

AEA Energy & Environment

Draft Municipal Waste Management Strategy

Warrington Borough Council

June 2008



## Executive summary

The amount of waste generated in the UK is increasing because the rate of growth is directly related to the UK's economic performance, as measured by its Gross Domestic Product (GDP). The Government is seeking to improve resource efficiency and thereby break the link between increased economic performance and waste production.

Warrington Borough Council is responsible for the collection, recycling and disposal of municipal solid waste (MSW) arising in Warrington. This consists mainly of waste generated by households. Currently the amount of MSW generated by each household is around 27 kg per week, and the proportion of waste that is either recycled or composted has increased from 15% in 2001/02 to 28% in 2006/07. Although Warrington continues to increase the amount of waste that it recycles, it needs to set a clear way forward for managing the overall municipal waste stream. The main challenge will be to meet the requirements set by the Landfill Directive on reducing the amount of biodegradable waste that is landfilled.

Following the publication of the new national waste strategy in May 2007, Warrington Borough Council has now produced a draft Municipal Waste Management Strategy (MWMS) which identifies how it will meet the aims of the new national waste strategy by reducing waste arisings, increasing the amount of material which is recycled, recovering energy from the remaining waste and only landfilling waste where necessary. The adoption of this MWMS will enable Warrington Borough Council to meet statutory landfill targets and thereby avoid significant financial penalties under the Landfill Allowance Trading Scheme (LATS).

Warrington Borough Council's preferred approach to meeting the aims of the new national waste strategy on waste minimisation and recycling is to:

- Reduce waste growth by reducing the amount of waste produced by each household to 25kg per household per week by 2010, and to 21 kg per household per week by 2020.
- Increase the household waste recycling rate to 40% by 2010 and 55% by 2020.

This will be achieved through:

- a long-term publicity/education programme which aims to both encourage households to reduce the amount of waste that they produce, and increase the number of households which participate in the recycling schemes;
- the collection of additional dry recyclable materials, such as metal and plastics; and
- the expansion of the existing garden waste collection scheme .

The main challenge for Warrington Borough Council will be to meet the other aims of the national waste strategy on recovering energy from residual waste and only landfilling

waste where necessary. This can be achieved through treating the waste using a suitable treatment facility.

A strategic environmental assessment (SEA) conducted as part of the development of this waste strategy identified nine scenarios for future management of MSW arisings. Each of these scenarios was assessed in terms of its environmental, economic and social impacts, and each scenario was also assessed in terms of both its potential deliverability and the percentage of waste that would be diverted from landfill. The SEA identified that the use of an autoclave facility to produce, *inter alia*, a fuel fraction for recovering energy received the highest score. However, there is a much higher deliverability risk with this scenario than with other scenarios that are based around the use more established energy from waste (EfW) technologies, and which also received high scores. The findings from the initial consultation conducted as part of the SEA process indicate that there is a strong level of support for the use of an EfW facility to treat Warrington's residual waste. The incorporation of heat recovery into an EfW plant (i.e. combined heat and power – CHP) would further enhance environmental performance scores.

Deliverability of a proven solution for treating residual waste in a timely manner is of critical importance to Warrington Borough Council if it is to meet its landfill diversion targets. Thus if these solutions cannot be delivered, Warrington Borough Council would have to consider other options that conform with the underlying principles of diverting waste away from landfill and usefully recovering value from it, and then develop planning policies accordingly. However, the Council cannot be overly prescriptive in the choice of technology for residual waste treatment. The rules and procedures for procuring a new waste disposal facility mean that Warrington Borough Council will need to specify the range of acceptable technologies and minimum performance requirements in terms of, for example, the ability to meet the required landfill diversion targets, in ways that permit the submission of a minimum number of competitive tenders.

Warrington Borough Council recognises the importance of regular consultation with all stakeholders, particularly members of the public, in order to take into account the wide range of views on the draft MWMS. There will therefore be a 12-week public consultation on this report, and on the draft Environmental Report produced as part of the SEA on this draft MWMS. The findings from the consultation will be used to produce the final Environmental Report, and this will then be used to produce Warrington Borough Council's strategy for managing MSW.

There will also be additional consultation with all stakeholders as part of the process for obtaining planning permission for any recycling, composting and waste treatment facilities needed in order to enable Warrington Borough Council to meet the aims and targets set by the waste strategy.

## Table of contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>5</b>
1.1	Background .....	5
1.2	The purpose of this waste strategy.....	5
<b>2</b>	<b>LEGAL REQUIREMENTS AND GUIDANCE.....</b>	<b>9</b>
2.1	European waste Policy and Legislation.....	9
2.2	UK Waste Policy and Legislation .....	10
2.3	Waste strategy for England.....	11
2.4	Planning Policy guidance.....	12
<b>3</b>	<b>WHERE ARE WE TODAY .....</b>	<b>13</b>
3.1	Waste Collection and Recycling.....	13
3.2	Waste arisings.....	15
3.3	Waste composition .....	18
3.4	Amount recycled .....	20
3.5	Waste Disposal.....	21
3.6	Current cost.....	21
<b>4</b>	<b>WHAT DO WE NEED TO DO.....</b>	<b>22</b>
4.1	The challenges we face.....	22
4.2	The studies we conducted .....	27
4.3	The Cost Implications .....	36
4.4	Risk Assessment .....	36
4.5	Our proposed approach to meeting these challenges .....	39
<b>5</b>	<b>HOW DO WE PLAN TO IMPLEMENT THE NECESSARY ACTIONS .....</b>	<b>41</b>
5.1	Roles and responsibilities .....	41
5.2	Partnerships with neighbouring authorities .....	42
5.3	Waste reduction/re-use .....	42

5.4	Improving recycling .....	43
5.5	Requirements for new capacity.....	45
5.6	Impact of the Waste Strategy on our Carbon Footprint .....	47
5.7	Further consultation .....	49
5.8	How we plan to keep this programme on track.....	49

## **APPENDICES**

APPENDIX 1 – Glossary of terms

APPENDIX 2 - Legal requirements and planning guidance

APPENDIX 3 – Roles and responsibilities

APPENDIX 4 - Options for treating residual waste

APPENDIX 5 – Sources of further information

# 1 Introduction

## 1.1 Background

Warrington first became a borough in 1847. Heavy industry and other large businesses have traditionally boomed in Warrington, partly due to its excellent transport links, initially with the River Mersey and latterly via the motorway network – the M6, M62 and M56 all traverse the borough. It was also home to RAF Burtonwood, once the largest U.S. Airbase in Europe.

During the 1960's and 70's Warrington gained new-town status, helping its traditional industries of metal fabrication [the local rugby league team were known as 'The Wire'] and soap production to prosper further. In the local government reorganisation of 1974 its administration moved from Lancashire to Cheshire, and in 1998 Warrington Borough Council became a Unitary Authority. Today it is home to many of the world's leading companies and many small to medium sized enterprises are located here.

As one of its unitary functions, Warrington Borough Council is responsible for collecting, recycling and disposing of municipal solid waste (MSW), which mainly consists of waste produced by households. Other waste streams such as waste from commercial and industrial premises, waste produced when old buildings are demolished, and agricultural waste, are handled mainly by private sector waste management companies.

There are increasing waste-related concerns about sustainable development across the world: global warming (methane gas from landfill sites), natural resource depletion (the "throw away" society), and environmental pollution (emissions to land, water and air). The outcome of these concerns is the recognition, at international, European and national levels, that large-scale reliance on landfilling of waste is unsustainable. Thus there is a need to reduce the burden of waste on the environment by producing less waste, making better use of the waste that is produced, and becoming less reliant on landfill for management of the remaining waste. This has resulted in the introduction of legislation at both European and national levels which gives a much higher priority to waste prevention and minimisation, recycling, composting and recovery, and thus makes disposal to landfill the least acceptable option.

## 1.2 The purpose of this waste strategy

In February 2004, Warrington Borough Council issued a draft Municipal Waste Management Strategy (MWMS) following an options assessment and consultation with members and the general public. The Strategy detailed the short-, medium- and long-term actions for dealing with waste until 2020. Following the publication of the new national waste strategy in May 2007<sup>1</sup>, Warrington's strategy requires updating to bring it

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<sup>1</sup> Waste Strategy for England 2007

into line with the national strategy and to acknowledge some of the changes in circumstances and developments in policy in Warrington over the last three years. Thus Warrington needs to develop a long-term solution to manage its municipal waste streams; one in which wastes are viewed as a resource and managed in a more sustainable manner.

Warrington Borough Council has already adopted a number of principles that will be integral within this revised Municipal Waste Management Strategy. These are set out below:

*1. Sustainable Waste Management*

The first principle is that any solution must aim to be sustainable for the environment and community in the long term, having regard to the needs of the community, protection of the environment, economic costs, alternative solutions and technical and practical limitations.

*2. Self-sufficiency and the Proximity Principle*

Warrington Borough Council will seek to manage its own waste within the borough or, if working in partnership with other authorities, within the partnership area. Materials recovered for recycling or reprocessing may be sent further afield to appropriate facilities.

*3. Partnership Working*

Warrington Borough Council will seek and develop partnerships with neighbouring local authorities and the waste industry where such partnerships lead to sustainable solutions for waste, and where the proximity principle is also satisfied.

*4. Reduced Reliance on Landfill*

There will always be a need for some landfill to dispose of non-recyclable/recoverable residues. However, Warrington landfills the majority of its waste at present and the landfill sites in the area import many times more waste than is generated within Warrington. It is important that Warrington Borough Council leads by example, both to meet Government targets and to encourage others not to dispose of their waste in Warrington.

*5. Less Waste Imported to the Area*

Given that the landfill sites in Warrington are privately owned and the owners are free to make their own contractual arrangements with whomever they wish, Warrington will continue to be an importer of waste for some years. However, the objective is to encourage local authorities further afield to be more responsible by adopting the Proximity Principle and becoming self-sufficient in the recovery, recycling and disposal of their own municipal waste. In the long term this should mean a reduction in waste imported into the area.

*6. A Flexible and Responsive Strategy*

All aspects of our lives are subject to change, so any strategy must be responsive to changes in laws, regulations, Government and European targets, market prices for recovered materials, taxes, local needs and public opinion. The aim of

Warrington Borough Council should be to provide an integrated approach to deliver the Best Value under all circumstances in a Waste Management Strategy.

#### *7. Collaboration with the Private Sector*

The substantial capital costs of many recycling and recovery facilities, and the business risk taken in their establishment are often best met by the private sector, though the Council does not wish to close the door to any funding routes until all such routes have been examined. The strategy must recognise the complementary roles that local authorities and the private sector play in providing viable, sustainable waste management facilities, which meet the stringent environmental standards of today.

#### *8. Community Awareness, Education and Participation*

Any strategy will only work if the public and business community actively support it by being involved in waste minimisation, recycling and recovery. Warrington Borough Council will therefore continue to take steps to educate, inform and seek the views of all sectors of the community to win its understanding, support and participation in the Strategy.

Warrington Borough Council has a vision of sustainable resource use, and aims to improve the quality of services provided to the community by providing best value waste management practices that encourage re-use, recycling and composting. The Council also seeks to minimise waste growth and divert significant quantities of biodegradable waste from Landfill.

This revised MWMS will determine the direction that the Council will take for dealing with its municipal waste and in meeting its targets up to and beyond 2030. It details the challenges facing Warrington Borough Council, which will primarily include the diversion of waste away from landfill in order to meet statutory targets, and thereby to avoid significant financial penalties under the Landfill Allowance Trading Scheme (LATS).

The objectives of Warrington's updated municipal waste management strategy are:

- To minimise the amount of waste produced by households in Warrington through education and awareness raising
- To encourage everyone to take part in re-use, recycling and composting via existing and developing schemes,
- To recover as much value as we can from waste in the most cost-effective way in order to reach our long term targets and minimise damage to the environment.
- To send as little to landfill as we can.
- To develop partnership opportunities that will benefit Warrington by reducing costs and improving the efficiency of waste management systems.
- To manage and treat our waste locally and to locate waste management facilities in areas of the Borough to reduce adverse environmental and health impacts.
- To strive to ensure every household has access to re-use and recycling facilities and that people feel safe in using them.

This new waste strategy is being developed by officers and elected members of Warrington Borough Council in consultation with the public and other stakeholders. It:

- outlines the current and future legal obligations that the Council will need to meet;
- describes the waste management services that are currently provided;
- identifies any changes that will need to be made to meet future legal obligations;
- describes how the Council plans to meet these targets by increasing the amount of waste which is recycled, and minimising the amount of residual waste that is landfilled; and
- explains how Warrington Borough Council plans to implement this programme.

The Environmental Assessment of Plans and Programmes Regulations 2004 introduced a requirement for a Strategic Environmental Assessment (SEA) to be produced for a number of statutory documents including Municipal Waste Management Strategies. As Warrington Borough Council is revising its Waste Strategy there is a statutory requirement to undertake an SEA on this document. Consequently, in accordance with Government guidance, the SEA process, including the preparation of the Environmental Report, will be conducted at the same time as the MWMS is prepared. Warrington Borough Council believes that revising its MWMS in parallel with the preparation of the SEA will provide significant benefit, and will ensure that implementation of the MWMS through long-term procurement of waste management infrastructure, will be supported by the SEA.

The initial public consultation on the development of the revised waste strategy has been conducted with a wide range of stakeholders as part of the scoping stage process for conducting the strategic environmental assessment on the draft waste strategy. There will be a further public consultation, as part of the next stage of the strategic environmental assessment, on the Environmental Report and draft Municipal Waste Management Strategy; this will seek the public's views on waste management services and waste treatment technologies. The outcome of the consultation exercises will be incorporated with the findings of the technical evaluation. The resulting ranked list of scenarios will then be presented to Warrington Borough Council, and the Municipal Waste Management Strategy will then be finalised.

It is important to note that while new legislation will require improvements in the management of all waste streams, the Council is only responsible for MSW, which accounts for just 12% of all wastes generated in Warrington. However, though the plans for any new recycling facilities and treatment facilities described in this strategy will only cover the municipal waste stream, the Council will proactively seek partnerships with other waste sectors where economies of scale will provide increased economic and environmental benefits to the local community.

## 2 Legal Requirements and Guidance

This chapter outlines the main legal requirements regarding waste management that Warrington Borough Council either already has to meet or will need to meet as new legislation and requirements are introduced. It then considers the legislation regarding planning for any new recycling and waste management facilities which will be required in order to enable Warrington to meet its future targets.

### 2.1 European waste Policy and Legislation

The European Commission has become the major source of environmental legislation and guidance in relation to the management of waste. A number of European Directives which aim to increase levels of recycling and recovery, and thus reduce the amount of waste which is land filled have been introduced:

- Framework Directive on Waste (75/442/EEC)
- Landfill Directive (1999/31/EC)
- Directive on Packaging and Packaging Waste (94/62/EEC)
- Waste Electrical and Electronic Equipment Directive (2002/96/EC)
- End of Life Vehicles Directive (2000/53/EC)
- Ozone Depleting Substances (Regulation 2037/2000)
- Directive on Batteries (2006/66/EC)
- Waste Incineration Directive (2000/76/EC)

The early Framework Directive on Waste set out two enduring principles: the Waste Hierarchy, which provides a framework of how sustainability in waste management can be increased progressively, and Regional self-sufficiency and the Proximity Principle, which requires that waste should generally be managed as close as possible to where it is produced.

The main area of European legislation that this waste strategy has to consider is the Landfill Directive. This aims to prevent, or minimise, the negative effects on both the environment and human health caused by landfilling of wastes. The Directive has and will continue to have a significant impact on landfill practices in the UK as it bans certain materials from being landfilled, requires waste to be pre-treated before it is landfilled, and requires improvements to landfill management. The introduction of the Directive has resulted in a significant reduction in the number of landfill sites in the UK accepting hazardous wastes. The ban on landfilling of certain wastes, such as tyres, from 2006 has meant that new arrangements for their collection and management have been introduced.

Landfilled biodegradable waste is a major source of methane, which is a greenhouse gas over 20 times more potent than carbon dioxide in terms of global warming. The Landfill

Directive will require the amount of biodegradable municipal solid waste sent to landfill in the UK to be reduced:

- to 75% of 1995 levels by 2010,
- to 50% of 1995 levels by 2013, and
- to 35% of 1995 levels by 2020.

The Government has implemented the requirements for landfilling of biodegradable waste through the Waste and Emissions Trading Act 2003. This sets Waste Disposal Authorities (such as Warrington Borough Council) annual allowances limiting how much biodegradable municipal waste (BMW) can be landfilled in any particular year, with effect from April 2005. The Government will fine Authorities that do not achieve their annual targets, but will allow Authorities to buy allowances from other Waste Disposal Authorities if they expect to landfill more than their allocations and sell their surplus if they expect to landfill less than their allowance.

This waste strategy outlines how Warrington Borough Council intend to meet or exceed these targets, and thus avoid the need to either pay fines or purchase allowances.

Information on the other relevant EU legislation that Warrington Borough Council's waste strategy has to consider can be found in Appendix 2.

## **2.2 UK Waste Policy and Legislation**

Although most waste legislation in the UK has been introduced to meet the requirements set by European Directives, the UK Government has also introduced additional legislation, some of which is specifically aimed at encouraging recycling:

- The Financial Act 1996 and Landfill Tax Regulations 1996
- Waste Minimisation Act 1998
- Local Government Act 1999 – Best Value Regime
- Animal By-Products Order and Regulations 2003
- Household Waste Recycling Act 2004
- Clean Neighbourhoods and Environment Act 2005.

The main area of national legislation that this waste strategy has to consider is the Landfill Tax Regulations. Landfill Tax is a tax payable for each tonne of waste sent to landfill and was introduced by the Government in 1996 as a way of encouraging more sustainable means of waste management through recognising the hidden financial effects of the environmental impact of landfill. The landfill tax, which is currently £32/tonne, will increase £8 per year until at least 2010/11. This will result in a level of £48 per tonne in the financial year 2010/11. This increase in landfill tax will cause a significant increase in waste disposal costs and will provide a further incentive to move to more sustainable means of waste treatment in the near future.

This waste strategy outlines how Warrington Borough Council intends to further reduce the amount of waste that is landfilled, and thus reduce landfill costs.

Information on the other relevant national legislation that Warrington Borough Council's waste strategy has to consider can be found in Appendix 2.

## **2.3 Waste strategy for England**

The Government first published a national waste strategy in 2000. The Prime Minister's Strategy Unit reviewed the progress towards the targets set within Waste Strategy 2000 in 2002. The report suggested that "Waste Strategy 2000" may not be sufficient to move waste onto a more sustainable footing and the Government established the Waste Implementation Programme to address the recommendations made by the Strategy Unit.

An updated waste strategy for England was published in May 2007. The aim of this updated Waste Strategy, which sets the Government's vision for sustainable waste management, is to reduce waste by making products more durable and with fewer natural resources, thus breaking the link between economic growth and waste growth. Products should be re-used, their materials recycled, energy from waste recovered, and landfilling of residual waste should occur only where necessary. The key points of the waste strategy are:

- Waste minimisation - A strong emphasis on waste prevention with householders reducing their waste (for example, through home composting and reducing food waste), business helping consumers, for example, with less packaging, development of a service which will enable households to opt-out of receiving un-addressed as well as addressed direct mail, and a reduction in the use of free single-use plastic bags.
- Recycling - More effective incentives for individuals and businesses to recycle waste, leading to at least 40 per cent of household waste being recycled or composted by 2010, rising to 45% by 2015 and 50 per cent by 2020. This is a significant increase on the targets (30% by 2010 and 33% by 2015) in the previous waste strategy (which was published in 2000).
- Treatment of residual waste - Increasing the amount of energy produced by a variety of energy from waste schemes, using waste that can't be reused or recycled. It is expected that from 2020 a quarter of municipal waste - waste collected by local authorities, mainly from households - will produce energy, compared to 10 per cent today.

More information on the new national waste strategy for England can be found in Appendix 2.

This draft municipal waste management strategy outlines how Warrington Borough Council will meet or exceed the above national targets in the longer term.

## **2.4 Planning Policy guidance**

Warrington Borough Council has a statutory duty to prepare a development plan, which sets out the Council's policies and proposals for land use, transport and the environment, and to determine planning applications for development in accordance with the development plan. Thus planning policy and waste management are inextricably linked to the development of future infrastructure for waste management in the UK. Planning decisions made now and in the near future will influence whether or not the UK will be able to meet the landfill diversion targets set by the Landfill Directive.

Planning Policy Statements (PPS) set out the Government's national policies on different aspects of land use planning in England. The following planning policy documents will have an impact on planning for any future waste management facilities in Warrington:

- Planning Policy Statement 10: Planning for Sustainable Waste Management
- Regional Spatial Strategy
- Local Development Framework.

Information on the development of these can be found in Appendix 2. Any new waste management facilities required in order to implement this waste strategy will need to meet the planning requirements and policies set out in these documents.

### 3 Where are we today

There are a number of bodies that have responsibilities for waste management. These are:

- Environment Directorate of the European Commission, for European policy
- National Government (DEFRA and the Department for Communities and Local Government) for national policy
- Regional Assemblies for regional policy
- Waste Collection Authorities (WCAs) and Waste Disposal Authorities (WDAs) for waste collection and disposal respectively
- Regulators – The Environment Agency and The State Veterinary Service.

The Community sector also has a role to play in waste management through its activities in both re-use and recycling schemes.

As Warrington is a Unitary Local Authority, under the requirements of the Environmental Protection Act 1990, it has to act as both the Waste Collection Authority (WCA) and the Waste Disposal Authority (WDA) for arisings of municipal solid waste (MSW) in Warrington. The Council also has to:

- ensure that all the requirements set by legislation on waste have been implemented in Warrington;
- coordinate with the voluntary sector on their provision of re-use and recycling schemes; and
- liaise with the Regulators to ensure that the waste management services it provides do not cause damage to either human health or the environment.

This chapter describes the waste collection, recycling/composting and waste disposal services that Warrington Council currently provides, and gives information about the amount of waste that is currently recycled.

#### 3.1 Waste Collection and Recycling

Collection of residual, recyclates and green waste is currently provided by the in-house Environmental Management Services Division. The division also provides the 'Streets' service [an amalgam of street cleansing and grounds maintenance] and the Parks and Gardens service, including responsibility for cemeteries and crematoria.

The services currently provided by the division may be summarised as follows:

##### **Regular Collection of Household Waste, dry recyclables and green waste**

- Household waste - All 84,000 households have been provided with a 240 litre wheeled bin, and receive a weekly refuse collection.

- Dry recyclables – A 5-weekly 140 litre wheeled bin collection scheme for newspaper and magazines is currently being offered to approximately 84,000 households, which represent 100% coverage.
- Garden waste – A green waste kerbside collection was introduced in 2006/07, and currently collects garden waste from 62,000 properties.

### **Community Recycling Centres**

There are three Community Recycling Centres , which take a large number of different materials for recycling. These are located at New Cut Lane, Sandy Lane and Gatewarth.

### **Bring Recycling**

Facilities for collecting paper, textiles, plastics, cans, glass, shoes and books are currently provided at 40 drop-off banks and community recycling points across Warrington, e.g. at supermarkets, car parks, shopping centres etc.

Warrington Borough Council has produced a guide to recycling and waste minimisation, which has information about recycling and waste minimisation initiatives in Warrington, including details of the facilities at the Community Recycling Centres and recycling sites throughout the Borough. The guide can be found at: <http://www.recycleforwarrington.co.uk/>

### **Street Cleansing**

The Council provides a regular programmed service across the borough with frequent cleansing of streets, gullies, car parks and other public areas to remove litter, build-up of leaves or any other conditions that could pose a threat to public health and safety.

### **Bulky Household Waste Collection**

The Council via its agents collects bulky items that may be unsuitable for collection as part of its normal weekly refuse collection service. A charge is made for this service.

The Council, in partnership with CREATE Liverpool provides a collection service for the following white goods:

- Fridges
- Freezers
- Fridge/Freezers
- Cookers
- Washing Machines
- Tumble dryers
- Spin dryers
- Dishwashers

Bulky Bob's, which is a waste management and recycling social business, collect the appliances on behalf of CREATE. This is an example of "joined up service delivery"

showing how a local authority can achieve best value, improve services, tackle poverty and support the growth and sustainability of social enterprise

### **Commercial and Industrial Waste Collection**

The Council currently provides a 'Trade Waste' collection service. The frequency of collection and the volumes of material collected vary from business to business.

### **Abandoned Vehicles**

Abandoned vehicles are removed in accordance with relevant legislation. This service is provided by the Council through an appointed vehicle recovery agent.

### **Fly-tipped waste**

The Council removes fly-tipped waste. It investigates the source of each arising, and takes enforcement action if the source of the waste can be identified. The Enforcement Team, based within the Environmental Management Services Division, manage all such investigations and work in tandem with our legal service to bring about prosecutions where required.

## **3.2 Waste arisings**

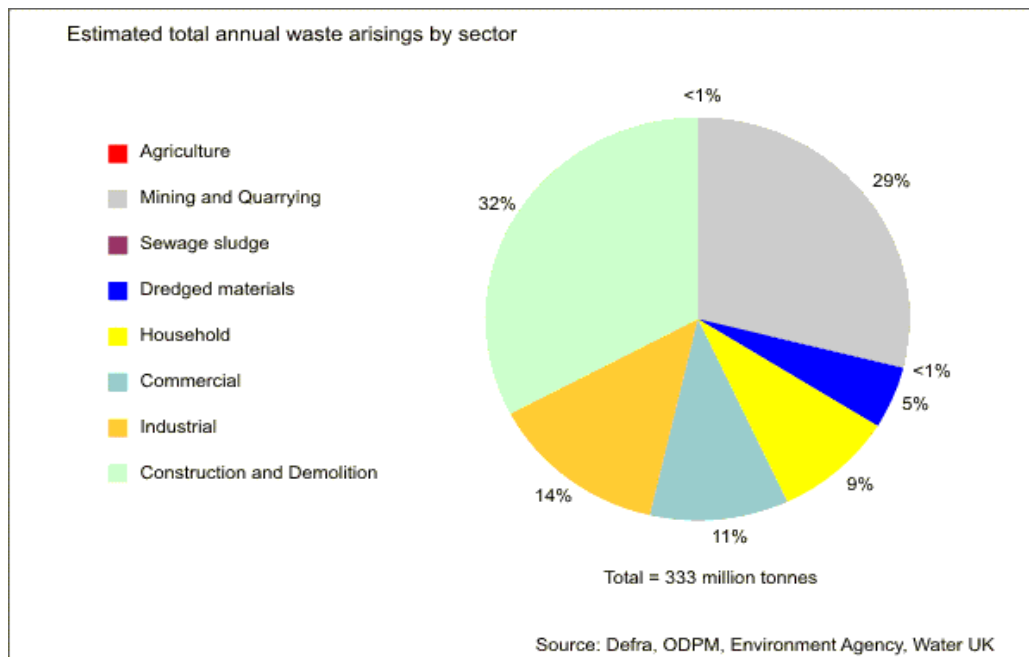
The Waste Framework Directive identifies the following waste streams as controlled wastes:

- Municipal solid waste (MSW);
- Waste arising from commercial premises;
- Waste arising from industrial premises
- Waste arising from construction and demolition (C&D) activities; and
- Certain agricultural wastes (this only covers a small percentage of total agricultural waste arisings).

The overall arisings<sup>2</sup> of waste in England are estimated to be about 330 million tonnes per year. Figure 1 shows the estimated proportion produced by each sector. This includes nearly 100 million tonnes of minerals waste from mining and quarrying, which is not subject to control under the Waste Framework Directive, and nearly 220 million tonnes of controlled wastes from households, commerce and industry (including construction and demolition wastes). Household wastes represent about 9% of these arisings.

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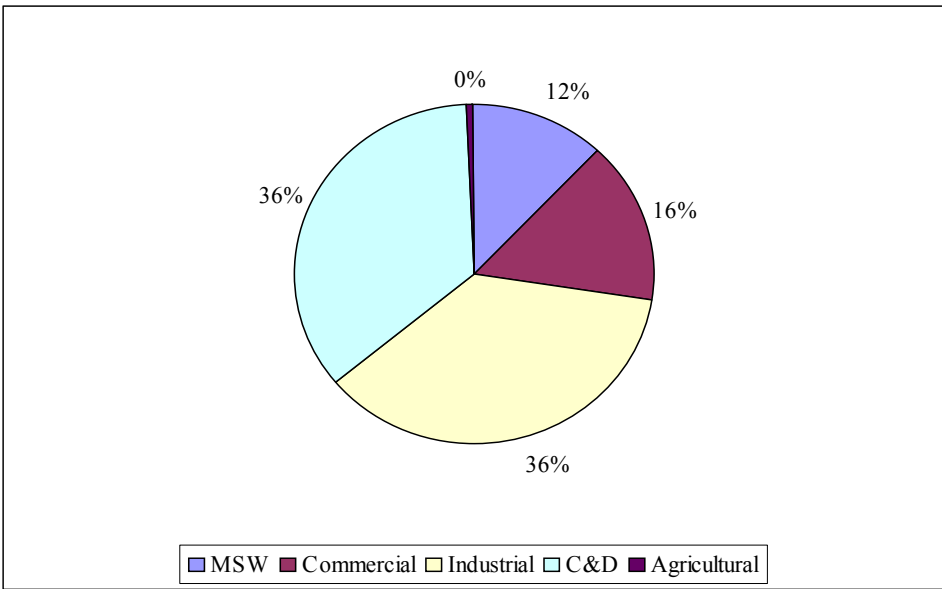
<sup>2</sup> Information published by DEFRA - <http://www.defra.gov.uk/environment/statistics/waste/kf/wrkf02.htm>



**Figure 1 Arisings of waste in England**

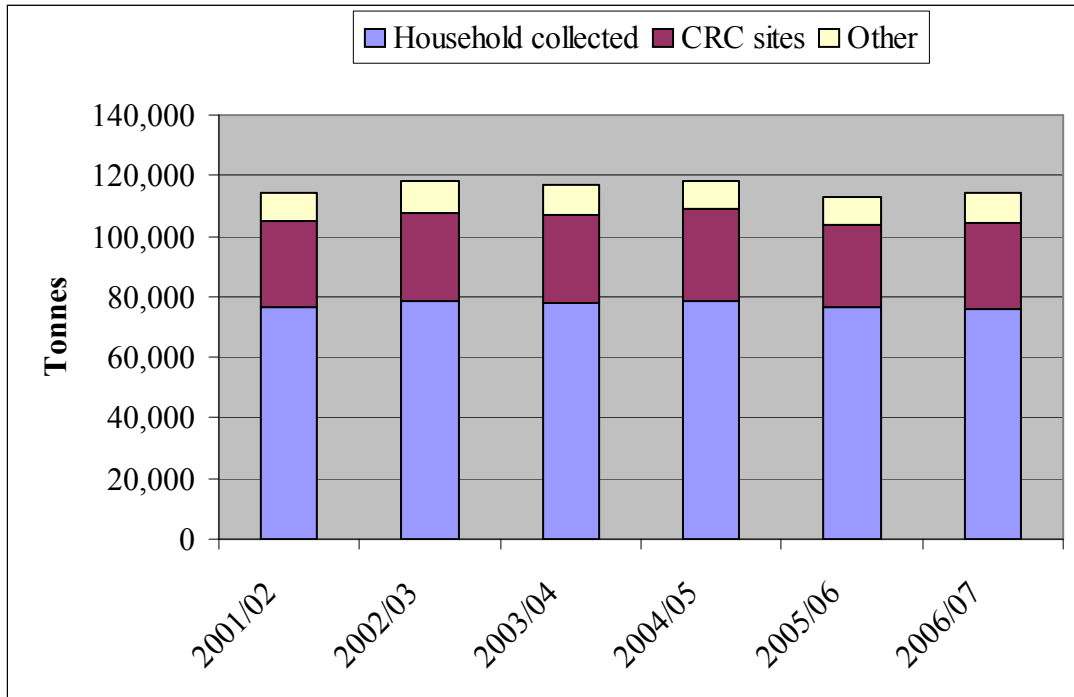
Waste from the agriculture sector represents less than 1% of total arisings. This waste, which excludes manure, slurries and straw, came under the same legislative controls as other controlled wastes in May 2006. The arisings of manure and slurry, which do not come under the new controls, were estimated as 45 million tonnes in 2002/03. If this waste is included in total waste arisings, then the total amount of waste produced in the UK in 2002/03 was 375 million tonnes.

The estimated total arisings of controlled waste in Warrington in 2006/07, based on data provided by the Environment Agency, were about 880,000 tonnes, which means that arisings of controlled waste in Warrington represented about 0.5% of controlled waste arisings in England and Wales. The municipal waste arisings of 114,000 tonnes represented about 12% of total controlled waste arisings in Warrington in 2006/07 (Figure 2).



**Figure 2: Estimated arisings of controlled waste arisings in Warrington in 2006/07**

Figure 3 shows that the main source of MSW in Warrington is waste collected from households (this includes material collected by the kerbside recycling schemes). This currently represents about 67% of total MSW arisings. Waste taken to the Community Recycling Centres (CRCs) represents 25% of MSW arisings. Other sources of MSW, such as litter, street sweepings, bulky household waste collections, represent a total of about 9% of overall MSW arisings.



**Figure 3: Sources of MSW arising in Warrington**

Figure 3 also shows how the total amount of waste produced has increased and decreased during the period 2000/01-2004/05, averaging around 118,000 tonnes per year. In 2005/6 the quantity fell to around 113,000 tonnes before rising again to 114,000 tonnes in 2006/7.

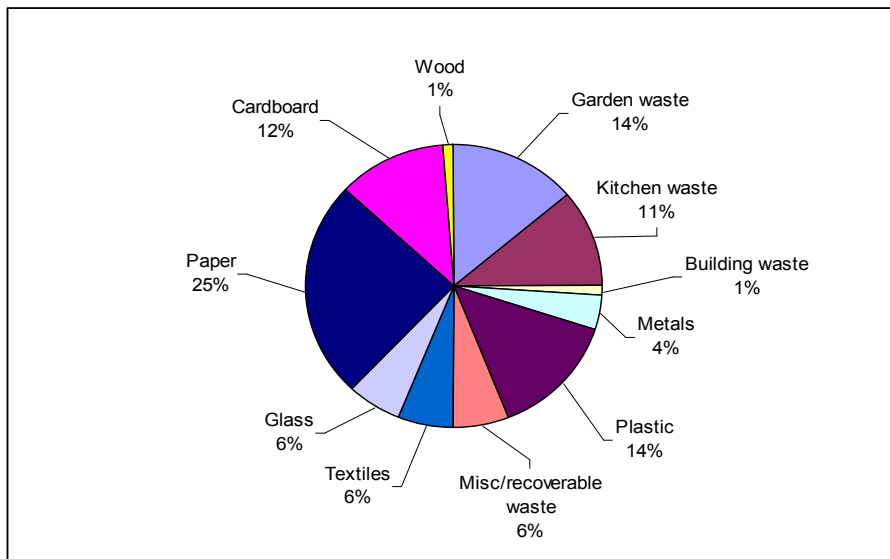
### 3.3 Waste composition

The two main municipal waste streams are waste collected from households (including recyclables) and waste brought to the Recycling Centres.

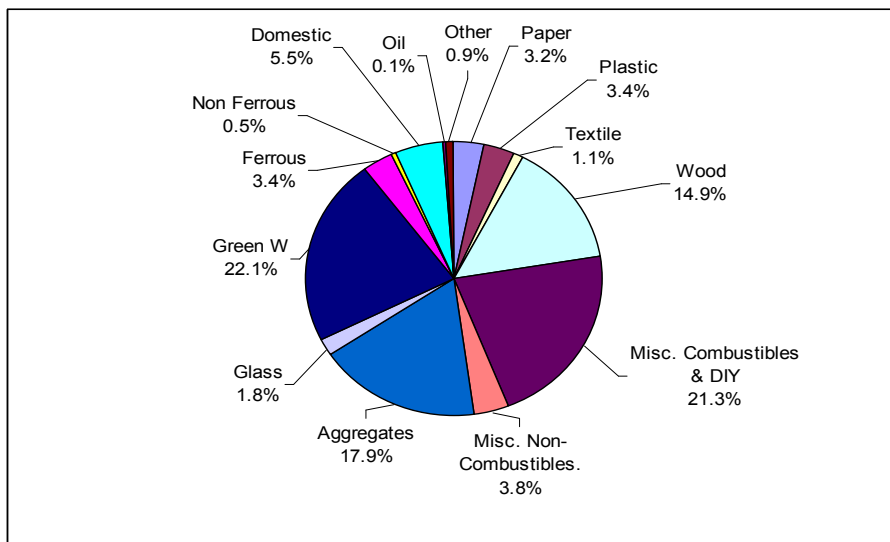
An analysis of the waste collected by the WCA's was conducted in Cheshire during 2000. This data was used to determine the composition of overall household collected waste in Warrington, as shown in Figure 4. It should be noted that not all of the material in the potentially recyclable categories can be recycled. For example, although plastic represents 14% by weight of household waste arisings, only 3% is plastic bottles which can be collected for recycling.

No analyses of waste brought to the community recycling centres have been conducted in Warrington. However, data from 2005/06 on the quantity of certain materials entering the sites and data from recent analyses conducted in other areas of the UK<sup>3</sup> enables a reasonable estimate of the current composition of this waste stream in Warrington, and this is shown in Figure 5:

<sup>3</sup> CA Residual Composition Analysis Suffolk, AEA 2004



**Figure 4: Estimated composition (Weight %) of household collected waste in Warrington**



**Figure 5: Estimated composition (weight %) of waste brought to Community Recycling Centres in Warrington**

About two thirds of municipal solid waste could potentially be targeted for recycling. However, a number of factors, such as the availability of markets, and the level of public participation in recycling services, mean that it will be a significant challenge to achieve long-term recycling targets of over 45%.

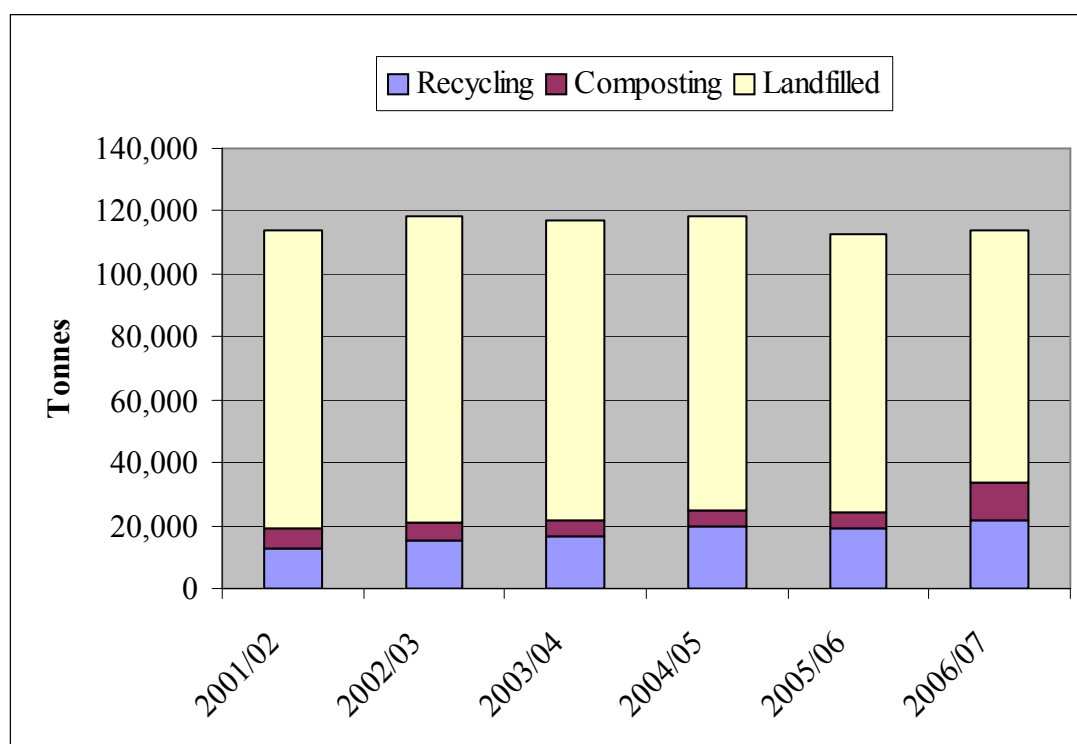
It is important to note that municipal solid waste has a high proportion of biodegradable wastes; i.e. waste that breaks down under biological action to produce greenhouse

gases, and is therefore the primary target of new waste legislation designed to reduce emissions of greenhouse gases.

The data on waste composition will inform implementation of the strategy through better targeting of recycling and composting programmes. However, the Council recognises that the implementation of these programmes will affect the composition of the residual waste that will need to be processed at a treatment facility in order to meet the targets on landfilling of biodegradable waste set by the Landfill Directive. Thus it may be necessary to conduct waste analyses later in the period of this strategy to assess progress towards meeting the targets set in the strategy.

### 3.4 Amount recycled

Figure 6 shows how the arisings of MSW in Warrington have been managed since 2001. The proportion of MSW that is either recycled or composted has increased from 15% in 2001/02 to 28% in 2006/07, when a total of 33,500 tonnes of MSW arisings were either composted or recycled.



**Figure 6: Waste Management**

Warrington Borough Council was set Government targets for recycling household waste of 20% in 2003/04 and 30% in 2005/06. Neither of these targets was met: the household waste recycling rates achieved being 18% in 2003/04 and 22% in 2005/06. However, Warrington achieved a household waste recycling rate of 28% in 2006/07. This is similar to the average household waste recycling rate of 27% achieved in England in 2005/06.

Options for further increases in the percentage of household waste that is recycled are discussed in the next chapter of this strategy.

### 3.5 Waste Disposal

Warrington Borough Council has a number of contracts relating to waste management as shown in Table 1.

**Table 1: Existing contract for waste management services**

<b>Contract</b>	<b>Expiry date</b>
Management of Community Recycling Centres	2013
Disposal of Residual Waste	2013
Composting of garden waste	2009
Delivery of paper to UPM Kymmene	2013

Warrington Borough Council has recently procured new contracts for both management of the CRCs and disposal of residual waste. These are five-year contracts, with the option for a three-year extension.

### 3.6 Current cost

The estimated costs of waste management in 2006/07 are summarised in Table 2. Comparison with costs in earlier years may be misleading due to the changes in collection schemes over recent years.

**Table 2: Estimated total cost of waste management in Warrington in 2006/07**

Collection of household waste	£4.1 million	£48.30 per household	Includes collection of all kerbside waste streams, management of Recycling Centres. Excludes street sweeping and collection of commercial waste and litter.
Disposal of household waste	£2.6 million	£29.99 per household	Treatment and disposal of all waste (including landfill tax) and green waste composting.

This is equivalent to a Council Tax payment of about £78 per household.

## 4 What do we need to do

Although Warrington continues to increase the amount of waste which it recycles, it needs to set a clear way forward for managing the overall municipal waste stream. This chapter identifies the challenges that Warrington Borough Council faces, and the proposed approach to meeting them.

### 4.1 The challenges we face

Our main challenge will be to meet the requirements set by the Landfill Directive on reducing the amount of biodegradable waste that is landfilled. The European Commission will be able to fine Member States (including the UK) who do not meet their targets, and the level of this fine is currently set at 500,000 Euros (about £350,000) per day. Meeting the longer-term challenge set by the Landfill Directive will be made more difficult if the amount of waste that is produced continues to increase.

Warrington Borough Council will also need to meet the requirements set by the Government's new performance framework<sup>4</sup> of 198 measures which represent what the Government believes should be the national priorities for local government, working alone or in partnership, over the next three years. These replace all other sets of indicators, including Best Value Performance Indicators and Performance Assessment Framework indicators, from April 2008.

The new National Indicators (NI) on environmental sustainability included three that are discussed in this waste strategy:

- NI 191 Residual household waste (kg per household)
- NI 192 Household waste recycled and composted (Wt %)
- NI 193 Municipal waste landfilled (Wt %).

Other measures on environmental sustainability that are relevant to the waste strategy are:

- NI 185 Carbon dioxide reduction from Local Authority operations
- NI 195 Improved street and environmental cleanliness (levels of graffiti, litter, detritus and fly posting)
- NI 196 Improved street and environmental cleanliness – fly tipping.

Warrington Borough Council will maintain its level of street cleaning, and will continue to take enforcement action against fly tippers and litterers if the source of the waste can be identified. Reducing the amount of waste that is landfilled will reduce carbon dioxide emissions, and the impact of this is considered later in the waste strategy.

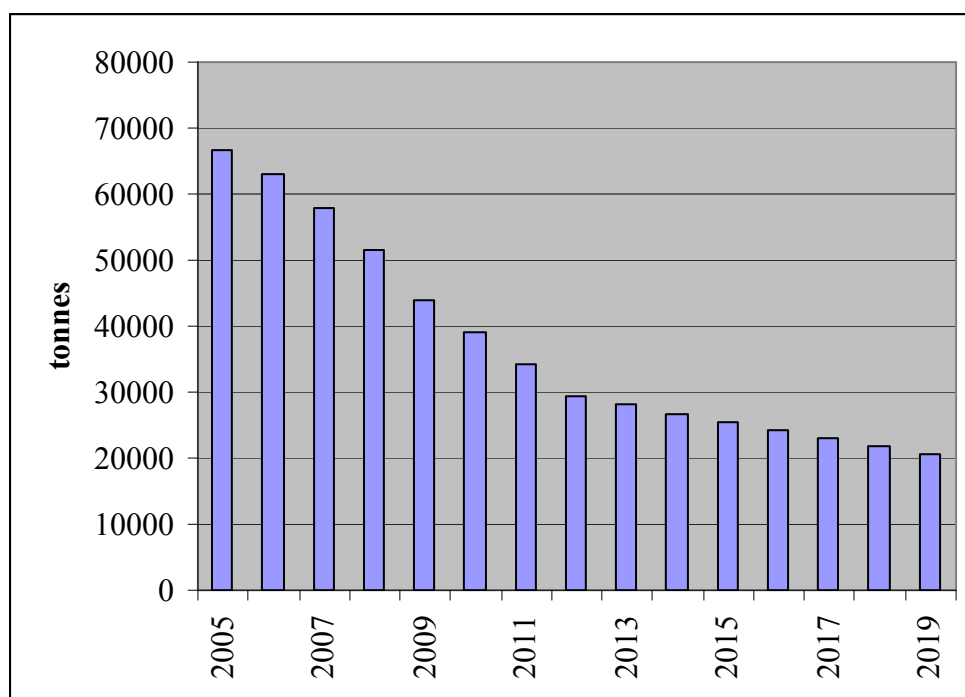
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<sup>4</sup> The New Performance Framework for Local Authorities & Local Authority Partnerships: Single Set of National Indicators. Department for Communities and Local Government, October 2007.

### 4.1.1 Waste Emissions Trading Legislation

The UK Government has implemented this legislation through the Waste Emissions Trading Act 2003. This spreads the responsibility for meeting the Landfill Directive target among all local authorities and each authority has been set targets for the amount of waste that it can landfill each year to 2020. The targets for Warrington are shown in Figure 7, and if every authority meets its target, the UK will not have to pay any fines to the European Commission.

The targets, or allowances as they are referred to, are based on the presumption that MSW contains 68% of biodegradable material by weight. The initial allowance for biodegradable municipal waste (BMW) disposal by Warrington was set at 66,800 tonnes in 2005/06. This broadly equates to an effective landfill limit of 98,200<sup>5</sup> tonnes of MSW overall. In 2006/07 Warrington landfilled about 81,000 tonnes of MSW in 2006/07. This is well below our allowance of 93,000 tonnes for 2006/07.



**Figure 7: Warrington’s landfill allowance targets (tonnes of BMW)**

This annual allowance diminishes each year until 2019/20 when the prescribed limit for Warrington reaches 20,500 tonnes of BMW, which is equivalent to about 30,000 tonnes of MSW overall.

The Waste Emissions Trading legislation enables the UK Government to fine authorities that do not meet their yearly targets. The level of this fine is £150 for each tonne of

<sup>5</sup> Warrington’s allowance for 2005/06 is 66,776 tonnes of biodegradable material. As MSW is presumed to contain 68% by weight of biodegradable material, this is equivalent to 98,200 tonnes of MSW landfilled.

waste landfilled above the specified limit. In addition, there may be further fines payable to the European Commission if landfill diversion targets are not achieved in 2010, 2013 and 2020.

Although the UK will not have to pay any fines to the European Commission until 2010 at the earliest, the Waste Emissions Trading legislation will enable the UK Government to fine any authority that does not meet its yearly targets. These started in 2005/06, but the Government has recognised that while some authorities are already easily meeting their allowances because they have installed a suitable treatment plant, other authorities, which include Warrington, will not be able to meet their longer-term targets until they have both increased the level of recycling and installed a suitable treatment facility to treat the remaining (residual) waste. Consequently, the legislation enables allowances to be traded between authorities. The aim of the trading of allowances is to enable authorities to meet their obligations through purchasing allowances at a lower cost than the cost of paying a fine to the Government, though the cost of the allowances could approach the level of the fine if demand is high. The LATS scheme is currently in its infancy and there has so far been little trading.

#### **4.1.2 Growth in waste arisings**

Historically, waste arisings have been shown to grow in line with, or even above, the level of economic growth. Consequently, if this trend continues, a 3% p.a. growth in waste would result a doubling of waste arisings in 20 years. However, the continuation of this trend is now considered to be unsustainable, and thus the European Commission's Sixth Environment Action Programme sets an objective to achieve a decoupling of resource use from economic growth through significantly improved resource efficiency, dematerialisation of the economy, and waste prevention.

Growth in household waste (and hence MSW) is due to two key factors:

- An increase in the number of households, and
- Growth in waste produced per household due to increased consumption.

Waste minimisation and re-use initiatives aim to tackle the growth in waste produced by a household. However, even if these initiatives were to reduce the growth in waste per household to zero, then arisings of household waste would still increase as a result of an increase in the number of households.

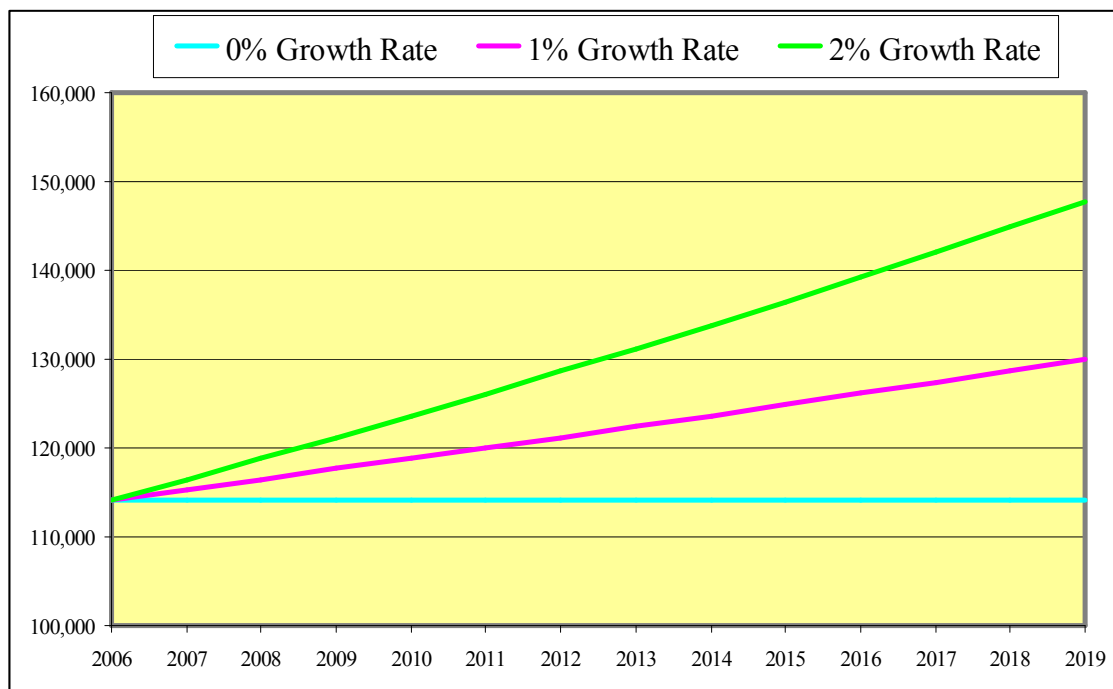
A number of models for predicting future waste arisings have been developed that predict average growth rates generally of between 1% and 2% per year. Waste Strategy 2007 developed four growth scenarios for MSW in order to assess a range of possible future outcomes to 2020:

1. 2.25% per annum reflecting recent trends in growth in consumer spending;
2. 1.5% per annum in line with national waste growth in the five years to 2004/05;

3. 0.75% per annum, in line with current projections of household growth and reflecting more closely national waste growth in the five years to 2005/06; and
4. 0% growth, representing the possibility that waste growth will be decoupled from household and economic growth.

It is unlikely that Scenario 4 (0% growth) will occur due to Government policy regarding future house building (even if a waste minimisation programme reduces the level of growth of waste in a household to 0%, the arisings of MSW will increase because of the increase in the number of houses). It is also unlikely that Scenario 1 (2.25% growth) will occur due to the emphasis on future waste minimisation in the new national waste strategy.

The arisings of MSW in Warrington Borough Council in 2006/07 was 114,000 tonnes. Figure 8 shows that an average annual growth rate of 1% per year from 2007 to 2020 would result in a MSW arising in Warrington of about 130,000 tonnes in 2019/20, and an average growth rate of 2% per year from 2007 to 2020 would mean that the amount of MSW arising in Warrington in 2019/20 would be 148,000 tonnes per year.



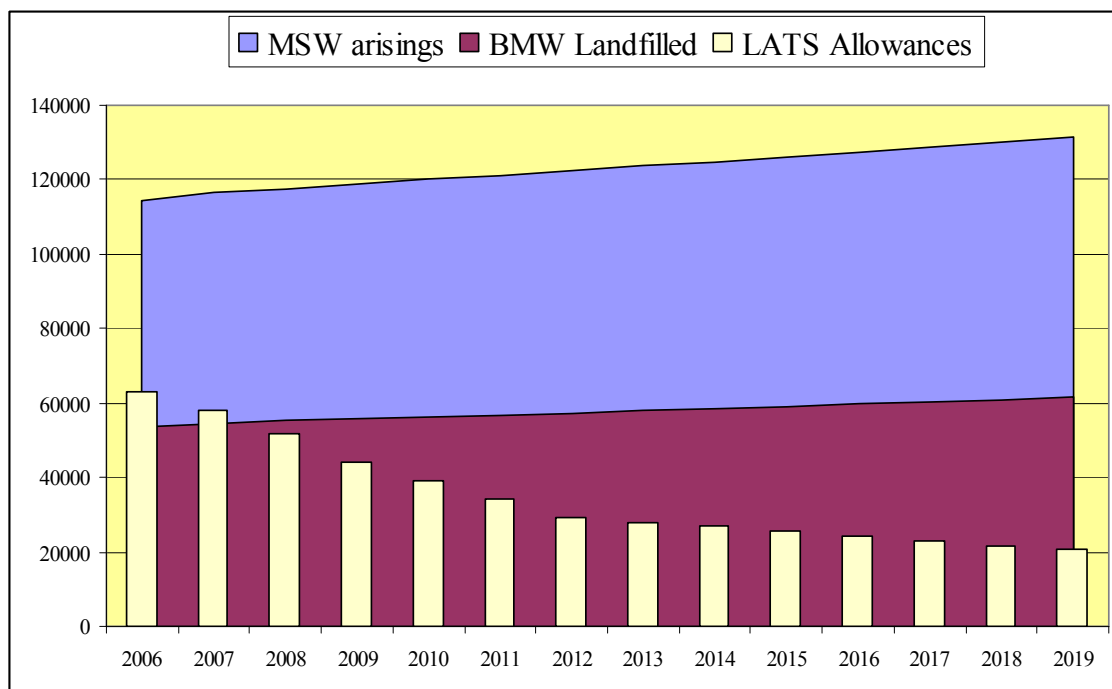
**Figure 8: Effects of waste growth rate in Warrington**

#### 4.1.3 Future management of residual waste

If the amount of MSW increases by an average of 1% per year between now and 2019/20, the MSW recycling rate of 29% achieved in 2006/07 is maintained, and all of the remaining MSW is landfilled, then the total amount of municipal waste we would need to landfill in 2019/20 would be about 92,000 tonnes per year. As our maximum LATS allowance for 2019/20 is approximately 30,000 tonnes per year of landfilled residual

waste, we would be exceeding our allowance by about 62,000 tonnes of residual waste per year. This would mean that if we were unable to reduce the BMW in the residual waste through additional recycling, processing, or by purchase any allowances, the fine we would have to pay to the UK Government in 2019/20 would be around £6.3 million. This is equivalent to an extra £65 per household for Council tax in the year 2020. This figure represents the extra amount required for payment of fines and does not include extra costs for collection, etc.

Although Warrington has implemented new recycling schemes (kerbside collection of paper and green waste), figures show that these will only enable Warrington to meet its landfill targets until 2007/08. Warrington Borough Council could meet future LATS requirements by buying the required allowances each year, but recognises that *not* introducing further measures to reduce the amount of MSW that is landfilled would not be acceptable in the longer term, primarily because of the cost in future years and the fact that Warrington would be making no contribution to meeting the targets for the UK set by the Landfill Directive. Consequently, Warrington Borough Council needs to consider options for reducing the amount of MSW that is landfilled in order to meet future landfill allowance targets.



**Figure 9: Growth (1%) in MSW and BMW landfilled with current level of recycling**

The amount of waste that is landfilled can be reduced by:

- Reducing arisings
- Increasing the amount of waste which is recycled

- Treating the remaining waste (for resource recovery and mass reduction - particularly BMW reduction).

In order to assist the process for identifying the most suitable way forward, we have employed experts to conduct a number of studies, assessed the cost and risks for a number of options, and consulted a range of stakeholders.

## 4.2 The studies we conducted

To help identify the best option for managing our waste in the future, we have:

- assessed treatment options for the residual waste;
- assessed markets for materials produced by recycling and composting schemes;
- assessed markets for the products produced by waste treatment plants; and
- commissioned a Strategic Environmental Assessment to identify the best option for managing Warrington's waste.

### 4.2.1 Treatment technologies

Processes that can be used to treat Warrington's waste comprise various forms of energy from waste (EfW) and mechanical biological treatment (MBT).

Although there is some public opposition to incineration (the most common EfW process), it is a well-established technology and a market for the main product (electricity) is readily available. Where a market for heat is available, the energy recovery of a plant can be enhanced through combined heat and power (CHP). The introduction of the Waste Incineration Directive and strict enforcement of emissions standards means that the latest generation of waste combustion facilities operate to very high standards. The Review of the Environmental and Health Effects of Waste Management<sup>6</sup> commissioned by Government concluded that the effects on health from emissions from incineration, largely to air, are likely to be small in relation to other known risks to health. A party of officers and members from the Council have visited Denmark to witness first hand the use of EfW with CHP. Denmark combines use of this residual waste disposal technology with high recycling rates.

Mechanical biological treatment (MBT) encompasses a wide range of technologies aiming to process solid waste by a mixture of mechanical separation and biological treatment. It also enables metals and other dry recyclables to be recovered. There are six main types of MBT process:

- Plants that incorporate anaerobic digestion to generate biogas for electricity production. Anaerobic digestion also generates a digestate that can be used as a compost product.

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<sup>6</sup> Review of the Environmental and Health Effects of Waste Management. Defra, May 2004

- Plants that produce a refuse-derived fuel (RDF) product. This can be produced either by biologically drying the waste and then mechanically sorting it to produce a fuel product that contains mainly paper and plastic, or by treating the waste using steam (the autoclave process) to break down the paper and organic materials into a “crumb” product which can be used as a fuel.
- Plants that use a gasification process (the generation of a combustible gas from a feedstock by partial oxidation under the application of heat) in order to produce electricity.
- Plants that produce a compost product. These use mechanical separation to produce an “organics rich” product that is then composted.
- Plants that stabilise waste prior to landfill. This was the original concept for MBT plants and uses a composting process to produce a stabilised (low biodegradable content) material that is then landfilled.
- Plants that produce a compost product and/or a stabilized material for landfilling as well as a RDF product

Some MBT technologies are reasonably well developed, and are operating in other European countries, but markets for the products (fuel and/or compost) are limited in the UK at this time.

The following table summarises the main advantages and disadvantages of each treatment technology. More information on these processes can be found in Appendix 4, and in published reports<sup>7</sup>.

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<sup>7</sup>For example: *Mechanical Biological Treatment; A Guide for Decision makers*. Juniper, March 2005 and *Small to medium scale EfW systems for processing MSW*. Juniper September 2007, updated April 2008.

**Table 3: Advantages and disadvantages of treatment technologies**

<b>Technology</b>	<b>Advantages</b>	<b>Disadvantages</b>
Energy from Waste	The technology is well established  Markets are available for the electricity that is produced.	Possible public opposition  Metal and ash which are recycled do not currently count towards recycling targets
Advanced thermal treatment (gasification)	Markets are available for the electricity that is produced.	Technology is not yet proven with household waste.
Production of a refuse derived fuel (RDF) product	The technology is well established	Markets for the fuel product are currently limited
Composting	Composting is a simple technology and is very well established.	Markets for the compost product will be limited  The compost may not be able to be included in calculation of the recycling rate.
Anaerobic Digestion	Markets are available for the electricity that is produced.	Technology not yet well established for household waste  Markets for the compost product will be limited.
Steam treatment (including Autoclave)	Range of potential markets for the main product  A higher proportion of dry recyclable materials can be recovered for recycling	Technology is not yet fully established  Markets are currently limited for a number of the products

#### **4.2.2 Markets**

Markets for dry recyclables are well established, and the size of the market for 'higher grade' compost products (those produced from separately collected green waste and suitable kitchen waste) is increasing; the main uses would be for landscape/horticultural applications and for agricultural purposes.

Markets for the fuel and compost products produced by MBT plants will need to be developed in order for these plants to divert material away from landfill in order to meet landfill allowance targets. It is highly unlikely that sufficient markets for the 'low-grade'

compost products that these plants would produce could be identified in the local area, and transport costs may inhibit a wider market. Markets for fuel products are currently limited, but changes to the requirements for power stations obtaining renewables obligation certificates (ROCs) could lead to the development of a market for the fuel product within existing steam producing plants, though this is uncertain. The potential use of fuel products in cement kiln is limited and the capacity is likely to be taken up by the fuel producing plants currently being procured and commissioned.

#### **4.2.3 Strategic Environmental Assessment**

The Environmental Assessment of Plans and Programmes Regulations 2004 introduced a requirement for a Strategic Environmental Assessment (SEA) to be produced for a number of statutory documents including Municipal Waste Management Strategies (MWMS). As Warrington Borough Council is revising its Waste Strategy there is a statutory requirement to undertake a SEA on this document.

In order to be most effective, Government recommends that the SEA process, including the preparation of the Environmental Report, should be conducted at the same time as the MWMS is prepared. Warrington Borough Council believes that revising its MWMS in parallel with the preparation of the SEA will provide significant benefits, as implementation of the MWMS, through long-term procurement of waste management infrastructure, would then be supported by the SEA. It has therefore commissioned consultants AEA to undertake the SEA and help revise Warrington's MWMS.

The SEA process involves:

1. A Scoping Study – initial consultation, and development of potential waste management scenarios
2. A draft Environmental Report – an assessment of each waste management scenario
3. Public consultation on the draft Environmental Report: the findings from the consultation process being used to produce a final version of the Environmental Report. The public consultation will also cover this draft waste strategy.

A summary of the findings from both the Scoping Report and the draft Environmental Report are presented below. Copies of both the Scoping Report and the draft Environmental Report can be found at:

[www.recycleforwarrington.co.uk](http://www.recycleforwarrington.co.uk)

#### **4.2.4 Scoping Report**

The main aim of the Scoping Report was to outline the framework and methodology for conducting the SEA, and thus set the context for conducting the assessment. Consultation to gain the wider view of stakeholders and residents is an important part of the methodology for conducting a SEA, and thus a number of workshops were held with the following consultees:

- Warrington residents, through a Citizens' Panel
- Local key stakeholders
- Officers and elected Members of Warrington Borough Council.

These workshops discussed waste minimisation and recycling targets, and options for treating the residual waste.

The findings from the consultation were that there was strong support for:

- setting a waste minimisation target,
- future fortnightly collection of residual waste, provided that food and garden waste were collected either weekly or fortnightly (with a majority preferring weekly collection), and
- treating the residual waste using an energy from waste (EfW) facility (on the basis that it is a proven technology which generates electricity). The majority of participants were strongly opposed to continuing to landfill waste, and did not support the use of other treatment technologies – autoclave, mechanical biological treatment (MBT) and advanced thermal treatment (ATT).

Although the consultees supported fortnightly collection of residual waste, Warrington Borough Council decided not to introduce this in the short to medium term because of concerns about public acceptability. Warrington Borough Council also decided that separate food waste collections would not be introduced because of both the need to improve the performance of the existing collection schemes for dry recyclables, and also because of the cost implications for provision of a suitable facility for composting the food waste (the facility used to compost green waste does not meet the legislative requirements for composting food waste). There are also concerns that many households in Warrington could not accommodate another waste collection container, plus there are issues concerning further costs to charge for additional collections. However, these options have been assessed in the SEA, and Warrington Borough Council will consider their introduction in the longer term.

Table 4 presents the list of scenarios assessed within the SEA. These took on board the views from the consultation workshops, and set waste minimisation and recycling targets that are demanding, but also potentially achievable.

The Base Case (Scenario 1) assumes no change in the current projections for waste growth. All other scenarios assume that waste minimisation initiatives would control waste to 2006/07 levels (25 kg/household/week) by 2010. Beyond 2010 the Council believes there is more scope to increase waste minimisation through long-term education programmes. The target for 2020 is to reduce waste quantities per household to approximately 21 kg/week, which is equivalent to 9 kg per person per week based on 2006/7 data. Assessing the waste arisings on a per household basis allows for the assessment to be made independent of household growth over time.

**Table 4: SEA Scenarios**

	Waste min. + re-use	Source segregated waste				Residual waste				
		Recycling targets <sup>b</sup>	Dry Recyclate	Garden waste	Kitchen waste	Residual Treatment	Treatment organic residuals	Use of compost <sup>c</sup>	Fuel production & treatment	Landfill
1	Current predictions	Current level + additional mixed recyclate	MRF mixed recyclates	Windrow	No collection	Current option of landfilling to continue	N/A	N/A	N/A	Remaining waste
2	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	Windrow	No collection	EfW	N/A	N/A	N/A	Remaining waste + ash
3	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	Windrow	No collection	ATT	N/A	N/A	N/A	Remaining waste + ash
4	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	Windrow	No collection	MBT-AD	AD	Stabilised to landfill (BVPI – No)	RDF burnt at 3rd party	Remaining waste
5	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	Windrow	No collection	MBT-RDF	IVC	Stabilised to landfill (BVPI – No)	RDF burnt at 3rd party	Remaining waste + ash
6	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	Windrow	No collection	Autoclave	N/A	N/A	Fuel high in biomass content & send to 3 <sup>rd</sup> party	Remaining waste + ash
7	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	AD	AD Collected with green waste fortnightly	EfW	N/A	N/A	N/A	Remaining waste + ash
8	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	IVC	IVC Collected with green waste fortnightly	EfW	N/A	N/A	N/A	Remaining waste + ash
9	2006/7 levels by 2010= 25kg per hh/per week. Reduce waste to 21 kg per hh/per week by 2020 <sup>a</sup>	40% 2010 55% 2020	MRF mixed recyclates	Windrow	No collection	EfW-CHP	N/A	N/A	N/A	Remaining waste + ash

- a. In all scenarios the delivery of recycling targets is attempted primarily from the recycling and/or biological treatment of source segregated wastes. In some scenarios, a further contribution to recycling targets is potentially available from mixed residual waste (e.g. metals from MBT or autoclave). 55% target is very high and unlikely to be achieved without extreme measures e.g. mandatory recycling and fines for none participation
- b. Where kitchen waste is source segregated it is assumed that no market can be secured for the low-grade compost derived from the remaining mixed residual waste.

IVC = In-vessel composting  
AD = Anaerobic digestion

EfW = Energy from Waste via incineration  
ATT=Advanced thermal treatment

MBT = Mechanical Biological Treatment  
MRF = Materials Recovery Facility

RDF = Refuse derived fuel

Warrington Borough Council is fully behind the ambitious recycling targets and understands the demanding requirements to reach high recycling levels, particularly those above 50%. Achieving the high recycling rates will require substantial promotional and education programmes

The consultation process also discussed options for treating the residual waste, and Table 4 identifies the residual treatment technologies proposed within the scenarios. These cover the range of options that are currently available to Warrington and are sufficiently viable to be considered within the SEA study.

The consultation process also identified the criteria (such as global warming potential) that would be used in assessing these scenarios. These are listed in both the Scoping Report and the draft Environmental Report.

#### 4.2.5 Draft environmental report

The relative impacts of each of the nine scenarios for each of the 28 criteria were evaluated, and this enabled the benefits and issues for each scenario to be identified. It should be emphasised that the purpose of the SEA is not to identify the “best scenario”. However, in identifying its preferred waste management system the Council will need to consider performance against each criterion, and the inevitable ‘trade-offs’ that result.

The assessment of the nine scenarios covered three areas:

- Quantitative assessment of the measurable criteria (such as minimising greenhouse gas emissions)
- Analysis of significant effects (such as public perception of the use of an EfW facility)
- The compatibility of the 15 criteria with each other (for example, would ‘meeting waste policy requirements’ be compatible with ‘reducing greenhouse gas emissions’).

The quantitative assessment produced a total score (before weighting) for all of the measured criteria in this assessment, reproduced in the following table. These scores will be revised when the weightings have been determined through the public consultation process.

**Table 5: Total score before weighting**

Scenario	Environmental objectives	Economic objectives	Social objectives	Deliverability	Waste hierarchy and policy	TOTAL	Ranking
1 Base Case	4.80	0.00	0.00	1.00	0.00	<b>5.80</b>	<b>9</b>
2 EfW	6.81	0.87	0.91	0.27	3.63	<b>12.50</b>	<b>3</b>
3 ATT	5.99	1.00	0.83	0.27	3.68	<b>11.77</b>	<b>4</b>
4 MBT-AD	5.04	0.52	0.60	0.27	3.23	<b>9.66</b>	<b>8</b>
5 MBT-IVC	6.20	0.73	0.63	0.27	3.57	<b>11.41</b>	<b>5</b>

6	Autoclave	9.26	0.93	0.69	0.27	3.92	<b>15.07</b>	<b>1</b>
7	EfW+AD	5.85	0.75	1.00	0.00	3.74	<b>11.34</b>	<b>7</b>
8	EfW+IVC	5.86	0.79	0.97	0.00	3.74	<b>11.36</b>	<b>6</b>
9	EfW-CHP	8.06	0.92	0.91	0.27	3.63	<b>13.81</b>	<b>2</b>

This unweighted assessment of measurable criteria showed that:

- Scenario 6 (Autoclave) achieved the highest score in the measured criteria; it scores the highest in both the environmental objectives and waste hierarchy and policy criteria. This is because the technology delivers increased levels of recycling, achieved through separation of recyclates from the residual waste, and because it has reasonably high recovery and BMW diversion levels due to the combustion of RdF and minimal rejects landfilled. The combination of these factors allows it to score well in the environmental criteria. The option also scores well in the economic objective, being the second least expensive option after the ATT scenario.
- However, the Autoclave process has a very limited track record in processing MSW and consequently the costs are difficult to accurately predict. Additionally, as there are currently no large-scale commercial plants in operation this will impact substantially on the bankability of the technology. It should also be noted that the costs provided within this SEA are only indicative and for comparison purposes. Only through a procurement exercise can the actual costs be determined. In conclusion, although the Autoclave scenario performs best, it may not be acceptable to the Council due to its lower maturity of technology and deliverability issues.
- All the thermal treatment options (ATT, EfW and variants) perform very well, with excellent scores in the environmental and economic objectives and waste hierarchy and policy criteria. The scenarios perform favourably in minimising nuisance and landtake, and due to the high potential for energy recovery, thermal treatment also scores well against a number of the other environmental criteria. The options also have reduced transport impact because the generation of material products and rejects is less compared to other technologies.
- The areas in which thermal treatment scenarios perform poorly are in limiting water consumption (a wet system may need to be applied for the gas cleaning process), and in the generation of a hazardous waste material (incineration fly ash).
- Of the thermal treatment technologies modelled within this SEA the EfW with CHP scores marginally better than other EfW variants, which in turn score slightly higher than the ATT. The EfW-CHP scores well in many environmental criteria due to the additional energy recovered through heat. The additional heat recovery also entitles the facility to receive Renewables Obligation Certificates (ROCs), which increases the potential income, making it less expensive than standard EfW.

- The ATT scores marginally lower than the other thermal treatment methods due in part because of the limitation in the Environment Agency lifecycle tool WRATE, used to assess a number of the environmental criteria. The gasifier used in the tool does not accept household waste without pre-treatment. Therefore, in the model, waste had to be sent through an MBT process first, which resulted in additional material needing to be landfilled. The ATT does provide some extra metal recycling and has potentially the lowest cost. The ATT shows a lower cost due to the additional benefits of increased ROCs income from the energy produced, and due to the more favourable economics of gasifiers at small scale, when compared to mass burn EfW incineration facilities.
- Although the thermal treatment options (Scenarios 2, 3, 7, 8 & 9) score highly in the quantitative assessment, the Council will have to consider some moderate negative impacts associated with these waste management solutions. Depending on the geographical setting, visual impact of the proposed treatment facilities can be significant, although with careful design and landscaping this impact may be reduced. Generally, public acceptance may also be an issue for small thermal treatment facilities: public consultation and good project management is required to reduce the risk of potentially long lead times.
- Scenario 3 (ATT), as a relatively new technology with limited track record also shows a moderate negative impact in maturity of technology as this may have an impact on the bankability of the technology. This leads to a higher risk of deliverability of this technology solution, potentially resulting in higher costs of landfilling and LATS fines, which may not be acceptable to the Council.
- The two MBT scenarios modelled were ranked 5<sup>th</sup> and 8<sup>th</sup> in the measured criteria, but indicated no major and significantly fewer moderate negative impacts associated with these waste management solutions compared with the thermal treatment scenarios. The MBT-IVC scenario performs significantly better than the MBT-AD scenario even though the anaerobic digestion in Scenario 4 (MBT-AD) provides some benefits, because of the energy generated. However, the lower separation of RdF material in MBT-AD results in a higher amount of material having to be landfilled after anaerobic digestion.
- The performance and ranking of MBT scenarios depends very much on the type and specification of plant and the environmental benefits of AD should not be ignored. Currently, the higher capital costs of AD (relative to IVC) do not offset the benefit of providing renewable energy. However, as the technology develops further, more competitive pricing may result. Only a future procurement exercise could confirm whether this technology would be the most economically advantageous to Warrington.
- The production of RdF in the two MBT scenarios and the Autoclave provides certain benefits such as reducing the risk and costs of LATS and contributing to recovery and landfill diversion targets. However, there are risks associated with securing markets for RdF. In addition the transport of an additional waste stream to third party or other thermal treatment facilities would have an impact on local transport and emissions to air.

- Scenario 1 (Base Case) receives lowest overall score but does score well in certain environmental criteria, as no extra treatment facility is required, thus avoiding the production of hazardous waste and any additional water usage or nuisance impact. The scenario is, by some considerable margin, the most expensive option and fails to score in any of the waste hierarchy and policy criteria. Furthermore, the public acceptability also needs to be taken into account if Warrington does not follow the Waste Hierarchy principle in maximising the effort in increasing recycling and energy recovery before landfilling.
- If Warrington chooses to collect food waste with green waste in the future then treating it through an IVC facility (Scenario 8) scored marginally higher in the measured criteria than treating it in an AD facility (Scenario 7). The collection of food waste can help divert waste from landfill and improve recycling and composting rates, however, introducing food collections and an AD or IVC processing facility has cost implications, as outlined in 4.2.4 above.

### 4.3 The Cost Implications

Warrington Borough Council has to consider the cost of each waste management scenario to Council Tax payers. The evaluation of the costs (economic objectives in the previous table) indicates that treating residual waste using the ATT and Autoclave options would be the cheapest, and that continuing to landfill all residual waste would be the most expensive option. However, these two processes have a very limited track record in processing MSW and consequently the costs are difficult to accurately predict, as is the bankability of such processes.

The costs to Council Tax payers for each of the options in 2014/15 (by which time all planned residual waste treatment facilities should be fully operational) would be between £105 and £135 per household, depending on the option selected. By comparison, the cost for waste management in 2006/07 was £82 per household<sup>8</sup>.

### 4.4 Risk Assessment

The waste hierarchy encourages reducing the amount of waste produced, increasing the level of recycling, and recovering value from the residual waste (see Appendix 2). However, while the waste strategy should follow the aims of the waste hierarchy, Warrington Borough Council has to ensure that the adopted strategy can be delivered.

The principal risks to Warrington in successfully implementing a waste strategy come from three key areas:

- Public acceptability of the solution
- Technical and environmental performance of the facilities

<sup>8</sup>A significant element of waste management costs is Landfill tax applied to residual waste. In 2006/7 this amounted to £1.7M. In 2014/15 this is forecast to rise to £4.1M under Scenario 1, representing an increase of around £24 per household.

- Marketing of the products, such as electricity, heat, recyclables and refuse derived fuel, that would be produced by treating the waste

It is therefore important to understand these risks and to ensure that their impacts are considered appropriately as the strategy is implemented.

#### **4.4.1 Public acceptability**

When the public opposes waste treatment facilities, gaining planning permission can be difficult. However, if facilities are delayed then there will be significant financial implications for Warrington Borough Council. Thus there is a need for good promotional information to inform the public on the need for a residual waste treatment facility in Warrington of the type proposed in the MWMS. There will also be a need for high quality designs that are visually acceptable to the public, and a need for information on the impacts of these facilities, since while the impacts can be minimised they cannot be eliminated. Assurance needs to be given that the facility will be fully regulated and its impacts (particularly emissions to air) will be fully monitored and limits strictly enforced.

Landfills will still be required for the foreseeable future. While the amount of MSW that will need to be landfilled will reduce, commercial and industrial wastes needing disposal to landfill will overshadow this. Additional landfill capacity may still be required over the longer term. Obtaining planning permission for landfills is difficult and there is a need to convince the public of the need to accept these facilities. Thus there will be a need for both appropriate planning policies and education.

To achieve the target recycling rates will require the public to both adapt their lifestyles to minimise the amount of waste that they generate, and to increase the amount of waste separated out for recycling. If the increase in recycling rates is not achieved, then the residual treatment facility will need to treat more waste. Thus there will be a need to devise and implement suitable public education programmes that aim to ensure that the required recycling and minimisation rates are fully achieved.

#### **4.4.2 Technical and environmental performance**

The main area of concern for deliverability of the waste management strategy will be the management of the residual waste, for which the main issues are efficacy and reliability of the treatment technology and the availability of markets for the products that they produce.

Landfilling is a very well established technology that produces only one product that may be marketed: energy from recovered landfill gas. Thus while it may represent the most technically reliable option, it would not enable the landfill diversion targets to be met.

Energy from Waste (EfW) is also a very well established technology and there is a readily available market for the electricity that would be produced, via the National Grid. Where there is a neighbouring market for process heat, the addition of CHP provides another avenue for use and sale of energy.

MBT technologies are less well established and the technologies for autoclaves and ATT (pyrolysis/gasification) are still being developed. Markets for many of the products that they produce are currently limited. Deliverability risk can be reduced through careful evaluation of proposed systems during the procurement process.

#### **4.4.3 Marketing of the products**

The targets within this strategy are wholly dependant on the ability to provide products that are acceptable to the market, since if the products are not of sufficient quality they will need to be disposed of by combustion and/or landfilling.

If markets for the products that the treatment plant produces cannot be identified, they will have to be landfilled. The main product that an EfW plant produces is electricity, for which there is a well-established and stable market. The sale of heat (from CHP) is dependent on there being a nearby appropriate user. The market for the fuel product produced by the MBT and autoclave processes is not yet well established, and thus there is a risk that the fuel product might have to be landfilled. This would increase the cost for residual waste management due to the need to pay for landfilling of the unsold products. It would also mean that as the treatment plant was not diverting waste away from landfill, the Council could be exceeding its landfill allowance target, and thus would incur additional costs through either purchasing landfill allowances from other authorities or paying fines to UK Government. These additional costs would likely have to be met by increasing Council Tax.

The other area of concern regarding deliverability of the waste strategy is the availability of markets for source-separated materials, collected for recycling or composting. Although markets for dry recyclable materials, such as paper, are well established, significant potential markets for compost products have not yet been fully established. This could make it more difficult to identify and secure markets for compost products if there was a significant increase in the amount of compost material.

One of the reasons for the high score in the SEA received by the autoclave process is due to the higher level of recycling that is achieved as the process separates potentially recyclable materials (such as glass and plastic) from the residual waste. However, these will be of a lower quality than products separated at source (such as materials collected through the kerbside collection scheme). If markets/uses cannot be identified for these products then they will need to be landfilled which will increase the cost of the autoclave scenario. It will also reduce other scores achieved by the autoclave in the SEA.

The risks for markets can be significantly reduced through careful evaluation during the procurement process of the proposed systems and marketing strategies.

#### **4.4.4 Other issues**

The Council has to consider requirements for the amount of land that would be required for future waste management activities, and thus there is a need to ensure that the waste strategy is integrated with the Local Development Framework (LDF). The adoption of the waste strategy will reduce the amount of MSW that is landfilled, but potential sites for the treatment plant(s) that will be needed in order to implement the waste strategy will need to be identified, if they are to be located in Warrington.

The LDF also has to consider requirements for management of other waste streams (such as commercial and industrial waste). The future management of these streams is not considered in this strategy, but land for both treatment and landfilling will be required.

#### **4.5 Our proposed approach to meeting these challenges**

The aim of the new (2007) National Waste Strategy, which sets the Government's vision for sustainable waste management, is to reduce waste by making products with fewer natural resources, and thus breaking the link between economic growth and waste growth. Products should be re-used, their materials recycled, energy from waste recovered, and landfilling of residual waste should occur only where necessary.

Having assessed the waste management challenge that Warrington Borough Council faces, considered a number of options, conducted a number of studies, consulted stakeholders and assessed both the costs and the risks involved with a number of approaches to meeting this challenge, Warrington Borough Council's proposed approach, which follows the waste management hierarchy, and accounts for the findings from the studies and assessments conducted, is to implement arrangements in respect of MSW that:

- limit the growth in waste arisings through the use of waste reduction and minimisation programmes;
- allow the Council to be able to achieve and exceed any future recycling targets set by the Government; and
- treat the remaining waste in order to ensure that Warrington Borough Council meets the targets set by the Waste Emissions Trading legislation, and thus does not have to either purchase allowances from other authorities or pay a fine to the UK Government.

This will be achieved by:

- reducing waste growth: reducing the amount of waste produced by each household to 25kg per household per week by 2010, and to 21 kg per household per week by 2020;
- increasing the household waste recycling rate from the current (2006/07) rate of 29% to 40% by 2010 and 55% by 2020; and
- maximising the recovery of energy from the residual waste, and minimising the amount of biodegradable waste sent to landfill.

The findings from the Strategic Environmental Assessment indicate that the use of an autoclave to treat the residual waste receives the highest score. However, the autoclave process has a very limited track record in processing MSW and consequently the costs are difficult to accurately predict. Additionally, the technology is not yet commercially proven in the UK. The scenarios that used an EfW facility to process the residual waste also received high scores, though there are other issues with these facilities, such as public perception regarding potential health impacts.

The SEA does not identify the “best scenario”, and in identifying its preferred waste management system the Council will need to consider each of these aspects and the inevitable ‘trade-offs’ that result. However, as deliverability is a key issue for any waste management project, if candidate solutions cannot be delivered, Warrington Borough Council may well have to consider other options that conform to the underlying principles of diverting waste away from landfill and usefully recovering energy from it.

It is important to note that whatever solution is adopted, land will be required for both the residual waste treatment facility and for facilities to handle the additional material collected for composting.

The planned consultation process on both this draft waste strategy and the draft Environmental Report on the waste strategy will enable all stakeholders, which includes members of the public, to comment on Warrington Borough Council’s proposed approach.

The adoption of this proposed strategy will mean that Warrington will make an effective contribution towards meeting the UK target for reducing the amount of biodegradable municipal waste that is landfilled. However, it will also be important to ensure that the waste strategy we develop recognises the strategies being developed by our neighbouring authorities and the private sector to allow partnership working where appropriate. In particular, Warrington Council’s choice in waste treatment technology will also need to complement the overall waste strategy for the Northwest Region.

## 5 How do we plan to implement the necessary actions

This chapter describes how we plan to implement our proposed waste strategy. It:

- identifies key responsibilities;
- discusses possible partnerships with neighbouring authorities and the private sector;
- outlines Warrington Borough Council's activities for developing both waste minimisation and recycling initiatives;
- discusses how Warrington Borough Council will arrange for a new waste treatment/disposal contract which will enable our landfill allowance targets to be met; and
- assesses the impact on our carbon footprint.

It also presents our proposed timetable for implementing the strategy, discusses how we plan to keep this programme on track, and identifies how further consultation will be conducted as the strategy is implemented.

### 5.1 Roles and responsibilities

There are a number of entities that will have a role to play in implementing Warrington Borough Council's waste strategy:

- National Government – Providing, through the Waste and Resources Action Programme (WRAP), publicity/education programmes which aim to encourage a reduction in the amount of waste and increase the amount of recycling. Warrington is also working with DEFRA through the Waste Implementation Programme and in particular the Waste Infrastructure Development Programme [W.I.D.P.].
- Regulators – Ensuring that facilities for processing dry recyclables, composting collected organic material, and treating the residual waste meet all environmental requirements on emissions to air, water and land.
- Warrington Borough Council – Arranging for the provision of facilities for recycling and composting, procuring a new waste management contract, and ensuring that any new treatment facilities are sited in accordance with the policies in the waste development plan. Appropriate Council assets will be employed to assist with delivery.
- Waste management companies – Operating recycling and composting services, operating the facility that will treat Warrington's residual waste, and providing capacity for any landfilled waste.
- Voluntary groups – Providing both facilities, which enable items such as washing machines to be re-used, and/or supporting additional recycling services.
- Commerce and Industry – Reducing waste arisings by, for example, reducing the amount of packaging required for products, and increasing the amount of material that they recycle.
- Public – Participating in both waste reduction and recycling activities.

The public will also have an important role in the continuing consultation as the strategy is implemented, particularly with regard to the provision of any treatment facility that is constructed in Warrington.

## **5.2 Partnerships with neighbouring authorities**

Joint working on waste by local authorities is a key feature of the National Waste Strategy. Regional Spatial Strategies also acknowledge the strategic significance of waste management and the need for an effective regional waste treatment and disposal infrastructure.

Warrington was part of a Cheshire-wide partnership from 1998 until 2000. It then decided to work with Halton Borough Council in a partnership that lasted from 2000 until 2006. Halton Council then decided to end the Partnership and align itself with the Merseyside consortia. From this time, Warrington has chosen to work alone, installing a Waste Strategy Development and Implementation Manager to lead the Council's efforts to move toward a new municipal waste management strategy in consultation with the community. This work will lead to new service provision for kerbside recycling and the provision of facilities associated with such services. The Council also plans procurement of a long-term residual waste treatment facility, though at this stage partnership working with another authority has not been ruled out.

The Government Office for the North West [GO-NW] has been keen to encourage partnership working between local authorities in the region. However, at the time of writing there are no likely partnership opportunities with other councils, especially as most of the larger conurbations [e.g. Merseyside, Cheshire, Lancashire, Greater Manchester] have settled their plans and are in receipt of PFI funding. Within the North West, the local authorities sitting outside partnerships are Wigan, Blackburn with Darwin, and Warrington councils.

## **5.3 Waste reduction/re-use**

Waste reduction is at the top of the waste hierarchy and is pivotal to the development of sustainable waste management practices.

Waste reduction refers to the minimisation of waste at source, which means not producing waste in the first place. In some countries, householders are charged to dispose of the actual amount of waste that they produce, and this has been shown to have an effect on the amount of waste produced and material recycled. However, so-called 'pay-as-you-throw' schemes can be difficult to implement and are unlikely to be popular with a large proportion of the public.

The new (2007) national waste strategy places a strong emphasis on the prevention and minimisation of waste, and includes the following initiatives:

- Government will work with the Direct Marketing Association to develop a service so that people will be able to opt-out of receiving unaddressed as well as addressed direct mail. The Government is also considering moving towards

an approach where people would only get direct mail if they opted in by placing their name on the direct mail register.

- Government will work with retailers to reduce the use of free single use bags. This could involve retailers only selling long-life bags, or retailers charging for disposable bags and using the proceeds to sell long-life bags at a discount

Warrington Borough Council has set waste minimisation targets that will require the amount of waste produced by each household to be reduced to:

- 25kg per household per week by 2010, and
- 21 kg per household per week by 2020.

These are challenging targets. Warrington Borough Council is currently promoting a number of initiatives for reducing waste arisings. These already cover the new initiatives outlined in the national waste strategy, and include the following:

- Say NO to unnecessary plastic bags.
- Avoid buying things with excessive packaging.
- Re-use plastic bottles, containers and carrier bags
- Choose products in packaging you know can be easily recycled.
- Purchase longer lasting products, e.g. rechargeable batteries.
- Having your milk delivered - the average milk bottle is reused 20 times before it is recycled.
- Buy concentrated products that use less packaging, or products in refillable containers e.g. washing powders.
- Purchase recycled products where possible.
- Stop junk mail by having your name removed from mailing lists.

Although these initiatives should help in achieving the waste minimisation targets, Warrington Borough Council recognises that there is also a need for a long-term waste awareness campaign which will encourage households to both reduce the amount of waste that they produce and increase the amount of waste that they recycle. Warrington Borough Council will actively promote all of these activities through such a campaign, and will also support national or regional campaigns on waste reduction and re-use.

## **5.4 Improving recycling**

Warrington Borough Council has set recycling targets which will increase the current (2006/07) household waste recycling rate of 28 % to:

- 40% by 2010, and
- 55% by 2020.

This will be achieved in the short and medium term by:

- Introducing fortnightly collection for dry recyclables (paper is currently collected every five weeks), and increasing the number of materials that are collected.

- Improving the levels of material segregated for recycling and composting at the household using education campaigns.
- Increasing the quantity of material recycled and composted at Community Recycling Centres.

The additional dry materials that are collected for recycling are cardboard, cans, envelopes, glass bottles and plastic bottles.

The long-term aspiration of recycling and composting 55% of Warrington's household waste will be a difficult target to meet, as indicated within the SEA. However, long-term, it is anticipated that new techniques for separation of materials and new markets for these materials will be created, permitting a greater potential to recycle more materials within the waste stream. The target may also be aided by the residual waste treatment facility, depending on the type utilised.

Warrington Borough Council could consider collections of food waste together with green/garden waste (where this service is offered), or provide an additional collection for food waste. Current regulations would require all mixed food and garden waste to be processed in an ABPR<sup>9</sup>-compliant facility and this would result in an increase in collection and treatment costs. However, collecting food waste separately would require additional collection vehicles, which would result in a significant increase in collection costs. Such collections may also be limited to those households with room for the collection container. The food waste would also still need to be treated in an ABPR-compliant facility.

Any material that is home-composted currently cannot be included in the calculation of household waste recycling rate. The Government is currently considering whether the amount of material (or at least a proportion of this) which is diverted for home composting can be included in the calculation of the recycling rate, and a final decision is expected to be made during 2008. However, even if waste that is home composted can be included in the calculation of recycling rate, it will not increase the amount of material that is diverted from landfill. Consequently, it has been excluded from the assessment of options for increasing the amount of material that is diverted from landfill by collecting it for recycling.

Councils which are achieving recycling rates of over 40%, such as those in Cambridgeshire and Suffolk which have been awarded Beacon status for recycling, all collect residual waste fortnightly. The Government recognises that it does not have the right to prescribe how waste is collected (this is a matter for local authorities), but experiences from authorities in both the UK and abroad suggests that alternate week collection schemes can work well, and can contribute to significantly higher recycling rates, provided that they are well designed and implemented.

Warrington Borough Council is aware that there is some level of opposition to fortnightly waste collection, but also recognises that the costs for collecting the additional materials required to meet the recycling targets, together with the cost for continuing to provide a weekly refuse collection, will be high. In the foreseeable future there will be no changes to the collection frequency of residual waste.

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<sup>9</sup> Animal By-Products Regulations

The national publicity/education campaign aimed at increasing the number of people who participate in recycling schemes is the “Recycle Now” campaign. This was launched in September 2004 by the Waste and Resources Action Programme (WRAP) to replace the ‘Rethink Rubbish’ campaign. The ‘Recycle Now’ campaign has a distinctive logo, and its website provides both information for the public and resources which local authorities can use and adapt to complement their existing waste promotion campaigns. Warrington Borough Council will continue to support this campaign, and will also introduce a long-term waste awareness campaign, designed to encourage households to both reduce the amount of waste that they produce and to increase the amount of waste that they recycle.

The Government has announced that it is proposing, subject to consultation, to remove the ban on local authorities introducing financial incentive schemes that would reward households for reducing and recycling their waste. If this ban is lifted, Warrington Borough Council will assess if the introduction of an incentive scheme is required in order to meet future recycling targets. If the decision to introduce an incentive scheme is made, Warrington Borough Council will consult with householders on a range of incentive schemes before any final decision is taken on the type of scheme to be used.

## **5.5 Requirements for new capacity**

The areas where additional waste handling/treatment capacity could be required in the short to medium term, in order to implement the strategy, are:

- Capacity to handle additional recyclable materials,
- Capacity to handle the additional compostable materials, and
- Capacity to treat residual municipal waste

There will also be a continuing need for landfill capacity.

### **5.5.1 Recycling**

The existing paper collection scheme collected 6,100 tonnes of material for recycling in 2006/07. It is estimated that the expansion of this scheme to a fortnightly collection, which would also collect additional materials, will increase the amount of material that is collected to 18,500 tonnes per year by 2015.

In order to sort this material, it will be necessary for it to be processed in a material recovery facility (MRF). However, the additional amount of material that is collected may not be sufficient to make a MRF that only processes materials collected in Warrington, economic. Warrington Borough Council will assess options for providing the required MRF capacity. While it is possible that Warrington Borough Council could secure the required capacity in a MRF in a neighbouring authority, and thus not have to build a MRF within the Borough boundary, it is also possible that a MRF could be built within the Borough boundary and also be used by others. Warrington Borough Council will consider all of the potential impacts of any MRF, including traffic impacts, as part of the decision process for identifying the best approach to providing the required MRF capacity.

### **5.5.2 Composting**

The existing green waste collection scheme collected 7,700 tonnes of material for composting in 2006/07. It is anticipated that this will only be expanded to new households with a garden within Warrington and that the level of material collected per household will increase, resulting in 10,500 tonnes by 2015.

### **5.5.3 Waste treatment**

The required capacity of the plant to treat Warrington's residual waste will be of the order of 50-60,000 tonnes per year.

As indicated above, the findings from the Strategic Environmental Assessment indicate that the use of an autoclave to treat the residual waste receives the highest score. However, the autoclave process has a very limited track record in processing MSW and consequently the costs are difficult to predict with any confidence. Additionally, the technology is not yet commercially proven in the UK. The scenarios that used an EfW facility to process the residual waste also received high scores, but there are other issues associated with these facilities, such as public perception regarding potential health impacts.

The rules and procedures for procuring a new waste disposal facility mean that Warrington Borough Council will need to specify the range of acceptable technologies and minimum performance requirements, in terms of, for example, the ability to meet the required landfill diversion targets, in ways that permit the submission of a minimum number of competitive tenders.

A key feature of the Local Development Planning process is the identification of possible sites for the construction of waste treatment facilities. The Council recognises that obtaining planning permission for a waste treatment facility may present a challenge. Some issues, such as traffic flow (both for delivery of material to the site and transport of both products to markets and reject streams to landfill) are likely to be similar for any type of plant, but there will also be different issues for different types of plants, such as emissions from a combustion facility, odour from compost plants, and visual impacts. The process for obtaining planning permission for any new waste treatment facility would include public consultation.

### **5.5.4 Landfill capacity**

There is currently at least 5 years of permitted landfill capacity (this is landfill capacity for which planning approval has been granted) in the Warrington area. Any new landfill sites or extensions to the use of currently operating sites will need to obtain planning permission.

Although implementation of the waste strategy will reduce the amount of waste which is landfilled, there will be a continuing need for landfill capacity in order to landfill any residual waste which is not treated, and also to landfill the reject stream from the waste treatment plant (the amount will vary depending on the type of treatment plant which is required).

With few exceptions, landfill sites that take municipal solid waste also take other types of waste such as that from commercial and industrial premises. The Landfill Directive will require all waste to be treated before it is landfilled, but recent guidance issued on this by the Environment Agency indicates that this requirement can be met by, for example, the continued operation of the existing recycling schemes (such as separate collection of office paper) that most companies operate. Thus, unless changes to Government policy (such as a ban on landfilling biodegradable wastes) require all suitable commercial and industrial waste to be treated in a similar manner to MSW, there is unlikely to be any noticeable reduction in the amount of these wastes which are land filled, and thus there is likely to be no noticeable increase in the expected lifetimes of the existing landfill sites located in the Warrington area.

### 5.6 Impact of the Waste Strategy on our Carbon Footprint

The term ‘carbon footprint’ denotes the total amount of Carbon Dioxide emitted throughout a process or in a product’s lifetime - from sourcing raw materials, to production, delivery, consumption and disposal. In the context of waste management, Warrington’s carbon footprint covers the emission of CO<sub>2</sub> in the generation, collection transportation, treatment and disposal of MSW, and the reduction in CO<sub>2</sub> effected by reuse and recycling of raw materials. Carbon dioxide has been identified as a proxy for quantifying the emission of greenhouse gases to atmosphere.

The most significant generator of greenhouse gases arising from waste management activities is the decomposition of biodegradable wastes in landfills, generating large quantities of landfill gas<sup>10</sup>. Emissions from landfills have been considered to account for 3% of all UK greenhouse gas emissions. Consequently, any measure (such as recycling) that reduces the amount of biodegradable waste that is landfilled will reduce the greenhouse gas emissions associated with waste management activities.

Recycling of materials saves the energy and emissions that would otherwise be required to extract raw materials. Current UK recycling of paper, glass, plastics, aluminium and steel is estimated to save more than 18 million tonnes of carbon dioxide a year through avoided primary material production (this is equivalent to annual use of 5 million cars or 14% of UK transport sector emissions). Table 6 shows the carbon benefits of diverting waste from landfill in term of the kg carbon dioxide saved per tonne of material recycled.

**Table 6: Savings in greenhouse gas emissions due to recycling**

<b>Material</b>	<b>Greenhouse gas (kg carbon dioxide equivalent) saved per tonne recycled<sup>11</sup></b>	
Paper	1,400	(50% saved because not landfilled, 50% saved due to recycling)
Kitchen waste	350	80% saved because not landfilling, 20% saved by composting
Garden waste	100	Saved because not landfilled
Plastic	1,000	Saved by recycling

<sup>10</sup> Landfill gas contains substantial proportions of both CO<sub>2</sub> and methane: the latter being more than 20 times more potent a greenhouse gas than CO<sub>2</sub>. Though most landfills are equipped with gas interception systems, and the collected gas is combusted (creating CO<sub>2</sub>) a significant proportion of landfill gas is not collected and is emitted to atmosphere.

<sup>11</sup> Source – England Waste Strategy 2007

Ferrous metal	1,300	Saved by recycling
Aluminium	11,000	Saved by recycling
Glass	600	Saved by recycling

Paper and kitchen/garden waste are biodegradable, and thus would produce greenhouse gases if they were landfilled. Thus the savings in carbon dioxide emissions due to recycling are due to both avoiding the need to landfill the waste and the savings achieved through recycling. Plastic, metals and glass are not biodegradable, and thus would not produce any methane if they were landfilled. Thus the savings in carbon dioxide emissions due to recycling all occur through recycling.

The amount of waste that is landfilled can also be reduced by treating waste that is not suitable for recycling in order to reduce its biodegradable content.

Table 7 shows the net greenhouse gas impacts (in terms of savings per tonne of waste diverted from landfill) of various energy-from-waste technologies. The figures include the impact of avoiding landfilling – i.e. they are the net carbon dioxide equivalent emissions that result from shifting waste from landfill into energy from waste technologies. They also include the carbon dioxide impacts of transporting waste to the facility, and the carbon dioxide impacts offset through avoiding alternative generation of electricity or heat.

**Table 7: Savings in carbon dioxide emissions due to residual waste treatment**

Treatment process	Greenhouse gas (kg carbon dioxide equivalent) saved per tonne treated <sup>12</sup>
Energy from waste (EfW)	232
Mechanical biological treatment (MBT) plant producing a refuse derived fuel	570
Anaerobic digestion (AD)	430
Gasification	524

The reductions for MBT, AD and gasification include materials separated for recycling, but markets for these may not be available.

Although the Government is not generally expressing a preference for one type of technology over another for recovering energy from waste, it does believe that any given technology is (where applicable) more beneficial if both heat and electricity can be recovered. Particular attention should therefore be given to the siting of plant to maximise opportunities for combined heat and power (CHP).

Waste management activities will also generate carbon dioxide emissions due to the transport activities required to collect and deliver waste and recyclables to suitable facilities. However, these transport impacts will have a minimal impact on carbon dioxide emissions when compared with the reduction in waste that is landfilled.

<sup>12</sup> Source – England Waste Strategy 2007

The overall impact of the England Waste Strategy 2007 is expected to be an annual net reduction in global greenhouse gas emissions from waste management of at least 9.3 million tonnes of carbon dioxide equivalent per year compared to 2006 (equivalent to the annual use of around 3 million cars). The additional greenhouse gas emissions reductions would result from an increase in diversion of waste from landfill. These benefits will be further boosted by significant extra greenhouse gas benefits from the waste prevention measures in the strategy.

Warrington Borough Council has already reduced the carbon footprint for its waste management activities by introducing recycling schemes. The additional measures contained in Warrington's waste strategy will result in a further reduction in the carbon footprint for waste management activities, but it will not be possible to fully estimate this reduction until the process for procuring the treatment plant has been completed (and thus the type of treatment plant is known). However, Warrington will be able to contribute to the national target for the overall reduction in carbon dioxide emissions arising from waste management activities.

## 5.7 Further consultation

Warrington Borough Council recognises the importance of consultation with all stakeholders, particularly members of the public, in order to take into account the wide range of views on the waste strategy. There will be a 12-week public consultation on this draft waste strategy, and on the draft Environmental Report produced as part of the strategic environmental assessment (SEA) on this draft waste strategy. The findings from the consultation will be used to produce the final Environmental Report, and this will then be used to produce the final version of Warrington Borough Council's strategy for managing MSW.

There will also be additional consultation with all stakeholders as part of the process for obtaining planning permission for any recycling, composting and residual waste treatment facilities that are needed in order to enable Warrington Borough Council to meet the aims and targets set by the waste strategy.

## 5.8 How we plan to keep this programme on track

The proposed timetable, which will enable Warrington Borough Council to meet its future targets, is as follows:

Year	Activity
2008/09	<ul style="list-style-type: none"> <li>• Start waste awareness programme</li> <li>• Commence new dry kerbside service</li> <li>• Begin procurement of MRF and residual waste treatment capacity</li> </ul>
2009/10	<ul style="list-style-type: none"> <li>• Continue waste awareness programme</li> <li>• Expand dry recycling collections</li> <li>• Monitor progress towards reaching 40% recycling target in 2010</li> </ul>
2010 to 2015	<ul style="list-style-type: none"> <li>• Continue waste awareness programme</li> <li>• Monitor progress towards reaching 55% recycling target by 2020</li> <li>• Complete procurement of facility for treating residual waste</li> </ul>

2015 onwards	<ul style="list-style-type: none"> <li>• Continue waste awareness programme</li> <li>• Monitor progress towards reaching 55% recycling target by 2020</li> </ul>
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In order to ensure that the strategy is implemented, there is clearly a need for all activities to be co-ordinated and monitored. Warrington Borough Council will, through its performance management system and service planning linked to the Cabinet and Scrutiny Committees, monitor waste management activities and ensure that the strategy is delivered.

There will also be a partnership framework with Officer, Political and other stakeholder Group structures, which will cover:

- Continuous monitoring of recycling rate, service performance and compliance.
- Establishing critical review points – recycling tonnage targets, procurement, planning (if needed), construction (if needed), and applying project management principles to ensure delivery.
- Contingency plans if treatment plant capacity is not available through negotiation with the waste disposal contractor.
- Effects of possible changes in legislation on the future waste strategy.
- Ensuring that “Best Value” is maintained.
- Introducing a system of management accountability.

The Council will also arrange for regular consultation with stakeholders as the strategy is implemented.

# **Appendices**

**APPENDIX 1 – Glossary of terms**

**APPENDIX 2 - Legal requirements and planning guidance**

**APPENDIX 3 – Roles and responsibilities**

**APPENDIX 4 - Options for treating residual waste**

**APPENDIX 5 – Sources of further information**

## **Appendix 1**

### **Glossary of terms**

## **Appendix 2**

### **Legal requirements and planning guidance**

## **Appendix 3**

### **Roles and responsibilities**

## **Appendix 4**

### **Options for treating residual waste**

## **Appendix 5**

### **Sources of further information**