeting National and Regional targets due to its high recycling potential. At the time of preparing the previous Dublin Waste Management Plan, reporting systems were not in place to record this waste stream and a figure of 1,223,013 tonnes was estimated for the Region. The situation has improved and the current Waste Permit and Waste Collection Permit systems ensure that accurate quantities of C&D waste arisings should now be available.

It is estimated that a total of 3.9 million tonnes of C&D waste was generated in the Region in 2003. Galway Mayo Institute of Technology in association with the EPA are currently developing a Waste Audit Methodology to identify and quantify C&D wastes arising on construction sites in Ireland. This methodology should be used in the future to estimate C&D waste not entering the controlled waste stream. Figure 10.1 provides a breakdown of the management methods for C&D waste in the Region – an estimated 18% is currently recycled.

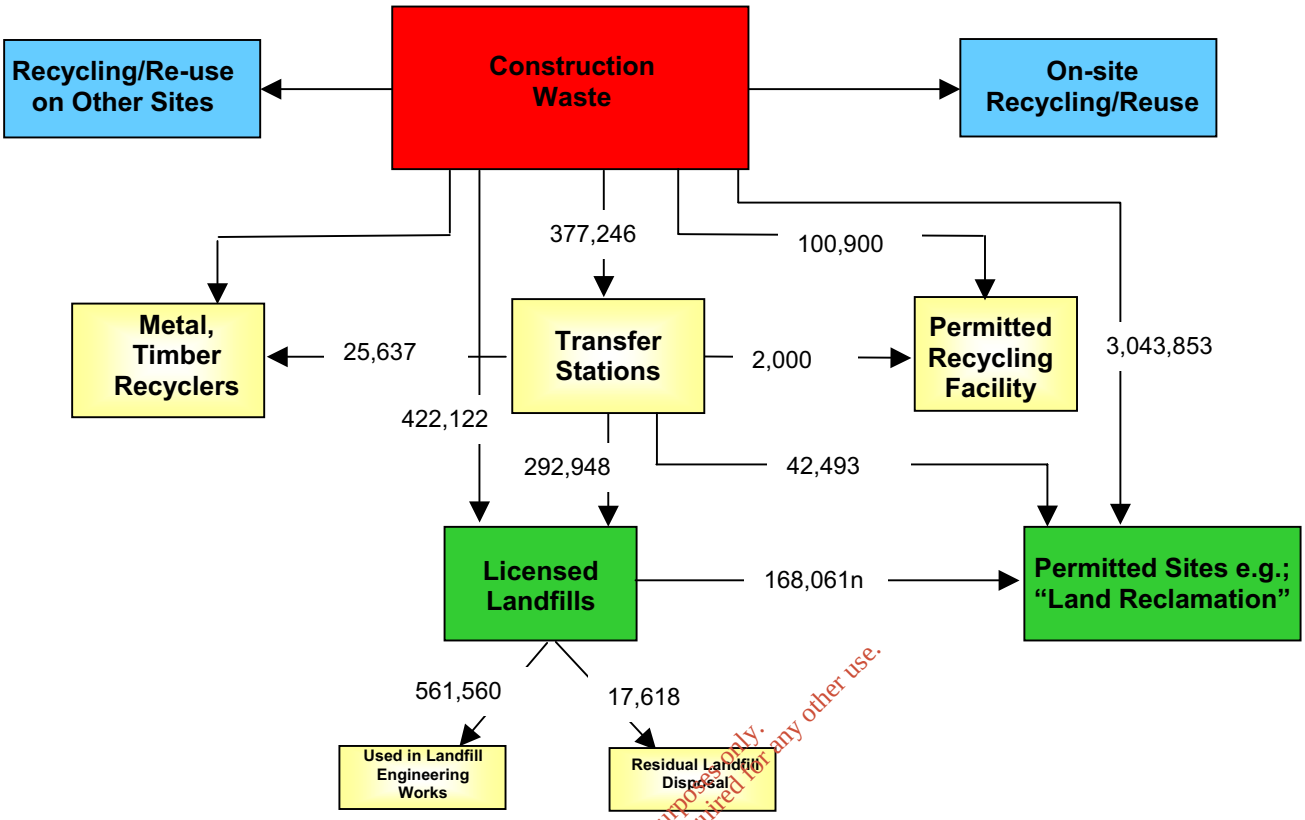
Figure 10.1 Recycling, Recovery and Disposal of C&D Waste in Dublin Region 2003



The range of methods for management of C&D waste has increased during the period 1998-2003. The principal methods for management of this waste stream are illustrated in Figure10.2

Roadstone C&D Waste Recycling in South Dublin

Figure 10.2 Material Flows for C&D Waste 2003 (Tonnes)



Source: Local Authority National Waste Database Returns, Local Authority records.

Large volumes of C&D waste are generated from road construction, general excavation and land-clearing works. A significant proportion of this material does not enter the controlled waste stream; it is typically reused as fill material on site, used for land reclamation or fill material on other non-permitted sites.

A feature of the construction industry is that the larger companies are increasingly segregating waste at the point of generation. This behavioural change was driven as a commercial necessity due to the dramatic increase in the cost of waste disposal in recent years. However, this does not extend to the whole industry and smaller operators are still less inclined to segregate and recycle waste material.

There has been an increase in recycling activity in recent years. In particular, there appears to be an increase in the number of mobile crushers in use. These machines are used to crush primarily concrete and masonry components of the waste stream, and the material produced is generally used as low-grade fill for backfilling purposes or for use as sub-base material for site roads or car parks. Screeners are also increasingly being used to separate stones from soil and boulder clay, thus minimising the volume of material to be removed from the site.

Demolition companies are increasingly employing more sophisticated demolition methods and site practices, which can facilitate the recovery of recyclable materials. Selective demolition methods and increased source segregation of C&D waste on sites reduces the volumes of waste sent to residual landfill.

10.2 CURRENT FACILITIES IN PLACE TO MANAGE C&D WASTE

10.2.1 Permitted Recycling Facilities

Roadstone Dublin Ltd operates two permitted recycling facilities in the Dublin Region; Belgard Quarry, Tallaght, with a Permit from South Dublin County Council and Huntstown Quarry, Finglas, under Permit from Fingal County Council. By imposing strict acceptance criteria on the incoming material, they can ensure a relatively clean feedstock material of inert pre-segregated C&D waste. Between the two facilities approximately 90,000 tonnes of C&D waste is processed annually. This material is generally used as fill material or in the construction of site roads by their existing customers in place of virgin material. Several demolition contractors have also obtained permits to operate crushers on construction sites in the Dublin Region. For example, over 8,000 tonnes of material from the Spencer Dock Development was crushed and reused.

10.2.2 Transfer Stations/Material Recovery Facilities

Transfer stations took in approximately 380,000 tonnes of C&D waste in 2003. This material was either processed on site or sent to other authorised facilities for further processing. C&D waste is generally undergoing more processing/handling than was typical before the advent of the 1998 Plan. Recyclable elements such as metal/timber/inert material may be transferred to recyclers, and the residual material sent to licensed landfills or permitted sites. Operators of Waste Transfer Stations reported an increase in the volumes of C&D waste handled at these types of facilities quoting the increasing awareness within the industry of the economic benefits of wastes segregation as the main reason.

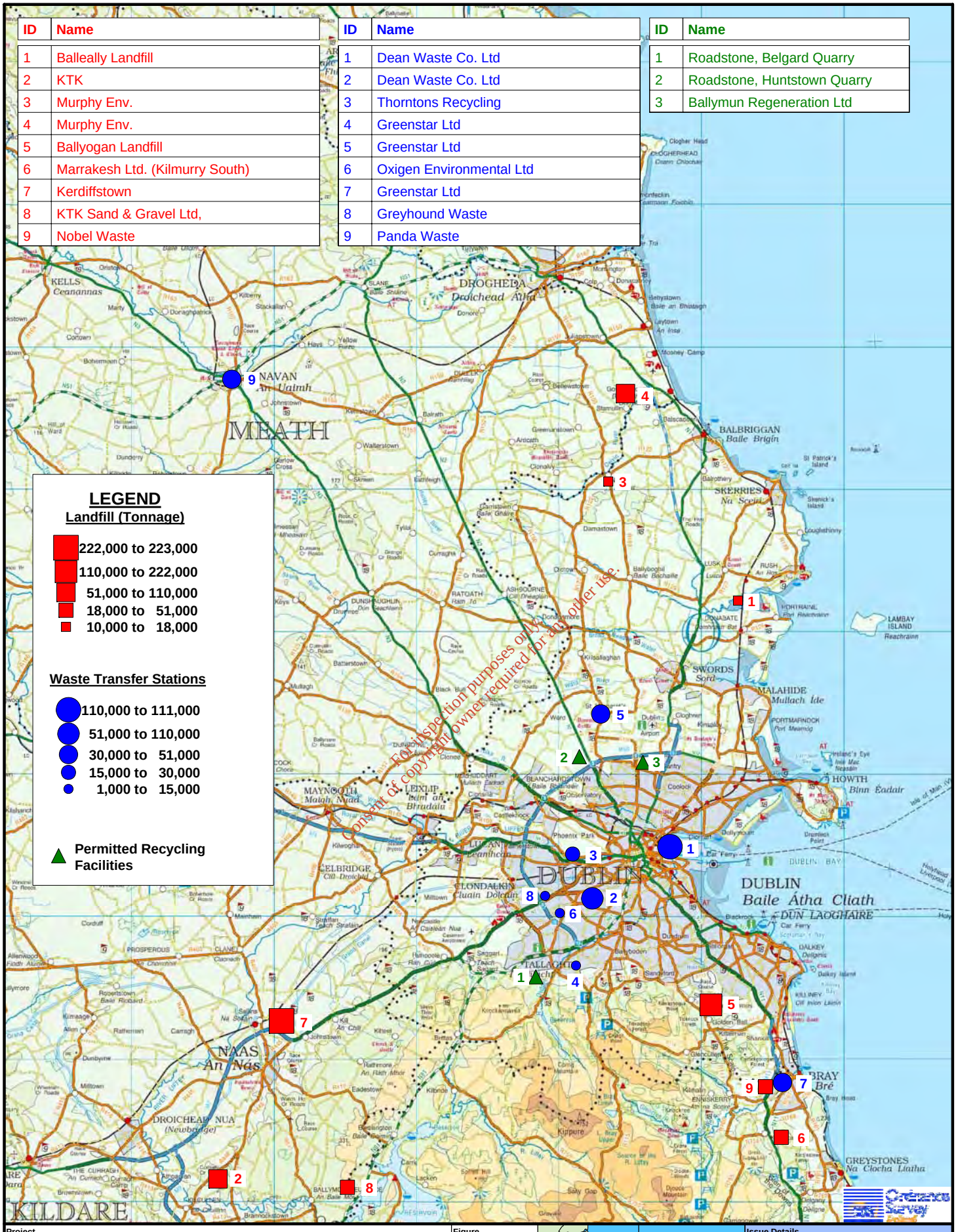
The main handlers of C&D waste in the Region are Dean Waste Co. Ltd, Greenstar, Thorntons, Oxigen and Panda Waste. Dean Waste Ltd. (trading as A1 Waste) take in approximately 200,000 tonnes of material between their two facilities. A certain amount of this material is recycled directly but most is transferred to an Integrated Waste Management Facility near Naas Co. Kildare where further recycling facilities are in place. Greenstar move large quantities of material from the WTS/MRFs to their other facilities where the material is landfilled or subjected to further recovery. **Map 7** has a list of licensed transfer stations and MRFs accepting C&D waste.

10.2.3 Metal, Timber Recyclers

An estimated 25,000 tones of C&D waste was sent to metal/timber recyclers from Transfer Station/Material Recovery Facilities in 2003. It is difficult to estimate the volumes of materials being recycled directly.

10.2.4 Permitted Sites

Sites with a waste permit where material may be deposited are the largest outlet for C&D waste from the Dublin Region. The permitted material is primarily soil/stones, however some inert C&D waste may also be permitted. Significant volumes of this material originating from the Dublin Region is sent to neighbouring counties. This material was predominantly recorded as soil and stones. It is possible that significant quantities of concrete and other C&D waste was deposited in these sites without authorisation in contravention to the waste permits under which they operate.



Project	*Dublin Waste Plan*	Figure	Map 7
Title	**Location of Facilities Handling C/D Waste**		

WASTE MANAGEMENT PLAN
Working for the Dublin Region

RPS mcos
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2884499
Fax No. 01 - 2835676
rpsmcos@rpsgroup.ie

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10.2.5 Licensed Landfills

The vast majority of the C&D material being sent to landfills from the Dublin Region is being used for landfill engineering/site restoration works. The disposal of C&D waste to residual landfill space has decreased dramatically in the period since the introduction of the previous Waste Management Plan. Several facilities have recovery operations on site which can process the material and enable them to consign it to other permitted sites and divert the material from residual landfill disposal.

10.3 SCOPE FOR IMPROVEMENTS IN C&D WASTE MANAGEMENT

C&D waste is the single largest waste stream moving on the streets and roads of Dublin. The disposal of C&D waste to residual landfill space has decreased dramatically in recent years. However, there is scope for huge improvements in the way this waste stream is managed. An essential characteristic of recovery/recycling operations is that the waste treated serves a useful purpose in replacing other materials which would have had to be used for that purpose, thereby conserving natural resources. This is one of the primary challenges to improving the way C&D waste is handled at present. There is a sense that depositing soil to local authority-permitted sites in many cases is merely a convenient outlet for C&D waste, it is unlikely that for many of these sites that virgin resources would have been used.

Improved practices such as selective demolition, source separation and extraction of recyclable elements, such as steel and timber, from the C&D waste stream have become more commonplace. Waste management companies are also applying more sophisticated sorting processes to mixed C&D waste. These activities, which represent real recycling, need to be differentiated from activities classified as recovery in presentation of statistics on waste management in the construction industry.

In order to achieve the targets set out in *Changing Our Ways*, of 85% recycling of C&D waste by 2013, the following needs to occur (see also Section 19.2):

10.3.1 Prevention and Minimisation

The generation of C&D waste due to careless on site management of building materials is a still an issue that needs further attention in terms of awareness programmes within the construction industry. Continued emphasis and training of designers, planners, and developers is required to ‘design out’ waste in construction and demolition works where possible.

The forms of contracts used to administrate civil engineering projects are beginning to change. Traditionally, a contractor may have passed the costs of waste disposal directly to the client. However, in Design and Build Contracts there is a better relationship between the designer and the contractor so there may be greater opportunities to use site-won recycled materials in a meaningful way in the course of the contract.

10.3.2 Source Separation

Source separation is already being practiced by the more progressive construction and demolition contractors who recognise the cost benefits that can be achieved. However, the practice is far from widespread, materials are frequently mixed together in a skip, which reduces the quality of raw material for recycling.

Bigger companies are responding and separating recyclables but many smaller builders and smaller projects still used a mixed waste skip. The original intention of the waste management plan was to introduce a Waste Bye Law requiring separation of recyclable C&D waste at source, this has not been implemented to date.

In 2001 the EPA recommended that the targets set out in '*Changing Our Ways'* should be applied to individual fractions that make up the waste stream, such as concrete, bricks, gypsum-based material, metal etc.

The Institution of Civil Engineers (ICE) in the UK in collaboration with the Construction Confederation and the Scottish Waste Awareness Group (SWAG) has launched a new, easy and simple initiative to tackle construction waste by introducing colour-coding for skips. This type of programme should be promoted in the region in consultation with the NCDWC and CIF see the following website for further information http://www.wasteawareconstruction.com.

10.3.3 Material Deposited at Permitted Sites

This represents the largest outlet for C&D waste in the Region. However, due to the nature of the process the data available is both qualitatively and quantitatively unreliable. An issue reported by the NCDWC is the lack of consistency in terms of recording the tonnages on an annual basis into permitted sites. The NCDWC has recommended that Waste Permit and Registration Regulations be reassessed to include a requirement for tonnages to be recorded by Local Authorities. The DoEHLG is currently reviewing the Waste Management (Permit) Regulations, a draft revision was subject to public consultation during July – September 2005.

Currently soil/ stones deposited on land under Permit is mainly regarded as a 'recovery' operation and the sites are nominally using the soil for beneficial agricultural use. Arguably a better approach (and a more sustainable land-use) would be to have a smaller number of C&D waste management points, for example situated in old quarries. Mixed C&D waste could be screened and materials, such as concrete, brick and stones, could be used to produce granular material suitable for engineering fill. The soil could be used to reinstate and restore the quarry. Fewer sites would be easier to regulate and permitted sites for C&D waste are demanding on Local Authority resources and closely inspecting a large number of sites is challenging. The Region needs to consult with the NCDWC and the CIF to encourage the establishment of a number of additional large scale processing facilities e.g. in old quarries or other areas in the Dublin Region to screen out recyclable materials before deposition in permitted sites.

10.3.4 Enforcement by Local Authorities

An issue raised by operators of EPA-licensed facilities was the perceived lack of enforcement by the Local Authorities, this extended to both the tonnages being accepted and the nature of material being deposited. The issue of illegal dumps and operation of concrete crushing plant without proper permits was also an issue raised by authorised operators. Illegal activities may serve to undermine the commercial viability of these authorised recyclers.

10.3.5 Landfill Levy

The increased costs of disposing of C&D waste to residual landfill had led to a change in behaviour and an increase in recycling/recovery of this waste stream in recent years which is in line with the 'polluter pays principle'. The introduction of the Landfill Levy also contributed to the increase in disposal costs, however, C&D waste may be exempt from the Levy if certain conditions are met and it is to be used in landfill engineering works. These factors may partially explain the high level of recovery reported of construction and demolition waste at landfills in comparison to the volume of waste reported as sent to residual landfill.

10.3.6 Network of C&D Waste Recycling Centres

In addition to the 'Inert C&D Waste Management Points' a network of C&D waste recycling centres should be established where public and small and medium sized industry can bring C&D waste for collection and recycling at regional sites. The provision of a relatively clean feedstock will provide an impetus for market-led development of recycling activities such as an increased recycling of materials such as gypsum, steel, concrete etc. The Private Sector will be best placed to provide these facilities.

10.3.7 Guidelines for C&D Developments

Guidelines for Construction and Demolition Waste Management Plans have been developed by the NCDWC and formally submitted to DoEHLG. The DoEHLG has developed 'Draft Project C&D Waste Guidelines' which have been issued for public consultation.

The NCDWC guidelines will initially operate on a voluntary trial basis at commencement notice stage, however planning authorities may attach a condition to permissions on projects exceeding the thresholds indicated. Section 34 (4)(I) of the Planning and Development Act, 2000 permits the attachment of conditions relation to construction and demolition waste management.

Thresholds for the application of a Waste Management Plan proposed are as follows:

1. New residential development of 10 houses or more
2. New developments, other than (1) above, with an aggregate floor-area in excess of 1,250m^2;
3. Demolition projects generating in excess of 500 tonnes of C&D waste;
4. Civil Engineering projects producing in excess of 500m^3 of waste (equivalent to 1,000 tonnes), excluding waste materials used for development works on the site.

The Local Authority role in the new scheme will be:

- Checking Planning Applications to see whether thresholds for C&D waste plans are exceeded (the City or County Development Plan should be updated to reflect the new requirements)
- Assessing the C&D waste plans submitted at Planning stage
- Monitoring and inspecting construction sites and disposal sites to ensure the developer is implementing the plan.

Therefore a lot more interaction with the Planning process will be required and Planning Staff will need to be made aware of the new initiative and its implications. The complete document on Best Practice Guidelines on the preparation of Waste Management Plans for Construction and Demolition Projects is available at www.ncdwc.ie

Minimising Waste by Reuse of old bricks

Source separation of recyclable C&D waste

11 WASTE RECYCLING AND RECOVERY INFRASTRUCTURE

11.1 INTRODUCTION

The number and variety of waste management facilities in the Dublin Region has grown dramatically since the previous Plan was adopted in 1998, reflecting a more diversified approach to managing waste. Waste facilities can be placed in two broad categories:

- Licensed Waste Facilities – by virtue of their large scale and type of activity, these are regulated by the Environmental Protection Agency. There are 34 Licensed facilities in the Region

- Permitted Waste Facilities – these are generally smaller facilities involved in recycling, materials recovery or waste transfer, regulated by the Local Authority. There are 107 sites permitted in the Region, 48 of which are for soil and typically of a temporary nature.

Table 11.1 Permitted Facilities in the Region in 2003

Local Authority	No. of Permitted Facilities (Soil/Land Reclamation)	Quantity of Soil/Land Reclamation (Tonnes)	Estimated Tonnage 2003
DCC	17 (0)	-	71,574
DLRCC	3 (3)	-	- N/A
FCC	57 (38)	1,650,952	1,837,061
SDCC	30 (7)	13,950	304,036
Total	**107 (48)**	**1,664,902**	**2,212,671**

Source: Local Authority records of AERs from permitted facilities

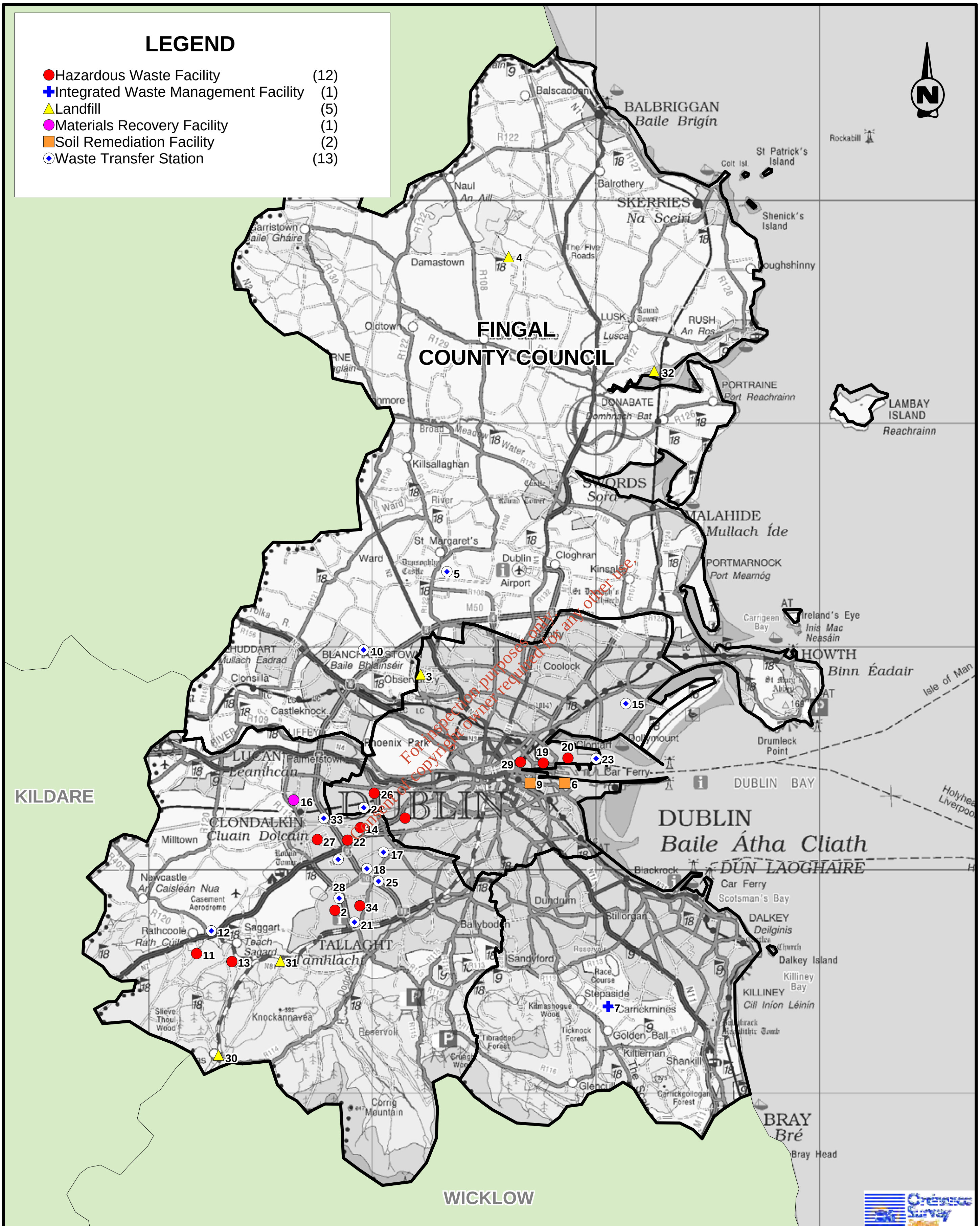
Maps 8 and 9 give the position of the Licensed and Permitted facilities in the Region. The permitted sites that are established on a temporary basis to place soil on land are not included, there are several of these in Fingal and South Dublin and a small number in Dun Laoghaire Rathdown. In so far as it is possible additional information has been obtained from the Permitted and Licensed facilities referred to in Maps 8 and 9 and is contained in Appendix D.

Map 10 includes existing/ proposed licensed facilities in the Greater Dublin Area.

11.2 WASTE RECYCLING, MATERIALS RECOVERY

11.2.1 Public Recycling Facilities

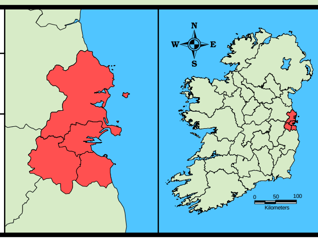
The position regarding Bring Banks and Recycling Centres is outlined in Chapter 7. The Waste Management Plan set an objective to establish 10 full-scale Recycling Centres: to date 6 are in place, complimented by 9 community level 'Bring Centres' in the DCC area. Further development of this network of facilities is required both for household waste and for commercial/industrial waste (e.g. from SMEs and small industry).



Project	Dublin Waste Plan	Figure	Map 8
Title	Dublin Region - Licensed Waste Facilities		

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

Waste Management Plan



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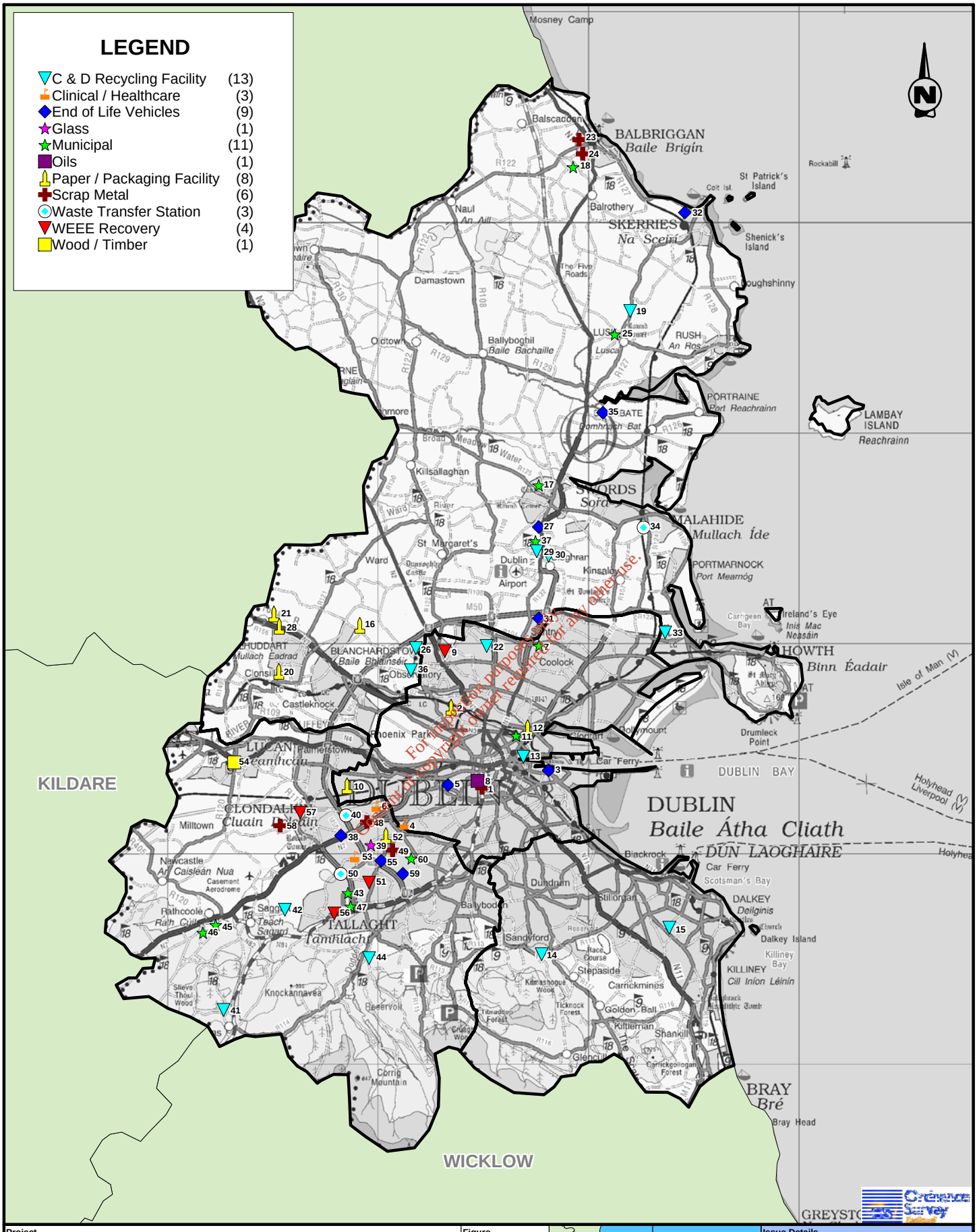
ID	FACILITY_NAME	LOCATION	COUNTY	REG_NO	FACILITY_TYPE
1	National Recycling & Environmental Protection Ltd.	John F Kennedy Drive, JFK Industrial Estate, Naas Road	Dublin	112-1	Hazardous Waste Facility
2	Silver Lining Industries (Ireland) Ltd.	Unit 61, Cookstown Ind. Estate, Belgard Road, Tallaght	Dublin	122-1	Hazardous Waste Facility
3	Dunsink Landfill	Dunsink Lane, Finglas	Dublin	127-1	Landfill
4	Murphy Concrete Manufacturing Ltd.	Hollywood Great, Nags Head, The Naul	Dublin	129-1	Landfill
5	N. Murphy Waste Disposal Ltd.	Sandyhill, St. Margarets, Co. Dublin	Dublin	134-1	Waste Transfer Station
6	Site contained by Street Frontages	28 & 29 Sir John Rogersons Quay, Dublin 2	Dublin	137-1	Soil Remediation Facility
7	Ballyogan Landfill Facility & Recycling Park	Ballyogan Road, Carrickmines, Dublin 18	Dublin	15-1	Integrated Waste Management Facility
8	Oxigen Environmental Ltd.	Robinhood Ind. Estate, Robinhood Road, Dublin 22	Dublin	152-1	Waste Transfer Station
9	Molloy & Sherry Site	Sir John Rogersons Quay, Dublin 2	Dublin	164-1	Soil Remediation Facility
10	Greenstar Recycling Holdings Ltd.	Millenium Business Park, Grange, Ballycoolin, Dublin 11	Dublin	183-1	Waste Transfer Station
11	Cara Waste Management Ltd.	Greenogue Business Park, Rathcoole, Co. Dublin	Dublin	185-1	Hazardous Waste Facility
12	Greenstar Material	Greenogue Ind. Estate, Rathcoole	Dublin	188-1	Waste Transfer Station
13	SITA Environmental Ltd.	Greenogue Ind. Estate, Rathcoole	Dublin	192-1	Hazardous Waste Facility
14	MacAnulty Clear Drains	JFK Industrial Estate, Naas Road, Dublin 12	Dublin	196-1	Hazardous Waste Facility
15	Green Waste & Civic Amenity Recycling Facility	St. Annes Park, All Saints Road, Raheny	Dublin	203-1	Waste Transfer Station
16	Greyhound Recycling & Recovery Ltd.	Crag Avenue, Clondalkin Ind. Estate, Clondalkin	Dublin	205-1	Materials Recovery Facility
17	Oxigen Environmental Ltd.	Ballymount Road Lower, Clondalkin, Dublin 22	Dublin	208-1	Waste Transfer Station
18	Ballymount Baling Station	Ballymount Road, Walkinstown, Dublin 12	Dublin	3-3	Waste Transfer Station
19	Upper Sheriff Street	Upper Sheriff Street, Dublin 1	Dublin	35-1	Hazardous Waste Facility
20	Tolka Quay Road	Dublin Port, Dublin 1	Dublin	36-2	Hazardous Waste Facility
21	ONYX Ireland Ltd.	Ballymount Cross, Tallaght, Dublin 24	Dublin	39-2	Waste Transfer Station
22	520 Beech Road	520 Beech Road, Western Ind. Estate, Naas Road	Dublin	40-1	Hazardous Waste Facility
23	Dean Waste Co. Ltd.	Upper Sheriff Street, Dublin 1	Dublin	42-1	Waste Transfer Station
24	Thorntons Recycling Centre	Killeen Road, Ballyfermot, Dublin 10	Dublin	44-2	Waste Transfer Station
25	Dean Waste Co. Ltd.	Greenview, Greenhills Road, Walkinstown, Dublin 12	Dublin	45-1	Waste Transfer Station
26	Eco-Safe Systems Ltd.	Allied Ind. Estate, Kylemore Road, Ballyfermot, Dublin 10	Dublin	54-2	Hazardous Waste Facility
27	Sterile Technologies Ireland Ltd.	Western Ind. Estate, Naas Road, Dublin 12	Dublin	55-2	Hazardous Waste Facility
28	Greenstar Materials Recovery Ltd.	Cookstown Ind. Estate, Tallaght, Dublin 24	Dublin	79-1	Waste Transfer Station
29	Lower Oriel Street	North Wall, Dublin 1	Dublin	83-1	Hazardous Waste Facility
30	Hegarty Demolition Ltd.	Brittas, Co. Dublin	Dublin	84-1	Landfill
31	Corbally	Blessington Road, Tallaght	Dublin	88-1	Landfill
32	Balleally Landfill	Balleally, Lusk, Co. Dublin	Dublin	9-2	Landfill
33	Waste Management Centre	Knockmitten Lane, Western Ind. Estate, Dublin 12	Dublin	95-2	Waste Transfer Station
34	Unit 5, Airton Road	Tallaght, Dublin 24	Dublin	99-1	Hazardous Waste Facility



Project	*Dublin Waste Plan*	Figure	Map 9
Title	**Dublin Region - Permitted Waste Facilities**		

WASTE MANAGEMENT PLAN
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

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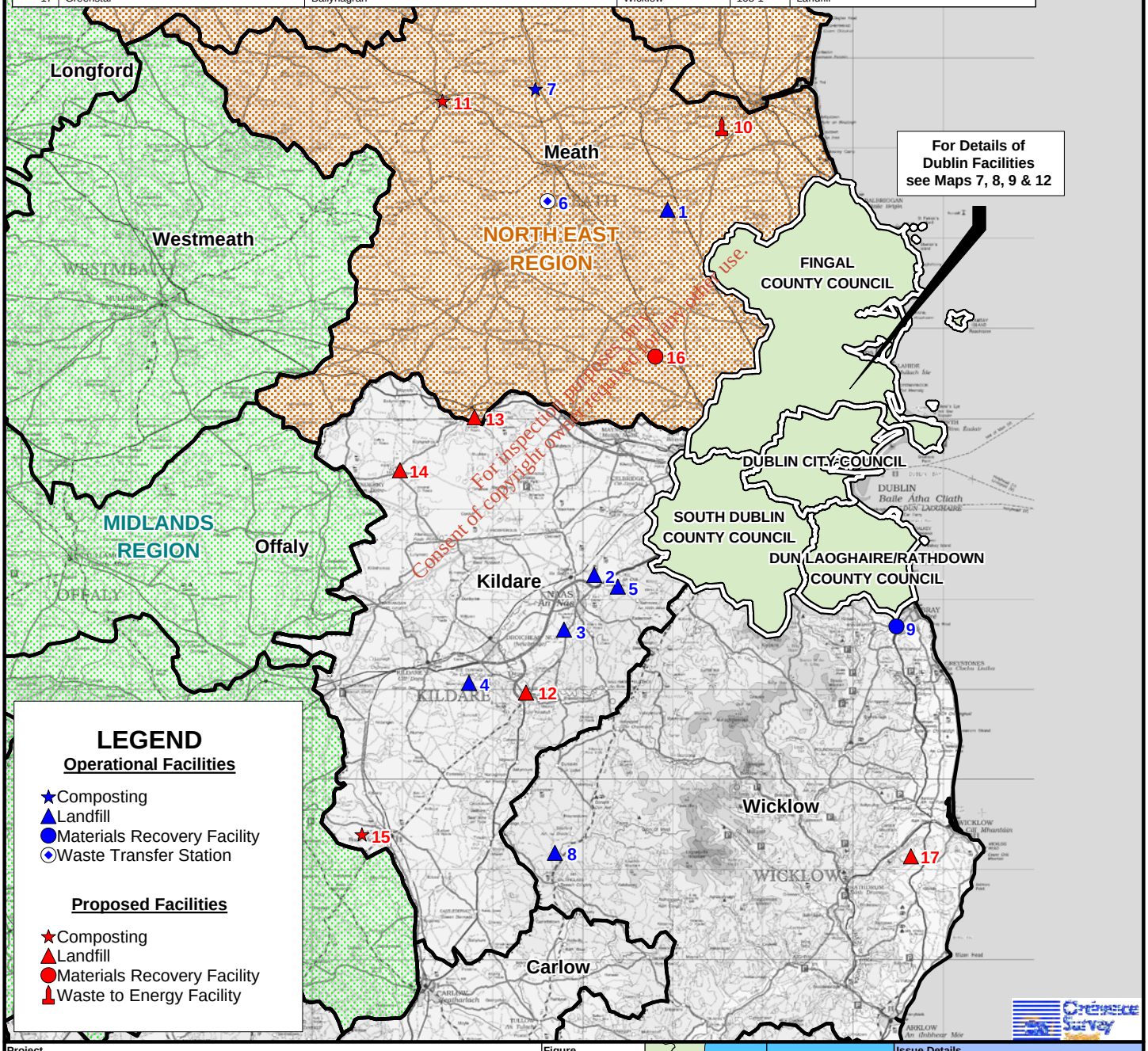
1	Mullins Metals	Blackpitts	Dublin	WP 98008	Scrap Metal
2	John W. Hannay & Co. Ltd.	Bannow Road, Cabra, Dublin 7	Dublin	WP 98016	Paper / Packaging Facility
3	O'Connor & Murphy Auto Recyclers	9A Fitzwilliam Street, Ringsend, Dublin 4	Dublin	WP 98025	End of Life Vehicles
4	Woods	78 Walkinstown Road, Dublin 12	Dublin	WP 98026	Clinical / Healthcare
5	South Dublin Autos	South Circular Road, Rialto, Dublin 8	Dublin	WP 98030	End of Life Vehicles
6	Martin Services Ltd.	Bluebell Business Park, Dublin 12	Dublin	WP 98040	Clinical / Healthcare
7	JVC Ltd.	Clonshaugh Industrial Estate	Dublin	WP 98042	Municipal
8	M. T. Oils Ltd.	Newmarket, Dublin 8	Dublin	WP 98045	Oils
9	Electronic Recycling	Jamestown Business Park, Finglas, Dublin 11	Dublin	WP 98051	WEEE Recovery
10	Shred-It	53 Parkwest, Dublin 12	Dublin	WP 98052	Paper / Packaging Facility
11	IPODEC	North Richmond Street, Dublin 1	Dublin	WP 98056	Municipal
12	Leech Papers Ltd.	Shamrock Terrace, North Strand Road, Dublin 1	Dublin	WP 98066	Paper / Packaging Facility
13	Spencer Dock	Spencer Dock	Dublin	WP 98074	C & D Recycling Facility
14	Mardown Ltd.	Total Fitness, Blackglen Road, Sandyford, Dublin 18	Dublin	W4/4(18)	C & D Recycling Facility
15	St. Joseph's Boys AFC Ltd.	Pearse Park, Rochestown Avenue, Sallynoggin	Dublin	W4/4(19)	C & D Recycling Facility
16	Bailey Waste Recycling Ltd.	Rosemount Business Park, Dublin 11	Dublin	1	Paper / Packaging Facility
17	Fingal Recycling	Feltrim Industrial Park, Swords	Dublin	2	Municipal
18	Fingal Recycling	Stephenstown, Dublin Road, Balbriggan	Dublin	4	Municipal
19	Fajon Construction Ltd.	Skerries Road, Lusk	Dublin	12	C & D Recycling Facility
20	Carno International Ltd.	Barnhill, Clonsilla, Dublin 15	Dublin	14	Paper / Packaging Facility
21	Alldocs Ltd.	Damastown Business Park, Dublin 15	Dublin	16	Paper / Packaging Facility
22	Ballymun Regeneration Ltd.	Balcurris, Ballymun, Dublin 9	Dublin	35	C & D Recycling Facility
23	Techmatic Ltd.	Balbriggan Business Park	Dublin	37	Scrap Metal
24	Irish Metal Refineries	Balbriggan Business Park	Dublin	39	Scrap Metal
25	Greenclean Ltd.	Blakes Cross, Lusk	Dublin	41	Municipal
26	Roadstone Dublin Ltd.	Huntstown Quarry, Finglas	Dublin	45	C & D Recycling Facility
27	Joe Boland Motor Salvage	Nevistown, Swords	Dublin	45	End of Life Vehicles
28	Glenbeigh Records	Damastown Business Park, Dublin 15	Dublin	46	Paper / Packaging Facility
29	McHale	St. Annes, Cloghran	Dublin	47	C & D Recycling Facility
30	Irish Kennel Club	Show Centre, Cloghran	Dublin	48	C & D Recycling Facility
31	Summerhill Spares	Ballymun Cross, Santry	Dublin	60	End of Life Vehicles
32	North County Dublin Car Parts	Man O War, Skerries	Dublin	62	End of Life Vehicles
33	Barnmore Demolition	21 Baldoyle Industrial Estate	Dublin	62	C & D Recycling Facility
34	Peter O'Brien & Sons Ltd.	Streamstown, Malahide	Dublin	69	Waste Transfer Station
35	Gannons City Recovery Ltd.	Turvey, Donabate	Dublin	70	End of Life Vehicles
36	Roadstone Dublin Ltd.	Huntstown Quarry, Finglas	Dublin	72	C & D Recycling Facility
37	International Plant Hire Ltd.	St. Annes, Cloghran	Dublin		Municipal
38	Westlink Recovery Services Ltd.	Red Cow, Naas Road	Dublin	WPR 006	End of Life Vehicles
39	Rehab Glass	Ballymount Avenue, Clondalkin	Dublin	WPR 004	Glass
40	Lawlor Brothers	Unit 28, JFK Ind. Estate, Naas Road	Dublin	WPR 027	Waste Transfer Station
41	Francis Greaney	Glenaraneen, Brittas	Dublin	WPR 036	C & D Recycling Facility
42	Roadstone Dublin Ltd.	Fortunestown, Belgard Quarry, Co. Dublin	Dublin	WPR 025	C & D Recycling Facility
43	JVC Recycling Ltd.	Unit 8, Cookstown Ind. Estate, Dublin 24	Dublin	WPR 023	Municipal
44	Mr. Paul Cooke	Glassamucky, Bohernabreena, Co. Dublin	Dublin	WPR 026	C & D Recycling Facility
45	Burns Waste Recycling Ltd.	Greenogue Ind. Estate, Rathcoole	Dublin	WPR 024	Municipal
46	Bailey Waste Recycling Ltd.	Unit 14A, Greenogue Business Park, Rathcoole	Dublin	WPR 029	Municipal
47	TPH Recycling Ltd. / Goatstown Waste	Unit 51 Fourth Avenue, Cookstown Ind. Estate	Dublin	WPR 031	Municipal
48	Cummins Metals Recycling Ltd.	JFK Drive, Naas Road, Dublin 12	Dublin	WPR 002	Scrap Metal
49	Recoverable Resources Co-op Ltd.	Hibernian Insurance Ind. Estate, Greenhills Road	Dublin	WPR 015	Scrap Metal
50	Textile Recycling Ltd.	Glen Abbey Complex, Belgard Road, Tallaght	Dublin	WPR 014	Waste Transfer Station
51	Gandon Enterprises Ltd.	Unit 77, Broomhill Road, Tallaght	Dublin	WPR 033	WEEE Recovery
52	Smurfit Ireland Ltd. / Smurfit Recycling Ltd.	Lower Ballymount Road, Walkinstown, Dublin 12	Dublin	WPR 021	Paper / Packaging Facility
53	Rentokil Initial Ltd.	Merrywell Business Park, Ballymount Road, Dublin 12	Dublin	WPR 034	Clinical / Healthcare
54	Barina Pellets Ireland	Newcastle Road, Lucan, Co. Dublin	Dublin	WPR 037	Wood / Timber
55	Greenhill Motor Spares	Greenhills Road, Tallaght	Dublin	WPR 010	End of Life Vehicles
56	Smart Waste Solutions	Whitestown Ind. Estate, Tallaght, Dublin 24	Dublin	WPR 042	WEEE Recovery
57	Clondalkin Community Recycling Initiative	Clondalkin, Dublin 22	Dublin	WPR 043	WEEE Recovery
58	Cummins Metals Recycling Ltd.	Clondalkin, Dublin 22	Dublin	WPR 045	Scrap Metal
59	Tallaght Truck Dismantlers	Greenhills Road, Tallaght	Dublin	WPR 047	End of Life Vehicles
60	KPD Ltd.	Greenhills Road, Walkinstown	Dublin	WPR046	Municipal

ID	NEIGHBOURING_REGIONS_FACILITIES	LOCATION	COUNTY	REG_NO	FACILITY_TYPE
1	Greenstar	Knockharley, Brownstown, Navan	Meath	146-1	Landfill
2	Kerdiffstown Landfill	Naas, Co. Kildare	Kildare	47-1	Landfill
3	KTK Sand & Gravel	Killcullen	Kildare	81-2	Landfill
4	Siliot Hill Landfill	Brownstown	Kildare	14-1	Landfill
5	Arthurstown Landfill	Kill	Kildare	4-3	Landfill
6	Midlands Waste Disposal Co. Ltd.	Proudstown, Navan	Meath	131-1	Waste Transfer Station
7	Organic Gold	Wilkinstown, Navan	Meath	219-1	Composting
8	Wicklow County Council	Rampere	Wicklow	66-2	Landfill
9	Greenstar	Fassaroe, Bray	Wicklow	53-2	Materials Recovery Facility
ID	NEIGHBOURING_REGIONS_FACILITIES	LOCATION	COUNTY	REG_NO	FACILITY_TYPE
10	Indaver Ireland	Carranstown, Dunboyne	Meath	167-1	Waste to Energy Facility
11	McGill Environmental	Kells, Co. Meath	Meath	195-1	Composting
12	Greenstar	Usk, off N9, near Kilcullen, Co Kildare	Kildare	168-1	Landfill
13	Padraig Thornton Waste Disposal	Calfield, Enfield	Kildare	179-1	Landfill
14	Bord Na Mona	Drehid, Carbury	Kildare	201-1	Landfill
15	Bord Na Mona	near Athy, Co Kildare	Kildare	198-1	Composting
16	Padraig Thornton Waste Disposal	Dunboyne	Meath	206-1	Materials Recovery Facility
17	Greenstar	Ballynagran	Wicklow	165-1	Landfill



LEGEND

Operational Facilities

- Composting
- Landfill
- Materials Recovery Facility
- Waste Transfer Station

Proposed Facilities

- Composting
- Landfill
- Materials Recovery Facility
- Waste to Energy Facility

Project: *Dublin Waste Plan*

Figure: Map 10

Title: **Existing / Proposed Licensed Facilities outside Dublin Region**

WASTE MANAGEMENT PLAN
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

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Notes

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11.2.2 Materials Recovery Facilities (MRFs)

These facilities are required to accept, sort and bale recyclable materials for transfer to reprocessing markets. There has been rapid growth in the number of MRFs in the Region, handling mainly commercial waste but also some household recyclables. Throughput of commercial/ industrial recyclables in MRFs was in the Region of 230,000 tonnes in 2003. Since further growth in recycling is required under the Plan, it is envisaged that further expansion of MRF capacity will be required. Typically MRFs and transfer stations are located in industrial areas.

Mixed dry recyclable waste collected in the Green Bin service is taken to a MRF operated by private company Oxigen/Bailey Waste Paper at Clonshaugh, where it is sorted into recoverable fractions which are baled and transferred to reprocessing facilities. The tonnage handled is approximately 45,000 tonnes per annum. A residue remains to be landfilled.

11.2.3 Reuse and Repair

There is no direct involvement by Local Authorities or waste management companies in reuse and repair of goods (furniture, equipment etc.). This role is served by two separate sectors:

- **Voluntary Sector** – charity shops and charitable organisations, who accept some household items for re-sale depending on quality and space available
- **Private Sale** – classified advertisements in publications such as 'Buy and Sell' enable items to be traded or sometimes given away free. There are also a small number of businesses involved in resale of office furniture, and 'architectural salvage' where interesting pieces of furniture or appliances are kept in circulation.

11.3 BIOLOGICAL TREATMENT FACILITIES

11.3.1 Green Waste Composting

Up until 2004, two facilities were in place in the Region:

- **St Anne's Park** in Raheny, operated by DCC with a capacity of approximately 20,000 tonnes/ annum. This facility was forced to close in 2004.
- **Esker Lane, Lucan**, operated by South Dublin County Council with a capacity of approximately 5,000 tonnes/annum. This facility may be relocated to an alternative location in the County.

The 1998 Waste Management Plan had called for an expansion of green waste composting capacity. The Esker facility in South Dublin has provided some of this extra capacity, but the demand for green waste composting services is increasing with the growing numbers of suburban gardens and expanding landscaping industry. With the closure of St Anne's Park, the Region may have to rely on facilities in adjoining counties for green waste composting, until capacity can be developed closer to the source of the waste.

11.3.2 Biowaste Composting

Biowaste is a term that includes the organic food waste generated by households and commerce/industry. At present there is no capacity in the Region to biologically treat biowaste.

In accordance with the previous Waste Plan, the Dublin Local Authorities have carried out a feasibility study for biological waste, which recommended developing two facilities each with a capacity of up to 45,000 tonnes/annum of source separated municipal organic waste. This is being implemented by DLRCC (at Ballyogan) and by FCC (at Kilshane). The Ballyogan facility is expected to become available in 2007, with Kilshane in 2007/ 2008.

A number of private waste collection companies are employing mechanical pre-processing (shredding, screening) of mixed commercial waste collected in the Dublin Region, which enables the 'fines' to be separated and sent to off-site facilities, typically composting sites outside the Dublin Region. The practice reduces the amount of waste sent directly to landfill, but the quality of the product is questionable due to high levels of contamination, and as a result markets are limited.

Private company Greenstar has received Planning Permission and a waste Licence for an organic waste treatment facility for commercial waste at Ballycoolin in Fingal. The capacity is up to 50,000 tonnes/annum. This company is already collecting some source separated commercial organics for treatment at a facility in County Kildare. Further composting capacity is under planning by private companies A1 Waste, Bord Na Mona, Thornton Waste and McGill Environmental in the counties neighbouring Dublin.

11.4 WASTE TRANSFER/ BALING FACILITIES/LIQUID WASTES

11.4.1 Baling Stations

There are four facilities in the Region with capacity to bale municipal waste for transfer to the municipal landfill at Arthurstown, County Kildare (operated by SDCC in conjunction with the private company ONYX). These are:

Ballymount Baling Station – during the Plan period SDCC invested in a facility upgrade and extended the capacity throughput up to 324,480 tonnes per annum of municipal waste (mainly household waste from South Dublin and DCC on behalf of the Region)

Ballyogan Baling Station – commissioned in 2004 and operational in 2005, this Regional facility is managed by DLRCC and operated on their behalf by a private contractor Greenstar. The capacity is 120,000 tonnes/ annum. The facility is part of the Ballyogan Recycling Park developed by DLRCC.

Thornton Waste Facility – situated in Ballyfermot, this private facility has installed baling capacity for 250,000 tonnes/ annum. As well as some commercial waste from the Dublin Region, the facility also accepts household waste from Kildare, Meath and Wicklow for baling and transfer to the Arthurstown landfill.

Oxigen Waste Facility – situated in Ballymount, this baler is currently being commissioned (2005) and has a capacity of approximately 100,000 tonnes/ annum

11.4.2 Transfer Facilities

There are several large scale transfer facilities in the Region, operated by the private sector. The current throughput of commercial/ industrial waste through MRFs and transfer facilities combined is estimated to be between 450,000-500,000 tonnes in 2003.

The typical purpose of these facilities is to accept waste from collection vehicles and to bulk and compact the material into trailers for onward transport to disposal. Transfer facilities are becoming more sophisticated and generally the operators have introduced a materials recovery stage whereby recyclables such as cardboard, timber, metals etc. are removed for recycling. In some cases waste is shredded to make transfer more efficient. With some commercial waste facilities, a mechanical process is employed (shredding followed by screening and magnetic removal of metals) to separate the finer fraction of the waste which is mainly organic material (outlined in 11.3 above).

11.4.3 Liquid Wastes

A number of companies are involved in collection of liquid waste generated for example by cleaning of drains and de-sludging of equipment and grease traps. At present there is poor access to facilities within the Region for treatment of this waste, which forces additional transportation and cost to access other Regions.

11.5 ENERGY RECOVERY

The previous Waste Management Plan set out an objective to develop thermal treatment capacity for municipal waste:

"*Because of the critical shortage of disposal capacity and in order to satisfy the requirements of the Packaging Waste Directive and the proposed EU Landfill Directive,* ***the provision of thermal treatment with energy recovery, for a capacity in the Region of 500,000 – 700,000 tonnes per annum***"

It is intended in the Plan that recyclable waste and organic waste will be separated for recycling first, and the thermal treatment capacity will be for residual waste collected otherwise. The target date for implementation of the facility was 2004.

Following from the Waste Management Plan in 1998, Feasibility Studies on thermal treatment were carried out in 1999. These reports examined what technology would be capable of thermally treating 25% of Dublin's waste and what would be the best location for the plant. The studies concluded that a number of thermal treatment technologies (including incineration) could possibly be employed in Dublin but that an open procurement process where all the best technologies could compete for the project would make the decision. The studies also concluded, based on the criteria set out in the report, that the preferred location for the proposed plant is the Poolbeg Peninsula.

Relevant excerpts from the Feasibility Study for Thermal Treatment of Waste for the Dublin Region – Report on Siting and Environmental Issues (1999) are included in Appendix F of the Plan. The facility siting will be addressed and updated in the EIS Report for the Dublin WTE facility.

Dublin City Council appointed a consultancy joint venture to act as Client Representative to select a service provider and establish a Public Private Partnership to design, build, operate and finance the plant. The consortium includes expertise in environmental science, waste management, procurement and public involvement.

Tender Documents were then drawn up for the 'Dublin Waste to Energy Project', drawing on a wide range of expertise including legal, financial and engineering. Dublin City Council advertised for 'expressions of interest' in 2002. Several international consortia made submissions to the project team. All of the submissions were examined and four consortia were short listed primarily on the environmental performance of their existing plants. Tender Documents were issued to the shortlisted consortia. Following submission of bids, negotiations took place with the final two tenderers, resulting in a preferred Service Provider emerging. The proposal had been forwarded to the DEHLG for approval, and the Department confirmed in September 2005 it had no objection to the proposal. The preferred Service Provider was announced in September 2005 as Elsam Ireland.

Following the Award of Contract (October 2005), the Service Provider will undertake the Statutory Planning and Environmental Licensing for the facility. Initial baseline monitoring of the environment has been underway to facilitate the preparation of an EIS. The earliest point construction can begin is 2008. Construction and commissioning must follow, meaning the plant would be available in 2010 – 2011.

A proactive Public Involvement Process has been underway to assist development of the Dublin WTE project since 2001.

An information service was opened in the Ringsend Regional Office in 2001. The office has a full time staff including a senior official from Dublin City Council and an environmental scientist from the Project Team. The information service is available to all members of the community.

Initiatives carried out include:

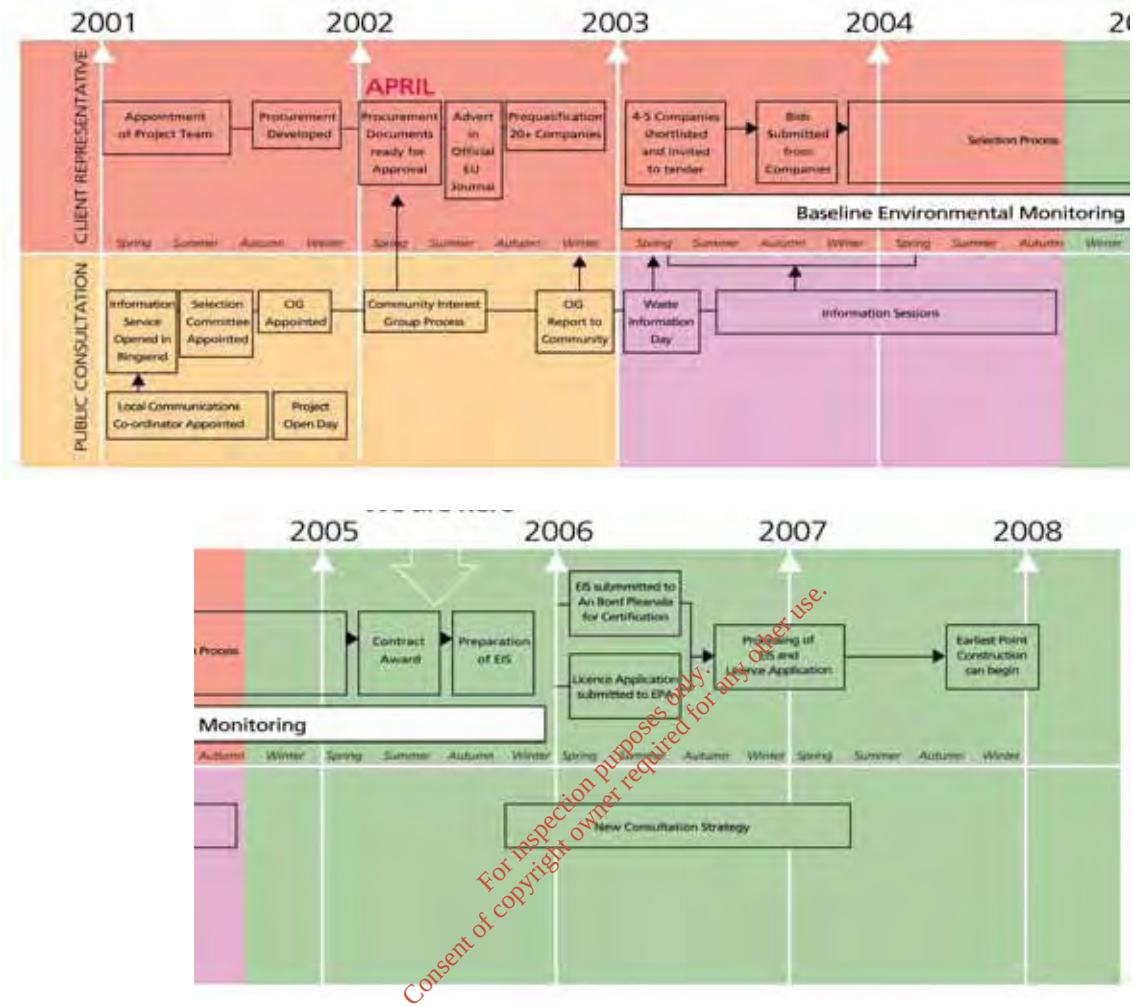
- Project Open Days
- Community Interest Group Process
- Independent Specialist Expertise (environmental, scientific, legal etc.) provided for the community
- Waste Information Day
- Information Sessions (covering Air Quality, Ecology, Health, and Traffic)

Further public involvement will be included in the statutory phases of the project development.

Esker Lane Compost, South Dublin

Waste Delivery to Ballymount Baling Station

Figure 11.1 Summary Dublin Waste to Energy Project Development (Oct. 2005)



11.6 RECYCLING/RECOVERY INFRASTRUCTURE DEFICIENCIES

While recycling of waste has improved dramatically over the past 6 years, the Region is still a long way from reaching it's recycling and recovery goals. Waste growth is set to continue with increases in population and economic activity, so the infrastructure required must also expand to cope with these pressures.

The following deficiencies have been identified:

Bring Banks and Recycling Centres – further facilities required, and other improvements in the accessibility and range of materials collected are required.

Re-use and Repair – there are limited options in place in the Region, further delivery and sale points would be beneficial.

Materials Recovery Facilities – a reasonable level of capacity is available but further increase in recycling will require more MRF capacity.

Green Waste Composting – a significant deficit now exists in the Region for green waste composting. This will force expensive additional transport to facilities outside the Region until capacity is increased.

Biowaste Composting – a significant deficit exists. Facilities to manage household biowaste are in development by the Local Authorities. Facilities to manage commercial/ industrial biowaste are being advanced by the private sector.

Waste to Energy/Thermal Treatment Facility – urgently required to meet Plan targets and EU Landfill Directive targets. This is being advanced by the Local Authorities through a PPP contract.

Transfer facilities – reasonable level of capacity available but further expansion/ upgrading including new facilities is likely to maximise the efficiency of waste transfer.

Liquid Wastes – little capacity in the Region to manage liquid wastes such as grease-trap waste etc.

Reprocessing (recycling facilities) – almost all waste is recycled outside the Dublin Region. Access to indigenous recycling capacity would be beneficial. A particular challenge exists with regard to Construction & Demolition waste which requires greatly increased recycling capacity in lieu of recovery to permitted sites for agricultural reclamation.

12 WASTE DISPOSAL

12.1 INTRODUCTION

The previous Dublin Waste Management Plan (1998) aimed to reduce the Region's over dependence on landfill through waste prevention, re-use and recycling. The Plan set a target for the landfilling of 16% of the total household, commercial and industrial waste arisings to 2004. Although the situation has improved with increased awareness and recycling, there are now 4 landfills in place and over 74% of the household, commercial and industrial waste streams is disposed of to these landfills.

12.2 QUANTITIES OF WASTE LANDFILLED

The total quantities of household, commercial and industrial waste disposed of to landfill in the Region in 1997 and 2003 are shown in Table 12.1.

Table 12.1 Waste Disposal to Landfill in the Dublin Region 1997 – 2003

Waste Type	1997 (Tonnes)	2003* (Tonnes)
Household Waste	352,000	383,816*
Commercial/ Industrial Waste	364,000	342,829**
Street Cleaning	21,800	30,325
Total	**737,800**	**756,970**

*Excludes an estimated 90,000 tonnes coming from Meath, Kildare and Wicklow transferred to Dublin baling stations
**Estimates include 140,000 tonnes landfilled at KTK from Dublin Region.

Figure 12.1 Landfill Tonnages 1997 and 2003

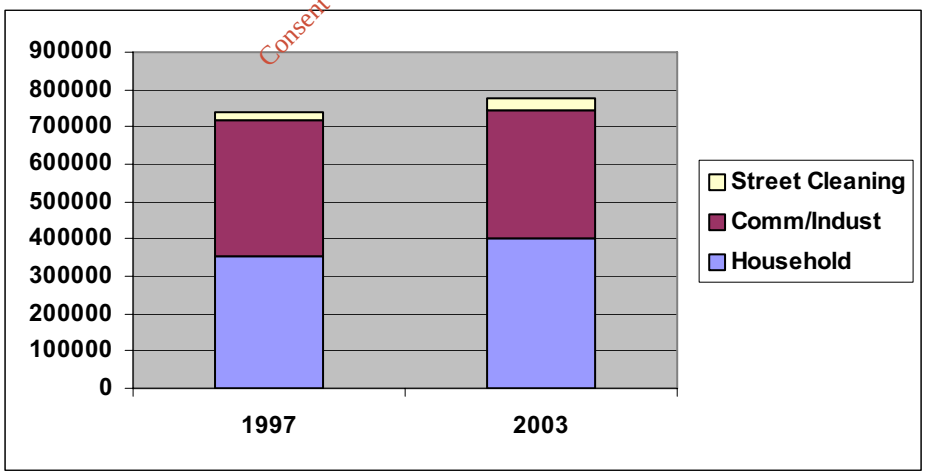


Figure 12.1 shows that the level of waste disposal in the Region has increased from 1997, and landfilling remains the primary treatment route for municipal and industrial waste in the Region. During 2001-2004, controls have been put in place on the types of materials accepted at landfill facilities, e.g. landfills can no longer accept C&D waste for disposal and municipal sludges are not disposed of at landfill facilities.

12.3 HOUSEHOLD WASTE DISPOSAL

The total household waste landfilled in 2003 represents 84% of the total household waste arising in 2003. Due to lack of disposal capacity, household waste from Counties Kildare, Meath and Wicklow has been landfilled at the Arthurstown landfill in recent years, (via Thornton Waste transfer station) by agreement of the Dublin Local Authorities.

12.4 COMMERCIAL AND INDUSTRIAL WASTE DISPOSAL

Table 12.1 shows that the quantity of mixed commercial and industrial waste landfilled in the Region in 2003 has decreased slightly since 1997 however it represents 51% of the total collected commercial and industrial arisings. The dramatic increase in the cost of landfill since the last Plan has encouraged the private sector to seek alternative treatment outlets, as has the introduction of restrictions on landfilling of certain waste streams, and the ban on the collection and disposal of mixed packaging waste from commercial companies. There is a gap of 98,000 tonnes (15%) between commercial/industrial waste collected and estimated as recycled or landfilled in the Dublin landfills (Balleally, Ballyogan, Arthurstown and KTK). This is thought to be due to: organic waste tromelling/composting, and use of landfills or other disposal outlets outside the Region.

12.5 CURRENT PRINCIPAL LANDFILLS IN OPERATION

Waste disposal by landfill remains the main method of waste management in the Dublin Region. There are currently four principal non-hazardous waste landfills serving the Dublin Region:

- Balleally Landfill,
- Arthurstown Landfill
- Ballyogan Landfill (landfilling ceased in 2005)
- KTK Landfill

Balleally landfill accepts household, commercial and industrial waste from both public and private operators. It also accepts wastes that arise from Local Authority activities, for example litter and street sweepings.

Arthurstown landfill located near Kill in Co. Kildare accepts only baled municipal waste. Three baling stations are currently in operation: Ballymount operated by SDCC/ ONYX joint venture and Thornton Waste Transfer on Killeen Road, Ballyfermot. In the past 2-3 years, some municipal waste from counties Meath. Kildare and Wicklow has been accepted for baling at the Thornton facility and landfilled at Arthurstown.

The Ballyogan baling station is in operation since early 2005, operated by Greenstar on behalf of DLRCC. Up to this, Ballyogan landfill accepted household and commercial waste collected by Dun Laoghaire Rathdown County Council as well as some wastes delivered by individual householders.

The KTK landfill at Kilcullen, Co. Kildare, is licensed to accept non-hazardous commercial and industrial waste excluding putrescible wastes, and is operated by Greenstar.

Significant progress has been made in the Region regarding the improvement of standards at landfills in the Region, including the use of landfill gas to create energy for the national grid.

12.5.1 Landfill Gate Fees

In Dublin, landfill gate fees are in the range of €140 to €200 per tonne of waste. This charge includes a €15 per tonne landfill levy introduced under the Waste Management (Landfill Levy) Regulations 2002. Landfill gate fees have escalated steeply in the last 5 years.

12.5.2 Remaining Void Capacity

Details of each facility and their remaining capacities are outlined in Table 12.2 below.

Table 12.2 Remaining Municipal Capacity from January 2005 for Landfills Serving the Dublin Region

Facility	Approx. remaining total landfill capacity	Expected year of closure
Ballyogan Landfill	<25,000 tonnes*	(now closed, 2005)
KTK Landfill	500,000 tonnes	2008
Arthurstown Landfill	1,000,000 tonnes	2007
Balleally Landfill	804,000 tonnes	2009

* Required until baling station has been commissioned

The majority of these landfills are currently nearing capacity and under current authorisations will close within 3 years. South Dublin County Council are considering the possibility of a short term extension to Arthurstown landfill (see Section 18.9). Balleally Landfill is licensed to accept 451,000 tonnes of waste per year, and has an expected closure date sometime in 2008/2009, but this depends on the rate of filling of cells.

12.6 FORMER WASTE DISPOSAL SITES

12.6.1 General Situation

The Waste Management Act 1996 requires information to be collected/ held by Local Authorities on all former disposal sites and presented in the Waste Management Plan. The following is the position as regards former waste disposal sites operated by the Dublin Local Authorities.

Landfills currently in operation are regulated by the EPA and closure, restoration, monitoring and aftercare is determined by the terms of the Waste Licence. In general sites in operation up to and during the 1990's have been closed and capped/ restored by the Local Authorities or the operator. Public sites are typically restored by means of soil capping and in some cases serve a use as amenity park and public open space. As well as public landfills, several private disposal sites were in use in previous decades – information on the status and history of these sites is limited.

12.6.2 Dublin City Council

Assessment in 1992 identified 17 closed disposal sites which were formerly operated by Dublin Corporation. Some baseline monitoring for landfill gas was carried out on 7 sites at the time. . In line with current Council policy and best environmental practice, DCC is committed to developing an integrated site assessment on all former disposal sites in order to establish baseline data and safeguard future developments. These sites are listed in Table 12.3

12.6.3 Dun Laoghaire Rathdown County Council

A map-based database comprising 4 layers of information is being developed by the Environment Department of the Council. The four layers are potentially contaminated sites (incl. municipal landfill), un-permitted sites (where C&D waste may have been placed without permit), permitted waste disposal sites, and producers of hazardous waste (locations where hazardous waste might be generated –e.g. hospitals, health centres, industries etc.). Sites in the first category are listed in Table 12.3

Ballyogan Landfill is still active under the regulation of the EPA. A capping programme is commencing in 2005, and will be completed following closure of the facility. Restoration and Aftercare will then be carried out with EPA approval.

12.6.4 Fingal County Council

Fingal County Council also have a database on disposal sites, this is an active tool used by the Regulation and Enforcement Unit in monitoring activities. The **Ardla Landfill** accepted commercial/ industrial waste – this privately operated landfill is currently under restoration by Onyx (Ipodec) Ltd. A number of other former municipal landfill sites are included in Table 12.3

Dunsink Landfill ceased accepting municipal waste in 1996. The Civic Amenity on the site continued operating until 2002 and clay continued to be imported also. Management of leachate and landfill gas is underway at the site. The site has been regulated by the EPA since 2003.

Balleally Landfill is still active under EPA regulation. Capping has already commenced and a Restoration and Aftercare Plan has been drawn up in consultation with interested parties, to be implemented in a phased manner over the coming 5-10 years.

A further private site formerly used for waste disposal up until the early 1990's has been identified at Belcamp Lane. A planning application for remediation of this site is expected to be made shortly by the land owner.

12.6.5 South Dublin County Council

Former waste disposal sites recorded as operated or owned by South Dublin County Council are listed in Table 12.3

Friarstown Landfill closed in 1997 after 22 years operation. Capping was completed in 2003, landfill gas is generating 1 MW of electricity and there is monitoring of emissions and a weather station on site.

In 2002 a survey was carried out by the Environment Section of SDCC South Dublin County Council. 30 sites were investigated. Most of these related to C&D waste accepted as fill, with significant quantities involved. Several of the sites were without Planning Permission or Waste Licence and were referred to the Planning Section for enforcement (including recommendation to remove material). 26 sites were deemed not to require further investigation by the Environment Section, and 3 Sites were referred to the Water Services section for possible impact on water resources.

The following table lists former public waste disposal sites in the Region and year of closure. Any sites where capping/ remediation is underway are noted.

Table 12.3 Former Waste Disposal/Recovery Sites Operated by or Owned by the Local Authorities

	Dublin City Council	**Closed since:**
1.	L'abre Park	1971
2.	Californian Hills	1975
3.	Long Meadows	1977
4.	Sundrive Road	1956
5.	Irishtown	1978
6.	Bond Road	1974
7.	East Wall Road	1974
8.	Clontarf Park	1974
9.	Mount Temple Schools	1968
10.	Artane School	1968
11.	Edenmore Park	1973
12.	Lauder's Lane	1968
13.	Ballyboggan Quarry	1965
14.	Tolka Valley	1976
15.	Merville Quarries	1976
16.	James Larkin Road	1966
17.	Bull Island Causeway	
	Dun Laoghaire Rathdown County Council	
1.	Cork Great	1968
2.	Kilbogget. Opened 1968.	1975
3.	Site near Sandyford School	-
4.	Johnstown Road/ Rochestown Avenue. Opened 1953	1958
5.	Pottery Road	-
6.	The Scalp (private landfill)	1984
7.	Ticknock. Opened 1980	-
8.	Cruagh, Rockbrook	Late 1970's
9.	Tirbradden Lane, near Club Italiano	Early 1980's
10.	Kimashogue	1983
11.	Curagh, Rockbrook	1981
	Fingal County Council	
1.	Porterstown, west of Blanchardstown	1973
2.	Barnageera	1983
3.	Dunsink	1996
	South Dublin County Council	
1.	Friarstown Landfill	1997
2.	Waterstown	1987
3.	Kilnamanagh, Greenhills Road	1969
4.	Greenhills Road	Late 1970's

Table 12.3 relates mainly to disposal activities as there are limited numbers of former recovery sites and they were generally not operated by the Local Authorities.

12.7 DEFICIENCIES IN LANDFILL DISPOSAL CAPACITY

All four landfills currently serving the Dublin Region are nearing closure, and there is an annual disposal requirement currently running at 800,000 tonnes. The provision of additional landfill void space to serve the Region is therefore critical to avoid potential environmental impacts and substantial costs if Dublin's waste has to be exported for disposal to other Regions or countries. This is being addressed by the development of the proposed Fingal Landfill (see Section 18.9). Advancing the Fingal landfill is an urgent necessity for the Dublin Local Authorities and for the Region. Refer to Appendix G for summary of the project background and facility siting.

South Dublin County Council is also considering a short term extension to Arthurstown landfill. Owing to the slight reduction in household residual waste at the facility – due to the introduction of use related charging and the growth in use of green bin recycling - extra void space capacity at Arthurstown may be possible. This, if approved in planning, may provide a short-term buffer to allow the Dublin local authorities to complete the new WTE and landfill facilities. Such an approach would provide a useful contingency as a short term measure to overcome delays in delivery of the other regional facilities without needing major investment or employing more expensive solutions requiring greater levels of waste transportation. South Dublin County Council will explore this option, requiring a planning application to be made.

Some capacity for municipal waste disposal (and energy recovery) may become available in neighbouring counties Meath, Wicklow and Kildare during the coming years, which may also provide an interim solution for commercial/industrial waste in the Region.

Ongoing remediation, restoration and aftercare of closed landfill sites will continue to be required in the decades ahead, placing a considerable financial burden on the Local Authorities.

12.8 FUTURE REQUIREMENT FOR RESIDUAL LANDFILL IN THE DUBLIN REGION

The capacity required depends on variable factors including the growth of waste, the level of recycling achieved, and the date when the WTE facility becomes available.

Current Disposal Requirement

The current municipal and industrial landfill requirement in the Region is approximately 800,000 tonnes per annum, and this is currently fulfilled by the facilities at Arthurstown, Balleally, Ballyogan and KTK landfill (commercial/ industrial non-putrescible waste).

Effect of Recycling

With increased recovery of dry-recyclables and organic waste, the percentage waste landfilled in the region will fall over the coming years. However the amount of municipal waste generated is expected to rise due to increases in population, numbers of households and economic growth, which will off-set some of the gains from recycling. If the planned recycling targets of this Plan are met, the residual disposal requirement should fall to 650,000 – 750,000 tpa by 2009.

Effect of WTE Plant

After recycling, the main tool for reducing landfill reliance will be the Dublin WTE plant which will divert 400,000 – 600,000 tpa away from landfill, reducing the disposal requirement to 200,000 – 300,000 tpa approximately. Waste still requiring landfill at this stage will comprise any residual waste in excess of the capacity of the WTE plant, plus residues from other recycling plants (e.g. C&D waste recycling plants) or waste not suitable for WTE (e.g. non-combustible waste).

Within the contract for the WTE plant, it will be the responsibility of the contractor to manage the ash residues. It is required that the bottom ash be recycled rather than landfilled. The operator will be also be required to manage the hazardous fly-ash in an appropriate manner at authorised facilities to be approved in advance by the EPA.

Long Term Landfill Requirement

In the best case scenario, landfill requirement will be between 5 – 8 million tonnes from 2009 – 2030. The requirement increases to 8 – 11 million tonnes should a contingency be allowed to cover an eventuality such as a delay in providing WTE capacity, recycling not meeting targets, or waste growth out-stripping Plan estimates. The proposed Fingal landfill will be developed with a capacity requirement of up to 10,000,000 tonnes which should provide sufficient capacity from 2009 – 2030.

The proposed measures to satisfy long-term and short-term landfill capacity requirements are set out in Section 18.9

13 FINANCIAL PERFORMANCE

13.1 EXPENDITURE AT PRESENT

Expenditure in 2004 on waste management operations in the Dublin Region is shown in Table 13.1 and this is broken down as follows:

Table 13.1 Waste Management Expenditure, 2004

Item	Activity	Expenditure €Million	%
1	Landfilling of Household, Commercial and Street Cleaning Waste	53.9	31%
2	Domestic Refuse Collection	38.8	22%
3	Street Cleaning	37.2	21%
4	Commercial Refuse Collection	8.3	5%
5	Education, Promotion, Regulation/ Enforcement, Miscellaneous	7.2	4%
6	Recycling and Recovery	30.5	17%
Total		**175.9**	**100%**

The operation of landfill sites was the largest single item of expenditure, reflecting the three sites (Arthurstown, Ballyogan and Balleally) under the management of the Local Authorities during 2004. Item 1 of Table 13.1 also includes the costs incurred in the Ballymount processing plant, where waste destined for landfill is compacted and baled.

Domestic Refuse Collection is the costs of providing the weekly "grey" bin collection service throughout the region. A small number of households, principally in apartment complexes, use private sector services, but the vast majority of households in the Dublin Region avail of the weekly Council collection service. The Domestic Refuse Collection costs do not include the cost of disposal of household waste.

Street Cleaning (Item 3 in Table 13.1) is a substantial cost element with direct costs of €37.2 million and the major portion of this expenditure is incurred in the City, again, these costs do not include the relevant disposal costs.

Expenditure on recycling activities was €30.5 million in 2004 or 17% of total expenditure. This is a substantial increase on expenditure at the start of the existing plan. This expenditure includes the costs of the four weekly household "green" bin collection service; the operation of the dry recyclables segregation facility and the operating costs of the Bring Banks and Recycling Centres, as well as the disposal costs associated with some of the materials deposited there.

Cost per Customer Segment

The costs shown above are based on specific activities and not on a "per customer" basis. If the costs of waste disposal (including landfill and baling) are allocated to the source of the waste in direct proportion to the relevant tonnages, the full costs of the waste management service to various customers segments would be as follows:

Table 13.2 Waste Management Service Costs - 2004

Service	*Expenditure €million*
Household Waste Service	114.9
Street Cleaning	40.8
Commercial Waste Service	13.0

The Household Waste Service as defined in Table 13.2 includes the collection of both grey bins and green bins and where applicable, bags and communal bins from households and apartment complexes; together with the disposal to landfill of the "grey bin" waste; the sorting of the "green bin" materials and the bring bank and civic amenity centre infrastructure that is provided for households. It is therefore an estimate of the full cost of providing the domestic waste management service in the region. The waste arisings managed by the Local Authorities are outlined in Table 13.3 following:

Table 13.3 Waste Arisings Managed by Local Authorities 2003 (Tonnes)

Managed by Local Authority	Tonnes
Household	383,816
Commercial	39,893
Street Cleaning	30,235
Green Bin Recyclables	35,860
Other Recyclables	39,864
Other	39
Total	**529,707**

Total waste arisings managed by the Local Authorities are 529,707 tonnes. This includes street cleanings; bring banks; recycling centres and the recyclables currently collected by Oxigen Environmental Ltd and Bailey Waste Paper Ltd. Of this amount collected, 297,592 tonnes are processed in the Ballymount baling station en route to the Arthurstown landfill facility. The balance of the household waste arisings goes to landfill at Ballealy, except for the recyclables, which are processed at the Clonshaugh segregation facility or at other processors prior to sale.

13.2 INCOME AT PRESENT

The incomes generated by the four Local Authorities in 2004 were as follows:

Table 13.4 Waste Management Income, 2004

Item	Activity	Income €Million	%
1	Landfill fees from commercial and household waste and other income	49.2	42%
2	Domestic Refuse Collection	49.4	43%
3	Street Cleaning	0.2	0%
4	Commercial Refuse Service	15.4	13%
5	Education, Promotion, Regulation/ Enforcement	0.2	0%
6	Recycling and Recovery	2.8	2%
Total		**117.2**	**100%**

The four key components of income are gate fees for landfill at the various facilities in the region in 2004; gate fees and charges levied on commercial operators; domestic waste charges for household collection and disposal services, and income received from sales of recyclable materials and a contribution from Repak.

Overall cost recovery for waste services is now at 66% (i.e. a funding gap of €59m) compared with 25% in 1997, demonstrating improved implementation of the Polluter Pays Principle in accordance with the Plan objectives. Expenditure has risen from €26m to €176m in the same period, reflecting the modern day costs of managing waste to the standards required by legislation.

It can be seen that cost recovery is not being achieved in respect of the Household Waste Service. Relevant income in 2004 was €49.4 million in the region, which is just over 43% of the full cost of the service, i.e. €115.6 million as shown in Table 13.2.

However, we estimate the revenues lost through the provision of waiver schemes to low income households in the region to be of the order of €12 million to €13 million per annum. Allowing for these waivers, full cost recovery would be just in excess of €100 million per annum.

The costs of the commercial waste collection services are being recovered in full.

13.3 CAPITAL INVESTMENT REQUIREMENTS

The capital investment programme required on the part of the Local Authorities under the proposed new Plan is shown in Table 13.5. The key assumptions underlining this table are as follows:

1. Bring Banks and Recycling Centres will be developed on land owned at present by the four Local Authorities. No provision has been made for the acquisition of land in connection with these facilities.
2. The plant for the proposed household MRF will be acquired by the four Local Authorities, based on costs of existing plants in the U.K. we provide €6 million to include installation costs. The building required for this MRF has been acquired and we do not provide for it here.
3. The Green Waste Composting investment is a provision for potential future development.
4. The Biowaste investment is based on the assumption that the Local Authorities will acquire the plant and equipment for the proposed facility. It is also assumed that no land acquisition costs are involved, though some site and development costs will be incurred.
5. It is assumed that the capital investment on the part of the Local Authorities will be on a ten year loan basis.
6. It is assumed that the amount of the investment each year will be as shown in the following table. It is also assumed that the investment will be spread evenly within the individual years.
7. No provision has been made for grant assistance at this stage.

On the basis of these assumptions, the capital investment profile is outlined in Table 13.5:

Table 13.5 Capital Investment Requirements and Repayment Schedule – Local Authorities

Item	2005 €	2006 €	2007 €	2008 €
Bring Banks	662,857	1,325,714	1,325,714	1,325,714
Recycling Centres	1,329,857	2,785,714	2,785,714	2,785,714
MRF (Household)	6,000,000			
Green Waste Composting		1,000,000		
Biowaste Composting	10,000,000	10,000,000		
Total	**17,055,714**	**15,111,428**	**4,111,428**	**4,111,428**
Annual Repayments	498,346	2,827,509	3,888,611	4.342,465

It is assumed that all the equipment listed in the table above will be acquired by the Dublin Region Local Authorities and may therefore be eligible for grant assistance from the Department of the Environment, Heritage and Local Government, up to a grant level of 75% of the acquisition costs and installation costs of the plant and equipment. We do not assume any grant assistance in the projections of future operating costs. If grant assistance were to be available, future operating costs would be reduced by up to €3.2 million per annum from 2009 onwards.

Private sector capital investment envisaged under the plan is indicated in Table 13.6 below. There are many variables that will dictate the ultimate cost of any of the following infrastructure and consequently, these should be regarded as indicative levels of prospective investment over the Plan period.

Table 13.6 Private Sector Investments Estimates

Item	Est. Cost € Million
Materials Recycling	€15
Biological Treatment	€17
Waste to Energy Facility	€200
Construction & Demolition Recycling	€15
Municipal Landfill (Initial outlay)	€20
Other	€4
Total	**€271**

13.4 PROJECTED EXPENDITURE AND INCOMES FOR 2010

The arisings that will be managed by the Local Authorities in 2010 are projected as follows: It should be noted that all projections are based on current (2005) costs and have not been adjusted for inflation.

Table 13.7 Waste Arisings Managed by the Dublin Local Authorities to 2010

Household	Tonnes
Grey Bin	314,222
Green Bin	91,991
Brown Bin	90,283
Other (RC, Bring etc)	86,298
Subtotal	***582,794***
Commercial	
Residual	20,400
Cardboard Collection	13,303
Other	2,040
Subtotal	***35,743***
Street Cleaning	30,000
TOTAL	**648,537**

13.4.1 Infrastructure Assumptions

It is projected that by 2010, there will be a substantial change in the means of disposal of waste arisings in the Region that are under the control of the Local Authorities. The assumptions regarding projected infrastructure changes affecting the Councils are as follows:

- The Arthurstown landfill facility will close in 2007 and will be subject to aftercare management only; capping of the site will take place on closure; We provide €37 million for capping, aftercare and restoration costs for the Arthurstown and Ballealy landfill facilities together with on-going work at the Dunsink and Ballyogan facilities. We have spread this expenditure over the period 2007 to 2010.
- The existing compacting facilities will remain in operation;
- A thermal treatment plant will be operational with a capacity of approximately. 400,000 - 600,000 tonnes per annum. The plant will be developed through a Public Private Partnership (PPP) arrangement and waste from the four Local Authorities treated there will be subject to gate fees;
- A new landfill will be developed in the region through a PPP and the four Local Authorities will pay gate fees to the operators of the facility;
- Biological treatment will also be developed in the region through a PPP and once again the Local Authorities will be subject to gate fees for its use;
- Bring Centres and Recycling Centres will be developed as shown in the capital expenditure requirements;
- A new Local Authority MRF for segregating dry recyclables is being procured with an ultimate capacity of 100,000 tonnes.

13.4.2 Gate Fee Assumptions

It is difficult to predict what the gate fees are likely to be for the various components of the future infrastructure, as many of the projects are currently being developed and some are at the tendering stage. In addition, some of the project options have yet to be fully evaluated and the specification finalised. We do not wish to prejudice the tendering processes, but we assume, based on international experience and current Irish costs that gate fees will be in the following ranges:

Landfill (incl. landfill levy)	€140 to €160 / tonne
Thermal treatment	€90 to €110 / tonne
Biological treatment	€70 to €90 / tonne

We propose to use the centre point of each of these ranges to estimate future potential costs.

13.4.3 Future Operating Costs Estimate

Using these disposal costs outlined previously, we conclude that the expenditure on waste management in the Dublin Region will be as follows (all figures shown are at 2005 levels, no provision has been made for inflation):

Table 13.8 Waste Management Expenditure, 2010

Item	Activity	Expenditure € Million	%
1	Landfill Disposal of household, commercial and street cleaning, aftercare of closed sites and operation of the Ballymount processing facility	26.0	12
2	Domestic Refuse Collection	34.6	17
3	Street Cleaning	36.8	17
4	Commercial Refuse Collection	9.7	5
5	Education, Promotion, Regulation, Miscellaneous	11.2	5
6	Recycling and Recovery, including energy recovery	92.6	44
	Total	**210.9**	**100%**

This is an increase of almost 20% over the 2004 costs and the key reasons are as follows:

1. There is a substantial increase (over threefold) in the cost of recovery and recycling activities, arising from an increase in volumes of materials recovered; a major increase in bring centres and recycling centres and diversion of materials to the bio-treatment and waste-to-energy facilities. There is a very small volume being committed to landfill.
2. Landfill costs fall by just over 50% due primarily to the closure of the Local Authorities' landfill facilities in the region and the diversion of materials to the Biowaste and waste-to-energy plants. There are however capping and aftercare costs to be incurred at landfill sites. We have amortised the capping costs over a ten year period.
3. In accordance with the EU Landfill Directive, full cost of landfill development, operation and aftercare must be included in landfill fees. Projected landfill fees provide for a sinking fund for closure and aftercare.
4. The costs of the new infrastructure are spread across the relevant expenditure categories.
5. The domestic refuse collection costs shown in item 2 refer to the "Grey" bin collection only. The "Brown" and "Green" bin collections are included in the Recycling and Recovery costs.

No provision has yet been made in respect of potential remediation works on closed landfills, (as required under Section 22 (7) (h) and Section 26 (2) (c) of the Waste Management Act, 1996 and the policy direction issued by the Minister for Environment, Heritage and Local Government on 3rd May 2005 under Section 60 of the Waste Management Act, 1996) as no assessment of costs or required remediation works, if any are required, has yet been made. The approach to identifying and assessing such sites is included in Section 19.7 of this Plan.

Cost per Customer Segment - 2010

The costs shown above are based on specific activities and not on a service basis. If the costs of landfill and waste disposal were attributed to the source of the waste – in proportion to the relevant tonnages – the full costs of the various services would be as follows:

Table 13.9 Waste Management Service Costs – 2010

Service	Expenditure €Million
Household Waste Service	142.4
Street Cleaning	41.9
Commercial Waste Service	15.4

The Service Costs shown in Table 13.9 are inclusive of the landfill aftercare costs discussed previously.

13.4.4 Income in 2010

It is anticipated that in 2010, landfill income will fall substantially as major facilities are closed. However, this will be recovered by facility fees and profit shares negotiated with the successful tenderers in respect of the proposed waste disposal facilities in the Region that will be operated through PPPs. In order not to prejudice any future tendering process or negotiations, we have made no provision in respect of such income at this time.

We have not made any provision for an increase in household or commercial waste charges in our projections. The levels of these charges are at the discretion of the Managers of the four Local Authorities and form an element of the annual budgeting process. We do note however, that while the costs of services provided to the commercial sector have to date been recovered in full, there is a substantial deficit in respect of the funding of the household waste collection and disposal service.

We provide for a relatively substantial increase in income earned from recycling operations. These revenues are dependent on world market prices for recycling materials and the prices may fluctuate like other raw materials or commodities. In summary, our projections for income from the waste management programme for 2010 is as follows:

Table 13.10 Waste Management Income, 2010

Item	Activity	Income € Million	%
1	Landfill fees and other income	18.3	17
2	Domestic Refuse Collection	63.4	58
3	Street Cleaning	0.2	0
4	Commercial Refuse Service	17.1	16
5	Education, Promotion, Regulation	0.2	0
6	Recycling and Recovery,	9.2	9
	Total	**108.4**	**100.0**

13.5 CONCLUSION

At present, based on 2004 data, the gap between income and expenditure in the Region's waste operations is €58.7 million. We project that in 2010, the gap will be €102.5 million. In reaching this conclusion, it should be noted that:

- Full cost recovery is not currently being achieved for the household waste management service. We have allowed for increases due to changes in the number of households in the region and changes in the tonnage of waste disposed by households.
- Costs are sensitive to the achievement of the proposed infrastructure within the plan timescale. For example, if the Waste to Energy plant is not operational as planned and if the four Dublin authorities have to rely on third party landfill sites, it is estimated that the additional waste disposal costs will be of the order of €11.5 million to €15 million per annum, depending on whether space is available in public sector or private sector sites and on the scale of the additional transport costs.

PART 3

14 POLICY AND LEGISLATIVE CHANGES

14.1 INTRODUCTION

The previous Waste Management Plans adopted throughout Ireland have had a dramatic impact on the approach to managing waste throughout the country over the past five years. The majority of Local Authorities now cooperate on a Regional basis to deal with waste issues. Infrastructure has been developed on the basis of Regional waste figures and needs. Regional Steering Committees meet to monitor and ensure continued progress on the implementation of the Waste Plan recommendations. This section assesses overall developments in Waste Management and looks at likely future trends, programmes and legislation.

14.2 WASTE MANAGEMENT INITIATIVES AT GOVERNMENT LEVEL

14.2.1 National Waste Prevention Programme

The National Waste Prevention Programme (NWPP) was launched in April 2004 by the Minister for the Environment, Heritage and Local Government and is to be implemented by the Environmental Protection Agency. It is a four year programme and aims to deliver substantive results on waste prevention and minimisation and will integrate a range of initiatives addressing awareness raising, technical and financial assistance, training and incentive mechanisms. Currently the most relevant component of the NWPP for the Dublin Region is the development of the Local Authority Prevention Demonstration Programme (LAPD). This programme to be launched in 2006 provides Local Authorities with an opportunity to apply for funding for prevention projects/programmes that demonstrate practical measures for preventing waste. The first Annual Report for the NWPP was published in July 2005. The report details the progress and achievements to date and proposals for future initiatives and programmes. The Annual Report is available on the EPA website www.epa.ie *

14.2.2 Producer Responsibility Initiatives

Following the publication of the Government policy statement 'Delivering Change' in 2002, 'Producer Responsibility Initiatives' are being implemented in a number of sectors, promoted by the Department of Environment Heritage and Local Government. The concept of producer responsibility means that industries producing goods and materials need to take responsibility for the environmental impact of placing these goods on the market. The concept is at the core of EU environmental policy. Some of the current and proposed schemes are listed below.

Packaging

The REPAK scheme has been underway since 1997, with legislative backing. REPAK is an 'approved body' representing industry and provides subsidies to assist in recycling of packaging waste, in order to meet obligations under the EU Packaging Waste Directive. Irish legislation is being updated to improve performance

Newspapers/ Newsprint

The Irish newspaper industry is finalising a voluntary scheme with DoEHLG for recycling of 'unsold' newspapers at newsagent level. A scheme for post-consumer waste to support household recycling is also being proposed.

Construction/Demolition Waste

The National Construction and Demolition Waste Council has developed a voluntary initiative to improve performance regarding C&D waste in order to meet National recycling targets. Implementation will involve the Local Authorities in a regulatory role at the planning permission stage for significant projects.

Waste Electrical and Electronic Equipment

Following the adoption of EU Directive 2002/96/EC, from August 2005 householders will be able to return 'WEEE' such as fridges, video players, radios etc. free of charge either to the shop (new-for-old) or to a Local Authority Recycling Centre. The industry is currently establishing a system to collect and manage this waste.

End of Life Vehicles (Scrap cars)

Under EU Directive 2000/53/EC, car manufacturers are being required to manage the collection and management of old vehicles. This will mean free-of-charge return of vehicles by the public. Legislation will be introduced by the DoEHLG to support the scheme.

Tyres

The DOEHLG is currently negotiating the introduction of a scheme to ensure proper management of tyres under a producer responsibility initiative with the Irish Tyre Industry Association.

Farm Plastics

Farming has become one of the largest regular users of plastic film in the country. New Irish Legislation now places obligations on manufacturers and importers of farm plastics to arrange for environmentally acceptable ways of collecting and disposing of used plastic film. Irish Farm Films Producers Group (IFFPG) has been formed by farmers and the plastics industry to minimise the cost of disposal.

Other Producer Responsibility Schemes

Further proposals are expected to be developed for materials such as batteries, telephone directories, paints, medicines, and junk mail as well as achieving greater cost recovery and effective recycling for packaging wastes such as plastic bottles.

The implications of these schemes should be positive for the average business or household. The responsibility for managing these waste streams will transfer to the producer rather than the public. This means cost of recovery or disposal will increasingly be included in the purchase price rather than being imposed on whoever ends up with the material. The schemes will also encourage industries to 'design out' waste at source and to design products that are more easily recycled.

For the Local Authorities, there will be increased responsibilities to regulate the various schemes (inspections, data collections, enforcement measures, reporting to the EPA and DoEHLG) to ensure the producers are conforming to the legislation. For WEEE, Local Authorities will have to invest in improving collection facilities at Recycling Centres.

14.2.3 Market Development Group

The ultimate objective of the recycling recommendations in this Plan is 'resource recovery', whereby recycled materials are used to create new products and in so doing reduce the consumption of resources. While recycling has improved dramatically in recent years, concerns have been expressed that we export almost 70% of waste abroad for recycling (over 850,000 tonnes). While export of materials for recycling is acceptable in terms of global flows in materials, for a number of waste streams, the lack of home markets continues to make recycling less viable. In recognition of these issues the Government has established a Market Development Group to drive a market development programme for recyclable materials. This is being funded from the Environment Fund. Three working groups have been established from relevant sectors (including industry, waste companies and the public sector) to work on specific materials: plastics, paper and compost. One of the objectives will be development of indigenous reprocessing capacity whereby less transport is required and more employment is retained in Ireland.

Local Authorities will also need to support market development measures by taking a lead where possible in demonstration of opportunities and pilot schemes. Co-operation from the various industry sectors will also be required.

14.2.4 North-South Co-Operation for Waste Management

The potential benefits of addressing waste management on an all-island basis has been highlighted at Government level and through the research of the North-South Ministerial Council. The IBEC-CRI Joint Business Council prepared an assessment of waste management from the perspective of SMEs north and south. By considering recyclable materials on an All-Ireland basis, some potential 'economies of scale' become apparent – for example the economic viability of facilities to recover WEEE, waste tyres, or waste paper improves as the volume of material available increases. There is also the opportunity to share expertise and technology resources in the waste management sector. A number of successful recycling companies already operate on an all-island basis. Recently, cases of unauthorised waste movement and disposal have come to light, which highlights the need for communication and co-operation between Local Authorities and enforcement bodies in both jurisdictions.

14.2.5 Improvements in Waste Regulations and Enforcement

Without question, one of the biggest challenges in waste management in Ireland over the coming five years is regulation and enforcement. Since the mid 1990's the volume of legislation in place in the waste management sector has increased dramatically. Most of the day-to-day implementation falls to the Local Authorities. This new role of *regulator* has gradually taken over from the traditional function of 'service provider' in many Local Authorities. The past five years have seen an escalation in waste facility gate fees, a rapid growth in waste, and a shortage of disposal capacity. Problems of unauthorised disposal have occurred in many Regions. Waste management is increasingly being carried out by private companies, all of whom have to be regulated. The first obligation is to ensure that waste is not handled in a manner that can create pollution. In addition, the ability to plan properly for waste management depends on accurate and up to date statistics. All Local Authorities face a challenge to ensure they have the management systems and resources in place to fulfil all the requirements. With high charges for waste collection, and the recent introduction of use-related charging for household waste, greater emphasis on regulation of waste producers – household and businesses - is also needed.

As identified in the Draft National Biodegradable Waste Strategy (April 2004) some additional legislation is expected at national level to provide an effective on-the-ground remedy to the current negative trend towards the use of back-yard incinerators and in-sink macerator units, both of which cause pollution. Again local enforcement will be required. In 2003/2004 significant additional resources

were provided by the DoEHLG to assist in staffing the regulation and enforcement units. The EPA is carrying out two studies aimed at improving the effectiveness of waste regulation and enforcement across the Country. These projects – a Review of Unauthorised Waste Disposal, and a Review of Waste Permitting - will lead to training programmes for Local Authority staff and new protocols to be used in day-to-day activities. In addition to this, the EPA is co-ordinating a number of useful 'working groups' to assist in efficient and consistent implementation of the Packaging Regulations and the movement of waste internationally under the Trans Frontier Shipment legislation.

14.2.6 Use of Economic Instruments

2002 saw the introduction of the Plastic Bag Levy, which has had a dramatic impact on Irish shopping lifestyles. The Local Authorities are required to enforce the regulations behind the levy. Some of the gains made in the initial phase are now being eroded as people become used to accepting disposable paper bags. Ongoing promotion of reusable shopping bags is needed. A Landfill Levy is also in place in Ireland, and the money collected with each tonne of waste landfilled has been pooled into an Environment Fund, which has benefited the public through the funding of new recycling facilities and environmental awareness programmes. Further economic instruments are being considered – for example to help recover costs of litter from fast food and chewing gum. An economic levy is also an option when 'producer responsibility' schemes are being developed. In some countries, a levy is also imposed on incineration plants, in order to keep the emphasis on waste reduction and recycling. In such case the landfill levy is usually set even higher, to support the recovery of energy from waste over landfilling, in accordance with the waste hierarchy.

14.3 ENERGY POLICIES AND WASTE MANAGEMENT

With Ireland under severe pressure to improve performance in relation to Kyoto protocol targets, increasing focus is likely on improving performance in the waste management sector. As well as objective outlined above, it is expected that energy policies will increasingly favour use of renewable resources such as:

- Using food waste, agricultural wastes and industrial sludges to generate biogas for energy generation
- Using wood chips – including residues of clean wood - for energy from boilers
- Developing biodiesel from waste cooking oil
- In power plants and cement kilns, substituting fossil fuels with alternative waste derived materials
- Employing energy efficient district heating systems

The Waste Management Plan needs to retain flexibility to enable such proposals where appropriate.

14.4 LEGISLATION AND POLICY AT EU AND NATIONAL LEVEL

European policy on waste management is embodied in a number of Directives, some of which contain statutory targets for minimising, reusing, recycling or recovering of waste, and have set out a certain timeframe for which these targets must be achieved by member states. Much of the legislation governing waste management in Ireland is based on transposing the EU Directives into law.

14.4.1 Recent EU Legislation

EU Directive (2000/76/EC) on the Incineration of Waste

This Directive supersedes EU Directives (89/368/EEC and 89/429/EEC) on the incineration of non-hazardous waste, and EU Directive (94/67/EC) on the incineration of hazardous wastes., addressing previous omissions in these Directives. The Directive aims to prevent or limit negative effects on the environment and the resulting risks to human health from the incineration or co-incineration of waste. It sets limit values for the emissions of dioxins, mercury and dusts arising from waste incineration, along with monitoring and operational requirements. The Directive sets out minimum operational requirements in order to guarantee complete waste combustion. The quantity and harmfulness of incineration residues must be kept to a minimum and residues must, as far as possible, be recycled.

All incineration or co-incineration plants planned for Ireland will be Licensed and monitored by the EPA, who will specify the type and quantity of waste allowed to be treated in such plants.

EU Directive on End-of-Life Vehicles

The EU Directive on End-of-Life Vehicles (2000/53/EC) was introduced in 2000. This Directive proposes to introduce the concept of producer-responsibility in the disposal of end-of-life vehicles by applying a levy to the cost of production of each car that will then be used to recycle and dispose of the vehicle in an environmentally sustainable manner. In addition, Producers must endeavour to reduce the amount of hazardous materials used in the production of vehicles in a way that allows them to be easily dismantled.

EU Directive on Waste Electrical and Electronic Equipment

The aim of this Directive (2002/96/EC) is to increase recovery rates for waste/scrap items, and to reduce the quantities of this waste stream consigned to landfill. Producers of WEEE are responsible for the recovery of End-of-life equipment such as computers, televisions, vacuum cleaners etc, deemed a priority waste by the EU. The directive includes a target of a minimum of 4kg of WEEE to be collected per inhabitant per year by 2006.

EU Regulation on Animal By-Products

The Animal By-Products Directive (1774/2002/EC) is important in a waste context in that it regulates the disposal and use of animal by-products that are not intended for human consumption. The Animal By-Products Regulation came into force on May 2nd 2003, and divides by-products into 3 categories, specifying the means of disposal for each category.

14.5 RECENT NATIONAL LEGISLATION

Since the making of the last Plan in 2001, the following legislation has been introduced with relevance to Waste Planning issues. Additional relevant legislation is listed in Appendix B

Waste Management (Use of Sewage Sludge in Agriculture) (Amendment) Regulations 2002

These replaced the 1991 Regulations on the protection of the environment, and in particular of soil, when sewage sludge is used in agriculture.

Waste Management (Licensing) (Amendment) Regulations, 2002

These Regulations clarify definitions of a number of relevant terms, classify different types of landfills allowed to operate under the licensing system, and stipulates a phasing out of certain types of waste from being accepted at landfills.

Protection of the Environment Act 2003

This Act updates and improves the legislation governing the Integrated Pollution Control (IPC) licensing regime, such that it is replaced by Integrated Pollution Prevention and Control (IPPC) licensing (in order to comply with EU legislation) and provides a statutory basis for incorporating improved groundwater protection requirements. In specific waste management terms, the Act provided for a number of new measures, including the review, variation or replacement of a waste management plan to be an executive function, and the introduction of explicit new powers for Local Authorities to charge for waste services.

Waste Management (Licensing) (Amendment) Regulations, 2004

These Regulations now allow for waste licences to be issued on the basis of Best Available Techniques (BAT) rather than Best Available Technology Not Entailing Excessive Cost (BATNEEC). The application of BAT will further improve the environmental performance from future waste facilities in Ireland. In addition, changes were made to the amount of information to be supplied by applicants to ensure greater transparency in relation to waste activities. Energy Efficiency is now also a consideration in deciding on waste licence applications, and new powers to revoke or suspend a licence based on “fit and proper person” have been introduced.

In general, several amendments have been made to Waste Management legislation over the past five years, primarily aimed at reducing certain waste streams from being landfilled, on limiting the inclusion of harmful materials in the production of goods and products and on a more comprehensive permitting and licensing system.

14.6 PENDING WASTE POLICY AND LEGISLATION

Proposed EU Biowaste Directive

A second draft of the working document on the Biological Treatment of Biodegradable Waste was published by the EU in February 2001. The main aim of this document was to promote the biological treatment of biodegradable municipal waste (BMW) and to help achieve the targets set out by the Landfill Directive. The proposed directive includes the need for Local Authorities to source separate BMW. It is anticipated that this Directive will be very influential in promoting composting of BMW and stipulating quality specifications and uses of compost within the EU. There is a possibility that this directive will be merged with a proposed EU Soil Strategy and revised Sludge Directive, to be finalised in 2005.

EU Soil Strategy

The soil is an environmental compartment which has not being afforded much environmental protection in the past. In order to prevent soil pollution, erosion and lack of soil fertility the EU are taking steps in the development of comprehensive EU policy on soil protection. The first of these steps consisted of the publication of a Communication "Towards a Thematic Strategy for Soil Protection” in 2002. The published document is broad in its approach and paves the way forward on how best to protect soil. The strategy is one of seven 'thematic strategies' foreseen under the EU's 6th Environment Action Programme.

New Sludge Directive

A third draft of a working document on sludge was published in April 2000, which proposed to reduce maximum levels of heavy metals in the soil and sludge in comparison with those limits previously stated in Directive 86/278/EEC. The new Directive will require that producers and handlers of sludge must be certified and ultimately be responsible for the quality of sludge produced. The overall objective of this directive will be to improve the rates of recycling of sludge and organic matter.

Solvent Emissions Directive

The European Council Directive 1993/13/EC on solvent emissions has been issued to address the harmful effects on human health and the environment caused by organic solvents. Organic solvents are used in many industrial processes and, owing to their volatility, they are emitted either directly or indirectly to the air. Such solvents can also inadvertently be released to sewers/waters or onto the ground. The directive has been brought into effect in Ireland through the Emissions of Volatile Organic Compounds from Organic Solvents Regulations, 2002.

There are many different types of businesses at the commercial and industrial level that will be affected by the Directive, such as: dry cleaners, printers, vehicle refinishing, manufacturing of varnish/ink/adhesives and pharmaceutical manufacturers.

A new system known as the Accredited Inspection Contractor (AIC) system will be used to implement the Directive for smaller businesses (larger companies in the IPPC sector are already regulated by the EPA). Non IPPC businesses must register with their Local Authority and submit the AICs annual report in order to obtain a certificate of compliance. The AIC will be reporting on: Solvent raw material, waste solvents, reused solvents, production data etc. Consequently the Local Authorities, namely the Regulation and Enforcement Teams will be responsible for absorbing the regulation of this Directive into their existing workload and ensuring compliance and reporting.

The dates by which a facility must meet air emission requirements, and must register with and obtain a certificate of compliance from their Local Authority are:

If you are a new installation (put into operation on or before 1 July 2003): before you start to operate

If you are an existing installation using the reduction scheme: by 31 October 2005

If you are an existing installation meeting the Emission Limit Values: by 31 October 2007

14.7 OTHER RELEVANT EU LEGISLATION

Additional European Legislation currently being considered includes a Directives on waste tyres. This Directive is expected to set out a 'producer responsibility' approach to management of this waste stream - the producer/ importer of the products will have to take back and pay for recycling of the products at the end of their life. This in turn will cause companies to rethink their product design in order to minimise recycling costs. The details of how this scheme will operate in Ireland are not yet clear, but it is possible that the role enforcing compliance with the WEEE directive will fall to the Local Authority, as is the case with the Packaging Regulations and the Farm Plastics Regulations.

14.8 OTHER ENVIRONMENTAL LEGISLATION

In terms of environmental legislation, an amendment to the Environmental Protection Agency Act of 1992 is expected next year. This is to take account of a 1996 EU Directive relating to integrated pollution prevention control. Government policy is guided by the National Sustainability Document and

a National Environment Partnership Forum to develop the concept of sustainable development. The Forum will represent a cross section of interest groups and a Consultation paper has been produced.

There is also a proposed amendment to Directive 91/689/EC on hazardous waste. This deals with separate collection of certain wastes under separate collection schemes, and requires each Member State to set up public information campaigns to efficiently implement the Directive.

A list of relevant waste management legislation is contained in Appendix B. The introduction of new legislation, together with pending legislative enactments has had a significant impact on how Waste Management Practices have developed in the country.

15 RELEVANT DEVELOPMENTS

15.1 NATIONAL DEVELOPMENTS

The most pressing national issue with regards to waste management is the remaining capacity of landfills. Table 15.1 outlines the remaining disposal capacities in other Waste Management Plan Regions close to the Dublin Region:

Table 15.1 Landfill Disposal Availability in Neighbouring Regions

Region	Local Authorities	Approximate Remaining Capacity
Midlands	North Tipperary, Longford, Westmeath, Offaly and Laois Co. Co.	Four landfills in operation, c 1.2 million tonnes - latest projected closure date 2016, a further landfill is proposed by the private sector.
North East	Meath, Louth, Cavan, Monaghan	Four landfills in operation. 2.2 million tonnes - latest projected closure date 2022
Wicklow	Independent Waste Plan	One facility in operation (Rampere – expected closure 2009/2010), a second facility has planning and licence approval and can accept up to 80,000 tpa from Dublin for c. 15 years
South East	Wexford, Carlow, Kilkenny, South Tipperary, Waterford Corporation & Co. Co.	Limited remaining capacity in 6 existing landfills – two new facilities proposed
Kildare	Independent Waste Plan	KTK landfill included in Chapter 12. No landfill for household waste. Two proposed facilities at planning stage.

In addition a number of regions are proposing to develop capacity for thermal treatment of waste. The most advanced proposals are as follows:

- Ringaskiddy Hazardous Waste Incineration Facility – proposed by Indaver Ireland this has achieved planning permission and a decision on its Waste Licence Application is expected in 2005.
- Proposed Waste to Energy Plant in the North East – proposed by Indaver Ireland, this facility has planning approval and a decision on its Waste Licence Application is expected in 2005.

15.2 INTERNATIONAL DEVELOPMENTS

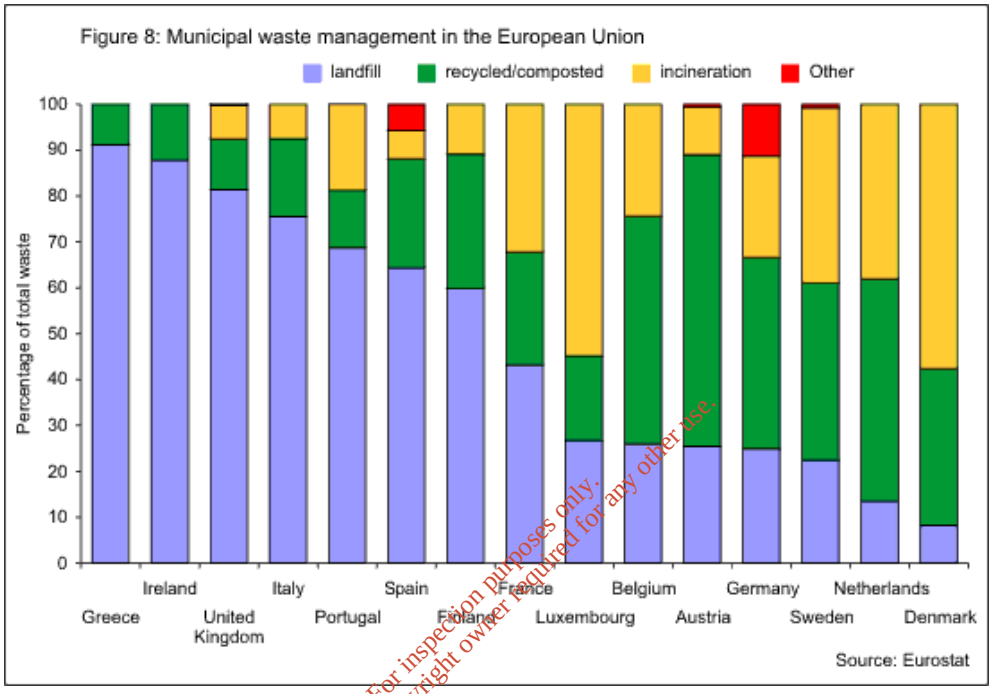
Zero Waste

Throughout the consultation process many submissions believed that the ‘Zero Waste’ model should be adopted throughout the country as has been done in New Zealand, South Australia United States and Canada. Zero Waste includes 'recycling' but goes beyond recycling by taking a 'whole system' approach to the flow of resources and waste through society. Zero Waste maximises recycling, minimises waste, reduces consumption and ensures that products are made to be reused, repaired or recycled back into nature or the marketplace. A zero waste philosophy accepts that there will be a steadily shrinking residue of waste requiring disposal for some time into the future and that landfills, as a means of waste disposal will gradually be phased out. The Waste Management Plan acknowledges that the Zero Waste model is a long term goal that the Dublin Region should work towards. Many of the practices and initiatives associated with zero-waste strategies have been included as policy objectives of this Plan.

Waste Management in Other Countries

Most EU Member States are gradually reducing reliance on landfill disposal as the primary means of dealing with waste. This is being achieved primarily by switching to systems involving recycling (materials recovery), biological treatment (composting & anaerobic digestion) and energy recovery using thermal treatment. The level of dependence on any one system of waste management is a function of many factors, such as the availability of land, the requirement for energy, degree of urbanisation and the stage of development of the economy and society.

Figure 15.1 Waste Management in the European Union 2001*



*Note – Ireland's current recovery rate (28% according to the EPA Interim National Waste Database Report for 2003) is higher than shown above: the graphic has not been altered for consistency with other states)

Developing a capacity to recover energy from the residual waste of the Region is a sensible way for the Dublin Region to meet the requirements of the EU Landfill Directive. Whilst waste to energy facilities are a new process for Ireland, countries in the European Union and other continents have been operating them for many years. Figure 15.1 illustrates that countries with incineration often have high recycling rates.

Use of Economic Instruments

The European Commission has expressed its view that the use of economic and market-based instruments is considered to be the most promising way to promote recycling and has further indicated its intention to make full use of its right of initiative to propose legislative measures aimed at achieving more sustainable waste management. Examples of economic instruments currently employed by other Member States include:

- Surcharges on a landfill levy for the deposit of municipal waste in landfills that do not have state-of-the-art systems for the collection and treatment of landfill gas
- The application of a landfill levy to any party exporting waste from the State for the purpose of depositing that waste
- A surcharge on the rate of the landfill levy for waste from outside the area covered by the local waste management plan, and
- A reduced landfill levy in relation to all inert waste

15.3 NATIONAL DEVELOPMENTS - TRENDSETTERS

The following case studies highlight the positive and successful projects that have been achieved in all areas of waste management through the country.

Waste Prevention & Minimisation for Business

In Dún Laoghaire-Rathdown County Council (DLRCC) a full time Green Business Officer has been appointed, whose sole function is to raise awareness and provide support to businesses in the area and who has been carrying out this function by usefully applying a variety of tools and instruments. A number of focused and worthwhile events have been facilitated from 2002 – 2004. An event specific to hospitals was held in November 2002 where information was presented and staff from hospitals could discuss common issues of concern and potential solutions. Such events provide practical information from external experts as well as motivational good practice case studies for local businesses and SMEs. The Green Business Officer works in co-operation with businesses, business associations, chambers of commerce, elected representatives and recycling companies in the development of a Green Business Network. This group aims to bring businesses and other stakeholders together to share experiences and allow networking to find environmental solutions for the benefit of individual companies, sectors and the Region as a whole. This is an excellent example of a worthwhile co-operative approach to stimulating beneficial environmental change and is based on best practice principles. The Green Business Officer also visits individual companies, outlining their requirements in legislation, giving advice, encouragement and support. Companies can be assisted, free of charge, with a waste review, setting up a management system, talking to staff, providing advice on recyclers, composting, waste handling equipment, etc. According to the *Green Business Programme Report 2003*, 28 companies received a full waste consultation in 2003 and 136 business were visited.

Kerry County Council - EcoSense ANSWER Project

The ANSWER (A New Solid Waste Environmental Response) Project was a three year demonstration project funded under the 1999 EU Life Programme. The aim was to develop a new waste management programme for South Kerry. The project required Kerry County Council to work in cooperation with individuals, local communities, commercial sector and non-government organisations to achieve a number of aims.

- To reduce municipal solid waste arisings by 25% by waste avoidance and minimisation measures
- To identify sustainable outlets to divert 60% of the remaining municipal solid waste form landfill by waste recycling and recovery
- To identify appropriate supporting financial instruments
- To assess employment potential of local waste recovery/treatment facilities

The project programme involved formation of a working group to oversee the project, a public awareness campaign to run the duration of the project, information and advice centres, a central composting scheme to be established in Killarney, on board weighing and identification system on all collection vehicles and identification and development of suitable markets for the recovered/recycled waste. The project succeeded in raising the awareness of the waste issue among the general public and the commercial sector and increased the diversion rate of waste from landfill. Over the three year period the rate of waste disposal decreased by 12.5% in the project area and the tonnes of material recycled in the project area increased from 945 tonnes in 1999 to 5472 tonnes in 2002.

Integrated Household Waste Recycling

Two Local Authorities have taken a lead in terms of household waste recycling, these are Galway City Council and Waterford County Council. Galway City Council has approximately 18,000 household customers, and since 2001 has implemented a 3-bin collection scheme helping the city reach just over 51% household waste recovery.

Waterford County Council is the first Local Authority to offer a 3-bin system to its entire catchment of household customers, including rural areas. The dry-recyclables collection has been underway since 2003, and the organic waste bin was introduced in 2004. Composting is carried out at a facility established by Waterford City Council (who also have a 3-bin household waste service) operated by a private company. Recycling Centres have also been set up at Tramore, Dungarvan and Lismore for drop off of recyclable bulky wastes.

These successful schemes have the following common characteristics:

- Schemes were rolled out with the support of a team of awareness offices – in Galway 10 staff called door to door to explain the new system before the phased roll-out of bins. Support is ongoing and information campaigns relate the performance back to the public.
- Collections are alternated (bin collections are fortnightly) to reduce overall collection costs
- The Local Authorities collect household waste themselves but benefit from partnership with private waste industry (sorting and baling dry recyclables for both, and composting in the case of Waterford)
- Customer satisfaction is high, but regulation and bin-inspections are still required to ensure the householder is using the right bin. Non-compliant bins are not collected by the Local Authority

Use-Related Charging

The changeover to use-related charging in 2005 has created new challenges for the Local Authorities and waste management companies. A number of collectors – such as Cork County Council, Dun Laoghaire Rathdown County Council, Mulleady (Longford) and Mr. Bin Man (Limerick) have already proven the effectiveness of these systems.

Mc Elvaney Waste in County Monaghan equipped its vehicles and bins with new electronic systems and commenced a 'pay-by-weight' system for its 6,000 household customers from January 1st 2003. Two wheelie bins are employed – the residual bin is collected up to 40 times per annum (depending on how often it is filled by the householder). A flat rate of €79 is charged every six months, with an additional charge of €11.50 per 100Kg of waste presented. The dry-recyclables bin is collected monthly.

Since the introduction of the service, the weight of waste presented for disposal has dropped by 40% to 0.7 tonnes/ household. About half of the weight has transferred to the recycling bin, with use of bring banks (for glass, textiles, cans), home composting, and waste prevention assumed to be taking the balance. Furthermore the scheme has proven popular with householders after a few teething problems were addressed.

Green Waste Composting

A number of Local Authorities have been successfully composting green waste for several years. The system offers a relatively low-cost option that diverts substantial amounts of waste away from landfill. With a growing urban population and increased attention to landscaping and gardening, the quantities of garden waste will continue to grow in all counties. Successful schemes are operated by Cork City Council, Kerry County Council, South Dublin County Council, Limerick County Council as well as a growing number of private facilities. The facilities typically comprise a concrete composting slab with leachate collection, and machinery such as windrow turner, shredder and loading shovel. With Irish green waste enjoying low levels of contaminants, the market potential for the finished compost is healthy.

C&D Waste Management Facility

A number of private C&D waste recycling facilities have been put in place that demonstrate the huge potential for recycling of this major waste stream. In the Greater Dublin Region, a range of facilities are in operation achieving high levels of materials recovery. Companies such as A1 Waste, Roadstone, and Marrakesh are all producing crushed concrete for use as engineering aggregate while recovering other materials such as metals and timber for recycling.

WTE and District Heating (Dublin City Council Poolbeg Waste To Energy (WTE) project)

The Dublin Local Authorities are keen to tap into the potential environmental benefits offered by the energy created from waste to energy plants. The Poolbeg WTE plant will generate up to 35MW of electrical energy for export to the national grid, but further benefits may be possible.

In 2003 Dublin City Council sought expressions of interest from interested parties who could potentially become Service Providers to supply heat energy to customers in Dublin City and so supervise the propagation of District Heating in the City. Discussions have taken place with a number of potential customers in new developments proposed in the city. These have focussed on concentrated, new-build development which is most suited to District Heating, particularly in the first few years of network development.

Utilisation of thermal treatment facilities as sources of heat for district heating energy supply is well established in certain European countries, most notably Denmark and the Scandanavian countries.

This is largely due to the historical support for the development of district heating networks locally and nationally. A large district heating network can ensure that there is a steady demand for heat. This can allow power stations to achieve a high level of overall energy efficiency through combined heat and power (CHP) operation. In addition, where district heating is practical to implement, there can be tangible benefits to local communities served by the plant. District heating can be applied in Ireland even though our climate is relatively mild compared to Denmark and Northern Europe where district heating is widespread.

Market Development Midlands Region – Sustainable Design of Recycling Centres

Developing markets for materials recovered from waste is a key requirement for successful recycling. In a bid to demonstrate what can be achieved with 'waste' materials, the Midlands Local Authorities have decided to put some novel ideas into place in new recycling centres being developed under the Midlands Regional Waste Management Plan. With the help of grant aid from the EPA Cleaner Greener Production Programme, a number of innovative design initiatives are planned for the new Recycling Centres in Mullingar and Edenderry.

- Recycled glass for paving surfaces
- Asphalt planings in the bituminous pavement
- Recycled crushed concrete in foundations
- Compost from household food and garden waste in landscaping

In addition, a range of other eco-friendly features including renewable energy, rainwater harvesting and sustainable building concepts are being used in the design. The project is led by Offaly and Westmeath County Councils.

Regulation and Enforcement – Dublin Region

In 2004 a Regional Waste Enforcement Unit was established by the Dublin Local Authorities (Dublin City Council and Fingal County Council). The unit has 10 field staff under the direction of a manager, and some administrative back-up. Through training and experience, the staff have skills in auditing, health and safety, surveillance, developing evidence for legal prosecution etc. The unit is also set up with flexibility in mind, so that checkpoints and surveys can be carried out during weekends or at night. To date the unit has been active in regulating waste collection across the Region, and in dealing with specific cases where a Regional approach is required. The staff work in close co-operation with Gardaí, Customs Officers and Dublin Port officials. Other objectives include detailed auditing and monitoring of permitted waste facilities.

Each of the four Dublin authorities continues to carry out its own regulation and enforcement of waste management legislation, but the Regional Unit is an additional resource to be used where and when required. It has had a positive impact to date on restricting unauthorised waste movement.

Wicklow County Council – School Book Exchange

The School Book Exchange first began in 2003 using one room of the Education Centre and was staffed part-time by two students. Approximately 8,000 books were received and of these 3000 were kept in circulation for reuse in schools and the remainder were sent for paper recycling in the UK. The programme was so successful it was run again in 2004 but with several improvements. A second hand portacabin was purchased and two students were employed full time for the summer. The local schools were notified at Easter that second hand books would be available for purchase. Consequently nearly 20,000 books were received at the centre of these 5,000 books were sold for reuse,10,000 were sent for recycling and 5,000 sent to orphanages in Liberia run by the Irish Army .

16 WASTE PROJECTIONS

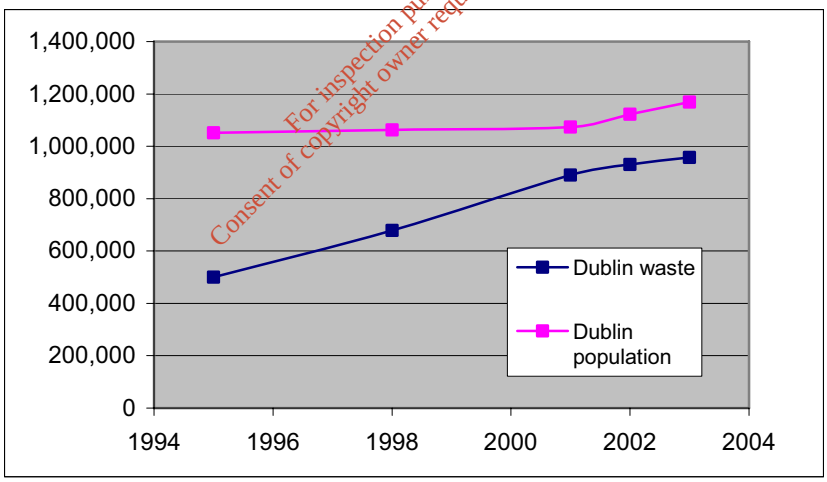
16.1 RECENT TRENDS IN WASTE GENERATION

In order to manage future waste arisings it is necessary to predict how much waste will be generated in the various sectors using information at hand today. Projections are included in this Plan for household waste and commercial/industrial waste streams, and consideration has also been given to construction/demolition waste.

With a rising population and a gradually falling average household size (just under 3 people per house in 2002), the number of households in the Dublin Region has been growing sharply in the last decade. Based on population increases forecast in the Regional Planning Guidelines for the Greater Dublin Area (RPGs), the number of households will already have exceeded 400,000 in 2004, and by 2014 will have exceeded 500,000. Economic growth is linked with increased waste generation, and the strong economic growth since the mid 1990's is another factor influencing waste generation upwards.

Figure 16.1 below summarises municipal waste growth in the Dublin Region over the past 9 years. The growth in waste from 1995 to 2001 is dramatic, although some of the increase is due to improved reporting and regulation of waste. In the last two years growth has moderated to approximately 3-4% per annum. This is not dissimilar to the national profile provided by the Environmental Protection Agency. As demonstrated in Section 4, most of the growth has been in commercial/industrial waste.

Figure 16.1 Municipal Waste Growth in the Dublin Region.



16.2 FACTORS INFLUENCING WASTE GROWTH

A variety of factors are at play in influencing future waste growth per capita or per household. Some of the main factors influencing the household sector are discussed below.

Table 16.1 Factors Influencing Household Waste Generation

Factors driving growth	Factors driving reduction
Economic prosperity – growth in economic output is commonly linked with growth in waste arisings. A key aspect is increased consumer spending power which influences household and commercial/ industrial waste. **Health and Safety requirements** – increased packaging, food safety (encourage to throw away rather than save food) **Lifestyle Factors** (Influenced by workforce productivity, technology advances, etc..) e.g. growth in convenience meals – more packaging. **Internet Shopping** – if 'distance buying' increases substantially, this might increase packaging generated at household level. **Falling prices** for goods such as clothing and household electronic goods means more frequent purchases and higher obsolescence (repair is more costly than replacement) **Improved waste systems** – especially composting of green waste – material otherwise left in the garden may be presented for central composting.	**Prevention and Minimisation Actions -** Increased awareness of waste management and motivation to change shopping and lifestyle habits – driven by national and local waste prevention and minimisation campaigns (Race Against Waste etc.) **Economic instruments** – use related charging: this has been demonstrated to change the way people manage waste. As well as increasing recycling it can influence consumer behaviour and promote for example home composting and 'sensible shopping'. **Reduced household size** – the average occupancy in households is falling towards the European average. **More compact housing** – apartments / duplex housing etc. – no garden waste. Apartments produce less waste. **Producer Responsibility** – when enforced by government, this can influence manufacturers and suppliers to 'design out' waste

It is difficult to predict how these forces will interact and what the net outcome will be. Only some of these factors can be influence by the Local Authorities, most of them depend on societal changes in Ireland and globally. For this Plan, we have assumed that the level of waste produced by each household will level off at 1.25 tonnes/household by the year 2006.

16.3 APPROACH TO PROJECTIONS

16.3.1 Household Waste

The general approach followed is summarised below.

Step 1 – the projected number of households is taken from published sources,

Step 2 – a prediction is made of the waste which will be generated per household

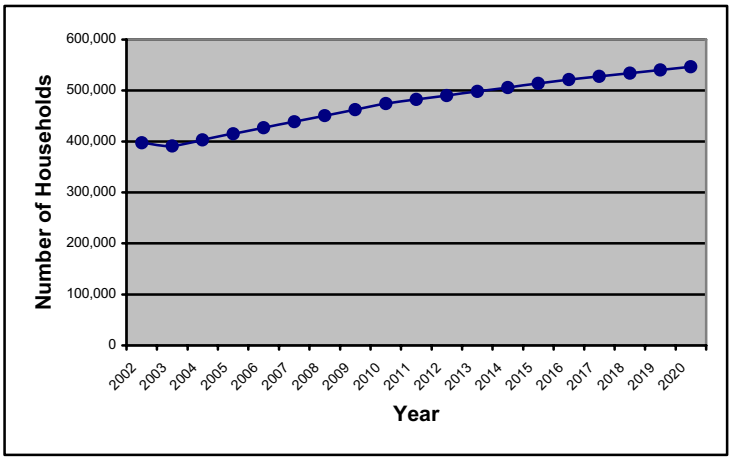
Step 3 – for each future year, household waste generation is the product of the numbers of households and the waste per household.

The household numbers from the RPGs are used for the final projections, however recent projections on national population growth (CSO Population and Labour Force Projections, December 2004) suggest that Ireland's overall population is set to rise beyond the levels of the National Spatial Strategy, which may in turn require other Plans to be updated in due course. Once the results of the 2006 Census of Population are available, the actual growth in household and population numbers can be compared with current projections – this could be done in the Annual report on Plan implementation (See Section 22).

The final projections chosen for household waste are reasonably close to these other projections; for the year 2010 the plan projections fall between Bacon and the DoEHLG.

The target for household waste prevention is to arrest the growth in waste arisings per household and to achieve a levelling off at 1.25 tonnes per annum by 2010.

Figure 16.2 Growth in Household Numbers Predicted from the RPGs



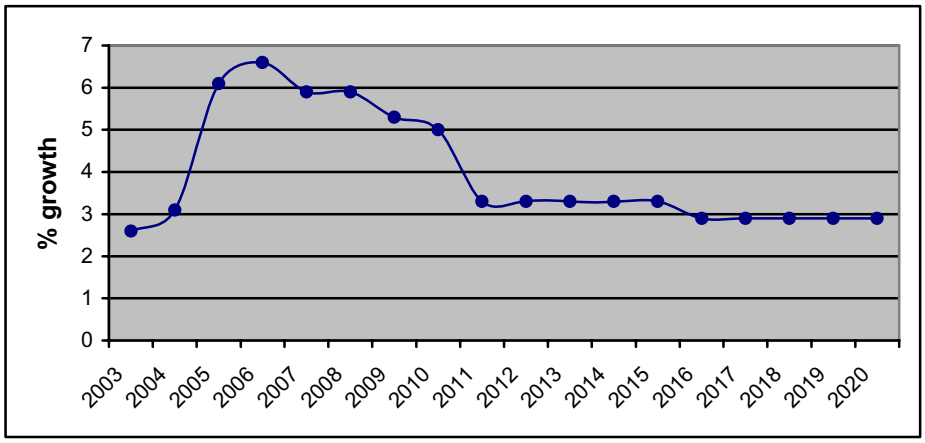
A number of scenarios were considered and the growth projections were compared with other recent projections, including those made by the DEHLG ('Overview of Waste Management Plans, 2004) and by economist firm Bacon Associates (prepared in 2002 for a private waste management company).

16.3.2 Commercial/Industrial Waste

For commercial/industrial (C/I) waste, the projection is based on likely future economic growth in the Region as summarised in GDP growth projections. A 'prevention factor' is also included since the rate of growth in waste is not expected to match GDP growth – i.e. decoupling of waste and economic growth will be achieved to a certain extent. Current C/I generation is taken as the baseline.

The target for commercial/industrial waste prevention is to achieve partial decoupling of economic growth (measured in national GDP) from waste growth over the period 2005-2010. The 'prevention factor' is intended to represent the degree of decoupling that can be achieved compared with forecast GDP increases (see Table 16.2 overleaf).

Figure 16.3 National GDP Forecasts (ESRI)



16.3.3 Summary of Projections

The following summarises the projections for waste arisings in Dublin for the period 2003 – 2020.

Table 16.2 Commercial/Industrial Waste Projections

Year	GDP growth (%)	Prevention Factor	Net Waste Growth
2003 (actual)	2.60	1.5	1.1
2004	3.10	2.0	1.1
2005	6.10	2.5	3.6
2006	6.60	3.0	3.6
2007	5.90	3.5	2.4
2008	5.90	4.0	1.9
2009	5.30	3.5	1.8
2010	5.00	3.0	2.0

Table 16.3 Summary of Projected Waste Arisings in Dublin for the Period 2003 – 2020

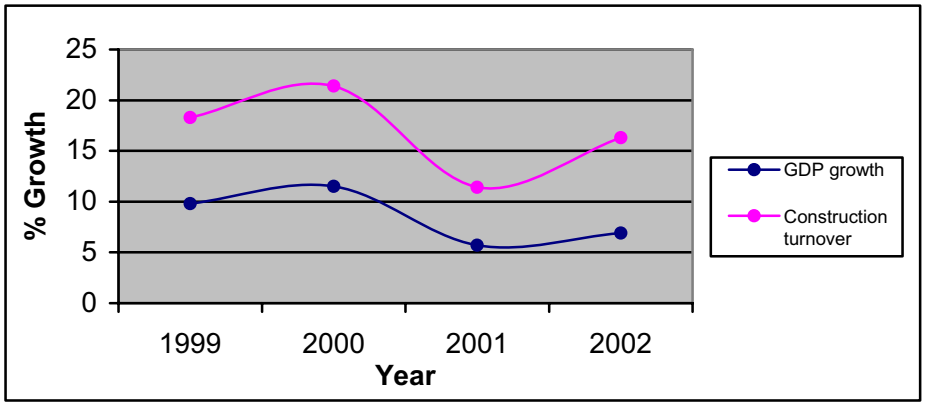
Year	Household	Commercial/ Industrial	Total Municipal & Industrial
2003	459,282	659,755	1,119,037
2004	475,696	676,958	1,152,653
2005	492,187	701,328	1,193,515
2006	508,832	726,576	1,235,408
2007	523,016	744,014	1,267,029
2008	537,199	758,150	1,295,349
2009	551,383	771,797	1,323,180
2010	565,567	787,232	1,352,799
2011	574,932	797,467	1,372,399
2012	584,298	807,834	1,392,131
2013	593,663	818,335	1,411,998
2014	603,028	828,974	1,432,002
2015	612,394	839,750	1,452,144
2016	621,723	855,706	1,477,429
2017	629,171	871,964	1,501,135
2018	636,618	888,531	1,525,150
2019	644,066	905,414	1,549,479
2020	651,513	922,616	1,574,130

16.4 GROWTH IN CONSTRUCTION/DEMOLITION WASTE

The turnover in the construction sector has continued to grow in excess of the rate of GDP growth, and currently a very high level of development is underway right across the four Local Authorities. Nevertheless there are some indications for an evening off or contraction in construction activity in the years ahead.

The availability of statistics on C&D waste is poor but gradually improving as regulation of the waste stream improves. C&D waste arisings in 2003 seem to be about 300% higher than the estimates carried out in 1997, but some of this growth may be due to better reporting rather than actual growth.

Figure 16.4 GDP Growth Compared with Construction Industry Turnover Growth



A large proportion of the 4 million tonnes currently managed is soil, excavated for major projects such as housing, offices or infrastructure such as road, rail or water/ wastewater treatment. There are a number of factors that will influence the quantity and type of C&D waste to be generated in the coming years.

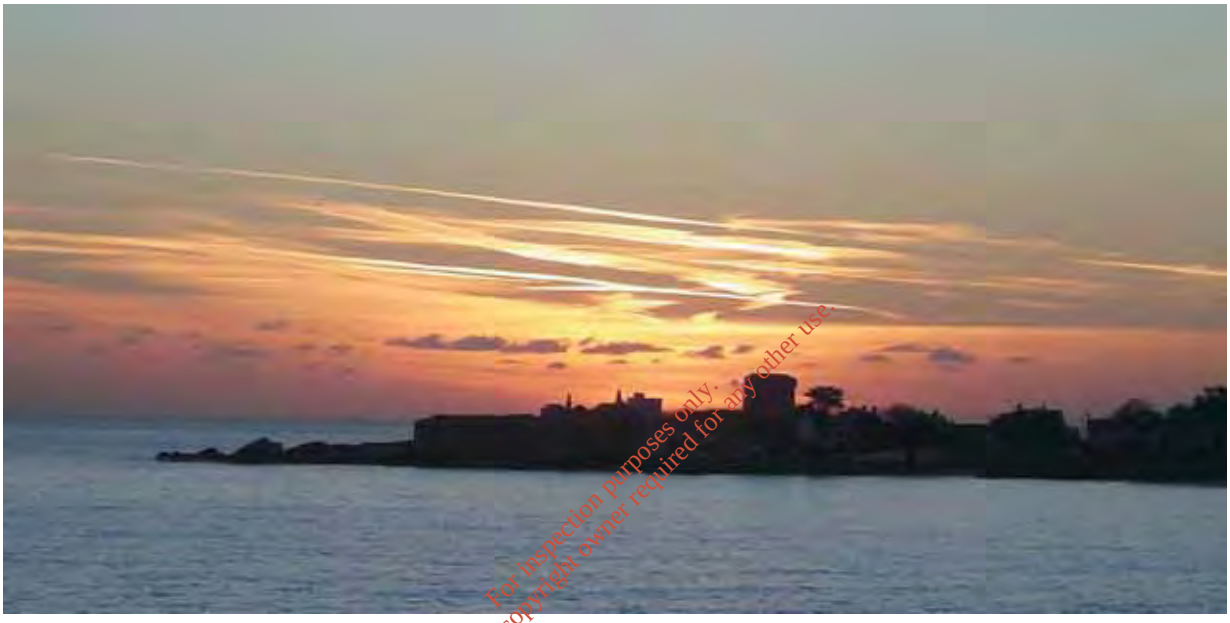
Table 16.4 Factors Influencing C&D Waste Generation

Factor	Influence	Likely Result
National Spatial Strategy	Calls for more compact urban forms and brownfield redevelopment: Hence urban renewal and demolition likely to take a bigger share of development. Balanced Regional Development.	Increase in demolition waste (concrete, brick, timber, metal) and possibly contaminated soil. Possibly more growth in Regions outside the GDA.
Underground Parking	Current approach is for one or two-storey basement for parking and services in urban developments. Significant excavations required. Limited chance to minimise waste.	Continued generation of soil requiring off-site disposal.
Prefabricated construction	Tendency to assemble pre-cast and pre-manufactured building components may reduce the generation of traditional waste (e.g. concrete) but also increase for example packaging waste.	Changing waste composition towards packaging and less traditional materials.
Higher waste management costs (gate fees, transport) Greater awareness and know how among building professionals	Developers are more acutely aware of waste costs and will favour schemes that reduce wastage. Designers – Engineers and Architects – becoming more adept at reducing waste at source and retaining materials on site for landscaping etc. in order to reduce traffic and waste costs.	Will serve to counteract C&D waste growth.

16.5 FUTURE WASTE MOVEMENTS

Chapter 4, Section 4.4 summarises the current major movements to and from the Dublin Region for both Hazardous and Non Hazardous waste. The future plan of waste movements is likely to be similar and cannot be predicted to any greater degree of accuracy. Refer to Section 18.11 of the Plan for future Policy on Inter-Regional Waste Movement.

PART 4



POLICY

17 WASTE MANAGEMENT POLICY

17.1 BACKGROUND TO POLICY DEVELOPMENT

The broad policy for waste management for the Dublin Region was agreed by the four Local Authorities in 1997, with the preparation of the Dublin Waste Management Strategy. Subsequently, the four Authorities gave the Strategy a statutory footing when they adopted the Dublin Waste Management Plan in 1998/1999 which was the first Regional Plan for waste management to be developed in Ireland. In 2004/2005 a review process was undertaken on the Plan, culminating in the preparation of this revised Waste Management Plan in Draft form for consultation.

The policy outlined in this Plan therefore combines the underlying philosophy of *integrated waste management* set out in the original Dublin Waste Strategy, and the findings of a thorough review process carried out between July 2004 and March 2005.

17.2 POLICIES OF THE DUBLIN WASTE STRATEGY (1997) AND INITIAL WASTE MANAGEMENT PLAN (1998/2001)

The Dublin Waste Management Strategy Study commenced in 1996, undertaken by an Irish-Danish consultancy team. The first thorough Regional waste data collection was carried out, and a substantial public consultation exercise undertaken. The Strategy has a 15-20 year outlook (1997 – 2017 approximately). Policies and programmes for waste prevention/minimisation and reuse/reduction were assessed. A series of possible waste management options were considered from the perspective of environmental impact, technical feasibility and economics. These are summarised in Table 17.1 below

Table 17.1 Alternative Waste Management Scenarios of the Dublin Waste Strategy

Scenario	*Recycling*	Bulk Waste Reduction/Recovery
1	Mandatory recycling according to national and EU recycling targets plus proposed landfill directive	None
2	Maximum realistic recycling	None
3	Mandatory recycling according to national and EU recycling targets plus proposed landfill directive	Thermal treatment
4	Maximum realistic recycling	Thermal treatment

The 1997 Strategy Study included a modelling study, which took into account the environmental, technical, and financial implications of each scenario – this allowed the environmental impacts, costs and waste management performance to be compared for each of the alternatives.

The waste flow assessment enabled the performance of each scenario in terms of waste recycling, energy recovery and disposal requirements to be compared. The type and capacity of waste collection and treatment facilities required under each scenario was set out.

The cost assessment involved estimating the capital and operational costs of the alternative scenarios, taking the waste flows and throughputs into account and modelling the annual cost over a 15 year period. This was combined for each scenario into a 'Net Present Value' (NPV) enabling the global cost of each scenario to be compared (Figure 17.1).

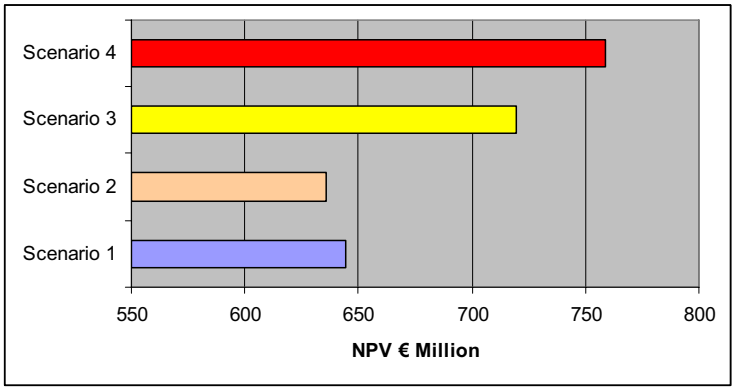


Figure 17.1 Cost Assessment of Strategy Options

The environmental assessment of scenarios took into account considerations such as global warming potential, acidification, eutrophication, photochemical ozone formation and other environmental issues. The Scenario 4 option was demonstrated to have the lowest overall environmental load when all considerations were combined.

Following assessment, the fourth scenario – combining maximum recycling levels with thermal treatment of the remaining waste – although more expensive than the alternatives, was found to be the Best Practical Environmental Option for the Region. It could deliver on meeting EU and National policy targets, emphasise recovery of recyclable and compostable material, enable energy recovery from residual waste, and minimise reliance on landfill disposal. The Strategy met with general support when presented to the Public and the Elected Representatives.

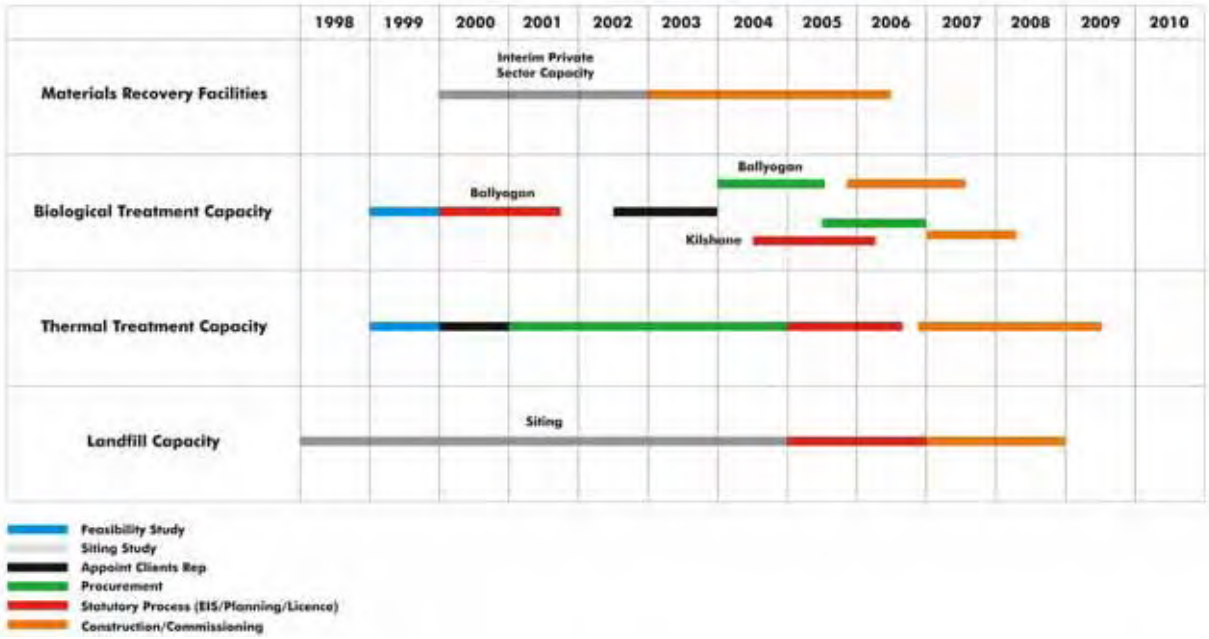
While the Strategy was noted by the Elected Members of the four Authorities in 1997, it did not have Statutory recognition until the policy was transformed into a Waste Management Plan (prepared under the Waste Management Act 1996, and Waste Management (Planning) Regulation, 1997). This took place during 1998, again involving public consultation during preparation and following publication of the Draft Plan. The Draft Plan was adopted by each of the four Local Authorities in late 1998 to early 1999. The Plan became effective in 2001 when Fingal County Council deleted certain caveats from the earlier Plan. Figure 17.2 illustrates the development of integrated facilities for the management of municipal waste throughout the Region since the development of the Dublin Waste Strategy.

The following targets were adopted for the Region:

Table 17.2 Targets Adopted in the Dublin Waste Strategy and Plan

Source	Recycling	Thermal	Landfill
Households	60%	39%	1%
Commerce/Industry	41%	37%	22%
Construction/Demolition	82%	0%	18%
Total	**59%**	**25%**	**16%**

Figure 17.2 Integrated Local Authority Development of Facilities for Municipal Waste



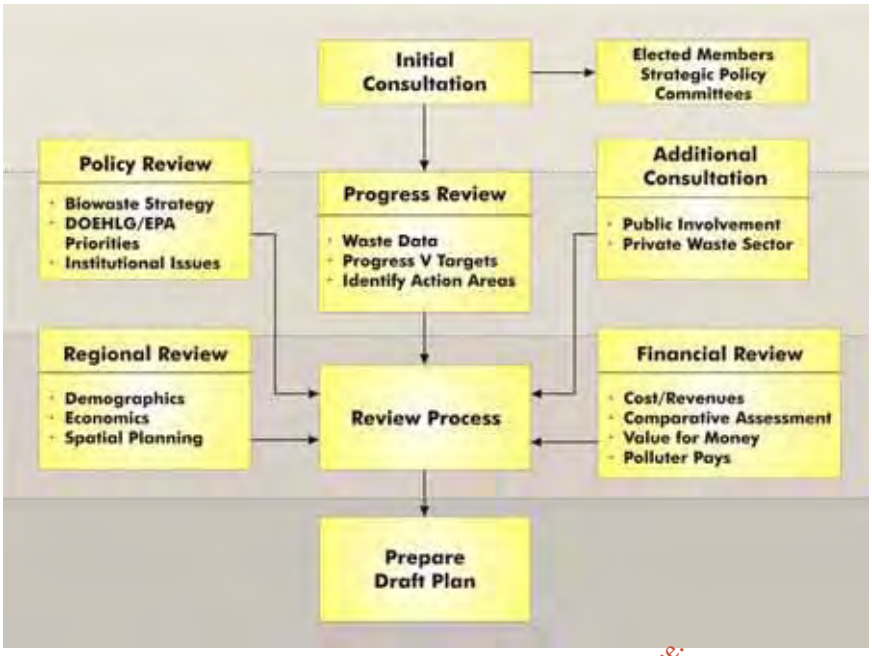
17.3 OVERVIEW OF THE REVIEW PROCESS (2004/2005)

During the period 2001 – 2004, the Dublin Waste Management Plan has provided the underlying policy for waste management developments in the Region. According to the Waste Management Act, each Plan must be reviewed within five years of adoption, hence the Review process that formally commenced in July 2004 with an invitation for public submissions.

The review comprised the following strands:

- Broad consultation with the public to determine their views and level of satisfaction with the Plan to date
- Assessment of waste management performance, with updated data, compared with the objectives of the Plan
- Assessment of new Government policy and EU level policies (and legislation), and the impacts for the Dublin Region
- Consideration of new information, philosophies, technologies and opportunities since the original strategy was developed
- Looking at the changing nature of the Dublin Region and implications for waste management

Figure 17.3 Overview of the Review Process



17.4 ISSUES CONSIDERED IN THE REVIEW

At the outset of the review process, the current situation with regard to waste generation and management methods was assessed, using the year 2003 and combining information from the Local Authorities own facilities and services and the private waste sector (as reported in their collection permit and facility 'Annual Environmental Reports'). The results of this assessment are presented in Part II of this Plan.

A 'policy review' followed, whereby issues identified during consultation and data collection were assessed, and the implications of new policies and legislation were considered. In general for each of the topics covered, the current Dublin performance was assessed and compared to the original policy targets and also to current best practice in Ireland and internationally. Feedback from the consultation process helped set the agenda for the review. Where appropriate alternatives were considered, and improvements to the existing Waste Management Plan - and how it is delivered/ implemented by the Local Authorities - were suggested.

The central guiding document in the review process was the 2004 National Policy Statement 'Taking Stock and Moving Forward', which built on previous policies - namely 'Changing our Ways' (1998) and 'Delivering Change' (2001) - and set the agenda for the Regional waste management plan review by identifying 20 'Key Points' for improvement in waste management in Ireland in the coming years.

The following were the main issues dealt with in the Review process:

Prevention and Minimisation – the review looked separately at household and community level activities and the business sector including small & medium enterprises (SME), resulting in some recommendations for additional measures and activities to be led by the Local Authorities, and how this service can be delivered most effectively by the Local Authorities.

Community Involvement and Social Sector Projects – a number of projects have been set up since the original Plan was adopted. These and other international examples of community/ voluntary sector projects were assessed with a view to developing further opportunities.

Performance of Recycling Systems - household and commercial/industrial waste recycling was assessed, to determine where further improvements were possible. This considered options for collection systems, infrastructure and regulatory options.

Projection of Future Waste Generation – taking into account waste growth during the Plan period, the review assessed likely future demographic and economic changes and the potential impact of waste prevention and minimisation measures in order to make waste projections for the future.

Draft National Biodegradable Waste Strategy and the EU Landfill Directive – progress towards meeting the relevant targets for diversion of waste away from landfill and towards materials recovery and biological treatment was assessed. The potential role for thermal treatment (Waste to Energy) and alternative methods of residual waste treatment was examined. Other proposals of the Draft Strategy were also taken on board. Emerging waste treatment technologies were also considered.

Implementation of National Hazardous Waste Management Plan 2001 – the Local Authorities are responsible for implementing several recommendations of this policy. The review examined performance to date in the Region and recommended future actions needed.

Construction and Demolition Waste Management – starting with an assessment of the current arisings and management methods, the review examined areas where C&D waste management needs improvement, including the implementation of the new Construction Industry Federation voluntary initiative and the possibilities for improving recycling practices.

Packaging Waste – in addition to examining current arisings and recycling/ recovery performance, the review assessed effectiveness of the current enforcement by Local Authorities of packaging legislation, levels of cost recovery from industry by Local Authorities, and other potential options for improvement.

Waste Electrical and Electronic Equipment Directive – when transposed into Irish law, this producer responsibility' Directive will significantly change how WEEE is managed from consumer to end recycling/disposal. The implications for Local Authority services was considered.

End Of Life Vehicle (EOLV) Directive – new systems for ensuring scrap vehicles are properly recycled are being brought into force by means of 'producer responsibility' – the ability for the Dublin Region to implement the new system was assessed.

Other Legislation at EU and National Level – the review examined changes to waste management legislation since the previous Plan was adopted, and considered foreseeable future legislation from the EU and at national level.

Regulation and Enforcement – highlighted by several stakeholders as a key issue in Plan implementation, the current Local Authority systems to regulate waste management activities - from producers to consumers and waste collection/ treatment companies - was assessed.

Co-operation with the Planning System – the potential to maximise benefit from co-ordinated future planning was assessed, particularly examining how good co-ordination of Local Authority resources in the Planning and Environmental Sections could facilitate improved waste management.

Consultation with neighbouring Local Authorities – Meetings were held with neighbouring Local Authorities in relation to the Plan Review.

Infrastructure Requirements and Waste Disposal Needs – the review considered current capacity available to manage the waste generated in the Region, and what further capacity is needed to meet the plan targets. This included an assessment of waste disposal capacity options available and in planning. An assessment was also carried out as to whether the suggested alternative to Waste to Energy, i.e. MBT (Mechanical Biological Treatment) was feasible in the Dublin Region (see box below).

Financial Assessment – the current expenditure and revenue was assessed on a regional basis and the cost implications for the future were considered bearing in mind the need to improve cost recovery and achieve implementation of the Polluter Pays Principle.

Assessment of MBT option in the Dublin Region

An MBT process treats mixed municipal waste by mechanically removing some parts of the waste and by biologically treating others so that the residual fraction is smaller and more suitable for a number of possible end uses.

Several waste treatment plants operating in Europe employ some form of MBT. The option is being considered by some authorities and private companies in the UK as a possible alternative to Waste to Energy (WTE) / incineration. Several variations on the system exist, and there are varying degrees of sophistication available in MBT systems. Following MBT treatment, the mixed waste is generally split into two main fractions:

- A dry residue (Refuse Derived Fuel / RDF), which is usually sent for energy recovery by incineration or to cement kilns where it is co-combusted with other fuel
- An organic residue, similar to compost but with a higher degree of contamination and impurities, making it unsuitable for high-grade applications (it is often used as a landfill daily cover)

There is also a smaller proportion of solid residues such as metal (recycled) and glass/ stones.

MBT does not eliminate the need for landfill but can play a role in reducing the biodegradability of input waste if this must be subsequently landfilled or even used as a landfill cover material. Residues are produced by MBT which must be landfilled or thermally treated.

The possibility for MBT to play a role in the context of the Dublin Region was assessed, bearing in mind that some submissions suggested it would remove the need for a WTE facility. MBT should not be regarded as a direct alternative to WTE. In fact, where RDF is produced by MBT the plant will form one step in a longer process where energy is recovered from waste. Overall it was found that MBT would not offer any significant advantages for the Dublin Region, given that: :

- The Dublin Region is pursuing a policy to source separate organic waste to make clean compost – this will remove a significant portion of the organic waste from the mixed waste stream. This approach offers the best chance for the development of a sustainable market outlets for good quality compost / treated organic waste. This market will be very sensitive to product quality.
- Compost produced from source separated waste has a much higher quality and chance of being utilised than compost produced by screening and sorting mixed municipal waste The production of large volumes of low grade compost from MBT could be detrimental to the establishment of markets for the cleaner compost and ultimately any compost product.
- The feasibility of RDF production is highly dependent on markets and quality / nature of the product; this includes finding facilities that can meet the EU Waste Incineration Directive requirements to burn the MBT residues. These do not currently exist in Ireland. Without such outlets, this material would need to be landfilled, composted or thermally treated at a central facility i.e. this option could result in a regressive situation where energy is expended for no benefit.
- The energy yield from WTE is better than from MBT systems, meaning WTE can reduce greenhouse gas emissions to a greater extent. Waste to energy is therefore placed higher on the Waste Management Hierarchy.
- WTE is a robust treatment technology proven to work well on a variety of waste streams and at the scale required in the Dublin Region

On this basis, thermal treatment (with energy recovery) of residual waste i.e. after recycling and composting of source separated organic waste, is the continued policy of the Dublin Region. This policy will deliver a highly integrated system that is optimised in terms of environmental and economic factors.

17.5 OUTCOME OF THE REVIEW PROCESS

Reflecting on positive progress, the Review Process confirmed that:

- The waste management performance of the Region has improved dramatically since 1998
- There is general support for the integrated waste management approach
- The Local Authorities have made vast improvements to household waste services, resulting in better recycling performance
- The private sector has generally responded positively to the waste management plan resulting in improved recycling performance for industrial/ commercial waste
- Cost recovery for waste management has improved, although there is still a deficit in this sector

Regarding Plan implementation to date, the following are the underlying areas for improvement:

- Target dates of the original plan were over-ambitious, bearing in mind the scale of the waste management challenge and the practicalities of implementing a variety of new collections and facilities
- More consistency in implementation is desirable – between one Local Authority and the next, between one area and the next, including the charging systems for waste
- Further progress on prevention/minimisation is sought, including greater responsibility from industry to minimise waste transferred to consumer level
- There are still significant deficits in infrastructure to manage waste generated in Dublin and this is increasing costs and making it more difficult to achieve recycling and energy recovery targets. Progress in relation to organic waste treatment and the Dublin Waste to Energy Plant is critical in order to meet targets, and progress in relation to the Fingal Landfill project is critical to avoid a crisis in landfill capacity.
- Regulation and Enforcement is of vital importance
- The desirability of more waste being recycled and reprocessed in Ireland is an underlying theme to consultation.

The findings of the review process have been incorporated into this replacement Draft Waste Management Plan for the period 2005-2010

17.6 POLICY STATEMENT

The Dublin Region will strive to implement a sustainable waste management system that is based on the principles of the EU Waste hierarchy and up to date National and EU policies.

- Waste prevention and minimisation is a challenge for society – the Local Authorities will lead a campaign aimed at community and business level to reduce waste arisings.
- Waste shall be managed such that it will not give rise to environmental pollution
- The integrated waste management approach will be applied to waste generated, implementing reuse, maximum recycling, recovery of energy from residual waste, and minimising landfill disposal where possible
- It is a goal to create equity of access to waste management facilities and services across the Region

- Local Authorities will continue to respond to public input and to work in co-operation with the voluntary sector, private waste management companies and other stakeholders
- It is a goal to deliver a cost-effective and affordable system meeting the 'polluter pays principle' that meets high standards of environmental performance and all legislative obligations
- The Dublin Region will aim to develop an integrated suite of waste management infrastructure, to enable waste generated in the Region to be treated in the Region as far as possible, in the interests of sustainability.
- The private sector waste industry will be encouraged to provide waste management infrastructure and services.
- The Dublin Local Authorities are supportive of co-operation with neighbouring counties to enable efficient development of infrastructural capacity for waste management.

17.7 TARGETS

The original targets of the Dublin Waste Strategy are deemed valid future targets for the Region, although the original time-frame for meeting the targets was over-ambitious. The key milestone for meeting these targets should be once the waste to energy plant is operational. It is suggested that the target date be extended to 2013.

Table 17.3 Waste Stream Targets for 2013

Source	Recycling	Waste To Energy	Landfill
Households	60%	39%	1%
Commerce/Industry	41%	37%	22%
Construction/Demolition	82%	0%	18%
Total	**59%**	**25%**	**16%**

Comments on Targets:

- With household recycling still below 20% in 2003, to achieve 60% recycling will be very difficult: this target should be re-assessed once the organic waste collection/ treatment and the network of Recycling Centres is fully established (2008/2009).
- Commercial/Industrial waste recycling is already above 30%: it may be possible to surpass original targets (41%), which would serve to balance any shortfall in household targets.
- Recycling targets for C&D waste are difficult to assess: there is a significant volume of soil being generated, with limited outlets for real 'recycling '. However the 82% target should continue to apply to all rubble, concrete, stone, packaging and other waste generated on building and demolition sites. Changes to data recording are needed to monitor this target (identifying soil and stones separately).
- Targets will be subject to ongoing review as necessary, every two years as a minimum.

In relation to contingencies in the event of delays or failure to implement the Draft Plan, the following will result:

- Delay of recovery/recycling will lead to more pressure on waste to energy and disposal facilities
- Delay or difficulties in achieving waste to energy capacity will increase pressure on landfill disposal, requiring short term extensions
- Delay with proposed landfill capacity will increase pressure on use of existing sites, other sites in GDA or other regions in the short term

- Where preferred locations for facilities that have been identified in the Plan for a particular purpose are subsequently determined to be unsuitable, the Dublin Local Authorities may select another preferred site, with reference to existing siting studies where relevant.

17.8 IMPLEMENTING THE POLLUTER PAYS PRINCIPLE

The principle behind 'Polluter Pays' is that the person who created a risk of pollution or cause pollution will bear the cost of prevention or of remedial action. There are two aspects to this principle. It requires that the person who causes the pollution to bear not only the cost of remedying the pollution but also those costs arising from the implementation of a policy of pollution prevention.

Therefore householders are obliged to pay not just for the cost of the collection and disposal of waste in their Grey bins, but for other services that are provided by the Local Authority in respect of waste presented in Green bins (and Brown Bins in 2006) along with waste presented to Recycling Centres and Bring Banks.

In accordance with this the 'polluter pays principle' is prioritised and reinforced by the Pay by Weight/Use system being implemented nationally. It is considered that levying of charges which incorporate the 'use-related' principle is the most environmentally effective way to charge for waste management services and will encourage a move away from landfill disposal towards more sustainable waste practices (see also Section 7.5). When additional facilities and services are provided the Local Authorities will continue to employ, adjust and introduce user fees for waste services and facilities provided and shall use the income from the fees to finance measures taken in pursuit of objectives of the Plan in order to deliver a cost effective and affordable system having regard to the polluter pays principle.

In relation to other waste streams such as Commercial and Industrial waste, and Construction & Demolition waste, this Plan requires the polluter pays principle to be implemented. This can be achieved by:

- Relating the charges for waste to the amount generated
- Setting users fees that incentivise sustainable waste management in terms of prevention, reduction, source separation and recycling of waste
- Applying facility gate fees that apply the full cost of the facility including development, operation, monitoring and aftercare in a manner that affords environmental protection in accordance with relevant legislation.

In addition, this Plan supports the development of Producer Responsibility schemes to improve waste management for specific waste streams, which is another method by which the Polluter Pays Principle can be incorporated into waste management.(See Section 18.12)

Where sites are identified in the region as former non-hazardous or hazardous waste disposal or recovery locations (see Section 19.7 & 19.8), any subsequent costs for the investigation and remediation of these sites should be borne by the polluter.

18 POLICIES AND OBJECTIVES FOR MUNICIPAL & INDUSTRIAL WASTE

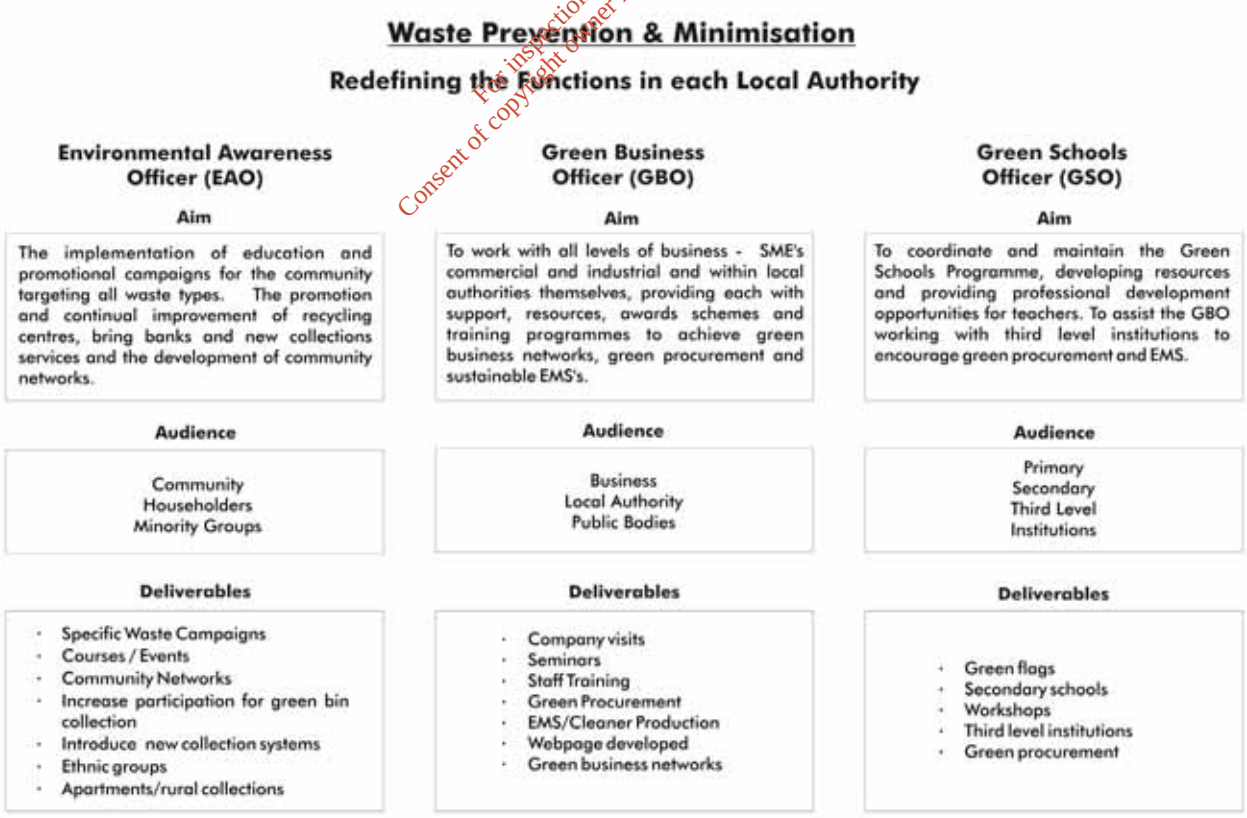
18.1 WASTE PREVENTION AND MINIMISATION

Prevention is at the core of EU and Irish legislation, and the activities of the Local Authorities in the Region over the period of this Plan need to reflect this. The achievements in waste prevention and minimisation have improved greatly since the appointment of the EAOs in each Local Authority. The review process identified that since the EAOs were appointed in 2001 the role has grown and diversified as the public awareness of the waste issue has risen, and so too has the number of households, businesses and schools.

At a national level, it is expected that the National Waste Prevention Programme and other initiatives will generate legislation, funding, information and guidance on many issues in support of the implementation of Regional waste prevention programmes and these should be fully utilised within the Dublin Region.

Locally, much of the change with regard to improvements in waste prevention for the proposed Plan hinges on the commitment to prioritise prevention, the provision of adequate resources and the appointment of designated staff to focus on three main target audiences, Figure 18.1 outlines the suggested functions and their respective audiences and deliverables.

Figure 18.1 Redefining the Functions in each Local Authority



- Objective: In addition to the current EAO each Local Authority employs (if it has not already done so) a Green Business Officer, and a Green Schools Officer.
- Objective: The Regional Waste Steering Group will establish a mechanism for coordination of the activities of the Awareness Staff (EAO GBO and GSO) in each of the four Local Authorities to deliver a coherent strategy for the Region.
- Objective: The Dublin Region will work closely with National/EPA initiatives for waste prevention/minimisation
- Objective: The Dublin Region will continue to apply use-related charges for waste services in support of prevention, minimisation and recycling.
- Objective: The EAOs will provide training opportunities for 'community champions' to assist in raising awareness and improving environmental behaviour in their communities.
- Objective: The Local Authority Awareness Officers will support and encourage small scale central composting programmes within, for example: communities, apartments and shopping centres and the involvement of landscaping contractors in managing green waste onsite is encouraged.
- Objective: Use of wood and green waste chippers by people with large gardens to be considered by the Local Authority staff and recommended where appropriate to reduce the need for transport and central composting.

Waste characterisation is valuable in identifying opportunities for waste prevention, ensuring the recycling collections are operating efficiently, enabling forward planning and helping to focus the public information message. The Dublin Local Authorities will undertake ongoing characterisation of household waste in accordance with the manual provided by the EPA. The programme will be co-ordinated on a regional level and will follow the programme to be agreed by the EPA in late 2005. Information gathered will be useful in assessing the effectiveness of waste prevention programmes and the success of recycling collections

Figure 18.2 Communication Flows within the Local Authorities

18.2 COMMUNITY AND VOLUNTARY SECTOR INVOLVEMENT

The Waste Management Plan needs to address the role the community and voluntary sector can play in reducing the quantity of waste buried in landfill. Chapter 6 highlighted several successful and innovative recycling initiatives that are running in the Dublin Region. Initiatives like these need to be supported both financially and promotionally. Funding for community projects can be sought not only from the Local Authorities but also through the National Waste Prevention Programme and other government funded programmes.

Objective: The Local Authorities will encourage community/voluntary groups to establish sustainable additional waste services or facilities (e.g. small scale facilities for recycling, reuse/repair) they would like in their area and assist them to develop a strategy to provide it, for and with the members of their community.

Objective: Environmental Awareness Officers in the Region will advise on the sources of funding available and assist in the preparation of any applications for funding.

18.3 REUSE AND REPAIR

It is an objective of the Plan to support the development of reuse and repair facilities in the Region. The Local Authorities will explore this through cooperation with the voluntary sector, the waste management sector and other possible project partners.

Objective: to develop a 'resource recovery centre' in the Region enabling reuse/ repair of household items.

Objective: To provide an online 'virtual' reuse centre through the Dublin Regional Website www.DublinWaste.ie to enable the public to reuse household goods.

18.4 HOUSEHOLD WASTE COLLECTION AND RECYCLING

The Dublin Local Authorities will continue to offer an integrated and cost-effective collection service to households in the Region. Emphasis will be on separate collection of clean, high value resources. Recognising some inconsistencies in the current service levels across the Region, the Local Authorities will work to harmonise the current system over the Plan period.

Underground Recycling Bins in Spain

Specific objectives are:

- To implement use-related charging systems in support of waste minimisation and recycling in accordance with the Polluter Pays Principle (as outlined in Section 7.5)
- To continue to extend and improve the green bin recycling service, increasing the quantity of material collected for recycling. This will be achieved through ongoing public information and motivation, increasing the capacity of the system, and continuing to extend collection to multi-unit dwellings. It is proposed to include new materials such as plastic bottles in the door-to-door collection.

- The Local Authorities will specify through consistent Bye-Laws across the Region how householders must separate and present waste. Bye-laws will set out how various household materials will be presented (broadly following the representation in Figure 18.3), and will be updated by the Local Authorities as required. The Bye-Laws will include a suitable fine for non compliance.
- All private apartments will be required to introduce a separate collection system for household dry recyclables, meeting the same standard as Local Authority services (see box below).
- Undertaking trials with underground bins in the region area will be addressed as a priority.
- The Local Authorities may require developers to include bring banks in new commercial and residential developments at planning stage in accordance with the recycling objectives of this Plan.
- Continual improvement of the Green Bin service is an objective. This can be achieved through regular reporting of tonnages, regular composition surveys on the materials collected, and subsequent targeted actions by the local authorities to address areas where performance can be improved by better public awareness and service provision. The proposed model for household waste collection and recycling in the Region is presented in Figure 18.3.
- To continue to expand the network of bring banks, employing innovative methods of siting and collection e.g. underground banks. 111 new bring banks are proposed (see Table 18.1). Existing sites may be expanded or upgraded to accept additional materials.
- The four Dublin Local Authorities will work to ensure that all bring banks are consistent and meet the same standard of appearance and service level. This will include the use of the regional waste logo, a standard set of names and colour coding of containers. A protocol for servicing bring banks will be agreed and all contractors required to meet the specifications set out, and the design standards set.
- To provide additional Recycling Centres with facilities to accept a variety of materials not catered for in the door-to-door collection service, including WEEE, household hazardous waste, green waste and household C&D (DIY) waste. Several additional facilities are proposed as outlined in Map 11, Table 18.2 and Appendix H. It is intended to have at least 12 full-scale Recycling Centres in operation by 2010, complimented by additional Centres at community level.
- The opening hours of Recycling Centres to be extended to cover weekends/outside normal work hours where local conditions allow.
- To ensure that household waste storage facilities including recycling facilities is adequately addressed in all proposed new residential developments, by taking this into account during the Planning Application process. New developments will be required to conform with waste storage guidelines (refer to Appendix C of this Plan).
- The Dublin Local Authorities propose to introduce an additional household waste collection ('brown bin') for organic waste generated by households. This will be introduced on a phased basis once biological treatment capacity is established. The household waste collection system (including the grey/black bin) may switch to an alternating fortnightly collection for household waste at this time.
- The Brown Bin Service will be piloted in different locations throughout the Region to establish the most appropriate service for all householders, taking into account bin size and type, and collection frequency in order that the public are satisfied and willing to use the service. The most suitable charging mechanism for the Brown Bin service will be investigated during the pilots.
- The Environmental Awareness Officers will be responsible for regular targeted information campaigns at both local and regional level for current and proposed recycling collections. The campaigns using a variety of media; radio, newspaper, brochures, mail drops, community groups, neighbourhood champions etc will ensure that the public, including assisting non-English speaking communities to ensure that the public, are motivated to recycle and are well informed of where, how and when they can recycle.

Waste in Apartments – Additional Policies

A growing proportion of Dublin's population live in apartments, and it is intended that apartment dwellers should have the same standard of waste service as household dwellers as far as possible. This will require a fresh approach to the design of new apartment blocks, and changes to the way waste is managed in existing blocks. The following objectives are set out:

- Space for Recycling – recycling requires separation of recyclable materials both within the apartment, and in the communal waste storage/ collection area. Adequate space needs to be made for 3-bin recycling systems (green, brown, and black bins) in both respects.
- Glass bottles will continue to be collected at bring banks. New apartments should include separate facilities for collection of glass. This can be achieved through dedicated wheeled bins or underground bring bank systems.
- Organic waste (food and garden waste) collections will commence for householders in 2006 and eventually extend to apartment blocks, therefore space provision for brown bins will be required. Pilot scale implementation of brown bin collection in apartments will be carried out initially.
- The same service levels will be required of apartment complexes whether they are serviced by Local Authority or private waste collectors.
- In order to plan new buildings with recycling in mind, the Local Authorities will develop a booklet for the planning section and for all developers 'Guidelines for waste management in apartment developments' with practical examples of the required approved design.

In order to establish practical solutions to achieving use related charging for apartment dwellers, pilot studies will be carried out on apartments in the Plan Period, with a view to extending the solutions to all apartment blocks

Green waste created by landscaping of apartment complexes can in some cases be effectively managed on site by composting, in which case the cost and transportation is reduced. Opportunities for on-site green waste management should be explored at planning stage and in existing apartment blocks.

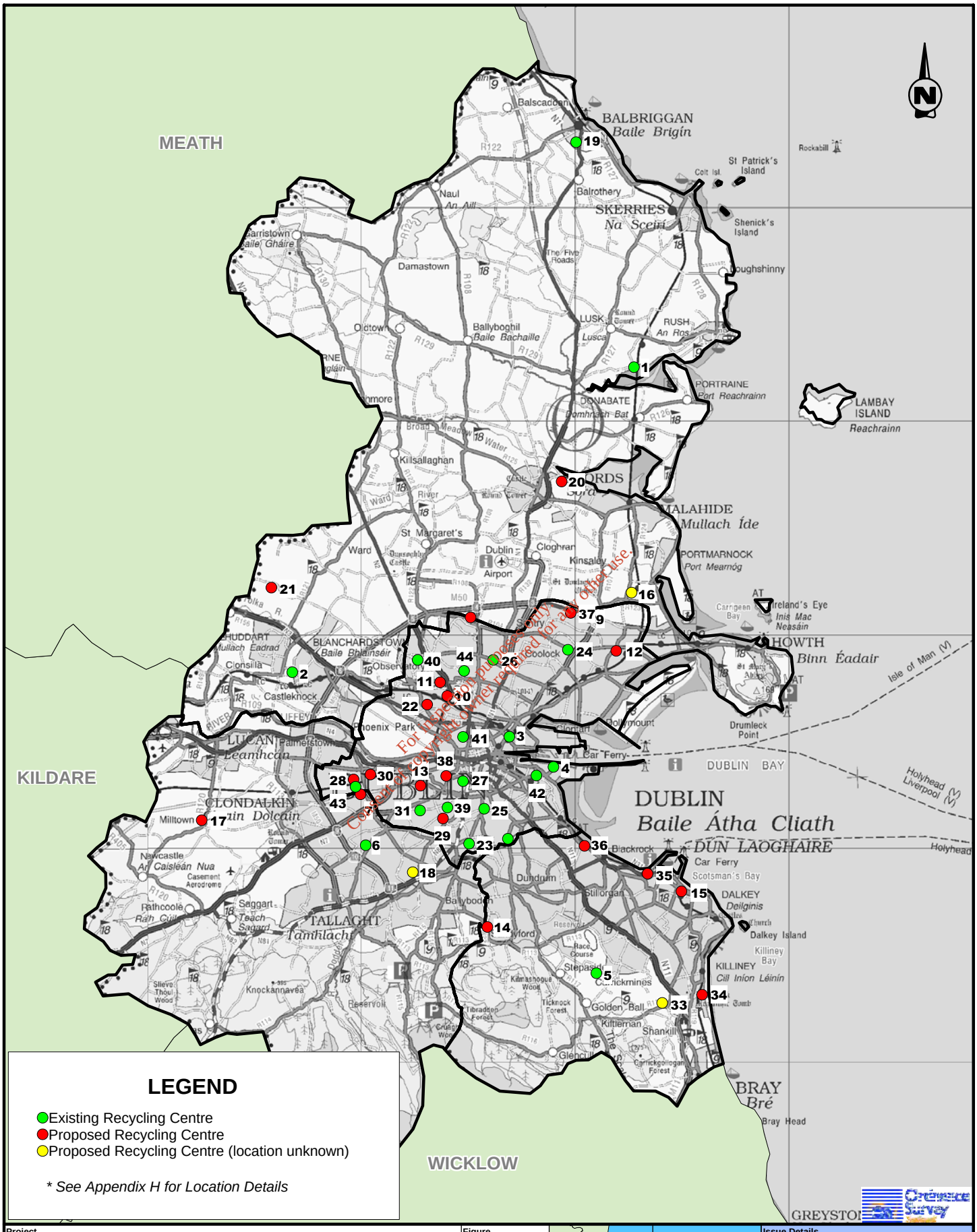
Table 18.1 Summary of Bring Bank targets

Local Authority	DCC	DLRCC	FCC	SDCC
Existing Bring Banks	73	64	70	50
New Bring Banks target	49	13	20	29
Total target	122	77	96	79
Target Ratio (population per site)	1:3,500	1:2,500	1:2,500	1:2,500
Note: Some banks may be expanded or the range of materials accepted may be increased				

Table 18.2 Summary of Recycling Centres/Community Recycling Centres

Local Authority	Recycling Centre Name	Address	Status
DCC	Milltown Road	Milltown Car Park, Milltown Road, Dublin 6	Existing
	Herzog Park	Herzog Park, Orwell Road, Rathgar, Dublin 6	Existing
	Oscar Traynor Road	Oscar Traynor Road, Coolock, Dublin 5	Existing
	Gullistan Terrace	Gullistan Terrace, Rathmines, Dublin 6	Existing
	Windmill Road	49/51 Windmill Road, Crumlin, Dublin 12	Existing
	Collins Avenue	Collins Avenue, (Opp DCU Extension) Dublin 9	Existing
	Eamon Ceannt Park	Eamon Ceannt Park, Rutland Grove, Crumlin, Dublin 12	Existing
	Grangegorman	Grangegorman, Grangegorman Upper, Dublin 7	Existing
	London Bridge Road	London Bridge Road, Ringsend, Dublin 4	Existing
	Kylemore Park North	Kylemore Park North, Ballyfermot, Dublin 10	Existing
	Ringsend	Ringsend Recycling Centre, Pigeon House Road, Dublin 4	Existing
	Shamrock Terrace	North Strand Recycling Centre, North Strand Road, Dublin 3	Existing
	Seanchara Community Centre	Seanchara Community Centre, St.Canices Road, Dublin 11	Existing
	Colaiste Eoin	Colaiste Eoin, Cappagh Road, Finglas, Dublin 11	Existing
	Sweeney's Terrace	Sweeney's Terrace, Dublin 8	Existing
	Mount Olive	Mount Olive Road, Kilbarrack, Dublin 5	Proposed
	Belcamp Lane	Belcamp Lane, (Adj to N32), Dublin 17	Proposed
	Le Fanu Park	Le Fanu Park, Ballyfermot, Dublin 10	Proposed
	Labre Park	Labre Park, Ballyfermot, Dublin 10	Proposed
	Rediscovery Centre Ballymun	St. Margaret's Road, Ballymun, Dublin 11	Proposed
	Tolka Valley Park	Tolka Valley Park, Tolka Valley Road, Finglas, Dublin 11	Proposed
	Garryowen Road	Garryowen Road, Ballyfermot, Dublin 10	Proposed
	Broombridge Road	Broombridge Road, Cabra, Dublin 7	Proposed
	Galtymore Park	Galtymore Park, Drimnagh, Dublin 12	Proposed
	St. Dominic's Park	St. Dominic's Park, Belcamp Lane (Adj to N32), Dublin 17	Proposed
	Slaney Road	Slaney Road, Dublin Industrial Estate, Glasnevin, Dublin 11	Proposed
	Sundrive Road	Sundrive Road, Crumlin, Dublin 12	Proposed
	St. James's Walk	St. James's Walk, Dublin 8	Proposed
DLRCC	Ballyogan	Ballyogan Recycling Park, Ballyogan Road, Dublin 18	Existing
	Eden Park	Eden Park, Glasthule, County Dublin	Proposed
	Marley	Grange Road, Ballinteer, Dublin 14	Proposed
	Booterstown	Rock Road, Blackrock, County Dublin	Proposed
	Shanganagh	Adjacent to Shanganagh Wastewater Treatment Works, Shankill, County Dublin	Proposed
	West Pier	West Pier, Dun Laoghaire, County Dublin	Proposed
	Cherrywood/ Rathmichael Catchment	(Location not yet identified)	Proposed
FCC	Balleally	Balleally Lane, Lusk, County Dublin	Existing
	Coolmine	Coolmine Industrial Estate, Dublin 15	Existing
	Balbriggan	Unit 1, IDA Industrial Estate, Balbriggan, County Dublin	Existing
	Damastown	Damastown Industrial Park, Damastown, Dublin 15	Proposed
	Estuary	Seatown East, Swords, County Dublin	Proposed
	Portmarnock/ Baldoyle/ Sutton Catchment	(Location not yet identified)	Proposed
SDCC	Ballymount	Ballymount Road, Walkinstown, Dublin 12	Existing
	Lucan/ Clondalkin Catchement	Clutterland, Clondalkin, County Dublin	Proposed
	Rathfarnham/ Templogue Catchment	(Location not yet identified)	Proposed

Notes: Please refer to Map 11 and Appendix H for the outline location of the individual facilities.
Each map in Appendix H contains a list of proposed activities on the site. "Full range of Household Recyclables" includes for example glass, plastic, cardboard, paper, cans, and beverage cartons
Some existing Recycling Centres/ Community Recycling Centres may be expanded or upgraded to accept additional materials as outlined in each of these maps.
Where the location of the site is not know at this stage, the map is omitted.
Where the types of activity proposed are not known at this stage, the map identifies only the outline location.



ID	FACILITY_NAME	LOCATION	STATUS
1	Balleally Civic Amenity	Balleally Landfill, Balleally Lane, Lusk, Co. Dublin	Existing
2	Coolmine Recycling Centre	Coolmine Industrial Estate, Dublin 15	Existing
3	Shamrock Terrace Recycling Centre	North Strand, Dublin 1	Existing
4	Ringsend Recycling Centre	Pigeon House Road, Ringsend, Dublin 4	Existing
5	Ballyogan Recycling Centre	Ballyogan Recycling Park, Carrickmines, Dublin 18	Existing
6	Ballymount Recycling Centre	Ballymount Industrial Estate, Dublin 12	Existing
7	Labre Park Recycling Centre	Labre Park, Ballyfermot, Dublin 10	Proposed
8	Milltown Road	Milltown Car Park, Milltown Road	Existing
9	Site at N32 Belcamp	Belcamp	Proposed
10	Slaney Road	Glasnevin Industrial Estate, Glasnevin	Proposed
11	Tolka Valley Recycling Centre	Finglas Business Park (Open space at Tolka Vale)	Proposed
12	Mount Olive Recycling Centre	Mount Olive, Kilbarrack	Proposed
13	Galtymore Park	Galtymore Park	Proposed
14	Marley	Off Grange Road	Proposed
15	Eden Park	Glasthule	Proposed
16	Portmarnock/Baldoyle/Sutton Catchment	Location not yet identified	Proposed (location unknown)
17	Lucan / Clondalkin Catchment	Lucan / Clondalkin Catchment	Proposed
18	Rathfarnham / Templelogue Catchment	Location not yet identified	Proposed (location unknown)
19	Balbriggan Recycling Centre	IDA Industrial Estate, Balbriggan	Existing
20	Estuary Recycling Centre	Seatown East, Swords	Proposed
21	Damastown Recycling Centre	Damastown Industrial Estate	Proposed
22	Broombridge Road	Broombridge Road	Proposed
23	Herzog Park	Herzog Park, Orwell Road	Existing
24	Oscar Traynor Road	Oscar Traynor Road	Existing
25	Gullistan Terrace	Dublin City Council / off Rathmines Road Lower	Existing
26	Collins Avenue	Dublin City Council Depot / off Collins Ave Extension	Existing
27	Sweeney's Terrace	Off Cork Street	Existing
28	LE FANU Park	Blackditch Road, Ballyfermot	Proposed
29	Sundrive Road	Sundrive Road	Proposed
30	Garryowen Road	Garryowen Road near Markievicz Park	Proposed
31	Windmill Road	Windmill Road	Existing
32	Rediscovery Centre Ballymun	St. Margarets Road, Ballymun	Proposed
33	Cherrywood-Rathmichael	Cherrywood / Rathmichael Area	Proposed (location unknown)
34	Shanganagh Recycling Centre	Adj. to Shanganagh Wastewater Treatment Works	Proposed
35	West Pier Amenity Area	West Pier, Dun Laoghaire	Proposed
36	Booterstown Amenity Area	Booterstown	Proposed
37	St. Dominics Park	Off Belcamp Lane, N32, Dublin 17	Proposed
38	St. James's Walk	St. James's Walk, Dublin 8	Proposed
39	Eamonn Ceannt Park	Eamonn Ceannt Park, Rutland Grove, Crumlin	Existing
40	Colaiste Eoin	Cappagh Road, Finglas	Existing
41	Grangegorman Upper	Grangegorman Upper, Phibsboro	Existing
42	Londonbridge Road	Londonbridge Road, Irishtown	Existing
43	Kylemore Park North	Kylemore Park North, off Kylemore Road	Existing
44	Seanchara Community Centre	St. Canice's Road, off Ballymun Road	Existing

Figure 18.3 Overview of Household Waste Collection

18.5 COMMERCIAL/INDUSTRIAL WASTE COLLECTION AND RECYCLING

A further increase in recycling of commercial/industrial waste is an objective of the Plan. This includes dry-recyclable waste and organic waste. A two-pronged approach is required:

1. Develop an information and promotion campaign (building on Race Against Waste 'Small Change' business campaign).

2. Regulation of waste producers and collection companies to require source segregation

18.5.1 Dry Recyclables from Commerce and Industry

This includes paper, cardboard, glass, metals, plastic and other materials. Increased recycling will require co-operation of the waste generators (shops, offices, institutions, industries) and also the private waste collection sector.

Early consultation will take place with collection companies about the time frame involved and the materials in question, including details of phasing-in. Some facilitation of recycling for small business may be required, in particular where space is not readily available or the individual businesses are very small. The Local Authorities will encourage alternative collection systems for businesses (e.g. underground containers with swipe card which opens only for the businesses) or encourage businesses to group in order to achieve economy of scale and obtain better service.

The following objectives are set:

- The Local Authorities will promote a campaign of awareness for business waste, working with relevant stakeholders such as the Chambers of Commerce, Repak, and waste collection companies.
- Commercial Waste Bye-laws will be drawn up to require source separation of specific recyclable wastes from business. The Bye-Laws will be made consistent across the Region and will include a suitable fine for non-compliance.
- Waste Collection Permits will be revised to require the waste collector to provide separate collection of dry recyclables to its customers, in accordance with Bye-law requirements.

18.5.2 Organic Waste from Commerce and Industry

It is an objective of this Plan that a source separated organic collection be introduced for commercial organic waste.

For organic waste, the programme will focus on sectors with greater generation of organic waste, namely hotels, restaurants, canteens, larger institutions and companies working with food. Treatment capacity is currently under development, therefore regulation of the dry recyclables will occur first. The intervening period will be used to discuss the practicalities of implementation with the private waste collection companies and relevant businesses.

The following objectives are set:

- The Local Authorities will promote a campaign of awareness for relevant businesses, working with relevant stakeholders
- Commercial waste Bye-Laws will be drawn up to require source separation of organic wastes from relevant business. The Bye-Laws will be made consistent across the Region and will include a suitable fine for non-compliance.
- Waste Collection Permits will be revised to require the waste collector to provide separate collection of commercial organic waste to its customers, in accordance with Bye-law requirements.
- The implementation date needs to be agreed with collection companies well in advance. A phased geographical roll-out may be agreed that will stream-line the resources needed to enforce the Bye-Laws.

Some businesses or institutions may have the space and a suitable waste stream to consider an on-site organic treatment –e.g. vermi-composting, small-scale in-vessel composters etc.. Support and information will be provided to interested companies. They will need to operate under Waste Permit.

18.5.3 Delivery Points for Commercial/ Industrial Wastes

The Local Authorities support the concept of Recycling Parks for commercial/industrial waste whereby small-scale waste producers can deliver materials for recycling and treatment. Such facilities are intended for SMEs and other small-scale waste producers, and also to relieve pressure on recycling centres which are designed and operated for the household sector. Commercial/ Industrial Recycling Parks will operate on a fee-paying basis.

- The Local Authorities will seek the co-operation of the private waste sector in developing Recycling Parks for C&I waste generated in the Region (Table 18.3).

Table 18.3 Proposed Recycling Facilities for SME's and Business

Summary of Recycling facilities proposed for SME's, Business
• Drop-off point(s) for household hazardous waste • Drop-off point(s) for WEEE. (Including WEEE generated by Retailers (instead of delivery to household Recycling Centres) • Delivery point(s) for Green Waste from landscapers, business • Delivery point(s) for small scale C&D waste and DIY waste
Separate drop-off points may be provided, or alternatively a Recycling Park concept may be developed. These facilities may be advanced through Public Private Partnership. Private sector initiatives will be encouraged.

18.5.4 Hospital Waste

Hospitals are among the major waste producers in the region, and hospitals in the Dublin Region are encouraged to achieve best practice in waste management, including both risk-waste and non-risk waste. The recommendations of the Comptroller & Auditor General Report "Waste Management in Hospitals" (March 2005) should be implemented by all hospitals whether public or private, including the preparation of individual hospital waste management plans.

18.6 MATERIALS RECOVERY CAPACITY/WASTE TRANSFER

Further increases in capacity to accept, sort and process recyclable waste is required in the Region.

- Dublin City Council is developing a MRF for household waste at Ballymount in Dublin 12 on behalf of the Region. This facility will have capacity to sort and treat municipal household waste with the capacity of approximately 100,000 tonnes per annum. The development of further MRF capacity by the private waste management industry is encouraged by the Plan. The potential also exists to develop a MRF at Ballyogan Recycling Park, e.g. for commercial/ industrial waste.
- It is an objective for Fingal County Council to develop a waste transfer / compaction facility (65,000 tonnes/annum) at Kilshane Cross (alongside proposed biological treatment, C&D waste recycling, and sludge drying) in order to accept municipal waste for onward transfer to energy recovery or disposal facilities.

18.7 BIOLOGICAL TREATMENT CAPACITY

The Dublin Region requires a substantial increase in the capacity to manage organic waste.

18.7.1 Biowaste Treatment Facilities

The Dublin Local Authorities will develop two biowaste composting plants to treat source-separated organic municipal waste.

- A biological treatment plant will be located in the Ballyogan Recycling Park, with a capacity of up to 45,000 tonnes/annum. Statutory approval (planning and waste licence) is already in place for a composting facility. Procurement of an operator for the facility is underway. The facility is being developed by Dun Laoghaire Rathdown County Council on behalf of the four Local Authorities.
- A second biological treatment facility will be developed to serve the northern catchment, again with a capacity of up to 45,000 tonnes/annum. A preferred location at Kilshane has been selected, as part of an integrated waste management facility. Procurement and preparation of an EIS for the proposed development are commencing in 2005. Fingal County Council is developing this facility on behalf of the four Local Authorities.
- In addition to the above, additional capacity to manage commercial/ industrial organic waste is required. A capacity range of up to 50,000 – 100,000 tonnes per annum is recommended. It is envisaged that this be developed by the private waste sector.

18.7.2 Green Waste Capacity

Green Waste facilities are required for garden and landscaping waste, a long-term capacity of up to 50,000 – 80,000 tonnes/annum is required. The Local Authority will consider developing this capacity alongside existing or proposed facilities. Development of capacity in the private sector is also encouraged.

South Dublin County Council operates a green waste facility at Esker Lane. A proposed green waste composting facility at Ballyogan Recycling Park will not now proceed. Green waste will be co-treated at the Ballyogan biowaste facility, and the additional space may be used for compost storage/ maturation.

The development of reception facilities for green waste (involving acceptance and transfer) is required. This capacity may be developed alongside, or as part of, Recycling Centres.

The Local Authority strategy for managing green waste in the region is summarised as follows:

Prevention/Minimisation
Home composting is the preferred method of dealing with green waste at household level, and will be supported by the local authorities. Opportunities to compost green waste at apartments or commercial complexes can be considered by the landscaping contractor in appropriate circumstances. Use of wood- and green waste-chippers by people with large gardens to be considered by the Local Authority staff and recommended where appropriate to reduce the need for transport and central composting.

Collection
Delivery points will be provided for drop-off of household green waste by householders. Not all Recycling Centres will be able for practical reasons to accept green waste, but it is intended to provide a wide coverage in order to discourage the placing of green waste in the household black bins. From the Recycling Centres, green waste will be transferred to local shredding/ transfer facilities. This will be carried out on a frequent basis to avoid generation of any nuisances at Recycling Centres.

Transfer
Shredding and/or Transfer facilities will be developed by the Local Authorities, it is proposed that two facilities be operational by the end 2005 and four facilities by end 2006. These will accept green waste from householders and from landscapers. Waste will be shredded or bulked and loaded onto trailers for onward transfer to composting facilities. Locations currently identified as potential sites for reception/ shredding/ bulking/ transfer include:

- Balleally landfill (Fingal) Expected to open in October 2005
- Esker Lane (South Dublin) Operational for waste reception
- Ballyogan Recycling Park or Landfill (Dun Laoghaire Rathdown) As part of new biological treatment proposals, acceptance and shredding will be possible (2007).
- L'Abre Park, Ballyfermot (Dublin City Council) Currently going through planning

Other sites will be considered in order to have a sufficient network of sites to serve the region (refer to Table 18.2 and Appendix H which lists current options). This will reduce the need for transfer of bulk green waste. Charges at these facilities will reflect the cost of the service.

The local authorities will be supportive of the development of private sector facilities for the reception and shredding/ compaction and transfer of green waste.

Green Waste Composting

The current deficit in capacity will be addressed in the short term by accessing composting facilities including outside the Dublin Region. Other treatment options that will be pursued include:

- Ballyogan/ Kilshane Biowaste Facilities – a certain amount of green waste is expected to be used in the composting of household biowaste. Shredding / transfer capacity may also be developed at these locations if required.
- Using green waste composting facilities in other regions –e.g. Counties Kildare, Meath, Wicklow

Use of Green Waste Compost
Given that green waste in Dublin has been demonstrated to produce clean, high grade compost, it is intended to maximise the quality and end-use options for the material, ideally achieving commercial applications and reducing the need for use of compost from non-renewable sources.

18.8 ENERGY RECOVERY

Developing capacity to recover energy from the residual waste of the Region is a critical element of this Plan. This is required to meet obligations under the EU Landfill Directive, the Draft National Biodegradable waste Strategy, and the long-term targets of the Dublin Waste Plan. The Local Authorities will:

- Develop a Waste to Energy (Incineration) plant at the preferred location on Poolbeg Peninsula, Dublin 4. This will have a capacity of approximately 400,000 to 600,000 tonnes/annum, and will treat non-hazardous municipal or similar waste.
- The Dublin Local Authorities are receptive to the inclusion of a Monitoring Committee being put in place to represent the public interest as regards the operation of the WTE facility. Such a group could include the local community, objective national experts, and environmentalists.

Following appointment of a service provider to enter into public-private partnership with Dublin City Council (acting on behalf of the four Dublin Local Authorities) in 2005, the Statutory processes will commence. Energy Recovery at the facility will be achieved by generation of electricity which will feed into the National Grid. In addition, the possibility of recovering further energy in the form of heat, utilising a district heating network, is being explored by Dublin City Council. The Poolbeg Waste to Energy Plant will potentially heat 30,000 homes and provide electricity through the National Grid for 42,000 homes.

In terms of global warming impacts (emission of Carbon Dioxide) from the facility, it should be noted that an assessment of global warming impacts was included in the Dublin Waste Strategy (1997). Strategies including WTE are beneficial in reducing emissions of methane from landfills and in displacing energy from fossil fuels (oil, coal, gas) at other power plants. WTE is supported by the National Climate Change Strategy as one of the means by which the waste sector can reduce its overall greenhouse gas emissions

18.9 LANDFILL DISPOSAL CAPACITY

A critical shortage of municipal landfill capacity is imminent with the closure of Ballyogan Landfill in 2005, Arthurstown Landfill at end 2007, and Balleally landfill in 2008 approximately. Urgent delivery of the proposed Fingal landfill is required to replace these facilities and provide adequate safe disposal capacity for residual waste in accordance with this Plan. Even with the diversion of waste from landfill to the Dublin WTE facility there will remain a significant requirement for residual landfill disposal.

- It is an objective of this Plan to provide a landfill (of up to 10 million tonne capacity) in accordance with the Dublin Landfill Siting Study 2004. Fingal County Council is currently carrying out an EIS for the preferred site at Nevitt.
- Additional waste management infrastructure may also be developed at the site (e.g. composting, C&D waste recycling, civic recycling centre).
- It is an objective to provide for the use of other available landfills within the greater Dublin Region in the event of lack of capacity within the Dublin Region, however changes to Planning or Licensing status at these facilities should be of a short term and limited nature, linking with delivery of the integrated regional infrastructure – including the WTE capacity - so as not to erode the long term objectives of the Dublin Waste Policy.

There may be a short term requirement for additional disposal capacity in the Greater Dublin Area after 2007, in particular to accommodate household and commercial/industrial waste, at least until such time as the Dublin Waste To Energy plant and the proposed Fingal Landfill are in operation, refer to Table 18.4. It is important that in meeting this possible short term requirement, the overall regional policy, which is to minimise landfill and to manage Dublin's waste as close as possible to the source of generation, is not compromised.

The preferred approach to manage this short-term waste disposal requirement is by:

- Developing an additional short term extension to the Arthurstown Landfill in County Kildare subject to appropriate approvals.
- Maximising the use of available disposal (or energy recovery) facilities in the Greater Dublin Area, i.e. counties Kildare, Meath and Wicklow if feasible
- Seek options for disposal capacity in other Regions if necessary.

Table 18.4 Expected Landfill Demand for Waste Generated in the Dublin Region (Generalised Assumptions and Data)

Waste Steam	Period	2005-2007	2008-2009	2010 – onward
	Rationale:	*Maximise use of existing landfill facilities*	*New Regional Landfill open in Fingal.* *Biological Treatment in place*	*Dublin WTE facility operational – will reduce landfill demand*
Local Authority wastes : Household, Commercial & other	Capacity Location	400,000 – 500,000 tpa Arthurstown, Balleally, Ballyogan	350,000 – 450,000 tpa Proposed new Fingal Landfill and Arthurstown extension	50,000 - 150,000 tpa Proposed new Fingal Landfill
Commercial/ Industrial wastes	Capacity Location	250,000 – 350,000 tpa Balleally, KTK landfill, other private landfills and Additional Private-sector C/I landfill	300,000 – 400,000 tpa Balleally (2008) Additional Private-sector C/I landfill or WTE, and proposed new Fingal Landfill	100,000 – 200,000 tpa Proposed new Fingal Landfill or private sector C/I landfill or WTE

* Should recycling not prove possible

18.10 POLICY ON SELF RELIANCE

- The Dublin Region will aim to become self-reliant in terms of waste management infrastructure: waste generated in Dublin should be managed in Dublin as far as possible.
- The Local Authorities will aim to provide (either directly or in partnership with the private sector) an integrated network of facilities to cater for household and commercial waste they collect and manage. An integrated and adequate network of facilities is also required to deal with industrial waste and C&D wastes.

18.11 POLICY ON INTER-REGIONAL WASTE MOVEMENT

The Government's latest policy document 'Taking Stock and Moving Forward' (2004) recognises that the proximity principle has been interpreted too severely by some planning authorities and that some but not all planning authorities have been too literal in their interpretation of Waste Management Plans. The policy statement reiterates that each region has to take responsibility for its own waste.

A policy direction was issued by the Minister of Environment, Heritage and Local Government on 3rd May 2005 under Section 60 of the Waste Management Act, 1996 (as amended) with respect to the movement of waste.

The Dublin Region lies within the Greater Dublin Area for the purpose of spatial and strategic planning. The Dublin Local Authorities are supportive of co-operation with neighbouring Local Authorities to enable efficient development of infrastructural capacity for waste management.

Regional co-operation is already in place by means of waste movement and transfer between Dublin and other Regions. For example, household waste from Kildare, Meath and Wicklow is currently baled in Dublin for disposal at Arthurstown landfill, while other waste streams such as C&D waste and green waste arising in Dublin are managed in these counties. Some private waste companies based in Dublin already operate in various other Regions; movement of waste to and from Regions, in particular for recycling and recovery, is an acceptable practice as long as this is done within the rules set by waste regulation. The EU principle of free movement of goods throughout the EU applies to waste for recovery and will be respected by the Plan.

- The Dublin Local Authorities will be receptive to treating waste from other counties where it is in accordance with their Waste Management Plans, where the other counties express a requirement e.g. for biological or thermal treatment or landfill disposal, and where capacity can be made available or developed.
- It is expected that there will continue to be a need to treat waste arising in Dublin in the counties of the GDA, in particular for materials such as C&D waste, Green Waste – which require access to greater land availability and remote sites - and in the short term municipal waste for disposal.
- Where infrastructure deficits arise in the Dublin Region, facilities in other Regions with spare capacity should be employed until this deficit is corrected and if required in accordance with this Plan.

18.12 POLICY ON COST RECOVERY

The Dublin Local Authorities will seek to improve levels of cost recovery for waste management services in keeping with the 'Polluter Pays Principle'. This will entail:

- Continuing to employ, adjust and introduce user fees for waste services and facilities provided and to use the income from these fees to finance measures taken by the Dublin Local Authorities in accordance with the objectives of this Plan
- Increasing cost recovery for functions such as regulation and enforcement
- It is an objective that the full cost of collection, sorting and recycling of packaging waste - less the revenue from recyclables - will be recovered from producers of packaging materials as defined in the Waste Management (Packaging) Regulations 1997, as amended.
- Aiming to achieve efficient cost effective facilities for collection, recycling, energy recovery and disposal
- Benefiting from grant assistance from the Government's Environment Fund for appropriate schemes or other grant assistance that may become available from national or EU sources.
- Any company collecting household waste will be required to provide the full range of services outlined in this Plan – bring banks, dry-recyclables collection, organic waste collection (when introduced by Local Authorities), Recycling Centres and Bulky Waste collection – or alternatively to pay the costs for providing these services to the local authorities.
- Using appropriate economic instruments to achieve sustainable waste management.

- The Dublin Local Authorities are supportive of the introduction of a National Waiver Scheme administered by the Department of Social and Family Affairs. It is hoped to maintain consistency with the concept of use-related charging with any eventual agreed system.

18.13 PRODUCER RESPONSIBILITY POLICIES

The Plan aims to drive forward implementation of Producer Responsibility in the region, whereby producers and suppliers play a greater role in preventing, minimising and recycling wastes and share the burden more fairly with the end-user of the product. As well as Packaging, areas where greater producer responsibility will be sought – in conjunction with Government policies – include

- Newspapers and magazines
- Junk Mail
- Telephone Directories
- Waste Electrical and Electronic Equipment
- Waste Tyres
- Batteries
- Paints
- Medicines
- Other household hazardous wastes.

Objective: To engage industry to participate in the development of awareness, prevention and collection systems in support of Local Authorities. Schemes such as 'take-back' and 'return through the supply chain' for materials listed above to be implemented during the Plan period.

18.14 REPROCESSING AND RECYCLING CAPACITY

The Dublin Local Authorities recognise the deficit in capacity to reprocess and recycle waste in Ireland, and will support the development of national scale recycling facilities in the Dublin Region.

- The Local Authorities will also support efforts to develop local recycling projects and resource recovery parks including assistance with waste streams and locations where possible.
- The Local Authorities will work in cooperation with the National Market Development Group established by the DoEHLG in order to develop local sustainable end uses for recycled materials.

18.15 DIRECTING WASTE TO MEET PLAN OBJECTIVES

This Waste Management Plan follows the principle of the EU Waste Hierarchy, and therefore sets ambitious targets for recycling and recovery of waste, and aims to dramatically reduce landfilling. To enable this to happen, an expansion of capacity to recycle dry recyclables and organic waste and capacity to recover energy from residual waste is underway. The Local Authorities need to ensure that the Plan objectives are met and that waste when privately collected is delivered to the form of treatment intended in this Plan.

- The Dublin Local Authorities will if necessary and/or appropriate for environmental reasons, direct that certain waste streams must be delivered to a certain tier in the waste hierarchy (e.g. reuse, recycling, biological treatment, energy recovery). This will be achieved by means of the Waste Collection Permit system or other appropriate regulatory or enforcement measures.

18.16 SUMMARY OF INFRASTRUCTURE REQUIREMENTS

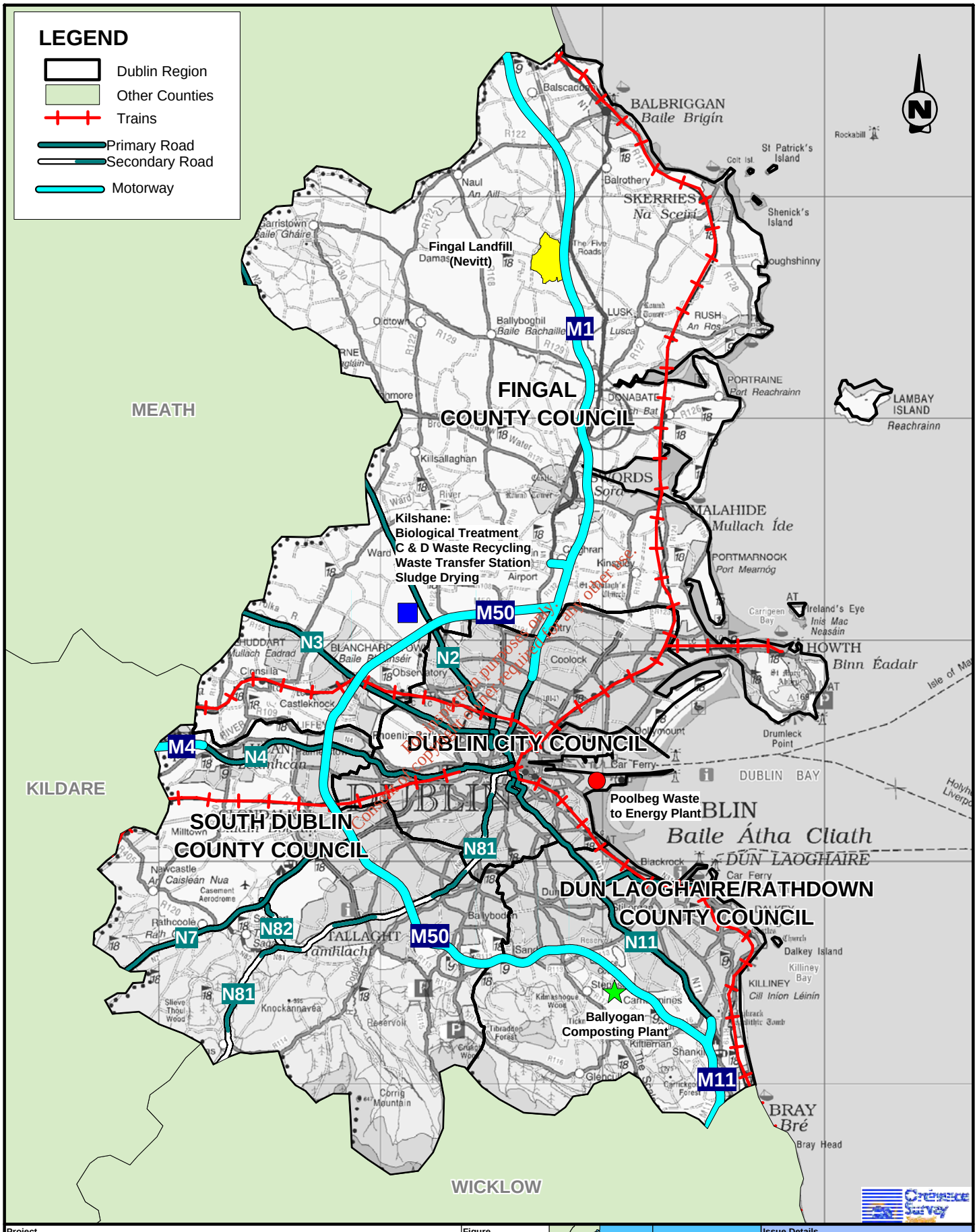
Table 18.5 below summarises the proposed infrastructure requirements and whether it is currently envisaged that these may be developed by the public sector (Local Authorities), private sector or through a public-private partnership. The list in this Plan is not exhaustive and the Local Authorities shall be entitled to develop more or less facilities as appropriate. **Map 12** shows the location of the main infrastructure proposed by the Local Authorities under this Plan. Some future-proofing of the capacity of facilities beyond the tonnage set out in Table 18.5, in terms of reuse, recycling and recovery facilities, including C&D waste facilities, is acceptable under the Plan to provide for operational flexibility.

18.17 INFRASTRUCTURE SITING

Where preferred locations for facilities that have been identified in the Plan for a particular purpose are subsequently determined to be unsuitable, the Dublin Local Authorities may select another preferred site, with reference to existing siting studies where relevant. Guidelines for Siting of Infrastructure are included in Appendix I.

Table 18.5 Proposed Infrastructure Requirements

Facility Type	Regional Capacity Required (t/a)	Public	Private	PPP	Comment
Reuse/ Repair Centres (Resource Recovery Park concept)	Not Known	**Lead**	Possible	Possible	LAs expected to lead implementation, possibly in partnership with voluntary &/or private sector.
Bring Banks	111 additional, plus upgrades	**Lead**	Possible	Possible	LAs will lead implementation, but private collectors and property developers may also be required to provide bring banks
Recycling Centres	6-9 Additional, plus upgrades	**Lead**	Possible	Possible	Each LA to develop and upgrade existing, as per Table 18.2 Private proposals and PPP options will also be considered
Green Waste Composting	50,000 - 80,000	Possible	**Lead**	Possible	Private sector expected to lead development of green waste composting, PPP options will be considered.
MRF (Household)	100,000	**Lead**	Possible	Possible	LA facility at Ballymount will provide significant capacity. Private proposals or PPP options will also be considered
MRF (Commercial)	Not determined	-	**Lead**	Possible	Private sector manages majority of C&I waste and is expected to continue to expand MRF capacity. PPP options may be considered.
Waste Transfer Station	65,000 (hh) Not known (C&I)	**Lead** (hh)	**Lead** (C & I))	Possible	Fingal Co Co proposes a transfer facility as part of the Kilshane development. For C&I waste, private sector may develop additional capacity.
Biowaste Composting (household)	2 facilities * 45,000 each	**Lead**	Possible	Possible	LAs are developing facilities at Ballyogan and Kilshane. Additional private sector capacity, or PPP proposals, would be considered.
Biowaste Composting (commercial)	50,000 - 100,000 tpa	-	**Lead**	Possible	Private sector manages majority of C&I waste and is expected to develop biowaste capacity. Procurement of facilities at Ballyogan & Kilshane may allow PPP options to accept some C&I waste at these facilities.
WTE facility	400,000 – 600,000	**Lead**	-	**yes**	Procurement of Dublin WTE facility underway by LAs, will be delivered via PPP contract.
Municipal Landfill (long term)	500,000	**Lead**	-	Possible	Proposed new Fingal Landfill is being advanced by LAs, may be delivered via PPP contract
Hazardous Waste Landfill Cell	Not Known	**Lead**	Possible	Possible	Required by EPA National Hazardous Waste Plan. LAs will lead by means of feasibility study, but not known whether facility will be developed by public, private or PPP at this stage
Construction/ Demolition Recycling	4,000,000 Materials recovery plus soil beneficial use projects	Possible	**Lead**	Possible	Development of C&D recycling facilities is encouraged and private sector expected to lead this. PPP options will be considered. C&D recycling may form part of the Kilshane development by FCC
Car Dismantlers	Additional facilities	-	**Lead**	-	Private sector activity, authorised facilities are encouraged. DLRCC currently has no authorised facility
Liquid Waste disposal/ treatment	Not Known	-	**Lead**	-	Private sector activity, address current deficit (grease trap, interceptor sludge, oil etc)
National Recycling Facilities	Large capacity	-	Lead	Possible	Encourage indigenous recycling capacity. Private sector is expected to develop such facilities based on market demand. LAs open to consider PPP proposals.



Project	*Dublin Waste Plan*	Figure	Map 12
Title	**Dublin Region - Proposed Waste Facilities**		

Waste Management Plan
Working for the Dublin Region

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Ireland
Phone: 01 - 2020870
Fax No. 01 - 2020707
rpsmcos@rpsgroup.ie

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Notes

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19 POLICIES AND OBJECTIVES FOR OTHER WASTE STREAMS

19.1 HAZARDOUS WASTE FROM HOUSEHOLDS AND SMALL BUSINESS

-batteries – paints – medicines – fluorescent tubes – etc

It is the policy of this Plan to improve the management of Household Hazardous Waste (HHW) in the Region, by providing appropriate information and facilities to the public. The Dublin Local Authorities will seek greater levels of *producer responsibility* for managing these wastes. The following objectives are set out:

Household Level

- The Local Authority will provide information and advice to the public and business about what wastes are hazardous, how to prevent/ minimise these, how to separate and what services should be used to properly manage them. This will be co-ordinated with programmes at national level (by DEHLG, EPA).
- The Local Authority will provide facilities for householders to drop-off HHW at Recycling Centres, which will require an upgrading of existing facilities and staff training. Mobile collection services, and other novel approaches such as once-off collection events, may also be undertaken. The use of bring systems will be explored for items such as batteries.
- Mobile Hazardous waste collection services to be scaled back when sufficient fixed sites are in operation.
- The Local Authorities will consider employing a purpose made container for collection of household hazardous waste which is capable of being transported to sites around the Region, providing a good level of public accessibility at a reasonable cost. See picture below.

Small Business

The National Hazardous Waste Management Plan requires Local Authorities to assist this sector in managing what small quantities of hazardous waste produced. Recycling centres in the Dublin Region are designed for household waste only; therefore alternative systems need to be developed. One option is the development of a central drop-off point, possibly in conjunction with the private sector (through a 'Recycling Park'), to be operated on a cost-recovery basis.

- The Local Authorities will consider setting up a drop-off point or points for HHW generated by small scale businesses. Such facilities may also be provided by private waste companies by developing C & I Recycling Parks
- The waste collection industry will be required to advise customers on good practice and provide facilities to separately collect and manage hazardous waste and ensuring HHW is not mixed with municipal waste.

Producer Responsibility

- The Local Authorities will encourage industry to participate in managing the waste from the products they put on the market. This should support prevention/ minimisation, reuse and recycling opportunities and responsible disposal practices. Opportunities for pilot projects to manage materials such as paints, batteries, and medicines will be explored.

19.2 CONSTRUCTION/DEMOLITION WASTE

The objective of this Plan is to achieve more sustainable waste management practices in the construction and demolition sector. Underlying goals are to minimise and prevent waste (and hazardous waste), to achieve greater levels or re-use and recycling, and to minimise disposal and transportation. This requires action by not just the Local Authorities but also the construction industry, and the waste management industry.

The Construction Industry is required to:

- Encourage prevention and minimisation of waste at design stage by architects, surveyors, engineers and planners.
- Implement good on site management of waste, including minimisation of waste, separation of hazardous wastes, and separation of recyclable materials such as packaging, timber, metal, concrete etc.
- Implement the National Construction Demolition Waste Council voluntary initiative which requires 'C&D Waste Plans' to be submitted for approval at planning stage for relevant developments.
- (In Demolition work), to employ best practice in selective demolition to maximise recovery of materials and separation of hazardous wastes. Where appropriate on-site recycling should be included in the C&D waste plan for the project.
- Develop the markets for recycled C&D wastes
- Comply with the waste management requirements in the City/County Development Plan

Waste Collection Companies are required to:

- Provide separate collection opportunities for recyclable wastes generated in construction/ demolition, employing suitably labelled or coded bins and skips
- To implement preferential charging for source-separated material in preference to mixed waste disposal

The Local Authorities will:

- Implement the C&D waste planning requirements of the NCDWC initiative, including assessment of C&D waste plans and the monitoring of site activities
- Regulation of the collection and management of C&D waste to achieve the Plan objectives (employing Bye-Laws and Collection Permits and the Development Plans as tools)
- Work to develop markets for recycled C&D waste in their own projects
- Work to improve data and understanding of C&D waste arisings, composition and recycling rate etc.

C&D Waste Infrastructure Requirements

The following are the objectives of the Plan

- Provision of additional C&D Waste Recycling Facilities in the Region for recycling of C&D waste – including separation of materials, and crushing/ grading of rubble for re-use as aggregate.
- Fingal County Council propose to establish a C&D waste recycling facility at Kilshane Cross as part of an integrated recycling facility
- Provision of facilities to cater for delivery of C&D waste by small-scale producers.
- Additional facilities in the Greater Dublin Region to cater for C&D waste, at existing quarries and other suitable locations – these should include front-end removal & recycling of recoverable waste, and limited to disposal of non-recoverable waste (soil) only.
- Use of soil material for beneficial use where possible, in preference to disposal. Examples of beneficial use include: landfill restoration, amenity projects (parks, golf courses), quarry re-instatement, major reclamation/ infill projects that have been approved in planning.
- Restriction on the placing of C&D waste in Permitted sites on agricultural land, in favour of full processing. The only material that will be considered is clean soil, and only where alternative larger authorised facilities are not already in place. The full cost of regulation will be recovered by the Local Authority.
- Promote the use of large construction sites as suitable locations for temporary recycling facilities for the duration of site works.

19.3 WEEE

The Dublin Region will work to fully implement the WEEE Directive, as detailed in the forthcoming Regulations under the Waste Management Act. This will require co-operation and action by the producers, retailers and the Local Authority. The following are the objectives of this Plan for the various parties.

Producers (manufacturers and importers), if operating as part of a collective responsibility company, will be required to:

- Implement Awareness, Record Keeping, and Reporting
- Collect the WEEE from Local Authority facilities on demand
- Manage the recycling and recovery of WEEE in accordance with the regulations

Other obligations will be placed on self-compliant Producers, the details will be made clear in forthcoming legislation.

The **Retailers** will be required to

- Register with the Local Authority under the WEEE Regulations
- Take-back WEEE in an old-for-new system from the public when new purchases are made
- Properly manage WEEE and make it available for collection as set out in the Regulations.

The **Local Authority** role in relation to WEEE will be:

- Assist in public information and awareness about proper management
- Provide for free delivery of WEEE by householders at Recycling Centres – this will require upgrading of existing facilities and improved management and data recording at these sites.

- Enforce the forthcoming Regulations including regulating/ enforcing self compliant companies, registering retailers, and other functions as may be specified
- Carry out data collection and reporting of WEEE performance in the Region

There is a recommendation (WEEE Task Force Report, April 2004) that in Ireland retailers will be able to deliver WEEE to Local Authority recycling centres. However, the Recycling Centres in the Dublin Region are designed for household waste only and current capacity is very limited. An alternative solution is therefore required as follows:

- The Dublin Local Authorities will seek to establish an alternative delivery point or points to cater for WEEE generated by retailers in the Region. (Facilities are already in place at Kylemore Park South (DCC) and Cookstown Industrial Estate (SDCC)).

Local Authorities will also consider more novel approaches to collection including use of bring banks for small WEEE items and other initiatives such as once-off collection events.

19.4 END OF LIFE VEHICLES

The EU End of Life Vehicle Directive (2002/53/EC) will improve the life-cycle management of cars and vans, by requiring improved waste prevention and recovery of scrap vehicle. The Dublin Local Authorities will implement their obligations under the Directive as may be set out in any forthcoming Irish regulations. Currently each Local Authority is involved in managing scrap vehicles but this requirement is expected to fall off once the Directive is implemented in Ireland, since free return of the vehicle to a registered dismantler or shredder is one of the basic conditions.

There are 3 areas, in ensuring the full implementation of the Directive, that have implications for the Local Authorities – Collection, Regulation/Enforcement and Statistics/Reporting.

Collection

The permitted 12 dismantlers in place already could potentially serve this purpose if compliant with the Directive technical requirements. DLRCC is not served by any permitted facility at present, but other Local Authorities are reasonably well served.

The Local Authorities may have to continue to deal with any abandoned / burnt-out vehicles. It is an objective to recover the cost from the manufacturers for the Local Authority in ELV management.

Regulation/Enforcement

The main responsibilities of the Local Authorities will be in regulating the different aspects of the Directive, i.e. monitoring the permitted facilities, and ensuring the collectors of the ELVs adhere to the proper regulations.

- Permitted facilities will be regulated to ensure that the storage/treatment facilities, data collection etc. of the dismantlers/shredders comply with the requirements
- Collectors will be required to have the necessary collection permits and adhere to the relevant regulations.

Current regulation and enforcement measures will ensure unregulated scrap-yards are brought into line and that only permitted facilities and permitted collectors are handling ELVs in the Region.

Statistics/Reporting

The onus will be on the Local Authorities to collect data from the collectors/dismantler and shredders to ensure accurate records are kept. The figures for the cars collected should tally with those being received at shredding facilities. The treatment of the Auto Shredder Residue will also be detailed and recorded by the Local Authorities.

19.5 PACKAGING WASTE

The Local Authorities in conjunction with Repak will implement the targets set out in the European Parliament and Council Directive 94/62/EC (1994), as amended in February 2004.. There will also be a focus on prevention and reuse of packaging as set in Articles 4 and 5 respectively. The Local Authorities will also investigate and facilitate producer responsibility initiatives with industry in the Region. Further details are provided in Chapter 9. Policies for funding separate collection, and recycling of packaging for household and commercial waste have been set out above in Section 18.12 (Cost Recovery). Improving regulation and enforcement, including for packaging companies, is detailed in the Implementation section.

The following recommendations in Table 19.1 are actions needed to improve the management of packaging waste in Ireland, drawn up based on the widespread public feedback on the issue of packaging during development of this Plan. These are aimed at the companies who produce packaging and place it on the market in Ireland (including both indigenous producers and importers). The responsibility for ensuring these actions are initiated can not fall solely on the Local Authorities as many issues are not under their control, therefore it will require commitment from commerce, the packaging industry and the Government.

Table 19.1 Key Action Areas for the Packaging Industry

Key Action Area	Action Required
Packaging Labelling	A programme of labelling of all plastics needs to be developed that is consistent for packaging produced inside and outside of Ireland.
Packaging Design	The packaging industry with support from Repak must research best practice for reducing packaging. Examples of how this might be achieved include: • Develop and implement industry training to ensure that all packaging companies are provided with the capacity to adopt waste minimisation practices including; cleaner production, sustainable design, labelling, and recyclability. • Develop a network where waste minimisation ideas and innovations can be exchanged making it easy for good ideas to be adopted. • Packaging designs that make recycling complex and expensive e.g. pvc sleeves on drink bottles to be discouraged.
Education/Awareness	The public need to be made aware of any packaging labelling system, there must be a consistent message (in all print media, Recycling Centres, Bring Banks etc) on what plastics can and cannot be recycled. The plastic resin code (plastics 1-7) used by manufactures to identify the plastic type should be printed on the base of all plastic bottles and containers. e.g. all PET and HDPE plastics respectively will have the following symbol on their bases.  This is a very simple way for the public to identify what plastics can be recycled and avoid confusion.
Packaging Materials	In general, packaging should be made from materials that can be recycled in practice by consumers. For example: • The number of materials and composites used in packaging must be reduced • Simplifying the range of packaging materials to enable more effective identification and separation by consumers • Setting targets for percentage of biodegradable content etc.
Product Stewardship/End Market Development	Packaging producers are required to take more responsibility for items of packaging after they have been used by consumers. Through Repak opportunities and assistance to encourage product stewardship and extended producer responsibility initiatives are essential. Packaging companies shall assist in developing end markets for recovered materials and to develop closed-loop recycling solutions.

19.6 POLICY FOR BIODEGRADABLE WASTE

The Dublin Local Authorities will implement the recommendations of the Draft National Biodegradable Waste Strategy, and thereby fulfil the Region's role in meeting National targets under the EU Landfill Directive. This will be carried out by:

- Including prevention and minimisation of biodegradable waste in its prevention programme (including the promotion of home composting)
- Separately collecting biodegradable waste from household and commerce/industry:

- Green waste to be collected at appropriate Recycling Centres for onward transfer to green waste composting
- Household and commercial food and garden waste for biological treatment and making high quality compost
- Household and commercial dry recyclables such as paper, cardboard and textiles for recycling
- Developing energy recovery capacity at the Dublin Waste to Energy facility to treat any residual biodegradable waste

The Plan has already set out the policies to achieve the above. Compliance with the targets of the Draft National Strategy is set out in Table 19.2 below. The Dublin Local Authorities will also require all waste collection companies to implement the colour coding recommendations of the Draft Strategy for waste collection, as summarised in Figure 19.1.

Figure 19.1 National Colour Coding for Waste Collection Containers (left), and for Dublin Colour Coding for Waste Collection Containers (right)

Material	Colour
Paper	Blue
Packaging /Dry Recyclables	Green
Food & Garden Biowaste	Brown
Plastics	Yellow
Residual (Mixed) Waste	Black/ Dark Grey
Household Haz. Waste	Red

Material	Colour
Packaging/Dry Recyclables incl. Paper	Green
Residual (mixed) Waste	Black/Dark Grey
Food and Garden Waste Biowaste	Brown

- Where waste contractors are introducing services to customers they are required to employ the colour coding set out above.

Table 19.2 Compliance with Indicative Target Capacity of the Draft National Strategy for Biodegradable Waste

Region (all tonnes/ annum)	Diversion Target	Recycled BMW	Biological Treatment of BMW	Residual BMW
Strategy Target Nationally	1,772,551	706,082	351,539	641,681
Dublin Target in Strategy	584,942	233,007	116,008	211,755
Comment on how this will be achieved in the Plan		Additional Capacity for recovery of household and commercial dry recyclables is planned. Additional household capacity will be provided at Ballymount MRF.(100,000 tpa) Private sector capacity for C/I waste is already well developed and further capacity is enabled by this Plan	Capacity of c. 90,000 tonnes to be provided at Ballyogan & Kilshane facilities Additional biological treatment of green waste outside region (50 - 100 Ktpa) Private sector facilities for biological treatment of organic waste from C/I facilities is also encouraged (50 – 100 Ktpa)	Dublin WTE facility will have a total capacity of 400- 600 Ktpa, which will provide adequate BMW diversion capacity to meet the above target

19.7 POLICY ON FORMER WASTE DISPOSAL SITES

A Policy Direction was issued by the Minister of Environment, Heritage and Local Government on 3rd May 2005 under Section 60 of the Waste Management Act, 1996 (as amended) with respect to the investigation of all closed landfills where disposal or recovery activities have taken place. The EPA will be preparing a Code of Practice for assessing the risk presented by such sites.

The Local Authorities will have regard to Article 22(7)(h) of the Waste Management Act, 1996, the Section 60 guidance as issued by the Minister on 3rd May 2005 and the Code of Practice when published by the EPA regarding the investigation of former waste disposal/recovery sites in the Region.

The Dublin Local Authorities have prepared a preliminary list of the former waste disposal/recovery sites previously operated in the Region, in accordance with Article 22(7)(h) of the Waste Management Act 1996. However this does not currently include all potential sites and the steps required to fully meet legislative requirements are set out below.

An updated approach to Risk Assessment at former waste disposal sites is being developed by the Environmental Protection Agency and this will be employed in the Dublin Region once available.

The Local Authorities will over the course of this Plan period adopt a more formal and consistent approach to the recording of waste disposal sites. This will be called the **'Waste Disposal Site Database for the Dublin Region'**.

A comprehensive map-based system will be developed for the Region. This will be developed using GIS whereby information available on a particular site is directly linked to the map. The database will include:

- Waste disposal sites identified in 1988 in Dublin County (and any equivalent data available in the City Council area). The text available on old sites is a good starting point for the database. More information can be added for the sites that have been investigated, monitored or remediated. As well as public sites listed in Table 12.3 the database will include information available on private sites to the extent possible.
- Sites subsequently identified by the Local Authorities as waste disposal sites (including private sites). (Period 1988 – 1997)
- Unauthorised Sites found to be operating outside the waste licensing or waste permitting system in the period since 1997 (when waste licensing was introduced).
- Authorised sites (those with waste licenses or waste permits) will be included but on a different 'layer' of the map.

Information on each site will include as far as possible the following type of information:

Landowner, Operator, Year Open, Year Closed, Type of Waste, Quantity of Waste, Capping, Summary Details of Investigation, Monitoring, Remediation, Restoration and a link to the relevant documentation available.

As with any GIS system the information needs to be updated. A protocol will be agreed for ensuring that all Local Authorities maintain their part of the database consistently.

Close co-operation with the Planning Section within each Local Authority will be important when developing and updating the database.

It is an objective that when new developments are planned on or adjacent to any of these sites, the developer will be required to investigate any potential risks and appropriate remediation may be required prior to development.

The **Waste Disposal Site Database** will also be a key input into the process of developing a 'Section 26 Register' of hazardous waste sites, see Figure 19.2, and Table 20.3.

19.8 REGISTER OF FORMER HAZARDOUS WASTE DISPOSAL/RECOVERY SITES

19.8.1 Current Situation

The EPA National Hazardous Waste Management Plan, published in 2001, requires Local Authorities to maintain a ***'Section 26 Register'*** of sites that are known or suspected of being used for waste disposal. A ranking system (A, B, C) can be applied to the sites following desktop assessment in order to prioritise whether they are likely to be significant or not. The flow chart Figure 19.2 (overleaf) summarises the methodology provided by the EPA.

Category A – High Priority Sites

Category B – Medium Priority Sites

Category C – Low Priority Sites

A number of steps need to be undertaken before sites are ranked into categories. The methodology is based on a 'risk assessment' approach. As well as former waste disposal sites, other potential generators of hazardous waste – e.g. tanneries, petroleum and gaswork sites – need to be considered. Site-specific investigation would commence with Stage 6 once a priority list for sites on the Register had been decided. Any remediation would be determined only after Stage 7 – the detailed risk assessment of the site in question. Remediation requirements would be dependent on the nature of the individual site and the specific risks associated with it.

The current situation in the Dublin Region is that to date no Section 26 Registers have been completed, although some preliminary risk assessment work in relation to former waste disposal sites has commenced.

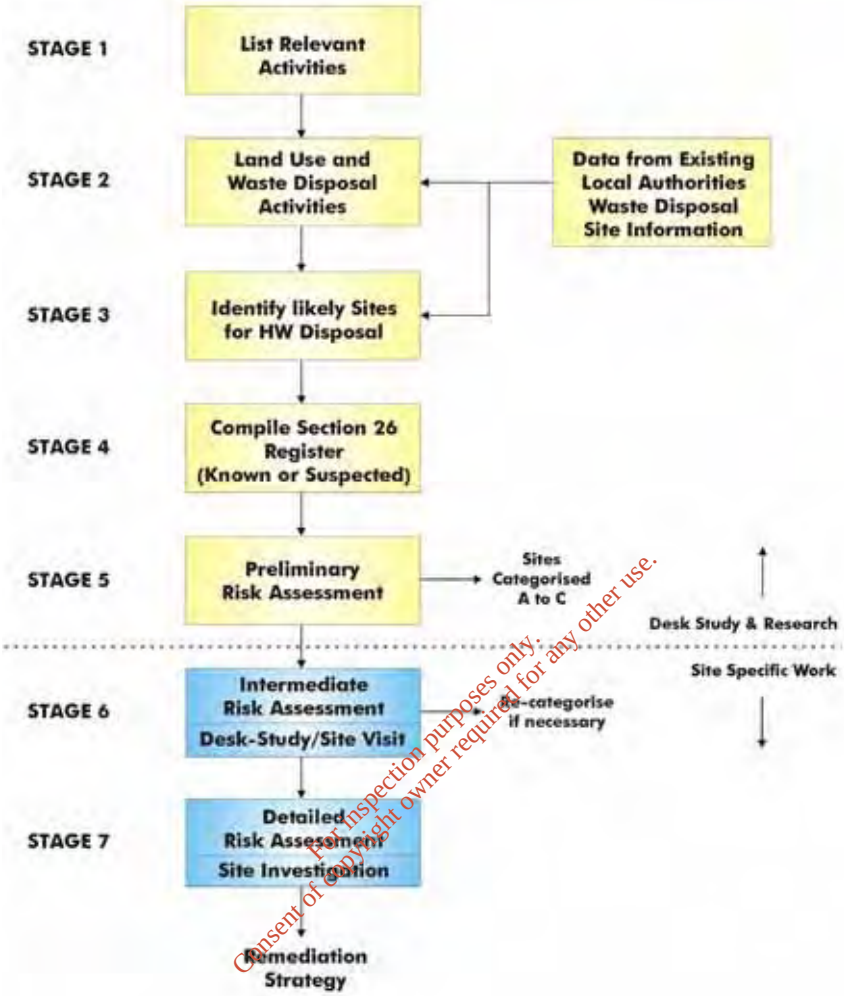
19.8.2 Policy for Development of Section 26 Register

The Dublin Local Authorities will develop a Section 26 Register as a matter of priority in response to the NHWMP and the 'risk assessment' methodology set out by the EPA or as amended in their Code of Practice (Section 60 Policy Guidance, issued 03/05/05), when published, is to be followed. The majority of work required for Stage 1 – Stage 5 is desktop work and requires sharing of resources and information by all departments of the Local Authorities, and use of other sources. The proposed 'Waste Disposal Site Database' will be a key input into the process. Work will commence with a view to making significant progress on the requirements of Section 26 during the lifetime of the Plan.

Following Stage 5, the Local Authorities will then prioritise which sites are of most importance and carry out investigations based on availability of resources. Further guidance may be available from the EPA at this stage to assist in the site-specific investigations.

It is intended that the cost of any on-site investigation, monitoring and remediation work should be borne by the 'the polluter'.

Figure 19.2 Development of Section 26 Register



19.9 POLICY ON HAZARDOUS WASTE DISPOSAL REQUIREMENT

The Dublin Local Authorities have no role in Planning for hazardous waste disposal. However, in Section 9.3 (p.89) of the 2001 National Hazardous Waste Management Plan, the EPA recommends the establishment of at least two engineered landfill disposal cells for hazardous waste, one of which should be in the 'Dublin area'.

- The Dublin Local Authorities will consider the feasibility of establishing a hazardous waste landfill cell in the Region.

PART 5

IMPLEMENTATION

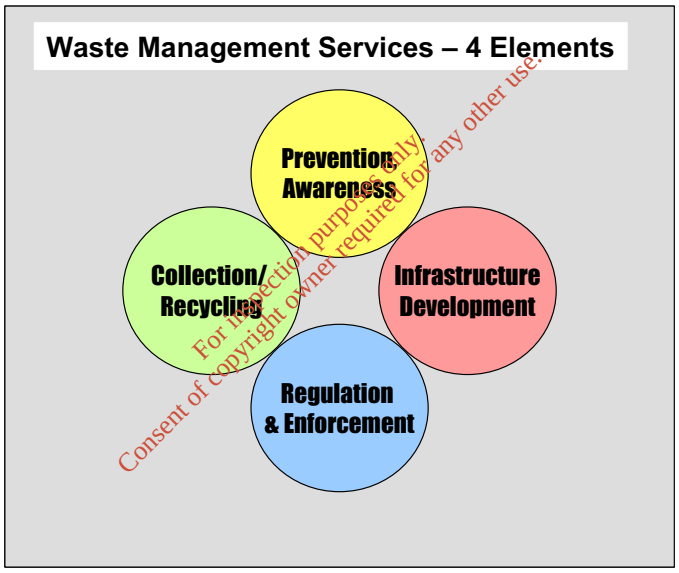
20 IMPLEMENTATION PLAN FOR THE DUBLIN LOCAL AUTHORITIES

20.1 INTRODUCTION

The Local Authorities face a significant challenge in implementing the Plan objectives. Not only must they expand their own waste management service delivery in terms of intergrated waste management, but they must also regulate the activities of other waste producers and collectors. The Local Authorities must also provide leadership and drive forward change in sectors right across society from households to business and industry.

The role of the Dublin Local Authorities can be divided into four main activities as summarised in the following Figure 20.1.

Figure 20.1 Overview of Local Authority Services



Priorities in Implementation are:

- Applying adequate personnel resources to each of the main tasks: prevention/minimisation, collection & recycling, infrastructure development, and regulation & enforcement.
- Ensuring Regional co-ordination of activities through effective communication and management
- Setting annual objectives in delivering improvements to service, and securing adequate funding
- Monitoring Plan performance on a regular basis and responding to changing circumstances and input from stakeholders

20.2 PREVENTION/MINIMISATION AND WASTE AWARENESS PRIORITIES

The Plan defines the roles for three officers within each Local Authority with a focus on waste prevention and minimisation in households, schools, and business.

A second function is the delivery of information to the public on recycling facilities available in the Region, to motivate maximum participation in recycling and other schemes. This includes supporting new collection schemes and also ensuring ongoing support for existing schemes.

These staff will not be required to implement or administer the physical delivery of new services such as bring banks or recycling centres, nor will they be engaged in regulation/ enforcement measures, although they will need to work in close co-operation with colleagues dealing with these matters.

Finally a need for greater co-ordination of activities of these officers on a Regional level will be beneficial. This role will be managed by the Waste Steering Group.

20.3 COLLECTION AND RECYCLING PRIORITIES

Substantial additional resources – both personnel and financial – will be required to deliver the household recycling measures in this Plan. This includes planning, design and construction, staff training and administration of several contracts with private companies. Table 20.1 below summarises the improvements in recycling that will need to be delivered by the Local Authorities directly over the coming 5 years. The Local Authorities will establish dedicated teams to the developing and running of these services. Regional co-ordination of these activities will be critical to successful implementation.

Table 20.1 Priority Action Areas for Local Authority Recycling Collections

Recycling Centres	***Bring Banks***
Develop a standard Regional template for the service offered, including branding and signage	Review of sites and develop a standard template for appearance and signage
Physical Improvements for storage of WEEE and household hazardous waste	Develop a common protocol for servicing, contract conditions to support all contracts
Staff training – handling of HHW, WEE	Identify and develop additional sites
Improved data collection and reporting	Innovative siting and use of underground banks in high-density locations
Extend open hours and accessibility	Physical Improvement of existing sites
Widen range of recyclables collected to include green waste and other recyclables	
Identify and develop additional facilities	
Green Bin (Dry Recyclables) Collection	**Brown Bin (Organics) Collection**
Expand system capacity to cater for high demand	Roll-out of brown bin service with sufficient support and information systems to households
Increase the range of materials that can be collected	
Other Actions	***Other Actions***
Carry out 'Collection events' for materials such as WEEE and household hazardous waste	Investigate feasibility of recycling of packaging waste from street litter collections

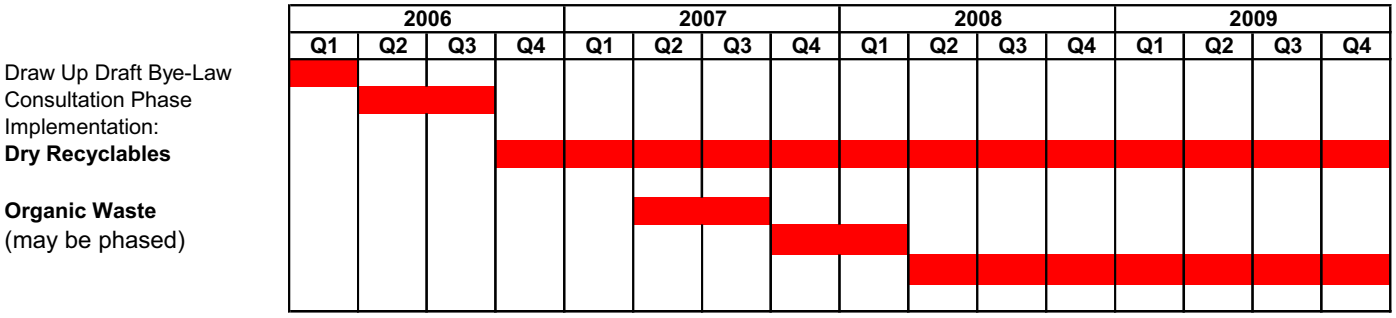
20.3.1 Waste Bye Laws for Commercial & Industrial Waste

In order to support the improvements to recycling services and infrastructure, Figure 20.2 outlines the suggested approach to phasing in collection bye-laws for Dry Recyclables and Organic Waste.

Consultation will need to be carried out with waste collectors and representatives of commerce & industry (e.g. Chambers of Commerce).

Implementation in relation to Organic waste may be phased in, either on a geographical basis (gradually applying the bye law in more areas of the region, with accompanying enforcement inspections), or by turning attention to the larger businesses and waste producers first.

Figure 20.2 Collection Bye-Laws Implementation



20.4 INFRASTRUCTURE DEVELOPMENT PRIORITIES

A substantial number of facilities need to be delivered to ensure the overall waste strategy for the Region can be implemented. Table 20.2 lists of the facilities that must be developed by the Local Authorities during the plan period. All of these have a Regional dimension, and typically each facility will require siting, planning, environmental licensing, securing funding, negotiating contracts, managing construction and commissioning, all requiring varying levels of public consultation and involvement.

The Dublin Waste Steering Group will coordinate the development of this infrastructure and assist infrastructure development staff within individual Local Authorities undertaking the development.

Table 20.2 Priority Action Areas for Infrastructure Development

Facility	Responsible (on behalf of the Region)	To be completed by
Reuse/ Repair Centre	Regional Level	2007
New Recycling Centres	Each Local Authority individually, applying template	2005 onwards
WEEE delivery points & Hazardous Waste delivery points for Business	Each Local Authority (upgrade Recycling Centres) or at WEEE depot	2005 (WEEE) 2007 (HHW)
Green Waste Reception Capacity	FCC, SDCC DCC, DLRCC	2005 2006 2007
2 Biowaste Treatment facilities	DLRCC and FCC	2007/2009
Waste to Energy Plant	DCC	2010
Municipal Landfill (Fingal)	FCC	2008

The Section 60 Policy Guidance issued by the Minister of Environment Heritage and Local Government on May 3, 2005 requires that an inventory of former waste disposal sites and a register of former hazardous waste disposal sites be complied as a matter of priority. Table 20.3 below provides a timeline of implementation for the Dublin Local Authorities to comply with this guidance.

Regarding the implementation of policies on former waste disposal sites and on potential hazardous waste disposal sites, the following sequence of implementation is set out.

Table 20.3 Implementation of Former Waste Disposal and Section 26 Policies

	Action	Target
1	Local Authorities develop GIS based *Waste Disposal Site Database* using current available records. Any gaps in information should be filled from in-house records or knowledge without recourse to site investigations. A protocol for maintaining and updating the database is agreed for the four Local Authorities. Co-operation with Planning Section is recommended.	End 2005
2	Local Authorities commence the process of preparing Section 26 Register. This should address Stages 1 – Stage 5 of the EPA methodology and will not involve physical site investigation, but will set out a priority order for further risk assessment of sites. All potential hazardous waste generation activities to be included. Completed Report will establish ***Section 26 Register***.	End 2006
3	Stage 6 and Stage 7– Site Specific Risk Assessment to be carried out on priority sites with a view to determining environmental impacts and the requirement for remediation if any.	End 2008
4	Once the Waste Disposal Site Database and the Section 26 Register are created, they need to be updated on an ongoing basis. This should be done in conjunction with Annual Report on waste management plan.	2006 onwards

20.5 REGULATION AND ENFORCEMENT

Regulation and Enforcement on a local level serves a number of critical functions:

- Ensuring systems set up at national level to regulate the waste industry are fully adhered to – these laws are in place with the ultimate aim of ensuring waste is handled properly and does not cause pollution
- Ensuring that waste is managed in the manner set out in the Waste Management Plan using local Bye-laws and Permits

This function is relatively new for the Local Authorities, who previously focussed on collection and operation of landfills. Over the past 3-4 years however dedicated teams have been set up within the Local Authorities to address the new role in regulation and enforcement. Funding of these units has come from the DEHLG using the Environment Fund. The following figure demonstrates the ideal model of the individual regulation/ enforcement units in each Local Authority.

A 'Regional Enforcement Unit' has been set up by Dublin City Council and Fingal County Council. The unit employs a Head of Enforcement Unit, 10 field staff, an Environmental Manager and 2 administrative staff. The field staff are employed on a 3 year contract basis. The unit is fully staffed since September 2004. Its duties include enforcement of almost all waste regulations within the DCC area (bar Packaging and Plastic Bag levy) and enforcement of the Waste Collection Permits. They also serve an over-arching enforcement role across DCC and FCC where night time and weekend work is required.

In certain areas – e.g. Packaging Waste enforcement, Regional Enforcement Unit – the Dublin Local Authorities are the leading performers on a national level. However there is a lack of consistency in implementation across the Region and there is room for improvement in a number of areas. A review

has been carried out of the current ability of the Local Authorities to provide this service effectively. The following areas for action have been identified:

Management Recognition – the Local Authorities will recognise regulation/ enforcement as an essential function and will provide clear management direction on the objectives of the unit, staff roles and responsibilities and communication with other units.

Staff Resources – resources have improved in the past 2-3 years, but staffing of regulation/ enforcement units in South Dublin (who have a high number of relevant permitted facilities, and packaging producers) and Dublin City Council (who operate the Collection Permit system and significant Transfrontier Shipment regulation) will be improved.

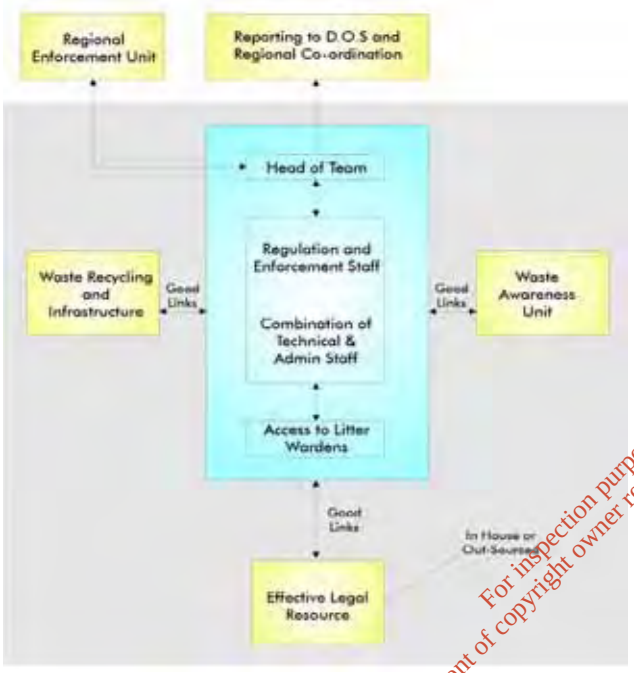


Figure 20.3 Model for Regulation/ Enforcement Units

Staff Training - the most common theme emerging is the need for training of staff with the necessary knowledge skills to perform their duties effectively. A comprehensive training programme for staff in regulation/ enforcement units will be put in place, drawing on expertise and experience already held in the Region, and making use of the forthcoming EPA training initiatives on regulation/ enforcement.

Regulation to Support Plan Objectives - there is a need to develop understanding of the potential for the Waste Presentation Bye-Laws and Waste Collection Permit to be used as tools in supporting Plan objectives (such as the separation of dry recyclables and organic waste for recycling). Bye-Laws will be implemented in a co-ordinated manner with respect to the waste collection schemes, the bins provided and the awareness campaigns. Implementing Bye-Laws will require significant resources for inspection and enforcement on the ground.

Regional co-ordination of Regulation and Enforcement will be implemented. The main focus is to ensure an effective and consistent approach across the Region, to monitor performance, and to exchange information and experience. By sharing expertise and experience the Region can become better equipped in a shorter period of time. Co-ordination mechanisms will be established by the Waste Steering Group, in conjunction with the 'Head of Unit' in each of the Local Authorities.

Each Local Authority will perform its own day to day regulation and enforcement tasks. This will keep an important link between issuing Permits / Bye-Laws and their effective implementation.

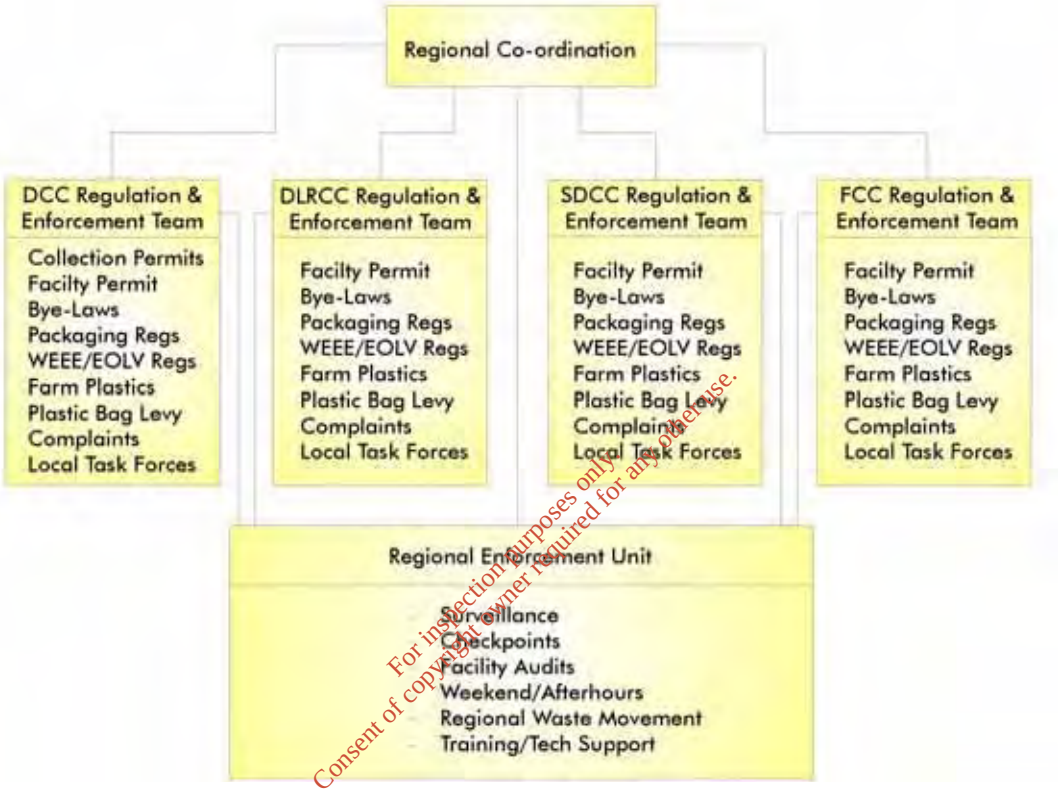
The Regional Enforcement Unit may operate on a full Regional basis, and the role they currently fulfil for FCC and DCC (as back-up and specialist expertise) will be extended by agreement with SDCC and DLRCC.

Data Collection and Auditing – currently the completion by waste collectors and contractors of their 'Annual Environmental Reports' is very variable. This has negative consequences for waste planning, reporting and regulation/enforcement in general. More resources will be applied to ensuring that the data is supplied promptly, accurately and in sufficient detail. The Local Authorities will increase the number of audits and spot checks carried out on collection companies and permitted facilities.

- Regulation systems will be improved by the Local Authority (waste collection permit AERs) to determine the number of individual household (including apartment) units served by any private collector and the quantity of household waste collected.

Figure 20.4 below outlines the model for Regional co-ordination of each regulation/enforcement unit and the division of functions. The list of regulatory tasks for the units will expand further as more legislation (e.g. WEEE Regulations, EOLV Regulations) are enacted.

Figure 20.4 Regional Co-ordination of Regulation and Enforcement



National Enforcement Network Established by the EPA

Enforcement of waste legislation is now being coordinated at national level by the EPA, through the National Enforcement Network. The Network is being coordinated by the Office of Environmental Enforcement, an office within the EPA dedicated to enforcement of environmental legislation in Ireland. The EPA established the Network in June 2004 and its work is mainly being conducted through a number of inter Agency working groups and networks on topics such as unauthorised waste activities, TFS and packaging. Waste enforcement needs to happen at different levels - local authority, regional and national - for it to be successful.

The overall objective of the enforcement network is to foster co-operation between the various agencies involved in enforcement of environmental legislation so that effective enforcement is achieved throughout the country. The role, therefore, is to focus the collective resources, expertise and investigative capacity of all the players engaged in environmental enforcement activity in Ireland to bring about changes of behaviour in areas such as unauthorised waste activities, trans frontier shipment of waste and compliance with waste legislation in general.

The Dublin Local Authorities recognise the need for a coordinated and concerted approach to enforcement of waste legislation.

The Dublin Local Authorities will participate in the National Enforcement Network and its working groups and work with other public authorities to achieve an effective and more consistent standard of enforcement of environmental protection legislation. In relation to enforcing waste management legislation, this will include cooperation at regional and national level with other local authorities, the EPA and An Garda Síochána.

The EPA in its role as co-ordinator of the National Enforcement Network is assisting the Local Authorities in developing capacity in terms of regulation and enforcement services of local authorities. All local authorities are in the process of developing a Complaints Handling & Resolution procedure, and a separate 'Environmental Inspection Plan' which will set out the number and frequency of inspections and audits required, as well as procedures for recording and reporting findings of these inspections. These Inspection Plans will be required on an annual basis.

20.6 ROLE OF THE STEERING GROUP

Initially established during the preparation of the Dublin Waste Management Strategy in 1997, the Steering Group is drawn from management, technical and administrative staff from the four Local Authorities. The group will play a pivotal role in leading and co-ordinating the Plan implementation over the coming years. The following are the main functions of the Steering Group.

- Leadership Role – advancing the Plan implementation and driving change across the Region, and responding to change in legislation, policy and the Region.
- Monitoring and Reporting – by means of annual reporting and involving stakeholders in ongoing review
- Infrastructure Development – planning the realisation of facilities serving the Region
- Co-ordinating Role – ensuring that the benefits of Regional co-operation are fully realised by each of the individual Local Authorities as they deliver waste management services.
- Consultation will be needed with neighbouring local authorities with regard to agreeing a common policy with regard to C&DW from the Dublin Region deposited in the functional areas of these neighbouring Local Authorities, and other inter-regional issues.

20.7 ROLE OF THE PLANNING DEPARTMENT OF LOCAL AUTHORITIES

The Planning Section of each of the Local Authorities also has an important role in improving waste management in the Region. This includes responsibility in the following areas:

- **Physical development of buildings –** ensuring homes and workplaces are adapted to meeting the waste collection and recycling needs of the future. Appendix C
- **C&D waste management** – identifying developments that must prepare C&D waste management plans and ensuring these plans are adequate and are implemented
- **Forward Planning** – including the need for integrated waste facilities in the forward planning of communities. For example, including bring banks in housing development plans, and considering waste recycling in Area Plans.
- **Infrastructure development** – private sector development of facilities is part of the Plan, therefore planners will need to liaise with colleagues in the Environment/Waste Management Section to ensure informed decisions are made and that the Waste Plan objectives are met.
- **Development Plans** – ensuring that waste management requirements in Development Plans are implemented and enforced.

21 ROLES AND RESPONSIBILITIES

While the Local Authorities are responsible for leading implementation, the success of the Plan will depend on the actions of the entire society. This section of the Plan highlights the main roles and responsibilities of the other sectors that will contribute to making the objectives of the Plan a reality.

21.1 GENERAL PUBLIC

Each member of the public, as a holder and producer of waste, has a duty to handle waste responsibly and to ensure that any waste produced does not cause environmental damage. Additional responsibilities include:

- To reduce the amount of waste being generated in the home by buying products with less packaging and buying in bulk
- To participate in waste collection schemes where they are available
- To segregate recyclable waste for collection or take to recycling centres or bring banks
- To segregate organic waste for composting
- To avoid burying or burning of waste
- To ensure that waste is presented for collection in the manner required by the Local Authority or waste operator
- To ensure that all waste collectors have a valid waste collection permit

21.2 VOLUNTARY AND COMMUNITY SECTOR

Local Authorities wish to engage with local communities regarding the provision of waste management infrastructure and education on waste prevention, minimisation, recovery and recycling. This is a two-way process in which voluntary and community groups and Non Government Organisations have the following opportunities:

- To co-operate with social economy measures
- To seek Local Authority, EU and National funding for waste minimisation and recycling projects, which will in turn create employment in the local area
- To participate in Tidy Towns competitions
- To discourage littering and undertake ‘clean-up’ days
- To liaise and co-operate with the Environmental Awareness Officers in the Region
- To take responsibility for the upkeep of bring banks in local communities

21.3 BUSINESS AND INDUSTRY

The business and industrial sectors contribute significantly to the overall amount of waste produced in Ireland. As waste producers, these sectors must take responsibility for the production, handling and ultimate treatment of waste produced on their premises and for waste generated as a result of products they place on the market. Roles and responsibilities include:

- To implement best waste management practice in the workplace with the emphasis on waste prevention
- To segregate waste that is produced into appropriate streams
- To adhere to the Producer Responsibility initiatives, for example for Packaging Waste
- To promote awareness and best practice amongst employees
- To implement green purchasing policies
- To implement, where appropriate, Environmental Management Systems
- To ensure that all waste collectors have the appropriate waste permits/licences
- To explore ways of reducing waste, in the form of packaging, that is passed on to the consumer
- To liaise with Local Authorities and private waste sector in relation to provision of recycling parks for SMEs
- To ensure that all movements of waste, within Ireland and abroad, have the appropriate authorisations and documentation
- To encourage and support initiatives and research into waste management by third level institutions

Unused telephone directories

21.4 PRIVATE WASTE SECTOR

The private sector plays a significant role in waste management in the Region, particularly for Commercial/ Industrial and Construction /Demolition waste. In line with this increased participation, the private sector must also acknowledge its roles and responsibilities in relation to waste management, which include:

- To promote education and awareness regarding waste management
- To implement the requirements of the Waste Plan in line with the principles of the Waste Hierarchy
- To ensure that waste does not cause environmental pollution
- To ensure that all waste activities are adequately licensed or permitted, including the destination of all waste
- To comply with the requirements of all waste permits/licences – including accurate and punctual reporting of waste flows
- To use Best Available Techniques
- To explore and introduce innovative waste management technologies

21.5 ENVIRONMENTAL PROTECTION AGENCY

The EPA has a wide range of statutory duties and powers under the Environmental Protection Act. In addition, the capacity of the EPA in relation to enforcement has been enhanced in the Protection of the Environment Act 2003.

The responsibilities of the EPA in relation to waste management include:

- Leading National Waste Prevention Programme on behalf of Government
- Regulation of major waste facilities through Waste Licences
- Reporting national waste performance through the *National Waste Database*
- Regulating major industries through the Integrated Pollution Prevention and Control Licence
- Preparation and Review of National Hazardous Waste Management Plan, and monitoring implementation
- Co-ordinating and improving Local Authority performance in relation to permitting, regulation, packaging, TFS etc.
- Promotion of environmental best practice through Cleaner Greener Production Programme
- Assisting Local Authorities to improve their environmental protection performance through the establishment of an enforcement network to promote information exchange and best practice, and by the provision of appropriate guidance.

21.6 DEPARTMENT OF ENVIRONMENT HERITAGE & LOCAL GOVERNMENT

In its 'Statement of Strategy 2003 – 2005' the Department of Environment and Local Government (now Department of Enviornment, Heritage and Local Government) states its Mission Statement is:

"To promote sustainable development and improve the quality of life through protection of the environment and heritage, infrastructure provision, balanced regional development and good local government".

In line with this overall mission, the DOEHLG includes a number of objectives and strategies which include:

- To provide and maintain policies, programmes and a legislative framework for the satisfactory management and reduction of waste.
- Pursuing complementary policy initiatives, including ***producer responsibility initiatives*** and application of the ***polluter pays principle***, to meet environmental and development needs.
- Promoting a partnership approach among the economic sectors, social partners, and non-governmental organisations to key environmental policy and sustainability issues through *Comhar* and other inclusive initiatives such as Local Agenda 21.
- Developing and overseeing implementation of initiatives to prevent or minimise waste in the context of *Preventing and Recycling Waste: Delivering Change,* including a new grant scheme to support greater reuse and recycling, further producer responsibility initiatives (building on the success of REPAK) and additional environmental levies following those implemented successfully in respect of plastic bags and landfilling operations.
- To encourage and support the use of Public Private Partnerships within the local government sector as a way of delivering infrastructure and quality public services in a timely and cost effective manner.

The DOEHLG is also leading the development of markets for secondary materials through its Market Development Group, and exploring the feasibility of an all-Ireland paper recycling facility with its counterparts in Northern Ireland.

22 MONITORING IMPLEMENTATION, & ONGOING STAKEHOLDER INVOLVEMENT

22.1 ANNUAL REPORT

An Annual Report will be prepared by the Local Authorities to update on progress in plan implementation. This will be prepared by the end of June (commencing in 2007) every year based on data for the previous calendar year with a summary of key waste statistics provided each year. The annual report will synthesise information from each of the four Local Authorities and is expected to include details of performance in relation to:

- Key Performance Indicators specified below
- Prevention/Minimisation and associated waste awareness activities
- The delivery of the main collection systems, facilities and infrastructure required by the plan
- Regulation and Enforcement activities
- Reporting any difficulties or challenges emerging in Plan implementation
- Review financial performance and implementation of Polluter Pays Principle, including for example a review of the charging mechanisms for waste services

22.2 CONSULTATION FORUM AS PART OF ANNUAL REPORT

The Dublin Local Authorities recognise the need for input of the various stakeholders in waste management in plan implementation. It is proposed to invite the various stakeholders in the Region to comment on the Draft Annual Report. This is an opportunity to provide feedback on the implementation of the Plan, and to bring forward new proposals or innovations as they arise.

Preparation of an Annual Report gives an opportunity for two-way communication with relevant sectors including the waste management industry, community and voluntary sectors, etc. The private waste sector has significant responsibility in the Plan for collecting waste, developing facilities, all of which requires significant investment.

Proposed participants in the forum include:

- Waste holders/producers – households, business, institutions, and industry
- Organisations handling or managing waste – private waste companies and charity sector
- Voluntary and Non Government Organisations
- Representative groups such as the company REPAK representing the packaging industry, and the CIF/ NCDWC
- Regulators, policy makers, public sector – such as the EPA, DoEHLG
- Local Authorities of the GDA - Kildare, Meath and Wicklow County Councils.

The consultation will be developed through a ‘Regional Waste Forum’ – which will enable better partnership to be developed with the sector in the coming years. This annual stocktaking exercise will also provide an opportunity to consult with and coordinate activities with other Local Authorities regarding prevention, recovery, collection and disposal.

22.3 TARGETS AND INDICATORS

22.3.1 Need for Targets and Indicators

A recommendation of the Government policy statement 'Taking Stock and Moving Forward' was for Local Authorities to adopt a more systematic and regular assessment of how well the waste management plan is being implemented. This follows the performance-based system for local government as required under the 'Delivering Value for People – Service Indicator in Local Authorities'. This document outlined 42 performance indicators for Local Authorities, a number of which relate to waste management as follows:

Service Indicators of the 'Delivering Value for People' Policy

E6 - % of households provided with segregated waste collection

E7 - % of household waste recycled

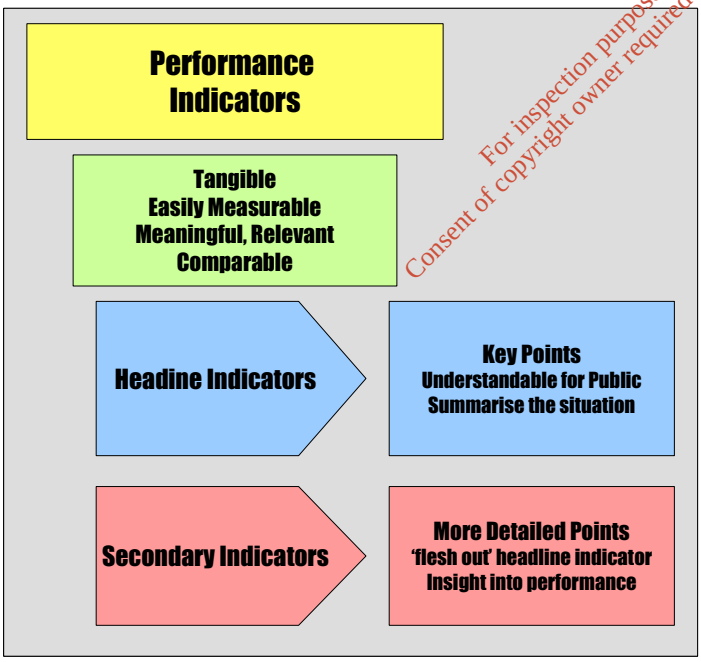
E8 - % of household waste landfilled

E9 - Recycling facilities: No. Bring Banks and Recycling Centres / 5000 population, and tonnage collected/ 5000 population

E10 – Litter enforcement (several indicators)

E11 – Environmental complaints and enforcement (including waste, noise, air and water pollution)

E12 – % of primary and secondary schools participating in environmental education



Using 'key performance indicators' will prove a useful tool for benchmarking the waste management performance and comparing Dublin's progress with other Regions nationally and internationally. They will also demonstrate to the public the real progress being made.

22.3.2 Existing Indicators and Targets

The following targets have already been set out:

- Targets of the original Dublin Waste Strategy and Plan (as outlined in Section 16)
- National targets set by the Government Waste Policy 'Changing Our Ways'. These were set in 1998 with a 15-year horizon (2013).
- Targets and monitoring indicators already employed by the EPA National Waste Database Reports, and also those recommended in the Draft Biodegradable Waste Management Strategy (April 2004)
- Local Authority performance indicators set out in 'Delivering Value for People' (see above)

Bearing in mind the above, and the availability of actual waste management data in the Dublin Region, a series of headline and secondary performance indicators have been set out for the Dublin Region.

22.3.3 Headline Indicators

The following headline indicators are recommended for monitoring the overall success of Plan implementation. These are chosen for consistency with the existing Waste Strategy targets and objectives, and to reflect the main categories of waste addressed in the Plan.

Table 22.1 Headline Indicators

Area	Headline Indicator
Prevention & Minimisation of Waste	Household Waste Generated per capita
Recycling of Municipal Waste	Municipal Waste Recycling Rate
Construction & Demolition Waste	% C&D Waste Recycled
Waste Electrical and Electronic Equipment	Kg WEEE collected for Recycling per capita
Household Hazardous Waste	% Household hazardous waste in residual waste bin
Packaging Waste Recovery	% Recycling of Packaging Waste
Recovery of Energy from Waste	Energy Recovery Rate
Landfill Disposal	Tonnage Biodegradable Waste Landfilled

Each of the Local Authorities will prepare its own EPA national waste database annual return, which will include details on some of the above. The Regional Waste Steering Group should then combine these when preparing the overall Annual Report where a Regional perspective can be achieved.

22.3.4 Ability to Measure Performance

In order to apply the above indicators, the level of waste management planning expertise within the Local Authorities should be gradually improved. Current data collection and management will need to improve in the following areas:

- Efficient data collection and management by Local Authorities – fulfilling the requirements of the EPA *National Waste Database* annual electronic reporting system in a consistent and punctual way
- Ensuring full compliance by private waste management companies with reporting requirements under *waste collection permits* and facility *waste permits*. This will require

vigorous enforcement where reports are not returned, or not accurately completed, including spot checks and audits on facilities and collectors.

- Improved recording at Recycling Centres – detailing the types and quantities of each waste stream collected
- Regular assessment of the waste stream for recycling and disposal by means of waste composition studies

22.4 TARGETS AND SECONDARY INDICATORS

Building on the overall Plan targets set out in Section 17, these are the targets set out relating to each of the headline indicators. Some secondary Indicators within each of these Headline Indicators have also been suggested for use in the Annual Report.

The Annual Report, monitoring progress made towards achieving the targets set out in the Waste Management Plan will also include a Regulation and Enforcement Section with the following headings, to be reported on a Regional basis: No. of Staff, No. of Facility Audits, No. of Facility Inspections, No. of Checkpoints and Collector Inspections, and No. of Fines issued.

Table 22.2 Headline Indicator Targets

Headline Indicator	2003 Performance	Target
Household Waste Generated per household	1.21 tonnes/annum	1.25 tonnes/annum 2006 onwards
Municipal Waste Recycling Rate	27%	45% by 2010
Proportion of Household and C/I waste sent for Energy Recovery	0 %	38% by 2013
Tonnage Biodegradable Waste Landfilled	431,340	175,030 by 2009 (requires WTE)
% C&D Waste Recycled	17.8% (excl soil)	85% by 2013
Kg (household) WEEE collected for Recycling per capita	2.5 Kg	4 Kg by 2006
% Household Hazardous Waste in residual waste stream	1.1%	0.75% by 2008
% Recycling of Packaging Waste	39.7%	55% by 2011

The following graphs illustrate some of the above targets and demonstrate how monitoring will be carried out for all Indicators in the Annual Report.

Figure 22.1 Monitoring Recycling and Recovery Targets

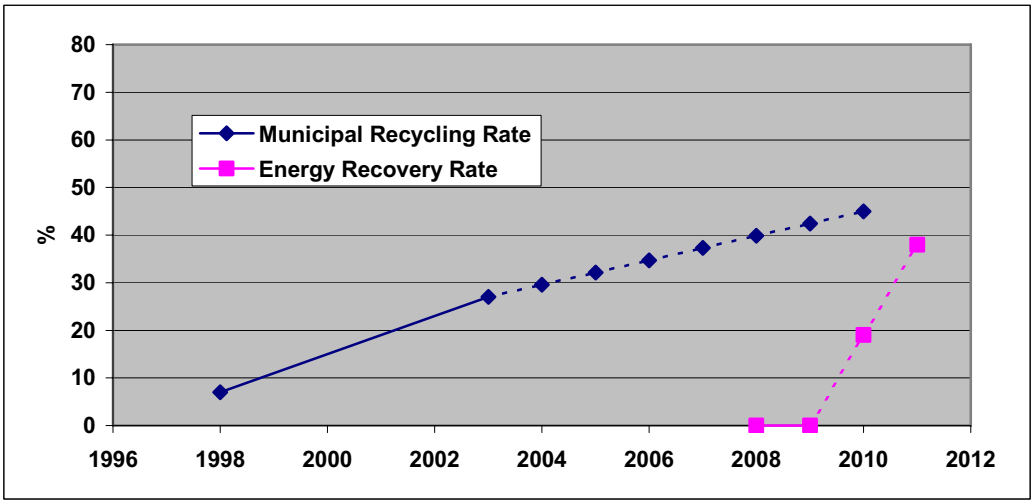
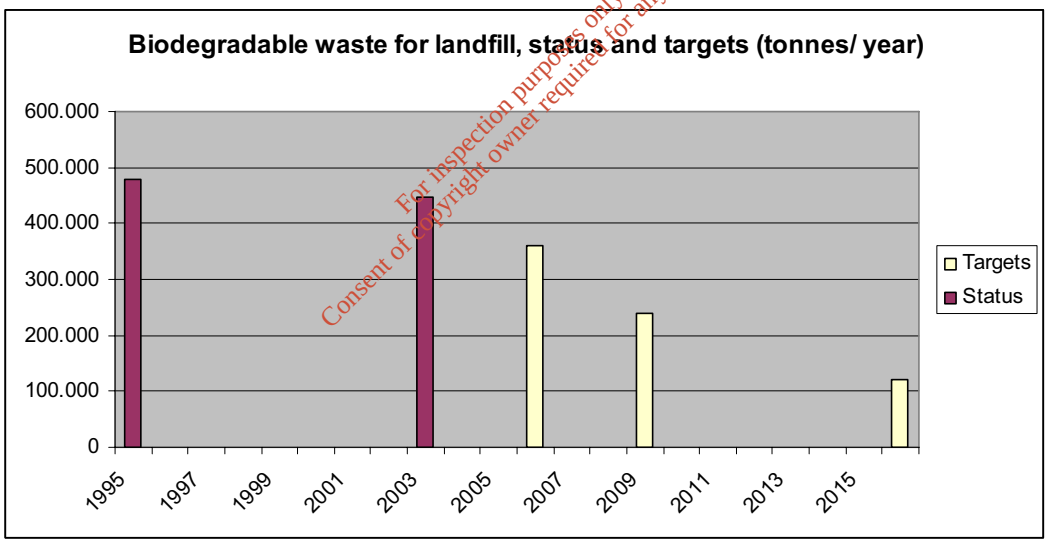


Figure 22.2 Biodegradable Waste Landfilled – Targets for Reduction



APPENDIX A

Glossary Of Terms

Glossary Of Terms

Aerated Systems: controlled composting systems with optimum aeration conditions ensuring aerobic conditions exist for decomposition of biowaste.

Anaerobic Digestion: the biological decomposition of biowaste in the absence of oxygen and under controlled conditions in order to produce biogas and digestate.

Best Available Techniques: The most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and impact on the environment as a whole.

Biodegradable Content: the percentage content of waste which is biodegradable. For municipal waste this usually fluctuates around 60%-70%.

Biodegradable Municipal Waste (Biowaste): municipal waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard.

Biological Treatment: involves composting, anaerobic digestion, mechanical/ biological treatment or any other process for stabilising and sanitising biodegradable waste.

Bring Banks: these are facilities in which members of the public deposit recyclable waste materials such as paper, glass, green waste and plastics in material specific receptacles for subsequent collection and delivery to material recovery facilities.

Central Composting Facility: a facility at which the biodegradable waste is delivered to be processed by composting into a compost product – can be for green (garden waste) food waste or a combination of both materials.

Civic Amenity Sites – See Recycling Centres.

Co-Incineration: involves plants where waste is used as a fuel or is disposed of at a plant along with other substances where energy generation or production may take place.

Collection System: a system of gathering, sorting or mixing of waste for the purpose of it being transported to a waste recovery or disposal facility.

Commercial Waste: waste from premises used wholly or mainly for the purposes of a trade or business or for the purposes of sport, recreation, education or entertainment but does not include household, agricultural or industrial waste.

Commercial/Industrial Recycling Park: A depot for small-scale waste producers (e.g. SMEs) to deliver materials for recycling and treatment.

Community Composting Facilities: facilities set up, whereby local communities can become involved in the management of their own wastes, whilst implementing the proximity principle and increasing awareness of waste recycling practices within their own community

Community Recycling Centre: similar to a full Recycling Centre (see definition) but smaller in scale and intended to serve a local community catchment. Likely to have limited access for cars.

Compost: the stable, sanitised and humus-like material rich in organic matter and free from offensive odours resulting from the composting process of separately collected biowaste.

Composting: the autothermic and thermophilic biological decomposition of separately collected biowaste in the presence of oxygen in order to produce compost.

Compost Quality Standards: are usually statutory in nature and designed to regulate potentially harmful aspects of compost production and use, and thereby protect the environment and human health.

Digestate: the material resulting from the anaerobic digestion of separately collected biowaste.

Government Contracts Committee: this committee assists the Department of Finance in formulating overall policy on public procurement. It is made up of senior officials in the higher spending Departments and is chaired by a Department of Finance representative. The committee also adjudicates on contracts being awarded by Central Government Departments in certain cases.

Hazardous Waste: means "waste of a class listed in the current Hazardous Waste Catalogue, which either:

constitutes Category I type waste as specified in Part I of the Second Schedule to the Waste Management Act 1996 and has any of the properties specified in Part III of the same Schedule; or
constitutes Category II type waste as specified in Part I of the Second Schedule to the Waste Management Act 1996 that contains any of the constituents specified in Part II of the same Schedule and has any of the properties specified in Part III of the same Schedule;

or any other waste having any of the properties specified in Part III of the Second Schedule to the Waste Management Act, 1996 that may be prescribed as hazardous waste".

Home Composting: a process whereby biowaste is composted and used in gardens belonging to private households.

Household Waste: the waste produced within the grounds of a building or self-contained part of a building used for the purposes of living accommodation.

Incineration: a process by which heat is applied to waste in order to reduce its bulk, prior to final disposal which may or may not involve energy recovery.

In-Vessel Composting: the composting of biowaste in a closed reactor where the composting process is accelerated by controlled and optimised air exchange, water content and temperature control.

IPPC Licence: a licence granted by the EPA in accordance with the requirements of the Environmental Protection Agency Act, 1992 as amended and the Environmental Protection Agency (Licensing) Regulations 1994 (S.I. No. 85 of 1994). The purpose of which is the protection of the environment and the protection of human, animal and plant life from harm or nuisance from certain industrial activities.

Kerbside Collections: entail waste collectors collecting a range of recyclable waste from outside private households, employing separate bins for the main waste streams (usually dry recyclables, organic waste, and residual waste).

Landfilling: the disposing of waste at a waste disposal facility used for the depositing of waste onto or under the land.

Landfill Directive: a Directive which aims, by means of stringent operational and technical requirements on the landfilling of waste, to implement measures, procedures and guidance to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, ground water, soil and air, and on the global environment, including the green house effect, as well as any resulting risk to human health, during the whole life cycle of the landfill.

Landfill Levy: an additional environmental levy that is paid on top of normal gate fees by any private contractor or Local Authority that wishes to dispose of waste through a landfill site. The landfill levy is collected through landfill operators and forms part of a policy aimed at providing more incentives for re-use and recycling of waste.

Material Recovery Facilities: facilities where recyclables are sorted into specific categories and processed, or further transported to processors for remanufacturing.

Mechanical Biological Treatment: the treatment of residual municipal waste, in order to stabilise and reduce the volume of waste to be disposed of. A combination of mechanical processing and biological breakdown are employed.

Multi-Storey Dwellings: dwellings consisting of numerous floors and occupied by more than one family.

Municipal Waste: waste from households, as well as commercial and other waste, which because of its nature or composition, is similar to waste from households.

National Climate Change Strategy: this Strategy provides a national framework for achieving greenhouse gas emission reductions by 13% above 1990 levels in-keeping with the EU target to reduce emissions by 8%, as part of the Kyoto Protocol of 1997.

National Waste Data Base Report: a national report that provides information on waste generation, waste management and waste infrastructure in Ireland.

On-Site Composting: the composting of biowaste where it is generated.

Pay As You Throw Schemes: schemes where the fee charged for collection and disposal increases with the amount of waste collected from households. This provides a financial incentive for residents to reduce waste through reducing, reusing or recycling waste, which can in turn lead to lower transportation and disposal costs for Local Authorities and private waste collection companies. PAYT schemes may consist of pay per bag, pay per container, pay per volume or pay per weight.

Pay By Weight Schemes: schemes whereby resident's pay for the exact amount of waste collected per household. This scheme is devised to offer financial incentives for residents to reduce the amount of waste to be collected and disposed off by public or private waste collectors.

Polluter Pays Principle: the principle set out in Council Recommendation 75/436/Euratom, ECSC, EEC of 3rd March 1975 1(20) regarding cost allocation and action by public authorities on environmental matters.

Producer Responsibility Initiatives: a series of initiatives undertaken by the Government to facilitate better management of priority waste streams, in line with the 'Polluter Pays Principle'.

Proximity Principle: The principle set out in the EU Framework Directive (91/156/EEC) whereby member states should establish a network enabling waste to be disposed of in one of the nearest appropriate installations, by means of the most appropriate methods and technologies to ensure a high level of protection for the environment and for public health.

Quality Assurance Schemes: are usually non-statutory in nature, and designed to ensure that producers maintain process management and produce a compost product of high quality, which will be easily marketed and profitable in nature.

Recovery: any activity carried out for the purpose of reclaiming, recycling or re-using waste in whole or in part.

Recyclables: waste materials that may be subjected to any process or treatment to make it re-useable in whole or in part**.**

Recycling: the subjection of waste to any process or treatment to make it re-useable in whole or in part**.**

Recycling Centre: a reception facility that enables householders to deposit a wide range of household waste including recyclable and non-recyclable materials, bulky household waste and certain categories of household hazardous waste

Residual Municipal Waste: the fraction of municipal waste remaining after the source separation of municipal waste fractions, such as food and garden waste, packaging, paper and paperboard, metals, glass and is usually unsuitable for recovery or recycling.

Resource Recovery Park (or Facility): A depot for collected materials to be sorted into different streams which will provide opportunities for recycling, repair, refurbishment and on-selling of these resources.

Separate Collection: the separate collection of biodegradable waste from municipal waste in such a way as to avoid the different waste fractions or waste components from being mixed, combined or contaminated with other potentially polluting wastes, products or materials.

Stabilised Biowaste: waste resulting from the mechanical/biological treatment of biowaste, unsorted waste or residual municipal waste which does not comply with specified minimum standards of environmental quality.

Thermal Treatment: a process by which heat is applied to waste in order to reduce its bulk, prior to final disposal. Thermal treatment can involve a number of processes such as incineration, pyrolysis and gasification.

Tradable Landfill Permits: are a flexible economic instrument, devised to minimise the cost of meeting the Landfill Directive targets whilst giving Local Authorities the greatest amount of freedom. Should diversion of waste away from landfill and other actions mean that not all of the permits are required for a particular year, then Local Authorities will be able to trade them. On the other hand, a waste disposal authority who does not have enough permits to cover the amount of waste it intends to landfill would need to either increase its rate of diversion or purchase additional permits.

Treatment Facilities: facilities where waste undergoes thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.

Waste: any substance or object which the holder discards, or intends, or is required to discard, and anything which is discarded as if it were a waste, as per the Waste Management Act, 1996.

Waste Collection Permit System: a system whereby persons with a view to profit or otherwise in the course of business, collect waste are granted with a permit by a Local Authority in whose functional area the waste is collected.

Waste Management Facility: a site or premises used for the recovery or disposal of waste.

Waste Management Plans: statutory waste management plans implemented on a Regional basis in Ireland since 2001.

Waste Minimisation: any technique, process or activity that either avoids, reduces or eliminates waste at its source, or results in re-use or recycling.

Waste Prevention: A reduction in the quantity and harmfulness to the environment of waste and the materials and substances contained within waste.

Waste Producer: a person whose activities produce waste or who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of waste.

Waste to Energy Plant: a plant where waste undergoes thermal treatment with a recovery of energy due to the fact that the waste itself contains large amounts of thermal energy ready to be liberated either by combustion or by synthesis gas production followed by combustion. The energy that is recovered is often used to supply electricity.

Windrow Composting: the composting of biowaste placed in elongated rows which are periodically turned by mechanical means in order to increase the porosity of the heap and increase the homogeneity of the waste.

APPENDIX B

List of Relevant Legislation

List of Relevant Legislation

1967	Council Directive on Classification, Packaging & Labelling of Dangerous Substances	67/548/EEC
1979	(Dangerous Substances) Amending EU Directive	79/831/EEC
1992	(Dangerous Substances) Amending Directive	92/32/EEC
1975	Council Directive on the Disposal of Waste Oils	75/439/EEC
1986	Amending Directive	87/101/EEC
1991	Amending Directive	91/692/EEC
1975	Council Directive on Waste	75/442/EEC
1986	Amending Directive	87/101/EEC
1991	Amending Directive	91/156/EEC
1991	Amending Directive	91/692/EEC
1996	Commission Decision	96/350/EC
1996	Amending Directive	96/59/EC
1976	Council Directive on the Disposal of PCB's	76/403/EEC
1978	Council Directive on Toxic & Dangerous Waste	78/319/EEC
1977	Council Directive on Waste from the Titanium Dioxide Industry	78/176/EEC
1982	Amending Directive	82/883/EEC
1983	Amending Directive	83/29/EEC
1991	Amending Directive	91/692/EEC
1979	Directive on the protection of groundwater against pollution caused by certain dangerous substances ("Groundwater Directive")	1980/68/EEC
1984	Council Directive on the Transfrontier Shipment of Hazardous Waste	84/631/EEC
1984	Amending Directive	85/469/EEC
1986	Amending Directive	86/279/EEC
1985	Amending Directive	87/112/EEC
1984	Directive on the combating of air pollution from industrial plants	1984/360/EE
1985	Council Directive on Containers of Liquids for Human Consumption	85/339/EEC
1985	Council Directive on Sewage Sludge in Agriculture	86/278/EEC
1986	Council Directive on protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture	86/278/EEC
1986	Council Directive on the Disposal of Animal Waste	90/667/EEC
1986	Council Directive on Emissions from New Waste Incineration Plants	89/369/EEC
1987	Council Directive on Environmental Pollution by Asbestos	87/217/EEC
1989	Council Directive on Emissions from Waste Incineration Plants	89/429/EEC
1990	Council Directive on the Disposal of Animal Waste	90/425/EEC
1991	Council Directive on Batteries containing Dangerous Substances	91/157/EEC
1998	Amending Directive 91/101/EC	98/101/EC
1991	Council Directive Concerning Urban Waste Water Treatment	91/271/EEC

1991	Council Directive on Hazardous Waste	91/689/EEC
	1994 Amending Directive	94/31/EC
1992	Council Directive on the Supervision and Control of Shipments of Radioactive Waste Between Member States and Into and Out of the Community	92/3/Euratom
1993	Council Regulation on the Supervision and Control of Shipments of Waste Within, Into and Out of the European Community	93/259/EEC
	1997 Amended by Council Regulation	120/97/EC
	1998 Amended by Commission Regulation	2408/9
	1999 Amended by Council Regulation	1420/1999/EC
	1999 Amended by Council Regulation	1547/1999/EC
	2001 Amended by Commission Regulation	2557/2001/EC
1993	Council Decision On The Control Of Transboundary Movements Of Hazardous Wastes And Their Disposal	93/98/EEC
	1997 Amending Council Decision	97/640/EC
1993	Council Regulation on the Evaluation and Control of the Risks of Certain Substances	93/793/EEC
1993	Council Regulation on Shipments of Radioactive Substances between Member States	93/1493/Euratom
1994	European Parliament and Council Directive On Packaging and Packaging Waste	94/62/EC
1994	Commission Regulation Laying Down the Principles for the Assessment of Risks to Man and the Environment of Existing Substances in Accordance with Council Regulation (EEC) No. 793/93	94/1488/EC
1994	Council Directive On The Incineration Of Hazardous Waste	94/67/EC
1996	Control Directive On The Disposal Of Polychlorinated Biphenyls And Polychlorinated Terphenyls (PCB's/ PCT's).	96/59/EC
1996	Control Directive on Integrated Pollution Prevention and Control Directive	96/61/EC
1996	Directive on the control of major-accident hazards involving dangerous substances	1996/82/EC
1999	EU Directive on the Landfill of Waste	99/31/EC
2000	Council Directive On the Incineration of Waste Repeals Directive 89/369/EEC Repeals Directive 89/429/EEC Repeals Directive 94/67/EC	2000/76/EC
2000	Directive of the European Parliament and of the Council establishing a framework for Community action in the field of water policy("Water Framework Directive") 2001 Strategic Environmental Assessment Directive	2000/60/EC 2001/42/EC
2001	Directive of the European Parliament and of the Council on national emission ceilings for certain atmospheric pollutants	2001/81/EC
2002	Council Directive on the End of Life Vehicles	2000/53/EC
2002	European Parliament and Council Regulation on Waste Statistics	2150/2002

2003	European Parliament and Council Directive on Waste Electrical and Electronic Equipment	2002/96/EC
	2003 Amending Directive	2003/108/EC
2003	European Parliament And Council Directive On The Restriction Of The Use Of Certain Hazardous Substances In Electrical And Electronic Equipment	2002/95/EC
2003	Council Regulation Laying Down Health Rules Concerning Animal By-Products Not Intended For Human Consumption Animal By-Products Regulations	1774/2002/EC
2003	Directive of the European Parliament and of the Council providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice which is due to come into force on 25 June 2005	2003/35/EC
2003	Directive establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC ("Emissions Trading Directive")	2003/87/EC
2004	Directive of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage which is due to come into force in 2007.	2004/35/CE
	Directive on ambient air quality assessment	1996/62/EC
	Directive on ozone in ambient air	2002/3/EC
2004	Environmental Liability Directive	2004/35/CE

National Legislation

1878	Public Health (Ireland) Act	
1979	(Dangerous Substances) (Classification, Packaging & Labelling) Regulations	SI No.383
1980	(Dangerous Substances) Amending Regulations	SI No.34
1983	(Dangerous Substances) Amending Regulations	SI No.27
1984	(Dangerous Substances) Amending Regulations	SI.No.335
1986	Dangerous Substances (Conveyance of Scheduled Substances by Road) (Trade or Business) (Amendment) Regulations	SI No.268
1986	Dangerous Substances (European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)) Regulations	SI No.269
1986	(Dangerous Substances) (Classification, Packaging & Labelling) (Amendment) Regulations	SI No.47
1986	Dangerous Substances (Methods and Apparatus for Testing Petroleum) Regulations	SI No.128
1986	(Dangerous Substances) (Classification, Packaging & Labelling) (Amendment) Regulations	SI No.228
1979	The European Communities (Waste) (No. 2) Regulations	SI No.388
1982	The European Communities (Waste Oils) Regulations	SI No.399
1984	(Waste Oils) Regulations	SI No.107
1992	The European Communities (Waste Oils) Regulations	SI No.399
1979	Waste Regulations	SI No.390

1984	Waste Regulations	SI No.108
1982	Toxic & Dangerous Waste Regulations	SI No.33
1988	Transfrontier Shipment of Hazardous Waste Regulations	SI No.248
1994	European Communities (Transfrontier Shipment of Waste) Regulations	SI No.121
1994	European Communities (Supervision and Control of Certain Shipments of Radioactive Waste) Regulations	SI No.276
1987	Air Pollution Act	SI No.6
1992	Air Pollution Act, 1987 (Municipal Waste Incineration) Regulations	SI No.347
1987	Council Directive on Environmental Pollution by Asbestos 87/217/EEC(Asbestos Waste) Regulations	SI No.30
1993	European Communities (Asbestos Waste) Regulations	SI No.90
1996	Dumping at Sea Act	S.I. No. 14
1997	Litter Pollution Act	S.I. No. 12
1992	Environmental Protection Agency Act.	S.I. No. 7
1985	Diseases of Animals (Feeding and Use of Swill) Order	S.I. No. 153
1987	Diseases of Animals (Feeding and Use of Swill) (Amendment) Order	S.I. No. 133
1991	Sea Pollution Act	S.I. No. 27
1994	Sea Pollution (Prevention of Pollution by Garbage from Ships) Regulations	S.I. No. 45
1996	Waste Management Act	S.I. No. 10
1997	Waste Management (Licensing) Regulations (Revoked by S.I No. 185 of 2000)	S.I. No 133
1997	Waste Management (Planning) Regulations	S.I. No. 137
1997	Waste Management (Register) Regulations	S.I. No. 183
1997	Waste Management (Packaging) Regulations	S.I. No. 242
1997	Waste Management (Farm Plastics)	S.I. No. 315
1998	European Communities (Licensing of Incinerators of Hazardous Waste) Regulations	S.I. No. 64
1977 – 1990	Local Government (Water Pollution) Acts	
1998	Waste Management Amendment of Waste Management Act 1996 (Regulations)	S.I. No. 146
1998	Waste Management (Movement of Hazardous Waste) Regulations	S.I. No. 147
1998	Waste Management (Use of Sewage Sludge in Agriculture) Regulations	S.I. No. 148
1998	Waste Management (Transfrontier Shipment of Waste) Regulations	S.I. No. 149
1998	Waste Management (Licensing) (Amendment) Regulations (Revoked by S.I No.185 of 2000)	S.I. No. 162
1998	Waste Management (Hazardous Waste) Regulations	S.I. No. 163
1998	Waste Management (Miscellaneous Provisions) Regulations	S.I. No. 164
1998	Waste Management (Permit) Regulations	S.I. No. 165
1998	European Communities (Amendment of Waste Management Act 1996) Regulations	S.I. No. 166

1998	Waste Management (Packaging) (Amendment) Regulations	S.I No. 382
2000	Waste Management (Hazardous Waste) (Amendment) Regulations	S.I. No. 73
2000	Control of Major Accident Hazards involving Dangerous Substance Regulations	S.I. No. 476
2000 – 2002	Planning and Development Acts	
2000	Waste Management (Licensing) Regulations (Revoked by S.I No. 395 of 2004)	S.I. No. 185
2001	Waste Management (Amendment) Act 2001	S.I. No. 36
2001	Waste Management (Use Of Sewage Sludge In Agriculture) (Amendment) Regulations	S.I. No. 267
2001	Waste Management (Farm Plastics) Regulations	S.I. No. 341
2001	Waste Management (Prescribed Date) Regulations	S.I. No. 390
2001	Waste Management (Licensing) (Amendment) Regulations (Revoked by S.I No. 395 of 2004)	S.I. No. 397
2001	Waste Management (Collection Permit) Regulations	S.I. No. 402
2001	The Prohibition on the Use of Swill Order	S.I. No. 597
2001	Waste Management (Environmental Levy) (Plastic Bag) Regulations	S.I. No. 605
2001	Planning and Development Regulations	S.I. No. 600
2002	Waste Management (Licensing) (Amendment) Regulations	S.I. No. 336
2002	European Communities (Amendment of Waste Management (Licensing) Regulations, 2000) Regulations (Revoked by S.I No. 395 of 2004)	S.I No. 337
2002	Diseases of Animals Act 1966 (TSE) (MBM and Poultry Offal) Order,	SI. No. 551
2003	Waste Management (Packaging) Regulations	S.I. No. 61
2003	Protection of the Environment Act 2003	
2004	Protection of the Environment Act 2003 (Commencement) Order	S.I. No. 393
2004	Waste Management (Licensing) Regulations	S.I. No. 395
2004	Guidelines for Regional and Planning Authorities in Ireland on implementation of the SEA Directive	
2004	Guidelines For Treatment Of Animal By- Products In Approved Composting Or Biogas Plants In Ireland	
2004	EPA (Licensing)(Amendment) Regulations	SI No. 394
2004	EPA (Licensing Fees) (Amendment) Regulations	SI No. 410
2004	Planning and Development (Strategic Environmental Assessment) Regulations	SI No. 436
2004	Waste Management (Packaging) (Amendment) Regulations	S.I. No. 871
2005	EC (Environmental Assessment of Certain Plans and Programmes) Regulations	SI No. 435

APPENDIX C

Guidelines for Waste Storage Facilities

Guidelines for Waste Storage Facilities

Standards for Apartments

The requirements set out in this Plan for the collection, Storage and Presentation of Household Waste and r the requirement to segregate waste into separate fractions to facilitate the collection of dry recyclables, organic kitchen/garden waste and residual waste.

Bins that comply with IS EN 840 1997 must be used. Ideally 1,100 Litre Bins should be used with dimension of 1.3 metres long by 1.0metres wide by 1.3 metres high and with a load capacity of approximately 0.5 tonnes. Other types of receptacles may only be used with the written consent of the Local Authority.

There must be enough storage space for a minimum of 1No. 1,100 Litre Bin per 15 people availing of the communal collection scheme for residual household waste.

Sufficient space must be provided to accommodate the collection of dry recyclables and organic kitchen waste/garden waste. Provision should also be made for the collection of glass (separated by colour) in Bottle Banks within the cartilage of the apartment block. The total footprint of each of these banks is 4metres by 2 metres wide. The location must be external, with sufficient access and clearance for servicing using a crane.

The bin storage areas must not be on the public street and should not be visible or accessible to the general public.

The bin storage areas should be designed so that each bin within the storage area is accessible to occupants of the apartment block (including people with disabilities).

Suitable wastewater drainage points should be installed in the bin storage area for cleaning and disinfecting purposes.

If the waste is collected by a private contractor, that contractor must be the holder of a current Waste Collection Permit.

Sufficient access and egress must be provided to enable bins to be moved easily form the storage area to an appropriate collection point on the public street nearby. The access and egress area should have no steps and have a minimal incline ramp.

Where a bye law is in place regarding waste presentation in the Local Authority, this must be adhered to in the development of suitable waste storage areas.

Standards for Commercial/Industrial Developments

The requirements set out in this Plan for the collection, Storage and Presentation of Household Waste and r the requirement to segregate waste into separate fractions to facilitate the collection of dry recyclables, organic kitchen/garden waste and residual waste.

Bins that comply with IS EN 840 1997 must be used. Ideally 1,100 Litre Bins should be used with dimension of 1.3 metres long by 1.0 metres wide by 1.3 metres high and with a load capacity of approximately 0.5 tonnes. Other types of receptacles may only be used with the written consent of the Local Authority.

There must be enough storage space for a minimum of 1 No. 1,100 Litre Bin per 10 bags to be collected.

Sufficient space must be provided to accommodate the collection of dry recyclables and organic kitchen waste/garden waste. Provision should also be made for the collection of glass (separated by colour) in Bottle Banks within the cartilage of the apartment block. The total footprint of each of these banks is 4metres by 2 metres wide. The location must be external, with sufficient access and clearance for servicing using a crane.

The bin storage areas must not be on the public street and should not be visible or accessible to the general public.

The bin storage areas should be designed so that each bin within the storage area is accessible to occupants/employees of the development (including people with disabilities).

Suitable wastewater drainage points should be installed in the bin storage area for cleaning and disinfecting purposes.

A waste collection contract must be signed with the local authority or a private waste collector who is the holder of a Waste Collection Permit, prior to the commencement for the collection of waste. Private contractors are required to provide the recycling services prescribed in the Plan.

Sufficient access and egress must be provided to enable bins to be moved easily form the storage area to an appropriate collection point on the public street nearby. The access and egress area should have no steps and have a minimal incline ramp.

Where a bye law is in place regarding waste presentation in the Local Authority, this must be adhered to in the development of suitable waste storage areas.

APPENDIX D – Waste Management Facilities Additional Information

D1 Waste Licensed Facilities

D2 Waste Permitted Facilities

D3 Waste Collection Permits

D1 – Waste Licensed Facilities

The following tables provide details on waste acceptance, capacity and intake for the Waste Licensed and Waste Permitted Facilities in the Dublin Region for 2003. Information was not available for all facilities as some permits had not been granted until 2004 or the information was not submitted on the facility's Annual Environmental Report. Those facilities that are not operational (NO) also have no data available.

ID	Operator	Location	County	Permit No	Waste Type	Intake 2003	Capacity
1	National Recycling and Environmental Protection	John F Kennedy Drive, JFK Industrial Estate, Naas Road	Dublin	112-1	Hazardous Waste Facility	N/A	3,000
2	Silver Lining Industries (Ireland) Ltd.	Unit 61, Cookstown Ind. Estate, Belgard Road, Tallaght	Dublin	122-1	Hazardous Waste Facility	N/A	46,650
3	Dunsink Landfill	Dunsink Lane, Finglas	Dublin	127-1	Landfill	N/A	195,500 (or 200,000 in-vessel)
4	Murphy Concrete Manufacturing Ltd	Hollywood Great, Nags Head, The Naul	Dublin	129-1	Landfill	N/A	340,000
5	N. Murphy waste Disposal Ltd	Sandyhill,	Dublin	134-1	Waste Transfer Station	93,970	60,000
6	Site contained by Street Frontages	28 & 29 Sir John Rogerson's Quay, Dublin 2	Dublin	137-1	Soil Remediation Facility	N/A	100,000
7	Ballyogan Landfill and Recycling Park	Ballyogan Rd, Carrickmines, Dublin 18	Dublin	15-1	Integrated Waste Management Facility	N/A	215,000
8	Oxigen Environmental Ltd	Robinhood Ind. Estate, Robinhood road, Dublin 22	Dublin	152-1	Waste Transfer Station	32,633	18,606
9	Molloy and Sherry Site	Sir John Rogersons Quay, Dublin 2	Dublin	164-1	Soil Remediation Facility	N/A	60,000
10	Greenstar Recycling Holdings	Millennium Business Park, Grange, Ballycoolin, Dublin 11	Dublin	183-1	Waste Transfer Station	NO	220,000
11	Cara Waste Management Ltd	Greenogue Business Park, Rathcoole, Co. Dublin	Dublin	185-1	Hazardous Waste Facility	NO	57,000
12	Greenstar Material	Greenogue Industrial Estate, Rathcoole, Co. Dublin	Dublin	188-1	Waste Transfer Station	NO	95,000
13	SITA Environmental Ltd	Greenogue Industrial Estate, Rathcoole, Co. Dublin	Dublin	192-1	Hazardous Waste Facility	N/A	62,500
14	MacAnulty Clear Drains	JFK Industrial Estate, Naas Road, Dublin 12	Dublin	196-1	Hazardous Waste Facility	N/A	35,400
15	Green Waste & Civic Amenity Recycling Centre	St. Anne's Park, All Saints Road, Raheny	Dublin	203-1	Waste Transfer Station	N/A	Licence withdrawn
16	Greyhound Recycling & Recovery Ltd	Crag Avenue, Clondalkin Industrial Estate, Clondalkin	Dublin	205-1	Materials Recovery Facility	NO	235,000
17	Oxigen Environmental Ltd	Ballymount Road Lower, Clondalkin, Dublin 22	Dublin	208-1	Waste Transfer Station	N/A	N/A
18	Ballymount Baling Station	Ballymount Road, Walkinstown, Dublin 12	Dublin	3-3	Waste Transfer Station	297,592	324,480
19	Upper Sheriff St	Upper Sheriff St, Dublin 1	Dublin	35-1	Hazardous Waste Facility	N/A	N/A
20	Tolka Quay Road	Dublin Port, Dublin 1	Dublin	36-2	Hazardous Waste Facility	N/A	N/A
21	ONYX Ireland Ltd	Ballymount Cross, Tallaght, Dublin 24	Dublin	39-2	Waste Transfer Station	107,882	150,000
22	520 Beech Rd	520 Beech Rd, Western Ind. Estate, Naas Road	Dublin	40-1	Hazardous Waste Facility	N/A	3,440
23	Upper Sheriff St	Upper Sheriff Street, Dublin 1	Dublin	42-1	Waste Transfer Station	110,055	150,000
24	Thorntons Recycling Centre	Killeen Rd, Ballyfermot, Dublin 10	Dublin	44-2	Waste Transfer Station	275,080	249,000

ID	Operator	Location	County	Permit No	Waste Type	Intake 2003	Capacity
25	Dean Waste Co. Ltd	Greenview, Greenhills Road, Walkinstown, Dublin 12	Dublin	45-1	Waste Transfer Station	105,885	300,000
26	Eco-Safe Systems Ltd	Allied Ind. Estate, Kylemore Road, Ballyfermot, Dublin 10	Dublin	54-2	Hazardous Waste Facility	N/A	4,525
27	Sterile Technologies Ireland Ltd	Western Ind. Estate, Naas Rd, Dublin 12	Dublin	55-2	Hazardous Waste Facility	N/A	N/A
28	Greenstar Materials Recovery Ltd	Cookstown Ind. Estate, Tallaght, Dublin 24	Dublin	79-1	Waste Transfer Station	54,977	145,000
29	Lower Oriel St	North Wall, Dublin 1	Dublin	83-1	Hazardous Waste Facility	N/A	10,000
30	Hegarty Demolition Ltd.	Brittas, Co. Dublin	Dublin	84-1	Landfill	N/A	200,000
31	Corbally	Blessington Rd, Tallaght	Dublin	88-1	Landfill	N/A	100,000
32	Balleally Landfill	Balleally, Lusk, Co. Dublin	Dublin	9-2	Landfill	211,000	451,500
33	Waste Management Centre	Knockmitten Lane, Western Ind. Estate, Dublin 12	Dublin	95-2	Waste Transfer Station	N/A	118,500
34	Unit 5, Airton Road	Tallaght, Dublin 24	Dublin	99-1	Hazardous Waste Facility	N/A	N/A
35	Greenstar (Fassaroe)	Near Bray – South Co. Dublin	Dublin	53-2	Materials Recovery Facility	75,091	94,500
36	Greyhound Recycling and Recovery (Knockmitten Lane)	Western Industrial Estate, Clondalkin, Dublin 22	Dublin	95-1	Materials Recovery Facility	52,708	55,500

D2 – Waste Permitted Facilities

ID	Operator	Location	County	Permit No	Waste Type	Intake 2003	Capacity
1	Mullins Metals	Blackpitts	Dublin	WP98008	Scrap Metal	480	N/A
2	John W. Hannay & Co. Ltd.	Bannow Road, Cabra, Dublin 7	Dublin	WP 98016	Paper / Packaging Facility	19,861	N/A
3	O'Connor & Murphy Auto Recyclers	9A Fitzwilliam Street, Ringsend, Dublin 4	Dublin	WP 98025	End of Life Vehicles	152	N/A
4	Woods	78 Walkinstown Road, Dublin 12	Dublin	WP 98026	Clinical / Healthcare	10	N/A
5	South Dublin Autos	South Circular Road, Rialto, Dublin 8	Dublin	WP 98030	End of Life Vehicles	2	N/A
6	Martin Services Ltd.	Bluebell Business Park, Dublin 12	Dublin	WP 98040	Clinical / Healthcare	38	N/A
7	JVC Ltd.	Clonshaugh Industrial Estate	Dublin	WP 98042	Municipal	34,993	N/A
8	M. T. Oils Ltd.	Newmarket, Dublin 8	Dublin	WP 98045	Oils	2	N/A
9	Electronic Recycling	Jamestown Business Park, Finglas, Dublin 11	Dublin	WP 98051	WEEE Recovery	304	N/A
10	Shred-It	53 Parkwest, Dublin 12	Dublin	WP 98052	Paper / Packaging Facility	2,574	N/A
11	IPODEC	North Richmond Street, Dublin 1	Dublin	WP 98056	Municipal	168	N/A
12	Leech Papers Ltd.	Shamrock Terrace, North Strand Road, Dublin 1	Dublin	WP 98066	Paper / Packaging Facility	2,868	N/A
13	Spencer Dock	Spencer Dock	Dublin	WP 98074	C & D Recycling Facility	8,000	N/A
14	Mardown Ltd.	Total Fitness, Blackglen Road, Sandyford, Dublin 18	Dublin	W4/4(18)	C & D Recycling Facility	-	N/A
15	St. Joseph's Boys AFC Ltd.	Pearse Park, Rochestown Avenue, Sallynoggin	Dublin	W4/4(19)	C & D Recycling Facility	-	N/A
16	Bailey Waste Recycling Ltd.	Rosemount Business Park, Dublin 11	Dublin	1	Paper / Packaging Facility	83,368	N/A
17	Fingal Recycling	Feltrim Industrial Park, Swords	Dublin	2	Municipal		N/A
18	Fingal Recycling	Stephenstown, Dublin Road, Balbriggan	Dublin	4	Municipal		N/A
19	Fajon Construction Ltd.	Skerries Road, Lusk	Dublin	12	C & D Recycling Facility	4,000	4,000
20	Carno International Ltd.	Barnhill, Clonsilla, Dublin 15	Dublin	14	Paper / Packaging Facility	3,167	N/A
21	Alldocs Ltd.	Damastown Business Park, Dublin 15	Dublin	16	Paper / Packaging Facility	2,400	N/A
22	Ballymun Regeneration Ltd.	Balcurris, Ballymun, Dublin 9	Dublin	35	C & D Recycling Facility	N/A	N/A
23	Techmatic Ltd.	Balbriggan Business Park	Dublin	37	Scrap Metal	89,380	N/A
24	Irish Metal Refineries	Balbriggan Business Park	Dublin	39	Scrap Metal	N/A	500
25	Greenclean Ltd.	Blakes Cross, Lusk	Dublin	41	Municipal	N/A	41,000
26	Roadstone Dublin Ltd.	Huntstown Quarry, Finglas	Dublin	45	C & D Recycling Facility	750,000	520,000
27	Joe Boland Motor Salvage	Nevistown, Swords	Dublin	45	End of Life Vehicles	N/A	N/A
28	Glenbeigh Records	Damastown Business Park, Dublin 15	Dublin	46	Paper / Packaging Facility	N/A	N/A
29	McHale	St. Annes, Cloghran	Dublin	47	C & D Recycling Facility	N/A	N/A
30	Irish Kennel Club	Show Centre, Cloghran	Dublin	48	C & D Recycling Facility	3,000	5,000
31	Summerhill Spares	Ballymun Cross, Santry	Dublin	60	End of Life Vehicles	N/A	N/A
32	North County Dublin Car Parts	Man O War, Skerries	Dublin	62	End of Life Vehicles	25	N/A

ID	Operator	Location	County	Permit No	Waste Type	Intake 2003	Capacity
33	Barnmore Demolition	21 Baldoyle Industrial Estate	Dublin	62	C & D Recycling Facility	N/A	5,000
34	Peter O'Brien & Sons Ltd.	Streamstown, Malahide	Dublin	69	Waste Transfer Station	N/A	N/A
35	Gannons City Recovery Ltd.	Turvey, Donabate	Dublin	70	End of Life Vehicles	N/A	N/A
36	Roadstone Dublin Ltd.	Huntstown Quarry, Finglas	Dublin	72	C & D Recycling Facility	N/A	N/A
37	International Plant Hire Ltd.	St. Annes, Cloghran	Dublin		Municipal	N/A	N/A
38	Westlink Recovery Services Ltd.	Red Cow, Naas Road	Dublin	WPR 006	End of Life Vehicles	2,815	N/A
39	Rehab Glass	Ballymount Avenue, Clondalkin	Dublin	WPR 004	Glass	40,056	N/A
40	Lawlor Brothers	Unit 28, JFK Ind. Estate, Naas Road	Dublin	WPR 027	Waste Transfer Station	7,351	N/A
41	Francis Greaney	Glenaraneen, Brittas	Dublin	WPR 036	C & D Recycling Facility	4,820	N/A
42	Roadstone Dublin Ltd.	Fortunestown, Belgard Quarry, Co. Dublin	Dublin	WPR 025	C & D Recycling Facility	50,640	N/A
43	JVC Recycling Ltd.	Unit 8, Cookstown Ind. Estate, Dublin 24	Dublin	WPR 023	Municipal	7,512	N/A
44	Mr. Paul Cooke	Glassamucky, Bohernabreena, Co. Dublin	Dublin	WPR 026	C & D Recycling Facility	10,500	N/A
45	Burns Waste Recycling Ltd.	Greenogue Ind. Estate, Rathcoole	Dublin	WPR 024	Municipal	5,086	N/A
46	Bailey Waste Recycling Ltd.	Unit 14A, Greenogue Business Park, Rathcoole	Dublin	WPR 029	Municipal	16,471	N/A
47	TPH Recycling Ltd. / Goatstown Waste	Unit 51 Fourth Avenue, Cookstown Ind. Estate	Dublin	WPR 031	Municipal	5,570	N/A
48	Cummins Metals Recycling Ltd.	JFK Drive, Naas Road, Dublin 12	Dublin	WPR 002	Scrap Metal	24,600	N/A
49	Recoverable Resources Co-op Ltd.	Hibernian Insurance Ind. Estate, Greenhills Road	Dublin	WPR 015	Scrap Metal	370	N/A
50	Textile Recycling Ltd.	Glen Abbey Complex, Belgard Road, Tallaght	Dublin	WPR 014	Waste Transfer Station	153	N/A
51	Gandon Enterprises Ltd.	Unit 77, Broomhill Road, Tallaght	Dublin	WPR 033	WEEE Recovery	38	N/A
52	Smurfit Ireland Ltd. / Smurfit Recycling Ltd.	Lower Ballymount Road, Walkinstown, Dublin 12	Dublin	WPR 021	Paper / Packaging Facility	124,450	N/A
53	Rentokil Initial Ltd.	Merrywell Business Park, Ballymount Road, Dublin 12	Dublin	WPR 034	Clinical / Healthcare	153	N/A
54	Barina Pellets Ireland	Newcastle Road, Lucan, Co. Dublin	Dublin	WPR 037	Wood / Timber	3,450	N/A
55	Greenhill Motor Spares	Greenhills Road, Tallaght	Dublin	WPR 010	End of Life Vehicles	N/A	N/A
56	Smart Waste Solutions	Whitestown Ind. Estate, Tallaght, Dublin 24	Dublin	WPR 042	WEEE Recovery	N/A	N/A
57	Clondalkin Community Recycling Initiative	Clondalkin, Dublin 22	Dublin	WPR 043	WEEE Recovery	N/A	N/A
58	Cummins Metals Recycling Ltd.	Clondalkin, Dublin 22	Dublin	WPR 045	Scrap Metal	N/A	N/A
59	Tallaght Truck Dismantlers	Greenhills Road, Tallaght	Dublin	WPR 047	End of Life Vehicles	N/A	N/A
60	KPD Ltd.	Greenhills Road, Walkinstown,	Dublin	WPR 046	MRF	N/A	N/A

D3 – Waste Collection Permits

Waste Management (Collection Permit) Regulations, 2001					
Register Ref. No.	**Applicant**	**Principal Place of Business**	**Appl Date**	**Decision**	**Decision Date**
CP D001/1	Padraig Thornton Waste Disposal Ltd.,	Thorntons Recycling Centre, Kileen Road, Ballyfermot, Dublin 10.	30/11/2001	Grant	09/12/2002
CP D002/1	Transafe Ltd.,	6a Railway Rd, Dalkey, Co. Dublin.	25/10/2001	Grant	08/11/2002
CP D003/1	Nurendale Ltd.,	Rathdrinagh, Beauparc, Co. Meath.	08/11/2002	Grant	13/12/2002
CP D004/1	Fingal D & D Ltd.,	Unit 1, IDA Industrial Estate, Balbriggan, Co. Dublin.	08/11/2002	Grant	08/11/2002
CP D005/1	Diamond Business Services Ltd., T/A Irish Security Shredding,	Newburn, Kilsallaghan, Co. Dublin.	08/11/2001	Grant	06/12/2002
CP D006/1	Templeogue Waste Disposal, T/A Quick-Move Waste,	Cruagh Lane, Rockbrook, Rathfarnham, Dublin 16.	15/11/2001	Grant	08/11/2002
CP D007/1	Munster Metal Co. Ltd.,	Clondrinagh, Ennis Road, Limerick.	16/11/2001	Grant	30/04/2002
CP D008/1	Galway Metal Co. Ltd.,	Oranmore, Co. Galway.	15/11/2001	Grant	08/11/2002
CP D009/1	Greenstar Recycling Ltd.,	Unit 6, Ballyogan Business Park, Ballyogan Road, Sandyford, Dublin 18.	14/11/2001	Grant	13/12/2002
CP D010/1	John W. Hannay & Co. Ltd.,	Environment Park, 347, Bannow Road, Cabra, Dublin 7.	21/11/2001	Grant	30/04/2002
CP D011/1	Raymond Coleman, T/A Target Skips Ltd.,	23 Cian Lee, Swords, Co. Dublin.	21/11/2001	Grant	30/04/2002
CP D012/1	Patrick Tinnelly, T/A John Tinnelly & Sons,	Newtownclougheague, Newry, Co. Down.	22/11/2001	Grant	30/04/2002
CP D013/1	Carno International Ltd.,	Barnhill, Clonsilla, Dublin 15.	22/11/2001	Grant	20/11/2002
CP D014/1	David Cassidy,	Grangebellew Cross, Dunleer, Co. Louth.	22/11/2001	Grant	18/12/2002
CP D015/1	Shanowen Plant Hire Ltd.,	Bishopstown, The Ward, Co. Dublin.	23/11/2001	Grant	30/04/2002
CP D016/1	Liam Timoney & Co. Ltd.,	73 Cromwellfort Road, Walkinstown, Dublin 12.	23/11/2001	Grant	30/04/2002
CP D017/1	Midland Waste Disposal Co.,	Proudstown Road, Navan, Co. Meath.	23/11/2001	Grant	30/04/2002
CP D018/1	B.P. McKeefry (Ir.) Ltd.,	Off Tolka Quay Road, Dublin 1.	26/11/2001	Grant	13/12/2002
CP D019/1	John O' Keeffe, Crossmore Transport Ltd.,	Carrigdowane Upper, Rockmills, Kildorrery, Co. Cork.	26/11/2001	Grant	09/12/2002
CP D020/1	Michael Brogan & Sons Ltd.,	Branganstown, Kilcock, Co. Kildare.	26/11/2001	Grant	08/11/2002
CP D021/1	Marrakesh Ltd.,	Kilmurray, Bray, Co. Wicklow.	27/11/2001	Grant	08/11/2002
CP D022/1	Macwaste Ltd.,	Warrenpoint, Co. Down.	27/11/2001	Grant	20/11/2002
CP D023/1	South Coast Transport Ltd.,	Milltown Industrial Estate, Corrin, Fermoy, Co. Cork.	27/11/2001	Grant	22/12/2002
CP D024/1	Arklow Waste Disposal Ltd.,	Tinnakilly, Aughrim, Co. Wicklow.	27/11/2001	Grant	30/04/2002
CP D025/1	Crowley Services Dublin Ltd., T/A Dyno- Rod,	11 York Road, Ringsend, Dublin 4.	27/11/2001	Grant	30/04/2002
CP D026/1	Lawlor Bros. (Waste Disposal) Ltd.,	Unit 28, JFK Ind. Estate, Naas Road, Dublin 12.	27/11/2001	Grant	30/4/2002
CP D027/1	Denis Dineen, T/A Cape Industrial Services Ltd.,	Unit 44, Cookstown Industrial Estate, Tallaght, Dublin 24.	28/11/2001	Grant	08/11/2002
CP D028/1	Richard Lucid,	Greenogue, Kilsallaghan, Co. Meath.	28/11/2001	Grant	30/04/2002

Register Ref. No.	Applicant	Principal Place of Business	Appl Date	Decision	Decision Date
CP D030/1	Burns Waste Recycling Ltd.,	The Old Forge, Saggart, Co. Dublin.	27/11/2001	Grant	30/04/2002
CP D031/1	Dean Waste Co. Ltd.,	3 Broomhill Business Complex, Broomhill Road, Tallaght, Dublin 24.	27/11/2001	Grant	01/09/2003
CP D033/1	Shannon Environmental Services Ltd.,	Smithstown Industrial Estate, Shannon, Co. Clare.	28/11/2001	Grant	13/12/2002
CP D034/1	Francis O'Reilly,	St. Philomena's, Jamestown Road, Finglas, Dublin 11.	28/11/2001	Grant	18/12/2002
CP D035/1	Gerard O'Connor,	9A Fitzwilliam Street, Ringsend, Dublin 4.	28/11/2001	Grant	18/12/2002
CP D036/1	Trim Transport Ltd.,	Tolka Quay, Dublin 1.	28/11/2001	Grant	27/11/2002
CP D037/1	McGowan Civil Engineering Ltd.,	Newmarket Street, Kells, Co. Meath.	28/11/2001	Grant	22/11/2002
CP D038/1	Connaught Timber Products Ltd.,	Tynagh, Loughrea, Co. Galway	28/11/2001	Grant	30/04/2002
CP D039/1	R & M Willich Ind. Services Ltd.,	15 Crag Terrace, Clondalkin Industrial Estate, Dublin 22.	28/11/2001	Grant	31/10/2002
CP D040/1	Thomas Dawson,	Unit 4A Eklad Park, Malahide Road Industrial Park, Dublin 5.	29/11/2001	Grant	31/10/2002
CP D041/1	Blessington Plant Hire Ltd.,	Crosschapel, Blessington, Co. Wicklow.	28/11/2001	Grant	26/11/2002
CP D042/1	Recyclenet Ireland Ltd.,	Rathangan, Co. Kildare.	29/11/2001	Grant	30/04/2002
CP D043/1	John G. McLoughlin,	Westbridge Haulage, 47 Cherry Garth, River Valley, Swords, Co. Dublin.	29/11/2002	Grant	31/03/2004
CP D044/1	Murphy Concrete Manufacturing Ltd.,	6 Hampton Place, Balbriggan, Co. Dublin	29/11/2001	Grant	30/04/2002
CP D045/1	Harry Murphy,	Longhouse, Ballymore Eustace, Co. Kildare.	29/11/2001	Grant	20/02/2002
CP D046/1	Thomas J. Graham,	Hazelwood, Curryhills, Prosperous, Co. Kildare.	29/11/2001	Grant	18/11/2002
CP D047/1	Hegarty Metals Processors Ltd.,	Ballysimon Road, Limerick.	29/11/2001	Grant	18/12/2002
CP D048/1	Murphy Transport Ltd.,	Maryfield, Ballinlough Road, Cork.	29/11/2001	Grant	26/11/2002
CP D049/1	Summerhill Transport Ltd.,	Clonmahon, Summerhill, Co. Meath.	29/11/2001	Grant	31/10/2002
CP D050/1	Jerry Ryan,	Stringfield, Ballywilliam, Enniscorthy, Co. Wexford.	29/11/2001	Grant	31/10/2002
CP D051/1	John Mullen,	Williamstown, Carbury, Co. Kildare.	29/11/2001	Grant	31/10/2002
CP D052/1	Chieftain Environmental Services Ltd.,	Unit 10, Balbriggan Business Park, Balbriggan, Co. Dublin.	29/11/2001	Grant	31/10/2002
CP D053/1	Indaver Ireland,	4 Haddington Terrace, Dun Laoghaire, Co. Dublin.	29/11/2001	Grant	20/02/2002
CP D054/1	Guardian Environmental Services Ltd.,	Unit 61, Cookstown Industrial Estate, Tallaght, Dublin 24.	29/11/2001	Grant	30/04/2002
CP D055/1	Minchem Environmental Services Ltd.,	4 Haddington Terrace, Dun Laoghaire, Co. Dublin	29/11/2001	Grant	20/12/2002
CP D056/1	Cyril Mc Guinness,	Whitestown Road, Rush, Co. Dublin.	29/11/2001	Grant	13/05/2003
CP D057/1	Height for Hire (Allied Services) Ltd.,	North Rd., Killineer, Drogheda, Co. Louth	29/11/2001	Grant	30/04/2002
CP D058/1	William Maguire,	Cappagh, Enfield, Co. Meath.	29/11/2001	Grant	31/10/2002
CP D059/1	Bailey Waste Recycling Ltd.,	Rosemount Business Park, Ballycoolin Road, Blanchardstown, Dublin 15.	29/11/2001	Grant	30/04/2002
CP D060/1	National Document Management Group Ltd., Glenville Industrial Est.,	26 Foster's Avenue, Mount Merrion, Co. Dublin.	29/11/2001	Grant	30/04/2002
CP D061/1	Tank Trans Ltd.,	Promenade Road, Tolka Quay, Dublin 3.	29/11/2001	Grant	27/11/2002
CP D062/1	Gerald Monahan,	Kingswood Cross, Naas Rd., Clondalkin, Dublin 22.	29/11/2001	Grant	30/04/2002

Register Ref. No.	Applicant	Principal Place of Business	Appl Date	Decision	Decision Date
CP D064/1	Cummins Metal Recycling Ltd.,	J.F.K. Drive, Naas Rd., Dublin 12.	29/11/2001	Grant	29/11/2002
CP D066/1	Frank Hevey,	Molerick, Hill o Down, Enfield, Co. Meath.	29/11/2001	Grant	31/10/2002
CP D067/1	Cavan Waste Disposal Ltd.,	Killygarry Industrial Park, Cavan Town.	29/11/2001	Grant	30/04/2002
CP D068/1	Longview Ltd.,	Unit3, No. 78 Walkinstown Road, Dublin 12.	29/11/2001	Grant	26/11/2002
CP D069/1	William Miley Ltd.,	Baltyboys, Blessington, Co. Wicklow.	29/11/2001	Grant	18/11/2002
CP D070/1	Peter James Stones,	353A Old Greenfield, Maynooth, Co. Kildare.	29/11/2001	Grant	30/04/2002
CP D071/1	Safeway Contracting Ltd.,	Brandon, Tralee, Co. Kerry.	29/11/2001	Grant	18/11/2002
CP D072/1	Westside Skip Hire & Recycling Centre,	Dublin Rd., Maynooth, Co. Kildare.	29/11/2001	Grant	30/04/2002
CP D073/1	Oxigen Environmental Ltd. & Wheelbin Services Ltd.,	3 Williamson's Place, Dundalk, Co. Louth.	29/11/2001	Grant	30/04/2002
CP D074/1	Baldungan Enterprises Ltd.,	Baldungan, Lusk, Co. Dublin.	29/11/2001	Grant	31/10/2002
CP D075/1	International Plant Hire Ltd.,	Unit 1, St. Anne's, Cloghran, Co. Dublin.	29/11/2001	Grant	29/11/2002
CP D076/1	Conservation Technology Ltd.,	Davitt Rd., Dublin 12.	29/11/2001	Grant	31/10/2002
CP D077/1	Gerard Tuite Plant Hire,	Dole Road, Garristown, Co. Dublin.	30/11/2001	Grant	30/04/2002
CP D078/1	Michael Corcoran,	Zone A, Mullingar Business Park, Mullingar, Co. Westmeath.	30/11/2001	Grant	06/12/2002
CP D079/1	James P. Ryan & Sons Ltd.,	Bond Drive Extension, Dublin Port, Dublin 3.	30/11/2001	Grant	20/12/2002
CP D080/1	Rabbitte Catering Ireland Ltd.,	Mabestown, The Ward, Co. Dublin.	30/11/2001	Grant	13/12/2002
CP D081/1	Irish Lamp Recycling Co. Ltd.,	Kilkenny Road, Athy, Co. Kildare.	30/11/2001	Grant	06/12/2002
CP D082/1	Meenagh Plant Hire Ltd.,	114 Forest Hills, Rathcoole, Co. Dublin.	30/11/2001	Grant	30/04/2002
CP D083/1	Safety-Kleen Ireland,	Unit 5, Airton Road, Tallaght, Dublin 24.	30/11/2001	Grant	18/12/2002
CP D084/1	Eco- Safe Systems Ltd.,	Unit 1A, Allied Industrial Estate, Kylemore Industrial Estate, Dublin 10.	30/11/2001	Grant	31/10/2002
CP D085/1	Lehane Environmental & Ind Services Ltd.,	Farnanes, Co. Cork.	30/11/2001	Grant	18/12/2002
CP D086/1	Action Drain Ltd.,	Old Lucan Road, Palmerstown, Dublin 20.	30/11/2001	Grant	30/4/2002
CP D087/1	Anthony Patton Ltd.,	Coultry, Cloghran, Co. Dublin .	30/11/2001	Grant	30/04/2002
CP D088/1	Cara Environmental Technology Ltd.,	Parkview House, Beech Hill, Clonskeagh, Dublin 4.	30/11/2001	Grant	06/12/2002
CP D089/1	IPODEC Ireland Ltd.,	Ballymount Cross, Tallaght, Dublin 24.	30/11/2001	Grant	30/04/2002
CP D090/1	Johnston Haulage Co. Ltd.,	Blackchurch, Rathcoole, Co. Dublin.	30/11/2001	Grant	22/12/2002
CP D091/1	Digby Sand and Gravel Co. Ltd.,	Digby Bridge, Sallins, Co. Kildare.	30/11/2001	Grant	11/12/2002
CP D092/1	Westmeath Carriers Ltd.,	Churchtown, Ballinea, Mullingar, Co. Westmeath.	30/11/2001	Grant	31/10/2002
CP D093/1	Alldocs Ltd.,	Rolarple House, Rosemount Business Park, Ballycoolin Road, Dublin 11.	30/11/2001	Grant	20/12/2002
CP D094/1	PJ Kearney,	Lugglass, Hollywood, Co. Wicklow.	30/11/2001	Grant	18/12/2002
CP D095/1	Greenguard Recycling Ltd.,	Unit 2B, Kylemore Industrial Estate, Kileen Road, Dublin 10.	30/11/2001	Grant	31/10/2002
CP D096/1	George Fellow Enterprises Ltd.,	16 Sion Hill Road, Drumcondra, Dublin 9.	30/11/2001	Grant	30/04/2002
CP D097/1	PJ Gavin & Co. Ltd.,	Blackhill, Kill, Co. Kildare.	30/11/2001	Grant	26/11/2002
CP D098/1	J.C. Fleming & Son.,	Primatestown, Ashbourne, Co. Meath.	30/11/2001	Grant	31/10/2002
CP D100/1	Pallet Supplies Ltd.,	Mountain Lodge, Cootehill, Co. Cavan.	30/11/2001	Grant	09/12/2002

Register Ref. No.	Applicant	Principal Place of Business	Appl Date	Decision	Decision Date
CP D101/1	Clyde Plant Ltd.,	Ballycorus, Kilternan, Co. Dublin.	30/11/2001	Grant	20/12/2002
CP D102/1	Clinical Collections Ltd.,	4 Railway Terrace, Dublin Road, Drogheda, Co. Louth.	30/11/2001	Grant	06/12/2002
CP D103/1	Brownestone Plant Hire,	42 Annadale Crescent, Drumcondra, Dublin 9.	30/11/2001	Grant	30/04/2002
CP D104/1	Kevin Ducie Ltd.,	Stonehaven, Ashbourne, Co. Meath.	30/11/2001	Grant	18/12/2002
CP D105/1	McHale Plant Hire Ltd.,	Unit H, Merrywell Business Park, Lower Ballymount Road, Dublin 12.	30/11/2001	Grant	30/4/2002
CP D106/1	Novian International Limited,	The Mews, 37 Dublin Street, Carlow.	30/11/2001	Grant	29/11/2002
CP D107/1	Hegarty Demolition Ltd.,	17 Main Street, Rathfarnham, Dublin 14.	30/11/2001	Grant	20/12/2002
CP D108/1	Lyons Excavations Ltd.,	St. Mary's Road, Newcastle West, Co. Limerick.	30/11/2001	Grant	31/10/2002
CP D109/1	J. O'Donovan,	Coolowen, Blarney, Co. Cork.	30/11/2001	Grant	18/12/2002
CP D110/1	Celtic Forwarding Ltd.,	14 Hawkins Street, Dublin 2.	30/11/2001	Grant	18/12/2002
CP D111/1	Returnbatt Ltd.,	Unit 35, Kildare Enterprise Centre, Melitta Road, Kildare.	30/11/2001	Grant	08/11/2002
CP D112/1	Howley Civil Engineering Ltd.,	Kilbarry House, Dublin Hill, Cork.	30/11/2001	Grant	26/11/2002
CP D113/1	Dan-One Excavations Ltd.,	Ballycomclone, Gorey, Co. Wexford.	30/11/2001	Grant	30/04/2002
CP D115/1	Guy Recycling,	33 Tonnagh Road, Armagh, Northern Ireland.	30/11/2001	Grant	08/11/2002
CP D116/1	DGD Papers Ltd.,	Camheen, Mungret, Co. Limerick.	30/11/2001	Grant	08/11/2002
CP D117/1	Hubert Maxwell Haulage Ltd.,	5 Parklands Place, Maynooth, Co. Kildare.	30/11/2001	Grant	11/12/2002
CP D118/1	Datastroy Ltd.,	Enterprise Centre, Summerhill, Co. Meath.	30/11/2001	Grant	08/11/2002
CP D119/1	Hammond Lane Metal Company Ltd.,	Head Office, Pigeon House Road, Dublin 4.	30/11/2001	Grant	08/11/2002
CP D122/1	Thorndale Environmental Recycling Ltd.,	77 Clooney Road, Campsie, Derry, BT47 3PA, Northern Ireland.	30/11/2001	Grant	30/04/2002
CP D123/1	Bislet Transport Ltd.,	39 Forest Crescent, Rivervalley, Swords, Co. Dublin.	30/11/2001	Grant	30/04/2002
CP D124/1	Westwood International Transport Ltd.,	Palslickstown, Navan Road, Mullhuddart, Dublin 15.	30/11/2001	Grant	13/12/2002
CP D125/1	Huxley Haulage Ltd.,	2 Huxley Crescent, Cork Street, Dublin 8.	30/11/2001	Grant	30/04/2002
CP D126/1	John Watson,	"Housefield", Oldtown, Co. Dublin.	30/11/2001	Grant	20/02/2002
CP D127/1	Gerard Conroy,	21 Colthurst Way, Huntington Glen, Lucan, Co. Dublin.	30/11/2001	Grant	08/11/2002
CP D128/1	Smurfit Recycling Ltd.,	Ballymount Road, Walkinstown, Dublin 12.	30/11/2001	Grant	30/04/2002
CP D130/1	Stephen Horan,	Augherskea, Drumree, Co. Meath.	30/11/2001	Grant	20/02/2002
CP D131/1	Ark Recycling Ltd.,	Newtown Farm, Moone, Co. Kildare.	30/11/2001	Grant	18/12/2002
CP D132/1	Advanced Environmental Solutions (Ireland) Ltd.,	Kilbride, Portarlington, Co. Laois.	30/11/2001	Grant	18/12/2002
CP D133/1	Moyglare Transport Ltd.,	Moyglare House, Ballycannon, Kilcock, Co. Kildare.	30/11/2001	Grant	08/11/2002
CP D134/1	KTK Sand and Gravel Ltd.,	Brownstown/Carnalway Kilcullen, Co. Kildare	30/11/2001	Grant	30/04/2002
CP D135/1	Conroy Recycling Company,	Killdallon, Mullingar, Co. Westmeath.	30/11/2001	Grant	08/11/2002
CP D136/1	Allied Waste,	Oliver Plunkett St., Oldcastle, Co. Meath.	30/11/2001	Grant	18/12/2002
CP D137/1	Broadfield Sand Co. Ltd.,	Craddockstown West, Broadfield West, Co. Kildare.	30/11/2001	Grant	08/11/2002

Register Ref. No.	Applicant	Principal Place of Business	Appl Date	Decision	Decision Date
CP D138/1	Barnmore Demolition Civil Engineering Ltd.,	21(A) Baldoyle Industrial Estate, Baldoyle, Dublin 13.	30/11/2001	Grant	08/11/2002
CP D139/1	Eurowaste Recycling Ltd.,	Unit 6, Sandyford Ind. Est., 45 Furze Road, Dublin 18.	30/11/2001	Grant	08/11/2002
CP D140/1	A1 Metal Recycling Ltd.,	Acragar, Mountmellick, Co. Laois.	30/11/2001	Grant	08/11/2002
CP D141/1	Tommy Healy,	Tomdarragh, Roundwood, Co. Wicklow.	24/06/2004	Grant	06/01/2004
CP D142/1	Stephen Cullen Transport and Storage Ltd.,	44A Moyle Road, Dublin Industrial Estate, Dublin 11.	30/11/2001	Grant	08/11/2002
CP D143/1	Specialised Metals Ltd.,	Unit 28, Finglas Business Park, Finglas, Dublin 11.	30/11/2001	Grant	08/11/2002
CP D144/1	G&T McGovern Ltd.,	9 & 12 Prices Lane & rear 31 Ranelagh Rd., Ranelagh, Dublin 6.	30/11/2001	Grant	30/04/2002
CP D145/1	Blessington Sand & Gravel Ltd.,	Forest View, Blessington, Co. Wicklow.	30/11/2001	Grant	20/12/2002
CP D146/1	Woodside Haulage Holdings Ltd.,	G1 Carrickfergus Road, Ballynure, Ballyclare, Co. Antrim.	30/11/2001	Grant	18/12/2002
CP D147/1	Sullivan Construction,	43 Glenn na Rí Grove, Monrean, Naas, Co. Kildare	30/11/2001	Grant	30/04/2002
CP D148/1	Adrian Byrne,	The Grange, Lucan, Co. Kildare.	30/11/2001	Grant	20/11/2002
CP D149/1	National Waste Management Ltd.,	Unit 41, Cookstown Industrial Estate, Tallaght, Dublin 24.	30/11/2001	Grant	13/12/2002
CP D150/1	MacAnulty Specialist Underground Services Ltd.,	J.F.K. Ind. Estate, Naas Road, Dublin 12.	30/11/2001	Grant	20/12/2002
CP D151/1	Sterile Technologies Ireland (STI) Ltd.,	Unit 430 Beech Road, Western Industrial Estate, Dublin 12.	30/11/2001	Grant	18/11/2002
CP D152/1	Michael Kavanagh,	12 Whitethorn Grove, Kill, Co. Kildare.	30/11/2001	Grant	20/02/2002
CP D153/1	Martin Services (Industrial) Ltd.,	Unit 10-11, Bluebell Business Park, Old Naas Road, Bluebell, Dublin.	30/11/2001	Grant	30/04/2002
CP D154/1	Midland Scrap Metal Company Ltd.,	Harbour Street, Mountmellick, Co. Laois.	30/11/2001	Grant	18/11/2002
CP D155/1	Irish Metal Refineries Ltd.,	Cappincur Industrial Estate, Tullamore, Co. Offaly.	30/11/2001	Grant	18/11/2002
CP D158/1	Pentony Waste Services Ltd.	1 Castleview Crescent, Swords, Co. Dublin.	30/11/2001	Grant	30/04/2002
CP D159/1	Cannon Hygiene Ireland Ltd.,	Unit 2, North Richmond Industrial Estate, North Richmond Street, Dublin 1.	30/11/2001	Grant	11/12/2002
CP D160/1	Atlas Environmental Ireland Ltd.,	Clonminam Industrial Estate, Portlaoise, Co. Laois.	30/11/2001	Grant	20/11/2002
CP D161/1	JW Carnegie & Co. Ltd.,	Dillonstown, Blessington, Co. Kildare.	30/11/2001	Grant	08/11/2002
CP D162/1	Sean Guckian,	441 Orwell Park, Templeogue, Dublin 6W.	30/11/2001	Grant	20/12/2002
CP D163/1	Pollution & Waste Services (PWS) Ltd.,	Unit 107 Baldoyle Industrial Estate, Baldoyle, Dublin 13.	30/11/2001	Grant	26/11/2002
CP D165/1	Greyhound Waste Disposal Co. Ltd.,	Knockmitten Lane, Western Industrial Estate, Dublin 12.	03/12/2001	Grant	30/04/2002
CP D166/1	Reduce, Reuse & Recycle Ltd.,	Knockmitten Lane, Western Industrial Estate, Dublin 12.	03/12/2001	Grant	30/04/2002
CP D168/1	Cork Metal Company Ltd.,	Dublin Hill, Cork	03/12/2001	Grant	30/04/2002
CP D169/1	Demolition Master Ltd.,	Greenacres House, Firhouse Road, Dublin 12.	03/12/2001	Grant	20/12/2002
CP D170/1	Noble Waste Disposal Ltd.,	Fassaroe, Bray, Co. Wicklow	03/12/2001	Grant	11/08/2002
CP D171/1	Pat Nolan Truck and Plant Hire,	Ballybawn, Kilmacanogue, Co. Wicklow.	04/12/2001	Grant	20/11/2002

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CP D173/1	Derek Byrne Services,	6 Assumpta Park, Shankill, Co. Dublin.	04/12/2001	Grant	18/11/2002
CP D174/1	Patrick Nevin,	Dunboyne, Co. Meath.	06/12/2001	Grant	30/04/2002
CP D175/1	Fran Coe Haulage & Site Clearance Ltd.,	67 Belgard Heights, Tallaght, Dublin 24.	06/12/2001	Grant	18/11/2002
CP D176/1	Murphy International Ltd.,	Great Connell, Newbridge, Co. Kildare.	06/12/2001	Grant	30/04/2002
CP D177/1	Nicholas Higgins,	134 Richmond Road, Fairview, Dublin 3.	07/12/2001	Grant	18/11/2002
CP D179/1	Harry Watters,	142 Delwood Close, Castleknock, Dublin 15.	07/12/2001	Grant	20/02/2002
CP D180/1	Larry Dolan,	Unit 5 Williamsville, St. Margaret's Road, Dublin 11.	07/12/2001	Grant	18/12/2002
CP D181/1	John Carr,	Moatfield, Kill, Co. Kildare.	10/12/2001	Grant	22/12/2002
CP D182/1	Declan McKenna Ltd.,	Lowtown, Robertstown, Naas, Co. Kildare.	11/12/2001	Grant	18/11/2002
CP D183/1	KMK Metals Recycling Ltd.,	Cappincur Ind. Est., Daingean Road, Tullamore, Co. Offaly.	10/12/2001	Grant	18/11/2002
CP D184/1	Sean Flynn,	42 Shanowen Road, Santry, Dublin 9.	10/12/2001	Grant	30/04/2002
CP D185/1	Eamon Mallon Plant Hire,	130 Bunting Rd, Walkinstown, Dublin 12.	11/12/2001	Grant	18/11/2002
CP D186/1	Patrick Mongey,	2 Seatown Villas, Swords, Co. Dublin.	11/12/2001	Grant	20/02/2002
CP D187/1	Martin Trant,	32 Coolamber Drive, Rathcoole, Co. Dublin.	11/12/2001	Grant	20/12/2002
CP D188/1	James Fitzpatrick & Son Ltd.,	Bishopwood, The Ward, Co. Dublin.	12/12/2001	Grant	20/12/2002
CP D189/1	Brendan Cribben,	Agher, Rathmoylan, Co. Meath.	05/12/2001	Grant	18/11/2002
CP D190/1	Piercetown Plant Ltd.,	Dunboyne, Co. Meath.	14/12/2001	Grant	30/04/2002
CP D191/1	Euro Plant Hire Ltd.	16 Boroimhe Oaks, Swords, Co. Dublin	17/01/2003	Grant	14/04/2003
CP D192/1	O.C.B. Plant Hire Ltd.,	New Road, Kilcoole, Co. Wicklow.	14/12/2001	Grant	13/12/2002
CP D193/1	M Stones Ltd.,	Ballyburkey Fahy, Tullamore, Co. Offaly.	14/12/2001	Grant	30/04/2002
CP D194/1	Grall Contractors,	66 Maelduin, Dunshaughlin, Co. Meath.	13/12/2001	Grant	18/11/2002
CP D195/1	Tracey Enterprises Ltd.,	St. Michaels, Dundrum, Dublin.	13/12/2001	Grant	30/04/2002
CP D196/1	Patrick Reilly,	3A Taylors Grange, Rathfarnham, Dublin 16.	13/12/2001	Grant	13/12/2002
CP D197/1	Judge Haulage,	Lowtown, Robertstown, Naas, Co. Kildare.	13/12/2001	Grant	15/04/2003
CP D198/1	Blessington Contractors (Seamus Phibbs),	Hempstown, Blessington, Co. Wicklow.	13/12/2001	Grant	13/12/2002
CP D199/1	Tom McNicholas Transport,	65 Upper Rathmines Road, Dublin 6.	12/12/2001	Grant	20/02/2002
CP D200/1	Sorundon Ltd	520 Beech Road, Western Industrial Estate, Naas Road, Dublin 12.	17/12/2001	Grant	18/12/2002
CP D201/1	Kevin Devlin Transport Ltd.,	Woodstock, Kilcoole, Co. Wicklow.	17/12/2001	Grant	11/12/2002
CP D202/1	Aer Rianta c.p.t.,	Dublin Airport, Co. Dublin.	19/12/2000	Grant	20/12/2002
CP D204/1	Tipper Services Ltd.,	Thornfield, Mount Seskin Road, Jobstown, Dublin 24.	20/12/2001	Grant	13/12/2002
CP D205/1	Colland Trading Company Ltd.,	Naas Road, Kilcullen, Co. Kildare.	20/12/2001	Grant	20/11/2002
CP D206/1	N & C Enterprises Ltd.,	Blackhill, Kill, Co. Kildare.	20/12/2001	Grant	20/12/2002
CP D207/1	Patrick Devoy,	The Cottage, Irishtown, Lusk, Co. Dublin.	21/12/2001	Grant	20/11/2002
CP D208/1	Fergus Butterly Plant Hire,	Balleally, Lusk, Co. Dublin.	21/12/2001	Grant	21/11/2002

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CP D210/2	A. & C. Fay Haulage Ltd.,	21 The Court, Mulhuddart Woods, Dublin 15.	01/03/2002	Grant	20/11/2002
CP D211/2	Joe Cummins Ltd.,	1 Kileden Lawns, Edenderry, Co. Offaly.	01/03/2002	Grant	26/11/2002
CP D212/2	C.L.G. Builders Ltd.,	Red Cow Business Park, Robinhood Road, Clondalkin, Dublin 22.	01/03/2002	Grant	20/11/2002
CP D213/2	Shannon Valley Plant Hire Ltd.,	Unit 6, Glasnevin Business Centre, Ballybogan Road.	01/03/2002	Grant	20/11/2002
CP D214/2	Michael McCrory,	183 Broadmeadows, Swords, Co. Dublin.	01/07/2002	Grant	21/11/2002
CP D215/2	Kildorcet Ltd.,	6 Grosvenor Square, Rathmines, Dublin 6.	01/07/2002	Grant	12/11/2002
CP D216/2	Glassco Recycling,	Space 28 North Lotts, Dublin 1.	16/01/2002	Grant	21/11/2002
CP D218/2	John Foley,	Colfix Complex, Bluebell Ind. Estate, Dublin 12.	18/01/2002	Grant	13/12/2002
CP D219/2	Danny McGloin,	Baytown, Dunboyne, Co. Meath.	02/04/2002	Grant	20/11/2002
CP D220/2	Bernard McCaul	Brackenstown Rd., Swords, Co. Dublin	18/03/2003	Grant	03/06/2003
CP D221/2	David Rooney,	Ivy Cottage, Curragha, Ashbourne, Co. Meath.	02/07/2002	Grant	20/11/2002
CP D222/2	South Midland Construction,	Donmoy House, St. Margaret's Rd., Finglas, Dublin 11.	02/08/2002	Grant	06/12/2002
CP D224/2	Liam Slattery, t/a A Argus Skip Hire,	86 Taney Crescent, Dundrum, Dublin 14.	13/02/2002	Grant	18/02/2004
CP D226/2	JDM Plant Hire Ltd.	Drumlargan, Kilcock, Co. Meath.	19/02/2002	Grant	20/11/2002
CP D227/2	Ernest Pawley t/a Swords Waste,	6 Cianlea, Rathkeale Rd., Swords, Co. Dublin	19/02/2003	Grant	13/05/03
CP D228/2	Rilmount Developments Ltd.,	Brownsbarn, Baldonnel, Co. Dublin.	21/02/2002	Grant	18/12/2002
CP D229/2	David Kelleher,	1 Cathedral Lane, Kevin St., Dublin 8.	19/02/2002	Grant	03/03/2003
CP D231/2	Frank & Edmund Walsh,	Rockbrook, Rathfarnham, Dublin 16.	26/02/2002	Grant	26/11/2002
CP D232/2	Tougher's Oil Distributer's Ltd.,	Newhall, Naas, Co. Kildare.	03/07/2002	Grant	20/12/2002
CP D234/2	Michael Finlay	4 Moy View, Arbuckle Row, Ballina, Co. Mayo	28/03/2003	Grant	13/06/2003
CP D235/2	Gerry McCloskey (Irl) Ltd.,	Naisetra House, Old Naas Road, Dublin 12.	03/11/2002	Grant	11/12/2002
CP D237/2	Castle Contracts (Irl.) Ltd.,	8 Russell Court, Broad Rd., Monaghan Town.	22/03/2002	Grant	13/12/2002
CP D238/2	DL Transport T/A Linwal	28 Daletree Crescent, Ballycullen, Dublin 24.	25/03/2002	Grant	01/05/03
CP D239/2	Joseph & Gerard Hyland,	Birchwood, Rosenallis, Co. Laois.	28/03/2002	Grant	29/11/2002
CP D240/2	Agrilife Ltd.,	Lyre, Lismore, Co. Waterford.	04/04/2002	Grant	13/12/2002
CP D241/2	P.F. Dixon Plant Hire Ltd.,	Ballynaskea, Rathcore, Enfield, Co. Meath.	13/05/2002	Grant	29/11/2002
CP D242/2	Manning Brothers Contracts Ltd.,	Ballagh, Newtownforbes, Co. Longford.	05/03/2002	Grant	27/11/2002
CP D243/2	Recoverable Resources Co-Op Ltd.,	Unit 3, Hibernian Industrial Estate, Greenhills Road, Tallaght, Dublin 24.	05/02/2002	Grant	20/11/2002
CP D244/2	Allen Brogan,	Garadice, Kilcock, Co. Meath.	06/04/2002	Grant	11/12/2002
CP D245/2	Euroscource (Europe) Ltd.,	65 Bute Street, Falkirk, FK2 7DH, Scotland.	06/05/2002	Grant	18/12/2002
CP D246/2	Rentokil Initial Ltd.	47 Terenure Road East, Dublin 6	25/09/2003	Grant	16/09/03
CP D247/2	Patrick Mulligan,	Unit 2C Kylemore Ind. Estate, Ballyfermot, Dublin 10.	07/03/2002	Grant	27/11/2002
CP D248/2	All Away Waste	84E Pigeon House Rd., Dublin 4	04/07/2002	Grant	31/03/03
CP D250/2	Transgate t/a Connon Transport,	8 Lilmar House, Lilmar Ind Est, Santry, Dublin 9.	14/08/2002	Grant	27/05/03
CP D252/2	SITA Environmental Ltd.,	6 Ballyogan Business Park, Ballyogan Road, Sandyford, Dublin 19.	19/08/2002	Grant	28/03/2003

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CP D255/2	R & S Transport,	Donore Road, Caragh, Naas, Co. Kildare.	27/08/2002	Grant	17/02/2003
CP D256/2	Bartholomew O'Reilly & Son Ltd.,	Westcourt, Kellystown Road, Sandyford, Co. Dublin.	28/08/2002	Grant	18/02/2003
CP D257/2	Super-Drain Ltd.,	Unit 17, Palmerstown Shopping Centre, Palmerstown, Dublin 20	06/09/2002	Grant	06/01/2004
CP D258/2	Dubh Enterprises,	Clonshambo, Donadea, Naas, Co. Kildare.	09/10/2002	Grant	17/02/2003
CP D259/2	Barrowhouse Plant Hire,	Ballinree, Barrowhouse, Athy, Co. Kildare.	13/09/2002	Grant	07/03/2003
CP D260/2	Ballydonrea Transport,	44 Beechdale, Sea Rd., Kilcoole, Co. Wicklow.	25/09/2002	Grant	10/04/2003
CP D261/2	Padhraic Moneley Ltd.,	Kilsaran, Castlebellingham, Co. Louth	20/09/2002	Grant	14/03/2003
CP D262/2	McCarron Civil Engineering Ltd.,	Tullyallan, Drogheda, Co. Louth.	30/09/2002	Grant	28/03/2003
CP D264/2	Irish Pet Crematorium Ltd.,	Old Connaught Ave., Bray, Co. Wicklow.	12/11/2002	Grant	28/03/2003
CP D265/2	Walter Hendy,	Rathcore, Enfield, Co. Meath.	11/07/2002	Grant	27/11/2002
CP D266/2	Hempstown Stone Quarries Ltd.,	Rathmore, Naas, Co. Kildare.	10/01/2002	Grant	20/12/2002
CP D267/2	Schloetter (Ireland) Ltd.,	Newbridge Industrial Estate, Newbridge, Co. Kildare.	10/09/2002	Grant	18/02/2003
CP D268/3	Liam O'Keeffe T/A D-Oil	Oakview, Athy Rd., Carlow	08/01/2003	Grant	03/10/2003
CP D269/3	C Bond & Sons Ltd., T/A Bond Property Services Ltd./same as applicant	Unit 23, Cookstown Enterprise Park Tallaght Dublin 24	10/01/2003	Grant	10/03/2003
CP D270/3	Sierra Communications Ltd.,,/same as applicant	Knockmitten Lane, North New Nangor Road, Dublin 12.	16/01/2003	Grant	10/03/2003
CP D271/3	Bernard Watson Plant Hire Ltd.,/ same as applicant	Dermotstown, Naul, Co. Dublin.	20/01/2003	Grant	07/03/2003
CP D272/3	Andrew Fox Transport,	Newrath, Rathnew, Co. Wicklow.	23/01/2003	Grant	10/04/2003
CP D273/3	L.J. Watson Plant Hire,	6 The Paddocks, Carlton Court, Swords, Co. Dublin.	29/01/2003	Grant	22/04/2003
CP D274/3	Sean Taaffe Sand & Gravel, / same as applicant	Blacktrench, Naas, Co. Kildare.	10/09/2002	Grant	18/03/2003
CP D275/3	Gerard Devlin Haulage Ltd.,	72 Ardmore Park, Bray, Co. Wicklow.	29/01/2003	Grant	16/04/2003
CP D276/3	M & J Wallace Ltd.,	42 South William St., Dublin 2.	29/01/2003	Grant	16/04/2003
CP D277/3	Horizon Environmental Ltd.,	Collinstown Business Park, Cloughran, Co. Dublin.	31/01/2003	Grant	18/04/2003
CP D278/3	Micon Transport Ltd., / same as applicant	177 Moyville, Rathfarnham, Dublin 16	31/01/2003	Grant	28/04/2003
CP D279/3	McIntyre Haulage,	68 St. Patrick's Rd., Clondalkin, Dublin 22.	07/02/2003	Grant	25/04/2003
CP D280/3	Daragon Ltd.	23 Rivermeade Dr., St. Margaret's, Co. Dublin.	07/02/2003	Grant	01/05/2003
CP D281/3	Jerry Beades Concrete Ltd / same as applicant	162 Richmond Road, Fairview, Dublin 3.	06/02/2003	Grant	03/04/2003
CP D282/3	Rowen Plant Hire	3 The Green, Huntsfield, Dooradoyle, Co. Limerick	07/02/2003	Grant	25/04/2003
CP D283/3	Tinnelly International Transport Ltd.	Kilbroney Rd., Rostrevor, Co. Down.	11/02/2003	Grant	01/05/2003
CP D284/3	Aidan Wade t/a, Aidan Wade Transport, / same as applicant	Remount Farm, Lusk, Co. Dublin.	11/02/2003	Grant	29/04/2003
CP D285/3	Liam Ward t/a Pollard Plant Services, / same as applicant	Knockmant, The Downs, Mullingar, Co. West Meath.	12/02/2003	Grant	17/04/2003

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CP D286/3	Vernon O'Leary t/a Theon Developments	8 Wicklow Heights Court, Wicklow Town	11/02/2003	Grant	06/05/2003
CP D287/3	Eamonn Sheridan, / same as applicant	Ballyteague, Kilmeague, Naas, Co. Kildare.	13/02/2003	Grant	01/05/2003
CP D288/3	Trevor Byrne / same as applicant	Newtown, Kilcock, Co. Kildare.	13/02/2003	Grant	01/05/2003
CP D289/3	Fintan Mulchrone / same as applicant	Meadsbrook, Ashbourne, Co. Meath.	10/02/2003	Grant	17/04/2003
CP D290/3	Sherlock Builders Ltd., / same as applicant	Unit 2A, Eklad Park, Malahide Road Industrial Estate, Dublin 17.	12/02/2003	Grant	17/04/2003
CP D291/3	M.A.D. Cleaning Services	The Gate Lodge, Drumree, Co. Meath	14/02/2003	Grant	01/05/2003
CP D292/3	Damian Fitzsimons Transport, / same as applicant	Tara Garlow Cross, Navan, Co. Meath.	18/02/2003	Grant	28/04/2003
CP D293/3	Paul Wade Plant Hire / same as applicant	12 St. Catherine's Park, Rush, Co Dublin.	19/02/2003	Grant	12/05/2003
CP D294/3	Brendan Duffy Haulage,	Slievecorragh House, Hollywood, Co. Wicklow.	18/02/2003	Grant	12/05/2003
CP D295/3	Peter Doyle Haulage,	Solsboro, Enniscorthy, Co. Wexford	18/02/2003	Grant	06/05/2003
CP D296/3	H.J. Donohue Plant Hire,	Belgree, Mulhuddart, Dublin 15	14/02/2003	Grant	08/05/2003
CP D297/3	Malcolm J. Duggan Tipper Truck Hire,	1A Woodview Park, The Donaghies, Dublin 13	20/02/2003	Grant	08/05/2003
CP D298/3	Tipping Services,	66 Aulden Grange, Santry, Dublin 9.	26/02/2003	Grant	09/05/2003
CP D299/3	Joseph Flynn Haulage,	Blacklion House, Greystones, Co. Wicklow.	20/02/2003	Grant	15/04/2003
CP D300/3	Stuart Farrell,	46 St. Maurs Park, Rush, Co. Dublin.	26/02/2003	Grant	20/05/2003
CP D301/3	Kevin McDonald,	Ballindinas, Barntown, Co. Wexford.	21/02/2003	Grant	15/05/2003
CP D302/3	Reeves Haulage Ltd.,	Tullymilltown, Straffan, C. Kildare.	27/02/2003	Grant	15/05/2003
CP D303/3	M. McGuire Haulage Ltd.,	Ahenure, Callan, Co. Kilkenny.	22/02/2003	Grant	29/05/2003
CP D304/3	Gerard Stafford,	Berrillstown, Tara, Co. Meath.	27/02/2003	Grant	19/05/2003
CP D305/3	PM Plant Hire,	35 Ardcian Park, Swords, Co. Dublin.	03/03/2003	Grant	19/05/2003
CP D306/3	Eugene Melia / Black-haul Transport Ltd.,	Blackhall Balbriggan Co. Dublin.	24/02/2003	Grant	12/05/2003
CP D307/3	Hilliview Plant Hire / same as applicant	4 Kinghill, Duleek, Co. Meath.	05/05/2003	Grant	26/05/2003
CP D308/3	Pat Fallon Construction Ltd. / same as applicant	Unit 3 Newgrange Business Park, Donore Road, Drogheda, Co Louth.	27/02/2003	Grant	12/05/2003
CP D309/3	Liam Keneghan / Keneghan Plant Hire,	35 The Rise, Melrose Park, Kinsealy, Co. Dublin.	06/03/2003	Grant	12/05/2003
CP D310/3	Noel Kearney / same as applicant	Loughmogue, Dunlavin, Co. Wicklow.	07/03/2003	Grant	12/05/2003
CP D311/3	R.G.C. International,	129A Coolkeeran Rd., Ballymena, Co. Antrim.	27/02/2003	Grant	15/05/2003
CP D312/3	Patrick Coleman / same as applicant	61 Foxwood, Swords Co. Dublin.	07/03/2003	Grant	13/05/2003
CP D313/3	Patrick Byrne / same as applicant	Kilmolin, Enniskerry, Co. Wicklow.	06/03/2003	Grant	13/05/2003
CP D314/3	P.J. Coyne / same as applicant	Allenwood, Naas, Co. Kildare.	07/03/2003	Grant	13/05/2003
CP D315/3	Dublin Sanitary Disposals Ltd.,	15 Barrow Street, Dublin 4.	07/03/2003	Grant	23/05/2003
CP D316/3	David Lord / Darah Transport Ltd.,	Knockmark, Drumree, Co. Meath.	06/03/2003	Grant	13/05/2003
CP D317/3	Gerard St Lawrence / same as	Kilbush, Rush Co. Dublin.	13/03/2003	Grant	13/05/2003

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CP D318/3	Padraig Hand / Crumb Rubber Ireland Ltd.,	Dromiskin, Dundalk, Co. Louth.	07/02/2003	Grant	01/05/2003
CP D319/3	Gerry Kealy / T/A Tipping Services,	20 The Drive, Earlscourt, Kill, Co. Kildare.	05/03/2003	Grant	13/05/2003
CP D320/3	Joseph O Sullivan / Westside Construction Ltd.,	117 Lucan Heights Lucan Co. Dublin	14/03/2003	Grant	26/05/2003
CP D321/3	M & J's Recycling Services Ltd / same as applicant	Sandyhills, St Margaret's, Co. Dublin	18/03/2003	Grant	19/05/2003
CP D322/3	Paul Carroll / SST Ltd.,	The Green, Lusk, Co. Dublin.	12/03/2003	Grant	19/05/2003
CP D323/3	E.S.K. Ltd.,	The Lugg, Saggart, Co. Dublin	20/03/2003	Grant	02/06/2003
CP D324/3	Paul Dillon / same as applicant	18 Croghan View, Aughrim, Co Wicklow.	20/03/2003	Grant	24/05/2003
CP D325/3	Metro Recycling Ltd / The City Recycling Co	Dublin Office The rehab Building Kylemore Road Ballyfermot, Dublin 10	21/03/2003	Grant	26/05/2003
CP D326/3	Joe Fallon Plant Hire / same as applicant	Lisrevagh, Lanesboro, Co. Longford.	24/03/2003	Grant	26/05/2003
CP D327/3	Frank Joyce / same as applicant	72 Carrickhill Rise, Portmarnock, Co. Dublin.	25/03/2003	Grant	26/05/2003
CP D328/3	Patrick James Mc Donnell / same as applicant	O'Brians Lane, Oldtown, Co. Dublin.	18/03/2003	Grant	26/05/2003
CP D329/3	John Ryan / A.C.E.R. Ltd.,	Derravatagh, St Margaret's, Co. Dublin.	05/03/2003	Grant	26/05/2003
CP D330/3	William Browne Sand And Gravel / same as applicant	Thoran Road, Ballytore, Co. Kildare.	12/03/2003	Grant	26/05/2003
CP D331/3	Phoenix Rock Enterprises Ltd.,	Kilmurray, Trim. Co Meath.	24/3/03	Grant	10/06/2003
CP D332/3	Pac-on Waste and Recycling Ltd.,	Beat Centre, Stephenstown Ind Est, Balbriggan, Co. Dublin	01/04/2003	Grant	17/06/2003
CP D333/3	Neville Watson T/A Valley Plant,	Kilmurray, Trim, Co. Meath	01/04/2003	Grant	23/06/2003
CP D334/3	Laurence Stafford,	Agher, Summerhill, Co. Meath.	20/03/2003	Grant	27/05/2003
CP D335/3	Michael McHale,	Caurane Park, Castlebar, Co. Mayo.	02/04/2003	Grant	18/06/2003
CP D336/3	Mark Farrelly Plant Hire Ltd.,	15 Parkview, Swords, Co. Dublin.	03/04/2003	Grant	27/05/2003
CP D337/3	Westlink Recovery Services Ltd.,	Red Cow, Naas Rd., Dublin 22.	21/03/2003	Grant	27/05/2003
CP D338/3	Clonmel Enterprises Ltd.,	Unit D5, M7 Business Park, Newhall, Naas, Co. Kildare.	24/03/2003	Grant	27/05/2003
CP D340/3	Bernard Ward,	Laragh, Castleblaney, Co. Monaghan	27/03/2003	Grant	13/06/2003
CP D341/3	Shane Tully Plant Hire,	2 Castlefield Grove, Ballina, Co. Mayo	31/03/2003	Grant	20/06/2003
CP D342/3	Patrick Healy,	2 Old Court Farm, Tallaght, Dublin 24.	08/04/2003	Grant	27/06/2003
CP D343/3	Victor Poleon,	26 Redberry, Finnstown, Lucan, Co. Dublin.	08/04/2003	Grant	27/06/2003
CP D344/3	Leo McGarr,	Slieve Thoul, Brittas, Co. Dublin	08/04/2003	Grant	30/06/2003
CP D345/3	Citydig Construction Ltd.,	180D Markethill Road, Portadown, Co. Armagh BT62 3SL	03/04/2003	Grant	03/06/2003
CP D346/3	Fingal Transport Services Ltd.,	Cloghertown, Clonalvy, Co. Meath.	09/04/2003	Grant	25/06/2003
CP D347/3	Michael Connolly,	42 Easton Park, Leixlip, Co. Kildare.	11/04/2003	Grant	30/06/2003
CP D348/3	C.J.Sheeran Ltd.,	Shannon St., Mountrath, Co. Laois.	03/04/2003	Grant	19/06/2003
CP D349/3	Dunamore Plant Ltd.,	12A Beechdale Grove, Blessington, Co. Wicklow.	26/06/2003	Grant	26/06/2003
CP D350/3	Michael Ward,	12 Northern Close, Coolock, Dublin 17.	06/05/2003	Grant	22/07/2003
CP D351/3	K & N Network Services,	3-4 Crag Ave., Clondalkin, Dublin 22.	02/05/2003	Grant	30/06/2003

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CP D352/3	Leech Papers Ltd.,	Shamrock Place, North Strand, Dublin 1.	09/05/2003	Grant	09/07/2003
CP D353/3	Rehab Recycling,	Roslyn Park, Sandymount, Dublin 4.	14/05/2003	Grant	30/06/2003
CP D354/3	Fennell Plant Hire,	2 Clonrosse Drive, Ard-Na-Greine, Dublin 13.	19/05/2003	Grant	30/10/2003
CP D355/3	Smurfit Packaging,	Ballymount, Walkinstown, Dublin 12.	14/05/2003	Grant	30/10/2003
CP D356/3	D & R Plant Hire,	3 Glasanaon Park, Finglas, Dublin 11.	22/05/2003	Grant	30/10/2003
CP D357/3	Convery Transport,	138 Mayogall Rd., Portglenone, Co. Antrim.	21/05/2003	Grant	30/10/2003
CP D358/3	Goatstown Waste,	Unit 51 Cookstown Ind Est., Dublin 24.	22/05/2003	Grant	30/10/2003
CP D359/3	Haulage Demolition & Site Clearance,	52 Palmerstown Woods, Clondalkin, Dublin 22.	19/05/2003	Grant	30/10/2003
CP D361/3	Brian Caffrey International Ltd.,	Coolfore, Ashbourne, Co. Meath.	29/05/2003	Grant	07/08/2003
CP D363/3	M.F.S. Haulage,	Corner House, Gweedore, Co. Donegal.	03/06/2003	Grant	30/06/2003
CP D364/3	Con Counihan,	25 Riverdale, Leixlip, Co. Kildare.	10/06/2003	Grant	30/10/2003
CP D365/3	Michael McDonnell,	Station Rd., Lusk, Co. Dublin.	10/06/2003	Grant	30/10/2003
CP D366/3	Martin Bray,	Emlagh, Louth Village.	20/06/2003	Grant	30/10/2003
CP D367/3	P & O Lynch Plant Hire Ltd.,	Roodstown, Ardee, Co. Louth.	21/06/2003	Grant	15/07/2004
CP D370/3	Dermot O'Grady Haulage,	Ballinacarrow, Co. Sligo.	24/06/2003	Grant	30/10/2003
CP D371/3	Dublin Plant Services,	1 Southbank, Swords, Co. Dublin.	24/06/2003	Grant	30/10/2003
CP D372/3	Euromist Developments Ltd.,	Moyglare Rd., Maynooth, Co. Kildare.	24/06/2003	Grant	30/10/2003
CP D373/3	Jim McGuire Plant Hire, Lisheen Construction,	24 Boot Rd., Clondalkin, Dublin 22.	27/06/2003	Grant	30/10/2003
CP D374/3	Watson Plant Hire Ltd.,	Balamastone, New Rd., Donabate, Co. Dublin.	19/06/2003	Grant	30/10/2003
CP D375/3	Frank McGovern Construction,	Esker, Mullingar, Co. Westmeath.	02/07/2003	Grant	30/10/2003
CP D376/3	Liffey Developments Ltd.,	Greenogue Ind Est, Rathcoole, Co. Dublin.	26/06/2003	Grant	30/10/2003
CP D377/3	John Mc Knight Haulage	39 C Church View Dromiskin Dundalk Co Louth.	04/07/2001	Grant	30/10/2003
CP D378/3	Eco-Logic Solutions,	Unit 10, Alma Road Industrial Estate.	03/07/03	Grant	03/10/2003
CP D379/3	Mr Gerard Mc Hale,	Springvalley, Moynalvey, Summerhill, Co Meath.	04/07/2003	Grant	30/10/2003
CP D380/3	Tom Donohue,	Edmondstown Road, Rathfarnham, Dublin 16.	10/07/2003	Grant	30/10/2003
CP D381/3	Con Sheehan,	Frure Lissy-casey, Ennis, Co. Clare.	08/07/2003	Grant	30/10/2003
CP D382/3	O'Dowd Oil Management Services Ltd.,	18 Haddon Road, Clontarf, Dublin 3.	10/07/2003	Grant	17/10/2003
CP D383/3	Donal Walshe,	Kelshamore, Donard,Co. Wicklow.	09/07/2003	Grant	30/10/2003
CP D384/3	Techmatic Ltd.,	Unit 1 Balbriggan Business Park, Balbriggan, Co. Dublin.	03/06/03	Grant	14/10/2003
CP D385/3	Harry Doherty,	Connaughkinnego, Ballymagan, Buncrana, Co. Donegal.	14/07/2003	Grant	30/10/2003
CP D387/3	Gavin Kelly Site Developments Ltd.,	17A Maple Close, Avenue Road, Dundalk, Co. Louth.	11/07/03	Grant	30/10/2003
CP D388/3	Harrington Precast Concrete Ltd.,	73 Baldoyle Industrial Estate, Dublin 13.	10/07/2003	Grant	30/10/2003
CP D389/3	P.C. Transport,	80 Carrig Glen, Blessington, Co. Wicklow.	27/06/03	Grant	30/10/2003
CP D391/3	Liam Kearney Haulage,	Knockanarrigan, Donard, Co. Wicklow.	18/07/2003	Grant	30/10/2003
CP D392/3	Macroom Haulage Ltd.,	Dromree, Macroom, Co. Cork.	18/07/2003	Grant	30/10/2003

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CP D394/3	Brian Kearney,	Knockanarrigan, Glen Of Imaal, Co. Wicklow.	21/07/2003	Grant	30/10/2003
CP D395/3	Ward & Burke Construction Ltd.,	Tyrone, Kilcolgan, Co. Galway.	22/07/2003	Grant	30/01/2004
CP D396/3	Patrick Brennan,	3 Dillon Row, Maynooth, Co. Kildare.	25/07/2003	Grant	16/10/2003
CP D397/3	Clanwilliam Transport Ltd.,	55 Seafield Lawns, Dundalk, Co. Louth	25/07/2003	Grant	05/02/2004
CP D398/3	Sunflower Recycling,	Shamrock Terrace, North Strand, Dublin 1.	18/07/2003	Grant	09/10/2003
CP D399/3	Alan Costello Builders Ltd.,	370/372 Clontarf Road, Dublin 3.	28/07/2003	Grant	18/10/2003
CP D400/3	Codest Investments Ltd.,	International, 32 Blackpitts, Dublin 8.	28/07/2003	Grant	30/01/2004
CP D401/3	James Hutton,	38 Old Burrin, Burrin Road, Carlow.	30/07/2003	Grant	30/01/2004
CP D402/3	Mr Rodney Wilton,	Kiffeagh, Crosserlough, Co. Cavan.	18/07/2003	Grant	30/01/2004
CP D403/3	Cornelius Brennan,	7 Bohernabreena Cottages, Tallaght, Dublin 24.	05/08/2003	Grant	30/01/2004
CP D404/3	Mr. Andrew Thompson,	33 Greenogue Road, Dromore, BT25 IRG Northern Ireland.	04/05/03	Grant	30/01/2004
CP D405/3	Mr. David Mooney,	4 Moretown Grove, Swords, Co. Dublin.	08/08/2003	Grant	30/01/2004
CP D 406/3	Mike Gilligan Haulage,	Drumiskin, Bermingham, Tuam, Co. Galway.	08/08/2003	Grant	30/01/2004
CP D407/3	Mr. Anthony Keller t/a, Act Fast Removals,	39 South Earl Street, Apt. 15, Dublin 8.	28/03/2003	Grant	30/01/2004
CP D408/3	Mr. Michael Bergin,	65 Clonmacnoise Road, Crumlin, Dublin 12.	30/07/2003	Grant	30/01/2004
CP D409/3	Donal O' Shaughnessy,	Thomastown, Naas, Co. Kildare.	20/08/2003	Grant	30/01/2004
CP D410/3	David Rickard,	Twin Oaks, St. Catherine's Close, Rush, Co. Dublin.	16/07/2003	Grant	30/01/2004
CP D411/3	Vincent Waston, Waston Sand & Gravel,	Barrack Road, Lusk, Co. Dublin.	19/08/2003	Grant	30/01/2004
CP D412/3	Richard Smith Transport Ltd.,	Main Street, Newcastle, Co. Dublin.	08/04/03	Grant	30/01/2004
CP D413/3	Thomas Hughes,	Tourmakeady, Claremorris, Co. Mayo.	26/08/2003	Grant	30/01/2004
CP D414/3	Paul Bennett,	Kinsealy House, Kinsealy, Co. Dublin.	25/08/2003	Grant	30/01/2004
CP D415/3	Brian Mc Ardle,	Springhill, Tallanstown, Dundalk, Co. Louth.	21/08/2003	Grant	30/01/2004
CP D416/3	Paul Bradshaw,	12 Inglewood Crescent, Clonsilla, Dublin 15.	18/08/2003	Grant	30/01/2004
CP D 417/3	Aidan C. Lacey Recycling,	Aidan C. Lacey Recycling, Clonard Road, Balbriggan, Co. Dublin.	27/08/2003	Grant	30/01/2004
CP D419/3	Irish Waste Services Ltd.,	116- 120 Duncrue Street, Belfast, N Ireland, BT3 9AR.	02/09/2003	Grant	30/01/2004
CP D420/3	D Reilly & Sons,	D Reilly & Sons, Kilmurray, Trim, Co. Meath.	04/09/2003	Grant	30/01/2004
CP D421/3	Natural World Products Ltd.,	55 Cargaclougher Road, Keady, Co Armagh BT60 3RA.	09/09/2003	Grant	30/01/2004
CP D422/3	C + M Construction Ltd.,	C + M Construction Ltd, Noel Brennan House, Castle Street. Ashbourne. Co. Meath.	09/02/2003	Grant	30/01/2004
CP D423/3	William Tracey + Sons Ltd.,	William Tracey + Sons Ltd., Unit 21, Churchtown Business Park. Churchtown. Dublin 14.	09/08/2003	Grant	30/01/2004
CP D424/3	Paul O'Brien Haulage,	Paul O'Brien Haulage, Oldcourt, Adamstown, Co. Wexford.	09/09/2003	Grant	30/01/2004
CP D425/3	Joe Maguire,	Joe Maguire, Night-Time Express Co., 14 Griffith Downs. Drumcondra. Dublin 9.	09/04/2003	Grant	30/01/2004
CP D426/3	Ven Naughton,	Ven Naughton, Ven Naughton Enterprises Ltd, Unit 12. Heany Park West. Dublin 12.	09/09/2003	Grant	30/01/2004
CP D427/3	Stephenson Sand & Gravel,	Stephenson Sand & Gravel, Whitestown, Baltinglass. Co Wicklow.	09/03/2003	Grant	30/01/2004
		Grehan Plant Hire Ltd., 45 Ashwood Road,			

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CP D430/3	Wood-Systems Ltd.,	Kilmaine Road, Ballinrobe, Co. Mayo.	15/9/03	Grant	30/01/2004
CP D431/3	Belgree Transport Ltd.,	Belgree Transport Ltd., T/A Mahon Plant, Baytown, The Ward, Co. Dublin.	15/9/03	Grant	30/01/2004
CP D432/3	Surefreight Ltd.,	Unit 4 Shepherds Drive, Carnbane Ind Est, Newry, BT 35 6 JQ.	16/9/03	Grant	30/01/2004
CP D433/3	Patrick Mulholland,	Patrick Mulholland, Arragorteen, Gorey, Co. Wexford.	23/9/03	Grant	30/01/2004
CP D434/3	Paul Mc Kenna,	Paul Mc Kenna, 8 Coopers Place, Castlebellingham, Co. Louth.	22/9/03	Grant	30/01/2004
CP D435/3	John Joe Ferry,	John Joe Ferry, 93 Shandon Park, Phibsborough, Dublin 7.	26/9/03	Grant	30/01/2004
CP D436/3	Thady O' Brien,	Thady O' Brien, O' Brien Grab Hire, 23 Greenacre Court, Knocklion Road, Dublin 16.	26/9/03	Grant	30/01/2004
CP D437/3	Brian Campbell,	Brian Campbell, Groundworth And Plant Hire, 46 Dale View Park, Ballybrack, Co. Dublin.	25/9/03	Grant	30/01/2004
CP D438/3	Noel Keogh,	Noel Keogh, Vicars Lane, BallyHale, Co. Kilkenny.	26/9/03	Grant	30/01/2004
CP D440/3	Tymonforth Company Ltd.,	Rosetown, Athy, Co. Kildare.	25/9/03	Grant	30/01/2004
CP D441/3	Joseph Duffy,	Rosemount Cottage, Rathoth Road, Dublin 11.	25/9/03	Grant	30/01/2004
CP D442/3	Mark Kelly,	Loughcrew, Oldcastle, Co. Meath.	24/9/03	Grant	16/12/2003
CP D443/3	Tymonforth Company Ltd.,	K.F. Haulage Ltd, Johnstown, Mageney, Athy, Co. Kildare.	10/06/2003	Grant	19/12/2003
CP D444/3	Hutton International Transport,	Hutton International Transport, 39 Mount Clare Court, Castlecomer Road, Co. Carlow	10/07/2003	Grant	18/12/2003
CP D445/3	Cooke & Son Transport Ltd.,	Cooke & Son Transport Ltd., 8 Kennelsfort Green, Palmerstown, Dublin 22.	10/07/2003	Grant	18/12/2003
CP D446/3	Rowan Fennell,	Rowan Fennell, Tommland, Roundwood, Co. Wicklow.	22/9/03	Grant	17/12/2003
CP D447/3	Roadstone Dublin Ltd.,	Roadstone Dublin Ltd., Fortunestown, Tallaght, Dublin 24.	10/10/2003	Grant	18/12/2003
CP D448/3	Commissioners of Public Works,	Commissioners of Public Works, Building Maintenance Service, 51 Stephens Green, Dublin	08/10/2003	Grant	18/12/2003
CP D449/3	Hanrahan Haulage,	Hanrahan Haulage, Ballyline, Crusheen, Ennis, Co. Clare.	13/10/03	Grant	05/01/2004
CP D450/3	Neil O'leary, Corporate Support Services Ltd.,	Unit 6, Northwest Bus Park, Ballycoolin, Dublin 16	16/10/03	Grant	07/01/2004
CP D451/3	Glencormack Timber Ltd.,	Glencormack Timber Ltd., Glencormac, Bray, Co. Wicklow.	15/10/03	Grant	05/01/2004
CP D452/3	Pat Neville & Sons Ltd.,	Pat Neville & Sons Ltd., P.O. Box 63, Nunns Lane, Wexford.	24/10/03	Grant	14/01/2004
CP D453/3	Apex Structures Ltd.,	Apex Structures Ltd., Maynooth Road, Barberstown, Maynooth, Co. Kildare.	24/10/03	Grant	22/01/2004
CP D454/3	James Paul Duffy,	James Paul Duffy, Westel Utilities Ltd., Church Street, Charlestown, Co. Mayo.	23/10/03	Grant	30/01/2004
CP D456/3	John Ward Construction Ltd.,	John Ward Construction Ltd, The Banks, Manor Kilbride, Blessington, Co. Wicklow.	11/04/2003	Grant	22/01/2004
CP D457/3	C. Devine Transport,	5 Rathview, Prosperous, Co. Kildare.	11/10/2003	Grant	15/10/2004
CP D458/3	Denis Deegan,	Dunlavin, Grangeberg, Dunlavin, Co. Wicklow.	11/10/2003	Grant	30/01/2004
CP D459/3	Declan Kearney,	Fauna, Donard, Co. Wicklow.	11/12/2003	Grant	12/01/2004
CP D460/3	Gerard Reilly Haulage,	Gerard Reilly Haulage, 3 Hazel Road, Donnycarney, Dublin 9.	31/10/03	Grant	22/01/2004
CP D461/3	FryLite Ltd Cooking Oils,	298 Melmount Road, Strabane.	13/11/03	Grant	30/01/2004
CP D462/3	Larry Kiernan Plant Hire Ltd.,	Ring Commons, Balbriggan, Co. Dublin.	11/12/2003	Grant	29/04/2004
CP D463/3	Woodbine Transport Ltd.,	5 Roberstown Hill, Roberstown, Naas, Co. Kildare.	17/11/03	Grant	29/04/2004
CP D464/3	Tom Smyth Contractors (Straide)	Blanemore, Straide, Foxford, Co. Mayo.	16/12/03	Grant	29/04/2004

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CP D465/3	Mr. Brian Wade,	37 St. Catherine's Way, Rush, Co. Dublin.	20/11/2003	Grant	29/04/2004
CP D466/3	Mason Recycling Ltd.,	120 Collins Avenue West, Whitehall, Dublin 9.	30/10/2003	Grant	30/01/2004
CP D467/3	DLC Properties (Ireland) Ltd.,	Kingston, Hayes, Navan, Co. Meath.	27/11/03	Grant	29/04/2004
CP D468/3	Mr. David Boylan,	Upper Punchestown, Rathmore, Naas, Co. Kildare.	11/02/2003	Grant	29/04/2004
CP D469/3	Mr. Joseph Murray,	Kill Amery, Nine-Mile House, Via Carrick On Suir, Co. Kilkenny.	13/11/03	Grant	29/04/2004
CP D470/3	Mr. Fintan Morrison,	64 Castleknock Laurels, Laurel Lodge, Castleknock, Dublin 15.	27/11/03	Grant	29/04/2004
CP D471/3	Patrick Larke Haulage Ltd	Killenure, Ballybrittas, Co. Laois	18/11/03	Grant	29/04/2004
CP D472/3	Thomas Brennan & Sons Ltd.,	Ticknock, Sandyford, Dublin 18.	18/11/03	Grant	29/04/2004
CP D473/3	Dan Mc Hugh, Glenmorgan Trading Ltd, T/A Delvin Tyres,	Main Street, Delvin, Co. Westmeath	07/11/2003	Grant	29/04/2004
CP D474/3	Gerard Taaffe & Co. Limited,	Greenlands, Corduff, Lusk, Co. Dublin.	12/10/2003	Grant	29/04/2004
CP D475/3	P & A Plant Hire Ltd.,	Lower Faughart, Dundalk, Co. Louth.	16/12/03	Grant	29/04/2004
CP D476/3	Mr. Liam Devoy, Devoy Transport,	1 Redwood Court, Kilnamanagh, Dublin 24.	16/12/2003	Grant	29/04/2004
CP D477/3	Kilcock Plant Hire Ltd.,	Courtown Road, Kilcock, Co. Kildare.	16/12/2003	Grant	29/04/2004
CP D478/3	Ger Action Haulage,	Clonfert, Maynooth, Co. Kildare.	16/12/03	Grant	29/04/2004
CP D479/3	T & J Transport Ltd.,	10 Bawnview, Kilcock, Co. Kildare.	12/10/2003	Grant	28/05/2004
CP D480/3	Thomas Markham Enterprises	17 Rathfarnham Road, Terenure, Dublin 6w	12/11/2003	Grant	28/05/2004
CP D481/3	Butler Cleaning Services Ltd	7 Kinsealy Business Park, Kinsealy, Co. Dublin	22/12/03	Grant	03/03/2004
CP D482/3	Michael Hickey Transport	Fahy, Rhode, Co. Offaly	22/12/03	Grant	28/05/2004
CP D483/3	Edward Byrne Deliveries and Plant Hire	Kilmacanogue, Bray, Co. Wicklow	18/12/03	Grant	28/05/2004
CP D484/4	Pallet Services Ltd.,	Knockmitten Lane, Naas Road, Dublin 12.	15/01/2004	Grant	04/06/2004
CP D485/4	Brendan Gavin Haulage,	5 Pinehurst, Navan Road, Dublin 7.	28/01/2004	Grant	04/06/2004
CP D486/4	Enda McBride Haulage	Castleboy, Kilchreest, Loughrea, Co. Galway.	28/1/04	Grant	04/06/2004
CP D487/4	Cyclone Couriers Ltd., T/a Recyclone.	6 Upper Stephens Street, Dublin 2	28/1/04	Grant	12/03/2004
CP D488/4	Marc Jones Transport Limited,	11 Woodstown Heights, Ballycullen Road, Dublin 16.	30/01/2004	Grant	04/06/2004
CP D489/4	Michael O'Neill Haulage,	Clonmore, Edenderry, Co. Offaly.	29/01/2004	Grant	04/06/2004
CP D491/4	Eugene Mc Neill	17 Rockfield Green, Maynooth, Co. Kildare	30/01/2004	Grant	04/06/2004
CP D492/4	Kiely Haulage Ltd	Micknanstown, Stamullen, Co. Meath	05/02/2004	Grant	04/06/2004
CP D493/4	Mr. Trevor Moody,	Ballintruer, Stratford on Slaney, Co. Wicklow.	09/02/2004	Grant	29/06/2004
CP D494/4	Mr. Eamon Joseph McNeill,	Farmhill, Formal, Rathmolyon, Co. Meath.	09/02/2004	Grant	29/06/2004
CP D495/4	Alan Agar Haulage Ltd.,	Ballymoon, Bagenalstown, Co. Carlow.	12/02/2004	Grant	29/06/2004
CPD 496/4	Bernard Reilly Plant Hire Ltd.,	Moher, New Inns, Ballyjamesduff, Co. Cavan.	12/02/2004	Grant	30/06/2004

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CP D499/4	Hurliman Systems Ltd, A 2 B Waste Collection Services	Cappagh, Kilcock, Co. Kildare	20/02/2004	Grant	23/08/2004
CP D500/4	All Round Constructions Ltd.,	13 Mainsfield Grove, Athy, Co. Kildare.	23/02/2004	Grant	29/06/2004
CP D501/4	J V Brogan	Possextown, Enfield, Co. Meath	19/02/2004	Grant	29/06/2004
CP D502/4	Damien Richardson	9 Wellmount Cres., Finglas West, Dublin 11	27/02/2004	Grant	29/06/2004
CP D503/4	Tony Whyte	3 Killegland Rise, Ashbourne, Co. Meath	04/03/2004	Grant	29/06/2004
CP D504/4	Seamus Kavanagh	6 Waltersland Road, Stillorgan, Co. Dublin	05/03/2004	Grant	26/04/2004
CP D505/4	Arthur, Marion and Micheal Mc Callon, Mc Callan Bros Ltd	Omagh Road, Carrickmore, Co. Tyrone, N. Ireland, BT 79 9PQ	08/03/2004	Grant	29/06/2004
CP D508/4	Gerard Doran, Gerry Doran Tipper Service.	1 Dunston Court, Balrothery, Balbriggan, Co. Dublin.	10/03/2004	Grant	23/08/2004
CP D509/4	Bramco Contractors Ltd	Unit 79 Cherry Orchard Est, Ballyfermot, Dublin 10	16/03/2004	Grant	02/11/2004
CP D510/4	John Keegan	10 Kill Avenue, Dun Laoghaire, Co. Dublin	12/03/2004	Grant	28/07/2004
CP D511/4	Total Cargo (N.I.) Ltd	Victoria House 28 West Bank Road, Belfast, BT3 9JL	01/03/2004	Grant	28/07/2004
CP D512/4	Eugene Reilly, Shanowen Removals Ltd	1 Shanowen Crescent , Santry, Dublin 9	11/03/2004	Grant	28/07/2004
CP D513/4	John Maher Sand & Gravel	Kilmeague, Naas, Co. Kildare	22/03/2004	Grant	28/07/2004
CP D514/4	Glenbeigh Records Management	Damastown Way, Damastown Business Park, Dublin 15	18/03/2004	Grant	13/05/2004
CP D515/4	Anthony Gannon , Gannon City Recovery Services Ltd	Unit 7, Roseville Industrial Park, Turvey Avenue, Donabate, Co. Dublin	26/03/2004	Grant	28/07/2004
CP D516/4	John McGloin	Baytown Park, Dunboyne, Co. Meath	29/03/2004	Grant	28/07/2004
CP D517/4	Sweeney Truck Hire	133 Sallins Bridge, Sallins, Co. Kildare.	01/04/2004	Grant	28/07/2004
CP D518/4	John Lawless	4 Church Road, Newtownmountkennedy, Co. Wicklow	29/03/2004	Grant	22/07/2004
CP D519/4	William Barker	Ballybarney, Ballytore, Co. Kildare	01/04/2004	Grant	18/06/2004
CP D520/4	Mark Ryder Plant Hire	Tankardstown, Kilkerley, Dundalk, Co. Louth	02/04/2004	Grant	25/06/2004
CP D521/4	Mulligan Dismantling & Salvage Ltd.,	16 Mellows Avenue, Arklow, Co. Wicklow.	15/12/2003	Grant	25/06/2004
CP D522/4	Millstream Power Ltd.,	Clohamon Mills, Bunclody, Co. Wexford.	02/04/2004	Grant	18/11/2004
CP D523/4	Michael Guirke	Loughcrew, Oldcastle, Co. Meath.	14/04/2004	Grant	30/06/2004
CP D524/4	Michael McNeill,	21 Hazelwood Lane, Clondalkin, Dublin 22.	10/04/2004	Grant	09/07/2004
CP D525/4	Denis Joyce,	8 The Orchard, Hacketstown, Co. Carlow.	20/04/2004	Grant	28/07/2004
CP D526/4	Derek McGuinness,	9 Rockmanor Drive, Kilcoole, Co. Wicklow.	14/04/2004	Grant	01/07/2004
CP D527/4	Declan Savage,	23 Mourne Drive, Skerries, Co. Dublin.	19/04/2004	Grant	12/07/2004
CP D528/4	The City Bin Co. Ltd.,	Oranmore Business Park, Oranmore, Galway.	10/05/2004	Grant	14/09/2004
CP D529/4	Paul Donegan, Able Hire Mini Skips Ltd.,	4 St. Bridget's Cottages, Naas Road, Dublin 22.	04/05/2004	Grant	29/09/2004
CP D530/4	Arendale Haulage Ltd.,	Kilddon, Nurney, Co. Kildare.	14/05/2004	Grant	29/09/2004
CP D531/4	Noel Grainger,	Newtown , Eadestown, Naas, Co. Kildare.	12/05/2004	Grant	29/09/2004
CP D 534/4	Vincent McDaid, Northwest Tarmac,	Main Street, Newtowncunningham, Co. Donegal.	29/04/2004	Grant	29/09/2004
CP D535/4	M. J. M. Killeen Haulage Ltd.,	Fortunestown, Tallaght, Dublin 24.	26/05/2004	Grant	29/11/2004

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CP D536/4	Michael Walshe,	Rustyduff, Knockanarrigan, Donard, Co. Wicklow.	04/06/2004	Grant	29/09/2004
CP D538/4	Colm Humphreys,	Killeenmore, Sallins, Co. Kildare.	10/06/2004	Grant	22/07/2004
CP D 539/4	Damien Dunne, Dunne Haulage	Pluckerstown, Kilmenque, Naas, Co Kildare	10/06/2004	Grant	20/07/2004
CP D540/4	Fredrick Hanrally	20 St Catherine's Close, Rush, Co. Dublin	11/06/2004	Grant	22/07/2004
CP D541/4	Darren Mc Anerin, Bixco Ltd,	5 Castleknock Walk, Laurel Lodge, Dublin 15	14/06/2004	Grant	06/09/2004
CP D542/4	Liam Sweetman	Knockcross, Balbriggan, Co Dublin	14/06/2004	Grant	01/11/2004
CP D543/4	David Kenny, D K Tipping Services	23 Forest Count, Rivervalley, Swords, Co. Dublin.	16/06/2004	Grant	01/11/2004
CP D545/4	Regan Civil Engineering	Halverstown, Kilcullen, Co. Kildare.	17/06/2004	Grant	01/11/2004
CP D 546/4	Liam Mongan,	'Imeall', Longford Road, Duleek, Co. Meath.	18/06/2004	Grant	29/11/2004
CP D547/4	Masspool Developments Ltd.,	Masspool, The Ward, Co. Dublin.	16/06/2004	Grant	01/11/2004
CP D548/4	Edward McDonagh,	1 Old Cottage, Bellcamp Lane, Coolock, Dublin 17.	18/06/2004	Grant	01/11/2004
CP D549/4	JML Transport Ltd.,	Ruskey, Lifford, Co. Donegal.	21/06/2004	Grant	29/09/2004
CP D550/4	Gary Ryan, Street Sweep Ltd	The Laurels, Post Office Road Lusk Co. Dublin	25/06/2004	Grant	01/11/2004
CP D551/4	Peter O'Brien & Sons Ltd	Streamstown Malahide Co. Dublin	28/06/2004	Grant	12/11/2004
CP D552/4	James Lee	13 Our Lady's Place, Naas, Co. Kildare	21/06/2004	Grant	20/12/2004
CP D553/4	Michael Brennan,	Graigues, Robertstown, Naas, Co. Kildare.	02/06/2004	Grant	22/07/2004
CP D554/3	Sean Kelly, All Security Mobile Shredding Ltd	Ballyartella, Ballycommon, Nenagh, Co. Tipperary	23/06/2004	Grant	20/12/2004
CP D555/4	Richard Nolan Civil Eng Ltd	Ballyknockan, Fenagh, Bagenalstown, Co. Carlow	24/06/2004	Grant	11/11/2004
CP D557/4	Ross Thompson Ltd,	Carnbane Ind Est, Newry, Co. Down, BT35 6QJ	08/07/2004	Grant	22/07/2004
CP D558/4	Patrick Kinsella,	5 Willow Grove, Clondalkin, Dublin 22.	13/07/2004	Grant	28/09/2004
CP D559/4	Derek Smith Transport	199 Cooley Road, Drimnagh, Dublin 12	13/07/2004	Grant	27/09/2004
CP D560/4	Mr. Patrick Smith,	The Green, Hacketstown, Co. Carlow.	13/07/2004	Grant	05/10/2004
CP D561/4	Tom Murphy Recovery & Towing Service Ltd.,	Broomfield Hill Road, Malahide, Co. Dublin.	12/07/2004	Grant	04/10/2004
CP D562/4	Corcoran Auto Body Works Ltd., t/a Corcoran Auto Repairs.	Clonminham Industrial Estate, Portlaoise, Co. Laois.	14/07/2004	Grant	27/09/2004
CP D563/4	Mr. Colm McGuinness, McGuinness Plant Hire.	Savanagh, Reynaldstown, Naul, Co. Dublin.	17/07/2004	Grant	08/10/2004
CP D565/4	Eddie Grimes Ltd	Frairstown, Bohernabreena, Dublin 24	19/07/2004	Grant	27/09/2004
CP D 566/4	SmartWaste Solution Ltd.	Unit 2 Whites Town Ind estate, Tallaght, Dublin 24	21/07/2004	Grant	07/09/2004
CP D567/4	Mr Gerard Tinnelly, Tinnelly Construction Ltd	1 D Newtown Road, Rostrevor , Co Down BT 34 3 BY	23/07/2004	Grant	07/09/2004
CP D568/4	Colm Hughes , T/A Clontrans,	16 Morell Green, Naas, Co. Kildare	23/07/2004	Grant	29/09/2004
CP D569/4	Eamon Kelly, KFG Ltd	Sharavogue, Kilmacanogue, Co. Wicklow	26/07/2004	Grant	29/09/2004
CP D570/4	Oliver Pinfield, O P Construction Ltd	7 Riverwood Drive, Castleknock, Dublin 15	26/07/2004	Grant	29/09/2004
CP D571/4	Liffeyglass Transporting Co. Ltd.,	Broadleas, Ballymore Eustace, Naas, Co. Kildare.	26/07/2004	Grant	08/10/2004
CP D572/4	Patrick Flynn, D & P Services	Hynestown, Naul, Co Dublin	29/07/2004	Grant	22/12/2004
CP D574/4	Green Avenue Landscapes Ltd	Green Avenue, Naas, Co. Kildare	09/08/2004	Grant	01/11/2004
CP D576/4	Puresafe Ltd	55 Cromwellsfort Road, Walkinstown, Dublin 12	12/08/2004	Grant	04/11/2004

Register Ref. No.	Applicant	Principal Place of Business	Appl Date	Decision	Decision Date
CP D579/4	Daryl Curran Transport Ltd	Barnacron, Kilmeague, Naas, Co. Kildare	18/08/2004	Grant	08/11/2004
CP D581/4	Ginnette Breen	2138 Highfield Estate, Newbridge, Co. Kildare	31/08/2004	Grant	24/11/2004
CP D582/4	Thomas Kelleher	No 2 Mc Donagh House, Off Golden lane, Dublin 8	31/08/2004	Grant	17/11/2004
CP D 583/4	Stan O Reilly Jnr,	Terrapin , The Murrough, Co. Wicklow	17/08/2004	Grant	28/09/2004
CP D584/4	Joseph Callan	Station Road, Allenwood, Naas, Co. Kildare	01/09/2004	Grant	17/11/2004
CP D 585/4	John Keane, Jimmy Galloway, T/A Irish Wastecare Solutions Ltd	4 Monksfield Meadows, Clondalkin, Dublin 22	01/09/2004	Grant	21/12/2004
CP D587/4	Kevin O Hara, Kileview Construction Ltd.	21 Taney Crescent, Goatstown, Dublin 14	19/08/2004	Grant	20/12/2004
CP D589/4	Seamus McCabe, Mini Skip Hire	78 Grattan Lodge, Hole in the wall Road, Dublin 13	06/09/2004	Grant	29/11/2004
CP D590/4	Andrew J. Long,	Clashduff, Coalbrook, Thurles, Co. Tipperary.	09/09/2004	Grant	29/11/2004
CP D 591/4	Mr. Alan McMahon, C & M Haulage,	8 Beech Grove, Castlebellingham, Co. Louth.	09/09/2004	Grant	29/11/2004
CP D 592/4	Sanserv Ltd	Briarhill Business Park, Galway	08/09/2004	Grant	29/11/2004
CP D593/4	Aaron Shredding Ltd.,	138 Baldoyle Industrial Estate, Dublin 13.	10/09/2004	Grant	16/11/2004
CP D594/4	Paul Mooney, Crime Scene Cleaners	1A Bawnogue Enterprises Centre, Bawnogue, Clondalkin, Dublin 22	07/09/2004	Grant	17/11/2004
CP D596/4	A Giffney & Sons Ltd	196 Iveragh Road, Whitehall, Dublin 9	16/09/2004	Grant	16/11/2004
CP D598/4	Eddie Price	42 Meadowbrook Ave, Baldoyle, Dublin 13	20/09/2004	Grant	29/11/2004
CP D600/4	Reynolds Lubricant Distribution Ltd.,	Alexandra Road, Dublin 1.	27/09/2004	Grant	04/11/2004
CP D601/4	Mr. Edward Keogh,	Coolmoney, Donard, Co. Wicklow.	23/09/2004	Grant	26/11/2004
CP D 602/4	Mr. Ken Timmons,	201 A Cashel Road, Crumlin, Dublin 12.	24/09/2004	Grant	29/11/2004
CP D603/4	John Laurence Watson	1 South Bank, Swords, Co Dublin	24/09/2004	Grant	28/11/2004
CP D604/4	John Dowling Haulage	Moate View , Dunleer, Co Louth	24/09/2004	Grant	28/11/2004
CP D605/4	F Mc Parland And Co Ltd	44 Glenn Road, Jerrettspass, Newry, BT 34 15W	29/09/2004	Grant	06/09/2004
CP D606/4	Michael Merrigan	Filley Park House, Lipper Dargle Road, Bray, Co Wicklow	01/10/2004	Grant	29/11/2004
CP D607/4	O'Hagan Waste Ltd,	Bawmogues, Straffan, Co. Kildare.	30/09/2004	Grant	26/11/2004
CP D608/4	Oliver Scally,	Brittas, Monilea, Mullingar, Co. Westmeath.	24/09/2004	Grant	26/11/2004
CP D 609/4	Tom Kiernan Plant Hire Ltd.,	Grougha, Naul, Co. Dublin.	29/09/2004	Grant	29/11/2004
CP D610/4	Dermot Tougher Transport	Tuckmill Town, Staffan, Co. Kildare.	08/10/2004	Grant	29/11/2004
CP D612/4	Premier Building Services Ltd	Premier House, Library Terrace, Library Road, Dun Laoghaire, Co. Dublin	08/10/2004	Grant	29/11/2004
CP D615/4	Anagar Construction Ltd	Ballyclare, Longwood, Co. Meath.	27/08/2004	Grant	09/12/2004
CP D616/4	Stephen Martin	Glenowlen, Church Road, Taggart, Co. Dublin	19/10/2004	Grant	15/12/2004
CP D618/4	Derek Halpin, T/A Halpin Haulage,	81 Craddockstown Way, Naas, Co. Kildare.	21/10/2004	Grant	15/12/2004
CP D622/4	Desmond Mc Guirk Ltd	1 Ferdale, Old Bawn, Tallaght, Dublin 24	29/10/2004	Grant	02/12/2004
CP D 634/4	King's Tree Services Limited	Glaskenny, Enniskerry, Co. Wicklow	18/10/2004	Grant	20/12/2004

APPENDIX E – Consultation – Advertisements and Lists of Submissions

E1 Pre Draft Plan Statutory Notice and List of Submissions

E2 Draft Plan Statutory Notice and List of Submissions

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

COUNTY COUNCIL

Waste Management Acts 1996 to 2003

Review of the Waste Management Plan for the Dublin Region and preparation of a replacement Waste Management Plan

NOTICE IS HEREBY GIVEN in accordance with Section 22 of the Waste Management Act, 1996 as amended that Dublin City Council, Fingal County Council, South Dublin County Council and Dun Laoghaire-Rathdown County Council intend to review the existing Waste Management Plan for the Dublin Region and to commence the preparation of a replacement Waste Management Plan.

As in the case of the existing Waste Management Plan for the Dublin Region, the replacement Waste Management Plan will cover the administrative areas of Dublin City Council, Fingal County Council, South Dublin County Council and Dun Laoghaire-Rathdown County Council.

Dublin City Council will be the coordinating authority for the purpose of the review of the existing Plan and the preparation of a replacement Plan.

Written representations in relation to this matter may be made to the aforementioned local authorities at the following address not later than ***4 p.m. on Tuesday 31st August 2004.***

Executive Manager, Engineering Department, Dublin City Council, Civic Offices, Wood Quay, Dublin 8.

or by e-mail to engineering@dublincity.ie

All correspondence should be headed "Waste Management Plan Review"

South Dublin
County Council

Fingal County Council
Comhairle Contae Fhine Gall

APPENDIX E1 - List of Written Submissions 15 October, 2004

Name	Company/organisation
Deputy John Gormley	Green Party
Claire Wheeler	
Cllr Anne Carter	
Malcolm Dowling	Greenstar Holdings Ltd
Eric O'Donovan	Irish Waste Management Association
Lorma Kelly	Sandymount & Merrion Residents
Maurice Bryan	
Catherine Cavendish	
Joseph Flynn	
An Taisce	
Marie Whelan	National Construction and Demolition Waste Council
Joe McCarthy	
Michael McMahon	
Simon Gaines	
Daithi Doolan	Sinn Fein
Mary Holden	
Irish Business & Employers Federation	
Frances Corr	CRAI
William Ralph	Stelle Gardens Residents Assoc
Valerie Henderson Sec,	Donabate Parish Council
Conor Walsh	Thorntons Recycling
Kevin O'Sullivan	Herhof Environmental
William St Leger	VOICE
Ronan & Colette Lawless	
Kieran O'Neill	Dublin 15 Community Council
Renagh McDermott	Bord na Mona
Eugene Vesey	Local Agenda 21 Coordinating Group DLRCC

WASTE MANAGEMENT ACTS 1996 - 2003

PROPOSED REPLACEMENT WASTE MANAGEMENT PLAN FOR THE DUBLIN REGION 2005-2010

NOTICE IS HEREBY GIVEN in accordance with Section 23 of the Waste Management Act 1996, as amended, that Dublin City Council, Dun Laoghaire-Rathdown County Council, Fingal County Council and South Dublin County Council have prepared a Proposed Replacement Waste Management Plan for the Dublin Region.

Inspection of the Proposed Replacement Plan

The Proposed Replacement Waste Management Plan will be available for inspection from Monday 25th April 2005 until Thursday 30th June 2005 from 9am – 4.30pm, Monday to Friday (except for public holidays) at the following locations:

Dublin City Council

- Customer Services Centre, Ground Floor, Civic Offices, Wood Quay, Dublin 8
- Area Offices

Fingal County Council

- County Hall, Main Street, Swords, Co Dublin
- 46/49 Upper O'Connell Street, Dublin 1

Dun Laoghaire-Rathdown County Council

- County Hall, Marine Road, Dun Laoghaire, Co Dublin
- Dundrum Office Park, Dundrum, Dublin 14

South Dublin County Council

- Customer Care Department, County Hall, Town Centre, Tallaght, Dublin 24
- Local Offices

In addition the Proposed Replacement Plan will be available for inspection in Public Libraries in the Dublin Region (during normal opening hours) and it may be read online at www.dublinwaste.ie from 25th April 2005.

A copy of the Proposed Replacement Plan can be purchased for €40 or a CD version is available for €5 from the local authorities' headquarters.

Written representations in relation to the Proposed Replacement Plan made to the local authorities within the above period will be taken into consideration by the local authorities before the making of the Replacement Waste Management Plan. The written representations should be made to the following address, to be received not later than 4pm on Thursday 30th June 2005:

Executive Manager, Engineering Department, Dublin City Council, Civic Offices, FREEPOST F4001, Wood Quay, Dublin 8 (no postage stamp required).

Or by e-mail to engineering@dublincity.ie

All correspondence should be headed "Proposed Replacement Waste Management Plan"

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

Fingal County Council
Comhairle Contae Fhine Gall

South Dublin
County Council
Comhairle Chontae
Átha Cliath Theas

APPENDIX E2 – Draft Plan List of Feedback Forms

NAME	NAME
Roger Warburton	Mary Holden
Ronan Cullen	Lorna Kelly
Paul Waldron	Annaleise O'Leary
T Quigley	Olivera Mlennurt
Padraig Fleming-Herreta	Davina Doyle
Kevin Hannafin	Liz Ryan
Rosaleen Loughman	Sue Power
Gertrude Kiernan	John Tobin
John Kennedy	N Mulvany
Mr. Aengus Benson	Leslie Deacon
K Bolger	Richard O'Reilly
Michael Murray	Laoise Donoghue
Jay Moloney	Joanne O'Reilly
Tim Coles	Paul O'Dea
Jeanette Goff	A Rawlinson
Olive Cannon	Mr Molloy
Laura Connolly	Shelia Bredican
Una Hogan	Marie Hawley
Judy Kavanagh (MS)	Elizabeth Jordan
A Kennedy	Joe White
Tom Walsh	Anne-Marie Fitzpatrick
David Little	Ogaye
Peter Mc Grath	C Doyle
T O'Connor	Paul Byrne
Bernie Walsh	Kathleen Ferrari
Paul Mulville	Berni Kehoe
C Reilly	Kieran Grit
Uinsionn O'Connor	Barbra Cummings
Conor Rooney	Bruno Borza
Concepta Holland	Clr Lucinda Creighton
Hauke Steinberg	Catherine Humphreys
Ultan Lyons	May Byrne
Debora O'Connor	K. Maguire
Mairead Broome	Veronica W Mack
Patricia O'Brian	Catherine Cao
Jimmy M B O'Callaghan	Leonora Costello
Betsy Nagle	Kevin Humphreys
Mrs J Finch	Des Kilwe
Maurice Bryan	Des Kehoe
Denise Jordan	Samuel Rigley
Karen O'Reilly	Joseph Doherty
Roberta Gray	Pat Windsor
Sabrina Coyle	Anne Reilly
Owen Lemass	Jane Enticunap
Eileen Lynch	
Moya Whelan	

APPENDIX E2 – Draft Plan List of Submissions

Name	Company/Organisation
Thomas Deegan	-
Kevin Coleman	Green Cone
Michael Griffin	Meath County Council
Cllr Naoise O Muiri	Dublin City Council
Ciarán Gillen	Bio Future Ltd
Hughie McNelis	-
Malcolm Dowling	Greenstar
Patrick Windsor	Windsor Garden Services
John A Suttle	Association of Landscape Contractors
Finnian McMahon	Irish Gardens and Landscape Organisation
Michael Hartnett	-
Dublin Chamber of Commerce	-
DCC Environment and Engineering Strategic Policy Committee	Dublin City Council
Frances Corr	Bath Avenue & District Residents Association
Olivia Mitchell TD	-
Cllr Mick Murphy	Socialist Party
Maurice Bryan	-
Mary Holden	-
Cllr Wendy Hederman/Michael McDowell TD	Progressive Democrats
Conor Walsh	Thorntons Recycling
Paul Mulville	Donabate Parish Council
Sinead Nimhaille	South Dublin Chamber of Commerce
Lorna Kelly	Sandymount Merrion Residents Association
Sean Hegerty	National Construction & Demolition Waste Council
Damian Nolan	Dublin City Association An Taisce
Senator Mary White	-
Cllr Oisin Quinn	-
Conor Little	Green Party
Erik O Donovan	Irish Waste Management Association
Paul Sweetman	Irish Business and Employers Confederation
Sarah Miller	BallymunRegeneration(WasteWorkingGroup)
Brian Meany	Environmental Protection Agency
Don O Sullivan	Construction Industry Federation
Noel Kelly	Stillorgan Heath Residents Association
Patricia Potter	Dublin Regional Authority
Liam Smyth	Irish Concrete Federation
Stephen Carter	Bio Industries Ltd
Michael McDowell TD	-
Ted Nealon	A1 Waste
Patricia Potter	Dublin Regional Authority
The Dublin Community Forum	-
DCC South Central Area	Dublin City Council
Andrew Hetherington	REPAK
Conor Wall	Environment & Resource Management Ltd
	Environment & Resource Management Ltd

APPENDIX F – Waste to Energy Facility – Background Documents

(Excerpts from Feasibility Study for Thermal Treatment of Waste for the Dublin Region)

F1: Environmental and Cost Assessment – Draft Report (Chap 7), February 1999

F2: Development of Siting Criteria – Draft Report (Chap. 9) , February 1999

F3: Siting Criteria Applied –Report on Siting & Environmental Issue (Chap. 5 & 6), November 1999

7. ENVIRONMENTAL AND COST ASSESSMENT

7.1 ENVIRONMENTAL ASSESSMENT

7.1.2 Emissions Standards

The environmental aspect associated with the operation of thermal treatment is a key issue. Foremost among these is the issue of air emissions and solid residues requiring further treatment. Emissions standards have been set by certain European countries independently (of which the German 17.BimSchV are the most stringent) while at present Emissions Limits in the Proposal for Council Directive on Incineration of Waste (December 1998) are awaiting final approval. These Draft EU Limits will supersede the current Directive on Emissions from the Incineration of Municipal Waste 89/369/EEC and future waste combustion facilities should as a minimum be designed on the basis of the draft new standards or the German 17.BimSchV standard. In fact, the emissions limits set in the Draft EU standards are identical to the current German standard. While the new EU standards are currently only in draft form, it would be prudent when specifying new facilities to aim for tighter limits in anticipation of any potential changes.

The major difference between the present EU standard and the Draft EU standard is that in future there should be a limit value set for dioxins/furans. A more detailed discussion on the topic of dioxins/furans is contained in the appendices. A limit value for NOx is also expected in the new Directive where one was not set before and in general, limit values for other substances are significantly reduced. The Draft EU Emissions standard is shown on Table 7.1 below where it is compared to the current standard and to typical measurements from a modern WTE facility.

Component[1]	*Typical Measurement emissions*[2] *(mg/Nm*^{3}*)*	*89/369/EEC ≥3 t/h new municipal waste plant limits*[3] *(mg/Nm*^{3}*)*	*Draft New EU Incineration of Waste Directive*[4] *(mg/Nm*^{3}*)*
Total Dust	2 to 13	30	10
TOC	2	20	10
HCl	1 to 20	50	10
HF	0.1 to3	2	1
SO_2	5 to 15	300	50
NO_x	70 to 300		200
Hg	<0.01 to 0.7	0.2	0.05
Cd + T1	<0.01 to 7.5	0.2	0.05
Other Heavy Metals	2.2	6	0.5
PCDD/F	<0.02 to 1.2	None	0.1
CO	2.5 to 94	100	50

Table 7.1: Atmospheric Emissions Limits – Combustion of MSW

1. *All values at 11% O_2.*

2. *Range of data reported in available published documents (see references).*

3. *Total dust and HCl are weekly averages (daily averages can exceed tabulated limits by up to 30%);CO hourly average; all other substances measured periodically.*

4. *All daily averages except heavy metals are for 0.5 to 8 hour sample period and PCDD/F average values for 6 to 16 hour sample period.*

Source: ETSU, 1997.

With a properly designed modern WTE plant the proposed EU emissions limits can be met and even bettered. Technically it is possible to improve on these standards by significant margins but in doing so the cost of the operation increases.

Licensing of new thermal waste treatment plants will be a function of the EPA which will as a minimum require that the Draft EU standards be met. In addition, future waste treatment facilities will be required by the EPA to apply Best Available Technology (BAT).

7.1.2 Alternative Technologies

In this report alternative thermal technologies have been compared. Waste combustion or incineration with energy recovery (WTE) is considered to be the most robust of all the thermal technologies but gasification appears to be very close to proving that it is a fully developed technology.

The main advantage associated with gasification and specifically the Thermoselect process is that the emissions can be very low and can exceed the Draft EU Emissions Limits by significant margins. Although the technology is more costly than WTE, this apparent environmental advantage requires that we should consider the technology carefully especially since a full scale plant has now recently been constructed at Karlsruhe in Germany.

The Thermoselect process uses oxygen rather than air in the main waste treatment process and therefore results in lower overall throughputs of flue gases than WTE. However the process yields a synthesis gas which is later combusted with air for energy production. As the final airborne emissions from the plant will be from the exhaust of either a boiler or gas engine, these are compared with the relevant air emissions standards. Thermoselect refer to the German 17.BimSchV standard where all limits are bettered by at least 50% and in the case of dioxins/furans, emissions levels are as low as 10% of the standard (0.1ng/Nm^3).

Waste combustion can also meet the most recent EU emissions standards. The recently commissioned facility at Pirmasens, Germany for instance has emissions which are at least 50% of the levels specified in the German standard. This compares quite well with the gasification process. In respect of dioxins/furans the margin is 50% of the limit value but this factor is exceeded for other components in the flue gases. This level of performance comes at a cost which can add 10% to the overall capital cost of the facility and increase operational costs associated with flue gas cleaning by as much as 80%.

7.1.3 Flue Gas Cleaning

Flue gas cleaning is an integral part of all thermal waste treatment facilities. Flue gases produced by thermal treatment need comprehensive cleaning before they can be released to atmosphere. The first step towards minimisation of harmful emissions is in the initial mixing and where necessary, shredding and examination of waste entering the plant. As the waste particles are reduced in volume, increased surface area is offered for better combustion. Mixing provides an averaging of the calorific value of the waste and so provides for steadier and more uniform combustion characteristics. Together with a properly designed combustion chamber, effective and complete combustion of waste can be achieved resulting in reduced demands on the flue gas cleaning equipment downstream.

With gasification, a synthesis gas is produced which itself requires treatment before it can be burned in gas engines for example. The actual flue gases from such a plant will come from the combustion of the synthesis gas. Gas cleaning in this case is therefore a pre-stage to combustion which is in contrast to WTE.

In this report WTE has been compared with gasification in the form of the Thermoselect process. Two options for flue gas cleaning are given. These are:

1. Wet Flue Gas Cleaning

2. Semi-dry Flue Gas Cleaning

Each of these will be described briefly below followed by a brief look at the synthesis gas cleaning process used by Thermoselect in its gasification process.

Waste Combustion - Semi-dry Flue Gas Cleaning

Semi-dry flue gas cleaning involves the injection of a wet slurry of hydrated lime ($Ca(OH)_2$) into the stream of the flue gases for the removal of acid components HCl, HF and SO_2. This is done from the top of a vertical reaction chamber which will be sized such that sufficient time is allowed for neutralisation of acid components in the flue gases. By introducing the lime as a fine mist very effective reaction can take place due to the large available surface area. Heat carried by the flue gases is dissipated to the lime slurry and by the time this reaches the bottom of the reactor the spent lime will be dry, hence the term spray-dryer absorber which is commonly used to describe this equipment.

Dry flue gas cleaning is a similar process where the lime is added to the flue gases as a powder. However, this system is not quite as effective as the semi-dry system where removal of SO_2 is up to 20% more efficient. Removal efficiency for HCl and HF is similar for both systems.

Dioxins and furans are removed by the addition of activated carbon to the flue gases. Heavy metals and dioxins/furans tend to adhere to dust particles hence the addition of this material which is effective at trapping these toxic substances. In a similar way heavy metals such as mercury can be removed from the flue gases.

Removal of the dried and neutralised particles from the spray-dryer absorber, dust and spent activated carbon is usually done using a fabric bag filter. Fabric filters are very effective at trapping fine particles and are cleaned by reversing the gas flow periodically. The residue collected from flue gas filters is fly ash and contains both heavy metals (which were in vapour form as the flue gas left the combustion chamber), entrained particles and activated carbon to which dioxins, furans and heavy metals adhere. Therefore this material is a hazardous waste and must be handled carefully.

Control of NOx emissions from WTE plants is effected firstly by controlling the combustion conditions, i.e. the air/fuel ratio but also by the addition of ammonia (NH_3) directly into the combustion chamber. This has the effect of reducing overall NOx emissions by approximately 60% and improving overall thermal efficiency of the boiler by 2-3%.

Substances and preparations used in the semi-dry flue gas cleaning process are shown below (with typical quantities used in kg per tonne of waste treated shown in brackets):

- $Ca(OH)_2$ (8.0)
- NH_3-water, 25% (3)
- Activated Carbon (0.4)

Waste Combustion - Wet Flue Gas Cleaning

Wet flue gas cleaning improves on the efficiency of semi-dry flue gas cleaning and involves the washing of flue gases in a scrubber with water to which reagents are added.

As a first step in the process dust is removed with the aid of an electrostatic precipitator. Electrostatic precipitators use high voltages to remove suspended solids from the flue gases. From here the flue gases are washed in a water scrubber where HCl and HF are removed. Addition of $CaCO_3$ to the washwater from this process neutralises these acids. Following the water scrubber, the flue gases pass to a basic scrubber where NaOH is used to remove and neutralise SO_2. Flocculating agents and other compounds are subsequently used to purify the process water in the system.

Activated carbon is injected for the removal of dioxins and heavy metals from the gases and the final step involves passing the gas through a fabric filter. Substances and preparations used in the process are shown below with typical quantities used shown in kg per tonne of waste as above.

- $Ca(OH)_2$ (8.0)
- $CaCO_3$ (8.0)
- NaOH (2.2)
- TMT (0.05)
- Flocculating Agent (0.01)
- Fe_2Cl_3 (0.1)
- Activated Carbon (0.4)
- NH_3-water, 25% (3)

The quantity of residuals from this process is approximately half that for a semi-dry system and SO2 removal efficiency is higher. However, the cost of installing a wet flue gas cleaning system will be approximately 10% greater than for the semi-dry process.

Thermoselect Synthesis Gas Cleaning

Synthesis gas produced from the gasifier is composed mainly of H_2, CO, CO_2, H_2O and exits the reactor at temperatures close to 1,200°C. This gas also contains heavier elements such as hydrocarbons, vaporised metals and dust. As a first step towards using the gas to produce energy for example, it must be rapidly cooled. This condenses elements which may cause difficulties when the gas is finally burned. This process is carried out by passing the gas through a series of water jets. The cooling water used for this process is passed to sedimentation tanks where the material removed from the gas can be collected.

After shock cooling of the synthesis gas, it is passed to a fine cleaning section of the plant where sulphur is removed using a sulpherox system. This sulphur is recovered and a market is found for the material. However, the quality of the sulphur recovered is not very high. Other residual material is recovered here and sent to the sedimentation basins for collection. Activated carbon is used in the final stage of the synthesis gas cleaning process before the gas is used in a gas engine for example to generate electricity.

As part of the whole process of cleaning the synthesis gas, certain substances and preparations are required not only to clean the gas but also to clean the water used in the whole process. These materials, some of which are added to the cleaning water (with their consumption in kg per tonne of waste processed shown in brackets) are as follows:

- Sodium Hydroxide (12.0)
- Hydrochloric Acid (6.0)
- Hydrogen Peroxide (0.05)
- Iron Chelate (0.75)
- Active Charcoal (activated carbon) (1.3)
- Glycerine (0.15)
- Ion Exchanger Resin (0.07)

The cleaning of the process water yields mixed salts, after a reverse osmosis procedure and a metal residue which is composed of 40-50% zinc. The process water itself is cleaned and recirculated at the plant.

Once a clean synthesis gas is produced, it can be combusted in a gas engine or boiler directly with the necessary guarantees from the manufacturers of the equipment. Emissions from the engine will be controlled by monitoring the air/fuel ratio and a catalytic de-NOx reactor should be fitted in order to comply with the NOx emissions limits of 17.BimSchV/Draft EU standard.

7.2 RESIDUAL LANDFILL

7.2.1 Short-Medium Term

The procurement of a thermal treatment facility could take up to 8 years if similar procedures in other capital cities are typical. Much of the waste generated in Dublin in the meantime will go to landfill although recycling initiatives and public education should progressively reduce this quantity. Currently there are a number of deficiencies in the existing waste disposal infrastructure and these have been identified in the Dublin Waste Management Plan (December 1998) as follows:

- *The combined void space in currently approved landfills in the Dublin Region (including the new Arthurstown facility) equates less than 2.5 years of filling at current rates of disposal.*

- *The fact that the new Arthurstown landfill can only accept baled waste places a number of significant restrictions on the waste disposal system for the Dublin Region.*

- *The full utilisation of Arthurstown is dependent on sufficient baling capacity being available in the Dublin Region.*

- *Public baling capacity is currently being supplied by Ballymount Transfer Station.*

- *There is an urgent need for the immediate provision of unbaled waste capacity in the Dublin Region.*

- *There is an urgent need to divert certain wastes from Balleally landfill to recovery options wherever possible particularly construction/demolition wastes whose volumes are high and recycling potential are optimum in terms of readily usable products. These markets are best realised within the local authority structure for road construction, urban footways and cycle routes, parkways etc.*

These deficiencies have resulted in the following priority activities being identified in the Dublin Waste Management Plan (December 1998):

- "*Development of additional landfill capacity in the Dublin Region by year 2000 with capacity range 10-11 million tonnes to meet the essential end disposal of substantial quantities of residual waste*

- *Development of appropriate bulk transfer arrangement to service the needs of the four authorities. Plans are already underway to supplement the baling station at Ballymount (220,000t/an) with baling/transfer station at Ballyogan (120,000t/an).*"

The situation with regard to available void space has improved somewhat recently as much of the construction and demolition waste which formed the majority of the waste being disposed of at Balleally landfill is currently being recycled or reused and current disposal rates are likely to be significantly less than for 1997/1998. However significant additional landfill capacity is still required and a study is currently underway to find a long-term replacement to Balleally together with short term options.

In addition, it must be realised that any delays in putting the recommended thermal treatment facility in place will result in the need for increased landfill disposal. Such a delay may even result from a decision to phase in the introduction of thermal treatment by constructing two smaller plants rather than one larger plant.

7.2.2 Long-Term

Thermal treatment does not eliminate the need for a landfill but merely reduces, albeit by a significant amount, the quantities of waste needing to be disposed of in a landfill. Typically waste to energy will result in an 80% reduction by weight (and up to 95% by volume) in the amount of waste. The 20% clinker remaining at the end of the process contains metal (ferrous and non-ferrous) and also other materials which are not combustible such as stone and glass fragments. Much of the clinker including the metal can be recycled with the majority of the clinker being crushed and used as aggregate for road construction.

The other main residue left from the treatment process are flue-gas cleaning residues and the exact constituents of this material will depend on the type of cleaning plant used at the treatment facility. This material is dealt with in several different ways elsewhere including being bound up in concrete and used in the construction of concrete 'side-berms' in landfill construction. In some countries this material does however have to be landfilled.

Regardless of the disposal method for these residues, there will also be other waste types which are not combustible such as residues from composting and recycling activities, non-combustible household refuse, non-combustible refuse from commercial enterprises and building activities, street sweepings, lightly contaminated soil and general residues from recycling and recovery schemes. These will also need to be landfilled.

The Dublin Waste Management Plan (December 1998) has identified the following residues which will require disposal in the year 2005 after thermal treatment has been introduced.

Mixed waste from Recycling Stations	3,200 tonnes/year
Mixed waste from Commerce	40,100 tonnes/year
Mixed waste from Industry	168,900 tonnes/year
Mixed waste from Construction and Demolition Activities	174,000 tonnes/year
Sorting/Screening Residues from Recycling Stations	11,700 tonnes/year
Screening Residues from Garden Waste Composting	5,600 tonnes/year
Screening Residues from Biological Treatment	7,200 tonnes/year
Sorting/Screening Residues from other Recyclers	40,300 tonnes/year
Screening Residues from Crushing Plant	69,400 tonnes/year
Residues from Thermal Treatment	25,000 tonnes/year
Total	**545,400 tonnes/year**

In the initial years after construction of a thermal treatment plant if a combustion plant with energy recovery is built, there will also be an additional 150,000 tonnes per annum of ash and clinker residues from the treatment for which a recycling market will have to be found. In the interim, and until these markets have been developed, the required disposal capacity will be up to 700,000 tonnes per annum.

On the other hand, if a gasification plant is built, this will have lower residues with greater recycling capabilities. There will however always be a residual to landfill. No thermal process is free of the flue gas cleaning residues while recycling possibilities for bottom ash from combustion plant and mineral and other residues from gasification continue to be developed.

7.3 FACILITY SIZE AND COSTS

The maximum demand for thermal waste treatment in the Dublin Region is estimated at 450,000 – 600,000 tons. The capacity to meet this demand can be provided in one facility with two fully independent processing lines, but sharing a common waste bunker, ash and clinker pit, auxiliary facilities including workshop, personnel rooms, administration offices etc., as well as access roads and utility services. Alternatively, it can be provided in two separate facilities at different locations. Also, depending on the phasing of plants, different technologies may be used at each plant e.g. combustion or alternative thermal treatment.

Modern waste-to-energy units offer a high availability, and the necessary capacity is based upon 8,000 hours on-line time per annum for each unit (out of a total 8,760 hours in the year). On this basis the budget prices for process plants with capacity 2 x 16 t/h (256,000 t/a), respectively 2 x 20 t/h (320,000 t/a) have been calculated.

In both cases the lower heat value of the waste is assumed to be 11 MJ/ton and the plants will produce steam for electricity generation, only. If the supply of district heating to neighbouring housing areas or offices/institutions is feasible, then the cost of the district heating pipe system and circulation pumps, etc. should be added to the basic plant costs.

The flue gas cleaning equipment will meet the requirements of the EU Directive, expected to be in force soon after year 2000. This specifies the removal/reduction of particulates, HCl, SO_2 and SO_3, as well as NO_x reduction and reduction of heavy metals and dioxins.

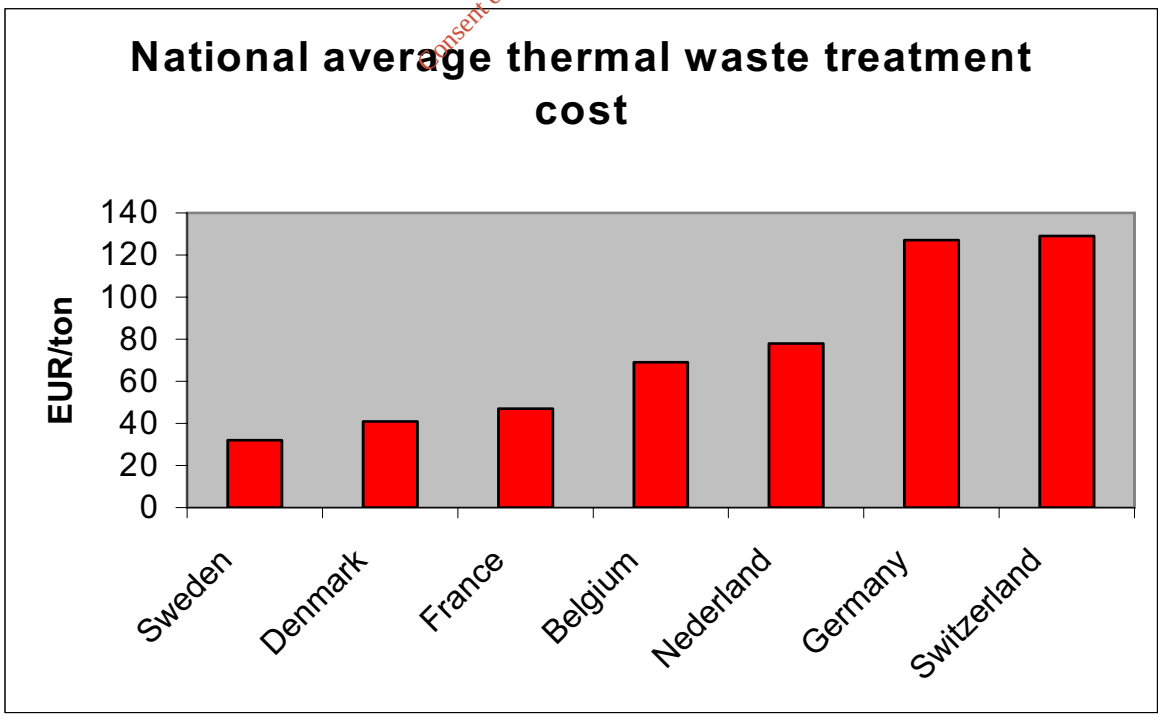
Budget costs in mio. EUR (Euro) (1999 prices)

Item	*2 x 16 t/h*	*2 x 20 t/h*
Furnace/boiler plant	31	34
Turbine/generator and auxiliaries, condenser and cooling system	18	20
Flue gas cleaning plant	17	22
Miscellaneous, including weigh bridge, waste and ash cranes, monitoring and control system, emergency power supply	4	6
Total	***70 (IR£55m)***	***82 (IR£65m)***

The process plant prices do not include building and civil costs, consultants fees, financing costs, and V.A.T. When these costs are added, the total cost of 250,000 t/an and 320,000 t/an combustion plants are IR£70m and IR£80m respectively. A comparable capital cost for a 250,000 t/an gasification plant is IR£80m.

Average municipal solid waste (MSW) thermal treatment costs

The average national MSW thermal treatment cost varies in Europe from about 30 to 130 EUR/tonne with Sweden and Denmark representing the lower level and Germany and Switzerland being at the top.



The reasons for the substantial differences in national thermal waste treatment cost can be ascribed to differences in development stage, market situation, design traditions and technology preferences, facility standards and capacity, energy markets, environmental requirements and approval process, and finally plant ownership, operation and finance.

Development stage

All of the countries mentioned above have used thermal waste treatment for several decades, and most have a base of existing plants for which the original capital costs are largely repaid. Due to inflation the remaining debt for these plants is small in today's money.

New plant investment has in recent years been relatively high in Denmark, Germany, Switzerland and Netherlands with the effect of increasing the average capital service cost in these countries. New plants are also built to higher standards and therefore cost more per tonne throughput capacity.

Market situation

The markets of Switzerland and Germany were practically closed, at least until an EU Directive opened the markets of the transport and utility sectors in 1993. The closed markets contributed to high capital costs for thermal treatment capacity compared to the other countries, which for several years have been wide open to competition.

Design traditions/technology

The conservative design tradition prevailing in Germany and to some extent in Switzerland is a contributing factor to high capital costs and consequently to high total cost per tonne waste treated. One aspect of this tradition is the tendency to design for all and every eventuality of future development in waste composition and treatment. This has resulted in more complex plants with higher capital and operation costs.

Furthermore, German and Swiss technologies have historically subscribed to the counter flow or central flow furnace design, whereas Scandinavian and American technologies have used the co-flow design. These choices are a result of the prevalent waste compositions in the different countries at the time of technology development. Today, counter flow or central flow designs in most cases require the use of a catalytic NO_x-control system in order to meet the new emission standards. This involves high investment cost and high operating costs. In contrast the co-flow technologies are usually able to meet the requirements for NO_x abatement with a simple and much cheaper SNCR-system.

Facility standards and capacity design

In all of the countries mentioned, facility standards will meet the rather demanding requirements specified by national environmental standards, union agreements and sound design practice. Therefore, modern waste-to-energy plants are usually very attractive facilities regardless of nationality. However, plant capacities reflect different philosophies in the countries concerned.

In Germany there has been a strong reluctance to accept responsibility for waste from neighbouring communities with the result that most plants have been designed with ample spare treatment capacity. The result of this is lower utilisation of the capacity installed and consequently a higher capital service cost per tonne of waste treated. The problem was exacerbated by the way in which the German legislation, prohibiting combustible waste from being deposited on landfills, was administered by the federal government. The necessary capacity to handle the extra waste was constructed by the municipalities, following which the implementation of the legislation was delayed, leaving the municipalities with large investments in unused capacity.

Scandinavia, and in particular Denmark, has relied upon extensive co-operation between waste-to-energy plants located near each other, thus minimising the necessary stand-by capacity of each plant. Also, legislation similar to that in Germany, prohibiting the landfill of combustible wastes, was implemented without damaging delays.

Energy markets

Energy sales can represent a substantial source of revenue, dependant upon national policies and technical/institutional traditions. In most countries the generation and sale of electricity is possible, but there are large differences in the sales prices for the electricity, depending on alternative sources of power. The availability of cheap hydropower or nuclear power will result in lower payments to the waste-to-energy plants for the electricity they produce, unless national policy dictate otherwise.

Denmark and Sweden have extensive district heating systems which are near perfect recipients of the energy produced from the incineration of MSW. This is particularly true for small and medium sized waste-to-energy plants because the capital investment in plant and equipment is lower than for a power producing plant.

In France and Germany several plants sell electricity and district heating or steam, but a large number of plants operate without any energy sales at all.

Switzerland has only limited district heating or steam sales for industrial purposes, and the electricity generated from MSW must compete against cheap hydro power.

Environmental requirements and approval process

The new EU Directive will to a large extent standardise the required performance of pollution control equipment in waste-to-energy plants throughout Europe. However, the current national standards as well as their enforcement vary from lax to very stringent. New plants in the Netherlands, Germany and Switzerland employ very sophisticated flue gas cleaning equipment in order to meet national standards, but also existing plants have had to upgrade their pollution control equipment to meet current requirements.

In contrast, several French plants still depend upon electrostatic precipitators, only, for gas cleaning.

The Danish and Swedish plants employ full particulate removal and flue gas scrubbing, but dioxin and NO_x removal is only partially in use.

The approval process is thorough, but well organised and relatively fast in the Scandinavian countries, mainly because of a very open dialogue between the owner/operator of the plants and the general public.

Germany has on the other hand seen many examples of prolonged debate with, and pressure from the public, resulting in additional investments in flue gas cleaning equipment, bottom ash treatment or vitrification, etc. This has added to the already high capital costs of German waste-to-energy plants and the time consuming process has delayed the time when the proposed plant could start to make a return on the investment.

Ownership, operation and finance

Most plants in the countries mentioned are owned and financed by the municipalities, either directly or in several cases through the utility companies.

Denmark has several examples of joint municipal ownership, mainly in the form of limited partnerships.

Generally, the plants are operated by the owner.

However, France has a tradition of municipal ownership with operation by private companies, and this concept may be applied in other countries in the future.

Germany has a couple of privately owned and operated facilities, but there is no evidence of any cost savings from private operation compared to public operation.

One reason for this is that waste-to-energy plants are capital intensive, not staff intensive. Where private operators may have an edge is in plant maintenance, if rigid municipal budget and procurement procedures stand in the way for a flexible and preventive maintenance strategy.

Conclusion

The European waste-to-energy situation is still a long way from presenting a uniform picture, but the EU Directive will help remove some of the great differences in operating standards and costs. This will no doubt reduce cross border traffic in search of cheaper and possibly sub-standard disposal facilities. However, the renewed competition “on a level field” will also put pressure on those plant suppliers and operators, who have in the past been protected by national procurement preferences and/or low national environmental standards.

The next chapter will deal with financing and procurement issues in the light of these considerations of thermal treatment in a European context.

9. SITING CRITERIA

9.1 GENERAL APPROACH

Despite the established environmental sustainability of thermal treatment as a means of treating waste and the relative consensus that there has been to date with regard to the need for such a facility, public opposition is likely to develop with such a proposal once a site has been identified. The identification of a potentially suitable site for a proposed thermal plant therefore must have regard to a number of criteria, not just physical and environmental but also social and economic.

The primary aims of the siting process could be considered to be as follows:

- *To minimise environmental impacts*
- *To maximise acceptability of the project by the local community*
- *To minimise the cost of the development*

It is proposed that these objectives be achieved through an integrated approach involving the establishment of siting criteria, environmental assessment and public involvement each running in parallel with each other. These are discussed in more detail below.

9.2 SITING CRITERIA

9.2.1 Identification

The criteria for the identification of a suitable site for a proposed thermal treatment plant will depend on the potential impacts both real and, to a lesser extent, perceived which arise from such a facility. It is necessary that the assessment of these potential impacts and the subsequent development of the siting criteria be seen as logical, transparent and above all defensible in the public arena. It is proposed therefore that a staged process be carried out which progressively excludes unsuitable areas before identifying and shortlisting potentially suitable sites based on agreed criteria. The procedure to be adopted is as follows:

***Step 1**: define the study area by reference to the special limits of waste collection and transportation. Define the site requirements for the project proposed including the size of site and services required.*

***Step 2**: define the site selection and exclusionary criteria with relevant interested parties.*

***Step 3**: identify areas for potential sites by application of agreed objectives and any exclusionary criteria.*

***Step 4**: sieve and screen the sites identified in Step 3 to identify possible sites against agreed criteria.*

***Step 5**: compare the shortlisted sites using agreed criteria*

Exclusionary factors

Exclusionary factors are factors which by their nature preclude the consideration of a site from the development of a thermal treatment plant. These include but are not necessarily limited to the following:

- *Proposed Natural Heritage Areas*
- *Areas of high amenity or high archaeological interest*
- *Areas excluded by the County Development Plan*

Apart from the above there are a number of baseline factors which are relevant to all thermal treatment facilities and which allow an initial identification of 'preferred areas'. The absence of such factors could, in fact be considered to be deemed as 'exclusionary'. These are that such a facility should be situated close to where the waste is produced, that transport links to the site should be good from the rest of the region and that the plant should be sited close to users of heat and/or electricity so as to maximise the potential from the facility.

- *Proximity to origin of waste*
- *Transport links with surrounding region*
- *Proximity to potential energy users*

(*i) Proximity Principle*

This principle adopts the notion that waste should be treated or disposed of close to its source of generation but with proper regard to protection of the environment.

(*ii) Transportation Links*

The transportation of waste is a significant issue for a number of reasons:

- *The accessibility of the plant can affect the operational cost of the transfer*
- *The transport of waste is often perceived by the public to be undertaken in a less competent and professional manner than the transport of other materials*

(iii) Proximity to Users of Heat/Electricity

The various thermal treatment technologies all produce heat and electricity and therefore to maximise the efficiency of the operation it is desirable to site the plant close to industry which can utilise the heat and energy produced.

Siting Criteria

The criteria for establishing the preferred site will be developed in tandem with a Community Involvement Programme which is discussed in more detail in Section 9.3. The obvious and most likely concerns of people such as impact on human health, visual impact and traffic will be considered in specialist environmental 'support' studies which are discussed in more detail in Section 8.4 below. In addition to these however are other factors that may be important in the establishment of the criteria. These could include but again be not limited to the following:

- *Site Zoning*
- *Proximity to Waste Centre*
- *Traffic*
- *End-Market Use possibilities*
- *Site size and availability*
- *Availability of residual landfill*
- *Water supply for cleaning system*
- *Transfer Stations*
- *General planning and environmental considerations (visual, ecological, archaeological etc.)*

These are described in more detail below

Traffic

All studies on thermal treatment provision show that traffic and the public perception of traffic are key issues in terms of the acceptability of a treatment site. The type of vehicle using the site is a further issue to be considered.

End-Market Use Possibilities

Each of the potential thermal treatment technologies produce a variety of output products which require to differing degrees, a market to make the technology economically viable. Waste combustion produces energy in the form of electric power and/or heat which can be supplied to industry, district heating or to drying of different materials such as sludges. The metals reclaimed can be sold to the scrap metal market while clinker can be used as aggregate for road construction following further limited processing.

Gasification also produces a low calorific gas which can also be used in kilns or combusted directly for power/heat generation. Pyrolysis produces a gas which is suitable for kilns, power/heat generation while the char residue has potential use as a fuel for kilns also or for the production of activated carbon for wastewater and flue gas treatment. Potential consumers of these products would be local industry, district heating companies, power plants, cement companies and possibly waste water treatment plants.

In summary therefore, the type and density of existing industry in a particular location will determine the potential supply of end users for the output products from each technology.

Site Size and Availability

A number of factors could impact on the availability of land for a thermal treatment plant. Firstly an adequate site size is required. Footprints for thermal treatment plants vary between 3.5 and 7 hectares depending on plant size. These include:

- *Zoning designation (e.g. industrial)*
- *Socio-economic status of the location*
- *Attitude and degree of involvement of key decision makers*

The above factors are related in that the specific location of a proposed site and hence its precise zoning (e.g. whether it is in an industrial area) will have an impact on the socio-economic status of the community around the site. This in turn will influence the key decision makers as to how 'welcome' such a facility is. Benefits to an area can include:

- *Employment generation, with knock-on effect to the expenditure in the surrounding community*
- *Reduction in waste transport costs for local firms*
- *Increase in house purchases because of increased demand*

Adverse impacts can include:

- *Impact on tourist or recreational income*
- *A decrease in property values*
- *Deterrent to investment from high-technology industry*

Availability of residual landfill

Any thermal treatment process will still have the need for a landfill to dispose of the residual waste left over from the process. In the current context of Dublin which has limited available landfill capacity this could be a significant issue. Therefore the siting of a thermal treatment plant will have to take due regard of the remaining life of the existing Dublin Local Authorities landfills and also the landfill site selection studies currently ongoing.

Water supply/outlet for cleaning system

The availability of a water supply for use in the flue-gas cleaning processes required in a modern waste to energy plant and also potential outlets for the residual discharges could have an influence on the siting of a new facility. This however would not be considered to be too significant a factor given that, in the absence of such a supply and outlet, a dry or semi-dry process could be used.

Transfer Stations

The desire to minimise the impact of traffic carrying waste to a thermal treatment facility means reducing not just the haul distance to the facility from the rest of the region but also the number of trips. The most effective means of ensuring this is to bulk transfer the waste from a network of transfer stations located at the main waste 'hubs'. This in effect means a transfer station at a number of key strategic locations distributed throughout the region transferring the waste via large containers by road to the thermal treatment plant.

In reality the capital and operational costs of a network of transfer stations together with the corresponding transport costs from those stations to the treatment plant will not be significant compared to the overall cost of the development of the treatment facility.

General Planning and Environmental Considerations

The siting of a thermal treatment facility should have regard to local development policy as outlined in the Development Plans of each county. The future landuse in the vicinity of each facility should be assessed with regard to the various zonings and their likely presumption for or against the siting of a facility. The detail and criteria in each City/County Development Plan will vary in relation to the industrial, environmental and socio-economic objectives of that county. In general however, the following criteria could be assumed to be fairly representative across the region:

- *The plant should not be sited very close to any major residential areas*

- *The preferred location will be a site within or adjoining an industrial area provided that the development will not appear unduly prominent or visually intrusive or that the development will not prejudice existing industries for example food manufacturing*

- *The site should have good access to the principal transportation network*

5. DEVELOPMENT OF SITING CRITERIA

5.1 SITE SELECTION GUIDELINES

The need for thermal treatment as a means for maximising landfill diversion has already been established in the Dublin Waste Management Plan. As with all waste management facilities the identification of areas suitable for a thermal treatment plant needs to be undertaken according to a systematic selection process having regard to technical, environmental, social and economic criteria. The aims of the selection process are as follows:-

- To minimise environmental impacts
- To protect the health and well being of the local community
- To minimise the cost of the development

5.1.1 Legislation and Official Guidelines

As thermal treatment of municipal waste is not an established technology in Ireland there are no national guidelines regarding the selection of areas suitable for the location of thermal treatment facilities. There are however Draft EPA Guidelines for Landfill Site Selection. In the absence of specific documents guidance must be taken from relevant legislation. The primary pieces of legislation are:-

- 89/369/EEC Air Pollution from New Municipal Waste Incinerators
- Proposal for a Council Directive on the Incineration of Waste 1998
- The Waste Management Act, 1996

The Waste Management Act is an enabling piece of legislation being brought into law through a series of Regulations. There is no specific guidance regarding siting of thermal facilities, however the broad thrust of the Act supports thermal treatment in that it supports the EU waste hierarchy of reduction, reuse, recovery including energy recovery and finally landfill of residual wastes. The proposal for a Directive on the Incineration of Waste aims to reduce as far as possible negative effects on the environment. In particular the effects on air, soil, surface water and groundwater and the resulting risks to human health from the incineration and co-incineration of waste, and to that end to set up and maintain appropriate operating limit values for waste incineration and co-incineration plants within the community.

The site selection process has been made using all available guidelines and information within the parameters of the legislation. A proactive public involvement process outlined in Chapter 4 informed the process and was instrumental in the formulation of guidelines for future site selection processes.

5.2 SELECTION PROCESS

5.2.1 Methodology

The general procedure for the Study is a sieving process whereby exclusionary factors are first examined. These are factors, which preclude the siting of a Thermal Treatment plant and include the following:

- Proposed Natural Heritage Areas
- County Development Plans
- Areas of High Amenity or Archaeological Interest

These factors are classed as "*Group 1*" criteria. By excluding these, generally suitable areas emerge. "*Group 2*" criteria are then considered. These are more significant criteria, which may have serious financial implications for the development of a Thermal Treatment Plant and include the following:

- Road Access
- Traffic
- End-Market Use
- Site Size and Current Land Use
- Proximity to Residential Areas
- General Planning and Environmental Considerations

Using this set of criteria the generally suitable areas were narrowed down to 4 generally suitable/possible sites. The suitability of 4 shortlisted sites was further assessed resulting in a preferential ranking for the siting of a Thermal Treatment facility.

5.3 GROUP 1 CRITERIA – EXCLUSIONARY ZONES

5.3.1 City & County Development Plans

The siting of a Thermal Treatment Plan in the Dublin Region should have regard to local development policy as outlined in the following Development Plans:

- Dublin City Development Plan 1999
- Dun Laoghaire/Rathdown County Development Plan 1998
- Fingal County Development Plan 1999
- South Dublin County Development Plan 1998

These are legal documents prepared by each local authority to provide a framework for the guidance and control of development within the Dublin Region. The site selection process should have regard to the Plans as existing and future landuse in the vicinity of proposed sites needs to be determined. Population trends, development plan zoning, designated industrial areas, end market users and proposed changes in the transportation network need to be evaluated.

Development plan zoning objectives may vary between local authority areas. Objectives may be included to provide for natural assets or amenities specific to that area such as the protection of the Dublin Mountains or areas of urban renewal.

5.3.1.1 Dublin City Development Plan 1999

The siting of a Thermal Treatment Plant in the Dublin City area would have to have regard to the Dublin City Development Plan (1999). The plan is one of a number of corporate policy documents, which have key influence on the control of development in the City. The Plan deals with the comprehensive planning of the city for the next five years while taking account of longer term trends and objectives. The City Development Plan divides the city into a number of zones listed from Z1-Z15 each having a zoning objective, as listed in Table 5.1 and illustrated in Figure 5.1. This table also illustrates the acceptability of the siting of a Thermal Treatment plant in the various zones.

The Plan addresses the most commonly encountered activities within the City and indicates the acceptability or otherwise of the proposed land use. The guidelines as suggested in this plan are as follows:

- **Permissible Use**

Is one which is generally acceptable in principle in the relevant zone, but which is subject to normal planning consideration including policies and objectives outlined in the Plan.

Open for Consideration Use

Is one which may be permitted where the Planning Authority is satisfied that the proposed development would be compatible with the overall policies and objectives for the zone, would not have undesirable effects on the permitted uses, and would otherwise be consistent with the proper planning and development of the area.

Thermal Treatment is accounted for in the Plan under the landuse, 'Incineration.' This use is classed as 'permitted in principle' in objective Z7, while this land use is not permitted under any other zoning objective.

Table 5.1 Land Use Zoning Objectives in Dublin City

Zone	Zoning Objective	Thermal Treatment Acceptability
Z1	To protect and/or improve residential amenities	Not Permitted
Z2	To protect and/or improve the amenities of residential conservation areas	Not Permitted
Z3	To provide for and improve neighbourhood facilities	Not Permitted
Z4	To provide for and improve mixed-services facilities	Not Permitted
Z5	To consolidate and facilitate the development of the central area, and to identify, reinforce, strengthen and protect its civic	Not Permitted

Zone	Zoning Objective	Thermal Treatment Acceptability
	design character and dignity	
Z6	To provide for the creation and protection of enterprise, and facilitate opportunities for employment creation	Not Permitted
Z7	To provide for the protection and creation of industrial uses and facilitate opportunities for employment creation	Permitted in Principle
Z8	To protect the existing architectural and civic design character, and to allow only for limited expansion consistent with the conservation objectives of the Development Plan of primarily residential and compatible office and institutional uses	Not Permitted
Z9	To preserve and provide recreational amenity and open space	Not Permitted
Z10	To be developed in accordance with approved mixed-use action area plans	Not Permitted
Z11	To protect and improve canal, coastal and river amenities	Not Permitted
Z12	To ensure that existing environmental amenities are protected in any future use of these lands	Not Permitted
Z13	To seek the social, economic and physical rejuvenation of an area	Not Permitted
Z14	To seek the social, economic and physical rejuvenation of an area with mixed use, of which residential and 'Z6' would be the predominant uses	Not Permitted
Z15	To provide for institutional and community uses	Not Permitted

Source: Dublin City Development Plan (1999)

It is the high level of urbanisation and its associated high residential population, which particularly distinguishes this local authority area from the other three study areas. This factor is reflected in the zoning objectives and land use designations.

The zones Z1, Z2 and Z8, the main residential zoned areas, create exclusionary zones for a vast area of the City. The amenity potential of the area is protected by the zoning objectives Z9 and Z11, which provide for the preservation and improvement of waterways and open space. These areas are also exclusionary to Thermal Treatment development.

The main areas that create exclusionary zones are objectives Z1, Z2, Z3, Z4, Z5, Z6, Z8, Z9, Z10, Z11, Z12, Z13, Z14, and Z15 (Figure 5.2). These zones include the greater plan of Dublin Corporation area. Areas that contain sections of land not in an exclusionary zone include:

- Ashtown
- Coolock
- Darndale
- Dublin Port/Docklands Area
- Inchicore
- St. James's Gate

5.3.1.2 Dun Laoghaire-Rathdown County Development Plan 1999

The Development Plan consists of a number of zoning objectives, which are illustrated in Figure 5.3 and listed in Table 5.2. The table also illustrates the acceptability of 'Industry Special' which is the use class under which Thermal Treatment would fall.

This local authority is distinguished from the other study areas by its maritime association. This link is mirrored in the zoning objectives where categories are in place to protect both coastal and harbour related activities.

The Development Plan addresses the most commonly encountered activities within the county and indicates the acceptability or otherwise of the proposed land use. The guidelines are as follows:

- **Permitted in Principle**
  Is subject to compliance with relevant policies, standards and requirements set out in the Development Plan

- **Open for Consideration**
  Uses which could not be considered acceptable in principle in all parts of the relevant use zone. They will only be accepted where the Council is satisfied that the use would not have undesirable consequences for the permitted uses. Uses, which are temporary by nature, are open for consideration in all zones.

- **Not Permitted**
  Activities which are not indicated as "Permitted in Principle" or "Open for Consideration" will not be considered.

Table 5.2 Land Use Zoning Objectives for Dun Laoghaire-Rathdown

Zone	Zoning Objective	Thermal Treatment Acceptability
A	To protect and/or improve residential amenity	Not Permitted
A1	To provide for new residential communities in accordance with approved action area plans	Not Permitted
B	To protect and improve rural amenity and to provide for the development of agriculture	Open for Consideration
LC	To protect, provide for and/or improve local centre facilities	Not Permitted
DC	To protect, provide for and/or improve district centre facilities	Not Permitted
TC	To protect, provide for and/improve town centre facilities	Not Permitted

Zone	Zoning Objective	Thermal Treatment Acceptability
E	To provide for industrial and related uses	Permitted in Principle
E1	To provide for the development of a science and technology park	Open for Consideration
F	To preserve and provide for open space and recreational amenities	Not Permitted
G	To protect and improve high amenity areas	Not Permitted
GB	To protect and enhance the open nature of lands between urban areas	Not Permitted
H	To provide for harbour related amenity, recreational, light industrial and commercial development	Not Permitted
J	To protect and improve coastal amenities	Not Permitted

Source: Dun Laoghaire-Rathdown County Development Plan (1998)

The main areas which create exclusionary zones come under zones A, A1, LC, DC, TC, F, G, GB, H and J(Figure 5.4). These zones include the areas of:

Ballinteer	Ballybrack	Blackrock	Booterstown
Cabinteely	Carrickmines	Churchtown	Corklittle
Cornelscourt	Dalkey	Dun Laoghaire	Foxrock
Galloping Green	Glasthule	Glencullen	Glendoo
Goatstown	Killiney	Kill of the Grange	Kilmashogue
Loughlinstown	Marley	Milltown	Monkstown
Mount Merrion	Newtown	Old Connaught	Sallynoggin
Shankill	Stepaside	Stillorgan	Tibradden
Ticknock	Windy Arbour		

Areas that contain small sections of land not in these zones include:

- Churchtown
- Deans Grange
- Jamestown
- Kingston
- Loughlinstown
- Leopardstown
- Marlay
- Milltown
- Old Connaught
- Sandyford

5.3.1.3 Fingal County Development Plan 1999

The County Development Plan aims to achieve the sustainable development of Fingal County. The Plan consists of a number of zoning objectives, which are illustrated in Figure 5.5 and listed in Table 5.3. The table also illustrates the acceptability of the siting of a Thermal Treatment facility in the various zonings. In order to achieve sustainable development in Fingal, the County provides guidelines for development in both its urban and rural communities. The guidelines are as follows:

- **Acceptable**

  Uses that will be considered acceptable

- **Open for Consideration**

The use is generally acceptable except where indicated otherwise and where specific factors which may be associated with the use (e.g. scale) would result in the proposed use being contrary to the zoning objective

- **Not Acceptable**

  Uses that will not be acceptable

Table 5.3 Development Plan Zoning Objectives for Fingal

Zone	*Zoning Objective*	*Thermal Treatment Acceptability*
A	To protect and improve residential amenity in established residential areas	Not Acceptable
A1	To provide for new residential communities in accordance with approved action area plans and subject to the provision of the necessary social and physical infrastructure	Not Acceptable
NC	To protect, provide for and/or improve local/neighbourhood centre facilities	Not Acceptable
NCB	To protect, provide for and/or improve neighbourhood/local centre facilities in Ballymun	Not Acceptable
MVC	To protect and enhance the special physical and social character of major village centres and provide and/or improve village facilities	Not Acceptable
C4	To provide for the County Hall and ancillary uses	Not Acceptable
D	To provide for major town centre activities in accordance with approved action area/structure plans and subject to the provision of the necessary physical infrastructure	Not Acceptable

Zone	*Zoning Objective*	*Thermal Treatment Acceptability*
E	To facilitate opportunities for general industrial employment and related uses in established industrial areas	Open for consideration*
L1	To facilitate opportunities for light industrial employment in a high quality landscaped environment in accordance with approved action area plans and subject to the provision of the necessary physical infrastructure	Not Acceptable
ST	To facilitate opportunities for science and technology based employment in a high quality landscaped environment in established science and technology parks	Not Acceptable
ST1	To facilitate opportunities for science and technology based employment and associated and complimentary uses in a campus style environment in accordance with approved action area plans and subject to the provision of the necessary physical infrastructure	Not Acceptable
MU1	To provide for an appropriate and compatible mixture of uses in accordance with approved action plans and subject to the provision of the necessary social and physical infrastructure	Open for consideration*
RV1	To protect and enhance the special physical and social character of rural villages and provide and/or improve village facilities to serve local needs in accordance with approved action area plans and subject to the provision of the necessary social and physical infrastructure	Not Acceptable
B	To protect and provide for the development of agriculture and rural amenity	Open for consideration**
B1 (Rush only)	To protect and provide for the development of horticulture and to provide for the housing needs of persons native to the area in accordance with an approved action area plan	Not Acceptable
F	To preserve and provide for open spaces and recreational amenities	Not Acceptable
G	To protect and improve high amenity areas	Not Acceptable
H	To provide for a Green Belt and to provide for urban and rural amenities	Not Acceptable

Source: Fingal County Council Draft Development Plan 1998

* *Where the use is subject to the overall zoning objective and specific objectives within that zone*

** *Where the use is subject to the overall zoning objective and specific objectives within that zone and not to be permitted in areas designated as Sensitive Landscape Areas*

The main areas in Fingal which create exclusion zones come under zoning objectives A, A1, NC, NCB, MVC, C4, D, L1, ST, ST1, RV1, B1, F, G, and H(Figure 5.6). These zones include the areas of:

Baldongan	Baldoyle	Blanchardstown	Carpenterstown
Clonsilla	Corduf	Donabate	Flacketstown
Garristown	Howth	Knockbrack	Lusk
Malahide	Malheney	Mulhuddart	Portmarnock
Portraine	Rush		

Areas not entirely classed as exclusionary zones include:

- Baldoyle
- Balbriggan
- Clonsilla
- Santry
- Swords

5.3.1.4 South Dublin County Development Plan 1998

The County Development Plan sets out the aims of the Council for the future planning and development of the County and provides guidelines on its development and conservation. The guidelines suggested are as follows:

- **Permitted in Principle**
  Land uses designated under each zoning objective as "Permitted in Principle" are, subject to compliance with the relevant policies, standards and requirements set out in the Plan, generally acceptable

- **Open for Consideration**
  This includes uses which may or may not be acceptable depending on the size or extent of the proposal and to the particular site location. Proposals in this category will be considered on their individual merits and may be permitted only if not materially in conflict with the policies and objectives of the Development Plan and if they are consistent with the proper planning and development of the particular area

- **Not Permitted**
  Uses listed as 'Not Permitted' are, except in exceptional circumstances as determined by the Planning Authority, not acceptable

The zoning objectives listed in the County Development Plan are illustrated in Figure 5.7 and presented in Table 5.4. The table also illustrates the acceptability of 'Industry Special' which is the use class under which the siting of a Thermal Treatment facility would fall.

Table 5.4 Development Plan Zoning Objectives for South Dublin.

Zone	Zoning Objective	Thermal Treatment Acceptability
A	To protect and/or improve Residential Amenity	Not Permitted
A1	To provide for new Residential Communities in accordance with approved Action Area Plans	Not Permitted
B	To protect and improve Rural Amenity and to provide for the development of Agriculture	Open for Consideration
LC	To protect, provide for and/or improve Local Centre facilities	Not Permitted
DC	To protect, provide for and/or improve District Centre facilities	Not Permitted
TC	To protect, provide for and/improve Town Centre facilities	Not Permitted
E	To provide for Industrial and related uses	Permitted in Principle
F	To preserve and provide for Open Space and Recreational Amenities	Not Permitted
G	To protect and improve High Amenity Areas	Not Permitted
GB	To preserve a Green Belt between Development Areas	Not Permitted
H	To protect and enhance the outstanding natural character of the Dublin Mountain Area	Not Permitted

Source: South Dublin County Development Plan 1998

The South Dublin County Council area is different to the other study areas in that quite a high proportion of the County is made up of mountainous terrain. Provision as been made in the County Development Plan to protect this resource by granting the Council control of any development above the 350m contour line. The objective of this development control is to retain the open natural character of the mountains and enhance outdoor recreational potential of the area while protecting and sustaining the environmental capacity of the upland landscape. The vast majority of the Dublin Mountains is therefore precluded from Thermal Treatment facility development.

Some of the main areas, which are excluded from Thermal Treatment facility development by zoning objectives A, A1, LC, DC, TC, F, G, GB and H(Figure 5.8) are as follows:

Ballyboden
Clondalkin
Greenhills
Newcastle
Palmerstown
Rathfarnham
Tallaght
Templeogue

Zone E, the zoning objective, which provides for industrial and related uses, lists 'Industry Special' as Permitted in Principle, examples of such areas are as follows:

- Ballyowen
- Clondalkin Area by the M50
- Cooldown Commons
- The Belgard/Cookstown/Monarch/Airton/Broomhill Industrial Parks north of Tallaght
- Walkinstown/Fox & Geese (east of the Red Cow M50 roundabout)

Zone B, the zoning objective, which provides for the protection and improvement of Rural Amenity and for the development of Agriculture, lists 'Industry Special' as Open for Consideration, examples of such areas are as follows:

- Ballybane
- Hazelhatch
- Newtown Lower/Upper
- Kiltipper

5.3.2 Proposed Natural Heritage Areas

The National Parks and Wildlife section of the Office of Public Works has prepared a list of proposed Natural Heritage Areas (pNHA's). A pNHA is an area deemed to be of special interest containing important wildlife habitat and often containing rare or threatened species. They may also be selected on the basis of their geology or geomorphology. pNHA's do not have any statutory protection yet but are protected under the Dublin City & each of the three County Development Plans. An amendment to the Wildlife Act (1976) has been proposed which will give legal backing to NHA's.

The Dublin Region also contains 2 Special Areas of Conservation (SAC's). These are protected under the Habitats Directive (92/43/EEC), which seek to protect wildlife and its habitats. SAC's are selected from NHA's on the basis of those which best meet the criteria of this directive. The species and habitats of these areas are protected making these areas sensitive to development of any kind.

Another group of sites under legislative protection are the Special Protection Areas (SPA's). These sites relate to the protection of birds and are covered under the European Bird Directive (79/409/EEC). Two categories of birds come under this:

1. Listed rare and vulnerable species

2. Regularly occurring migratory species

The EU Wild Birds Directive also obliges the conservation of wetlands of significance. The selection of SPA sites is based on scientific information and current EU standards. The SPA's are included in the pNHA's and may also overlap with the SAC's.

5.3.2.1 Dublin City

The pNHA's for Dublin City are illustrated on Figure 5.9. Under the Dublin City Development Plan, all pNHA's are regarded as exclusionary to the development of a Thermal Treatment facility. The pNHA's include the Royal and Grand Canals, Baldoyle Bay, Sandymount Strand, Dublin Harbour and Bay, and Feltrim Hills amongst others. The pNHA's include both SAC's and SPA's.

5.3.2.2 Dun Laoghaire-Rathdown County

The proposed natural heritage areas (pNHA's) are protected under the Dun Laoghaire-Rathdown County Development Plan (1998). A list of the NHA's and SAC's are included in the following table:

Site Name	Interest type and Importance Rating
Booterstown Marsh	Ecological; Local
South Dublin Bay*	Ecological; International
Dalkey coast and Killiney Hill (inc. Roches Hill & parts of Killiney Hill)	Ecological & Geological; International, National and Regional
Fitzsimon's Wood	Ecological; Local
Dingle Glen	Ecological; Local
Loughlinstown Wood	Ecological; Local
Shanganagh Coastline	Geological; National
Knocksink Wood	Ecological; International
Ballybetagh Bog	Ecological, Geological and Historical; International
The Scalp	Geomorphological; Regional
Ballyman Glen*	Ecological; International
Wicklow Mountain National Park (part of) *	Ecological & Geological; International

Source: Dun Laoghaire-Rathdown Development Plan (1998)

**These are also proposed Special Areas of Conservation (SAC's)*

Area No.7 'Shanganagh Coastline' and Area No. 10 'The Scalp' have not yet been designated.

All pNHA's as listed above are regarded as exclusionary to the development of Thermal Treatment facilities and have been identified on Figure 5.9.

5.3.2.3 South Dublin

The list of proposed NHA's are presented in the following table. It is the objective of the Council to protect those areas designated as such.

Table 5.6: pNHA's and SAC's in South Dublin

Site Name	Interest type
Liffey Valley	Ecological
Grand Canal	Ecological
Dodder Valley	Ecological
Lugmore Glen	Ecological
Slade of Saggart and Crooksling Glen	Ecological
Glenasmole Valley *	Ecological

Source: South Dublin Draft Development Plan (1998)

** This is also a proposed Special Area of Conservation (SAC).*

All pNHA's, as listed above, are regarded as exclusionary to the development of Thermal Treatment facilities and have been identified on Figure 5.9.

5.3.2.4 Fingal

The Fingal County Development Plan orders the protection and conservation of SAC's and SPA's. The pNHA's include both SAC's and SPA's, There was not a list of pNHA's and SAC's available in the Fingal County Development Plan, there areas are mapped on Figure 5.9. The pNHA's include the Bog of the Ring, Skerries Island, Loughshinny Coast, Rogerstown Estuary, Lambay Island, Malahide Estuary, Ireland's Eye, Howth Head, and the Liffey Valley amongst others.

5.3.3 Areas of Archaeological Interest

A list of Sites and Monuments of archaeological importance has been obtained through the National Monument section of the Office of Public Works (OPW) known as the Sites and Monument Records (SMR). This list has recently been updated to include a number of additional sites, although a number of sites have also been delisted. The revised list though not yet published, may be consulted in the OPW. All sites of archaeological importance in the Dublin Region are shown on Figure 5.10.

5.3.4 Airports

Guidelines relating to development near airports is provided by the Irish Aviation Authority (IAA) and the International Civic Aviation Organisation. When contacted, the Irish Civil Aviation Authority did not have guidelines regarding siting of Thermal Treatment Plants. The following three airports restrict development within the Dublin Region:

- Dublin Airport
- Casement (Baldonnel) Aerodrome, Co. Dublin – Military Aerodrome
- Weston Aerodrome, Co. Dublin – Privately operated

The Dublin County Development Plan (1993) created a horizontal height restriction of 45m within 4.8km radius of Dublin Airport thus preventing the development of a thermal treatment facility in that zone. The Plan also created restrictions on development within 6.8km radius of the airport. These restrictions apply particularly along the centre line of the runways and the proposed new runways and would not necessarily restrict development of a Thermal Treatment facility.

The South Dublin County Development Plan (1998) stipulates a 4km radius restriction on height, dependant on location, for the Baldonnel Airfield. These same restrictions apply to the Weston Aerodrome.

5.3.4.1 Dublin City

Parts of Dublin City are excluded as it comes within both the 4.8km and 6.8km exclusionary zones of Dublin Airport and its flight paths. The exclusionary area includes much of North Dublin City stretching from Finglas in the west to Darndale in the east. The exclusionary area is shown on Figure 5.11.

5.3.4.2 Dun Laoghaire-Rathdown

There are no airport exclusionary areas within the Dun Laoghaire-Rathdown area.

5.3.4.3 Fingal

Most of the southern section of Fingal County is excluded as it comes within both the 4.8km and 6.8km exclusionary zones of Dublin Airport and its flight paths. The exclusionary area is shown on Figure 5.11.

5.3.4.4 South Dublin

The South Dublin area comes within the 4km exclusionary zones of both the Casement (Baldonnel) Aerodrome and the Weston Aerodrome. The relevant zones around these two airports results in the exclusion of much of north-west South Dublin as shown on Figure 5.11.

5.5 CONCLUSION AND RECOMMENDATION FROM THE PRELIMINARY ASSESSMENT

The results of the preliminary assessment excluding the Group 1 criteria are as follows:

- The City and County Development Plans eliminate developed areas and areas designated for development as well as areas with Amenity Value. Amenity areas being in the East along the coast of the Fingal Area and in the southern sections of South Dublin and Dun Laoghaire/Rathdown

- Proposed Natural Heritage Areas. Of the three major areas, two are situated on the coast on either side of Dublin Harbour and one in the southern part of South Dublin and Dun Laoghaire/Rathdown. There are also three smaller areas at Dalkey, Howth and Baldoyle

- Areas of archaeology listed on the new National Sites and Monuments Records are excluded.

- Airport: Height Restriction within a 4.8km range for Dublin Airport and 4.0 for the Baldonnell and Western Aerodromes.

Figure 5.12 illustrates the combined exclusionary areas for all four local authority areas.

It should be noted that archaeological features do not necessarily exclude the area in question, this depends upon the archaeological importance of the site. During the siting process the "value" of the archaeological features will be assessed.

5.6 SELECTION OF POTENTIAL SITES FOR SHORTLISTING

5.6.1 Areas Suitable for the Development of Thermal Treatment

Having taken account of the Group 1 exclusionary factors, ten areas were identified as potential sites. These sites were visited and a preliminary assessment was carried out of their suitability for development as a thermal treatment facility. The sites are listed by local authority below.

Dublin Corporation:

A. The Poolbeg Peninsula in the Dublin Docklands area

B. The former Semperit factory off Killeen Road

Dun Laoghaire/Rathdown:

C. The Cherrywood area of Loughlinstown

D. Agriculturally zoned area of Glenamuck

E. The Tibradden section of Rockbrook

Fingal:

F. Industrial area west of Balbriggan

G. The Belcamp Area west of the Malahide Road

H. Agriculturally zoned land in Deanestown

South Dublin:

I. Vacant sites in the Walkinstown Industrial Park

J. Vacant industrial site in Newlands

These sites are identified on Figure 5.13.

6. SHORTLISTING OF SITES

6.1 SHORTLISTING PROCEDURE

6.1.1 Criteria for Preliminary Assessment

The preliminary assessment of the above stated shortlist of 10 sites was conducted by assessing each site according to the following siting criteria:

- Proximity to Waste Centre
- Road Access
- Traffic
- End-Market Use Possibilities
- Site Size and Current Land Use
- Proximity to Residential Areas

The criteria are discussed in more detail below:

6.1.2.1 Proximity to Waste Centre

One of the baseline factors in choosing preferred areas for thermal treatment facilities is the proximity of the site to the origin of waste. The majority of waste in Dublin is generated within the Dublin Corporation administrative area. The proximity principle adopts the notion that waste should be treated or disposed of close to its source of generation but with proper regard to protection of the environment. Sites in or relatively close to Dublin Corporation area would therefore be considered more favourable in terms of proximity to waste generation.

6.1.2.2 Road Access

The transportation of waste is a significant issue for a several reasons. The accessibility of the plant can affect the operational cost of the transfer. The transport of waste is often perceived by the public to be undertaken in a less competent and professional manner than the transport of other materials.

6.1.2.3 Traffic

The impact from traffic is always a serious concern to the local community in the siting of any waste treatment facility. Traffic impacts can include noise, vibration, dust, air emissions, visual intrusion and the potential for accidents. The perceived impact will depend on the number of dwellings the traffic passes and the relative increase in traffic on a particular road. It will also depend on the quality of the road along which the traffic must pass as a poor road will result in a greater perceived (and real) impact in terms of the intrusion on the local inhabitants and also in terms of the potential to generate accidents. In addition to the impacts on local inhabitants, traffic affects the general environment by causing adverse air quality and traffic congestion/disruption to other road users.

The major traffic impacts related to the siting of a thermal treatment facility will occur along the route from the point of the waste generation to the treatment facility. Each potential site will have a number of possible routes from the source of waste. In reality the most likely route will be that which is the quickest for the waste to be transported. This is in turn a function of the distance along a particular route combined with the quality of the road along that route such as the quality and road designation, national or regional etc. will affect the speed at which the waste transportation vehicle can travel.

The most likely route to be used by waste hauliers to the site has been assessed in terms of distance and the type of roads along the route. Although some sites may have longer haul distances, their proximity to the M50 or other major roads minimises their traffic related impacts by taking traffic away from residential areas. Thus, the routes have then been assessed relative to the other sites and a suitable rating allocated.

6.1.2.4 End-Market Use Possibilities

The end market possibilities have been discussed in detail in the "Feasibility Study for Thermal Treatment of Waste for the Dublin Region." Each of the potential thermal treatment technologies produce a variety of output products which require to differing degrees, a market to make the technology economically viable. Waste combustion produces energy in the form of electric power and/or heat, which can be supplied to industry, district heating or to drying of different materials such as sludge. The metals reclaimed can be sold to the scrap metal market while clinker can be used as aggregate for road construction following further limited processing.

Gasification also produces a low calorific gas which can also be used in kilns or combusted directly for power/heat generation. Pyrolysis produces a gas which is suitable for kilns, power/heat generation while the char residue has potential use as a fuel for kilns also or for the production of activated carbon for wastewater and flue gas treatment. Potential consumers of these products would be local industry, district heating companies, power plants, cement companies and possibly waste water treatment plants.

6.1.2.5 Site Size and Current Land Use

Ideally the area selected should be vacant land and of sufficient size to meet the requirements of and infrastructure required by a thermal treatment facility. The land use factor also takes into account the general impact on the area in terms of loss of open space or other use which in turn is reflected in the quality of the land and its current land use.

6.1.2.6 Proximity to Residential Areas

While there are no documented adverse impacts from living near to a thermal treatment facility the public perception may be otherwise. There is also concern in the public mind as to how the proximity to such a facility would impact on property value. None of the areas selected have residential zoning as it was considered inappropriate given the scale of the facility. However, there may be some benefits to a community close to the facility such as district heating capacity, employment generation with benefit to local community, reduction in waste transport for local industry and increase in house purchases due to increased demand. In terms of evaluation of suitable areas, those situated close to residential areas scored lower.

6.2 PRELIMINARY ASSESSMENT

A matrix of the ten potential sites was created in order to perform a qualitative evaluation of the individual site suitability. Through this process the 5 most suitable sites for development of a thermal treatment facility were attained. Below is a brief summary table of the criteria assessment on the sites, more detail of each individual site is located in Appendix A.

Table 6.1 Brief Description of 10 Shortlisted Sites

Site	Description	Relative Suitability
Site A **Poolbeg**	Located in Dublin Corporation, thermal treatment is considered a permissible use in the Development Plan zoning. The proximity to waste centre is very good and although currently just satisfactory, road access is set to improve in line with timescale for development of thermal plant. Traffic in the area is heavy at times, however industrial nature of the area is suitable for trucks coming to/going from facility. There are many options for end market use in the vicinity of the site and there are no residential dwellings within 1km.	More Suitable
Site B **Killeen Road**	Located in Dublin Corporation, thermal treatment is considered a permissible use in the Development Plan zoning. The proximity to waste centre is good and there is opportunity for end market use in the area. The local road network linking the site to the N7 is not sufficient for use by industrial vehicles. The site is a large factory adjacent to the rail line and located within 250m of the southwestern portion of Ballyfermot which is primarily residential.	Less Suitable
Site C **Cherrywood**	Located in Dun Laoghaire-Rathdown., Industry-Special is considered permitted in principle in the Development Plan Zoning. The proximity to waste centre at the site is fair in relation to other assessed locations. There is excellent possibility for end-market use as a science and technology park is currently under development adjacent to the site. The proposed extension of the M50 adjacent to the site will provide good road access. Currently the site is vacant and there are no residential dwellings within 500 meters of the site.	More Suitable
Site D **Glenamuck**	Located in Dun Laoghaire-Rathdown. Industry – Special is considered open for consideration under the agriculture zoning of this site. The proximity to waste centre of gravity is poor as the site is located at the southern end of the region close to the Dublin Mountains. The site provides easy access to the M50 however vehicles must pass through residential village en route. There are no possible end users located in the vicinity of the site. Currently the site is a rolling field in an agricultural area with moderately dispersed residential dwellings.	Less Suitable

Site	Description	Relative Suitability
Site E **Tibradden**	Located in Dun Laoghaire-Rathdown. Industry – Special is considered open for consideration under the agricultural zoning. The proximity to waste centre of gravity is poor as the site is located beyond the urban fringe of the county. The site provides easy access to the M50 however vehicles must pass through residential neighbourhood en route. There are no likely end users located in the vicinity of the site. Located in a predominately agricultural area with moderately dispersed residential dwellings	Less Suitable
Site F **Balbriggan**	Located in Fingal, thermal treatment is considered Open for Consideration under the Development Plan zoning for the site. The proximity to waste centre of gravity is poor as the site is located in the northern section of Fingal, far removed from the urban areas in the southern portion of County Dublin. Although road access to the site is good, vehicle traffic would have a long distance to travel which is not optimal for waste transportation. Located in a high-tech business park there are potential end users for energy. The site lies within 250m of a major residential area.	Less Suitable
Site G **Belcamp**	Located in Fingal, thermal treatment is considered Open for Consideration under the Development Plan zoning for the site. Proximity to waste centre and road access are good however, trucks would have to travel across city centre which is not optimal. The land is currently open space and there is a possibility for end market use. The site is in very close proximity to residential areas of Clare Hall and Darndale.	Less Suitable
Site H **Deanestown**	Located in Fingal, thermal treatment is considered Open for Consideration under the Development Plan zoning for the site. Located in fair proximity to the waste centre of gravity there are several potential end users located in business/commercial estates near the site. Although the M50 is located close to the site, travel through Blanchardstown village occurs en route. Although there are no major residential areas within 250m of the site there is a hospital located to the south of the area.	Less Suitable

Site	Description	Relative Suitability
Site I **Walkinstown**	Located in South Dublin, Industry – Special is considered 'permitted in principle' under the Development Plan zoning for the site. The site is in good proximity to the waste centre of gravity and provides easy access to the M50. Located within an industrial estate, there are several potential end users in proximity of the site. Traffic in the area is a mix of industrial/commuter and is not extremely heavy. Currently there are three potential sites which are all open fields within the Industrial Estate. Although there are moderately dispersed residential dwellings throughout the Estate the area is mostly removed from residential dwellings.	More Suitable
Site J **Newlands**	Located in South Dublin, Industry – Special is considered 'permitted in principle' under the Development Plan zoning for the site. Located along the N7 in close proximity to the M50, the site provides good road access. Traffic in the area is often heavy with a mix of Industrial and commercial vehicles. There may be potential for end market use, however there is none adjacent to the site. The site is an industrial zoned area surrounded by residential development.	More Suitable

6.3 FOUR SHORTLISTED SITES

The four sites (figure 6.1) which ranked as 'More Suitable' in the preliminary analysis were then subject to a much more detailed assessment of the above criteria as well as general planning and environmental issues surrounding the site. The results of this assessment are detailed below.

6.3.1 Cherrywood

This site is located west of Loughlinstown village in the local authority area of Dun Laoghaire/Rathdown County Council. The proposed South Eastern Motorway extension of the existing M50 ring road runs adjacent to the site on its south western side. The site is approximately 19.3 acres of open space zoned by the Dun Laoghaire-Rathdown Development Plan as Objective E : To provide for industrial and related uses. Industry – Special and Industry – General are both considered 'Permitted in Principle' as use classes related to the zoning objective. It is important to note that development of this land is contingent on the completion of the South Eastern Motorway as it is stipulated in the plan for the area that no development may occur until the Motorway is completed.

Adjacent to the site on its southeastern boarder is the proposed Cherrywood Science and Technology Park which has already begun development. This park has immense potential to serve as an end user of energy created by the thermal treatment process. The current development plan for the Cherrywood Science and Technology Park proposes the development of a golf course on the parcel of the park adjacent to the site. The golf course could be engineered to use the end products of the plant as energy for its upkeep and daily activities.

Located in the foothills of the Dublin Mountains the development of a thermal treatment facility would be mildly intrusive on the current landscape of the area. However, the development of the Cherrywood Park and the South Eastern Motorway will add to the industrial/commercial nature of the area and thus decrease the overall impact a thermal treatment facility would have on the area. In order for vehicles to gain access to the site from the M50 they would have to travel through the Cherrywood Science and Technology Park via the developments proposed road scheme which is detailed on Figure 6.1. The Carrickmines Golf Course is located 600m west of the site. Less than 1km north of the site there is an area of forest which would provide natural screening between the site and the village of Cabinteely.

A small tributary stream from the Loughlinstown River runs 50m from the extremities of the site and 160m from the centre of the suitable area. There are Megalithic Tombs located 700m south east of the site and 800m north of the site. The Tully Church and Graveyard (Ruins) and two Crosses are located 600m north east of the site. None of these factors should influence the development of the site as a thermal treatment facility as their respective exclusion zones do not infringe on the site boundaries.

Although the site is a good distance from the above people-oriented facilities, it is in close proximity to several residential dwellings. There is only 140m between the south eastern point of the site and its closest residential homes. From the centre of the site there is 325m from this same area.

The main advantages and disadvantages of the siting a thermal treatment facility at this site are summarised in the Table 6.2. A detailed map of the site is shown in Figure 6.2.

Table 6.2 Summary of Cherrywood

Advantages	Disadvantages
Zoned industrial	Development contingent on completion of South Eastern Motorway
Adjacent to South Eastern Motorway	Plant would be intrusive on visual quality of current landscape
Strong potential for end user	Within 150m of residential neighbourhood

6.3.2 Poolbeg

This site is located in the Poolbeg Peninsula area of the Dublin Docklands, which falls under the Dublin Corporation City Development Plan. Under this Plan, all of the Docklands area is zoned under Objective Z7: to provide for the protection and creation of industrial uses, and facilitate opportunities for employment creation. An incineration plant is listed as a permissible use under this zoning objective.

The Docklands Development Authority has created a Docklands Area Master Plan, which sets specific objectives for the Docklands area. Poolbeg Peninsula is sectioned off into three different zoning objectives under the Dockland Development Authority's Master Plan. The majority of the area is zoned under objective E2 which considers Industry – Light as normally permissible but does not allow for Industry – General which a thermal treatment plant would most likely fall under. The southern docklands is divided into two zoning objectives. A strip along the southern coast is zoned under objective K which does not permit Industry – Light or Industry – General. The section between these

two zones falls under objective E1 which considers Industry – Light and General as normally permissible.

This site is central in terms of proximity to the waste centre of gravity. Traffic in the Docklands area is considerable due to the large amount of industrial/ commercial activity as well as commuter traffic over the toll bridge. Road access at present is satisfactory. There are major roads projects planned that will increase access to this site significantly. The North Port Tunnel will connect the North Port section of the Docks to the M50 in Santry. The tunnel is planned to be completed in late 2003 which will allow for access previous to the completion of development for the thermal treatment plant. The Dublin City Development Plan call for the creation of an Eastern by-Pass Route which will link the North Port to the N11 in Merrion. There is no precise time frame for the creation of this route as the planning is subject to an EIS, however it can be expected within the timeframe for the City Development Plan (1999-2004).

The current landscape of Poolbeg Peninsula is predominately industrial with several high heat users and potential end users for energy produced by the plant. There are also a number of existing chimneys especially the twin stacks of Poolbeg Power Station which are 210m in height. Due to the existing industrial landscape in the area, the siting of a thermal treatment facility would be subject to the current landuse and have minimal visual impacts. It is possible that heat generated from the plant could be used to thermally dry sludge from the upgrading of the Ringsend Sewage Works under the Dublin Bay Project.

A major advantage of the Poolbeg site is the relatively large distance between the land and residential areas. The closest major residential neighbourhoods are all located greater than 1km from the site. There are 1.4km between the site and Ringsend, 1.5km between the site and Sandymount and 2.5km between the site and the beach in Clontarf. Another advantage of the site is that the prevailing wind is southwesterly which would bring the dispersion plume out to sea.

Adjacent to the eastern border of the site is the Irishtown park which is classed under the Docklands Area Master Plan as a Natural Habitat Area. This is a classification of terrestrial ecological importance. The site is bordered on the south by Sandymount Strand which is a proposed Natural Heritage Area. Development of the site would have to be in the context of the ecological and amenity importance of the area. There is no known archaeology on the site.

The main advantages/disadvantages to siting a thermal treatment facility at this site in the Poolbeg Peninsula are summarised in Table 6.4. A detailed map of the site is shown in Figure 6.3.

Table 6.3 Summary of Poolbeg

Advantages	Disadvantages
Zoned industrial	Traffic
Central in terms of proximity to waste production centre of gravity	Possibility of negative perception by local residents related to increase in existing industrial infrastructure
Road access will be good upon completion of several current projects	
No houses within 1km of site	
Would fit well with existing chimneyscape in industrial setting	
Prevailing south-westerly wind	
Potential for use of energy to dry sludge	

6.3.4 Newlands

The site is located along the Naas Road approximately 1km west of the Red Cow M50 roundabout in the local authority area of South Dublin County Council. The site is 7acres of open space and is currently for sale by public tender. The land is zoned by the South Dublin County Development Plan as Objective E: to provide for industrial and related uses. Industry – Special is permitted in principle under this objective.

Located along the northern side of the N7, there is potential for end market industrial/commercial use in the area. However, the majority of industrial/commercial properties in the area are located along or off of the southern side of the N7. There would be not potential end users adjacent to the plant. Traffic along the Naas Road is heavy during the morning and evening commuter periods. Proximity to both the N11 and the M50 creates good road access for industrial vehicles carrying waste to and from the site.

The site is within 50m of major residential neighbourhoods along all of its borders bar the southern border which faces the Naas Road. There is a small stream that is part of the Cammock River catchment which runs 1km south of the site. The Grand Canal is located 1.4km north of the site. There is a Mound Gate-Tower and two other areas of archaeological interest locate 1.15km south east of the site. A fire station along R113 is located 1km south of the site. The Newlands Golf Course is located 1.2km south west of the site. A Holy Well is located 700m west of the site and several areas of archaeological interest are located between 1-1.5km north west of the site in Clondalkin. There is a college located 450m north west of the site, a school 800m north west of the site and a third school located 1.35km south east of the site in the Kilnamanagh area.

The main advantages/disadvantages of siting a thermal treatment facility at Newlands are summarised in Table 6.5. A detailed map of the site is shown in Figure 6.4.

Table 6.4 Summary of Newlands

Advantages	Disadvantages
Zoned industrial	Relatively weak end-market potential
Good road access	Traffic
Good proximity to waste centre of gravity	Site is adjacent to major residential area

6.3.4 Robinhood

This site is located in the Walkinstown Industrial Estate in the local authority area of South Dublin County Council. The site is 16 acres of open space zoned by the South Dublin County Development Plan as Objective E: To provide for industrial and related uses. 'Industry Special' is permitted in principle in this designation.

There are good possibilities for end market use as the site is located within the Walkinstown Industrial Estate. Also with the M50 close by new industries may be located within the area in the future. There is opportunity for high heat users in the industrial estate as the Smurfit Paper recycling and other potential high heat users are located there. As the site is located within an industrial estate, the existing traffic is predominately cars and industrial vehicles. This site is located along Ballymount Road Lower, which is one of the more major roads for the industrial estate. The road access at site is very good as the site is in close proximity to two M50 roundabouts.

The site is located 100m south of a tributary of the Cammock river. The site is 1.7 km south of the Grand Canal. There is a holy well 750m east of the site. Drimragh Castle and a church in Bluebell are located approximately 1.5km north east of the site. There are no schools located within 1km of the site. The closest school is located in Walkinstown at a distance of 1.2km to the north east. There are moderately dispersed residential dwellings throughout Walkinstown Industrial Estate. The closest major residential neighbourhood is the northern portion of Greenhills which is 1km south of the site. The north western portion of Kilnamanagh lies 1.4km from the site and a residential portion of Walkinstown is 1.2km north east of the site.

The main advantages/disadvantages of siting a thermal treatment facility at Robinhood are summarise in Table 6.6. A detailed map of the site is shown in Figure 6.5.

Table 6.6 Summary of Robinhood

Advantages	Disadvantages
Zoned industrial	Traffic
Strong end market potential	Moderately dispersed residential dwellings throughout industrial estate
Road access	
No major residential neighbourhoods within 1km	

It should be noted that the site maps are diagrammatic and distances are approximate, as the selected area does not necessarily represent the area that would have to be purchased and developed for a thermal treatment facility.

6.4 SELECTION PROCEDURE

Based on the qualitative analysis of the shortlisted sites, the following four sites have been chosen as suitable for a thermal treatment facility in order of preference:

1. Poolbeg
2. Robinhood
3. Cherrywood
4. Newlands

6.5 SELECTED SITE AND CONCLUSION

The Poolbeg Site has been identified as the preferred site through a systematic assessment of areas suitable for thermal treatment development in City/County Dublin. Preliminary assessment of available land in the Poolbeg Peninsula shows suitable land available adjacent to the existing treatment works at Ringsend. The site offers strong potential for end market use, is not in close proximity to residential areas, and the new road developments will make the area accessible from every part of the Region. The site currently contains a large amount of existing power industry with chimneystacks so the facility will not be visually intrusive. It's location within the waste production centre of gravity for the region supports the proximity principle.

The next phase of development should take special note of the areas of ecological concern in close proximity to the site. The facility planning will need to satisfy the public concerns with ecologically sound engineering and development. In order to achieve success in siting any waste facility it is important to involve the public in the process, engender their trust and convince those most affected by the proposal that it is the best solution to the problem.