

# 'LOOKING AFTER DERBYSHIRE'S WASTE'

## STRATEGY DOCUMENT



July 2006

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## DERBYSHIRE WASTE MANAGEMENT STRATEGY EXECUTIVE SUMMARY

### Introduction

The Joint Municipal Waste Management Strategy provides a framework for strategic decisions to be taken on the management of municipal solid waste (MSW) in Derbyshire and Derby City over the next 20 years and has been jointly prepared by Derbyshire County Council, Derby City Council and the eight Derbyshire Borough / District Councils.

European waste legislation and policy, adopted into UK law has a direct effect on local authority waste collection and disposal practices. The Landfill Directive provides the principal legal framework influencing MSW management and strategy development in the UK. The most significant requirement of the Directive is to significantly reduce the quantity of biodegradable municipal waste (BMW) landfilled over future years as shown below:

- Reduce BMW landfilled to 75% (by weight) of that produced in 1995 by 2010;
- Reduce BMW landfilled to 50% (by weight) of that produced in 1995 by 2013; and
- Reduce BMW landfilled to 35% (by weight) of that produced in 1995 by 2020.

The Landfill Directive is transposed into UK law through the Waste and Emissions Trading Bill and the Landfill Allowance Trading Scheme (LATS). Under the scheme, Derbyshire County Council and Derby City Council have been allocated landfill allowances which set the maximum quantity of BMW that the Councils can landfill in each year up to 2020.

Within Derbyshire, there has been a heavy reliance on landfill as the principal disposal route for a high proportion of municipal waste (77%). This situation has to change with the introduction of systems which serve to increase recycling, composting and recovery of waste and therefore, over time, greatly reduce the proportion of the waste stream sent to landfill.

### Waste Management Today

In 2004/05, Derbyshire produced more than 500,000 tonnes of MSW. Of this total, Derbyshire County accounted for about 390,000 tonnes, whilst Derby City produced about 125,000 tonnes. Recycling and composting accounted for approximately 23% of MSW waste arisings. Based on current and forecast growth levels it is predicted that waste arisings in Derbyshire (including Derby City) will reach 620,000 tonnes per annum by 2020.

All local authorities in Derbyshire are working together to develop a high profile countywide waste awareness campaign linked to the National Waste Awareness Initiative 'Recycle Now' campaign, and are all promoting and supporting waste

minimisation and re-use initiatives and schemes. Additionally, regional initiatives have been identified with potential for being implemented by the councils.

In order to meet their LATS allowances in 2020 the County and the City will need to divert over 330,000 tonnes of biodegradable municipal waste away from landfill through a combination of recycling, composting and residual waste treatment. Failure to achieve the LATS targets will result in significant fines for the councils.

### **Future Options for Managing Waste**

Six potential options have been developed, each comprising a mixture of bring and kerbside recycling, household waste recycling centres, waste facilities for treatment of residual waste and landfill disposal. A detailed options appraisal process has comprised an assessment of the Best Practicable Environmental Option (BPEO), and Sustainable Waste Management Option (SWMO). Each option has been assessed against a set of 21 environmental, economic and social indicators.

The best performing options with respect to BPEO and the SWMO for long-term management of municipal waste in Derbyshire involved a recycling / composting rate between 45 and 55% with the residual waste being treated at an Energy from Waste Facility, or by anaerobic digestion or by autoclaving (steam sterilisation) technology. All three options are considered to offer a sustainable solution for the future management of Derbyshire's and Derby City's municipal waste and allow the council's to meet and indeed exceed the Landfill Directive targets in 2020. These highest scoring options should now form the basis for the development of a more detailed costing and logistical analysis.

### **Proposed Strategy**

The proposed strategy is based on a number of key elements as follows:

- A partnership approach between all councils to achieve the visions of this municipal waste strategy;
- Introduction of waste minimisation schemes to reduce the growth in waste arisings; Ultimately, it is intended that zero growth in waste arisings will be achieved;
- Continued support to and promotion of the benefits of home composting and other waste minimisation schemes;
- Support to local and regional schemes that encourage and develop local recycling, composting and reprocessing capacity;
- Continued introduction/expansion of the kerbside collection of dry recyclable and organic (compostable) materials;
- Enhancement of the Household Waste and Recycling Centre (HWRC) provision

- Provision of Materials Recycling Facilities (MRFs) to deal with recyclable materials as required;
- Development of a number of in-vessel composting facilities;
- Continued use of open windrow composting for green waste.
- Provision of sufficient residual waste handling capacity to treat residual waste.
- Provision of sufficient landfill capacity to receive treatment residues and other non-recyclable waste.

### Delivering the Strategy

There will need to be a significant increase in the number of waste handling facilities to manage the waste. The estimated number of facilities will depend on the size. The following table gives an indication of the need, including current ones depending on whether they are small, medium or large. In reality it will be a combination to suit the needs of the city and county.

SIZE	MRF	COMPOSTING	RESIDUAL WASTE TREATMENT	LANDFILL	HWRCs & TRANSFER FACILITIES	TOTAL FACILITIES
SMALL	17	7	6	1	11	42
MEDIUM	7	5	3	1	11	27
LARGE	3	3	2	1	11	20

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Appendices 1 – 12 can be found in a separate volume – Technical Appendices

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## **1 CHAPTER 1 – INTRODUCTION**

This document addresses the management of municipal solid waste within Derbyshire and Derby over the next 20 years. It has been prepared in partnership by Derbyshire County Council, Derby City Council, and the eight Derbyshire District and Borough Councils. The following chapter outlines the purpose and context of the strategy.

### **1.1 PURPOSE OF THE STRATEGY**

This document provides a framework for strategic decisions to be taken on the management of municipal solid waste (MSW) in Derbyshire and Derby City over the next 20 years. It adopts a flexible approach, recognising the need to respond to rapid developments of new ideas and opportunities.

The East Midlands Regional Waste Strategy<sup>1</sup>, published in January 2006, assesses the management of all controlled waste streams, including household, commercial, industrial, construction and demolition and agricultural wastes. The regional waste strategy should be taken account of when considering Derbyshire's Joint Municipal Waste Management Strategy.

Under the provisions of the Environment Act 1995, the waste regulation functions of county councils were transferred to the Environment Agency and the duty of waste regulation authorities to prepare waste disposal (management) plans was repealed. These plans have been replaced by a National Waste Strategy and by Regional Waste Strategies.

The last Waste Disposal Plan for Derbyshire was published in 1985 and was initially superseded by the 1999 Strategy. That document is now superseded by this revised Strategy 2006. The new Strategy 2006 is needed to provide the context for preparing the new municipal waste management contracts that are due to come into operation in the next few years.

This Strategy has been prepared by SLR Consulting Ltd on behalf of, and in association with Derbyshire County Council (as waste disposal and planning authority), Derby City Council (waste collection, disposal and planning authority) and the eight Derbyshire Borough / District Councils (as waste collection authorities).

A recent development affecting Municipal Waste Strategies is the European Directive 2001/42/EEC (The Strategic Environmental Assessment (SEA) Directive) which requires environmental assessments of land use and spatial plans to establish the impacts of the plans on the environment. An SEA of this Municipal Waste Strategy is an integral part of the document.

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<sup>1</sup> <http://www.emra.gov.uk/waste/documents.htm>

The partners are committed to achieving equality and diversity by using the Equality Standard for Local Government as a framework for improving equality practice and producing equitable outcomes in service delivery for all ReGARDS groups (Religion or belief, Gender, Age, Race, Disability and Sexual Orientation).

## 1.2 THE CONTEXT OF THE STRATEGY

The national policy objectives for waste management, as set out in the Government “Waste Strategy 2000” and “Guidance on Municipal Waste Management” (March 2001), are:-

- to reduce the amount of waste that society produces
- to make the best use of the waste that is produced, and
- to choose waste management practices which minimise the risks of immediate and future environmental pollution and harm to human health.

To achieve these objectives, the Strategy document and the associated Technical Appendices emphasise the importance of the **Waste Hierarchy** that was first put forward in the Government’s Sustainable Development Strategy in January 1994. This waste hierarchy is depicted in Figure 1:

Waste reduction is at the top of the hierarchy. To date the principal focus has been on the recycling of waste, however it is simply not enough to find different ways of dealing with the waste we produce. As a priority we must aim to produce less in the first place.

Second in the hierarchy is reuse of waste, which essentially requires using a product over and over again. If the product regarded as waste is no longer suitable for reuse, it may still contain materials of value that can be recovered through recycling, composting or treatment with energy recovery.

Only when all of the other levels of the waste hierarchy have been maximised, should disposal of material be considered. Various European Union Directives limit the amount and type of remaining material that is permitted for landfill. However, regardless of the method of waste management applied, there will always be a need for landfill for those elements of the waste stream that cannot be further re-used, recycled, composted or otherwise treated.

Waste Strategy 2000 describes the complexity of waste management and indicates the process to be used for considering the relative merits of various waste management options, the Best Practicable Environmental Option (BPEO).

Figure 1. The Waste Hierarchy



The BPEO (as defined in the 12<sup>th</sup> Report of the Royal Commission on Environmental Pollution) is “The option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.” This Strategy is based on a modified version of the BPEO, the sustainable waste management option (SWMO) which incorporates social and economic factors. The SWMO is defined as the option that provides the best overall solution taking into account specific local circumstances, social and economic aspects, as well as impacts on the environment.

The Strategy also takes into account the following:

**Proximity Principle** – dealing with waste as close to the source of production as possible.

**Regional Self-Sufficiency Principle** – waste should be where possible and practicable dealt with inside East Midlands Regional boundaries so as to avoid transportation. However, it is recognised that in some instances it may be more practicable to move and manage wastes across boundaries.

The strategy provides a framework for Derbyshire and Derby City for the next 20 years; however the Strategy is subject to a 5 yearly review. The strategy will also be subject to review at other times such as following new government directives, publishing of government strategies or major environmental or financial impacts.

## 2 POLICY CONTEXT AND DRIVERS FOR CHANGE

The requirements for management of municipal waste are defined by environmental legislation and policy. This chapter identifies particular legislation that specifically impacts upon the way municipal waste is managed.

### 2.1 WASTE POLICY DRIVERS WITHIN THE EUROPEAN UNION

This section details relevant policy and drivers that have a direct effect on the management of waste in Derbyshire. Waste Collection Authorities (WCAs) and Waste Disposal Authorities (WDAs) are affected by legislation that impacts on the way waste is managed i.e. European Waste Legislation and Policy adopted into UK law has a direct effect on Local Authority collection and disposal practices. Supplementary information is provided in the technical appendices (Appendix 12).

#### 2.1.1 Environmental Protection Act 1990

EPA 1990 Part II sets out the duties of WCAs and WDAs. Under this Act, WCAs have a duty to collect waste from all households (and commercial properties if requested to do so in receptacles specified by the WCA). The WCA may make a charge for the receptacles. WDAs have a duty to dispose of waste collected by the WCAs and to provide facilities for residents within the area to deposit waste. A WCA may charge for the collection of Commercial and Industrial waste and, under the Controlled Waste Regulations 1992, may charge for the collection of certain types of household waste. Unitary Authorities assume the responsibility of both the WCA and WDA.

Under this Act, Local Authorities have a statutory duty to keep roads, land, open highways, etc. free of litter and to ensure roads and highways are kept clean in accordance with the *Code of Practice on Litter and Refuse*.

#### 2.1.2 Litter Plan

The Environmental Protection Act 1990 (Code of Practice on Litter and Refuse) imposes a duty on local authorities (and certain other landowners and occupiers) to keep specified land clear of litter and refuse so far as is practicable. Waste collection authorities are encouraged to publish litter plans to inform the public of the standards of cleanliness that they can expect and what action they can take if they are dissatisfied. Litter plans should address the following issues:

- General litter;
- Dog fouling;
- Schools generated litter;
- Litter from fast food outlets;
- Fly tipping;
- Chewing gum;

- Drugs related litter;
- Beach cleansing;
- Riverine litter;
- Abandoned vehicles;
- Weeds and detritus;
- Education and awareness raising;
- Enforcement; and
- Monitoring.

### **2.1.3 Environment Act 1995**

Apart from the requirement to produce a National Waste Strategy, this Act was largely concerned with changes to the legal and institutional arrangements for waste management.

### **2.1.4 Clean Neighbourhoods and Environment Act 2005**

The Act became law on the 7 April 2005 after receiving Royal Assent. The act extends existing legislation in some cases e.g. Environmental Protection Act 1990 and introduces new offences in others, as such the timeline for introduction of powers of enactment range from June 2005 to 2007. The aim of the Act is to improve the quality of the local environment, the key measures which will affect management of waste in Derbyshire are fly-tipped waste; litter; abandoned and nuisance vehicles. This Act will be used in the development of the Derbyshire Fly Tipping Forum and the Fly Tipping Protocol.

### **2.1.5 Controlled Waste Regulations 1992**

These Regulations provide legal definitions of controlled wastes (household, commercial and industrial wastes). The Regulations also state that certain types of litter and refuse are to be treated as Controlled Waste. Under these Regulations, Local Authorities may charge for the collection of certain types of household waste.

### **2.1.6 Landfill Directive (99/31/EC)**

The Landfill Directive was brought into force in the UK on the 15<sup>th</sup> June 2002 as the Landfill (England and Wales) Regulations 2002 and since then has been introduced in stages to give UK industry time to adapt. The Landfill Directive is seen as providing the principal legal framework influencing MSW management and strategy development in the UK. The Directive seeks to prevent or reduce negative environmental effects from the landfilling of waste by introducing uniform standards throughout the European Union.

The most significant part of the Directive is Article 5 which proposes a strict timetable for reductions in landfilling biodegradable municipal waste. These are onerous requirements and have been the principal influence on the formulation of 'Waste Strategy 2000'. The European Landfill Directive sets mandatory targets which, for the UK, require the following (the targets include the 4 year extensions granted to the UK.):

- By 2010 to reduce BMW landfilled to 75% (by weight) of that produced in 1995
- By 2013 to reduce BMW landfilled to 50% (by weight) of that produced in 1995
- By 2020 to reduce BMW landfilled to 35% (by weight) of that produced in 1995.

### **2.1.7 Waste and Emissions Trading Act 2003**

On the 10<sup>th</sup> November 2003, Parliament gave its final seal of approval to the Waste and Emissions Trading Bill to become the Waste and Emissions Trading Act 2003. The Act implements Articles 5(1) and 5(2) of the European Landfill Directive in the UK. This new legislation will lead to waste disposal authorities trading allowances for the amount of biodegradable waste they can send to landfill each year. The Act was the first stage of introducing the landfill allowances trading scheme (LATS), which will be the Government's key measure in meeting landfill reduction targets as required by the Landfill Directive.

LATS has two functions in the UK:

- Landfill allowances have been allocated to each waste disposal authority (WDA), at a level that will enable England to meet its targets, as a contribution to the UK targets under the landfill directive; and
- Trading mechanism which allows these targets to be met in the most cost effective manner through the trading, banking and borrowing of allowances.

The LATS scheme formally commenced on 1st April 2005 and Waste Disposal Authorities have now been allocated landfill allowances for each year up to 2020. Waste Disposal Authorities have a number of options to achieve their landfill allowance allocation; however, Authorities will be fined up to £150 (current level) for every tonne they landfill beyond the limit set by the allowances they hold.

### **2.1.8 The Waste Minimisation Act 1998**

The Waste Minimisation Act, introduced in the UK in November 1998, encourages local authorities to promote incentives for reduction strategies for household waste, allowing local authorities to:

“do or arrange for the doing of, anything which in its opinion is necessary or expedient for the purpose of minimising the quantities of controlled waste, or controlled waste of any description, generated in its area”.

### **2.1.9 Household Waste Recycling Act 2003**

The Household Waste Recycling Act 2003 was the result of a private members bill introduced to parliament by Joan Ruddock, the MP for Lewisham and Deptford, in December 2002. Backed by pressure group Friends of the Earth, and originally known as the “doorstep recycling bill” and later the “municipal waste recycling bill”.

The Act requires all English local authorities to provide kerbside collections for all householders for a minimum of two materials by 2010. Councils with particular difficulties in meeting the demands of the legislation could be granted a derogation, while providing “comparable” recycling facilities, such as a bring bank or civic amenity site which could satisfy the Acts requirements. Local authorities will only have to collect one dry recyclable from the kerbside if they provide a garden waste collection service.

### **2.1.10 Animal By-Products Regulations (ABPR) 2003**

Under the earlier Animal By-Products Order 1999 (as amended) it was an offence to allow livestock or wild birds access to catering waste containing meat or products of animal origin, or which originated from premises handling meat or products of animal origin. This Order (1999) effectively banned composting and biogas digestion as treatment and recovery methods for catering waste.

The 2003 Regulations reversed the 1999 ban and now permits the use of composting and biogas treatment, under specified conditions, for catering waste and other low risk (category 3) animal by-products. Of relevance to the local authorities is that kitchen waste will need to be treated through an in-vessel composting plant that achieves set time and temperature criteria, and has been certified by the State Veterinary Service. Green waste can still be composted in open-windrows.

### **2.1.11 IPPC Directive (96/61/EC)**

The Integrated Pollution Prevention and Control (IPPC) Directive established in August 2000, requires a range of prescribed processes (including many waste management processes) to obtain an authorisation (permit) from the licensing authorities i.e. the Environment Agency, within the Member States. Without the permit, they are not allowed to operate. These permits are based on the concept of Best Available Techniques (BAT – as defined by the Directive) for the prevention, or where not possible, reduction of pollution.

### **2.1.12 Packaging Waste Directive (94/62/EC) as amended (04/12/EC)**

The Directive on Packaging and Packaging Waste came into force in 1994. The Packaging Directive is concerned with the minimisation of waste and the amount of packaging material that should be recycled. It promotes energy recovery, re-use and recycling of packaging. The Directive is aimed primarily at businesses generating over 50 tonnes of packaging waste and with a turnover of £2million.

### **2.1.13 Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC)**

This Directive will affect those organisations involved in manufacturing, selling, distributing, recycling or treating electrical and electronic equipment including household appliances, IT and telecommunications equipment, audiovisual equipment, lighting equipment, electrical and electronic tools, toys, leisure and sports equipment, medical devices and automatic dispensers.

The Directive aims to reduce the waste arising from electrical and electronic equipment as well as improve the environmental performance of all those involved in the life cycle of electrical and electronic equipment. The Directive covers WEEE used by consumers and for professional purposes.

### **2.1.14 Batteries Directive**

On the 24<sup>th</sup> November 2003 the European Commission adopted a proposal for a new Directive on batteries and accumulators and spent batteries and accumulators, with adoption in member states expected during mid 2006. The Directive will require a much higher proportion of spent batteries to be collected and recycled. Key points likely to be included within the forthcoming European Batteries Directive include:

- Collection targets for portable batteries set in two stages: 25% of average annual sales, to be achieved four years after the date of transposition, rising to 45% eight years after the date of transposition; and
- A two year transposition period for Member States in order to bring into force the laws, regulations, and administrative provisions necessary to comply with the Directive.

### **2.1.15 Hazardous Waste (England and Wales) Regulations 2005**

Hazardous waste includes waste that contains properties that may render it harmful to human health or the environment as set out in a list, the European Waste Catalogue (EWC).

There are four sets of Regulations on hazardous waste, applicable to England and Wales that came fully into force on 16 July 2005, namely:

- The Hazardous Waste (England and Wales Regulations) 2005 and the Hazardous Waste (Wales) Regulations 2005 (together referred to as Hazardous Waste Regulations)
- The List of Waste (England) Regulations 2005 and the List of Waste (Wales) Regulations 2005 (together referred to as List of Waste Regulations)

Collectively these Regulations define a range of requirements for the management of hazardous waste.

### **2.1.16 Restriction on the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment**

This Directive was conceived to remove harmful substances at source and is geared toward producers of electrical and electronic equipment, rather than consumers. The Directive is likely to be enforced in European member States during June 2006.

### **2.1.17 End of Life Vehicles (ELV) Directive (2000/53/EC)**

The End of Life Vehicles (ELVs) Directive (2000/53/EC) passed into European law in October 2000. It is concerned with cars, vans and certain three-wheeled vehicles. The Directive, sets, amongst other requirements, certain recovery and recycling targets. The Directive contains a provision that by 2007, producers pay 'all or a significant part' of the costs of treating negative or nil value ELVs at treatment facilities.

### **2.1.18 Waste Incineration Directive (2000/76/EC)**

The Waste Incineration Directive adopted by the EC on 4 December 2000 aims to prevent, or where not practicable to reduce as far as possible, negative effects on the environment caused by the incineration and co-incineration of waste. In particular, it aims to reduce pollution caused by emissions into the air, soil, surface water and groundwater, potentially posing a risk to human health. Stringent operational conditions and technical requirements are being implemented, introducing far stricter provisions than those defined in the existing Municipal Waste Incineration Directives (89/369/EEC and 89/429/EEC) and Hazardous Waste Incineration Directive (94/67/EC).

### **2.1.19 Towards a Thematic Strategy for Soil Protection**

In response to concerns about the degradation of soils, the EU Commission has outlined the first steps in a Strategy to protect soils with the publication of a Communication "Towards a Thematic Strategy for Soil Protection" and urges, inter alia, the Commission to draw up a Directive on compost, stressing the need to intensify research in this field so as to boost the potential for its recovery of soil lacking in organic matter and bring together waste management and soil protection

## 2.2 PLANNING AND STRATEGIC ISSUES IN ENGLAND

### 2.2.1 UK Waste Management/Disposal Policy

The principal waste management policy document currently in place at National (UK) level is 'Waste Strategy 2000' for England and Wales (published by the DETR in May 2000). The targets set out in Waste Strategy 2000 are as follows:

- To recover 40% of MSW, including a minimum 25% recycling or composting of household waste by 2005;
- To recover 45% of MSW, including a minimum of 30% recycling or composting of household waste by 2010; and
- To recover 67% of MSW, including a minimum of 33% recycling or composting of household waste by 2015.

In terms of future options for treatment and disposal 'Waste Strategy 2000' appears to indicate a move away from the use of mass burn incineration techniques and the introduction of increased recovery and recycling through composting and MRFs.

### 2.2.2 Regional Planning Framework

Derbyshire lies within the East Midlands Region of England. The East Midlands Regional Assembly has recently issued a draft waste strategy for the Region up to and including the year 2020 to feed into Regional Planning Guidance. The remit of this work includes all controlled waste streams including commercial, industrial, construction, demolition, municipal and some agricultural wastes.

The Regional Strategy indicates that Option 2 from the Regional Strategy Technical Report has been adopted as the future waste management framework for the Region. The Regional Strategy Technical Report identified Option 4 as scoring highly also. Summary descriptions for each of these two options include:

**Option 2:** Meet targets with high recycling/composting effort, high Energy from Waste, and intermediate landfill; and

**Option 4:** Exceed targets with an intermediate recycling/composting effort, high Energy from Waste, and low landfill.

The forecast regional total for Municipal Solid Waste in 2015 is nearly 3.3 million tonnes. The target sets combined recycling and composting rates for Municipal Solid Waste of 67% and 50% for Options 2 and 4, respectively. These recycling and composting levels have been considered in developing the preferred options for Derbyshire and Derby City.

### 2.2.3 Local Planning Framework

The Derby and Derbyshire Waste Local Plan was adopted and came into operation on the 2<sup>nd</sup> March 2005.

The Waste Local Plan sets the framework for assessing proposals which require planning permission and are primarily for the purpose of treating or disposing of waste (both commercial and household). The Plan does not, however, deal directly with waste collection, home composting, encouraging or educating people to reduce their waste as this is the role of the Municipal Waste Management Strategy.

The role of the Plan is to:

- Help set the agenda for waste reduction, re-use and recycling in Derbyshire;
- Set the framework for the most sustainable approach at the present time, and over the plan period, for integrated waste development in Derbyshire; and
- Provide the criteria and standards by which planning applications for waste management developments can be judged.

#### 2.2.4 Regional Spatial Strategy for the East Midlands (RSS8)

The Regional Spatial Strategy for the East Midlands (RSS8) was published on 17 March 2005. The purpose of the document is to provide a clear, agreed, long-term spatial vision for the region up to 2021. It covers the scale and distribution of new housing, priorities for the environment, transport, infrastructure, economic development, agriculture, minerals extraction, waste treatment and disposal. RSS8 includes two policies on waste management as follows:

##### Policy 38

###### Regional Waste Strategy

A Regional Waste Strategy will be drawn up based on the following principles:

- working towards zero growth in waste at the regional level by 2016;
- reducing the amount of waste sent to landfill in accordance with the EU Landfill Directive;
- exceeding Government targets for recycling and composting, with the objective to bring all parts of the region up to the levels of current best practice; and
- taking a flexible approach to other forms of waste recovery, on the basis that technology in this area is developing very quickly and is difficult to predict over a 20 year period.

##### Policy 39

###### Regional Priorities for Waste Management

Local authorities, national, regional and local bodies should promote a package of policies and proposals that will result in zero growth in all forms of controlled waste by 2016.

All Waste Collection Authorities and Waste Disposal Authorities should achieve a minimum target for the recycling and composting of Municipal Solid Waste of 25% by 2005, 30% by 2010 and 50% by 2015.

Waste Local Plans should include policies and proposals to promote sustainable waste management by the development of the additional waste management capacity illustrated in Figures 3 and 4, taking into consideration:

- the Best Practicable Environmental Option (BPEO) for each waste stream;
- socio-economic implications;
- the principle of regional self-sufficiency;
- the proximity principle; and
- the waste hierarchy.

The waste strategy has been developed in line with these two policies.

#### 2.2.5 Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is a process of environmental assessment which is consistent with the SEA Directive (European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment). It is designed to ensure a high level of protection to the environment and to contribute to the

integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.

The latest DEFRA guidance on municipal waste strategies identifies that these documents will require a SEA and that they should be accompanied by a thorough social and economic assessment. An SEA of the waste strategy will be prepared as a separate, accompanying document.

### 3 CHAPTER 3 – DERBYSHIRE IN CONTEXT

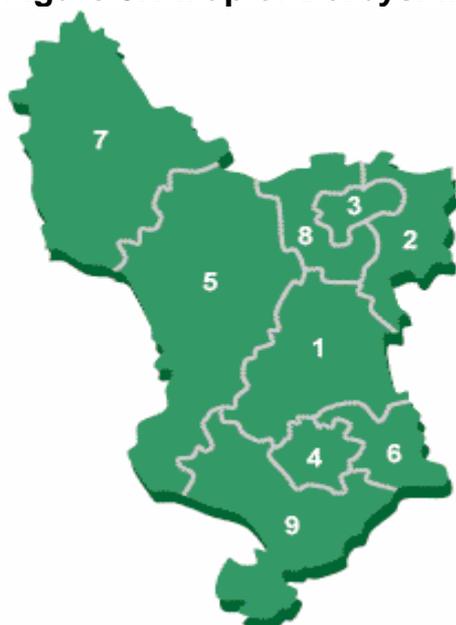
This chapter describes the geographic and socio economic profile of Derbyshire and Derby City, factors which can have a significant impact on quantities and types of waste and the way in which waste should be managed.

#### 3.1 GEOGRAPHICAL MAKEUP

The County of Derbyshire covers a total land area of 263,000 hectares (ha) and is the home to the first National Park in Britain; The Peak District National Park, which lies at the southern end of the Pennines, between Sheffield and Manchester. Its boundaries spread into several other neighbouring counties and covers over 129,500ha, of which three quarters lie within Derbyshire itself. The planning policy of the Park together with the Parks geological features could place restrictions on the siting of waste management facilities, and this will need to be taken into consideration in the development of the Waste Strategy. Figure 3.1 is a map of Derbyshire, displaying the locations of the Derby City Council and the eight District and Borough Councils.

There is a good transport network towards the Eastern side of the County with the M1 and regular train connections between Sheffield and Birmingham. However, toward the western side of the County, transportation links are more limited; there are no Motorways and few major trunk roads within the area. The movement of waste within (and possibly from) the County, and constraints that may be placed on this by the limitations of the existing transportation network, will therefore be an important issue in formulating the preferred future strategy.

**Figure 3.1 Map of Derbyshire**



#### Map of Authorities

1. Amber Valley Borough Council
2. Bolsover District Council
3. Chesterfield Borough Council
4. Derby City Council
5. Derbyshire Dales District Council
6. Erewash Borough Council
7. High Peak Borough Council
8. North East Derbyshire District Council
9. South Derbyshire District Council

### 3.2 POPULATION AND HOUSING

The population of the County is 961,233 averaging approximately 2.2 inhabitants per household. Derbyshire has 15 towns/cities with a population of over 10,000, most of which are in the eastern area, including Derby City (223,249) and Chesterfield (98,845). Nearly three quarters of the population are concentrated in the eastern part of the County on only a quarter of the total land area

A summary of population data, household numbers and land area within each District is given in Table 3.2.

**Table 3.2: Population, Household Numbers and Land Area for Derbyshire Constituent Councils**

Council	Land Area (ha)	Population (b)	Households (C)	Ratio (B:C)	Population Split	
					% Urban	% Rural
Amber Valley Borough	26,418	118,200	52,098	2.3	77%	23%
Bolsover District	15,982	72,500	35,542	2.0	55%	45%
Chesterfield Borough	6,582	98,845	46,000	2.1	90%	10%
Derby City	8,000	223,249	100,555	2.2	100%	0%
Derbyshire Dales	79,246	69,700	31,488	2.2	15%	85%
Erewash	10,930	110,099	46,244	2.4	68%	32%
High Peak	53,875	90,100	38,511	2.3	70%	30%
North East Derbyshire	27,652	96,940	42,170	2.3	65%	35%
South Derbyshire	34,000	81,600	35,114	2.3	40%	60%
County Total	262,685	961,233	427,722	2.2	64%	36%

Waste management options vary greatly in different parts of the county due to a number of factors, namely:

- population distribution
- geology and geography
- transport infrastructure
- conservation constraints

There are three sub-areas within Derbyshire County which have been identified to reflect the differing characteristics of each area, reflecting the four factors listed above.

Figure 3.2 shows sub-areas, district boundaries and main centres of population. The sparsely populated west of the county contains less than 20% of the population, while the eastern side of the county has more than 80% of the population. The east of the county has two main concentrations of urban activity, centred on Chesterfield and Derby, respectively.

### **3.2.1 The Western Sub-Area (Derbyshire Dales and High Peak BC)**

Despite being the largest in terms of land area, the western sub-area gives rise to less than 20% of municipal waste in the county. Much of the area lies within the Peak District National Park and is, therefore, subject to particular conservation constraints. Additionally, due to the isolated nature of many towns and villages in High Peak and the Derbyshire Dales, both the collection and transportation of waste and recyclables proves costly and problematic. Currently, municipal waste and recyclables are transported to sites outside the area because of the shortfall in local disposal and recycling facilities. The major obstacles to meeting targets within this sub-area are geographical. This particularly applies to the northwest of the sub-area where the towns are in rural settings, many of which are in the National Park. However, this area lies adjacent to the Greater Manchester conurbation offering potential for cross boundary flows of waste, although there may be regional self-sufficiency implications.

### **3.2.2 The North-Eastern Sub-Area (Bolsover, Chesterfield, NE Derbyshire)**

The north-eastern sub-area is centred on Chesterfield and is largely urban in character. Most of the area lies on geologically exposed coalfield, which has historically been exploited for the landfill opportunities it provides. This, together with its good infrastructure and local industry, has meant almost all the municipal waste arising in the sub-area (27% of the waste produced in the county) has been disposed of within the area. The sub-area has distinct geographical features which are shared with adjoining counties such as Nottinghamshire and South Yorkshire. This therefore, provides potential for cross boundary linkages as well as inter sub-area links, although there may be regional self-sufficiency implications.

### **3.2.3 The South Eastern Sub-Area (Amber Valley, Derby City, Erewash, South Derbyshire)**

Derby City forms the centre of the south eastern sub area, surrounded by three partly rural districts, which collectively produce more than half of the County's municipal waste (around 55%). Road transport links in the area are very good radically but accessibility across the area can be difficult. Most of the municipal waste and recyclables are currently transferred out of the area for disposal and processing, although proposed composting and recycling plans should improve this situation in 2006. There is potential for useful cross boundary linkages as well as inter sub-area links. The sub-area is situated very close to, and has excellent transportation links with Nottinghamshire, Leicestershire and Staffordshire. Schemes which satisfy the 'proximity principle' could

therefore be achieved by integrated partnership working between Derbyshire and the adjacent authorities, although there may be regional self-sufficiency implications.

The different characteristics of the sub-areas will have to be taken fully into account in the development of sustainable waste management solutions.

### 3.3 EMPLOYMENT

Employment rates across Derbyshire are above the national average, providing a good economic base for the development of a future waste management strategy. The results of the 2001 census give the figures and percentages for Derbyshire and the average across England and Wales. Table 3.3 below compares Derbyshire with the England and Wales average.

**Table 3.3 Derbyshire Employment Statistics (2001)**

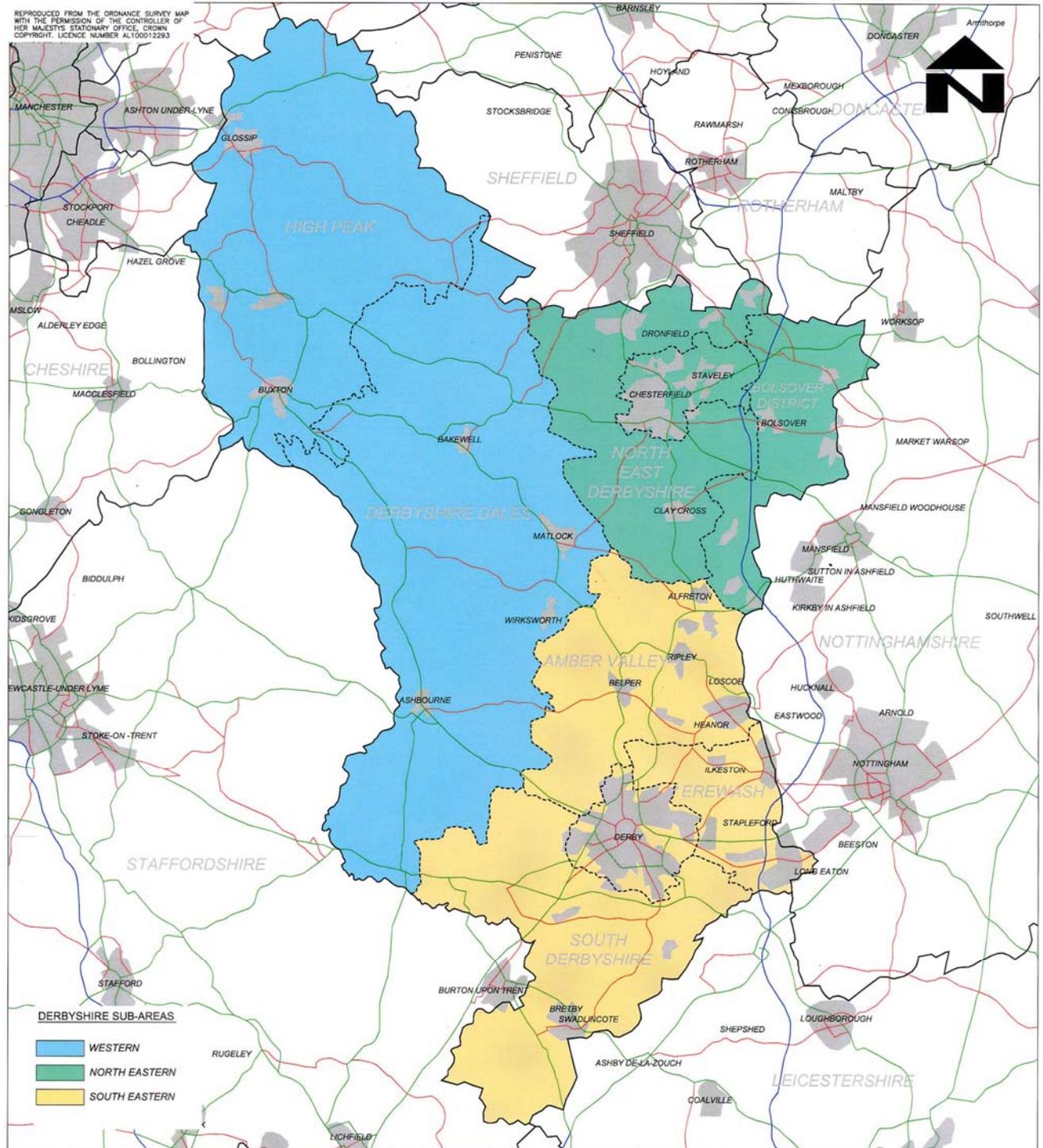
Status (all people aged 16-74)	Derbyshire County	Derbyshire County (%)	Derby City	Derby City (%)	Total Derbyshire County & Derby City	Total Derbyshire County & Derby City (%)	England & Wales	England & Wales (%)
Employed	332,605	61.9%	91,151	56.9%	423,756	60.7%	22,795,520	60.0%
Unemployed	17,014	3.2%	6,325	3.9%	23,339	3.3%	1,261,343	3.3%
Long term unemployed	5,358	1.0%	2,108	1.3%	7,466	1.1%	382,388	1.0%
Student (economically active)	9,512	1.8%	5,060	3.2%	14,572	2.1%	965,341	2.5%
Retired	79,004	14.7%	22,694	14.2%	101,698	14.6%	5,118,950	13.5%
Student (economically inactive)	15,095	2.8%	8,123	5.1%	23,218	3.3%	1,766,784	4.7%
Looking after home/family	33,305	6.2%	10,474	6.5%	43,779	6.3%	2,448,856	6.5%
Permanently sick / disabled	31,669	5.9%	9,112	5.7%	40,781	5.8%	2,076,243	5.5%
Other inactive	13,780	2.6%	5,217	3.3%	18,997	2.7%	1,174,401	3.1%
<b>TOTAL</b>	<b>537,342</b>	<b>100%</b>	<b>160,264</b>	<b>100%</b>	<b>697,606</b>	<b>100%</b>	<b>37,989,826</b>	<b>100%</b>

Source: statistics.gov.uk (2001)

The main employment sectors are manufacturing (77,085), distribution and catering (71,796) and public administration (79,261). Although not considered as part of this strategy, as waste from these sectors are not a direct priority of Local Authorities, this is

an area where Local Authorities provide support and have some influence. Wastes derived from these sectors will need to be managed by minimisation measures, reuse, recycling and composting in accordance with the waste hierarchy, whilst also offering opportunities for the development of larger treatment facilities, to process municipal and industrial waste jointly, with economies of scale, and to help satisfy the requirement for an integrated approach to waste management. Residual waste will need to be disposed of within the area creating additional pressure on landfill void capacity.

**Figure 3.2: Map of Derbyshire showing Sub-Areas, District Boundaries and Main Centres of Population and Transportation Routes**



## 4 CHAPTER 4 – WASTE MANAGEMENT TODAY

This chapter details the current situation with regards to waste management, specifically, waste minimisation and awareness, collection, disposal and current performance with comparisons made with neighbouring Authorities.

### 4.1 WASTE MINIMISATION AND AWARENESS

Waste minimisation is an important aspect of any waste management strategy, sitting as it does at the peak of the waste hierarchy.

It is essential that the public is made aware of the problems of waste handling, consequential pollution aspects, and the role that they can play in mitigating these problems. All of the Councils provide information on waste issues via leaflets and normal publicity channels. A number of councils have appointed staff dedicated to waste management awareness issues.

All councils in Derbyshire are working together to develop a high profile countywide waste awareness campaign initially linked to the NWA “Rethink Rubbish” campaign, now superseded by the ‘Recycle Now’ campaign.

Waste minimisation plans promoted by the Councils include:

- **Encouraging home composting.** Home composting units are promoted and sold through a Home Composting Campaign. This campaign, run in partnership between Derbyshire County Council, the individual WCAs and Waste and Resources Action Programme (WRAP) has distributed 18,000 compost bins by end of September 2005. While the sale of compost bins has been moderately successful there is no measure of the success of these types of schemes. Any reduction in the quantity of waste placed in the bins having been masked by the overall increase in waste.
- **Real nappy campaigns.** Derbyshire has its own campaign running in partnership with all Derbyshire Councils.
- **Education campaigns.** Children are especially receptive to issues concerning their environment and the need to recycle. The approaches to young people have been via drama presentations, competitions and the presence of recycling characters such as “Billy Bottle” and “Jenny Jar”. Theatre companies tour schools teaching children about sustainable waste management issues using interactive productions. Both WDAs have also given support to the “Eco schools” scheme which encourages schools to set and achieve individual environmental targets.
- **Reuse and repair schemes.** The Derby Furniture Project is such an example that has additional benefits in terms of generating employment and training opportunities.

Further, *Regional initiatives* that have been identified as possibilities for implementation by the Councils within Derbyshire include:

- Develop a Regional Identity / Campaign that all Councils can buy into;
- Develop a Regional 'Buy-Recycled' Campaign;
- Promotion of a Regional Real Nappy Campaign;
- Promotion of a Regional Home Composting Campaign;
- Raise awareness and provide support to the 'Eco-Schools' scheme;
- Shared Resource / Research / Experience library;
- Utilisation of the Waste Exhibition vehicle as a promotional tool;
- Raising awareness of the Mail Preference Service; and
- Develop a Waste Minimisation Information Booklet to be made available to all residents.

Internal Council Initiatives :

- Awareness raising;
- Waste Audits of all council operations;
- Green procurement;
- Internal composting;
- Recycling provision within offices; and
- Website development.

*Commercial Initiatives* that have been identified as possibilities to being implemented by the Councils within Derbyshire include:

- Green procurement;
- Waste exchange; and
- Waste auditing.

*Householder Initiatives* that have been identified as possibilities to being implemented by the Councils within Derbyshire include:

- Home composting, continued provision of subsidised home composting bins in association with awareness raising events;
- Real Nappy Campaign;
- Direct Mail;
- Furniture Reuse;
- Promotion of WCA schemes;
- Bag for life;
- Publicise new HWRCs as recycling centres; and
- Media strategy.

### 4.1.1 Re-Use Schemes

Reuse is becoming more prominent as a viable waste management option, with product design encouraging repeated utilisation. Incentives presented to manufacturers through the Packaging Regulations encourage the design of refillable packaging. This is a key area of waste management that all councils, the voluntary and community sector are attempting to promote and develop.

The collection, refurbishment and redistribution of furniture and white goods are becoming established through a number of community and business ventures, which, in addition to reducing waste, also create employment, training opportunities and some financial benefits. There are a number of "Furniture Projects" in operation across Derbyshire based in Glossop, Chesterfield, Derby and Heanor, as indicated in Table 4.1. The schemes sell directly to the public and provide furniture for low income families. Many charities receive unwanted items such as clothes, shoes, books and bric-a-brac. The items are collected via bring sites, kerbside collections or by direct delivery by the public. The materials are sorted and sold locally or sent to other countries.

**Table 4.1: Details of Furniture Reuse Schemes**

Area	Scheme	Information source
BOLSOVER	DO YOU NEED A HAND, John Gregory, 1-8 O Block, Bolsover Business Park, Station Rd, Bolsover, Derbyshire S44 6BD	source: frn.org.uk
CHESTERFIELD	TOUCH HOME FURNITURE PROJECT, Wharf Lane, Chesterfield, S41 7NB	
DERBY	DERBY FURNITURE PROJECT, Shauna Perry, The Mill, Coke St, Derby, DE11 1NE	
GLOSSOP	GLOSSOPDALE FURNITURE PROJECT, Joan Cook, Pikes Lane, Glossop, Derbyshire, SK13 8EQ	
HEANOR	HEANOR SALCARE, Gill Watson / Margaret Bowen, 59 Ray Street, Heanor, Derbyshire, DE75 79F	
MANSFIELD	MANSFIELD COMMUNITY FURNITURE PROJECT, Unit 1, Kirkland Avenue, Mansfield, Derbyshire	source. salvationarmy.org.uk

During 2004/05, furniture reuse schemes diverted over 220 tonnes of used furniture from landfill.

## 4.2 WASTE COLLECTION

### 4.2.1 Kerbside Recycling

All Collection Authorities operate kerbside collection schemes, based on fortnightly collections. Details of all kerbside collection contracts are given in Table 4.2 with details of each of the schemes shown in Table 4.3.

**Table 4.2: Details of Kerbside Collection Contracts for Recycling and Composting (September 2005)**

Waste Collection Authority	Material	Contract finish date	Contact Details
Amber Valley	Dry recyclables Organics	2012 N/A	Cleanaway 7 year contract just awarded Being reviewed at moment
Bolsover	Dry recyclables Organics	Open ended Not Specified	ABITIBI consolidated Recycling Europe, currently under review will be more formal structure next year In house short term trial under way
Chesterfield	Dry recyclables Organics	01/05/2008 Jul-09	Abitibi Cleanaway (possible 2 year extension at end of contract)
Derby City	Dry recyclables Organics	Not Specified Not Specified	Internal Contract for Dry Recyclables and Green waste
Derbyshire Dales	Dry recyclables Organics	04/08/2010	External contract with Cleanaway includes kerbside recycling of glass, paper and green waste.
Erewash	Dry recyclables Organics	Feb-10 Open Ended	Internal Contract Internal Contract
High Peak	Dry recyclables Organics	2008 Minimum N/A	External - Paper, Glass, Textiles and cans Collections will commence during 2006
NE Derbyshire	Dry recyclables Organics	Currently under review Not Specified	ABITIBI - Glass, paper, cans and textiles (Rolling contract) Twin Bin alternate weekly collection - in house
South Derbyshire	Dry recyclables Organics	Jan-07 Not Specified	External Contract with ABITIBI Internal Contract no plans to change

A number of Authorities operate more than one collection scheme. Two Authorities, Derby City and Erewash Borough Council, currently collect plastics at the kerbside. A range of receptacles are used for collection of dry recyclables.

**Table 4.3: Details of Kerbside Recycling schemes (2004/05)**

Description	Receptacle					Collection Frequency		Contractor		Materials							Approx tonnage collected	House-holds served by (%) recycling	
	Sack	Box	Basket	Bags	W.Bin	Weekly	F/nightly	Internal	External	Paper	Cans	Glass	Plastics	Green waste	Textiles	Mixed MRF			
Amber Valley <sup>4</sup>		✓					✓		✓	✓	✓	✓						100%	
Bolsover	✓	✓					✓		✓	✓	✓	✓			✓			2,132	95%
Chesterfield <sup>1</sup>		✓		✓			✓		✓	✓	✓	✓			✓			3,230	78%
Chesterfield <sup>2</sup>					✓		✓		✓					✓				3,255	36%
Derby City <sup>3</sup>		✓					✓	✓			✓	✓	✓					220	30%
Derby City				✓			✓	✓		✓								5,200	100%
Derby City					✓		✓	✓						✓				1,050	30%
Derbyshire Dales <sup>5</sup>		✓		✓	✓		✓		✓	✓		✓		✓				3,027	97%
Erewash <sup>4</sup>				✓			✓	✓		✓								3,626	99.00%
Erewash					✓		✓	✓						✓				8,182	99.00%
High Peak BC		✓		✓			✓		✓	✓	✓	✓		✓				2,249	88%
North East Derbyshire		✓		✓			✓		✓	✓	✓	✓			✓			2,918	85.20%
South Derbyshire	✓						✓		✓	✓								1,714	89%
South Derbyshire <sup>5</sup>					✓		✓	✓						✓				3,111	43%
South Derbyshire <sup>6</sup>	✓	✓					✓		✓	✓	✓	✓			✓	✓			33% - 66%

Notes:

<sup>1</sup> Kerbside dry collections are made fortnightly. Materials are collected in a 55 litre box and 2 bags. Materials collected = 2237.86 Tonnes paper, 792.15 tonnes of glass, 180.45 tonnes cans, 19.72 tonnes textiles

<sup>2</sup> Garden waste and cardboard is collected in a 240 litre wheeled bin.

<sup>3</sup> There are currently 5 rounds covered by the recycling collection service, which will be expanded to all the city in the next two years, subject to finance being available.

Glass, cans and plastic bottles are currently sorted at the kerbside but this will change to a MRF sort within 6 months. A new MRF to sort these materials is currently being procured.

Paper will be kept separate. A composting plant capable of dealing with meat in food waste is currently being procured to come on line in January 2006.

<sup>4</sup> Includes collection of cardboard as well

<sup>5</sup> Garden and kitchen waste is collected

<sup>6</sup> The Council commenced a scheme for a fortnightly collection of multi-materials (paper, glass, cans, foil and textiles) for 33% of households in the district in January 2004. The scheme has been extended to a further 33% of households with effect from November 2004. The receptacles are a combination of sacks and green boxes.

<sup>7</sup> Green waste not currently active but will be introduced in late 2005

<sup>8</sup> The Approximate tonnage collected accounts only for dry recyclables. Green waste collection was introduced in the District in March 2005

All of the schemes operating in Derbyshire involve sorting the majority of the collected materials at the kerbside, as they are collected from the householders. Due to the high quality of the kerbside sorting system, the recyclable materials can be bulked up and sent for recycling with minimal handling costs. However, Derby City has awarded a contract for a MRF within the City, offering opportunities for further sorting and Erewash deliver co-mingled dry wastes into an existing MRF in Derby.

#### **4.2.2 Composting**

Green waste for composting derives from two main sources in Derbyshire; HWRC sites and kerbside collections. In 2003/04 almost 7,000 tonnes of green material was removed from HWRC sites for composting and in addition, over 17,000 tonnes of green material was collected from the kerbside. The green waste collected is primarily garden green waste. This is readily compostable and facilities are available. The collection of kitchen waste from households is more problematic due to the limited availability of suitable enclosed composting facilities. Under the Animal By-Products Regulations 2003 kitchen waste is now categorised as catering waste and can only be composted under controlled conditions. Several councils have expressed a wish to collect kitchen as well as garden waste since this will make more material available for composting and increase the amount of diversion from landfill. Green waste collections are normally fortnightly and in some instances replace the regular weekly collection of mixed waste so that the two collection systems alternate.

There are currently two main sites available for composting in the County, one is a Biffa facility located in Etwall, South Derbyshire, the second is located in Alfreton and operated by WRG. Additionally, South Derbyshire District Council utilise a site operated by Sita located in northeast Leicestershire. A number of sites are currently being developed including:

- A 40,000 tonnes per annum capacity in-vessel composting facility in the North East of the County that will accept kitchen, green waste and card from three WCAs (Bolsover, Chesterfield, North East Derbyshire).
- A 15,000 tonnes per annum capacity near Buxton to take kitchen, green waste and card from High Peak.
- A 60,000 tonnes per annum capacity Vital Earth facility in Ashbourne, receiving green and kitchen waste for Derby City, Derbyshire Dales and South Derbyshire District Council. A transfer station will exist in Derby to bulk up the material before delivering it to Ashbourne for composting.
- Biffa have applied to upgrade their existing facility at Etwall to enable them to accept food waste.
- The provision of additional composting capacity to service the South East of the County is currently under review.

An important element of working toward waste minimisation involves all Waste Collection Authorities (WCAs) and Waste Disposal Authorities (WDAs) selling home

composters to householders. However, whilst the sale of compost bins can be easily measured, the tonnage of waste diverted and actual participation can not be so easily quantified. At present, home composting does not count towards weight based composting targets although any material diverted from the waste stream will assist in meeting Landfill Directive targets.

### 4.2.3 Bring Bank Recycling

All WCAs provide “bring banks”, which involve free standing containers placed at specific locations where the public can deposit a variety of materials including paper, newspapers, card, books, textiles, glass, cans and plastic bottles. These vary in size from small facilities, i.e. one or two containers in car parks to larger facilities on dedicated sites collecting a wider range of materials. Bring sites are mainly operated by the WCAs but are often run in conjunction with commercial or retail organisations.

At present, almost 475 bring sites are operational throughout the county, collecting a variety of materials and accounting for almost 20,000 tonnes of material annually. A summary of the range and extent of materials recycling at bring sites within Derbyshire and Derby City is provided in Table 4.4

**Table 4.4: Details of Current Bring Sites (2004/2005)**

Description	No. of sites	Materials collected							Total
		Glass	Paper	Card	Plastic bottles	Textiles	Cans	Other	
Amber Valley	42	✓	✓	✓		✓	✓		1,656
Bolsover	23	✓	✓			✓	✓		385
Chesterfield	84	✓	✓		✓	✓	✓	✓	1,801
Derby City	84	✓	✓	✓	✓	✓	✓	✓	6,653
Derbyshire Dales	98	✓	✓	✓	✓	✓	✓	✓	2,900
Erewash	21	✓	✓		✓	✓	✓	✓	2,087
High Peak	25	✓	✓		✓	✓	✓		1,988
N E Derbyshire	23	✓	✓		✓	✓	✓		865
S Derbyshire	75	✓	✓	✓	✓	✓	✓		1,579
<b>Total</b>	<b>475</b>								<b>19,914</b>

#### **4.2.4 Bulky Waste**

Where the householder has bulky waste that will not fit in their wheeled bin or bag and they are unable to deliver their waste to a HWRC the WCA can be asked to remove the bulky materials. Councils are allowed to make a charge for this service and the level of charging varies from no charge to more than £10 per item / collection. Each WCA has its own charging and collection policy. The quantity of waste collected is variable but significant in terms of the overall tonnage handled by the WCAs. A proportion of the collected bulky items consist of white goods and furniture which may go on to be reused.

Refrigerators and freezers constitute a proportion of bulky waste, with almost 33,000 units being disposed of by householders during 2004/05 (approximately 1,500 tonnes). These units may contain CFC (chlorofluorocarbons) gases in the refrigerant and the foam insulation, these gases are ozone depleting substances and their emission to the atmosphere is not allowed. The units have to be processed in a special facility where the CFC gases are captured and sent for destruction while the rest of the material, plastics and metals, are recovered for recycling (up to 90%) as required under the WEEE regulations. Newly manufactured units do not contain these gases and can be recycled by normal methods as required by the WEEE regulations.

#### **4.2.5 Clinical Waste**

Upon request household clinical waste is collected through a separate collection system operated by each individual WCA and is transported to an incinerator for destruction or where permissible to a landfill site. During 2004/05 75 tonnes of clinical waste was incinerated or autoclaved, and 356 tonnes was landfilled. There are no facilities in Derbyshire that can provide the incineration service required. Other processes such as microwave and chemical can also treat some clinical wastes and these may, in the future, be more environmentally acceptable than incineration.

#### **4.2.6 Residual Waste and Contract Details**

All Districts operate a mixed waste collection (from households and some commercial premises) mainly through internal contractors. Only Amber Valley Borough Council, Chesterfield Borough Council and Derbyshire Dales District Council employ external contractors. A number of the collection authorities have introduced fortnightly collections. A summary of the type of residual waste collection service for all WCAs is given in Table 4.5. A summary of the Contractual arrangements for each WCA waste collection service is given in Table 4.6.

**Table 4.5 Summary of Residual Waste Collection Services (2003/04)**

Waste Collection Authority (WCA)	Collection frequency		Contractor		Cost of waste collection per household (BV86)
	weekly	fortnightly	Internal	External	
Amber Valley		✓		✓	£37.18
Bolsover	✓		✓		£31.85
Chesterfield	✓	✓		✓	£47.40
Derby City	✓	✓	✓		£31.38
Derbyshire Dales	✓			✓	£43.17
Erewash	✓		✓		£38.88
High Peak BC	✓		✓		£40.82
North East Derbyshire	✓		✓		£45.30
South Derbyshire		✓	✓		£36.74

Most of the collections are made from wheeled bins supplied by the councils to the householder. Each council has its own policy regarding the replacement of lost or damaged bins with some councils making a charge while others supply the replacement free of charge. In general, the councils require that the lid of the bin should be closed for safety reasons, but this also has the affect of reducing the amount of excess waste that has to be collected. Most councils do not permit the householder to put out waste (side refuse) in addition to the waste already in the bin.

**Table 4.6: Details of Contracts for Residual Waste Collections (September 2005)**

Waste Collection Authority	Contract Finish Date	Comment
Amber Valley	2012	Cleanaway
Bolsover	Not Specified	Internal operation
Chesterfield Borough	2009	Cleanaway (Possible 2 year extension at end of contract)
Derby City	Not Specified	All collection services provided by internal service provider
Derbyshire Dales District	04/08/2010	Residual collection carried out by external contractor (Cleanaway)
Erewash Borough	Not Specified	Internal Operation, refuse collection including general waste, clinical waste, bulky waste and fixtures and fittings
High Peak Borough	Not Specified	Internal operation, periodical review via best value process
NE Derbyshire	Not Specified	Internal operation, periodical review via best value process
South Derbyshire	Not Specified	All refuse collection is undertaken in house and there are no current plans to subject the service to contract

Where it is impractical to collect the household waste using a wheeled bin then black plastic sacks are supplied. There is a limit on the number of plastic bags that are collected from each household.

The type of service offered to householders varies across the county. All householders have their main bin emptied either weekly or fortnightly. Where there is a fortnightly service then the second week is generally used to collect green waste and/or dry recyclables.

Bulky waste is collected by request and some WCAs make a charge for the service. Clinical waste is collected on a regular basis from those householders requiring the service.

Recyclable materials are sold and a small income may be generated for the WCA or WDA. The bulk of the remaining mixed waste is sent to landfill sites both within and outside the county boundary.

## 4.3 WASTE MANAGEMENT AND DISPOSAL

### 4.3.1 Waste Management Arrangements and Contracts

Waste Recycling Group (WRG) currently has a contract until 31<sup>st</sup> March 2008 to dispose of all residual waste collected in Derbyshire. In Derby City, the contract is due to expire in 2007 with an option to extend for an additional year. WRG provide one landfill site in the north east of the county and also use landfill sites in Nottinghamshire and Leicestershire. Two transfer stations are also used at Derby and Glossop and it is WRG's decision where they then take the waste for disposal. Details of other waste contracts are shown in Table 4.7.

**Table 4.7: Municipal Waste Contracts**

#### ***HWRC Sites***

The County Council currently has 5 HWRC sites available to the public at Glossop, Chesterfield, Loscoe, Ilkeston and Bretby. Three additional sites are currently being developed at Ashbourne, Buxton and Bolsover.

Derby City has one HWRC site at Raynesway in Derby, operated under contract until 2007/08.

#### ***Material Recycling Facilities***

The County Council does not provide any MRFs for sorting dry recyclable materials collected by the WCAs. Currently there is no desire from the WCAs for the Council to do so.

Erewash BC has recently been out to tender for the provision of a sorting facility and they have contracted with a MRF operator in Derby City.

Derby City currently has awarded a contract for a MRF within the city.

#### ***Composting***

The WRG disposal contract provides one composting facility in Alfreton for garden waste only.

To supplement this, DEFRA funding has been awarded (£2.9m) to develop a number of in-vessel composting facilities.

In order to effectively implement a municipal waste management strategy within Derbyshire, careful consideration of existing contractual arrangements is required. Statutory household recycling targets for the WDA and each WCA will require current Contracts to be flexible enough to allow necessary changes in collection, treatment and disposal practices to occur. New Contracts are increasingly being required to be performance driven yet allow for future changes in legislation.

Information provided in tables 4.2, 4.6 and 4.7 would suggest that most collection and disposal contracts could be realigned by 2008, and all by 2010 at the latest. This would therefore suggest that flexibility with respect to contracts can be achieved in the short term within Derbyshire.

### **4.3.2 Household Waste Recycling Centres (HWRC sites)**

In 2004/05, HWRC sites in Derbyshire and Derby City, (refer to table 4.7 for site location information) contributed approximately 10% of the total recycling effort for households (refer to table 4.9 for quantified information), and are, therefore, an important source of recycling. Additional information on HWRC site performance is presented in Figures 4.1 and 4.2

## **4.4 OTHER WASTE SERVICES AND ISSUES**

### **4.4.1 Hazardous Household Waste**

Hazardous household waste includes small amounts of garden, photographic, garage chemicals and waste liquids. Requests for collection of household hazardous waste are actioned by the Waste Disposal Authorities through specialist contractors. From 2005 the Household Waste Recycling Centres will be able to accept some items in this category of waste, reducing the collection obligation and providing a local disposal point as public awareness and legislation increases the quantity of this waste. When it is collected separately it has to be treated as hazardous waste and comply with the regulations covering Hazardous Waste.

### **4.4.2 Waste Electrical and Electronic Equipment**

Waste Electrical and Electronic Equipment (WEEE) is only present in very small quantities in collected household waste. Electrical equipment will require special dismantling procedures to recover valuable parts of the equipment and the requirements of the WEEE Directive will result in more electrical and electronic equipment being dismantled and recycled. The procedures will require dismantling to be carried out in special facilities and under controlled conditions. The exact requirements will only become clear when the Government publishes the appropriate regulations. However, it is possible that local authorities will need to make provisions for the separate collection of this waste stream. This may include the provision of containers at HWRC sites.

### **4.4.3 Abandoned Vehicles**

Abandoned Vehicles are dealt with jointly by the WCAs and WDAs who each have particular responsibilities for collecting and subsequently disposing of abandoned vehicles. There is a written agreement between the WCAs and WDAs detailing the paper work and cost arrangements. The abandoned vehicles are sent to specialist dismantling companies who typically recycle over 70% of each vehicle. The new End-of-Life Vehicle Directive will require the percentage recycled to increase, typically to over 90%.

### **4.4.4 Street Cleansing**

All Councils except the County Council operate street cleansing contracts. As a general rule, recycling of street cleansing waste is not practised although the introduction of on

street recycling schemes could be an option for consideration by some authorities in the future. The details of individual street cleansing contracts are outlined in Table 4.8.

In addition, all Waste Collection Authorities are encouraged to have litter plans in place, in order to inform the public of their litter duty. Further detail is provided in Section 2.3.

**Table 4.8 Street Cleansing Contracts (as at June 2005)**

<i>Waste Collection Authority</i>	<i>Contract Finish Date</i>	<i>Comment</i>
<i>Amber Valley</i>	Not Specified	Street Scene' - In house contract - No plans to change
<i>Bolsover</i>	Not Specified	In house contract No plans to change
<i>Chesterfield Borough</i>	Not Specified	In house contract No plans to change
<i>Derby City</i>	2011	In house contract
<i>Derbyshire Dales District</i>	01/04/2008	External contract
<i>Erewash Borough</i>	Not Specified	In house contract No plans to change
<i>High Peak Borough</i>	Not Specified	In house contract No plans to change
<i>NE Derbyshire</i>	Not Specified	In house contract No plans to change
<i>South Derbyshire</i>	Not Specified	In house contract No plans to change

#### **4.4.5 Fly Tipping**

All WCAs operate services for the removal of fly tipped material. A new, national enforcement tool 'Fly Capture' has been developed by DEFRA, the Environment Agency, and the LGA (Local Government Association) enabling local authorities and the Environment Agency record details of all flytipping incidents. This highlights the extent of fly-tipping, problem areas, and can go some way to tracking the offenders and enforcement. All authorities are required to complete the 'Fly Capture' database. The new Clean Neighbourhood Act 2005 (See 2.1.4) extends existing and in some cases introduces new legislation to improve the quality of local environments. The Derbyshire Fly Tipping Forum and Fly Tipping Protocol will modify the way that the partners manage this issue.

#### **4.4.6 Parks and Gardens Waste**

Green waste derived from municipal parks and gardens is generally composted, although this may be increased once more composting facilities come on stream..

## **4.5 CURRENT PERFORMANCE**

### **4.5.1 Waste Arisings**

In 2004/05, Derbyshire produced a total 540,379 tonnes of MSW. Of this total, Derbyshire County accounted for 410,239 tonnes, whilst Derby City produced 130,140 tonnes. A summary of the data is given in Table 4.9.

Over 62% of this total is made up of regular household collections, with the total household waste burden accounting for nearly 92% of all MSW arisings within the County.

**Table 4.9: Municipal Waste Arisings (2004/05)**

		AVBC	BDC	CBC	DDDC	EBC	HPBC	NEDDC	SDDC	District	DCC HWRC	DCC	Derby City	City HWRC	City	County Total
		Sub Total									Sub Total			Sub Total		
A	Waste to landfill/Clinical Treatment/Input to HWRC.	51,181	32,058	42,981	27,526	44,227	41,223	40,778	32,277	312,251	52,878	365,129	97,395	21,411	118,806	483,935
	Household Landfill Included in A	43,528	31,058	32,706	23,072	33,214	38,619	32,990	29,954	265,141		265,141	78,579	7,707	86,286	351,427
	Bulky Waste Included in A	168	505	1,284	162	413	408	1,468	148	4,556		4,556	784		784	5,340
	Segregated Commercial Waste Included in A	3,137	17	2,308	1,654	18	16	2,213	26	9,387		9,387				9,387
	Commercial Waste included in A	4,079	1,291	3,985	2,369	534	3,945	1,993	1,246	19,442		19,442	7,283		7,283	26,725
	Clinical A and B included in A	1	2	7	8	5	9	17	13	62		62	131		131	193
	Clinical Landfill included in A	15	103	99	0	80	0	0	62	359		359				359
	Greenwaste collected included in A	2,677	4	4,583	502	8,400	0	1,412	0	17,577	8,568	26,145	5,193	2,594	7,787	33,932
	Flytipped Waste included in A	135	63	9	175	88	17	204	468	1,160		1,160				1,160
	Gulley Waste included in A	0	83	297	404	0	361	290	385	1,820		1,820	611		611	2,431
	Street Sweepings included in A	1,511	191	1,382	1,541	1,999	1,790	1,690	1,201	11,305		11,305	4,814		4,814	16,119
	Street Sweepings Leaves included in A	0	0	303	0	0	0	483	0	785		785				785
	Other included in A	10	32	3	8	10	5	11	21	99		99				99
	Fridges separately collected for recycling	95	128	108	134	92	92	105	56	810		810				810
B	Recycled Waste from Bring sites Kerbside Collections and HWRC.	4,704	3,948	5,518	5,658	5,613	4,219	4,450	9,633	43,744	16,146	59,890	11,334	6,653	17,987	77,877
	Reused element of B	66	88	130	189	93	260	56	32	913	928	1,841	391	188	579	2,420
	Green element of B						170		5,149	5,319		5,319				5,319
C	Third Party Recycling	67	0	135	21	39	237	57	0	556		556				556
	Reused element of C	0	0	135	0	0	87	0	0	221		221				221
	Rubble										8,394	8,394		4,353	4,353	12,746
	<b>Total MSW</b>	<b>56,048</b>	<b>36,135</b>	<b>48,741</b>	<b>33,339</b>	<b>49,971</b>	<b>45,771</b>	<b>45,390</b>	<b>41,966</b>	<b>357,361</b>	<b>52,878</b>	<b>410,239</b>	<b>108,729</b>	<b>21,411</b>	<b>130,140</b>	<b>540,379</b>
	<b>Total H Hold</b>	<b>51,768</b>	<b>34,694</b>	<b>44,482</b>	<b>30,606</b>	<b>49,257</b>	<b>41,464</b>	<b>43,136</b>	<b>40,220</b>	<b>335,625</b>	<b>43,557</b>	<b>379,182</b>	<b>101,054</b>	<b>16,871</b>	<b>117,925</b>	<b>497,107</b>
	Household Regular collection	42,754	30,289	32,312	22,518	33,112	35,098	34,678	28,881	259,643		259,643	79,363		79,363	339,006

Notes:

1. For DCC MSW= A +B+C + CA input.  
Hhold = MSW - Commercial Recharge-Rubble-Flytipped-Reused Credits-  
Household Regular collection = Household Lanfill + Bulky + Commercial declared at site - Commercial Recharge

2. For City MSW= A+ B

3. City Commercial includes 327 tons recycled paper.

### 4.5.2 Recycling Performance

In 2004/05, 70,694 tonnes of waste was recycled whilst almost 40,000 tonnes was composted representing a combined household recycling and composting rate of 22.4%. The recycling and composting performance of for each Authority for 2004/05 is displayed in Table 4.10.

**Table 4.10: WCA Recycling Performance (2004/05)**

Authority	% recycling and composting
Amber Valley Borough Council	14.6
Bolsover District Council	10.8
Chesterfield Borough Council	23.8
Derby City Council	21.4
Derbyshire County Council	22.8
Derbyshire Dales District Council	22.5
Erewash Borough Council	28.3
High Peak Borough Council	10.7
North East Derbyshire District Council	15.6
South Derbyshire District Council	24.3

Recyclable materials are derived from three main sources namely kerbside collections, HWRC sites and bring banks. Similarly, waste for composting is derived from kerbside collections and HWRC sites.

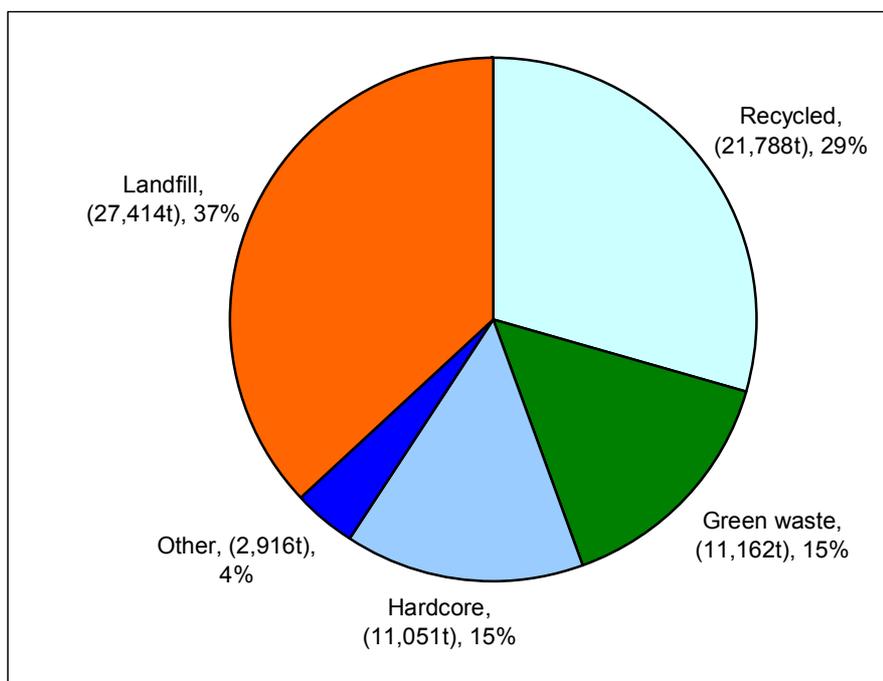
All of the WCAs in Derbyshire (including Derby City) collect recyclables from the kerbside. Further details on collection contracts are provided in table 4.2, and scheme specific details are provided in table 4.3. All schemes separately collect at least three materials from the kerbside (including green waste).

Figures 4.1 and 4.2 summarises the household waste diversion performance at HWRC sites across the County, indicating an average of 44% across the HWRC sites for recycling, composting and reuse rising to 59% with the inclusion of hardcore & soil. Through additional sorting and management the target is to exceed 60% diversion of waste at Household Waste Recycling Centres. Targets for household waste diversion at HWRCs can often indirectly result in improvements in overall recycling/composting rates by operators taking relatively simple measures, for example, improved signage and staff visibility and assistance. This is currently being reviewed in Derbyshire.

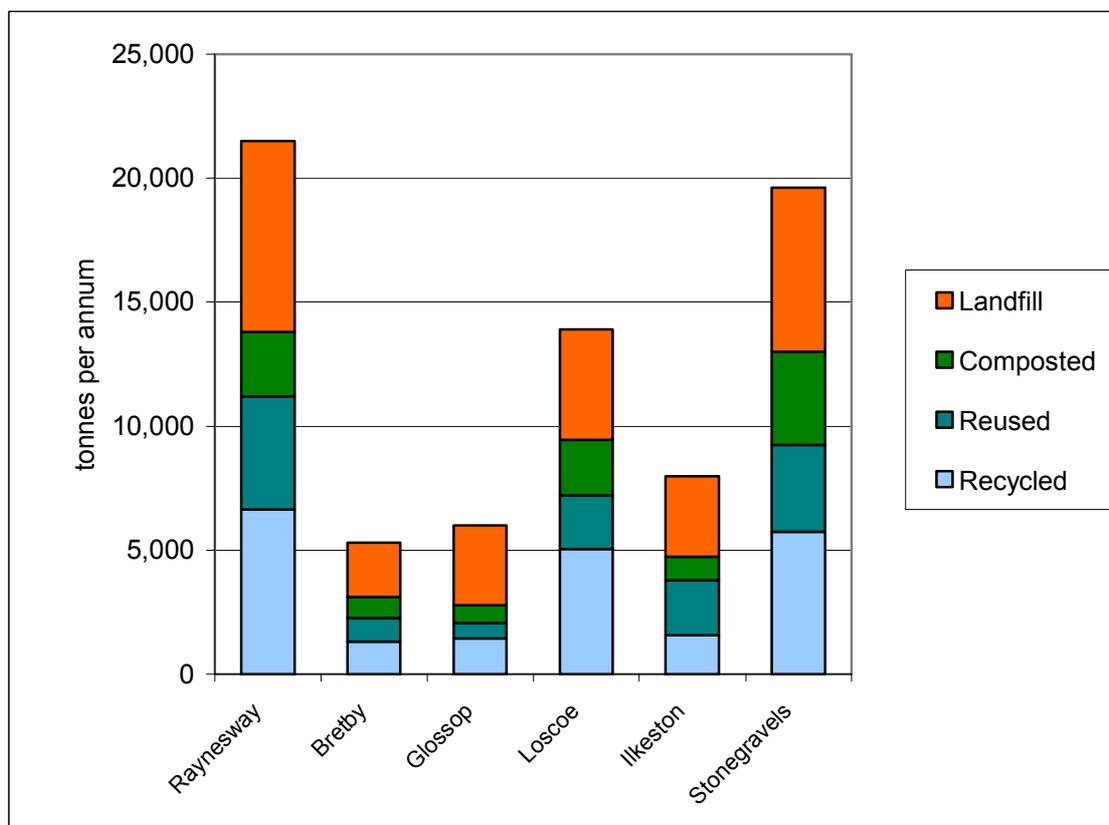
The five Derbyshire County Council HWRC sites received a total of nearly 53,000 tonnes of MSW in 2004/05 of which, almost 47,000 was either reused, recycled, or composted. The Derby City site (Raynesway) received just over 21,500 tonnes of MSW during 2004/05, of which, over 13,500 tonnes was either reused, recycled, or composted. Together, the 6 sites divert some 63% of input waste away from landfill through a combination of recycling, composting and reuse

All Councils promote home composting to residents. Whilst putrescible waste diverted via home composting does not count towards local authorities' recycling and composting targets, WRAP are currently developing a methodology that may allow authorities to include such contributions in the future.

**Figure 4.1: HWRC Waste Management Performance (total across all sites)**



**Figure 4.2: Waste Management Performance for Individual HWRC Sites**



### 4.5.3 Waste Analysis

Embodied in the first edition of the Strategy (February 1999) was an agreement by all the Authorities in Derbyshire to collate statistical data through the County Council. A system to record the quantities of waste being collected and recycled is in operation and this will provide guidance for the future provision of facilities to handle waste.

Compositional analysis of the waste collected by the various authorities has also been undertaken. Derby has a regular programme of analysis and an average of these results suggests that 19% of bin waste is compostable garden waste, 24% is compostable kitchen waste, 25% is recyclable and 32% has parts that could be recycled or composted but is primarily 'difficult to deal with' waste that needs treatment. A similar pattern appears from waste analyses undertaken by Amber Valley Borough Council and South Derbyshire District Council.

The Environment Agency is also undertaking a national household waste compositional survey. The compositional information from this survey, which has not been published as yet, will be used to update the waste strategy at a future date.

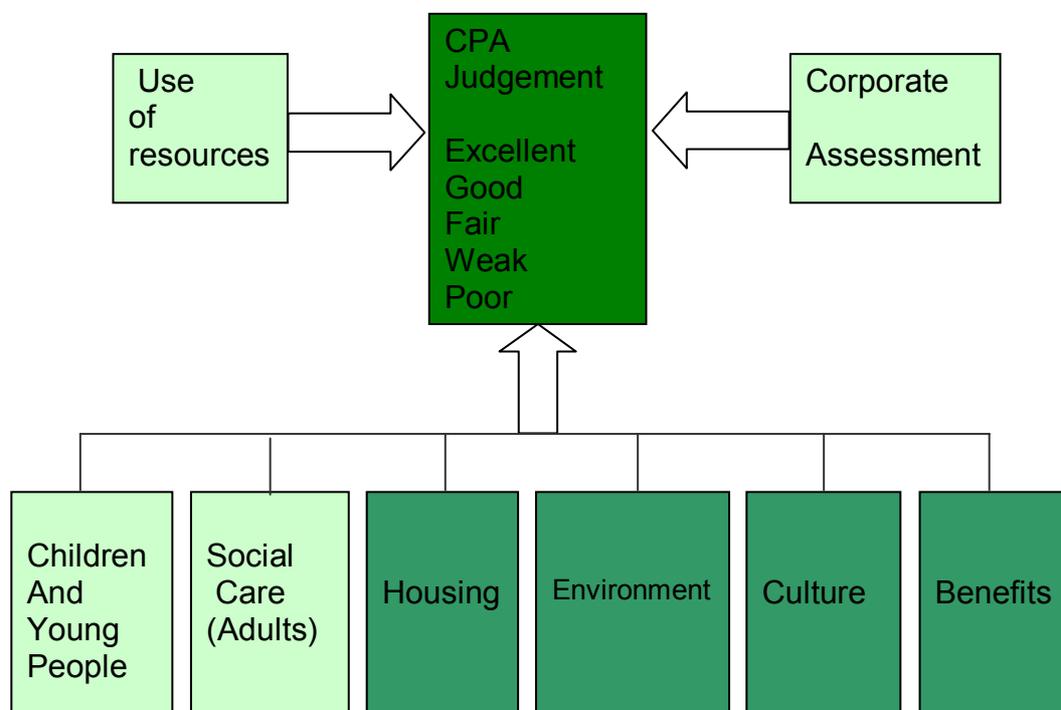
## 4.6 COMPARISON WITH OTHER AUTHORITIES

### 4.6.1 Comprehensive Performance Assessment

Comprehensive Performance Assessment (CPA) was first introduced in 2002, with the aim of measuring how well local authorities deliver services to local people. The CPA framework embraces corporate, community and service delivery assessments of performance which combine to provide one overall judgement for the authority. This judgement, made by the Audit Commission, provides a clear indication about an authority's performance to their local community.

In 2005 central government published the new assessment framework for local authorities. "CPA – The Harder Test" details the more challenging and stringent approach that will be adopted from 2005. The new system will require local authorities to demonstrate further improvement across the whole range of services, responsibilities and functions. There will also be greater emphasis made to outcomes for local people and providing value for money. As illustrated in figure 4.3, the outcome of the whole assessment process will continue to be a clearly understood CPA judgement of excellent, good, fair, weak or poor, for each authority.

**Figure 4.3: CPA Assessment Framework**



As a key part of the CPA process, the Audit Commission have defined a set of performance indicators which will be used to measure how well services are being delivered and how outcomes can be measured. The Audit Commission have also

defined performance levels for good, average and poor performance against each indicator. These levels of performance, known as thresholds, have been determined using national standards and comparisons with authorities throughout England. Waste management indicators measuring user satisfaction, recycling, composting and waste collection levels will be used to assess performance of the Environment block of the CPA.

As waste management is such a critical service, giving authorities and the local community the challenge of dramatically reducing the amount of waste sent to landfill, the Audit Commission has put greater emphasis to improving recycling and composting performance levels as part of the CPA process. Failure to achieve accepted levels of performance will result in an authority receiving a lower judgement or score.

In addition there are also a series on national Best Value Performance Indicators that all authorities must collect each year. These provide opportunity for measuring performance and improvement against key services while enabling comparisons to be made with other authorities.

A summary of the recycling and composting Standard for the Derbyshire Councils is provided in Table 4.11.

**Table 4.11: Summary of Internal Performance Targets (recycling & composting)**

Authority	Internal Target for 2004/2005	Outturn for 2004/2005	Internal Target for 2005/2006	Government Target for 2005/2006
Amber Valley Borough Council	17	14.6	25	18
Bolsover District Council	11	10.8	19	18
Chesterfield Borough Council	22	23.8	26.7	24
Derby City Council	19.9	21.4	27.5	30
Derbyshire County Council	18	22.8	26	18
Derbyshire Dales District Council	20.6	22.5	35.7	27
Erewash Borough Council	23.2	28.3	32	30
High Peak Borough Council	10.3	10.7	18.5	18
North East Derbyshire District Council	18	15.6	25	18
South Derbyshire District Council	18.3	24.3	24.5	21

Table 4.12a and 4.12b compare Derbyshire's and Derby City's performance against a number of performance indicators and neighbouring local authorities.

The performance standards relevant to waste management are defined as follows.

BV82A	PERCENTAGE OF HOUSEHOLD WASTE RECYCLED
BV82B	PERCENTAGE OF HOUSEHOLD WASTE COMPOSTED
BV82C	PERCENTAGE OF HOUSEHOLD WASTE RECOVERED
BV82D	PERCENTAGE OF HOUSEHOLD WASTE LANDFILLED
BV84	KG OF HOUSEHOLD WASTE COLLECTED PER HEAD
BV86	COST OF WASTE COLLECTION PER HEAD
BV87	COST OF WASTE DISPOSAL PER TONNE FOR MSW

A more detailed description of the performance standards is presented in the Appendix 2.

**Table 4.12a: Comparison of Statutory Performance Standards with other Authorities (Derbyshire)**

Performance Standard	Cheshire	Derbyshire	Leicestershire	Sheffield	Staffordshire
BV82a	11.52%	14.30%	15.60%	13.78%	14.51%
BV82b	13.35%	8.50%	16.60%	3.36%	13.95%
BV82c	0.00%	0.01%	0.00%	42.76%	20.17%
BV82d	75.12%	77.20%	67.80%	40.10%	51.37%
BV84	647 kg	504.kg	571kg	469.kg	550kg
BV86	N/A	N/A	N/A	£44.43	N/A
BV87	£49.14	£42.42	£37.04	£39.59	£30.52

Table 4.12a indicates that Derbyshire exhibits relatively high performance when compared with neighbouring authorities. In particular waste arisings per household (BV84) are the second lowest, indicating the councils' success in controlling waste growth and promoting waste minimisation.

**Table 4.12b: Comparison of Statutory Performance Standards with other Authorities**

Performance Standard	Derby City	Nottingham City	Stoke City
BV82a	14.95%	8.72%	13.76%
BV82b	6.48%	5.28%	4.33%
BV82c	0.00%	58.53%	57.59%
BV82d	78.57%	27.47%	24.26%
BV84	515 kg	492kg	513kg
BV86	£37.20	£34.25	£36.50
BV87	£37.42	£32.40	£35.95

Notes:

Data extracted from Best Value Performance plans and Annual reports on Authorities' websites

Data for Nottinghamshire and Greater Manchester not available

## 4.7 WASTE RELATED ACTIVITIES IN ADJOINING COUNTIES

### 4.7.1 Overview

Derbyshire neighbours a number of adjoining authorities as follows:

- Leicestershire;
- Nottinghamshire;
- South Yorkshire including Sheffield;
- Greater Manchester including Stockport;
- Cheshire; and
- Staffordshire.

Each of these areas will be developing their own waste strategies and implementing waste infrastructure to deal with municipal waste. MSW is predominantly managed within county areas, however, the waste strategies of neighbouring authorities could have an impact on municipal waste management within Derbyshire. Set out in Table 4.15 is an outline of the status of municipal waste strategies in adjoining counties.

Information has been drawn from individual strategy documents. For further details on the status of waste strategies in adjoining authorities, refer to the relevant document.

**Table 4.13: Status of Municipal Solid Waste Management Strategies**

Area	Status of MSW Strategy
<p>Leicestershire Leicestershire Municipal Waste Management Strategy (2001)</p>	<p>Leicestershire's strategy was published in 2001 and sets a number of short term targets (up to 2006) and longer term targets (2006 – 2020) The Strategy describes the Councils intention to develop up to 50,000 Tonnes per annum of capacity for green waste composting and 70,000 Tonnes of capacity for sorting/bulking infrastructure. Post 2013, provision of thermal treatment capacity upto 175,000 tonnes per annum is proposed.</p>
<p>Nottinghamshire Nottinghamshire County Council. A Draft Municipal Waste Management Strategy for Nottinghamshire (2002)</p>	<p>Nottinghamshire County Council published their draft Municipal Waste Management Strategy in 2002. The Strategy aims to achieve the National Waste Strategy Recycling/Composting targets of 25% by 2005/06, 30% by 2010 and 33% by 2015. The Plan recognises that incineration (with energy recovery) is likely to represent the main opportunity for reducing the volume of residual waste disposed during the Plan period.</p>
<p>Sheffield A household Waste Strategy for Sheffield 2003-2010</p>	<p>Sheffield Waste Strategy is based on the use of recycling and composting and energy from waste for residual treatment. The Council has set a 21% combined recycling and composting target for 2005/06, The Strategy also sets a combined target of 30% to be achieved by 2010.</p>
<p>Greater Manchester Greater Manchester Waste Strategy</p>	<p>The municipal waste strategy has recently been published based on a combined target of 50% recycling and composting by 2020. A target of 20% has been set for 2005/06 rising to 33% by 2010. The preferred option for residual waste treatment includes MBT and high pressure steam sterilisation.</p>
<p>Cheshire The Cheshire Household Waste Management Strategy</p>	<p>Cheshire County Council formed the 'Cheshire Waste Partnership' in 1999 in conjunction with the six District Councils. Cheshire plan to achieve their target of 30% recycling and composting in 2005/06. The preferred approach for residual waste management is to use MBT to produce Refuse Derived Fuel.</p>
<p>Staffordshire An Integrated Municipal Waste Management Strategy for Staffordshire and Stoke on Trent. Draft. (2003)</p>	<p>The Strategy aims to achieve National Waste Strategy 2000 recycling and recovery (including composting) targets for 2005, 2010 and 2015. In-vessel composting and two sustainable waste parks are planned within the County. The Strategy assumes use of the Hanford energy from waste plant at Stoke until at least 2020.</p>

A number of the adjoining authorities have identified EfW as a key component of their municipal waste management strategies.

Table 4.15 shows the location of municipal waste management facilities in Derbyshire.

**Table 4.15 Location of current waste management facilities in and around Derbyshire (as at July 2005)**

Facility Type	Location
CA/HWRC site	Glossop Bretby Loscoe Ilkeston Chesterfield Ashbourne (opening late 2005) Raynesway, Derby
Transfer Station	Somercoates, Alfreton Raynesway, Derby Glossop
Composting (o/w)	Alfreton Etwall Lount
Landfill	Staveley Erin, Bolsover
Energy from Waste	Eastcroft, Nottingham Bernard Road, Sheffield Stoke

#### 4.7.2 Regional Co-operation

There may be some potential for cross county boundary working on waste management issues. Opportunities are likely to be limited, especially for residual waste due to distance to the facilities and these being fully committed to taking local waste. There is possibly greater potential for cross boundary movements of green waste to composting plants.

Derbyshire County and Derby City hold regular communications with their county and city neighbours to ensure that any synergies for managing waste are continually explored and developed.

## 5 CHAPTER 5 - COSTS AND MARKETS

The financial cost of waste treatment and disposal has risen significantly over recent years with the cost of landfill set to become progressively more expensive. This chapter discusses costs, markets and the implications for future waste management.

### 5.1 COSTS AND MARKETS

The financial costs of waste management have risen significantly over recent years, driven largely by the introduction of new and more stringent environmental controls and regulation (at European and National level). Historically, options that are considered to be higher up the 'waste management hierarchy' (for example, recycling and energy recovery) have been more costly than those that are lower down (for example, landfill). Government has sought to redress this balance through the introduction of fiscal measures such as the Landfill Tax which makes landfill a less attractive option. It is fair to assume, however, that the costs of all waste treatment and disposal technologies are likely to increase over time.

Within Derbyshire, there has been a heavy reliance on landfill as the principal disposal route for a very high proportion of municipal waste (83%, 2003/04). For reasons discussed elsewhere in this document this situation has to change, with the introduction of systems which serve to increase recycling and recovery of waste and therefore over time greatly reduce the proportion of the waste stream sent to landfill. Due to increases in landfill tax, and improved recycling, composting and waste treatment it is inevitable that waste management costs will rise significantly.

Set out below is a brief discussion on the key factors and uncertainties that will influence the costs associated with the future management of municipal waste.

#### 5.1.1 Landfill Tax

The Landfill Tax system was introduced by Government in October 1996. The tax is currently set at £18 per tonne (previous standard rate £15 as of 01/04/04) for active wastes. In the 2003 Budget the Government announced that the standard rate of Landfill Tax would increase by £3 per tonne to £18 per tonne in 2005-2006, and by at least £3 per tonne in the years thereafter, on the way to a medium to long term rate of £35 per tonne<sup>2</sup>. It is clear that the Government is fully committed to the use of a Landfill Tax, and indeed it is a recognised fiscal measure throughout Europe.

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<sup>2</sup> Rates of Tax taken from [www.uktradeinfo.com](http://www.uktradeinfo.com). Landfill Tax has risen from £7 per tonne in 1996 to £18 per tonne in 2005.

### **5.1.2 Other Landfill Cost Implications**

Historically, the disposal of waste to landfill has been seen as a relatively cheap solution when compared to other options higher up the 'waste management hierarchy'. The application of a landfill tax has, as discussed above, eroded this differential to a degree. However, introduction of the Landfill Directive is also having a noticeable impact on the costs of landfill. The Landfill Directive places much more stringent requirements on the design, operation and environmental controls for landfills, and this will increase the costs of waste disposal to landfill.

### **5.1.3 A Tax on Incineration**

Currently, there are no plans by Government to introduce a tax on incineration, although there has been pressure brought to bear from certain organisations for its introduction. Waste Strategy 2000 recognises the role that waste to energy can play alongside recycling and composting in achieving a balanced and sustainable approach to waste management. The Government's pre budget report (December 2004) stated that "The Government is not convinced that there is a strong case for the introduction of a tax on incinerated waste," and that a tax on incineration would not necessarily encourage a move towards a more sustainable approach.

### **5.1.4 Costs Associated with Local Issues**

Variations in cost can occur due to site specific issues, often within fairly localised areas. Derbyshire covers a large area and is particularly sparsely populated in places. It is important to recognise therefore, that distances to waste management facilities (whether these are landfill sites, materials recovery facilities or waste reprocessors) can have a marked impact on relative costs. The geographical characteristics of an area can also have an impact, with noticeable differences in costs between relatively urban areas and rural areas. These factors can therefore have a bearing on the types of waste management solution implemented.

Factors that can influence the cost of waste management include:

- Landfill scarcity
- Size and type of outlets for compost
- Funding availability
- Existing and emerging local markets for materials
- Specific contract characteristics including type, scale and performance requirements

Whilst recognising the range of factors and that such variations can occur, it is very difficult to quantify their potential impact in precise financial terms.

## **5.2 MATERIALS RECOVERY/RECYCLING MARKET**

In order to meet various European and Government targets there will need to be a significant increase in the quantity of municipal waste that is recycled. The establishment of successful and sustainable recycling operations is not merely a matter of collection and reprocessing of waste materials. Outlets for the materials and goods produced are essential in order to 'close the loop'. A substantial increase in recycling will therefore not be possible unless the demand for recycled goods and materials is stimulated by a major expansion in the use and application of recovered materials at National level.

At present, recyclable materials from the area are sent to a variety of national material reprocessing companies. The markets for recyclables and hence material prices are highly volatile and dependent on international economic forces, not least, raw material prices. It is therefore important that the Councils consider longer term contracts for the receipt of recyclate, not only to guarantee prices, but also to avoid any vagaries in the recyclate market. Consideration will be given to the creation of a Recycling Consortia or Partnership, whereby the Councils negotiate recycling contracts with reprocessors as a group rather than individually. Further details are provided in Technical Appendix 11.

The UK Government has recognised the importance of market development for recyclates and has tasked the Waste and Resources Action Programme (WRAP) with developing markets for a range of materials. Set out below is a summary of the work of the Waste and Resources Action Programme, followed by additional information on the current provision in the UK for the recycling and recovery of specific materials.

### **5.2.1 Waste and Resources Action Programme (WRAP)**

The Waste and Resources Action Programme (WRAP) has been established by Government with the aim of promoting sustainable waste management, creating a stable and efficient market for recycled materials and products, and removing barriers to waste minimisation, re-use and recycling. Four principal material streams have been identified for specific focus by WRAP, as detailed below:

*Paper and Glass* – which offer the best potential for tonnage gains; and

*Plastics and Wood* – which provide an opportunity to develop markets where current recycling levels are low but have potential for significant increases.

Generic programmes within WRAP are also addressing the recycling and waste minimisation of other materials including organic composting, tyres and waste oils. A recycling rate across all streams of 15% is proposed over the three year programme. Specific initiatives for each of the principal material streams are summarised in Appendix 11.

## 6 CHAPTER 6 - FUTURE REQUIREMENTS

The key issue to address in developing a MSW management strategy for Derbyshire and Derby City is the ability to meet the various national recycling and composting targets and diversion targets established at European level by the Landfill Directive<sup>3</sup>. This section of the report seeks to establish the implications of these targets for the Councils in terms of tonnages of waste to be recycled, recovered and landfilled.

### 6.1 STATUTORY PERFORMANCE STANDARDS FOR WCAs AND WDAs

Central Government originally set challenging targets for Local Authority recycling in Waste Strategy (2000), this was then incorporated locally under Best Value. Modifications to these targets were subsequently made in March 2001, which are summarised for Derbyshire in Table 6.1.

Table 6.1 shows the targets that have been set for 2005/06. Standards are based on recycling rates calculated from returns to the 1998/99 Municipal Waste Survey. No statutory performance standards beyond 2005/06 specific to individual local authorities have yet been developed.

The Government has made it clear that where Authorities are failing to deliver Best Value it may decide to use statutory intervention powers. The type and severity of intervention may vary according to a number of factors, however in extreme cases this may lead to complete removal of waste management functions from an Authority.

Statutory performance standards have been used to identify strategic options for Derbyshire in the short term and this is discussed in more detail in Section 6.2 of this Report. These standards support the longer term national recovery targets for MSW set by the Government to ensure compliance with the overarching Landfill Directive.

### 6.2 NATIONAL RECOVERY TARGETS FOR MSW

In 'Waste Strategy 2000' the Government established national targets for the recovery of MSW, and recycling/composting of household waste. The targets set are summarised in Table 6.1.

'Recovery' means to obtain value from waste through recycling, composting, other forms of materials recovery, or recovery of energy. 'Recycling' in this context includes both recycling and composting activities.

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<sup>3</sup> EC Landfill Directive 1999/31/EC

**Table 6.1: Waste Strategy Targets applying to the County and City Councils**

Year	Derbyshire County	Amber Valley	Chesterfield	Derby City	Derbyshire Dales	Erewash	High Peak	South Derbyshire	North East Derbyshire	Bolsover
2005/06 Target	18	18	24	30	27	30	18	21	18	18
	<b>Statutory Household Recycling/Composting Targets<sup>1</sup></b>									
2005 Target	<b>National MSW Recovery (including household waste recycling and composting) Targets<sup>1</sup></b>  Recover 40% of MSW (including 25% recycling/composting of household waste) Recover 45% of MSW (including 30% recycling/composting of household waste) Recover 67% of MSW (including 33% recycling/composting of household waste)									
2010 Target										
2015 Target										
	<b>EC Landfill Directive Targets (relate to 1995 MSW arisings)<sup>2</sup></b>					<b>LATS Allowance (City &amp; County)<sup>3</sup></b>				
2010 Target	Reduce to 75% of 1995 biodegradable MSW arisings to landfill					201,871				
2013 Target	Reduce to 50% of 1995 biodegradable MSW arisings to landfill					134,460				
2020 Target	Reduce to 35% of 1995 biodegradable MSW arisings to landfill					94,086				

<sup>1</sup> Source: Guidance on Municipal Waste Management Strategies. DETR March 2001

<sup>2</sup> Source: Waste Strategy 2000 for England and Wales. Part 1. DETR May 2000. Assumes 4 year derogation adopted by Government

<sup>3</sup> A sum of the LATS allowances for Derby County Council and Derby City. A copy of the LATS allowances is available to download from <http://www.defra.gov.uk/environment/waste/localauth/lats/index.htm>

National recovery targets have been applied to Derbyshire (Table 6.1) as an indication of possible future performance standards to be applied by Government over the next 10 to 15 years. Using these targets, medium and long term strategic options have been developed which are discussed in more detail later in the document.

### 6.3 LANDFILL DIRECTIVE TARGETS FOR MSW DIVERSION

The European Landfill Directive has established mandatory targets for the reduction of biodegradable municipal solid waste sent to landfill. The UK national targets are summarised in Table 6.1.

The Directive aims to harmonise controls on the landfill of wastes throughout the European Union and one of its aims is to reduce the amount of methane, a powerful greenhouse gas emitted from landfill sites. This forms part of the UK's wider legally binding target, agreed at Kyoto in December 1997, to cut emission of greenhouse gases by 12.5% below 1990 levels by 2008. Specific LATS allocations for the City and County Councils are presented in Table 6.2.

Further details on the Landfill Directive requirements and the associated impacts on the County and City Councils are presented in Appendix 6.

In this report Landfill Directive targets have been applied to Derbyshire and Derby City, together with national recovery targets, to enable a medium to long term strategic framework to be developed.

**Table 6.2 LATS Allocation Summary**

Year	Derbyshire County (Tonnes)	Derby City (Tonnes)	Total Allocation (Tonnes)
2005/06	232,504	71,476	303,980
2006/07	219,522	67,440	286,962
2007/08	202,212	62,059	264,271
2008/09	180,575	55,333	235,908
2009/10	154,610	47,261	201,871
2010/11	137,401	42,001	179,402
2011/12	120,191	36,740	156,931
2012/13	102,981	31,479	134,460
2013/14	98,564	30,129	128,693
2014/15	94,147	28,779	122,926
2015/16	89,729	27,428	117,157
2016/17	85,312	26,078	111,390
2017/18	80,894	24,728	105,622
2018/19	76,477	23,377	99,854
2019/20	72,059	22,027	94,086

## 6.4 WASTE GROWTH FORECASTS

This Study is seeking to address the range of wastes for which the County and City Council, as Waste Disposal Authorities, and District Councils, as Waste Collection Authorities, have a responsibility to collect under the Environmental Protection Act (1990). Forecasting of waste growth over the next 20 years is required to assess the magnitude of the task facing the Derbyshire Councils in meeting current and future Government targets.

Chapter 4 of this report identified current waste arisings within each of the Districts. The latest waste generation data together with historic trends forms the basis for future waste growth forecasting.

There are three main factors that may affect the quantities of municipal waste arisings in the future:-

- changes in the number of households
- the behaviour patterns of the public that cause a growth in the quantity of waste generated per household
- the effect of minimisation and recycling initiatives.

In the past, population forecasts have been used to estimate future household waste arisings. However, the significant reductions in average household sizes in recent years have revealed that the quantity of municipal waste produced is more closely related to household numbers than population size.

Six growth scenarios have been considered as follows:

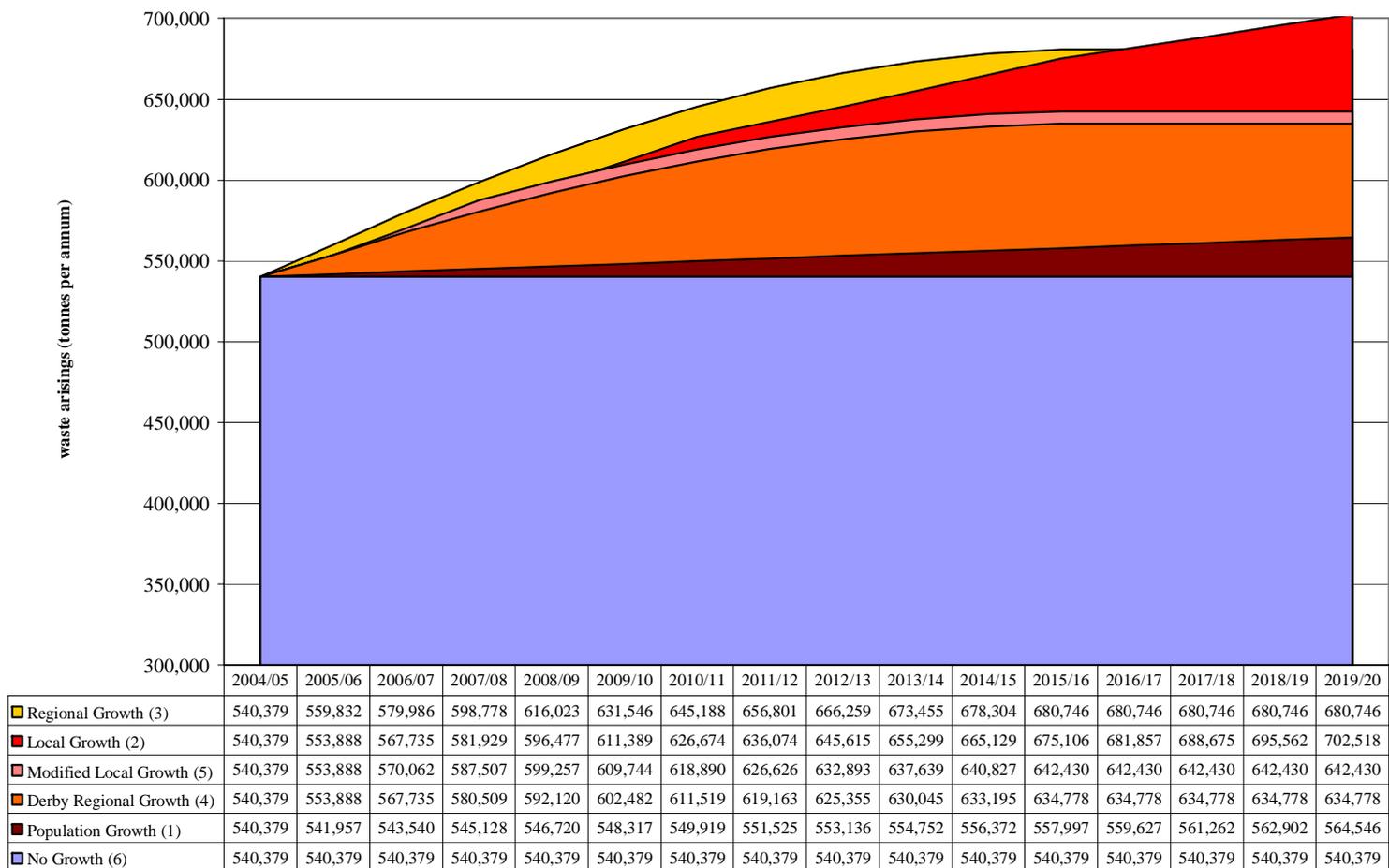
1. Population growth, calculated as a steady growth of 0.29% up until the year 2020.
2. Local growth, calculated as a declining growth rate. Running at 2.5% until the year 2009/10 then declining to 1.5% until the year 2014/15 and finally a growth of just 1% until the final calculated year of 2020.
3. Regional growth, calculated as a steadily declining growth rate, starting at 3.6% and reducing gradually to a zero growth rate in the year 2015/16.
4. Derby regional growth; again a declining growth rate starting at 2.5% and reducing to zero growth by the year 2015/16.
5. Modified local growth, this growth rate is based on the Derby regional growth except includes a 0.75% increase in the year 2007/08 on top of the predicted results. This increase is to account for the introduction of green waste collections by some councils by that year.
6. No growth.

Municipal waste growth predictions for each of these scenarios are presented in Figure 6.1. The baseline projection year is 2004/05 in Figure 6.1, however it should be noted

that the options assessment was undertaken prior to this data, and as such is based on a 2003/04 baseline.

Following presentation of the growth predictions to Officers, it has been agreed that the modified local growth scenario (5) most closely matches the Regional RTAB growth scenario and should therefore form the basis of future waste predictions. Growth scenario 5 has been used to develop future potential options.

**Figure 6.1: Municipal Waste Growth Predictions**



Note: Bracketed numbers refer to scenario number (para 6.4)

## 6.5 WASTE COMPOSITION FORECASTS

In order to develop a waste strategy it is important to understand the waste composition for the area. Waste profiles have been compiled for the three waste strategy sub-areas in Derbyshire based on information quoted in District Council Recycling Plans and from recent research carried out in Derby.

**Table 6.2: Details of compositional studies**

Material (%)	Derby 2000	Derby 2001	Waste Strategy Unit (Office of Deputy Prime Minister) Composition
Paper	11.7	11.8	17.5
Card	7.4	4.1	3.6
Card Drinks	0.3	0.4	1.6
Glass	5.8	5.3	8.4
Metal	2.5	4.8	3.4
Textiles	6.9	3.9	3.2
PET	1.7	0.6	
HDPE	1.6	0.5	
Rigid	2.9	1.8	
Non-Rigid	4.3	4.7	
Plastics (Total)	10.5	7.6	8.8
Kitchen	31.6	22.1	22.2
Garden	6.6	26.7	15.3
Wood	1.9	1	2.7
Ash, dust, rubble	3	6.7	5.9
Nappies & Sanitary	5.3	2.2	2.4
Animal	0.5	1.5	0.0

The profile of waste found in the average household bin varies considerably between different parts of the Country, reflecting the different geographical, socio-economic factors and, the difficulty of consistent sampling for analysis as a result of weekly, monthly, and seasonal variation in waste composition. In light of this variance, average UK compositional data has been used in the remainder of this report to develop the waste management options.

Compositional information from the Environment Agency's survey, which has not been published as yet, will be used to update the waste strategy at a future date.

## 6.6 WASTE TREATMENT AND DISPOSAL PROJECTIONS

In this report, the targets discussed in Sections 6.2, 6.3 and 6.4 have been applied to the predicted MSW growth figures for Derbyshire and the results are summarised in Table 6.3 and Figures 6.2 and 6.3.

Figure 6.2 shows the amount of Biodegradable Municipal Waste (BMW) that is required to be diverted in accordance with the targets set by the Landfill Directive. The graph also displays the total LATS Allowances for Derbyshire and Derby City that will be

allocated between 2005/06 and 2019/20. By 2013, Derbyshire will need to divert 297,714 tonnes of BMW from landfill.

Figure 6.3 shows the amount of municipal waste to be diverted from landfill to achieve Waste Strategy 2000 recovery targets. The graph shows a continuation of current recycling and composting performance (21%) as a baseline for comparison.

The medium to long term waste management strategy options considered later in this report for Derbyshire are based on meeting or exceeding future Landfill Directive targets.

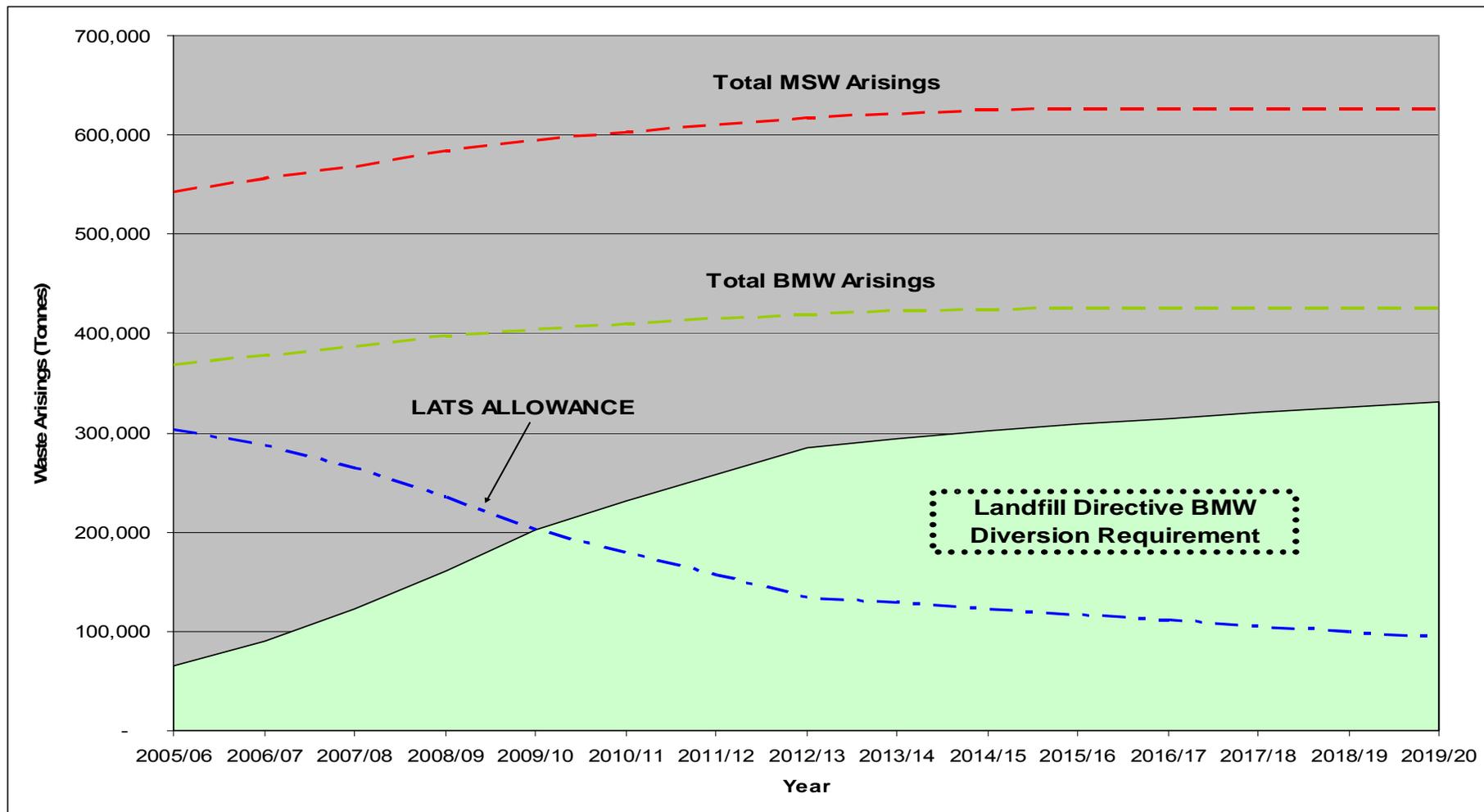
**Table 6.3: Predicted Waste Diversion Requirements to achieve Waste Targets (based on 2003/04 baseline year)**

Year	Derby City	Derbyshire	Amber Valley	Bolsover	Chesterfield	Derbyshire Dales	Erewash	High Peak	North East Derbyshire	South Derbyshire
<b>Statutory Household Recycling/Composting targets</b>										
2005/06 Target <sup>1</sup>	47,829	87,307	10,722	8,001	13,021	10,106	17,758	9,045	8,948	9,706
2010 Possible Target <sup>1</sup>	49,194	136,134	20,218	15,087	18,415	12,705	20,092	17,055	16,874	15,688
2015 Possible Target <sup>1</sup>	58,296	161,320	23,959	17,879	21,822	15,055	23,809	20,211	19,995	18,590
<b>National Recovery (including household waste recycling and Composting) Targets</b>										
2005 Target	57,974	160,430	23,826	17,780	21,702	14,972	23,678	20,099	19,885	18,488
2010 Target	73,792	204,200	30,327	22,631	27,623	19,057	30,138	25,583	25,310	23,532
2015 Target	118,359	327,528	48,643	36,299	44,305	30,567	48,339	41,034	40,597	37,744
<b>Diversion Requirements - EC Landfill Directive Targets<sup>2</sup></b>										
2010 Diversion	207,060									
2013 Diversion	297,714									
2020 Diversion	376,411									

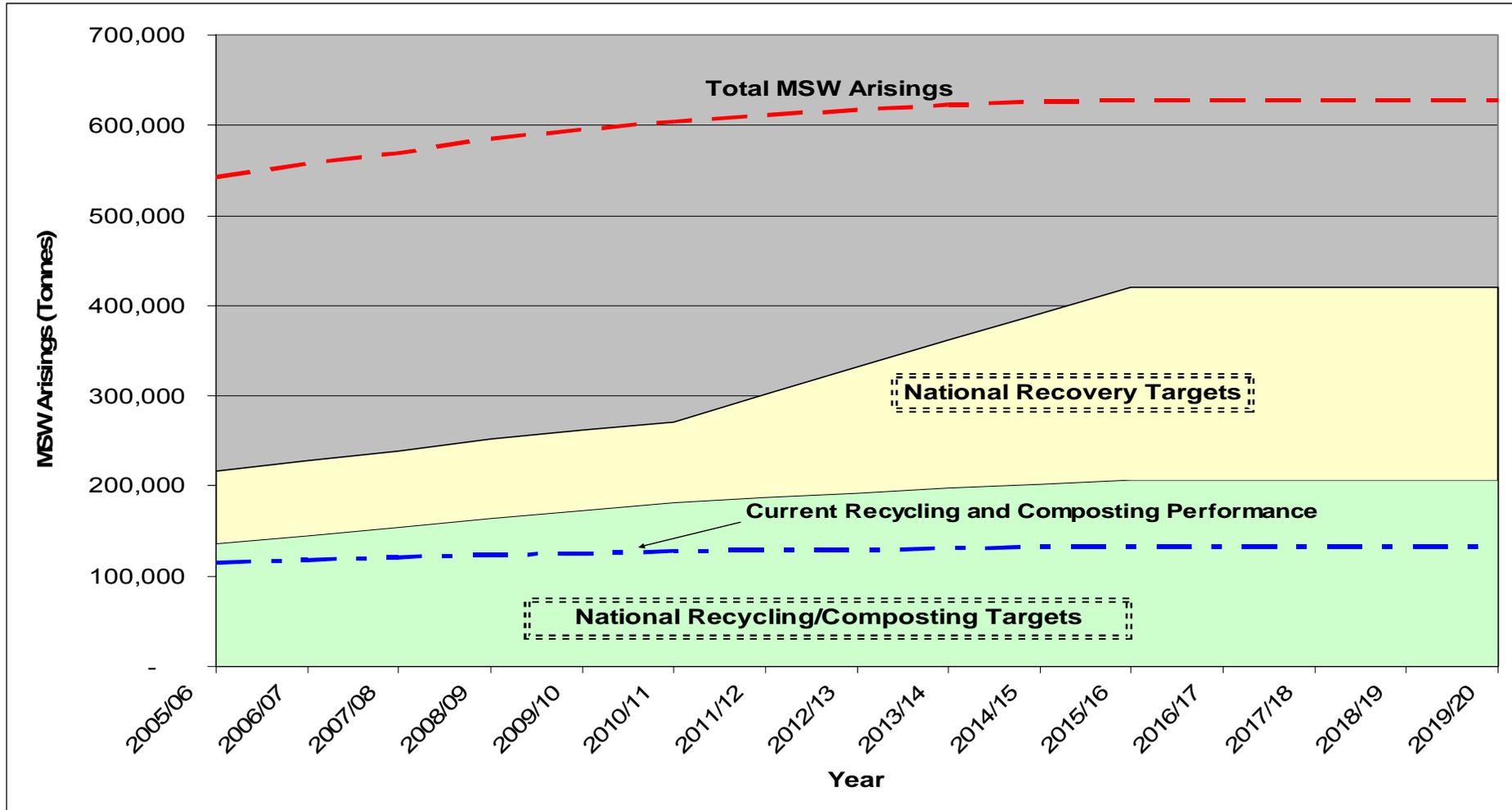
<sup>1</sup> Source: Guidance on Municipal Waste Management Strategies. DETR March 2001. Recycling/composting targets for household waste in 2005 use local BVPI figures, 2010 and 2015 use national target figures

<sup>2</sup> Calculated using Waste Forecasts based on the Local Growth Rate and Proposed LATS allowances. A copy of which is available to download from <http://www.defra.gov.uk/environment/waste/localauth/lats/index.htm>

**Figure 6.2: Predicted BMW Diversion Requirements**



**Figure 6.3 Recovery, Recycling and Composting Performance to meet Waste Strategy 2000 Recovery Targets**



## 6.7 STRATEGIC ISSUES

The following are 'strategic issues' that are fundamental to the development of the strategy and will be carefully considered in developing the preferred approach for the future management of waste within Derbyshire:

- Waste awareness and waste minimisation initiatives including encouraging home composting, real nappy campaigns, and education campaigns.
- Maximising recycling and composting effort prior to treatment of residual waste. This would include aiming to increase the variety and tonnage of materials separately collected from the kerbside.
- Waste should be seen as a resource with final disposal a last resort when all other options have been considered.
- The treatment and disposal of 'residual' waste (that proportion remaining after recycling and composting targets have been achieved) will become a primary bias.
- Careful selection of potential future development sites for waste handling, treatment and disposal will be required. Consideration must be given to the timescales required for the planning process and public consultation stages to be completed and is of great interest at the planning application stage.
- The involvement of voluntary, community and non-profit making organisations is essential in developing a sustainable MSW management strategy. Indeed Government strategy highlights the benefits of community sector involvement in waste management.

The above strategic issues have been assessed in the SWMO assessment stage and are discussed in the strategy development process as a pre-cursor to identifying the preferred way forward for the management of MSW in Derbyshire. I.e., the emphasis will be on raising waste awareness and promoting waste minimisation initiatives, maximising recycling and composting before disposal and the careful selection and development of waste management facilities.

## **7 OPTIONS FOR MANAGING WASTE AND EFFECTING CHANGE**

This chapter considers the principal methods involved in effective waste collection, treatment and disposal and identifies key aspects of waste management that the potential options should incorporate. Six potential strategic options for future management of municipal waste have been developed based on a combination of bring recycling, kerbside recycling, HWRCs, waste treatment and waste disposal.

### **7.1 GENERAL PRINCIPLES**

#### **7.1.1 The Integrated Waste Management System**

The term integrated waste management (IWM) is most commonly used when addressing national or regional waste strategies. IWM means the use of a range of different waste management options as opposed to a single option. Key aspects of an effective IWM system include:

- Embracing the concepts of the waste hierarchy (see below);
- Recognising each step in the waste management process as part of a whole, i.e. viewing each development as a component of an overall plan;
- Involvement of all key players or stakeholders;
- Employing a range of waste management options; and
- Incorporating flexibility in order to meet future legislation, market changes and social, economic and environmental conditions.

Experience has shown that adopting an integrated approach results in the most effective waste management decisions / solutions.

#### **7.1.2 The Waste Hierarchy**

In Waste Strategy 2000, the Government states that the waste hierarchy should underpin current and all future waste management options development. (Section 4.1 of this report summarises waste minimisation and re-use initiatives that could be applied to Derbyshire.) Section 4.2 discusses collection and treatment options for waste reflecting the recovery and disposal tiers of the waste hierarchy.

MSW will always, by its very nature, contain putrescible materials which, if not adequately managed, could lead to potential odour and health hazards. MSW will also typically be contaminated with a variety of materials which may be a hazard to the environment – such as waste paint, oils, pesticides, batteries, etc. The ideal, therefore, is to avoid waste generation. However, where MSW occurs there are a number of common requirements that have to be considered during the selection, design and operation of a particular collection, treatment or disposal process, including:

- Management and control of the incoming waste stream (with regard to odour, mixing, water run-off, pest control, etc);
- Maintaining the efficacy and integrity of any pre-treatment processes;
- Maintaining the efficacy of the main treatment process to optimise outputs whilst at the same time minimising inputs (for example, electricity, water, gas, etc);
- Avoiding uncontrolled releases to land, air or water;
- Minimising solid residues (except recyclables); and
- The need for purpose designed facility buildings and infrastructure.

These factors have been considered as elements of the SWMO process (see Technical Appendix 5 for further details). However, they also represent essential criteria that must be addressed to get permissions to operate these facilities.

### **7.1.3 Waste Minimisation & Reuse**

Fundamental to any waste management strategy is the incorporation of waste minimisation and re-use initiatives. Recognising this importance, a detailed waste minimisation plan has been prepared, see Appendix 7 of the Technical Appendices.

### **7.1.4 Waste Collection & Segregation Options**

In order to facilitate increased recycling there are five principal methods of collecting household waste that could be employed, the decision on which one to adopt being influenced by the final integrated waste management solution selected. The options are as follows:

- Collect unsorted waste and deliver to a dirty MRF;
- Mixed dry recyclables collected at kerbside and delivered to a materials recycling facility for subsequent sorting;
- Segregated dry recyclables separated at Kerbside, avoiding the need for an MRF;
- Separated compostable material collected at Kerbside and delivered to a composting facility;
- Reliance on the public to segregate dry recyclables at source and depositing them at recycling banks.

Dirty MRFs are so called as they accept mixed recyclable and residual waste from the household collection rounds. Recyclable materials are then picked out from the residual waste. Dirty MRFs suffer because of the high levels of contamination of the

recyclables making them less marketable. Most facilities built on this principle have been closed and shown to be unsustainable.

Experience indicates that 'at source' segregation or separation (i.e. the separate, 'kerbside', collection of different waste streams at the point of arising), if operated effectively, has several principal advantages over the alternative of collecting whole, unsorted waste:

- It is clear from existing installations that segregation at source minimises the amount of cross contamination thereby resulting in a much more efficient and cost effective operation;
- Higher quality of materials, therefore better market acceptance;
- The collection crew is able to monitor the efficiency of the system and provide valuable feedback to their supervisors;
- The costs of sorting segregated recyclables at a clean MRF are lower than the equivalent costs associated with sorting unclassified waste at a dirty MRF. However, the costs and time involved with collection are much higher.

The Derbyshire Councils already carry out kerbside collection of materials, although not all households nor all materials are collected across the county and city in 2005.

Consideration of the preferred collection/segregation option(s) for Derbyshire will be an important matter to be addressed at a later stage of the implementation process. It is important to recognise however, that the collection and segregation of waste cannot be considered in isolation but within the context of the preferred way forward for treatment and disposal. The importance of adopting an integrated approach cannot therefore be overstated. It should also be noted that no one system of waste collection and segregation is likely to be appropriate for all areas within the county and city.

### **7.1.5 Waste Treatment and Disposal**

Until recently, and in light of new environmental legislation and Government policy to develop sustainable waste management practices, the only practicable options considered for the treatment of MSW were landfill and incineration. As a direct result of technological advances, together with economic and environmental factors, there are now more waste management options available, albeit at varying stages of development and with varying degrees of 'track record'.

The decision as to which of the reviewed options should be adopted will depend on a number of factors, some of which are currently known and others unknown or not clearly defined at this stage. Factors which are more difficult to define include evolving policy on waste management, potential future variations in taxation, the capability of the newer technologies, and volatility of markets, particularly for recycled materials.

Factors which have been considered in writing this report include:

- Status of the various technologies and their development history;

- Parameters affecting process performance;
- Current Government policy;
- Current regulatory requirements;
- Economics (including capital and operating costs and available markets for outputs or by-products); and
- Environmental impact and sustainability.

Municipal solid waste is a complex and heterogeneous material with a composition that varies on a day-to-day basis and sometimes more significantly on a seasonal basis. The principal processes for treatment and disposal of waste are:

- Anaerobic/Aerobic Digestion for treatment of the residual biodegradable fraction;
- Energy from Waste;
- Advanced thermal treatment processes (Gasification & Pyrolysis);
- Mechanical Biological Treatment; and
- Landfill;
- Or combinations of the above.

These processes are discussed in more detail in the Technical Appendices (Appendix 3).

Whichever principal treatment process is considered to be the most suitable, it will be complemented by recycling and composting to form part of an integrated waste management strategy. There will also be a need for landfill to form part of a fully integrated system to receive residues that cannot be reused and waste that cannot be recovered, recycled or treated.

The Derbyshire and Derby City Waste Local Plan (adopted 2005) considers facilities for the recovery of value from waste and discusses the concerns relating to them, seeking to identify the most appropriate location where specific waste management facilities may be sited. It is proposed that all waste management sites should provide for bulking up and recycling, and that waste transfer stations should be appropriately sited to avoid transporting the waste over unnecessarily long distances. Energy Recovery facilities could be either large scale, or smaller scale, in accordance with the Proximity Principle, both being economically viable, and planning applications will be assessed against the following criteria:

- Level of energy recovery;
- Visual Impact;
- Environmental conflict; and
- End product usage.

## 7.2 OPTIONS DEVELOPMENT

The Government's statutory and non-statutory landfill diversion, recycling and recovery targets, together with the Landfill Directive, provide a framework for identifying the future waste management strategy for Derbyshire. However, these targets can be met (or exceeded) by various means, and therefore a range of options have been developed.

The preferred option should ideally incorporate<sup>4</sup>:

- An end to growth in municipal waste;
- High rates of recycling and composting;
- Greatly reduced reliance on landfill;
- Facilities for treating and disposing of waste as an alternative to landfill;
- The Proximity Principle;
- Principles of affordability and deliverability; and
- The Sustainable Waste Management Option.

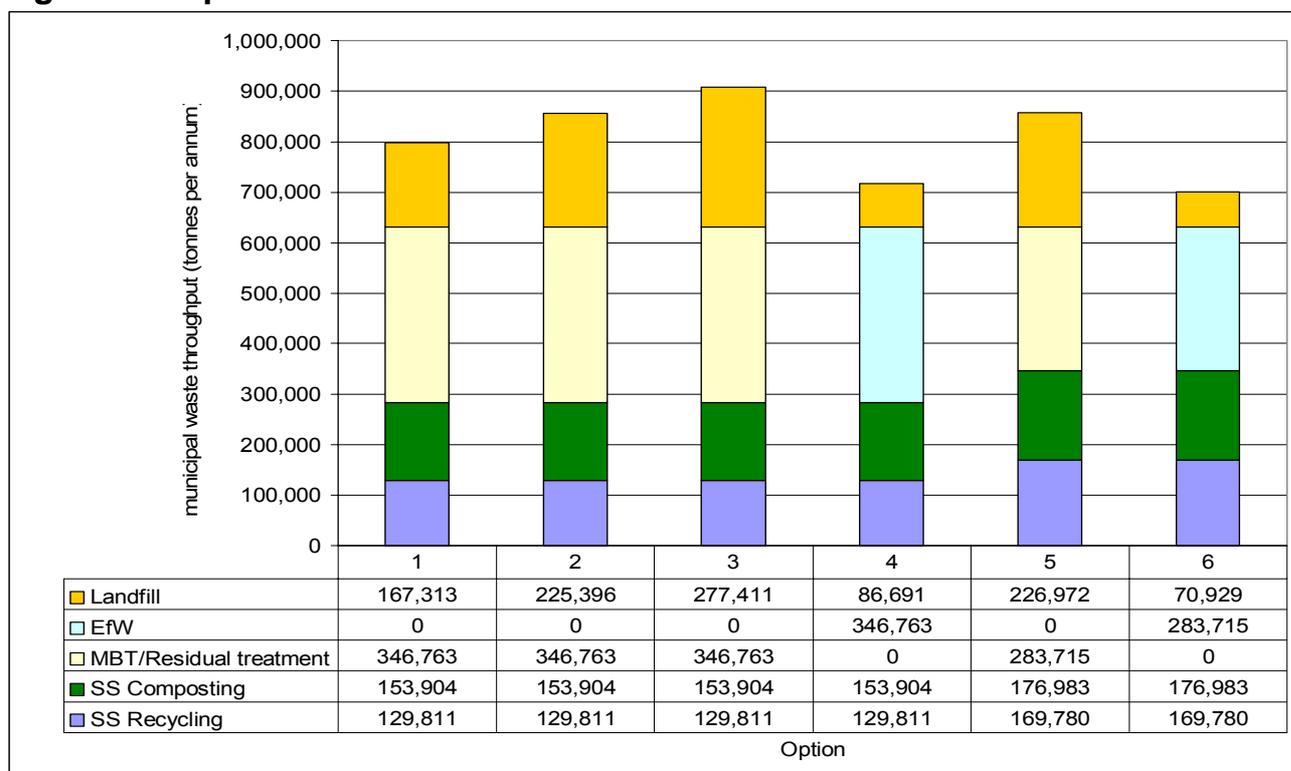
Each of the options developed comprises a mixture of bring recycling, kerbside recycling, HWRCs, waste treatment and waste disposal. Waste management performance for each of the options is summarised in Figure 7.1. Brief descriptions of Options 1-6 are also provided over the following pages. Detailed mass flow diagrams are presented in Appendix 4.

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<sup>4</sup> Guidance on Municipal Waste Management Strategies. DETR. March 2001

**Figure 7.1 Options characterisation for 2020**



NB. These figures are based on a throughput of 800,000 tonnes. However, the overall tonnage varies for each option due to the treatment method involved and subsequent double counting.

**Option 1: Moderate source segregation with the residual waste being processed in an autoclave Mechanical Treatment plant.**

The basis of this option is to achieve a 45% source segregated recycling and composting effort, with residual waste processed through an autoclave MBT process. The autoclave MBT plant is based on steam sterilisation of waste, followed by recovery of recyclable materials, production of a refuse derived fuel (RDF), for offsite combustion, and disposal of a non recoverable fraction to landfill.

**Option 2: Moderate source segregation with the residual waste being processed in an MBT plant with RDF production to a level to meet the LATS requirements.**

The basis of this option is to achieve a 45% source segregated recycling and composting effort, with just enough residual waste sent to an MBT plant to meet LATS targets. The MBT plant comprises a combination of biological drying, recovery of recyclable materials, generation of a refuse derived fuel and disposal of a non-recoverable fraction to landfill.

**Option 3: Moderate source segregation with the residual waste being processed in an anaerobic digestion plant (AD).**

The basis of this option is to achieve a 45% source segregated recycling and composting effort, with residual waste processed in an anaerobic digestion plant similar to the technology employed by Biffa to treat municipal waste in Leicester. This technology allows recovery of recyclables, anaerobic production of the biodegradable component together with composting of the resulting digestate, production of RDF for off-site combustion and disposal of a non-recoverable fraction to landfill.

**Option 4: Moderate source segregation with the residual waste being processed in an energy from waste plant maximising diversion from landfill.**

Option 4 replicates levels of source-segregated composting and recycling achieved in options 1, 2 and 3, with all residual waste being treated through an energy from waste plant.

**Option 5: High source segregation with the residual waste being processed in an anaerobic digestion plant (AD).**

The basis of this option is to achieve a 55% source segregated recycling and composting effort, with residual waste being treated via an anaerobic digestion plant.

**Option 6: High source segregation with the residual waste being processed in an energy from waste plant maximising diversion from landfill.**

Option 6 replicates levels of source-segregated composting and recycling achieved in option 5, with all residual waste being treated via an energy from waste plant.

## 8 CHAPTER 8 – GENERIC OPTIONS APPRAISAL

This chapter characterises each of the options outlined in Chapter 7 against key waste strategy targets. Each option is then assessed against a set of environmental, economic and social indicators to identify the highest performing option.

### 8.1 OVERVIEW OF GENERIC OPTIONS

Six generic options have been developed for the future management of municipal waste in Derbyshire. These options have been developed to achieve the various recycling, composting and waste diversion targets identified in earlier sections of this report. The performance of each option against key waste strategy targets is summarised in table 8.1, clearly showing the validity of each option as part of a future waste collection and disposal strategy.

**Table 8.1 Performance of Options 1 - 6 against Key Waste Strategy Targets**

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Recycle or compost 33% of Household Waste by 2015	✓	✓	✓	✓	✓	✓
Landfill Directive (35% of 1995 BMW to Landfill level) in assessment year 2019	✓	✓	✓	✓	✓	✓

### 8.2 CHARACTERISATION OF OPTIONS

Each of the Options has been characterised to identify waste flows for each principal waste management and treatment option. This exercise has been carried out for all target years. The analysis is presented in detail in the Technical Appendices (Appendix 5).

### 8.3 OPTIONS APPRAISAL

Having developed a number of potential options it is necessary to assess each of the options to identify a preferred approach for managing municipal waste in Derbyshire.

The options appraisal process has comprised an assessment of the Best Practicable Environmental Option (BPEO) and the Sustainable Waste Management Option (SWMO). A detailed explanation of the methodology used is presented in the Technical Appendix document (Appendix 5).

Each option is assessed against a set of 21 environmental, economic and social indicators. Each option is then scored according to how well it performs against each indicator. The scores for each indicator are added together to give a single performance score for each option. The option with the highest score is considered to be the BPEO and SWMO.

## 8.4 WHICH OPTION IS THE BPEO?

By carefully considering the environmental, social and economic impacts of each of the possible waste management options (as detailed in the accompanying Technical Appendices, section 6), it can be shown that Option 6 followed by Option 5 represent the BPEO and the SWMO for long-term management of municipal waste in Derbyshire. The results of the scoring are shown in table 8.2 below.

**Table 8.2: BPEO and SWMO Scores both Valued and Ranked**

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
<b>VALUED PERFORMANCE SCORES FOR ALL CRITERIA (SWMO)</b>	2	5	6	4	3	1
<b>VALUED PERFORMANCE SCORES FOR BPEO CRITERIA ONLY</b>	1	4	6	5	3	2

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
<b>RANKED PERFORMANCE SCORES FOR ALL CRITERIA (SWMO)</b>	3	4	6	5	2	1
<b>RANKED PERFORMANCE SCORES FOR BPEO CRITERIA ONLY</b>	3	4	6	5	2	1

The results suggest that Option 6, followed by Option 5 and Option 1 is the BPEO.

Option 6 assumes a source segregated recycling and composting rate of 55% is aimed for with all residual waste sent to energy from waste facility.

Option 5 achieves 55% source segregated recycling and composting targets with residual waste sent for processing in an anaerobic digestion plant.

The third highest scoring option is Option 1 which incorporates an autoclave MBT plant as the preferred residual treatment.

## 8.5 PREFERRED OPTIONS FOR DERBYSHIRE

The BPEO options appraisal has identified options 1, 5 and 6 as being the highest scoring options.

Option 6 assumes an expansion of recycling schemes to achieve a 55% performance resulting in a high performing option. To achieve, and in fact exceed, the longer term Landfill Directive targets all remaining municipal waste would be sent to an energy from waste facility (or facilities). This option meets the required Landfill Directive target in 2010 and maintains this position exceeding targets from 2010 up until the final year modelled in 2020.

Options 1 and 5 would also provide a high level of sustainability and would achieve similar levels of recycling and diversion of BMW from landfill to Option 6. Whilst option 1 is based on 45% source segregated recycling and composting, the nature of the residual treatment facility means that the recovery of additional recyclates from the residual waste could be maximised.

It should be noted however, that a residual waste treatment facility could not be operational before 2009/10 due to contracting, permitting and construction timescales. Therefore, residual waste may continue to be disposed of to landfill during the interim period.

In conclusion, options 1,5 and 6 are the preferred options for managing Derbyshire's municipal waste. It is therefore proposed that the Councils develop a contract procurement strategy that seeks proposals from suitably competent contractors who can provide the infrastructure and technology to enable all Derbyshire councils to meet forthcoming statutory targets.

## **9 CHAPTER 9 – DELIVERY OF THE STRATEGY**

This chapter details the deliverability of the Strategy, including necessary provision of facilities for each of the 3 higher scoring options, by capacity and number. The chapter then summarises the elements of the preferred waste strategy.

### **9.1 RECYCLING STRATEGY**

The WET Bill repealed the statutory duty for WCAs to prepare recycling plans. However, the preferred strategy for Derbyshire assumes a high recycling level and it is therefore considered prudent to prepare a Recycling and Composting Plan. A summary Plan is documented in the Technical Appendix document (Appendix 8).

By achieving the targets set out in the Recycling and Composting Plan, the Council will ensure that the national recycling and composting targets for 2006/7 and 2009/10 are met and indeed exceeded.

### **9.2 DIVERSION OF WASTE FROM LANDFILL**

On 14<sup>th</sup> May 2004 the Government announced that the LATS will begin for English County and Unitary Council Authorities on 1<sup>st</sup> April 2005. LATS is regarded as the Governments key measure in meeting landfill reduction targets.

Derbyshire County and Derby City Councils have now received their respective final LATS allowances which are summarised in Section 6.3. Appendix 6 details the provision of Landfill Allowances in Derbyshire and discusses LATS performance in line with the preferred option.

### **9.3 WASTE MINIMISATION AND MARKETING PLANS**

#### **9.3.1 Waste Minimisation and Reuse**

Fundamental to any waste management strategy is the incorporation of waste awareness, minimisation and re-use initiatives (refer Section 4.1). However, one of the greatest problems associated with this tier of the waste management hierarchy is quantifying how effective such programmes are likely to be. The Waste Minimisation Act (refer Section 2.1) clarifies the responsibility of Councils to implement initiatives to reduce, rather than recycle or dispose of MSW. However, the Act stops short of imposing any statutory responsibility on Authorities to provide such initiatives, or on businesses and householders to meet requirements. Nevertheless, the Act identifies simple measures that could be adopted by Local Authorities to raise awareness, promote the use of refill schemes, publicise local community schemes for reuse/recycling of household goods and working with large retailers to reduce packaging.

#### **9.3.2 Implementation**

Waste minimisation and re-use schemes are the most sustainable forms of waste management, reducing the quantity of waste with spin-off benefits of local employment

and financial savings. The wider benefits of waste awareness and minimisation schemes, if promoted properly, should not be underestimated. However, the schemes require continual maintenance and encouragement for the public to participate.

Appendix 7 presents an outline Waste Minimisation Plan.

In respect to promoting sustainable waste management services the partner authorities have committed themselves to producing a Marketing Plan that will effectively enable waste minimisation, reuse, recycling and composting to be promoted across the county. The primary objective of the Plan, see Appendix 9 is to gain large scale and long-term changes in public attitude and behaviour to managing waste.

#### **9.4 FINANCIAL ASSESSMENT**

A separate financial assessment has been undertaken to develop an outline business case to support the procurement contracts needed to implement the waste management strategy.

Indicative comparative costs for each of the Options, presented as net present value over a 25 year period are presented in Table 9.2, although it is recognised that a 25 year contract will not necessarily be established.

**Table 9.2 Financial Assessment of Options**

Option	Financial Score (£M NPV)
1 – Autoclave Mechanical Treatment	£447
2 - MBT	£434
3 - AD	£454
4 - EfW	£448
5 - AD, max recycling	£400
6 - EfW, max recycling	£395

It should be noted that these figures exclude collection costs. Costs associated with other specific legislation are also not included, for example, the separate collection of hazardous household waste.

#### **9.5 WASTE MANAGEMENT FACILITY PROVISION**

Predicted tonnage requirements and facility capacities for option 6, 5 and 1 are outlined in Table 9.3 for 2020.

It should be noted that there will be a need for disposal to landfill of some wastes over the full duration of the strategy. The quantity of waste sent to landfill will reduce significantly up to 2010 and beyond. Future landfill capacity will therefore need to be secured.

**Table 9.3 Predicted Waste Treatment Capacity for Options 1, 5 and 6**

	Option 1	Option 5	Option 6
MSW Arisings	630,478	630,478	630,478
Recycling - MRF	129,811	169,780	169,780
Composting	153,904	176,983	176,983
Treatment	346,763	283,715	283,715
Landfill (Primary)	0	0	0
Waste Handling (Primary)	630,478	630,478	630,478
Landfill (Secondary)	133,330	59,580	70,929
Total Waste Handling	763,809	690,059	701,407
Total Recycled/Composted %	45%	55%	55%
Treatment %	55%	45%	45%

Each option will necessitate the need for various types of facility across the county at various locations. These facilities will vary in size. The table below gives indicative numbers for these facilities depending on whether they are small, medium or large. For example, the total number of facilities for option 1 may be 39 small, 25 medium or 20 large facilities. In reality it will be a combination with the likelihood of there being 20 – 30 facilities needed across the whole county.

**Table 9.4 – Likely number of waste facilities for Options 1, 5 and 6**

Facility size category	Option	Residual Treatment (incl. EfW)		Landfill	HWRC sites and Transfer Facilities	Total Number of facilities	
		MRF	Composting				
Small facilities	Option 1	13	6	7	2	11	39
	Option 5	17	7	6	2	11	43
	Option 6	17	7	6	1	11	42
Medium facilities	Option 1	5	4	3	2	11	25
	Option 5	7	5	3	2	11	28
	Option 6	7	5	3	1	11	27
Large facilities	Option 1	3	2	2	2	11	20
	Option 5	3	3	2	2	11	21
	Option 6	3	3	2	1	11	20

## 9.6 COMMUNITY INVOLVEMENT

The Voluntary and Community sector can play a substantive role in recycling and can bring an extensive range of skills and experience that are not always available in the private sector. Details of how the Council will involve the community sector in municipal waste management are given in the Technical Appendix document (Appendix 8).

## **9.7 CONSULTATION**

Government Guidance on the preparation of Waste Management Strategies specifies that they should “be open to meaningful and wide-ranging consultation. Local authorities should determine how this should be done in the light of local circumstances”.

This and the 1999 Strategy were subject to a public consultation process.

9.7.1 Following the drafting of Derbyshire’s first waste management strategy (1999) an extensive consultation exercise was undertaken that received over 860 responses resulting in changes to the final document.

9.7.2 Following the development of a draft Strategy in 2005 a wide ranging consultation exercise was undertaken between September 2005 and March 2006.

The following were consulted:

- parish and town councils
- community and voluntary sector organisations
- statutory consultees such as the Environment Agency and English Nature
- groups and organizations including environmental organisations
- the Derby and Derbyshire-wide Citizens’ Panels,
- local residents, press releases, authorities websites, 35 exhibition days around the county using the waste management exhibition vehicle.

6037 responses were received from the public and 22 from groups and organisations. These comments were analysed and appropriate changes were made to this final Strategy including it’s Technical Appendices and Strategic Environmental Assessment.

## **9.8 PARTNERSHIP APPROACH**

This Waste Strategy is based on a partnership approach and will involve a diverse range of strategic partners all offering a diverse breadth of expertise. These partners will include the Waste Collection Authorities, Waste Disposal Authorities, producers and managers of non-municipal waste, other public and private sector bodies, the voluntary sector and many groups and organisations. Collectively these partners will progress the waste strategy forward.

## **9.9 SUMMARY**

The preferred strategy is as follows:

- Expansion of recycling and composting schemes to achieve upto 55% recycling level.

- All residual waste, in the absence of a suitable Regional facility will be treated at in-county treatment facilities.
- The combination of recycling and recovery will ensure that the Landfill Directive targets for each of the key years are met and in fact exceeded.

The strategy comprises a number of key elements, summarised on the next page:

- A partnership approach between all Councils with the private sector to achieve the visions of this municipal waste strategy;
- Introduction of waste minimisation measures to reduce the growth in waste arisings; Ultimately, it is intended that zero growth in waste arisings will be achieved;
- Councils will implement greener procurement systems that encourage the purchase of materials with recycled content;
- Continued support to and promotion of the benefits of home composting and other waste minimisation schemes;
- Support to local and regional schemes that encourage and develop local recycling and reprocessing capacity;
- Introduction of schemes to manage those elements of municipal waste considered to be hazardous
- Where possible, involvement of the community and voluntary sector in recycling and composting will be encouraged;
- Continued introduction/expansion of the kerbside collection of dry recyclable and organic (compostable) materials. It will be necessary to extend the schemes over the period up to 2009/10 in order to achieve the level of diversion required to meet the targets;
- Enhancement of the Household Waste and Recycling Centre (HWRC) provision across the County to facilitate improved access to the principal population centres and increased diversion of materials for recycling and reuse;
- Provision of Materials Recycling Facilities (MRFs) to deal with recyclable materials diverted via bring sites, at the kerbside and at HWRCs;
- Development of in-vessel composting facilities for the treatment of kerbside segregated organic materials (including green waste, organic kitchen wastes and green wastes from HWRCs);
- The continued use of open windrow composting for green waste. Open windrow techniques will also be required for further maturation of the product from the in-vessel facilities;
- Providing sufficient residual waste handling capacity to treat residual waste and where possible, industrial and commercial residual waste:
- Providing sufficient landfill capacity for residues and wastes that cannot be recycled, composted or recovered.

The authorities will need to establish various mechanisms and a strong partnership approach to ensure that the waste strategy is delivered

## 10 USEFUL WEBSITES

The following non-exhaustive list of websites will provide more detailed information on all aspects of waste management.

Alupro	<a href="http://www.alupro.org.uk">www.alupro.org.uk</a>
British Glass	<a href="http://www.britglass.co.uk">www.britglass.co.uk</a>
Chartered Institutes of Waste Management	<a href="http://www.ciwm.co.uk/">http://www.ciwm.co.uk/</a>
Community Composting Network	<a href="http://www.communitycompost.org.uk">www.communitycompost.org.uk</a>
Community Recycling Network	<a href="http://www.crn.org.uk">www.crn.org.uk</a>
DEFRA	<a href="http://www.defra.gov.uk">www.defra.gov.uk</a>
DTI	<a href="http://www.dti.gov.uk">www.dti.gov.uk</a>
Environment Agency	<a href="http://www.environment-agency.gov.uk">www.environment-agency.gov.uk</a>
Environment Council	<a href="http://www.the-environment-council.org.uk">www.the-environment-council.org.uk</a>
Environmental Data Exchange	<a href="http://www.edie.net">www.edie.net</a>
Environmental Services Association	<a href="http://www.esauk.org/">http://www.esauk.org/</a>
European Environment Agency	<a href="http://www.eea.eu.int">www.eea.eu.int</a>
Furniture Reuse Network	<a href="http://www.frn.org.uk">www.frn.org.uk</a>
Green Consumer Guide	<a href="http://www.greenconsumerguide.com">www.greenconsumerguide.com</a>
Real Nappy Campaign	<a href="http://www.realnappycampaign.com">www.realnappycampaign.com</a>
RECOUP	<a href="http://www.recoup.org">www.recoup.org</a>
Recycle More	<a href="http://www.recyclemore.co.uk">www.recyclemore.co.uk</a>
Steel Can recycling Information Bureau	<a href="http://www.scrib.org">www.scrib.org</a>
Sustainable Development Commission	<a href="http://www.sd-commission.org.uk/">www.sd-commission.org.uk/</a>
The Composting Association	<a href="http://www.compost.org.uk">www.compost.org.uk</a>
Waste Solutions	<a href="http://www.wastesolutions.org">www.wastesolutions.org</a>
WRAP	<a href="http://www.wrap.org.uk">www.wrap.org.uk</a>

## 11 GLOSSARY OF TERMS

**Anaerobic digestion** – a process where biodegradable material is encouraged to break down in the absence of oxygen, in an enclosed vessel. It produces carbon dioxide, methane and solids/liquors known as digestate, which can be used as fertiliser and compost.

**Autoclave** – is the most common form of Mechanical Heat Treatment (MHT). Autoclave uses a combination of mechanical and thermal (steam processing in a vessel under the action of pressure) processes to separate a mixed waste stream into component parts with further options of recycling and recovery. Different systems can be employed to meet various outputs, but in general the outputs will include one or more of the following: organic rich component for subsequent biological treatment (end use example – low grade soil conditioner); segregated high calorific value waste (RDF, end use example – use in process to capture energy potential); extract materials for recycling (typically glass and metals, potentially to capture plastics and ‘fibrous’ organic material and paper).

**BPEO - Best Practicable Environmental Option** – a BPEO is the outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.

**Biodegradable** – material which is capable of being broken down by plants (including fungi), and animals (including worms and micro-organisms). In municipal solid waste, the property is generally attributed to the following fractions: paper and card, kitchen (food) and garden waste, fines and miscellaneous combustible waste.

**Biological Treatment** – any biological process that changes the properties of waste (e.g., anaerobic digestion, composting). Biological treatment includes land spreading activities that are licensed (See land spreading) (source EA, SWMA).

**Central composting** – large-scale schemes which handle garden waste and kitchen waste from households and which may also accept suitable waste from parks and gardens.

**Civic amenity (CA) site** – often used as a generic term for a facility provided by the local authority which receives household waste normally delivered by the public direct to sites. Wastes handled include bulky items such as furniture and “Do it yourself” (DIY) wastes, white goods, garden waste, and general household wastes as well as recyclables. Some CA sites have facilities to receive certain hazardous household wastes, e.g. Lead acid batteries and oil. The term civic amenity site originally referred to facilities established under the Civic Amenities Act 1967, which was repealed and replaced by section 2 of the Refuse Disposal (Amenity) Act 1978, which has since been repealed. The term household waste amenity site (used in Waste Management Paper 4) is a more correct term for facilities provided under the Environmental Protection Act 1990, however ‘civic amenity site’ is still widely used.

**Composting** – the controlled biological decomposition and stabilisation of organic substrates (e.g. garden and kitchen waste), under conditions that are predominantly aerobic. It results in a final product that has sanitised and stabilised, is high in humic substances and is of such a quality that it can be used as a soil improver, as an ingredient in growing media, or blended to produce other marketable products (that meet recognised industry standards).

**Compost plant** – a facility for carrying out composting. Large scale schemes may handle kitchen and garden waste collected directly from households and civic amenity sites and may also accept suitable waste from municipal parks and gardens.

**Controlled waste** – comprises household, commercial, and industrial waste. The main exempted categories comprise of mine, quarry and farm wastes. Radioactive and explosive wastes are controlled by other legislation and procedures.

**Energy from waste** – includes a number of established and emerging technologies to recover energy from waste. Some of these are direct through ‘mass burn’ incineration (where waste is directly combusted without pre-treatment) whereas others are indirect; where the waste is processed into a fuel before energy is recovered (e.g. conversion into refuse derived fuel, or gasification or pyrolysis). Many wastes are combustible, with relatively high calorific values – this energy can be recovered through (for instance) incineration with electricity generation.

**Gasification** – the heating of organic materials with air, steam or oxygen to produce gaseous fuels, ash and tar.

**Green Waste** – organic garden waste such as grass clippings, tree prunings, leaves etc. which can be used as composting feedstocks. Also known as ‘garden waste’ or ‘yard waste’. They can arise from gardens, parks and landscaping activities.

**Greenhouse gas** – one of a number of gases (including methane and carbon dioxide) that can contribute to climate change via the ‘greenhouse’ effect when their atmospheric concentrations exceed certain levels.

**Hazardous wastes** – the most harmful wastes to people and the environment, and defined according to properties listed in Annex III to Council Directive 91/689/EEC on hazardous waste.

**Home composting** – compost can be made at home using a traditional compost heap, a purpose designed container, or a wormery.

**Household waste** – includes waste from household collection rounds, from services such as street sweepings, bulky waste collection, litter collection, hazardous household waste collection and separate garden waste collection. Also includes waste from civic amenity sites and source segregated wastes collected for recycling or composting through bring or drop-off schemes, kerbside schemes and at ‘civic amenity sites’.

Household Waste Recycling Centre (HWRC) – see Civic Amenity sites

**Incineration** – is the controlled burning of waste, either to reduce its volume, or its toxicity. Energy recovery from incineration utilises the calorific value of the waste.

Current flue-gas emission standards are very high. Ash residues still tend to be disposed of to landfill (although bottom ash can be recycled).

**Inert Waste** – waste which, when deposited into a waste disposal site, does not undergo any significant physical, chemical or biological transformations and which complies with the criteria set out in Annex III of the EC Landfill Directive.

**Land Recovery** – the application of waste onto land for improvement. Typical examples of this include the spreading of organic wastes for agricultural benefit, use of inert waste for land reclamation or improvement, or the use of inert waste for construction purposes (as defined by the EA).

**Landfill site** – is defined in the Council Directive 1999/31/ec on the landfill of waste meaning "...a waste disposal site for the deposit of the waste onto or into land...". The definition includes sites where the producer of the waste is landfilling at the place of production of the waste and any site established for over a year, where waste is temporarily stored. Landfill sites are often located in disused quarries or mines. In areas where there are limited, or no ready-made voids, the practice of land raising is sometimes carried out, where some or all of the waste is deposited above ground, and the landscape is contoured.

**Landfill tax** – a tax intended to address the environmental costs of landfilling by encouraging the diversion of waste from landfill.

**Life cycle assessment** – Life Cycle Assessment (LCA) is the systematic identification and evaluation of all the environmental benefits and drawbacks that result, both directly and indirectly from a product or function throughout its entire life from extraction of raw materials to its eventual disposal and assimilation into the environment. It can make an important contribution to assessing the environmental impacts of waste management operations. It can provide part of the input into strategic decision making on the ways in which particular wastes in a given set of circumstances can be most effectively managed, in line with the principles of Best Practicable Environmental Option, the waste hierarchy and the proximity principle.

**Metals Recycling** – a facility that recovers scrap metal from waste for recycling (Source EA, SWMA).

**Mechanical Biological Treatment (MBT)** – may be used as pre-treatment to stabilise residual wastes prior to landfilling. A combination of mechanical and biological processes are employed to achieve stabilisation of the wastes. Typical plants generate three material streams; recyclable material comprising mainly ferrous and non-ferrous metals; a bio-stabilised stream suitable for landfill cover and a residual stream that can either be landfilled or converted into a secondary fuel.

**Municipal wastes** – the Landfill (England and Wales) Regulations 2002 defines it as "...waste from households as well as other waste, which, because of its nature or composition, is similar to wastes from households." In Part Two of Waste Strategy 2000, municipal waste is defined as "...all waste under the control of local authorities or agents acting on their behalf" and is the definition used in the Waste Strategy for England and Wales.

**Non-renewable resources** – resources that cannot regenerate within human-life time, for example, fossil fuels.

**Packaging Wastes** – defined as ‘all products made of any materials of any nature to be used for the containment, protection, handling, delivery, and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer.

**Physico-chemical treatment** – treating waste by one of a combination of physical (filtration, settlement etc.) and chemical (eg, neutralisation) methods to recover it and/or to produce a less harmful waste for disposal (Source EA, SWMA).

**Pyrolysis** – the heating of organic materials in the absence of air, causing the volatilisation of combustible gases. Also produced is a combustible char, a mixture of oils and liquid effluent.

**Recycling** – involves the reprocessing of wastes, either into the same product or a different one. Many non-hazardous industrial wastes such as paper, glass, cardboard, plastics and scrap metals can be recycled. Special wastes such as solvents can also be recycled by specialist companies, or by in-house equipment.

**Renewable Resources** – resources that will regenerate within human life scales, for example, trees.

**Re-use** – using a product again for the same or a different purpose. Furniture and some electrical goods are often capable of being re-used and many community and voluntary sector groups are actively involved in facilitating re-use of such items. It can be practiced by the commercial sector with the use of products designed to be used a number of times, such as re-useable packaging. Householders can purchase products that use refillable containers, or re-use plastic bags. The processes contribute to sustainable development and can save raw materials, energy and transport costs.

**Separate collection** – kerbside schemes where materials for recycling are collected either by a different vehicle or at a different time to the ordinary household waste collection.

**Source segregation** – involves the segregation at source of waste into individual materials. In the case of household waste, this source segregated waste would include recyclable and compostable materials collected separately at the kerbside or taken to civic amenity and bring sites.

**Special waste** – the Special Waste Regulations 1996 (as amended) define special waste as: wastes on the Hazardous Waste List displaying hazardous properties; any other controlled wastes displaying defined properties (e.g. irritant) and waste prescription only medicines.

**Strategic Waste Management Assessment (SWMA)** – produced by the Environment Agency to provide consistent, comprehensive, local information about the amounts and types of wastes produced and how they are managed.

**Sustainable development** – development that can meet the needs of the present without compromising the ability of future generations to meet their own needs.

**Sustainable waste management** – requires that waste management should be carried out in a way that does not place undue social, economic, or environmental burdens on either present or future generations and that ensures social equity, effective protection of the environment, the prudent use of natural resources and the maintenance of high and stable economic growth and employment. The aim is to de-couple waste production from economic growth.

**Sustainable Waste Management Option (SWMO)** – the result of a systematic process to identify the most sustainable method of waste management.

**Transfer** – a waste transfer station is a facility to which waste is delivered for separation or bulking up before being removed for recovery and/or disposal (source: EA, SWMA).

**Treatment** – physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume and hazardous nature, facilitate its handling or enhance recovery.

**Unitary Authority** – a local authority that has the responsibilities of waste planning, collection and disposal.

**Unitary Development Plan** – sets out land use policy for the area of the Unitary or National Park Authority, including policies for waste developments.

**Waste** – is defined in Council Directive 75/442/EEC on waste as meaning “...any substance or object in the categories set out in Annex I which the holder discards or intends or is required to discard.” Annex I of the Directive lists 16 categories of waste, including ‘agricultural, household, office, commercial and shop discards’. Waste defined by the Directive is referred to as ‘Directive Waste’.

**Waste arisings** – the amount of waste generated in a given locality over a given period of time.

**Waste transfer station** – a site to which waste is delivered for sorting prior to transfer to another place for recycling, treatment or disposal.

