

1. Introduction

North Lincolnshire Council has commissioned Mott MacDonald Ltd to produce a strategy for the management of solid wastes generated within the authority.

The North Lincolnshire Council area is situated on the southern bank of the river Humber. Occupying 85,000 hectares, the area is predominantly rural in nature with several urban centres the largest of which is Scunthorpe.

The area has a population of 161,000 occupying a total of 72,940 households. Steel manufacture and agriculture still dominate the local economy although logistics and chemical manufacturing are growth areas, located primarily on and around the south Humber bank. The previous extraction of aggregates and minerals has resulted in an abundance of landfill capacity. Out of an estimated total of 18 million cubic metres of consented void space within the Humber sub region 14 million cubic metres of this is located within North Lincolnshire.

As North Lincolnshire is a Unitary Local Authority it has to act as both the Waste Collection Authority (WCA) and the Waste Disposal Authority (WDA) for municipal solid waste (MSW) in North Lincolnshire. The Council is, therefore, responsible for collecting, recycling and disposing of MSW which mainly consists of waste produced by households. Other waste streams such as wastes from commercial and industrial premises, demolition and agricultural wastes, are handled mainly by private sector waste management companies.

Set against a background of a changing market and waste management technologies, constantly changing legislation and policy, greater emphasis on sustainability and treating waste as a resource, and the carbon agenda, the management of waste has come a long way in the last ten years or so. There has been a move away from large scale reliance on landfilling of waste. North Lincolnshire Council has substantially increased the recycling rate from just 7% in 1997/8 to a recycling rate in excess of 50% in 2010/11 as a result of recycling schemes that have been put in place. To further improve this is going to be more difficult because effective recycling measures are already in place and there are limited opportunities. However, despite these attempted interventions, the amount of household waste per capita produced in North Lincolnshire remains one of the highest in the country. Waste prevention is an important aspect of becoming less reliant on landfilling of waste, but it is a difficult area to tackle because it requires long term changes in behaviour.

North Lincolnshire Council now needs to focus on a strategy for a long term sustainable solution and to find the best way forward to manage the residual waste stream. The chosen residual waste treatment option will need to be deliverable, provide value for money and be environmentally sustainable. Going through a major procurement process for a new residual or organic waste treatment contract is demanding and can take several years to put in place. It is also a difficult task because the councils around North Lincolnshire are committed to their projects. This leaves North Lincolnshire Council isolated, with a comparatively small amount of waste, looking to procure a solution against a background of a competitive and rapidly changing market.

1.1 Development of the Municipal Waste Management Strategy

An earlier draft Municipal Waste Management Strategy (MWMS) for North Lincolnshire produced in 2002 outlined the development of additional recycling facilities and services. However, it did not consider options for management and disposal of waste not collected for recycling.

Subsequent to this, the MWMS that North Lincolnshire developed in 2008 identified residual waste treatment options and described the changes that would be necessary for the recycling service to meet the overall objectives of the Council.

This Strategy aims to complete the process of assessing the options available for residual waste treatment, using tools and information that were not available to the Council in 2008. Since then, the Council has conducted procurement projects for residual, organic and recycling collection services. This means there is a much greater knowledge base from which to assess the options as studies have been conducted on key topics such as: the costs of the various waste treatment technologies and their 'pitfalls', the markets for the output, and a range of other technical, legal and financial issues, all of which have been studied in depth in the last four years.

New tools that were not available in 2008, such as the Environment Agency's Waste and Resources Assessment Tool for the Environment (WRATE) life-cycle analysis tool, have been used in this strategy to assess the options available much more accurately than had been the case previously. This Strategy presents a detailed assessment of the options available using the life-cycle methodology, and this, together with a range of other decision-making tools, has informed the Council on which options to follow in the short, medium and long-term.

An Environmental Options Appraisal (EOA) has been prepared, which is based on the latest guidelines for Sustainable Environmental Assessments (SEA)¹, so that all of the key Environmental, Socio-Economic and Technical factors have been included in the appraisal. These factors will be an essential feature in the SEA document that is being prepared in parallel with this Strategy. Therefore, the Council is confident that the Strategy meets the sustainability needs of the wider community and minimises all associated impacts.

1.2 The purpose of this Waste Strategy

The objectives of North Lincolnshire's Municipal Waste Management Strategy have been developed over a number of years through a continuous process involving consultation with the Public and the Council's Members and Officers. They have been updated to reflect the changing demands on waste management system, and are:

- To develop a more sustainable system of waste management, promoting waste prevention in the first instance, encouraging re-use and recycling, and minimising the quantity of waste disposed of without recovering value from it;
- To ensure that "Value for Money" principles are applied, and to secure an economic, efficient and effective waste management service;
- To meet the challenging targets set by Government to recover value from waste and to move towards a 'zero waste' system by 2020.
- To meet the Council's need to reduce its carbon footprint.
- To work in partnership with others in the provision of the service, including government, other local authorities, private and community sectors; and
- To meet the increasing expectations of residents, and to seek to engage the wider community via the Council's Strategic Partnership arrangements.

This new Municipal Waste Management Strategy

¹ SEAs are a statutory requirement for all key planning documents, including the Council's Waste Management Strategy, and must be completed before this document can be officially adopted by the council.

- Outlines the legal and policy requirements that the Council will need to meet;
- Describes the waste management services that are currently provided;
- Describes what the Council needs to do;
- Evaluates technical options; and
- Sets out an Action Plan to implement the changes required.

It is important to note that whilst new legislation will require improvements in the management of all waste streams, the Council is only responsible for the collection of what until recently has been defined as Local Authority Collected Municipal Waste (LACMW) and Local Authority Collected Waste (LACW).

<http://www.defra.gov.uk/statistics/environment/waste/la-definition/>

2. Legal Requirements and Guidance

This section provides a review of current legislation and the changes that have taken place with respect to waste management legislation and policies since the Municipal Waste Management Strategy was developed by the Council in June 2008.

European Union (EU) waste policy and legislation determines, to a very significant degree, the measures that impact on the management of wastes in the UK. These measures are either transposed through legislation, or incorporated into waste management policy.

Waste management policy and practice has continued to evolve at a European, national and regional level and Government policy and legislation. These are driving change in a way that requires increased diversion of waste from landfill, increased focus on minimising the environmental impact of waste related activities by reducing the overall impacts of resource use and improving the efficiency of such use and meeting recycling targets. The Government's policy is based on the concept of resource efficiency and the principles of sustainable development and the waste management hierarchy (i.e. waste prevention, followed by re-use, recycling and recovery before disposal).

Information on the relevant legislation and policies that North Lincolnshire Council's Waste Strategy has to consider are detailed below and in Appendix B.

2.1 European waste policy and legislation

The following legislation was discussed in the Waste Management Strategy:

- Waste Framework Directive;
- Landfill Directive;
- Directive on Packaging and Packaging Waste;
- End of Life Vehicles Directive;
- Waste Incineration Directive;
- Waste Electrical and Electronic Equipment Directive;
- Directive on Batteries; and
- Ozone Depleting Substances Regulation.

The changes to the legislation since the development of the Municipal Waste Management Strategy that might have an effect on the Council are discussed below.

2.1.1 Waste Framework Directive

The Waste Framework Directive (2008/98/EC) repealed the previous Framework Directive on Waste (75/442/EEC) and the Waste Directive (2006/12/EC) and entered into force on 12th December 2008. The aim of the revised WFD is to promote waste prevention, increase recycling and ensure better use of resources, whilst protecting human health and the environment. The waste hierarchy is placed at the heart of waste management.

The revised Directive seeks to increase the use of waste as a resource (e.g. for fuel) and to place greater emphasis on the prevention and recycling of waste, while protecting human health and the environment. It includes a new waste hierarchy which differs from the existing hierarchy in how it defines re-use of materials and in how it distinguishes between recycling and other recovery.

The revised WFD now specifies that incineration facilities dedicated to the processing of MSW can be classified as R1 (recovery operation used principally as a fuel or other means to generate energy) only where their energy efficiency is equal to or above:

- 0.60 – for installations in operation and permitted in accordance with applicable community legislation before 1 January 2009
- 0.65 – for installations permitted after 31 December 2008.

Whilst the Commission says the guidelines are not legally binding, it will provide a level playing field in the application of the energy efficiency thresholds for municipal waste incinerators and the R1 formula will facilitate Energy from Waste (EfW) moving up the waste hierarchy.

2.1.1.1 EC Regulation on End of Waste

The European Union (EU) Regulation 333/2011 on End of Waste came into effect on 9th October 2011 which establishes criteria determining when certain types of scrap metal cease to be waste under the revised WFD. This will result in some changes to the producer responsibility regime for packaging. It may also lead to permitting changes e.g. for the storage of processed ferrous scrap, and will allow the materials covered to be exported as non-waste. The EU is likely to issue regulations on other waste streams in the future. The national end of waste criteria for England and Wales are set out in Quality Protocols.

2.1.1.2 Waste (England and Wales) Regulations

The revised WFD has now been implemented by the Waste (England and Wales) Regulations 2011 which came into force on 29th March 2011. The Regulations also include amendments to the Hazardous Waste Regulations 2005 and amends the Environmental Permitting Regulations 2010.

The changes:

- Require businesses to confirm that they have applied the waste management hierarchy (i.e. prevention; preparing for re-use; recycling; other recovery; and disposal) when transferring waste and to include a declaration on their waste transfer note or consignment note. The waste hierarchy is partly implemented through the amended Duty of Care requirements from 28th September 2011 and Governments will provide guidance on this within the new Code of Practice. The waste transfer note must now also include the 2007 Standard Industrial Classification (SIC) code of the person transferring the waste. However, the 2003 SIC codes should still be used on hazardous waste consignment notes;
- Will apply the new waste hierarchy through a new permit condition for waste facilities and where appropriate a condition relating to mixing of hazardous waste. Applying the waste management hierarchy will be a condition of new environmental permits and will be added to existing permits when they are reviewed;
- Introduce a two-tier system for waste carrier and broker registration, which includes those who carry their own waste, and introduces a new concept of a waste dealer;
- Make amendments to hazardous waste controls and definition which means that some non-hazardous wastes may now be reclassified as hazardous wastes;
- Exclude some categories of waste from waste controls, notably animal by-products, pet crematoria with a capacity of less than 50kg/hour and most radioactive wastes, as these are controlled by other legislation;
- Require production of National Waste Management Plan by Spring 2013; and
- Require the separate collection of waste paper, metal, plastic and glass from 1 January 2015.

In relation to the collection of waste, the Department for the Environment, Food and Rural Affairs (Defra) interpreted the meaning of separate collection under the revised WFD to include co-mingling whereby materials are collected together and separated at a later point. A Judicial Review has been brought by the Campaign for Real Recycling (CRR) who challenged Defra with this interpretation. The Judicial Review has now been delayed until 13th June 2012 as Defra and the Welsh Government wish to re-word Regulation 13 of the Waste Regulations. In the original regulations, co-mingled collections could count as 'separate' but this clause has now been removed and only separate collections will count. However, this is only where separate collections are 'technically, economically or environmentally practicable (TEEP)' or necessary to meet quality standards.²

2.1.2 Landfill Directive

The Landfill Directive's (1999/31/EC) aim is to reduce, as far as possible, the negative effects and pollution potential of landfill sites. In England and Wales the Directive was transposed into domestic legislation through The Landfill (England and Wales) Regulations 2002.

The Landfill Regulations 2002 and amendments were replaced by the Environmental Permitting (England and Wales) Regulations 2007. These Regulations have since been further revoked by the Environmental Permitting (England and Wales) Regulations 2010, which, in England and Wales, now implement the Landfill Directive and Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills. The Environmental Permitting Regulations 2010, Regulation 35(2)(d), implement the requirements of the Landfill Directive through Schedule 10.

In March 2011, the EU announced that it intends to propose a phase-out of biodegradable waste going to landfill in 2020-2025 as part of a revision of the 1999 Landfill Directive. At present, the most challenging target set under the Directive requires the UK to reduce the amount of biodegradable waste it sends to landfill to 35% of 1995 levels by 2020. It will not be an outright ban in the first instance. As the UK had four extra years to meet the Landfill Directive targets due to its historic reliance on landfill, any targets put in place for 2020-25 for the UK are likely to fall four years later in 2024-2029. It is expected to be several years before any legislative changes are made.

2.1.2.1 Waste and Emissions Trading Act and Landfill Allowances and Trading Scheme

The Government has implemented the requirements for the landfilling of biodegradable waste through the Waste and Emissions Trading Act 2003 (WET Act). In October 2011, this was amended by the Waste and Emissions Trading Act 2003 (Amendment) Regulations 2011 (2011 No.2499) which also makes amendments to the Landfill Allowances and Trading Scheme (England) Regulations 2004 (LATS) and the Joint Waste Authorities (Proposals) Regulations 2009 to reflect a new interpretation of the term 'municipal waste'.

The WET Act sets out a definition of the term 'municipal waste' based on the Landfill Directive (1999/31/EC). The UK's interpretation of 'municipal waste' has been widened to include more commercial waste collected by the private sector (see Appendix B.1). The revised WET Act introduces a new term for the category of waste that continues to be covered by the landfill allowance scheme, local authority collected municipal waste (LACMW), in order to distinguish it from the broader term, 'municipal waste'. The legislation also introduces the new term into the appropriate places in the LATS and the Joint Waste

² <http://www.letsrecycle.com/news/latest-news/councils/councils-2018could-face-commingled-legal-challenges2019>

Authorities (Proposals) Regulations. The legislation also removes the provisions allowing supplementary penalties to be applied to WDAs in England (these previously had the effect of allowing an EU infraction fine for failing to meet Landfill Directive targets to be passed on to WDAs exceeding their allowances).

Whilst LATS is to be abolished from 2012/13 (see Appendix B.2), the UK Government is still required to meet the EU landfill diversion targets and will use economic measures such as landfill tax to dissuade the use of landfill. North Lincolnshire Council's waste management priority will still be to decrease its reliance on landfilling of waste.

2.1.3 Directive on Packaging and Packaging Waste

In 2004, the Directive on Packaging and Packaging Waste (94/62/EEC) was reviewed to provide criteria clarifying the definition of the term 'packaging' and increased the targets for recovery and recycling of packaging waste. In 2005, the Directive was revised again to allow new Member States transitional periods for attaining the recovery and recycling targets. There does not appear to be any changes to the target to recover 60% of all packaging waste by 31st December 2008 (and must, thereafter, continue to ensure that at least this level of recovery and recycling is sustained) or recycling targets for specific materials, which include a 60% recycling target for both glass and paper/board. However, a new Packaging Directive is expected from 2014, which is likely to increase these targets and it will be expected that the packaging collected in North Lincolnshire for recycling and recovery will contribute towards meeting the UK's targets.

2.1.3.1 Producer Responsibility Obligations (Packaging Waste) Regulations

The Directive is implemented in the UK by the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 SI 871 which requires producers to recover and recycle packaging waste to achieve EU targets. This was amended by the Producer Responsibility Obligations (Packaging Waste) (Amendment No.2) Regulations 2008 and further amended by the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations 2010 SI 2849. These amendments included the establishment of waste recovery and recycling targets for 2011 and 2012, as the original regulations only had targets until 2010, together with other technical changes. The regulations set out a recovery target for the years 2010 to 2012 of 74% and introduce recycling targets for specific materials such as an 81% target for glass and paper/board of 69.5%.

2.1.4 End of Life Vehicles Directive

The End of Life Vehicles Directive (2000/53/EC) was amended by Directive 2008/33/EC with technical changes including the requirement that Member States have in place a Certificate of Destruction (CoD) system as part of the vehicle registration/de-registration process.

2.1.4.1 End of Life Vehicles Regulations

The End of Life Vehicles Regulations 2003 SI 2635 implements the Directive and requires vehicle producers to set up collection, treatment and disposal systems to make sure that components in vehicles can be recovered, reused and recycled at the end of their life. The End of Life Vehicles (Amendment) Regulations 2010 SI 1094 amends 2003/2635 by changing the basis on which exemptions from the restrictions on use of heavy metals in vehicle components are identified. It also provides powers of entry and inspection for the enforcement authorities. In order to transpose the Directive, improved environmental standards for vehicle dismantlers have been introduced in the UK. These include new site standards,

requirements to de-pollute vehicles at the start of the treatment process and increased recovery/recycling targets of 85% (by 2006) and 95% (by 2015).

An appointed vehicle recovery agent recovers abandoned vehicles (and untaxed vehicles) on behalf of North Lincolnshire Council.

2.1.5 Waste Incineration Directive

The Waste Incineration Directive (2000/76/EC) aims to limit the risks that waste incineration poses to the environment and human health and is implemented through the Environmental Permitting Regulations (England and Wales) 2010 which replaced the 2007 Regulations. In 2007, the Regulations combined the Pollution Prevention and Control (PPC) and Waste Management Licensing (WML) regulations. Their scope has since been widened to include water discharge and groundwater activities, radioactive substances and provision for a number of Directives, including the Mining Waste Directive.

Thermal treatment facilities would require a bespoke permit under the Environmental Permitting Regulations.

2.1.6 Waste Electrical and Electronic Equipment Directive

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) aims to reduce the quantity of waste from electrical and electronic equipment and increase its re-use, recovery and recycling.

A re-cast of the WEEE Directive is anticipated and, if approved, new regulations governing WEEE could come into force in Member States by January 2014. The new targets agreed in the European Parliament will require member states to increase their WEEE collection rates above the current target of 4kg per person. As of 2016, 45% of WEEE will need to be collected in the three preceding years. These targets will then rise further in 2019 to a rate of 65%. This equates to about 20kg per capita separately collected in 2020.

Parliament has also confirmed proposals for a retailer take-back scheme whereby consumers can take small WEEE items to an electrical retailer free of charge, without having to purchase a new product. This scheme will apply to retailers of electrical goods with a shop space of 400 sq metres or larger. MEPs also agreed on tougher restrictions on the illegal export of WEEE to prevent waste electrical items from being processed in countries where conditions are hazardous to workers and the environment. It will now be the responsibility of exporters to prove that goods are being shipped abroad for repair or reuse. Some Member States will be able to derogate from these targets, where this is justified through the lack of necessary infrastructure or low levels of electrical and electronic equipment (WEEE) consumption.

2.1.6.1 Waste Electrical and Electronic Equipment Regulations

The Directive has been implemented in the UK through the Waste Electrical and Electronic Equipment Regulations 2006 SI 3289, which aims to reduce the amount of WEEE sent to landfill. The Regulations require producers of electrical and electronic equipment to register and cover the costs of collecting, treating, recovering and disposing of equipment when it reaches the end of its life. The Regulations have since been amended several times, namely:

- WEEE (Amendment) Regulations 2007 SI 3454: amends 2006/3289 to encourage prioritising re-use of whole appliances in the WEEE system;

- WEEE (Amendment) Regulations 2009 SI 2957: amends 2006/3289 by improving the Producer Compliance Scheme approval process and reducing the administrative burden on business by simplifying the data reporting requirements and the evidence system;
- WEEE (Amendment)(No2) Regulations 2009 SI 3216: corrects a defect in 2009/2957 by requiring producers of electrical and electronic equipment for domestic use to report details quarterly and annually for all other EEE; and
- WEEE (Amendment) Regulations 2010 SI 1155: amends 2006/3289 replacing 'dangerous substance or mixture' and (as from 1 Dec 2010 and 1 June 2015) substitutes new definitions of 'dangerous substance or mixture'.

North Lincolnshire Council provides facilities for collecting these items at the Household Recycling Centre (HRC) and also collects small domestic appliances from the kerbside as detailed in Section 3.4.9. Whilst the Council's collection rate for WEEE is above the current EU Directive targets, any revised targets agreed in the European Parliament will have to be implemented in the UK Regulations which will have an effect on the Council collecting WEEE.

2.1.7 Directive on Batteries

The Batteries Directive (2006/66/EC) aims to reduce the environmental impact of the manufacture, distribution, use and disposal and recovery of batteries.

The Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators was amended by Directive 2008/103/EC whereby Member States shall take the necessary measures to ensure that batteries or accumulators which do not meet the requirements of this Directive are not placed on the market after 26 September 2008. Member States were required to implement this by 5 January 2009.

The Directive aims to increase the level of waste portable battery recycling by requiring Member States to collect at least 25% of waste portable batteries by 2012 for recycling, increasing to 45% by 2016. Waste portable batteries are not normally classified as hazardous waste (unless mixed), but industrial and automotive batteries are. Consequently, the Directive establishes a ban on the disposal of waste industrial and automotive batteries by landfill or incineration. In effect, creating a 100% separate collection and recycling target for these types of waste batteries.

2.1.7.1 Waste Batteries and Accumulators Regulations

The Batteries Directive is implemented in England, Northern Ireland and Wales by the Waste Batteries and Accumulators Regulations 2009 SI 890 which establishes a legal framework and schemes for collecting, treating and recycling portable, industrial and vehicle batteries. The Regulations apply to all types of batteries except when used for military and space equipment.

Most producers of portable batteries will finance collection and recycling of waste portable batteries by joining a Battery Compliance Scheme (BCS). The BCS will take on responsibility for meeting the Directive's targets on behalf of its members. Distributors of portable batteries are required to collect waste portable batteries in store and have a right to call on BCSs to ensure pick up of those batteries. BCSs will also be required to accept waste batteries for recycling from competent public authorities and economic operators. Small producers and distributors have exemptions from some or all of the regulations requirements. Finally, the instrument provides that the treatment and recycling of waste batteries meet standards set out in the Directive.

Facilities for collecting batteries are provided at the Council's HRC and household portable batteries are recovered at the kerbside as part of the existing recycling scheme.

2.1.8 Ozone Depleting Substances

The EU Ozone Depleting Substances (ODS) Regulation (EC) No. 1005/2009 (EU ODS Regulation) was introduced in January 2010 and replaced the previous Regulations (Regulation 2037/2000). The Regulation is aimed at phasing out the use of ozone depleting chemicals and controls the production, import, export, placing on the market, recovery, recycling, reclamation and destruction of substances that deplete the ozone layer. In particular, the EU ODS Regulation concerns the control of emissions from refrigeration systems, air-conditioning units, fire-protection systems and heat pumps. Annex VI of this Regulation has been amended by Commission Regulation 744/2010 with regard to critical use of halons which came into force in September 2010.

2.1.8.1 Environmental Protection (Controls on Ozone-Depleting Substances)

In Great Britain the Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011 (SI 2011/1543), implement the EU regulation and prescribe offences and penalties applicable to infringements of the regulation. This applies to England, Wales, Scotland and Northern Ireland (relating only to importation and exportation in Northern Ireland). The previous legislation, the Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2002 and the Environmental Protection (Controls on Ozone-Depleting Substances) (Amendment) Regulations 2008 is to be revoked. The Ozone-Depleting Substances (Qualifications) Regulations 2009 (SI 2009/216), which apply to England, Wales and Scotland provide for minimum qualifications for those working on the recovery, recycling, reclamation or destruction of ODS and the prevention and minimising of leakages of ODS.

North Lincolnshire Council provides facilities for the collection of refrigerators and freezers at the HRC. These are sent to a suitable facility which separates out the ozone depleting substances, the remaining materials are then sent for recycling.

2.2 UK waste policy and legislation

The following legislation was discussed in the Municipal Waste Management Strategy 2008:

- The Finance Act and the Landfill Tax Regulations;
- Waste Minimisation Act;
- Animal By-Products Order and Regulations;
- Household Waste Recycling Act; and
- National Performance Indicators.

The changes to the legislation since the development of the Municipal Waste Management Strategy that might have an effect on the Council are discussed below.

2.2.1 The Finance Act and Landfill Tax Regulations

The Finance Act 1996 contains the primary law on the tax and provides for secondary legislation, which generally deals with the more detailed implementation of the tax i.e. the Landfill Tax Regulations 1996, which cover details of registration procedures, credits, accounting and the environmental trusts provisions.

Landfill Tax affects all materials collected and sent to landfill. Subsequent Chancellor's Budgets have increased this tax and in 2007 proposals were made to introduce the landfill tax escalator. This meant increases of £8 per tonne each year on active wastes. Since 1996 there have been many amendments to the Landfill Tax Regulations 1996 up to the Landfill Tax (Amendment) Regulations 2011 which came into force 1st April 2011.

The Finance Act 2011 updated the standard rate of landfill tax to £64 in 2012/13. It will then rise to £72 in 2013/14 and £80 in 2014/15. The UK Government has confirmed that the standard landfill tax rate will not fall below £80/tonne in future. There was also a freeze in the lower rate (£2.50 per tonne) of landfill tax in 2011/12 and the list of wastes that qualify for the lower rate of landfill tax will remain broadly the same as present.

This increasing tax burden is seen as the Government's way of incentivising councils to move away from the use of landfill as a method of residual waste management and increases the budgetary impact on councils continuing to use landfill as a final outlet for their residual waste.

One of the main aims of this Strategy is to set out how the Council intends to further reduce its reliance on landfill and therefore reduce landfill tax costs.

2.2.2 Waste Minimisation Act

This Act allows local authorities to promote waste reduction schemes and campaigns, whilst supporting other legislation enabling local authorities to determine the form of collection of waste and the receptacles in which it is collected. The Act's main priority is to give powers to local authorities, both WCAs and WDAs, to take steps to minimise the generation of waste (household, commercial and industrial).

North Lincolnshire Council has a waste minimisation programme e.g. provision of home composting units to households. In order to support its waste minimisation programme, the Council has adopted measures that include alternate weekly collections, the non-collection of excess or side waste and a 'flat lid' policy. The Council has also introduced differential charging for new and replacement residual waste bins. This provides households with the opportunity to 'downsize' their standard 240 litre capacity residual waste container, free of charge, for a smaller 140 litre version. Since April 2008, all new occupiers of homes, both existing and new-build, have been issued with a 140 litre residual waste container as standard. In addition to this, tailored collections allow residents to trade residual waste capacity for additional recycling capacity, a scheme which has won national recognition and which will be further promoted in the future.

The Council actively promotes the national "Love Food, Hate Waste" campaign and has representation on a Regional Waste Prevention Programme supported by most local authorities within Yorkshire and the Humber.

2.2.3 Animal By-Products Order and Regulations

Animal By-Products (ABPs) comprise animal carcasses, parts of carcasses, or products of animal origin not intended for human consumption e.g. meat, fish, milk and eggs, and other products of animal origin including blood, hides, feathers, wool, bones, horns and hoofs. They can present a risk to human and animal health if not used or disposed of safely.

The EU Animal By-Products Regulation 1069/2009 and EU Implementing Regulation 142/2011, which entered into force on 4th March 2011, sets out the rules on use and disposal of ABPs. The Regulations

control the use of ABPs when used as feed (including pet food), as fertilisers, or as technical products, in composting or anaerobic digestion, and on disposal by rendering and incineration. The rules also prevent catering waste being fed to livestock.

On 23rd March 2011 the Animal By-Products (Enforcement) (England) Regulations No.2011/881 came into force. Similar legislation applies in the rest of the UK. The Regulations include some derogations from the EU rules.

Historically, North Lincolnshire Council carried out co-mingled collection of green waste plus fruit and vegetable peelings. However, this service has been discontinued as a result of concerns regarding the ABPR regulations. Collections have been modified so that green waste is now collected separately, whilst the whole of the food waste is collected as part of the household residual waste stream.

2.2.4 Household Waste Recycling Act

The Household Waste Recycling Act 2003 requires local authorities in England to collect at least two separate recyclable fractions of household waste by 2010. A guidance document was published in April 2005.

The introduction of the new recycling schemes, as detailed in Section 3.4, means that North Lincolnshire Council has met this requirement.

2.2.5 National Performance Indicators

The “best value” performance indicators for recycling and waste were replaced in April 2008 by three National Indicators:

- NI 191: Residual household waste per household – Waste collected, minus material sent for recycling, composting or re-use;
- NI 192: Household waste recycled and composted – Material sent for re-use, reprocessing or controlled biological decomposition; and
- NI 193: Municipal waste landfilled – Collected municipal waste sent to landfill, including recycling rejects.

The National Indicator Set of measures against which local areas and local authorities were previously judged by inspectorates and government came to an end at the end of March 2011. The ending of the old performance framework allows councils working with partner agencies, the public and private, voluntary and community sectors to identify improvement priorities that matter most locally. Local agencies are also free to choose and use a wider range of local measures and targets to report and demonstrate progress to the public and other stakeholders on these priorities and more general service performance issues.

The National Indicator Set is being replaced by a single comprehensive list of all the data returns central government expects local government to provide. The single data list is a catalogue of all the datasets that local government must submit to central government in a given year. The National Indicator Set was set up to aid the performance management of local authorities by central government and consisted of processed indicators rather than pure data. The single data list is simply a catalogue of all government’s data requirements from local government. It has been assembled to aid transparency rather than to manage performance of local councils and facilitates the control of the volume of data central government asks of local government. However, some datasets collected to calculate National Indicators remain required

where they are judged sufficiently valuable at a national level. Councils will not have to provide anything that is not on the list, unless extra funding is provided. The list for 2011/12 included a requirement for the Council to report their data into WasteDataFlow. The list for 2012/13 is currently being developed (as of March 2012).

In relation to recycling targets, the UK as a whole, still has a target for this that falls under the requirements of the revised WFD. This target requires the UK to re-use and recycle 50% (by weight) of waste (at least paper, metal, plastic and glass) from households by 2020. WasteDataFlow will be the system which is used to collate and report performance on this UK target to Europe.

2.3 Recent changes to waste management legislation and policy

The following sections set out other legislation and policies that have come into effect since the Municipal Waste Management Strategy 2008 was developed.

2.3.1 Government Review of Waste Policy in England

The Government Review of Waste Policy in England 2011 is a review of waste policies in England. The aim is to move towards a 'zero waste economy' between 2012 and 2020' through Defra's Structural Reform Plan. The idea of waste as a resource underpins the results of the review.

The approach in the waste strategy revision is based upon a national approach to targets through market drivers rather than the more interventionist approach at a local level which previously existed. One of the most significant aspects of the Government review of waste policy was the abolition of the LATS, which will end after the 2012/13 scheme year. The rationale is to use the landfill tax escalator to drive waste away from landfill in a broader sense, rather than just focusing on household waste, in line with the revised definition of municipal waste that is being adopted (i.e. interpretation of municipal waste was revised in 2010 to include a much greater proportion of commercial and industrial waste collected by the private sector).

This review of waste policy in England identified that LATS had been effective in kick starting significant efforts to divert waste away from landfill, but the rising level of landfill tax (with increases maintained towards a floor of £80 per tonne in 2014/15) means it is now, by far, the more significant driver and LATS is no longer considered an effective tool to ensure delivery of the EU landfill targets. The Government believes that England is on target to meet the target to recycle 50% of waste from households by 2020 and remains on course to meet the 2013 Landfill Directive Target. They have the confidence that based on reasonable assumptions England will meet its share of the UK's 2020 target. The review stated that LATS only addresses the local authority proportion of municipal waste and does not act on the commercial waste element managed by the private sector. Therefore, the scheme is no longer considered to be the most appropriate means of ensuring that England meets its share of the UK Landfill Diversion targets³. In fact, the scheme is regularly identified as a barrier to local authorities providing enhanced services to small businesses by collecting and treating household and business materials together, and it is thought by ending LATS at the end of the 2012/13 year, this barrier will be removed. The landfill tax will remain the key

³ Consultation currently out on the proposed policy statement for Part 2 of the Localism Act 2011. Part 2 introduces a discretionary power for a Minister of the Crown to require a public authority to pay some, or all, of a European Court of Justice financial sanction where the public authority has demonstrably caused or contributed to that sanction. The expectation is that, through the use of the provisions in the Act to incentivise compliance by public authorities, the risk of financial sanctions being allocated to the UK (and therefore the risk to public authorities) will be significantly reduced.

driver to divert waste from landfill and remains necessary to ensure key EU targets in 2013 and 2020 are met.

The review also stated that with existing measures in place and new actions which will drive waste up the hierarchy, it is likely that some waste will end up in landfill that could be put to better use and which may warrant the introduction of additional legislative tools such as landfill bans or restrictions, to ultimately achieve the Government's aim. In 2012, the Government will consult on introducing a restriction on the landfilling of wood waste, with the aim of diverting the still substantial tonnages that end up in landfill to better uses up the waste hierarchy. They will also review the case for restrictions on sending other materials to landfill over the course of the Parliament, including looking specifically at metals, textiles and biodegradable waste.

Within the review a greater emphasis is being placed upon the role of waste derived fuels such as solid recovered fuel/refuse derived fuel (SRF/RDF) and the market for these is to be encouraged, particularly with respect to the Renewable Heat Incentive (RHI). Overall the production of SRF/RDF is being regarded as 'other recovery' rather than disposal in the waste hierarchy and has therefore effectively moved higher up the waste hierarchy.

Another area that was identified for review was the WasteDataFlow system and the burden of data entry placed on local authorities. Weight-based measures of performance will still be necessary for some purposes, but impacts of waste management are increasingly considered in carbon terms as a more accurate measure of environmental impact than weight. The Government intend to promote the use of a carbon metric reporting tool for use by Defra and local authorities to measure and report on waste management. It is recognised that tools exist already and the intention is to build on this, possibly linking carbon reporting into the WasteDataFlow system.

Other priorities are to:

- Accelerate recycling and reducing waste creation in the first place by providing incentives for householders, "recycling on the go" schemes, better services for businesses and voluntary responsibility deals focussing on the hospitality industry, paper, direct mail, textiles and construction waste. This includes Defra launching a £500,000 funding pot (Waste Prevention Fund) which will support businesses, social enterprises and councils in undertaking waste prevention activities;
- Scrap unfair bin fines and taxes while bringing in powers to deal with repeat fly-tipping offenders and genuine nuisance neighbours;
- Crack down on illegal fly-tippers who persistently and recklessly pollute the environment and countryside, including introducing appropriate powers to seize vehicles and penalties that might include offenders clearing up items they have dumped; and
- Consult on increased recycling targets to 2017 for plastic, steel, aluminium and glass.

The Government will publish a follow up zero-waste action on waste prevention (Waste Prevention Plan) in December 2013 to check progress and address further developments under any new EU regulation.

Alongside the review of waste policy, the Anaerobic Digestion (AD) Strategy and Action Plan was published and a £10m loan fund to stimulate a strong growth in AD is to be administered by WRAP.

It is noteworthy that the review of waste policy did not introduce targets above the 50% household waste recycling goal by 2020. However, targets set by the devolved administrations are higher with both Wales and Scotland aiming for a 70% recycling rate by 2025 and Northern Ireland considering setting a 60% goal

for 2020. It may be that in the future, England follows the lead of the devolved administrations and increases the recycling target, which will obviously affect North Lincolnshire Council.

2.3.1.1 Bin fines

The intention to reduce penalties for incorrectly putting out household waste for collection was set out in the review of waste policy. There are proposals whereby Councils will no longer be able to impose 'bin fines' of up to £1,000 on households that overfill their bins or accidentally leave their rubbish out on the wrong day.

The Government is proposing to amend Section 46 of the Environmental Protection Act 1990 which sets out the penalties which local authorities may apply to householders who present their waste incorrectly for collection. These amendments will abolish the criminal offence currently provided for in Section 46 and a new civil sanction will be put in place instead. Local authorities will continue to be able to issue fixed penalties, but only if they can prove that a household is causing harm to local amenity by putting out their rubbish in the wrong way. These penalties will also be reduced to £60-80, so they are more proportionate with other offences such as parking fines and shoplifting. The changes will mean that Councils will still be able to take action against people who cause problems for their neighbours or the environment by not managing their rubbish properly, without the same threat applying to people that make innocent mistakes.

2.4 Waste planning

The following planning policy documents and guidance will have an impact on planning for future waste management facilities in North Lincolnshire.

2.4.1 National Planning Policies

2.4.1.1 Planning Policy Guidance and Planning Policy Statements

Planning Policy Guidance (PPG) notes and their replacement Planning Policy Statements (PPS) are prepared by the Government following public consultation to explain statutory provisions and provide guidance to local authorities and others on planning policy and operation of the planning system. With immediate effect from 27th March 2012, the system of PPGs and PPSs has been revoked to be replaced by a new National Planning Policy Framework (NPPF). In respect of waste, however, this was excluded from NPPF as there will be new waste guidance in due course as part of the National Waste Management Plan for England. PPS10 remains in force for the time being, however local authorities preparing waste plans and taking decisions on waste applications should have regard to policies in NPPF so far as relevant.

Planning Policy Statement 10: Planning for Sustainable Waste Management (Published March 2005 and amended March 2011) (PPS10)

The overall objective of Government policy on waste set out in the strategy for sustainable development (Securing the Future) (updated March 2005) is to protect human health and the environment by producing less waste and by using it as a resource wherever possible. The Department for Communities and Local Government (DCLG) advised all local authorities in March 2011 of an update to PPS10 to ensure that it incorporates the new waste hierarchy set out in the revised WFD. The changes to PPS10 ensured that local authorities have regard to the waste hierarchy in the preparation of their waste plans; and that hierarchy is capable of being a material consideration in determining individual planning applications.

2.4.1.2 National Planning Policy Framework

The draft National Planning Policy Framework was published for consultation in late 2011. This proposed to greatly simplify the guidance that was in existence from over 1000 pages to 52 pages. The shift in emphasis towards a presumption in favour of sustainable development with special protection given to areas of environmental designations was criticised by many as favouring growth at the expense of environmental protection. The final version has alleviated these concerns to some extent by reintroducing the presumption favouring brownfield development, an improved definition of sustainable development and there is greater emphasis on good quality design.

The final version has to be read as a whole to fully interpret and apply NPPF. Principal paragraphs of relevance to development generally include:

- Paragraph 5 of the new NPPF, which states the principles of the NPPF should be applied in Local Planning Authority decisions on planning applications.
- Paragraph 12 requires the status of the development plan to remain as at present. It states that proposed development that accords with an up to date Local Plan should be approved and that proposed development that conflicts should be refused, unless other material considerations indicate otherwise.

It is highly desirable that planning authorities should have an up to date plan in place.

NPPF notes that where the development plan is absent, silent or relevant policies are out of date, permission should be granted unless there are adverse impacts that are significant and demonstrably outweigh the benefits when assessed against the policies in the whole NPPF, or where specific policies in NPPF indicate development should be restricted.

In addition, it should be noted that Circular 5/05 concerning Planning Obligations has been cancelled although NPPF still refers to the tests to be applied.

NPPF now states that the Local Plan is the plan for future development of the local area drawn up by the local planning authority in consultation with the community. In law, this is described as the development plan documents adopted under the Planning and Compulsory Purchase Act 2004. Current core strategies or other planning policies, which under the regulations would be considered to be development plan documents, form part of the Local Plan. The term includes old policies which have been saved under the 2004 Act.

NPPF states also,

“For 12 months from the day of publication, decision-takers may continue to give full weight to relevant policies adopted since 2004³⁹ even if there is a limited degree of conflict with this Framework. In other cases and following this 12-month period, due weight should be given to relevant policies in existing plans according to their degree of consistency with this framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given).

From the day of publication, decision-takers may also give weight to relevant policies in emerging plans according to:

- *the stage of preparation of the emerging plan (the more advanced the preparation, the greater the weight that may be given);*
- *the extent to which there are unresolved objections to relevant policies (the less significant the unresolved objections, the greater the weight that may be given); and*
- *the degree of consistency of the relevant policies in the emerging plan to the policies in this Framework (the closer the policies in the emerging plan to the policies in the Framework, the greater the weight that may be given.)*

What this should mean for the Council, as far as waste planning is concerned, is that it should be made easier to gain planning permission for waste treatment plants as long as these are sensibly sited, are of innovative good quality design and whose significant adverse impacts are not outweighed by their benefits. A key aspect of this document is the provision that development should be on previously developed land (brown field sites), where possible.

It is likely that this will follow similar lines to the general guidance with emphasis on anaerobic digestion technologies, and measures to encourage the adoption of energy generating technologies, both of which are favoured by the current government.

2.4.2 Regional Planning Policies

Since the new Coalition Government in 2010, there have been changes to the planning policy system, which includes the introduction of The Localism Bill to Parliament on 13th December 2010. It was given Royal Assent on 15th November 2011 but some provisions are to be implemented over the next few months and there is some uncertainty as to the detailed arrangements. This legislation is aimed at shifting power from central government back into the hands of individuals, communities and councils. One of the main changes to the planning policies is the abolition of the Regional Spatial Strategies effective from the 1st April 2012.

The extant regional planning policy document is Yorkshire and Humber Regional Spatial Strategy (RSS) adopted May 2008, and this will remain a material consideration in policy plan making and during the determination of planning applications. It will have to be subject to a Strategic Environmental Assessment before it can be revoked.

The Environmental Report on the Yorkshire and Humber RSS states that the objectives of the waste policies can be achieved by other means:

“These objectives can be delivered by other means than through a regional strategy. The European Union Waste Framework Directive sets the overall statutory requirements. Revoking the regional strategy will not impact on these requirements. The focus for delivering spatial waste plans and implementing the directive lies at the local authority level. Waste planning authorities are expected to continue to take forward their waste plans to provide land for waste management facilities, to support the sustainable management of waste. Data and other information prepared by partners, including the Environment Agency and other waste planning authorities will continue to assist in this process.”

2.4.3 Local Planning Policies

2.4.3.1 North Lincolnshire Local Development Framework

The Local Development Framework (LDF) contains a collection of local development documents produced by the local planning authority which collectively form the spatial planning strategy for its area. The Core

Strategy within the LDF sets out the vision, strategic objectives and delivery strategy for achieving these. The LDF should eventually replace all of the saved policies within the Local Plan (see Appendix B.4).

The planning system is currently undergoing reform to give neighbourhoods far more ability to determine the shape of the places in which their inhabitants live. The Government's proposal for a simple and consolidated national planning policy framework went out for consultation last year and this will have implications for specific areas of planning policy. In the meantime, current national policy and guidance are set out in a range of documents including planning policy statements, planning policy guidance and circulars.

The following planning policy documents and guidance will have an impact on planning for future waste management facilities in North Lincolnshire.

2.4.3.2 Core Strategy

Chapter 12 of the Core Strategy (June 2011) contains waste planning related policies. It states that the Council has prepared a Draft Municipal Waste Management Strategy (MWMS) from 2008 to 2025. In order to achieve the objectives of the MWMS, it is necessary to provide an appropriate planning framework for sustainable waste management, treatment and recovery. The Strategy identifies broad locations which could accommodate waste management facilities. This will be based on a criteria approach that promotes sustainable waste management in a sequential pattern, and in locations that support the proximity principle and self-sufficiency principle.

The waste policy stated in the Core Strategy is 'C20 Sustainable Waste Management', which states that

"The Council will consider new and enhanced facilities for the treatment and management of waste in the following broad strategic areas:

- *Scunthorpe;*
- *South Humber Bank Employment Area;*
- *Flixborough Industrial Estate;*
- *Power station sites and other high energy usage installations; and*
- *Farms which will directly use organic agricultural products derived from waste treatment.*

In general, a sequential search will be made for the location of waste management facilities from the highest to lowest preference as follows:

- i. On site management of waste where it arises at retail, industrial and commercial locations, particularly in the main urban areas (The Proximity Principle);*
- ii. Pursuit of neighbourhood self-sufficiency, at the lowest practicable level for the waste stream concerned (The Self-Sufficiency Principle);*
- iii. Encouraging co-location of waste facilities – at Materials or Resource Recovery Park for example;*
- iv. Locations at existing mineral extraction and waste landfill site;*
- v. Locations at established and proposed industrial and business sites;*
- vi. Locations in redundant farm buildings and associated land; and*
- vii. Use of other previously-developed land.*

The Council will promote sustainable waste management by:

- *Requiring Site Waste Management Plans for future major developments to minimise waste;*
- *Requiring the integration of facilities for waste minimisation, re-use, recycling and composting, in association with the planning, construction and occupation of new development;*

- *Providing guidance on minimising potential social, environmental and economic impacts that are likely to arise in the development of waste infrastructure; and*
- *Establishing a planning policy framework that identifies suitable locations for waste management.”*

2.4.3.3 Forthcoming Development Plan Documents

The Council is progressing towards an Options Paper for the Minerals and Waste Development Plan Documents (DPD) (forming part of the LDF) and this is expected to be available over the next 3 months, subject to members approving the document to be published. However this will now need to take NPPF policies into account.

2.4.3.4 North Lincolnshire Local Plan

North Lincolnshire Council has a statutory duty to prepare a development plan. The development plan 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. Therefore planning policy and waste management are inextricably linked to the development of future infrastructure for waste management in the UK. Planning decisions will influence whether or not the UK will be able to meet the landfill diversion targets set by the Landfill Directive.

Due to the commencement of the Planning and Compulsory Purchase Act 2004, the Secretary of State issued a direction in September 2007 setting out which policies would continued to be 'saved' beyond September 2007. As a result, those 'saved' Local Plan policies will continue to form the basis on which planning decisions are made until they are replaced by new policies in the Local Development Framework.

All the waste policies contained within the Local Plan (May 2003) were saved by the Secretary of State and these are listed in Appendix B. These policies relate to the detailed matters concerning siting, design and environmental impact of a proposed waste management facility, and the policies identified below are relevant to how waste applications are determined within the Council.

W1 – Applications for Waste Management Facilities states that proposals for waste management facilities will only be permitted where it can be demonstrated that:

- The proposed site has adequate access and the local road network or other proposed transport facilities can accommodate the anticipated traffic;
- The proposed siting, design and landscaping of the development are of the highest practicable standard and are appropriate to the location of the proposal;
- The engineering design of the development is technically feasible and accords with current best practice;
- Where appropriate, adequate provision should be made at the planning design stage for the provision of gas or leachate control systems;
- The development includes adequate measures to ensure that there would be no unacceptable visual and other amenity impacts;
- The development includes adequate measures to ensure that there would be no unacceptable impacts on ecological and archaeological interests;
- The development includes adequate measures to ensure that there would be no significant risk of pollution or danger to public health or safety;
- Where appropriate, adequate provision is made for the restoration, aftercare and management of the development to an agreed and suitable after-use. Applications for waste disposal will be required to be accompanied by proposals for high quality restoration of the site within a reasonable time scale.

Normally, this will be for agriculture, forestry, nature conservation or amenity/recreation. Other beneficial uses which accord with the policies of the development plan may be permitted. A scheme of aftercare for period of five years following restoration will be required for waste disposal sites which are restored for agriculture, forestry or amenity use;

- There would not be adverse cumulative environmental effects having regard to other similar developments which are either taking place or permitted to take place in the area.

In addition, proposed sites for major management facilities should be located close to the strategic road network.

Policy W8 Protection Zones and Waste Management Facilities states that proposals for waste management facilities will be permitted provided that there is adequate protection zone between the waste development and neighbouring existing or proposed sensitive uses.

Planning consent will not be granted for land uses or other activities within that zone which could be adversely affected by the effects of the waste development and which could prejudice the ability of the waste operator to implement the permission.

W13 - Waste Transfer Stations states that proposals for new waste transfer stations to ensure an integrated and adequate network of appropriate waste management facilities will be permitted provided that:

- The proposed site is located within an existing industrial site or on land which is permitted or allocated for industrial or related development, or is within an area that has already been disturbed by permanent development; and
- The proposal is suitably located in relation to the existing network of transfer station sites; and
- The proposal will not give rise to unacceptable impact upon local communities or the environment.

2.4.4 Other Relevant Planning Policies

2.4.4.1 Planning Guarantee

Recycling and waste management companies can expect their planning applications to be dealt with more swiftly under a new Planning Guarantee. The Guarantee is designed to create greater certainty for local communities by speeding up local planning applications that get stuck in the system. The Planning Guarantee will mean that no planning application should take longer than 12 months to reach a decision including any appeal. Consultation will be undertaken to determine the measures that should be undertaken if the timeline is not met.

2.4.4.2 National Policy Statement for Energy

National Policy Statement for Energy and a specific document for Renewable Energy will set the framework to be used by the independent Infrastructure Planning Commission (IPC) when deciding on planning applications for EfW facilities with a capacity of more than 50 MW. When IPC is abolished this role will move to a new unit in the Planning Inspectorate. Most facilities for burning MSW are smaller than this, at around 10-15MW, however the policy will have an effect on the availability of markets for some of the fuels produced by waste treatment plants such as mechanical biological treatment (MBT) plants

The National Policy Statement for Renewable Energy Infrastructure was laid in final draft form on 23 June 2011. The document is intended to form the core strategy of future renewable energy development and

sets out the policy framework on which planning decisions on major energy infrastructure should be based. The role of biomass and waste projects has been understated with both expected to play an increasingly important role in helping the UK to meet its future energy needs. The policy statement's waste focus is on combustion generation stations that use waste including non-renewable sources of waste and biomass as a feedstock, although it only applies to facilities with an electricity generation capacity above 50 MW. AD is not included in the Policy Statement Doc. The Government's final proposed Energy NPS will be debated in Parliament, although the date is subject to confirmation from parliamentary authorities.

2.4.5 Overall

Although the changes to the planning system set out in NPPF are some of the most significant ever to have been introduced. The presumption in favour of sustainable development will challenge decision makers and there will be many rapid moves to produce up to date local plans. This will take time, however, and there could be many S 78 appeals in the next couple of years. In North Lincolnshire these changes will help facilities to be built, but the system still includes provision for challenging the process where developments are significant in adverse impact. It is likely that the impact of these changes will be minimal in North Lincolnshire as there is a large amount of brownfield land in the Borough. The Borough's industrial land base means that waste treatment facilities have a higher degree of acceptability than is the case in other parts of the country.

3. Where We Are Today

3.1 Roles and responsibilities

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

- European Policy: Environment Directorate of the European Commission;
- National Policy: National Government (Defra and the Department for Communities and Local Government);
- Collection and Disposal: WCAs and WDAs; and
- Regulators: The Environment Agency (EA) and Animal Health (AH) (the new name for the Sate Veterinary Service).

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

The regional tier of government from England is in a state of flux since the coalition government came to power in May 2010. Under their control, the vast majority of the landscape of regional institutions will no longer exist by 1st April 2012 and very many of the related funding streams will also have been closed down. Funding to Local authority Leaders' Boards has ceased (these were previously Regional Assemblies) and the Regional Spatial Strategies (RSSs) which they produced have been revoked. The Regional Development Agencies (RDAs) are to be closed by April 2012 and the regional planning regime established by the previous government has been repealed, all of these to be replaced by a more localised approach from central government. However, the management of waste is not greatly affected by these changes as it is mainly guided by legislation passed down from the EU.

Further information on the role of each of these bodies can be found in Appendix B.

As North Lincolnshire is a Unitary Local Authority, under the requirements of the Environmental Protection Act 1990, it has to act as both the WCA and the WDA for MSW in North Lincolnshire. The Council also has to ensure that all the requirements set out by legislation on waste have been implemented, coordinate with the voluntary/community 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 the Council currently provides and gives information about the amount of waste recycled.

3.2 Waste arisings

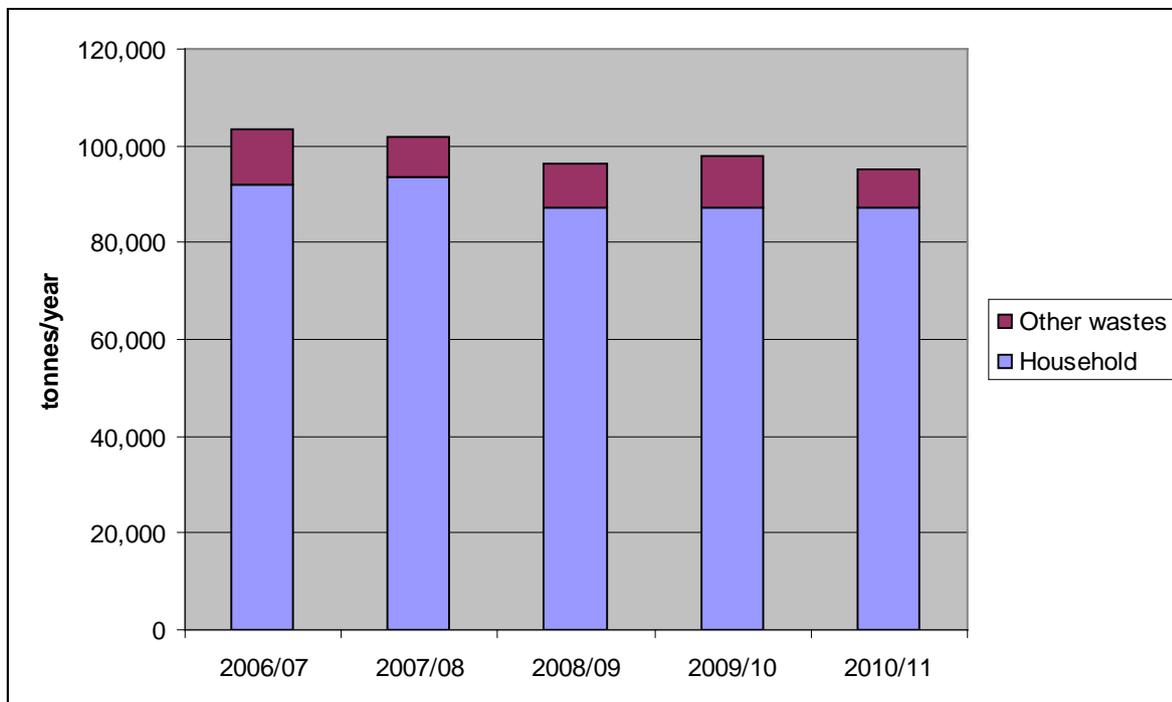
In England in the year 2010/11 approximately 26.2 Million tonnes of local authority collected municipal waste were generated. This is down from 26.5 Million tonnes the previous year. The average recycling rate for England was 41.5%, which is an increase from 39.7% the previous year. The statistics indicate that, in terms of recycling, the Council is performing well as their recycling rate is in excess of 50%.

The latest figures from 2010/11 show that MSW generation in North Lincolnshire was approximately 95,000 tonnes. 87,000 tonnes was household waste, either collected at the kerbside or taken to the Household Recycling Centres (HRC). This roughly equates to a household waste generation rate of

541kg/capita/year⁴. The current UK average is 464kg/capita/year⁵. The per capita generation of waste in the Borough is an issue that will need to be addressed in the future in order to keep costs down and to reduce our carbon footprint.

Figure 3.1 shows MSW arisings in North Lincolnshire since 2006/07. It shows that there is a general falling trend in MSW arisings, although there was a small increase in 2009/10. Household waste makes up the majority of MSW arisings. Household waste has decreased year-on-year until 2008/09 and since then has remained relatively stable at approximately 87,000 tonnes. MSW, as a whole, has decreased by 8% since 2006/07. This general decrease in MSW generation in recent years is in line with the national trend.

Figure 3.1: Total MSW arisings in North Lincolnshire since 2006/07



Source: Waste Data Flow

3.3 Waste composition

The two main municipal waste streams are kerbside collected household waste and waste brought to the HRC. A small element of municipal waste is also trade waste. Waste composition studies were conducted in 2008 on kerbside collected household waste and in 2009 on HRC residual waste, and for household waste this was carried out again in 2010. These compositional studies are detailed below.

4 National Indicator results

5 National Association of Waste Disposal Officers best value statistics 2010/11

3.3.1 Household waste

Compositional analyses of kerbside collected residual waste, and garden and kitchen waste recycling collections from households were conducted in North Lincolnshire in June 2010. The biodegradable component of the residual waste was calculated to be 57.7% (as shown in Figure 3.2). The principal component of the waste stream is putrescible waste (27%), then miscellaneous combustibles (20%) and paper and card (14%).

The biodegradable component was calculated using the standard assumptions for biodegradable municipal (BMW) used for WasteDataFlow calculations, and shows that the waste collected by the authority is slightly less biodegradable than the average assumed by the Environment Agency and Defra (68%). This may have implications for some waste treatment technologies, and is an issue that will need to be considered when they are proposed.

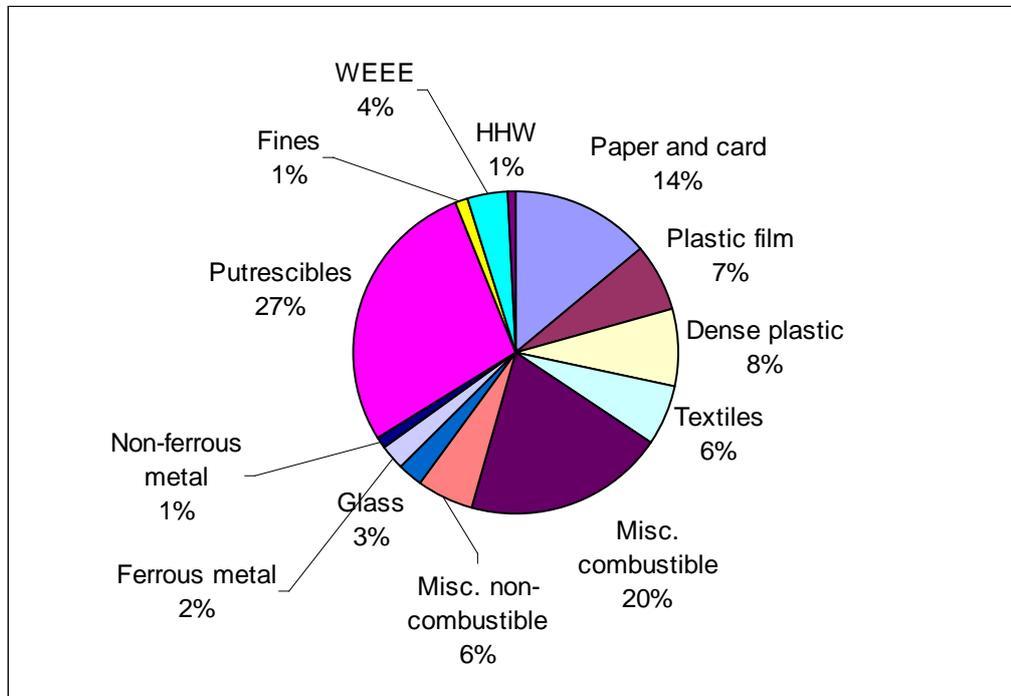
A similar waste compositional analysis was undertaken in 2008 and comparisons with the 2010 study show that in 2010, as well as a 0.69kg/hh/wk reduction in the levels of residual waste being presented at the kerbside for collection, there were also changes in the composition. The 2010 analysis shows that in residual waste there was a lower proportion of dry recyclables, garden waste and recyclable fruit and vegetable waste than in the 2008 study. This is reflective of an increasing recycling and composting rate.

An understanding of the composition of the waste generation in North Lincolnshire is an essential part of planning and developing the service. As a part of the recent residual waste procurement project an analysis of the chemical composition of the waste was also undertaken in 2011 to help with the evaluation of the risks going forwards with respect to important issues such as the amount of chlorine and heavy metals in the waste. These influence the quality of any fuel that may be produced from North Lincolnshire's waste.

It is important to be aware of the changes in waste composition. A waste treatment technology needs to be in place, which is flexible enough to adapt to changing waste composition resulting from, for instance, increases in recycling and composting. It should also be able to adapt to general changes in the behaviour of the public. However, this is difficult to predict over the length of a typical waste management contract, which can vary from 15 to 25 years or longer.

Figure 3.2 shows the kerbside collected residual household waste composition from the 2010 waste composition study.

Figure 3.2: Kerbside collected residual household waste composition



Source: North Lincolnshire Waste Composition Study, June 2010 (Table 3.2)

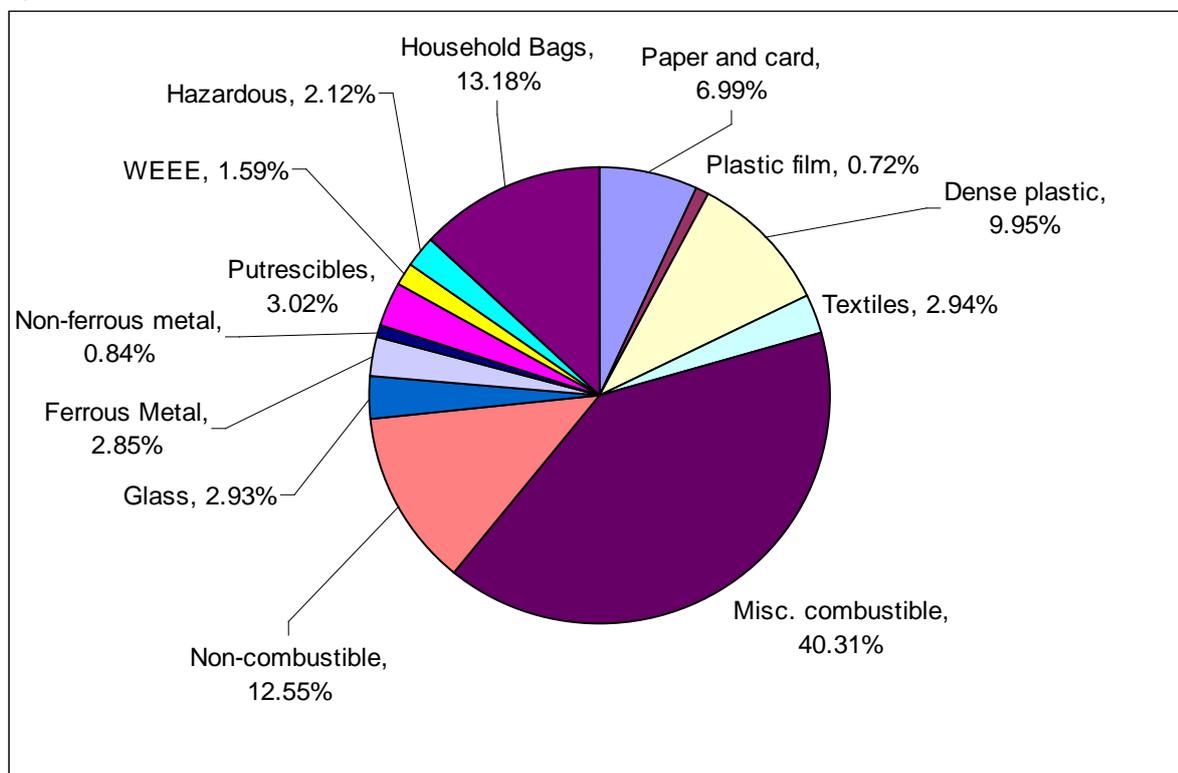
3.3.2 Household Recycling Centres residual waste composition

Residual waste analyses from the HRCs were carried out in 2009. These were conducted on waste deposited in general waste skips at four of the eight HRCs. Samples were taken during the weekend and also during the week to examine potential variations in the waste stream.

The biodegradable proportion of the residual HRC waste stream, represented in Figure 3.3, was estimated to be 40.60% (3.02% of this was putrescibles and 6.99% paper and card). This is relatively low in comparison to residual household waste. The figure also shows that the highest proportion of the waste was miscellaneous combustibles at 40.31%.

The proportion of the waste that could have been recycled was also examined. From all of the general waste surveyed, 34.7% could have been more effectively disposed of via kerbside collections or via recycling points within the site itself.

Figure 3.3: Residual HRC waste composition



Source: North Lincolnshire HRC Waste Composition Analysis, March 2009 (Table 3.1)

3.4 Waste collection and recycling

The Council provides for the regular collection of household waste, dry recyclables and green waste and operates an alternate week collection scheme for the vast majority of households in the Council’s area. The service is currently not provided to flats, but the Council is considering options for these properties.

Each household served by the collection scheme has been issued with:

- A brown bin for green waste;
- A blue box for paper;
- A green box for metal (cans and foil) and glass;
- A green or grey bin for residual waste;
- A burgundy bin for plastic bottles and cardboard; and
- A bag for textiles.

In addition, the householders can put out small items of waste electrical equipment within separate carrier bags for collection.

This combination of wheeled bins and boxes has enhanced the separate collection of recyclables, which together with improvements in collection scheme efficiency and increased householder participation has ensured that the Council exceeded its medium term target of 50% recycling by 2010/11. The recycling rate for 2010/11 is 51.8%. Figure 3.4 shows the changes in recycling rate since 2006/07.

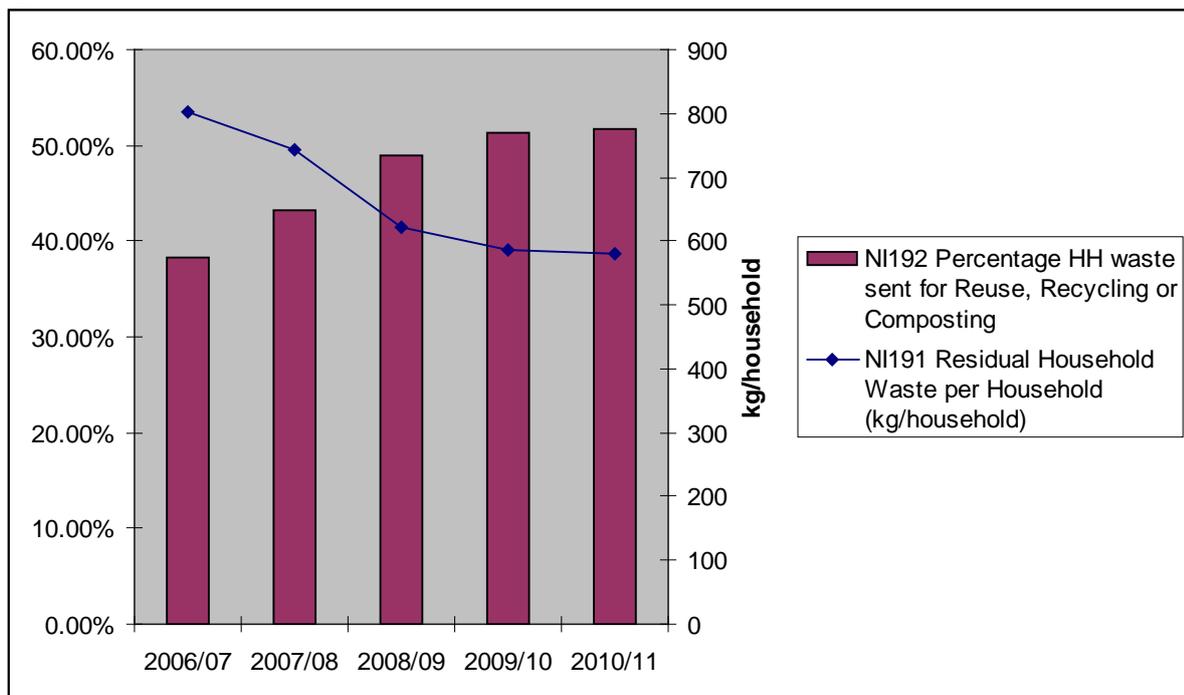
In 2010/11 there was a change in the recycling collection regime from a comingled green and food waste collection to one where green waste is now collected separately and food waste is collected in the residual waste. As a consequence of this it is expected that there will be a slight reduction in the performance of the system and a dip in the recycling/composting rate.

In addition to the implementation of alternate week collections, other measures adopted included the non-collection of excess or side waste and a 'flat lid' policy. As an important aspect of improving recycling, the Council recently introduced differential charging for new and replacement residual waste bins. This provides households with the opportunity to 'downsize' their standard 240 litre capacity residual waste container, free of charge, for a smaller 140 litre version collected fortnightly. New households are equipped with the smaller size of bin to encourage recycling and replacement bins are of the smaller size. Research conducted within the UK has repeatedly demonstrated the relationship that exists between constraints on household waste storage capacity and recycling performance.

Despite these attempted interventions, the amount of household waste per head of population produced locally (an important issue for the type and scale of waste management problems) remains amongst the highest in the country at 541kg in 2010/11. This figure includes the waste deposited at the extensive network of HRCs. Whilst this figure is above average, Figure 3.4 shows the National Indicator 191 (Residual household waste per household) results since 2006/07 and indicates that the waste per household has actually decreased from 801kg/hshld/year in 2006/07 to 582/kg/hshld/yr in 2010/11.

It should be noted that the National Indicator system ended in March 2011 (see Section 2.2.5), however, the system of reporting through WasteDataFlow has continued and these National Indicators are still being used as useful indicators for the waste management service provided by the local authorities.

Figure 3.4: National Indicators 191 and 192 for household waste



Source: Waste Data Flow

3.4.1 Household Recycling Centres

There are eight HRCs, and in 2010/11 approximately 20,000 tonnes of waste was received at them, of which approximately 13,600 tonnes was recycled. The HRC service is currently contracted out to the private sector, but the Council has recently resolved to bring the service back under local authority control.. This decision has been taken so that the service may benefit from being under the direct control of the local authority, as the HRC network needs further improvement in order to improve the Council's recycling rate, and to prevent any abuse of the system.

The HRC are provided for the benefit of residents living locally. They include facilities for collecting glass, plastic bottles, cans, paper, cardboard, garden waste, textiles, fridges and freezers, aluminium foil, motor oil, cooking oil, electrical and electronic equipment, scrap metal, batteries, wood and bric-a-brac.

The sites also receive bricks, rubble, plasterboard, soil and tyres from households, but a charge is made for these materials. Trade waste is also accepted, by prior agreement with the site operator, at the HRC within Scunthorpe. A charge is also levied for this service.

The level of HRC site provision within North Lincolnshire is amongst the most generous within the UK. At a ratio of over 5 sites per 100,000 population the density of provision is over three times the national average which is around 1.5 sites per 100,000. This high level of provision and extensive opening arrangements is believed to be the principal reason for the above average amount of household waste per capita recorded locally. Waste deposited at these sites is, by definition, household waste but anecdotal evidence and benchmark comparisons with other authorities, supports the view that a high proportion of received material is commercial waste consigned by traders and businesses operating locally. The relationship between the quantity of waste generated and the way in which the HRC network is utilised will play an important part in the development of the waste management system in the future. The Council will be looking to regulate the amount of commercial waste received at the HRC network and to ensure that the sites are used efficiently.

3.4.2 Community recycling facilities

The Council provides community recycling facilities at 28 locations throughout North Lincolnshire (including those at the eight HRCs) for residents who wish to deposit glass, textiles, cans, newspapers and magazines (some sites do not have facilities to collect all of these materials). In 2010/11 approximately 1,300 tonnes of materials were received at the community recycling facilities, 1,200 tonnes of this was recycled.

A list of all recycling locations, including the eight HRCs, is available on the North Lincolnshire website.

3.4.3 Bulky household waste collection

The Council collects, on request from householders, waste that falls outside the scope of the regular weekly collection service. Generally these are wastes that are too bulky or too difficult to be handled by the regular collection. This service does not cover such items as asbestos and dead animals. The bulky waste collection service is currently provided free of charge (first collection only – second and subsequent collections are chargeable).

3.4.4 Clinical waste

Clinical (yellow bag) waste is collected free of charge from domestic households. It is also collected from healthcare premises on a chargeable basis. This service is operated in partnership with the Primary Care Trust, who clinically assesses all applicants and refers those eligible to the Council. In 2010/11, approximately 30 tonnes of healthcare waste was separately collected.

3.4.5 Commercial and industrial waste collection

The Council currently provides a 'Trade Waste' collection service whereby approximately 1200 commercial premises are serviced by agreement. The frequency of collection, types of waste and volumes of material collected varies from producer to producer. In November 2008, the Council introduced separate collections of recyclable materials from all local authority owned and operated premises and this service is being expanded in response to the redefinition of municipal waste. In 2010/11, approximately 4,000 tonnes of commercial and industrial waste was collected. The recycling rate from this particular stream and the take-up rate of the service are currently both low. The Council has the intention of actively improving this service through greater awareness and communications in the future. The ongoing integration of collections from household and trade premises will also enable the Council to offer the same or similar services currently available to domestic occupiers of property to those in the business sector. A significantly reduced marginal cost of collection and recent announcements on the removal of VAT from local authority commercial waste collections will also assist with the price competitiveness of the service and which historically has been a barrier to service take up. A greater understanding of how the commercial waste stream interfaces with the HRC service will also be developed so that, both of these services can be managed more efficiently and cost effectively.

3.4.6 Street cleansing

The Council provides a regular service throughout the area, seven days per week. High use areas, such as shopping precincts, usually have either permanent cleansing staff or daily cleaning regimes. In 2010/11, approximately 500 tonnes of street cleansing waste was collected. The appearance of the overall street scene with respect to litter, is one which features highly when surveys are conducted (see Chapter 4), and so this is a service which is constantly monitored for service efficiencies and improvements.

3.4.7 Abandoned vehicles

Abandoned vehicles are removed in accordance with relevant legislation. This service is delivered, on behalf of the Council, by an appointed vehicle recovery agent. The Council also has adopted powers to deal with untaxed vehicles found in the area. In 2009/10, there were 7 abandoned vehicles and in 2010/11 there were 4 and a recycling rate of 95% is reported from the reprocessor.

3.4.8 Fly-tipped waste

The Council collects fly-tipped waste and in 2010/11 the Council collected approximately 400 tonnes of this waste stream. It investigates the source of each arising, and takes enforcement action if the source of the waste can be identified. In 2009/10, there were 1,082 reported incidents and in 2010/11 there were 1,183 incidents.

3.4.9 WEEE

Following the transposition of the WEEE Directive into UK law, North Lincolnshire Council, registered each of its eight HRCs as Designated Collection Facilities (DCF) for the collection of WEEE. The Council subsequently entered into an agreement with an approved Producer Compliance Scheme (PCS) for the removal and treatment of all WEEE delivered to these facilities.

In 2009/10, a total of 1,706 tonnes of WEEE comprising the five main streams: Large Domestic Appliances (LDA); Small Domestic Appliances (SDA); Televisions and Monitors (Cathode Ray Tube (CRT)); and Fluorescent Tubes, Refrigeration Equipment (Ozone Depleting Substances (ODS)), was recovered through the DCF's. This equated to 23.64kg/household/year or 10.72kg/head. This was significantly above both the European Directive target to treat 4kg of WEEE per head and the average of 7.3kg achieved nationally.

Despite this relatively high level of recovery, an analysis of the composition of the kerbside collected residual household waste stream completed in June 2010 confirmed the presence of SDA equivalent to 14.04 kg/household/year or 1,011 tonnes in total.

A pilot scheme of 3,000 households was introduced in December 2010 adding SDA to the existing range of collected materials. The pilot was successful and the scheme was expanded to all 72,000 households from May 2011.

The objectives of the pilot were:

- To meet customer demand for additional material collections at the kerbside;
- To confirm the results of the compositional analysis;
- To determine the extent of householder participation in such a scheme;
- To enhance existing levels of recycling and landfill diversion; and
- To remove potentially polluting elements of the household waste stream.

The latter point was of particular significance for the Council who are currently in the process of procuring a long term residual waste treatment solution. During dialogue with prospective bidders, concerns had been raised about heavy metals and other elements within the municipal waste stream and the potential impact of these on a range of technical solutions proposed. Along with batteries, the SDA within the residual waste stream had been identified as a potential source of heavy metals. Household portable batteries are already recovered at the kerbside as part of the existing recycling scheme.

3.5 Waste disposal

North Lincolnshire's current waste disposal contract is with Biffa, who receive residual municipal waste at their Roxby landfill. This was established in May 2011 and is an interim contract (1 year + further years up to a maximum of 3 years) following the expiry of the SITA contract which involved the delivery of residual waste to the New Crosby landfill site in Scunthorpe. The contract with Biffa is intended to be a stop-gap until the process of procuring a permanent sustainable long term⁶ treatment solution for residual waste is completed. This is discussed in more detail in Section 5.

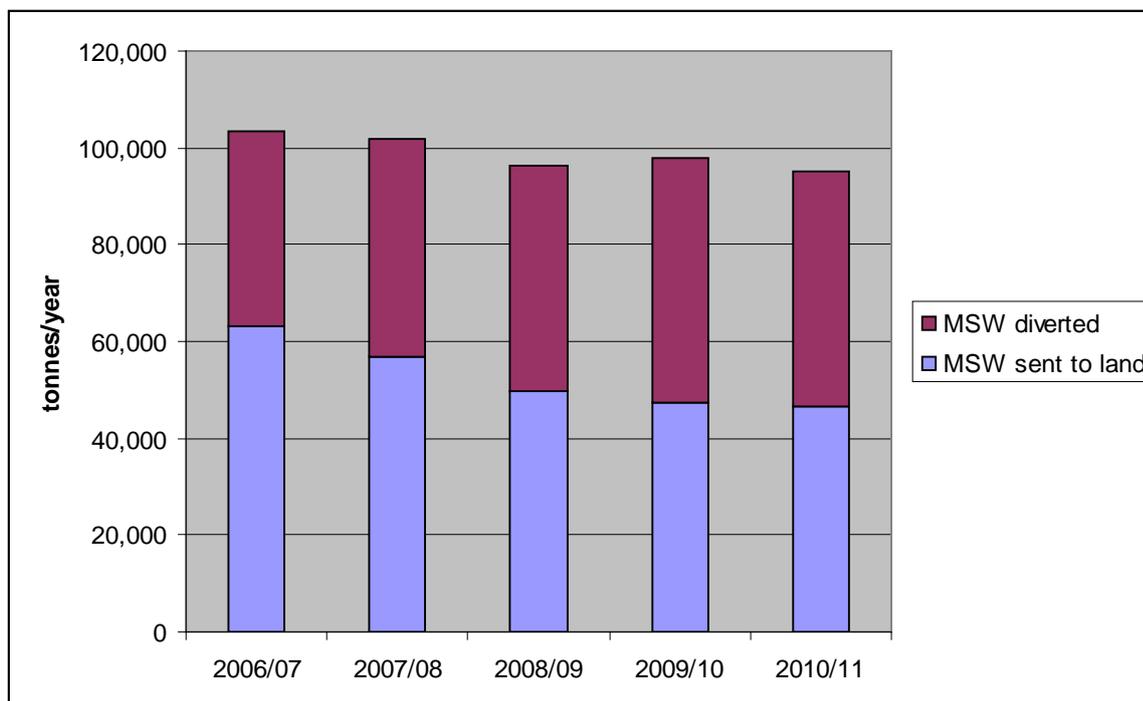
There are a number of other operational landfills within the North Lincolnshire area including the site at West Halton near Winterton operated by WRG. This site is permitted to receive both hazardous and non-

⁶ 20-25 year duration is normal for a long-term solution for residual waste due to the high cost of the infrastructure

hazardous waste. Currently MSW from the neighbouring local authorities of the East Riding of Yorkshire, Kingston upon Hull and North East Lincolnshire are received into this site. A number of other sites operated by some of the process manufacturers including Corus, Cemex and Singleton Birch are also provided for the individual waste streams generated by their respective activities.

The quantity of waste being disposed of to landfill is falling each year as other treatment options such as recycling and composting divert greater quantities of wastes from landfill (see Figure 3.5).

Figure 3.5: Proportions of MSW diverted from and sent to landfill



Source: WasteDataFlow

3.6 Timeline since Draft Waste Management Strategy developed

As mentioned earlier, this Strategy is part of the process that has been developed since 2002, and which was revised in 2008. Since then a number of initiatives have been enacted that have helped the Council to reach the current levels of recycling and are shown in Table 3.1.

Table 3.1: Timeline of service improvements since 2008

Date	New Service	Coverage	Provider	Receptacle
1 Apr 2008	Free initial 140 litre residual bin provided to new residents/new properties	All of NLC properties	North Lincolnshire	140 litre green wheeled bin
Nov 2008	Tetrapak Recycling at HRC	All of NLC properties	3 HRC Kirton/Broughton/Barnetby	Recycling bank
Nov 2008	Schools and office buildings recycling scheme	Schools and office buildings	Schools and office buildings	Range of different sized wheeled bins

Date	New Service	Coverage	Provider	Receptacle
11 May 2009	Kerbside burgundy bin and brown bin recycling - Round 18	3,000 approx	Alternate week collection properties	140 burgundy and brown wheeled bin
3 Jul 2009	Book/CD/DVD banks	All of NLC properties	All NLC HRC	Recycling bank
6 Aug 2009	Aerosols accepted in Green Box Scheme	All of NLC properties	North Lincolnshire properties	Green 38 litre box
Sep 2009	Confidential waste collections	Commercial properties	Commercial properties	dedicated sack or 180 litre bin
29 Sep 2009	Commercial glass recycling	119 Properties	Pubs, clubs and restaurants with NLC trade waste service	240 litre bin with green lid
Jan 2010	Node Recycling	1 block of flats	Queensway Flats	Node Recycling Bank
1 Feb 2010	Household batteries accepted in green box	All of NLC properties	North Lincolnshire properties	Green 38 litre box
1 Mar 2010	British Heart Foundation bulky collection scheme commenced	All of NLC properties	North Lincolnshire properties	N/A
1 Mar 2010	Composting Framework - Straights commenced	All of NLC properties	North Lincolnshire properties	Range of composters/water butts, wormeries
July 2010	Textile bags now collected by Palm/PD for I&G Cohen	All of NLC properties	North Lincolnshire properties	Red sack
22 Nov 2010	Bric-a-brac	All of NLC properties	All HRC	Container/skip
23 Nov 2010	Paint for re-use	All of NLC properties	Cottage Beck Road HRC	Container/skip
Dec 2010	Trial small WEEE kerbside collection (R2TH01, R2TH02, R2FR03, R2FR04)	3300 properties	Brumby and Riddings	Plastic carrier bag
10 Jan 2011	Household cooking oil rolled out to all HRC	All of NLC properties	All HRC	Plastic drum
Feb 2011	Commercial recycling	Commercial properties	Commercial properties	Range of different sized wheeled bins
9 May 2011	Residual waste taken to Biffa landfill from this date	All of NLC properties	North Lincolnshire properties	N/A
16 May 2011	Small WEEE kerbside expansion rollout	All of NLC properties	North Lincolnshire properties	Plastic carrier bag
31 May 2011	Removal of all uncooked food waste from brown bin	All of NLC properties	North Lincolnshire properties	Brown bin
01 Jul 2011	Green waste taken to Briers Hill Recycling Ltd from	All of NLC properties	North Lincolnshire properties	Brown bin/HRC green waste

Date	New Service	Coverage	Provider	Receptacle
	this date			

3.7 Current cost

The current statistics that the Council provides to the annual survey by the National Association of Waste Disposal Officers (NAWDO) best value statistics for 2010/2011 show the following data for North Lincolnshire Council.

The costs for waste collection, recycling and disposal in 2010/11 was:

- Collection (WCA revenue expenditure including support costs): £4.145 million (this includes the bring site and kerbside recycling collections); and
- Disposal (WDA revenue expenditure including support costs): £6.85 million (this includes the costs for the HRC).

- It was also reported that the cost of:
 - municipal waste management was £72.04 per tonne (£42.55 per person); and
 - municipal waste collection was £43.59 per tonne (£25.75 per person).

As a comparison, Table 3.2 shows the waste management costs for two local authorities within the same 'family group' i.e. Telford & Wrekin (with a population of 162,300) and North East Lincolnshire (with a population of 158,200).

Table 3.2: Waste management costs for Telford & Wrekin and NE Lincolnshire

Local Authority	WCA revenue expenditure (£)m	WDA revenue expenditure (£)m	Municipal waste management	Municipal waste collection
Telford & Wrekin	4.815	5.342	£85.79/t £40.88/person	£46.94/t £22.37/person
NE Lincolnshire	4.455	5.823	£70.50/t £36.81/person	£54.06/t £28.23/person
N Lincolnshire	4.145	6.85	£72.04/t £42.55/person	£43.59/t £25.75/person

Source: NAWDO best value statistics for 2010/11

From the comparisons above it can be seen that the WCA revenue expenditure for North Lincolnshire is less than the other two local authorities, whilst at £6.85 million the WDA revenue expenditure is higher than the other two local authorities. In terms of costs for municipal waste management North Lincolnshire is slightly higher than North East Lincolnshire, but the reverse is true for the costs for municipal waste collection. Overall the service costs to the resident show that the service represents good value for money. This Council will seek to improve this performance, by improving the arrangements for all of the waste streams and looking to generate revenues, wherever possible.

4. The Way Ahead

Although North Lincolnshire 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, including the management of the residual and organic waste streams in new facilities. It is intended that the implementation of this strategy will enable the Council to:

- Reduce the amount of biodegradable waste that is landfilled in order to both meet the requirements of the Landfill Directive and to meet the yearly landfill allowance targets which were set up to the year 2013 by the WET Act.
- Meet any statutory recycling targets, which are set by UK Government. North Lincolnshire met its statutory targets for recycling 16% of household waste by 2003/04 and 24% 2005/06. The waste strategy for England published in 2007 proposed recycling targets of 40% by 2010, 45% by 2015 and 50% by 2020. The Council has already met these, but new targets are likely to be proposed by the government later this year following the policy review published in June 2011.
- Meet any statutory targets to reduce the amount of household waste not reused, recycled or composted. The new waste strategy for England proposes a 50% reduction per person by 2020. This target may also be revised following the adoption of the revised framework directive which has altered the definition of municipal waste. (see Appendix B.1)
- Assist new and existing Trade Waste customers in the achievement of a new national target for the reduction of commercial and industrial waste going to landfill. Following the new trade waste system, whereby recycling bins are provided, this programme will be expanded in the future to enhance the performance of this important waste stream.
- Prepare the ground work for the Council in its task of achieving a 'zero waste' system by 2020 as required by central government.
- Further improve the delivery of the kerbside recycling system.
- Address the remaining issues related to waste generation in the county by targeting services such as the HRC service.
- Provide various means for helping engagement with all of our stakeholders.

4.1 Future challenges

One of our challenges in the short-term will be to meet the requirements set by the Landfill Directive on reducing the amount of biodegradable waste that is landfilled. The European Commission have the power to fine Member States (including the UK) who do not meet their targets, and the level of this fine is currently 500,000 Euros (about £450,000) per day.

North Lincolnshire Council will also need to meet requirements set by the Government's new way of reporting the performance of local authorities. The new system that will replace the system of national indicators includes an overall measure for recycling and composting, which is one of the main ways that measure and report performance.

4.1.1 The single data list

The single data list is a catalogue of all the datasets that local government must submit to central government in a given year. This system has been introduced to replace the NI system of indicators in order for local authorities to have flexibility in focusing on the performance areas that matter most to their residents, using a performance framework which lists a range of measures that include those related to waste performance. These represent what the Government believes should be the national priorities for local government, working alone or in partnership, over the next three years. They replaced all other sets of

indicators, including Best Value Performance Indicators (BVPIs) and Performance Assessment Framework indicators, in April 2008.

4.1.1.1 What is included in the list for waste

The National Indicator Set was set up to aid the performance management of local authorities by central government and consisted of processed indicators rather than pure data. The single data list is a catalogue of all central government's data requirements from local government. It has been assembled to aid transparency rather than to manage performance of local councils and facilitates the control of the volume of data central government asks of local government. However, some datasets collected to calculate National Indicators remain required where they are judged sufficiently valuable at a national level.

The new measures on environmental sustainability include three on waste:

- NI 191 - Residual household waste per household
- NI 192 - Household waste reused, recycled and composted
- NI 193 - Municipal waste landfilled.

Other measures on environmental sustainability, which 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.

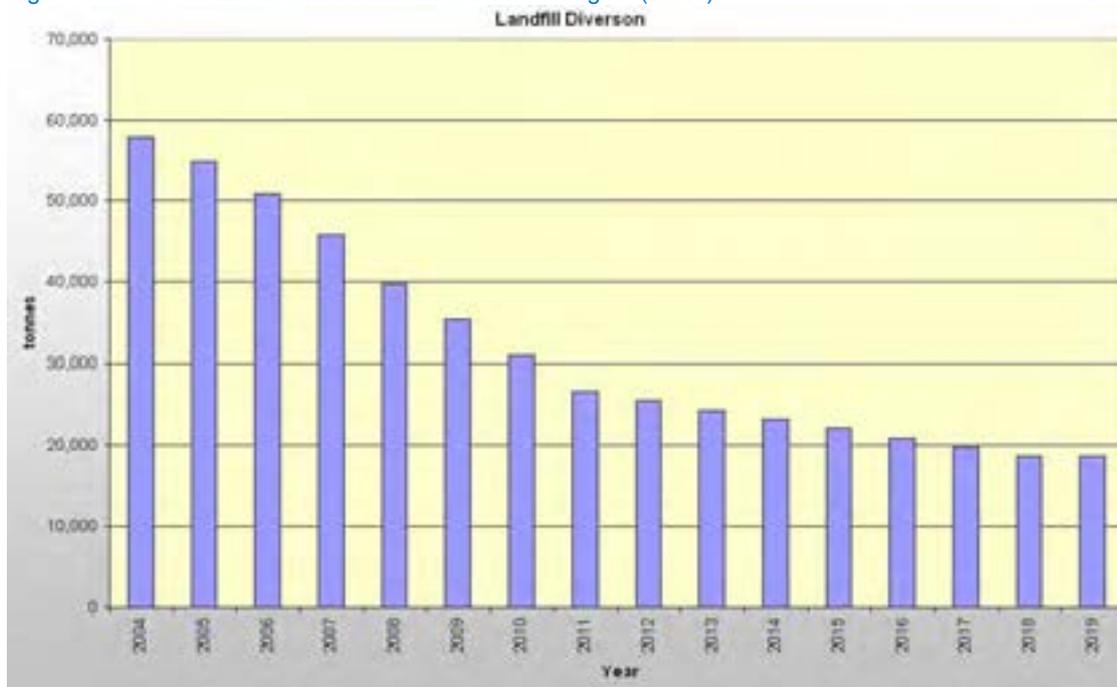
North Lincolnshire Council will maintain its high level of street cleaning, and will continue to take enforcement action against fly tippers if the source of the waste can be identified. Reducing the amount of waste that is landfilled will reduce North Lincolnshire Council's carbon dioxide emissions,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

4.1.2 Waste Emissions Trading Legislation

The UK Government has implemented the diversion of biodegradable wastes set in the EU Landfill Directive through the WET Act 2003. This introduced the Local Authority Trading Scheme (LATS), which was designed as a means of spreading the responsibility for meeting the Landfill Directive targets between all authorities by assigning targets for each authority relating to the amount of biodegradable waste that it could landfill each year to 2020. This process is to be abandoned post 2012/13. The targets that were set for North Lincolnshire are shown in Figure 4.1 and reflected the Directive's requirement to reduce biodegradable wastes by set amounts in target years of 2009/10, 2012/13 and 2019/20.

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 BMW disposal in North Lincolnshire was set at 58,000 tonnes in 2005/06. This broadly equates to an effective landfill limit of 85,000 tonnes of MSW overall. This annual allowance diminished each year.

Figure 4.1: North Lincolnshire's landfill allowance targets (BMW)



Predictions on future waste arisings showed around 3,000 tonnes of waste more than the imposed allowance limit would be landfilled in 2012/13. The Council therefore has forward traded landfill allowances to meet the target, as is permitted under LATS.

In 2010/11 North Lincolnshire landfilled 46,643 tonnes⁷ of MSW, including 27,985 tonnes of biodegradable waste. This was below the allowance limit of 35,529 tonnes for the same period. The original landfill allowance limit for 2012/13 was 26,511 tonnes of biodegradable waste. With forward trading, this limit has been increased to 32,511 tonnes and should not be exceeded.

Up to the end of the year 2012/13 the WET legislation enables the UK Government to fine authorities that do not meet their yearly targets. The level of this fine was proposed to be £150 for each tonne of waste landfilled above the specified landfill allowance. In addition, there may be further fines payable to the European Union if landfill diversion targets are not achieved in 2020.

Although the UK will not have to pay any fines to the European Union until 2013 at the earliest, as the targets for 2010 were met, the WET legislation will enable the UK Government to fine any authority that does not meet its yearly targets.

However, the Government recognised that whilst some authorities were easily meeting their allowances because they have installed a suitable treatment plant, other authorities, which include North Lincolnshire, will not be able to meet their longer-term targets until they have installed a suitable treatment facility to treat the remaining waste. This was the basis of the principal of allowing allowances to be traded between

⁷ NAWDO Best value statistics 2010/11

authorities. The aim of the trading of allowances was to enable authorities to meet their obligations through purchasing allowances at a lower cost than the cost of paying a fine to the Government. LATS proved to be ineffective as the amount of trading was very low, and unpopular, as it was still seen to be unfair to poorer authorities that often have difficulty in implementing recycling collection along with difficulties in siting of waste facilities in inner cities.

This resulted in the government announcing as a part of the waste review, published in June 2011, that LATS was to be abolished in England completely, with no trading of allowances and no fines imposed to individual authorities for non-compliance with landfill allowances. Instead the fines imposed by the EU will be paid on a national basis, although the mechanism for this has yet to be evolved, it is still likely that poor performing authorities will attract a higher proportion of the national fine, or will be penalised in another way such as reduced capital grants from central government, for instance. As a result, there still remains a driver for the diversion of waste from landfill for the Council, even though the implications are difficult to quantify at the present time.

4.1.3 Growth in waste arisings

Historically, a standard assumption for waste growth nationally was set at up to 3% per annum. This formed the basis of many studies looking at waste management strategies and in procurement projects nationally and was used as the basis of the 2002 waste strategy, the revised waste strategy in 2008 and the procurement outline business case document in 2007. However, the changes in behaviour that have arisen due to the adoption of the type kerbside recycling services adopted by the Council, together with a range of other socio-economic factors, has seen waste arisings drop in recent years, with many authorities recording negative growth generally in waste arisings.

It is now considered that waste arisings will tend to grow in line with trends in the number of households (or the population generally). This means that, in the future, the emphasis will be placed on managing the amount of waste generated per person and per household to 'decouple' waste arisings from economic activity generally.

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.

In developing the models underpinning the costings data and other studies, it has been assumed that waste will increase in line with the predicted increase in the number of households in the Borough. This has been used as a baseline, with a target being assessed for waste minimisation which brings the Borough's per capita waste generation in line with the national average. The current assessment of growth in housing is estimated to be just under 0.5% per annum, this figure has been used in the modelling studies.

4.1.4 Per Capita waste generation

One of the key features of the Council's waste is the quantity that each person produces. If a comparison is made between North Lincolnshire and other similar Unitary Authorities, as in Table 4.1, it is evident that North Lincolnshire produces a very large amount of waste per capita.

Per capita waste generation in North Lincolnshire is currently around 541kg per person compared to the typically rural East Riding of Yorkshire's 516kg per person, and far higher than Derby City which produces only 433kg per person per year. Although, it should be expected that Derby City generates less waste per

household as less green waste will be generated in an urban environment. Obviously, if the amount of waste produced per person can be reduced this will go along way towards reducing the costs and impacts of waste generation.

Table 4.1: Comparison with other 'Family Group Authorities

Authority		Households	Household Waste Recycled (%)	Household Waste Composted (%)	Household Waste per capita (kgs)
Derby City Council	244,100	106,500	21.47%	25.52%	433
Telford & Wrekin Council	162,300	68,950	24.38%	19.03%	497
North East Lincolnshire Council	158,200	71,215	17.37%	16.89%	501
Cheshire West & Chester Council	327,300	147,240	24.86%	22.48%	511
East Riding of Yorkshire Council	337,000	149,551	21.76%	1.98%	516
North Lincolnshire Council	161,000	72,940	23.54%	28.16%	541

4.1.4.1 Household Waste Recycling Centres

Table 4.2 provides a comparison of the HRC service provided by the Council with the service provided by neighbouring ones. This shows that there are a higher number of sites per capita, but also a proportionally larger amount of waste going through them. The relationship between overall waste generation and the HRC service is not a clear one. However, it seems likely that one of the reasons why the Council has so much waste per capita may be that trade waste is finding its way into the household system via the HRCs. There are a number of measures that can be used to improve this situation. One of these is to monitor the usage of the sites using number plate recognition of vehicles to check that users are bona fide. This could be combined with the use of CCTV to monitor the types of vehicles using the facilities.

Allowing trade customers at the HRCs and charging a gate fee could also help in reducing the abuse of the system. The interface between this service and the commercial collections can therefore be improved benefitting both services by providing commercial vehicles access to the sites together with general communications and awareness programmes.

Table 4.2: Comparison of HRC services in the region

Authority	Population	Households	Number of Sites	Households per HRC	Total HRC municipal waste (tonnes)	Total HRC municipal waste per capita (kg)
East Riding of Yorkshire Council	337,000	149,551	10	14,955	51,529	153
North Lincolnshire Council	161,000	72,940	8	9,118	26,224	163
North East Lincolnshire Council	158,200	71,215	2	35,608	12,773	81

4.1.5 Improvements to the Recycling Services

The kerbside collection service, together with the other recycling collections such as the HRCs and bring sites, have been successful in raising recycling rates to level in excess of 50% overall. The Council will be looking to make further improvements in these services in the future.

However, the challenge here is to improve an already successfully adopted system, and as such there are no major changes planned regarding the waste streams collected at the kerbside or the receptacles used. With respect to altering collection frequencies, studies undertaken by the Council indicate that it would not be cost effective to increase the frequency of residual waste collection.

Collection of the food waste fraction separately could be implemented if the necessary funding could be secured to integrate with a new organic waste treatment facility.

Improvements generally will come from incentivising the contractor through the delivery of the service. At the time of writing the Council is in the process of procuring a new waste collection contract (kerbside collection and logistical support of the HRCs). Measures that will encourage the capture of materials will be a part of the new contract.

As the collection service for commercial wastes develops, greater integration of the collection of this type of waste together with the household waste collection is anticipated. As a part of this, the logistics of the service will be reviewed and improved, this includes looking at the routes that collection vehicles use for collecting all wastes with the aim of improving the efficiency of collecting wastes and reducing costs.

4.1.6 Future management of residual waste

If the amount of waste continues to increase in line with the predicted increase in the number of households in the Borough between now and 2027, the total amount of municipal waste that North Lincolnshire is producing will be about 125,000 tonnes per year by 2027 compared to the current quantity of approximately 95,000 tonnes in 2010/11.

The new recycling scheme and its roll-out to the entire Borough have increased the recycling rate from 24% in 2004/05, to 43% in 2007/08, to 51.4% in 2009/10 and 51.8% in 2010/11. The performance of the system is expected to drop slightly due to the need to divert food wastes from the green bin to the blue residual bin. This was due to concerns with the type of process being used at the time (Windrow composting).

The abandonment of the LATS means that the County no longer has the threat of paying landfill allowance fines as a driver for diverting waste from landfill. However, there are a number of reasons why it would be unacceptable to continue with a 'business as usual' approach to managing the County's residual and organic wastes, principally:

- North Lincolnshire would not be making a full contribution to meeting the targets for the UK set by the Landfill Directive, resulting in the fines imposed by the EU being shared by local authorities across the UK, many of which are deprived and/or do not have the ability to site waste management facilities within their area.
- Not providing waste management facilities will do nothing to meet the Council's obligations regarding the safe-guarding of the environment discussed in Section 2, or to move towards a 'zero waste' system as proposed by the government by 2020
- Not providing waste management facilities would do nothing to improve the Council's carbon footprint as landfilling has very high burdens (see WRATE analysis)
- Not providing waste management facilities would reduce the Council's ability to divert waste from landfill and therefore increase the burden that it places upon the environment by not recovering value from resources, which together with the carbon agenda is one of the most important considerations for waste management going forwards.

- It will not 'future proof' the Council from potential fines or other disincentives that may be imposed by future governments or the EU for failing to improve the impact of their waste management activities.
- It will not off-set the increasing costs of landfill tax.

Consequently, North Lincolnshire Council needs to consider how it can treat the remaining waste in order to meet these objectives

4.1.7 Future Management of Organic Wastes

Organic wastes are one of the main priorities for diverting waste from landfill due to the production of greenhouse gases associated with it. Currently food waste is included in the residual waste stream. This should be viewed as a valuable resource and should not simply be disposed of. Options will be explored for utilising this type of waste, with the aim of looking to gain as much value from this waste stream as is economically viable. One of the options for this waste stream is to procure a facility such as an anaerobic digestion facility (AD) which produces biogas as well as a type of compost. The gas can be used in several ways: it can be injected into the gas grid, used as a vehicle fuel, or it can be used to generate heat and electricity which is then exported to the national grid. The latter option has a double benefit in that it can generate revenues from the sale of electricity, and also from the sale of Renewables Obligation Certificates (ROCs) which are part of a government incentive scheme to generate electricity from renewable sources.

4.2 The Carbon Agenda

The Council became a formal signatory to the Nottingham Declaration on Climate Change during 2003.

This involved the Council making a public pledge to take a lead role in tackling the effects of climate change locally. Historically, climate change featured in the Council's Local Area Agreement and the Comprehensive Area Assessment process under the key line of enquiry "use of natural resources". At the time, the government's performance framework included indicators on climate change and carbon emissions and the Council's climate change action plan, adopted during 2006 aimed to reduce the Council's impact upon climate change.

The Carbon Trust has been providing councils with technical and change management support and guidance through the Local Authority Carbon Management Programme to help reduce carbon emissions and deliver financial savings. The programme was launched in 2003 and a systematic analysis of local authority's carbon footprint.

The primary focus of the Carbon Management Programme is to reduce emissions under the control of the Council such as buildings, vehicle fleets and street lighting. The Council was responsible for producing 30,000 tonnes of CO₂ during 2008/2009. In that year, the Council's energy bill from all sectors (including schools) amounted to £5.2m and was expected to rise to £8.7m by the end of 2014.

The Council's Carbon Management Plan sets a target for reducing the organisation's carbon footprint by 33% by 2014 and the effect of achieving this target is expected to lead to a reduction in energy costs to £4.7m by the end date. This represents a 10% decrease on the 2008 baseline costs.

The recycling fund works by investing funds into a range of energy/carbon saving projects and the projected energy savings are top sliced in the coming years and are re-invested in the fund. This, in turn, is used to invest in further energy saving schemes. This fund provides interest free loans to public sector organisations for the capital cost of implementing energy saving measures and technologies.

Clearly the waste management system has a major role in helping the Council to reduce its carbon impact.

It can do this in a number of ways:

- Encouraging less waste production (waste minimisation)
- By utilising the resources within the waste management system more efficiently
- By reducing the distances that materials are moved
- By choosing a carbon efficient means of managing residual and organic wastes through the Council's future procurement programmes
- Developing opportunities to generate electricity or off-set the use of fossil fuels where practicable

It is important to ensure that consideration is given, at all of the key stages of the development of the waste management system, to the carbon impact, and that it becomes one of the key drivers and measures of the system.

4.3 Studies conducted

Over the last few years the Council has gained a significant amount of experience in assessing the various waste treatment technologies available. Understanding waste technologies has been necessary as the Council has been in the process of securing contracts and/or new facilities to treat the residual and organic waste streams. The process of procuring long-term solutions is complex and highly technical. This has necessitated the use of external advisors for the key aspects of these projects, i.e. the legal, financial and technical aspects of the proposals, and during these projects the proposals submitted have been scrutinised extensively. Detailed due diligence assessments of the technologies have therefore been conducted. A key aspect of these assessments is to determine the strengths and weaknesses of all the technical proposals.

In addition to the due diligence assessments that have been undertaken for the proposals, a number of separate studies have been commissioned which have supported the procurement projects including:

- Assessment of treatment options for the residual waste using a detailed assessment of the options taking into consideration the requirements of the Council's Strategic Environmental Assessment.
- Assessment of markets for materials produced by recycling/composting schemes.
- Assessment of markets for the products produced by waste treatment plants.
 - this has included an assessment of the market for the Solid Recovered Fuels (SRF) produced by some waste treatment plants such as Mechanical Biological Treatment Plants (MBT),
 - the availability of residual waste treatment capacity regionally on a merchant basis
 - the trends in electricity prices and green energy revenues
 - an assessment of the options for profit-share from Advanced Thermal Treatment (ATT) /Anaerobic Digestion (AD) plants
- Conducting an Environmental Options Assessment (EOA) study to identify the best option environmentally for managing North Lincolnshire's waste.
- Conducting a feasibility study into the possibility of procuring a regional Anaerobic Digestion facility for the treatment of organic wastes.

All of the technologies have, therefore, had a high degree of scrutiny applied to them, using the experience gained from a number of projects around the UK and overseas and applying the lessons learnt to the Council's own specific requirements.

The Council has, therefore, developed an excellent understanding of the issues surrounding each technology, and their strengths and weaknesses in a North Lincolnshire specific context having conducted soft market testing and the EU 'competitive dialogue' process for organic and residual waste treatment

facilities. The main technical options for the treatment of the wastes produced by the Council are discussed in Sections 4.3.1 and 4.3.2.

4.3.1 Residual Waste

4.3.1.1 Energy from Waste/ Combined Heat and Power

Energy from Waste (EfW) is a process where residual waste is burnt in a specially designed furnace and the heat used to produce electricity. This should not be confused with 'mass burn' incineration, a process which was used until the early 1970s which simply burnt the waste with no energy recovery. This is not an option now as this type of plant would not be licensed by the Environment Agency. Energy from waste and other types of incineration are very tightly regulated principally by the Waste Incineration Directive (WID). This Directive limits the amount of pollutants that can be produced from the process. If the limits are continuously exceeded the plant will be shut down. Monitoring of the emissions is constant for many chemicals and can even be made available to the public in 'real time'.

Energy from Waste offers a source of 'green' energy and can be given credits for the energy generated from the organic fraction of the waste if it reaches a high level of efficiency or when the steam generated is used to supply heating to housing or industrial units nearby. This is known as 'combined heat and power' (CHP).

This is often a controversial option in many areas of England. However, in North Lincolnshire the Council has detected very little opposition to this, mainly due to the fact that many parts of the County such as the Scunthorpe areas are highly industrialised.

EfW is a well established technology and a market for the main product (electricity) is readily available. The introduction of the EU Waste Incineration Directive and strict enforcement of emissions standards means that the latest generation of incinerators operate to very high standards. The Review of the Environmental and Health Effects of Waste Management 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.

4.3.1.2 Mechanical Biological Treatment (MBT)

As the name implies this is a combination of technologies. It includes mechanical separation of recyclable materials from the waste using a variety of techniques to extract metals, cardboard or plastics. It also includes biological processes designed to treat the organic part of the waste, and produce a type of compost, or a 'soil improver'. Most MBTs produce a type of fuel termed solid recovered fuel (SRF) or refuse derived fuel (RDF) which can then be burnt in a suitable plant such as an EfW plant or a Cement kiln, where the fuel may be used to reduce the plant's reliance on coal or other fossil fuels.

Where the biological process is Anaerobic Digestion, this produces a biogas, which can be used to provide power for the plant, with any excess exported to the national grid.

MBTs encompass a wide range of technologies depending on whether composting (often termed 'Biodrying') is used instead of AD, and whether the biological process comes before the separation processes. There are five main types of MBT plant.

- Plants that incorporate anaerobic digestion to generate biogas for electricity production. Anaerobic digestion also generates a digestate to be discharged or to be dewatered, producing a compost product

- Plants that produce an RDF product
- Plants that produce a compost product and/or a stabilised material for landfilling as well as an RDF product
- Plants that produce a compost product
- Plants that stabilise waste prior to landfill.

Plants can be termed MBT, MBT (AD), BMT or BMT (AD) depending on the type. There are also a few specialist types of plant that may use all of these technologies in combination. There are several examples of MBTs technologies throughout Britain, with notable examples in London, South Wales and in Lancashire

Some Mechanical Biological Treatment (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 present. As a part of the residual waste procurement project, a separate study has been conducted on the markets for the SRF/RDF produced by MBT plants. The study was undertaken to assess the commercial risks with developing a plant of this type as the gate fee for the fuel produced could vary considerably depending on the regional and national market develops.

Potential applications for the soil improver/compost associated with this type of plant are limited. As the source of waste that feeds the plant is not source-segregated, it cannot comply with regulations governing food wastes (the animal by-products regulations or ABPR). It is possible that some of these regulations may be relaxed in the future. Also, the Government is still considering whether the use of the compost/soil conditioner from MBTs at landfilled should be classified as landfilling, and therefore would not count towards diverting waste from landfill. These issues are some of the main technical risks associated with this type of process.

The quality of the fuel that is produced is also another important consideration. Contaminants in the feedstock impact on the quality of the fuel, examples of which include mercury or other heavy metals.

4.3.1.3 Mechanical Heat Treatment

Mechanical heat treatment or 'Autoclave' technology consists of a large pressure vessel into which the waste is placed and heated to a temperature of around 150°C using a source of steam. This turns the waste into a fibrous material from which recyclables such as glass and metals can be then recovered. An example of this type of technology is the Sterecycle plant in Rotherham.

The fibre, which is high in organic content, can then be used as a type of low-grade compost for use in landfill sites as a part of the restoration process. An alternative is to use the fibre as fuel as it has high calorific value. The main risks associated with this type of technology lie in finding a market for the fibre, and also in the way in which the fibre is classified when it is applied to a landfill, as it may not count towards diversion targets.

4.3.1.4 Advance Thermal Treatment (ATT) technologies*

This is a range of technologies that are related to incineration, but use a more controlled chemical reaction in the combustion chamber. In a 'normal' combustion process, the waste is heated with an excess of

* sometimes referred to as 'Advanced Conversion Technologies' (ACT)

oxygen from the air, so that it is burnt completely. In an ATT process the process is carried out with a controlled supply of oxygen so that the waste is not completely burnt.

There are three main alternatives:

- The waste can be converted chemically into a type of gas called 'syngas' using the injection of steam into the combustion chamber. This can be stored and used as a fuel;
- Alternatively the waste can be broken down by the action of the heat to produce another type of fuel related chemically to diesel fuel, again this can be stored and used; and
- A form of gasification called 'close coupled gasification' (CCG). In this, the gas produced is burnt completely in 2-stage combustion process, so that the gas produced cannot be physically separated out and stored.

This type of technology has been used in other industries, but is relatively new to the treatment of household wastes. Examples exist in Europe and Japan with examples of CCG in Norway, Slovenia and in several plants being developed in the Isle of Wight, Scotland and Derby.

4.3.2 Organic Waste

Although organic wastes can be treated in thermal processing plants, the potential for using organic wastes as a renewable resource means that it is becoming less acceptable to allow organic wastes to be a significant part of the residual waste stream. The potential to generate electricity via anaerobic digestion means that more councils across the UK are adding segregated food waste collections to enable this to happen. There are however, a limited number of technologies that can be used to treat organic wastes. They fall into the categories of composting and anaerobic digestion.

4.3.2.1 Composting

Composting is a natural process that employs bacteria, fungi and other simple organisms in the presence of air to break down the waste and produce a soil improver. There are two main types of composting used to treat household organic wastes.

i. open windrow composting

In this, the organic wastes are placed in specially shaped piles known as 'windrows' which are then turned periodically using a machine to ensure that the correct flow of air reaches the waste and to prevent the conditions from becoming anaerobic.

ii. In-vessel composting (IVC)

The waste materials are placed in a number of enclosed 'vessels', each of these is often about the size of a domestic garage, although larger examples are available. The amount of air, moisture and temperature of the waste is controlled, and the process monitored using electronic probes.

The main difference between the two types of technology is that open windrow composting can only be carried out on green wastes, as a result of controls required in the Animal By-Products Regulations (ABPR). This was brought in by the EU in 2002 following the outbreak of foot-and-mouth disease. All organic wastes which are separately collected and contain kitchen wastes must be treated in an ABPR compliant facility. The regulations stipulate the length of time, and temperature at which organic waste must be treated, this is to ensure that any diseases such as foot and mouth that may be present in the food

waste are killed and cannot be transferred to animals if the compost or soil improver made from the waste is applied to land.

4.3.2.2 Anaerobic Digestion (AD)

Anaerobic digestion, like composting, is a natural process that uses micro-organisms to break down the waste materials to produce a soil improver. The process is similar in nature to the one that takes place in the stomach of cows, and produces large volumes of methane (biogas) as a by-product. This can be used to generate electricity, injected into the gas grid, or provide a fuel for vehicles.

There are a number of different process technologies made by different manufacturers. These are based on 'wet' or 'dry' systems and can digest the organic wastes at different temperatures. These are termed mesophilic (middle) or thermophilic (high) temperature processes. The conditions employed can be optimised to produce biogas efficiently or favour the production of fertiliser depending on the project specifics and the type of technology employed.

There are two other important features of AD and IVC compared with windrow composting:

- Anaerobic digestion cannot treat dense woody materials as these can only be broken down biologically by fungi, which cannot survive in anaerobic conditions; and
- Both technologies' can be built to meet the ABPR regulations which specify the temperature and amount of time that waste is treated in order to kill any diseases that may be present.

4.3.2.3 Advantages and disadvantages of treatment technologies

The advantages and disadvantages of the various technologies are compared in the table below.

Table 4.3: Advantages and disadvantages of the technologies

Technology	Advantages	Disadvantages
Residual Technologies		
Energy from Waste	The technology is well established. Markets are available for the electricity that is produced.	Metal and ash which are recycled do not currently count towards recycling targets. Can be problematical in planning terms due to objections.
Gasification	Markets are available for the electricity that is produced. Electricity can qualify for ROCs.	Technology is not yet proven with household waste in the UK, although becoming more established.
Mechanical Biological Treatment	Based on existing well proven technologies used in MRF facilities, etc. Flexibility and relatively low capital cost.	Markets for the RDF fuel product are currently limited.
Mechanical Heat Treatment (including Autoclave technologies)	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
Organic Technologies		
Windrow Composting	Composting is a simple technology and is very well established. This is already used by the Council to treat recovered green waste. There is an established market for products.	Not permitted for use with food waste
In-Vessel Composting	Relatively simple technology and is very well established. Market for products well established including to the public.	Markets for the compost well established. Does not produce electricity.

Technology	Advantages	Disadvantages
Anaerobic Digestion	Markets are available for the electricity that is produced.	Technology not yet well established for household waste. Markets for the compost product are limited. Relatively high capital cost.

4.3.3 Review of markets

4.3.3.1 Dry Recyclables

Reviews of markets for dry recyclables have found that they are well established, and the size of the market for ‘higher grade’ products is strong. The value of recovered metals, particularly non-ferrous metals has been very strong in recent years resulting in a strong rise in value over recent years. The markets for other dry recyclables such as paper and cardboard, glass and textiles although variable, historically are well established in the UK.

The market for WEEE is less well established, although this is set to change as the EU is setting stringent targets for the diversion of WEEE, along the lines of the diversion targets set for landfill diversion.

4.3.3.2 Composts and Digestate

Composts produced by IVC and open windrow composting can be produced to high standard, and can suitable for sale to the general public. The standards are known as ‘publically acceptable standards’ (PAS). The standard for compost is PAS100, and source segregated wastes such as the Council’s green waste can be used to make this grade of compost. There is a ready market for this type of compost through retail outlets. There are other lower grades of compost which are only used in agriculture. The market for these is strong as they are a good soil-conditioner and much of the UK’s soils have been degraded by the long-term use of chemical fertilisers. They are also becoming more cost-effective as the price of chemical based fertilisers rises due to their high intrinsic energy demand. There is a small revenue associated with composts

Digestate is the AD equivalent of compost, although it is generally much higher in water content. The PAS standard for digestate is PAS110. The market for PAS110 digestate is in its infancy as this is a relatively newly-developed standard. The response so far has been generally positive, particularly in agriculture where this is particularly attractive as AD digestate contains high levels of nitrogen, which is generally absent in composts. It means that AD digestate is an attractive alternative to chemical and liquid fertilisers. AD digestate can be utilised in a concentrated or diluted liquid form. The market is expected to expand as the availability of AD plants increases in the medium to long-term. Currently the discharge of digestate entails a small cost for the producer of the AD digestates, however this may become a revenue as demand increases.

4.3.3.3 MHT Fibre

The market for MHT fibre is very much in its infancy in the UK, as there are very few plants offering this type of technology. Although products can be made from it, the bulk of this type of material is used as low-grade compost for landfill cover or as a fuel for cement kilns, etc. Long term contracts for cement kiln or EfW incineration may also have risks due to the metals and other elements in the fibre produced, so the long term off-take of this product has a degree of uncertainty.

4.3.3.4 Electricity

The Council has done a substantial amount of work on the issue of electricity generation and the trends in the market over the medium and long-term. It is fair to say that there is a ready market for any electricity produced by a process. This is due to the issues surrounding the generation of electricity in general, which is related to the reduction in the supply of North Sea gas and in the uncertainties surrounding the replacement of the 1st generation of nuclear reactors.

In addition to the revenues from electricity sales to the national grid, waste technologies can attract payments for the production of 'green' electricity. This is under the 'Renewables Obligation Certificates' scheme and is a payment from the government on top of the payment that is received for the sale of electricity. Currently both of these are in the region of £45 per megawatt hour (MWh) generated by the plant. Under the current rules some types of EfW plant can qualify for ROCs if they are sufficiently efficient, depending in the biodegradability of the waste input. Currently this is limited to a 50% maximum, and therefore maximum of half a ROC per MWh.

Currently plant generating 'green electricity' can also attract a double ROC (£90/ MWh) if the gas produced is of sufficiently high calorific value. This applies to the electricity generated by anaerobic digestion facilities.

As with all incentive schemes of this type the revenues and availability may vary over time and this is one of the factors that will need to be further assessed in detail when assessing proposals for treating the Council's waste.

The Council uses a considerable amount of energy per year. In 2010/11 this amounted to 17.7GWh (17.7 million kWh) of electricity for buildings, plus a further 9.5GWh for street lighting and other unmetered supplies. This is a significant proportion of the generation capacity of waste management plants, such as a small energy from waste plant which can generate around 80 GWh annually. It is hoped therefore that the guarantee of supply to a plant, such as this, may yield a favourable deal for the council for the supply of electricity.

A study undertaken in relation to potential electricity revenues (see Appendix H.6) indicates that there is considerable scope for gaining a revenue share from a proposed facility, and using this to gain either a lower gate fee at the start of the project, or an ongoing profit share. This can be done in a number of ways. The simplest is to split revenues based upon an agreed threshold. An alternative is to use a continuously changing 'hedging arrangement' based upon the actual revenue received on a daily or weekly basis. This is much more complex contractually, and generally it is felt that the former option is preferable, as it has less risk of down-sides if electricity revenues were to drop to unexpectedly low production levels.

4.3.3.5 SRF/ RDF

Solid recovered fuels (SRF) and refuse derived fuels (RDF) are the terms used for the fuels produced by waste treatment facilities. They vary in composition, but generally consist of the mixed waste fraction, after recycling, which has been shredded and dried. Depending on the source, this can have a relatively high proportion of biodegradable materials of up to 50%, although it is generally lower than this. The presence of low-grade materials such as plastic, paper and cardboard gives the fuel a high calorific value. It is therefore attractive to high energy users as a replacement for fossil fuels such as coal in the case of power stations and cement kilns.

A review has been conducted into the market for SRF/ RDF in the North Lincolnshire area, looking at capacity and gate fee trends. This is a difficult area to predict, as the use of SRF in some off-takers is dependant upon incentive schemes which may have a risk long-term of being ended or reduced in value.

Generally the uptake of SRF as a fuel in the UK has been slow, because there are a limited number of facilities that are capable of using the fuel. This is a result of technical and licensing issues, as any plant using this must be WID compliant. Currently much of the SRF produced in the UK is exported to continental Europe, such as Holland, Germany and the Baltic states. Use of SRF can therefore attract a premium in terms of the gate fee and the cost of transportation. In addition, published studies by the government have tended to over-estimate the potential size of the market due to assumptions about the use of SRF in coal fired power stations. This market has not really evolved due to technical considerations resulting from the demands and costs of meeting emissions legislation.

The use of SRF in cement kilns, which is the other main alternative, has also been slow. This has been largely due to issues surrounding the licensing of this type of incineration. As there is no agreed standard for SRF in Europe yet, licensing has to be on a case-by-case basis for the process to comply with WID. There are also concerns that the limits set for the more hazardous elements in the fuel may become more stringent as time goes on, increasing the risks associated with being committed to this type of technology.

It can be expected that the market will expand in the medium to longer term. However, this is difficult to predict and brings with it inherent risks long-term.

4.3.3.6 Merchant Plants

An alternative to the procuring of a facility by the Council is the possibility of using a 'merchant' facility. Currently there are none in the County and none that are at an advanced stage of delivery. If an opportunity arises in the future to use a merchant facility, this will be considered on its merits. However, this will depend upon the delivery of Council's procurement projects and the general market conditions.

It should be noted that, as a general principle, exporting waste for treatment out of the county is not politically acceptable as a first option, except for contingency purposes, for example. The Council's preference is treatment within the county for environmental and socio-economic reasons (the 'proximity principle').

The Council also prefers to retain as much of a stake as is practicable in the facilities that it uses for future waste treatment and disposal. This means that some form of joint or whole ownership in facilities is preferred. This will help to deliver facilities by encouraging contractors to the area, and will enable the Council to manage the delivery of the facility and its operation in pro-active manner. It will also have the benefit of increasing the scope for profit and revenues shares with contractors.

4.3.4 Environmental Option Assessment

The assessment of different treatment options can be conducted using an Environmental Options Assessment (this has replaced the Best Practicable Environmental Option (BPEO) assessment). The Environmental Option Assessment (EOA) study has been undertaken on the future options for waste management, looking at the whole service, but focusing on the residual waste management options, as this is the only part of the waste management service which has yet to move away from landfill.

Seven scenarios, which cover a range of possible treatment/management options for the residual waste resulting, have been studied. These have been developed over some time and are a development of the options studied in 2005 for the previous waste management strategy. They are based upon the experience gained over this time from the procurement projects and also the changes that have occurred in the waste management industry in the intervening years, such as greater delivery of facilities, and a greater knowledge of the issues and the markets for the by-products of the processes.

The options are outlined in the table below. They represent examples of all of the main technologies available for the treatment of residual wastes. The definitions also include information that is specific to North Lincolnshire, such as the locations of facilities, which are based on existing or proposed plants.

Table 4.4: Options assessed in the Environmental Options Appraisal

Scenario	Definition
1 Do nothing	Business as usual: all - materials currently landfilled continue to be landfilled with growth rate proportional to the population growth predicted for the authority
2 Regional EfW	Plant available in neighbouring area within the region
3 Autoclave Outside N Lincs	Autoclave with landfilling of fibre produced
4 MBT in N Lincs	Facility built in central location, providing a fuel for a cement kiln, which can be located within the County or elsewhere.
5 Large EfW	Merchant facility outside of the County at maximum practicable distance
6 ATT in N Lincs	Pyrolysis/ Gasification plant built within the county with central location. Capacity in the region of 80,000 tonnes per annum
7 MHT outside N Lincs	Residual waste transported to mechanical heat treatment facility within maximum radius of 50 miles (from centre of the County).

The EOA involves assessing and evaluating the infrastructure required to deliver each of these scenarios against three principal assessment categories:

- Environmental objectives
- Socio-economic objectives
- Operational objectives.

Each of these is further defined by a range of indicators, which provide a quantitative or qualitative measure of the performance of the scenario against that objective. These are shown in Table 4.5. They are based upon the latest guidance regarding the statutory requirements for Strategic Environmental Assessment. This approach ensures that the strategy and the SEA are integrated in terms of looking at the same environmental indicators.

Table 4.5: Statutory SEA assessment criteria

SEA Directive Topics	Core Strategy SEA Objectives
Biodiversity	To protect and enhance biodiversity and important wildlife habitats within and outside designated sites
Flora	
Fauna	
	To ensure the protection and enhancement of designated sites including Sites of Special Scientific Interest (SSSI) and Special Protection Areas (SPAs)

SEA Directive Topics	Core Strategy SEA Objectives
Population	<ul style="list-style-type: none"> To tackle poverty, social exclusion and inequality geographically as well as demographically To enhance skills, qualifications and the overall employability of the population To reduce crime, the fear of crime and to promote safer neighbourhoods To improve accessibility to education, employment, recreation, countryside health, community services and cultural facilities for all sectors of the community To encourage the participation in culture, leisure and recreational activities, including in the Countryside To maintain and strengthen the local economy to promote future economic prosperity for North Lincolnshire in rural and urban areas To create vibrant towns and village centres in both rural and urban areas To increase diversity of employment To support and improve the economic activity for rural areas through the retention of local facilities To promote and enhance opportunities for tourism, particularly in rural areas
Human Health	To promote healthier communities
Soil	<ul style="list-style-type: none"> To make the best use of previously developed land and existing buildings To protect local water resources, soil quality and quantity
Water	<ul style="list-style-type: none"> To minimise the risk of flooding To protect local water resources, soil quality and quantity
Air	<ul style="list-style-type: none"> To improve air quality To reduce congestion, particularly around the South Humber Bank Ports
Climatic Factors	<ul style="list-style-type: none"> To adapt to the impacts of climate change fro the built and natural environment To reduce greenhouse gas emissions particularly from transport
Material Assets	<ul style="list-style-type: none"> To provide a sufficient and appropriate mix of housing that is affordable, decent and designed to a high standard To improve public transport provision and promote sustainable modes of transport To increase energy efficiency and increase the use of renewable energy particularly from wind energy To reduce generation of waste, the proportion sent to landfill and to increase re-cycling To promote the use of sustainability sourced products and resources and re-using and recycling products
Cultural Heritage (including architectural and archaeological heritage)	To protect and enhance heritage assets including archaeological sites and monuments, historic landscapes, and local townscapes and their settings
Landscape	To maintain and enhance the quality of countryside and wider landscape

These have been assessed using a weighted matrix analysis. In this, a score is derived for each criterion and then multiplied by a factor (the weighting) to give an overall score. The weightings used in the study are listed below, together with the data source used for the analysis. The full data treatment is given in Appendix F.

Table 4.6: EOA assessment criteria and weightings

Objective	Criterion	Weighting
1. To ensure prudent use of land and resources	Resource depletion avoided burden in 1m year timescale (WRATE)	4.8%
	Land-take (Ha)	2.4%
2. To reduce greenhouse gasses	Emissions of Greenhouse gases (WRATE)	11.8%
3. To minimise air quality impacts	Human toxicity (WRATE)	5.6%

Objective	Criterion	Weighting
	Air acidification (WRATE)	2.6%
	Ozone depletion (WRATE)	3.7%
	Odour issues (WRATE)	2.7%
	Dust problems (WRATE)	2.8%
4. To conserve landscapes and townscapes	Visual and landscape impacts	4.5%
5. To protect local amenity	Noise	3.6%
	Litter and vermin	2.0%
6. To minimise adverse effects on water quality	Eutrophication (WRATE)	2.6%
	Aquatic ecotoxicology (WRATE)	3.4%
7. To minimise local transport impacts	Transport impact (WRATE GHG)	5.1%
8. To provide employment opportunities	Number of jobs created (includes transport)	2.4%
9. To provide opportunities for local education and participation	Potential for participation in recycling/ composting and waste minimisation	4.0%
10. To minimise costs of waste management	Overall costs (£M)	9.4%
11. To ensure reliability of delivery	Maturity of technology including markets for products and bankability	4.2%
	Technical delivery of the facility including planning/ permitting	6.7%
12. To conform with waste policy	Waste minimisation	5.0%
	Percentage of materials recovered (%)	5.2%
	Percentage of materials recycled/ composted (%)	5.5%
Total		100.0%

The weightings have been agreed as part of the development of the waste management strategy. These have been modified slightly on the basis of the lessons learnt by the Council since the previous document was published. More weight has been given to the criteria under heading 11 'To ensure reliability of delivery' and heading 10 'Overall costs'. Where possible, WRATE has been used to provide quantitatively comparable data to underlie the scores. This reduces the subjective scoring, and makes the exercise more robust technically. One of the benefits of using the WRATE program is that the data can be filtered to focus on particular impacts in detail.

4.3.5 WRATE Analysis

As part of the assessment process, WRATE analysis of the options has been undertaken. WRATE stands for "Waste and Resources Assessment Tool for the Environment" and is the Environment Agency's Life-Cycle Analysis tool for measuring the impact on the environment of waste management systems. It consists of an extensive database of processes, materials, receptacles and vehicles which can be pieced together using a graphic interface to build up a model of the waste management system. The results from this have been used as the basis for the scores in many of the criteria listed in the BEO options appraisal above.

WRATE can be used to calculate the impact on the environment of the system by determining the quantity of materials and chemicals that are emitted to air, land and water. It also assesses the amount of energy generated or off-set by a process.

The results are calculated for: Global Warming Potential, Eutrophication, Acidification, Human Toxicity, Aquatic Ecotoxicity, and Resource Depletion.

The results of the study are presented and discussed below, and presented in full in Appendix F and Appendix H.

4.3.5.1 Residual Waste Treatment

A model for each of the technology options listed above was built up using the data from a mass flow model. This model was developed for the assessment, together with other information such as the data from composition studies undertaken recently for the Council.

The ‘multi criteria analysis’ results are shown in Figure 4.2 and the results in WRATE are shown with impacts giving positive numbers and benefits giving negative numbers. This means that the further down the graph a bar goes the better.

Figure 4.2: Multi criteria comparison

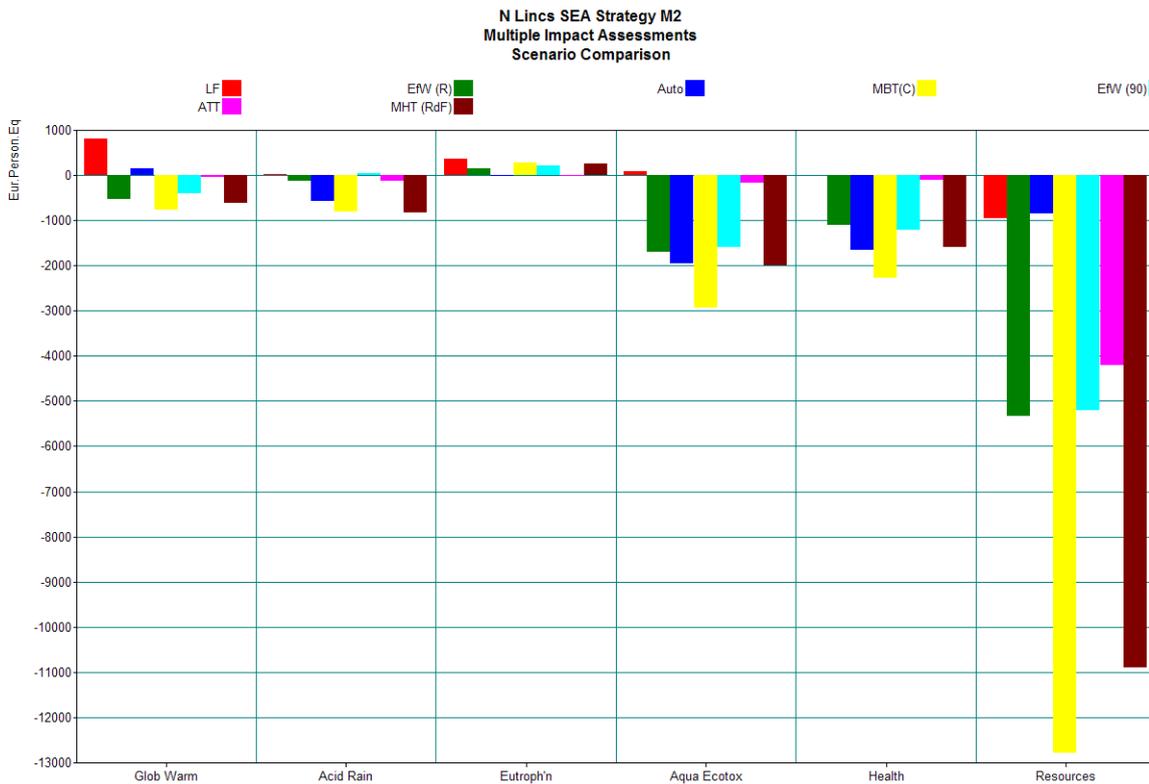


Figure 4.2 shows all of the results for each of the 6 factors together for all seven options. The figures that produced the charts are shown in Table 4.7. They show clearly that there is a considerable benefit from moving away from the use of landfill as the waste disposal option (the red bar on the left of each column).

When comparing each of the options on Global Warming Potential (the left hand column) it can be seen that MBT (option 4) shows the greatest benefit (least impact), followed by MHT (RdF) (Option 7) and EFW (R) which is Option 2. In terms of the WRATE impacts, MBT scores highest in all of the impacts except for acidification and eutrophication, where MHT and Autoclaving are better respectively.

Table 4.7: Normalised residual waste results

Impact Assessment	Unit	LF	EfW (R)	Auto	MBT(C)	EfW (90)	ATT	MHT (RDF)
		Total	Total	Total	Total	Total	Total	Total
Climate Change: GWP 100a	Eur.Person. Eq	787	-517	137	-730	-390	-41	-596
Acidification Potential: Average European	Eur.Person. Eq	22	-129	-558	-775	33	-119	-802
Eutrophication Potential: Generic	Eur.Person. Eq	350	145	-12	276	213	-11	250
Freshwater Aquatic Ecotoxicity: Faetp Infinite	Eur.Person. Eq	93	-1,625	-1,885	-2,830	-1,535	-152	-1,928
Human Toxicity: htp Infinite	Eur.Person. Eq	-3	-1,069	-1,603	-2,192	-1,168	-94	-1,541

Source: WRATE assessment

The results are shown below. They show that the MBT option scores well compared to the other scenarios modelled.

Table 4.8: Final weighted scores

Scenario	1	2	3	4	5	6	7
	LF	EfW (R)	Auto	MBT(C)	EfW (90)	ATT	MHT (RDF)
Environmental	0.10	0.38	0.32	0.50	0.26	0.34	0.38
Socio-economic	0.028315	0.07446	0.069133	0.158	0	0.149168	0.0383244
Operational	0	0.170633	0.0528	0.211339	0.170633	0.177694	0.1239245
Total Score	0.131207	0.62	0.439198	0.865275	0.428437	0.662247	0.5444439

4.3.6 Organic waste treatment

For the organic waste treatment service a similar study has been undertaken using data from the composition studies and the mass flow model developed for the assessment. The main options that have been assessed are:

Table 4.9: Organic waste treatment options

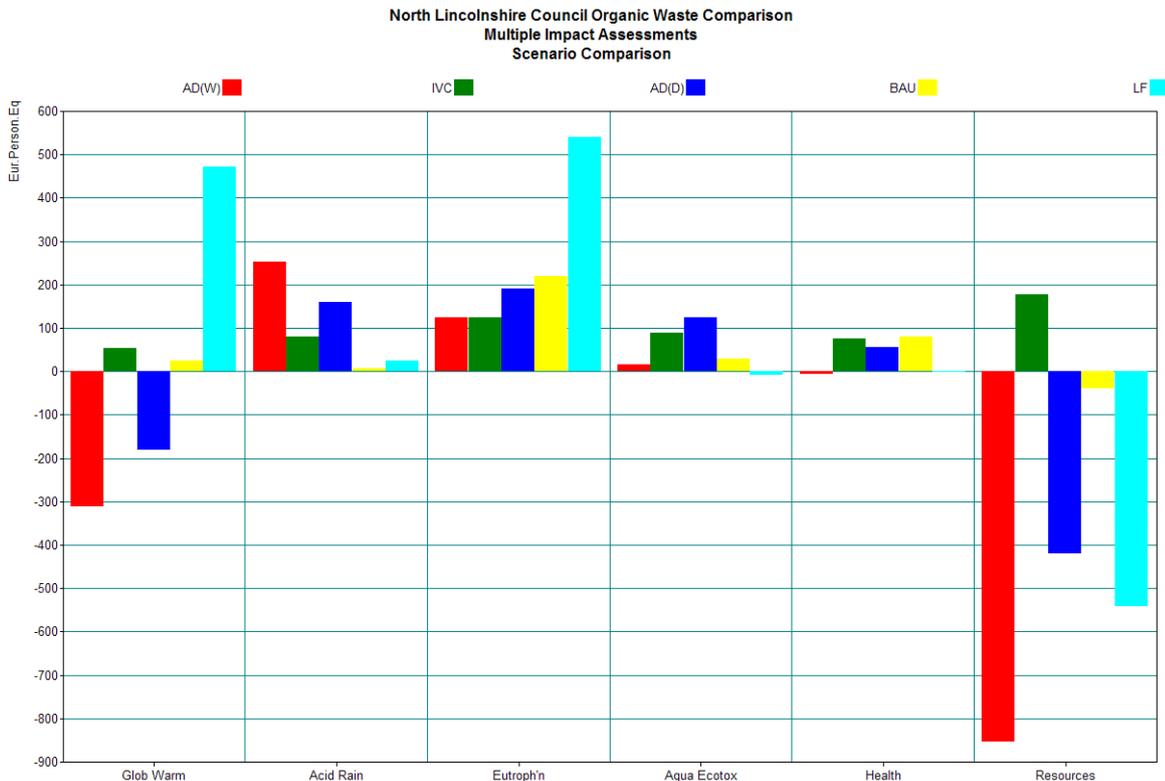
Scenario	Definition
1 'Wet' Anaerobic Digestion	This is a form of anaerobic digestion that uses significant quantities of water during processing. This has the advantage of making the process more efficient at producing biogas, but has the disadvantage in that large volumes of 'digestate' need to be marketed, or dewatered prior to spreading to land
2 In-Vessel Composting	As discussed earlier, this is a relatively simple aerobic technique which uses an enclosed environment and forced aeration to compost the waste
3 'Dry' Anaerobic Digestion	This process uses less water than wet AD and has the advantage of being able to process a certain amount of woody material which is sometimes used as a bulking agent, which passes through the system
4 Business as usual	This is modelled as being windrow composting of the green and garden wastes with landfill of the food fraction

Scenario	Definition
5 Landfill	This is shown to illustrate the saving in comparison with a 'do nothing' scenario, in reality option 4 is the least that the Council could do and fulfil its obligations

4.3.7 Results

The results clearly show the benefits of all of the options over the 'do nothing' scenario, particularly in the critical impact of global warming potential and eutrophication. AD shows greater benefits than IVC due to the generation of electricity making the process less impacting on the environment. IVC shows a slightly worse performance overall than the 'business as usual option'. This is mainly due to the relatively high energy usage of IVCs.

Figure 4.3: WRATE results for the organic waste treatment options



4.3.7.1 Results of the Organics WRATE Analysis

Table 4.10: Normalised organic treatment results

Impact Assessment		AD(W)	IVC	AD(D)	BAU	LF
	Unit	Total	Total	Total	Total	Total
climate change: GWP 100a	Eur.Person. Eq	-312	52.9	-181	23.8	472
acidification potential: average European	Eur.Person. Eq	254	79.4	159	7.42	24.6
eutrophication potential: generic	Eur.Person. Eq	123	124	191	219	540
freshwater aquatic ecotoxicity: FAETP infinite	Eur.Person. Eq	15.5	89.8	124	29.4	-8.75
human toxicity: HTP infinite	Eur.Person. Eq	-7.01	76.3	55.4	80.1	-1.99
resources: depletion of abiotic resources	Eur.Person. Eq	-853	177	-420	-38.3	-541

4.4 Recycling

The impact of the recycling system has been assessed. This is based on data obtained from wastedataflow that the Council produces for the government, and the mass-flow modelling undertaken as a part of the study. No major changes to this are envisaged in the life-span of the strategy, so this has been compared with the 'do nothing' scenario of landfilling. It illustrates the improvements that have been made in the Council's management

Figure 4.4: Recycling WRATE results

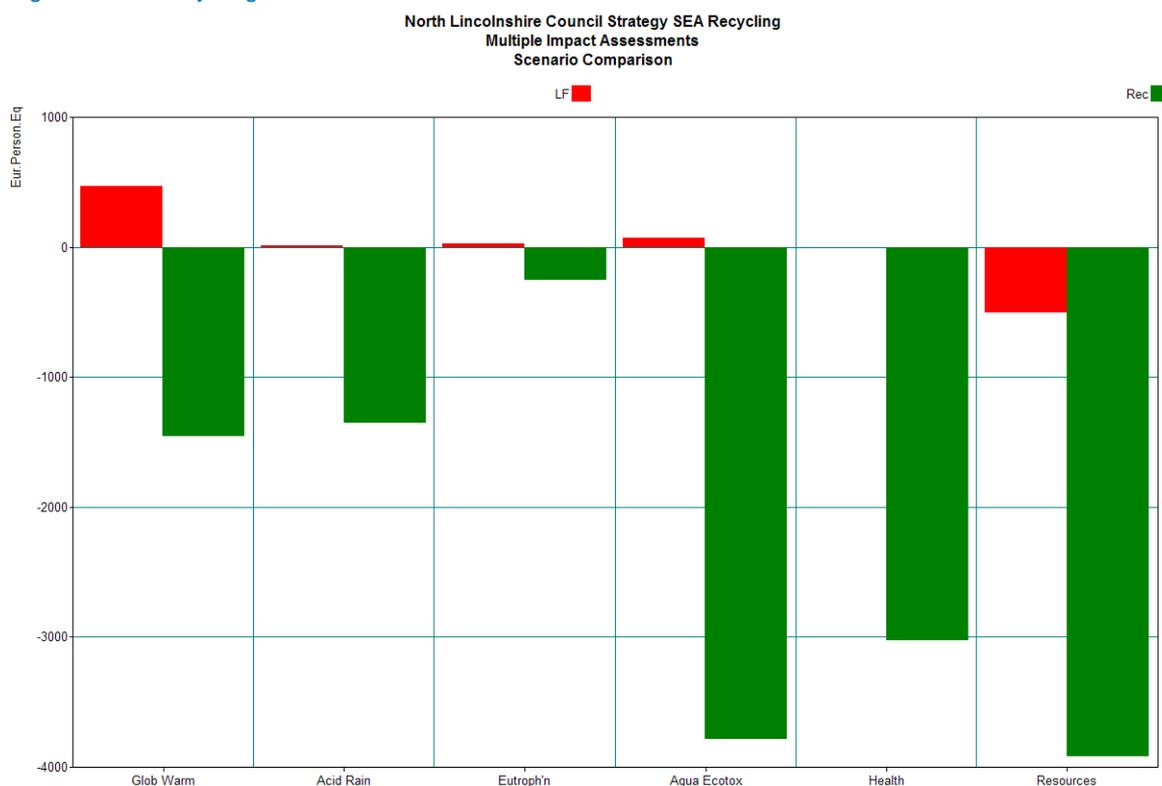


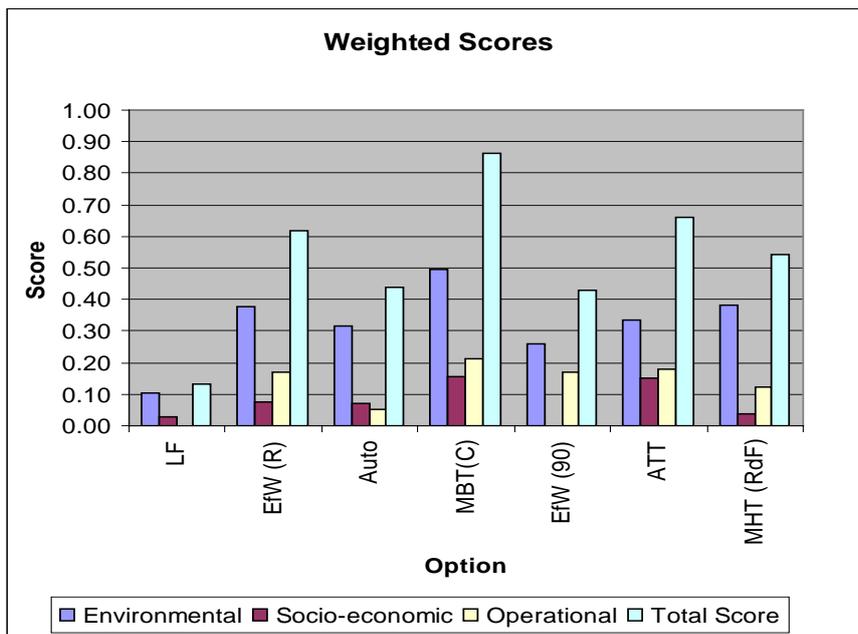
Table 4.11: Normalised WRATE results for recycling

Impact Assessment	Unit	LF	Rec
		Total	Total
climate change: GWP 100a	Eur.Person.Eq	483	-1,495
acidification potential: average European	Eur.Person.Eq	15	-1,390
eutrophication potential: generic	Eur.Person.Eq	31	-260
freshwater aquatic ecotoxicity: FAETP infinite	Eur.Person.Eq	71	-3,902
human toxicity: HTP infinite	Eur.Person.Eq	0	-3,125
resources: depletion of abiotic resources	Eur.Person.Eq	-519	-4,021

4.4.1 Conclusions

The outcome of the BEO assessment is that the best scoring technology type is MBT based within the Borough. Of the other options, EfW within the region and advanced thermal treatment score highly, a sensitivity analysis indicating that these are difficult to differentiate (see Appendix F).

Figure 4.5: Weighted scores for the EOA assessment



It should be noted that all of the major options score significantly higher than the ‘do nothing’ option of landfill, which in practical terms does not fulfil many of the objectives required and therefore scores very poorly. The assessment shows the benefits of situating plants within the County and gives an indication of the benefits of applying the ‘proximity principle’ to the choice of waste technology used.

The study also shows that although MBT is the highest scoring option, options which provide a means of generating electricity also score highly, particularly if situated within the Borough. This gives a range of options which are acceptable in practical terms, and which will have demonstrable benefits to the Borough as a whole.

4.5 Risk assessment

The waste hierarchy encourages reducing the amount of waste produced, increasing the level of recycling, and recovering value from the residual waste. Therefore the waste strategy should follow the aims of the waste hierarchy, but also ensure that the adopted strategy can be delivered and is as free from risks going forwards as is practicable.

The principal risks to North Lincolnshire in successfully implementing the waste strategy come from the following key areas:

- Acceptability of the solution
- Technical operation of the facilities
- Marketing of the products that would be produced by treating the waste
- Future Proofing

- Cost.
- Funding

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

4.5.1 Acceptability

When the public oppose waste treatment facilities, gaining planning permission will be difficult. However, if facilities are delayed then there will be significant financial implications for North Lincolnshire. The public, as a whole, is more sophisticated in terms of their knowledge of waste management issues than was the case a few years ago, and the efforts to engage with them in delivering facilities must be sensitive to this. Local issues such as the import and export of wastes need to be taken into account. It is one of the guiding principles of waste management in North Lincolnshire that waste should not be imported or exported out of the Borough if at all possible

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, particularly if sited in high-profile areas. While the impacts can be minimised, they cannot be eliminated. Landfills will still be required for the foreseeable future. Whilst the amount of waste that will need to be landfilled will reduce, additional landfill capacity may still be required over the longer term. This is especially true in other local authority areas but less so in North Lincolnshire where existing consented void space is in abundance.

There will be a need for both appropriate planning policies and education.

The recycling rates required will require the public to both adapt their lifestyles to minimise the amount of waste that they generate, and increase the amount of the remaining 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. There will be a need to use suitable public education programmes that aim to ensure that the required recycling and minimisation rates are achieved.

4.5.2 Technical operation

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 reliability of the treatment technology and the availability of markets for the products that they produce. Landfilling, although used as a baseline comparison in the modelling studies, does not represent a viable option. This is because it fulfils none of the objectives of the waste management strategy in technical or environmental terms. It also represents the biggest single risk factor, as far as costs are concerned, due to the new system of reducing landfill by the use of taxation rather than the previous target-based system.

EfW technology is a very well established technology and there is a readily available market for the electricity that would be produced. There is also the possibility of generating 'green electricity' from the biodegradable fraction of the waste. How this is measured is still being finalised by DECC, but there will be some potential revenues.

Mechanical/Biological treatment (MBT) and mechanical heat treatment (MHT) technologies are less well established, and markets for the products that they produce are currently limited. At the present time a significant proportion of the fuel produced is exported to Europe, as relatively few facilities are currently

available in the UK. The option of using cement kilns exists. However, this is typically regarded as a high energy using industry which is less desirable in the long term, if one considers the Council's carbon footprint including its sub-contractors. This is also dependant upon the construction industry being relatively buoyant in the long term, which is by no means certain.

The technologies for pyrolysis / gasification are still being developed in the UK, and carry risks associated with the long-term reliability of operation and any changes in the waste composition going forwards.

4.5.3 Marketing of the products

The targets within this strategy are wholly dependant on the ability to provide products that are acceptable to the market. If the products are not of sufficient quality or markets do not exist for the products then the materials will need to be landfilled or burnt. This would increase the cost for treating the residual waste due to the need to pay for the further treatment/landfilling of the products. If the material was sent to landfill, North Lincolnshire would be exceeding its landfill allowance target. Any additional costs, including gate fees and landfill tax, would have to be met.

One of the risks associated with using MBT outputs as a fuel in cement kilns, for instance, lies in the regulations surrounding the emissions to air that may be produced. This is due to the presence of heavy metals and elements such as chlorine. There are risks in the long-term that the regulations governing this type of activity may be changed and resulting in the fuel produced having to be landfilled or burnt in another more expensive type of facility such as an EfW.

The other area of concern regarding deliverability of the waste strategy is the availability of markets for materials collected for recycling or composting. Markets for dry recyclable materials, such as paper, are well established. There are significant potential markets for some compost products, such as those produced by IVC and windrow composting facilities, made to the PAS100 standard, but these have not yet been fully established in the case of the 'digestate' produced by anaerobic digestion plants, made to the similar PAS110 standard. One advantage that North Lincolnshire has, however, is the availability of agricultural land on its doorstep which may enable AD facilities and other biofuel projects to be attracted to the area.

Electricity has a ready market and is one aspect of residual and organic waste treatment plants that can make them attractive in helping to solve waste disposal problems. There are incentives such as ROCs for renewable energy which organic waste treatment and some types of residual treatment facilities can earn for the electricity that they generate. This is an important aspect in gaining value for money from any facility that the Council is able to procure and will feature in its efforts to help the waste management system to contribute to the area's wider aspirations in becoming a centre of excellence for the production of green energy technologies.

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

4.5.4 Future Proofing

Developing a waste management strategy that is future proof is particularly challenging. There are a number of reasons why the delivery of a waste management strategy can fail. Key risks here lie in changes in legislation and changes in the waste that is produced.

Waste legislation is constantly changing, the changes to the LATS system being a good example. This type of change can have a large bearing on a contract going forwards, even in the short to medium term. Long term changes are almost impossible to predict.

All waste management technologies need waste with the right characteristics in order to work cost effectively. This means that when a contract is procured the Council can become locked in to providing waste within a narrow range of factors such as the moisture level and the quantity of certain materials. This has an impact on the ability of the Council to react to changes in the way waste is produced by the householder, and can in some circumstances result in the Council paying large amounts of money in compensation to a contractor if the waste does not meet criteria that may have been agreed years previously.

This tends to indicate that it is preferable to procure contracts for waste treatment that tend to be shorter rather than longer, to manage this type of risk. Currently the shortest viable contract length for a residual facility is regarded as being around 15 years as a minimum, and it is usual to procure longer contracts, up to 25-30 years in length, so that the high cost of building the plant is paid of over a longer period of time, to reduce the 'gate fee'.

4.5.5 The cost implications

This section discusses the cost modelling that was carried out for the scenarios considered in the Environmental Options Appraisal discussed in Section 4.3.4. The costs used have been based on literature reviews of gate fees for the technologies and knowledge of the market in order to compare the costs for the different scenarios. The literature figures for the technologies are used together with the current known costs of the recycling and organics services. These are then inputted into a series of scenarios developed from the mass flow model undertaken for the EOA to give an overall cost for the three services together.

Table 4.12 shows a comparison of gate fees and total costs for treatment per tonne between the different scenarios. The landfill scenario is used as a baseline and it should be noted that the gate fee for this scenario excludes the landfill tax which the Government now sees as the main driver to reduce the reliance on waste going to landfill. In a study like this the gate fees will be project specific and it would be possible for the Council to negotiate a share in revenue which would reduce the costs going forward. However, this would be dependent on issues such as electricity costs and demand and carbon trading which will make different options more competitive going forwards.

Table 4.12 shows that the cheapest gate fee (excluding landfill) is for green treatment at £26/tonne, whilst the highest is for MHT (RDF) at £105/tonne. In terms of total cost for treatment, which includes the cost for transport, the cheapest option (excluding landfill) is for green treatment at £26/tonne and the highest is for MHT (RDF) at £118/tonne.

Table 4.12: Comparison of gate fees and total cost for treatment/tonne

	Gate fees/ tonne	Transport distance	Cost/tonne/ mile (round trip)	Total cost for treatment/ tonne
Landfill (exc tax)	£12	0.0	0.28	£12
EfW (regional)	£97	29.4	0.28	£105
EfW (90)	£97	90.0	0.28	£122
Autoclave	£90	46.4	0.28	£103
ATT	£102	0.0	0.28	£102
MBT	£100	0.0	0.28	£100

	Gate fees/ tonne	Transport distance	Cost/tonne/ mile (round trip)	Total cost for treatment/ tonne
MHT (RDF)	£105	46.9	0.28	£118
Green treatment	£26	0.0	0.28	£26
Food AD	£45	0.0	0.28	£45
Recycling	£43.91	0.0	0.28	£44

Table 4.13 and Table 4.14 show the estimated yearly waste management cost in 2029/30 (with food and without food waste collection) for each of the scenarios considered in the Environmental Options Appraisal. This total cost covers recycling, collection of residual waste and waste treatment/disposal. There are two landfill baseline scenarios, one based on a landfill tax rate of £80/tonne in the year 2014/15 and the other is based on continuing the landfill tax escalator rate of £8/tonne per year up to 2020. This equates to £120/tonne and has been assumed based on the stated Government policy of using landfill tax as the main driver to divert waste away from landfill. For the basis of the analysis, it is assumed that landfill tax will remain constant at £120/tonne throughout the remaining years, under consideration.

The tables show that the highest total annual waste management cost is the EfW (90) scenario both without and with food waste collection (£9,081,275 and £9,152,279 respectively). The lowest cost (excluding the lower landfill cost scenario) is the MBT scenario, both with and without food waste collection, at £7,153,959 and £6,731,745 respectively). However, the MBT scenario is only marginally cheaper than the ATT scenario and it should be noted that with the MBT scenario, the RDF is going to a cement kiln and is not generating electricity. The EfW (regional) and the Autoclave scenarios have very similar total annual waste management costs. The landfill (high) scenario is more costly than MHT (RDF), ATT, MBT, Autoclave and EfW (regional), even the lower landfill cost scenario is only marginally cheaper than the MBT scenario which shows that 'doing something' in terms of residual waste treatment does not cost much more than 'doing nothing' and sending the residual waste to landfill.

Table 4.13: Total annual waste management cost (without food)

Scenario (without food)	
	2029/30
Landfill	£6,328,673
Landfill (High)	£8,344,032
EfW (regional)	£7,420,108
Autoclave	£7,553,267
MBT	£6,731,745
EfW (90)	£9,081,275
ATT	£6,832,513
MHT (RDF)	£8,323,316

Table 4.14: Total annual waste management cost (with food)

Scenario (with food)	
	2029/30
Landfill	£6,828,630
Landfill (High)	£8,550,336
EfW (regional)	£7,739,424
Autoclave	£7,852,679
MBT	£7,153,959

Scenario (with food)	
EfW (90)	£9,152,279
ATT	£7,239,664
MHT (RDF)	£8,507,620

Table 4.15 and Table 4.16 show the total annual waste management cost (without food and with food waste collection), together with the cost per household and the cost per capita for 2029/30.

The tables show that the highest cost per household is the EfW (90) scenario at £125.50 (without food) and £126.48 (with food) and is the highest cost per capita at £52.10 (without food) and £52.50 (with food). The scenario with the lowest cost per household (excluding the lower landfill cost scenario) is MBT at £93.03 (without food) and £98.87 (with food) and is the lowest cost per capita at £38.62 (without food) and £41.04 (with food).

Table 4.15: Total annual waste management cost (without food) including cost per household and per capita

Scenario (without food)	Total	Cost per household	Cost per capita
Landfill	£6,328,673	£87.46	£36.31
Landfill (High)	£8,344,032	£115.31	£47.87
EfW (regional)	£7,420,108	£102.55	£42.57
Autoclave	£7,553,267	£104.39	£43.33
MBT	£6,731,745	£93.03	£38.62
EfW (90)	£9,081,275	£125.50	£52.10
ATT	£6,832,513	£94.43	£39.20
MHT (RDF)	£8,323,316	£115.03	£47.75

Table 4.16: Total annual waste management cost (with food) including cost per household and per capita

Scenario(with food)	Total	Cost per household	Cost per capita
Landfill	£6,828,630	£94.37	£39.17
Landfill (High)	£8,550,336	£118.17	£49.05
EfW (regional)	£7,739,424	£106.96	£44.40
Autoclave	£7,852,679	£108.52	£45.05
MBT	£7,153,959	£98.87	£41.04
EfW (90)	£9,152,279	£126.48	£52.50
ATT	£7,239,664	£100.05	£41.53
MHT (RDF)	£8,507,620	£117.58	£48.80

4.5.6 Funding

The Council also has to consider the cost to Council Tax payers. The review of costs has indicated that any of the options, which include treatment of residual waste, would be less expensive in the medium to long term than just continuing to landfill the waste, particularly if as is assumed, that the landfill tax escalator continues past 2014, which most commentators think will happen.

In order to fund a residual or organic waste treatment plant, the Council will have to find a partner organisation to share the cost. This can be undertaken in a number of ways, under the umbrella term of PPP or Public/Private Partnership. The two most common are; 'project finance' where the contractor

borrow the money required and the council then pays for the service over a prescribed period, often 20-25 years. The alternative often used is called 'prudential borrowing' where the council follows a set protocol recommended by the government for borrowing money and part finances the project.

The advantage of the latter method is that the council has a greater stake in the plant, and therefore more control over issues such as the maintenance and running of the plant. It makes it more attractive to potential contractors who have to borrow less money, and can also mean that the length of the contract can be shortened as the amount of money the contractor needs to pay back to the banks is much smaller. The Council will be investigating these options and any other alternatives that may be proposed in order to facilitate the procurement of new facilities.

Government funding for projects through PFI, for example, has been cut back recently so this may not be an alternative for treatment facilities.

For waste collections, there is currently available a £250M fund aimed at weekly waste collections announced by the Government. It is not envisaged that the council will be bidding for funding to collect residual wastes weekly for a number of reasons. Firstly, the current system has been very effective in increasing recycling levels and going to a weekly collection may be counter-productive and encourage more waste to be produced. The current system has been generally well received and changes may well be unpopular. Also, the funding itself is relatively small and of short duration (2 years) and so would not be suitable for changing the current system, as this would be a long-term commitment. Instead, this funding source may be suitable for the introduction of segregated food waste collection, and this possibility is being explored by the council.

4.6 Consultation

North Lincolnshire Council recognises the importance of regular consultation with all stakeholders, particularly members of the public, and this has been carried out throughout the development and implementation process of the Waste Strategy and will continue into the future to enable the Council to further develop the waste management service. The Council has undertaken a range of consultation exercises, including feedback on its waste management service, and has reacted positively to the stakeholders' opinions by implementing any changes, where possible, to the waste management service as a result of those comments.

A number of surveys seeking residents' opinion on a range of issues have previously been undertaken by Market Research companies and consultants on behalf of the Council. The consultation on the Core Strategy of the Local Development Framework 'A Better Place to be?' in 2006 asked local residents for their views on renewable energy sources and climate change. The findings showed that there was overwhelming support for recycling (93%) and EfW (75%).

A public consultation on the draft Waste Strategy was carried out during October 2007 to January 2008. A total of 1,333 responses were received, and the main findings from the consultation process were:

- Current collection system:
 - 79% of respondents were satisfied with the current arrangements for recycling of household waste;
 - 62% of respondents were satisfied with the current arrangements for collection of non-recyclable household waste;
 - The majority of respondents considered that limiting the size of the bin they have for non-recyclable waste did not encourage them to recycle more of their waste; and

- The majority of respondents considered that households who produce the most waste should not have to pay more for the collection and disposal service that they receive.
- Recycling:
 - 83% of respondents supported the aim of increasing the level of recycling and composting of household waste to a minimum of 45% by 2010; and
 - Only 23% of respondents considered that more kerbside recycling facilities should be provided, irrespective of cost.
- Treatment of non-recyclable waste:
 - 66% of respondents supported the aim of dealing with locally produced non-recyclable waste in North Lincolnshire, but only 15% of respondents felt that waste produced by other councils should be dealt with in North Lincolnshire, even if local residents were to benefit financially; and
 - 66% of respondents stated that it is acceptable to dispose of non-recyclable waste by burning it to produce heat and electricity.
- Education on waste awareness:
 - 83% of respondents considered that more should be done to inform and educate residents about the benefits of recycling; and
 - 74% of respondents believed that consumers should be encouraged to buy fewer packaged goods.

The results of the consultation showed that there was strong support for achieving and exceeding the 45% recycling target. In response to this, the Council adopted a local target of 50% to be achieved by 2010. Less support was evident for providing additional recycling collection facilities. There was also strong support for treating the non-recyclable waste produced by North Lincolnshire residents in a facility located in North Lincolnshire, which recovers both electricity and heat from the waste. These findings were used in developing the previous version of North Lincolnshire Council's MWMS.

Table 4.17 shows a satisfaction survey undertaken in 2009 ("Interim Place Survey 2009: Prepared for North Lincolnshire Council") comparing the various services that the Council carries out. This shows that compared with other services such as sport/leisure facilities, the waste management services such as refuse collection, doorstep recycling and local tips/HRCs all achieve a high net satisfaction i.e. +73%, +75% and +73% respectively. This together with the fact that the Council does not receive a lot of complaints about waste related issues indicates that stakeholders are happy with the waste management service provided. The only waste related issue that stakeholders were less happy with was keeping public land clear of litter and refuse which had a net satisfaction of +39% and is therefore an area that the Council will need to work on in order to increase the satisfaction of the service provided.

Table 4.17: Satisfaction survey

	Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied	Net Satisfaction %
Keeping public land clear of litter and refuse	14%	48%	15%	17%	7%	+39
Refuse collection	41%	43%	7%	6%	3%	+73
Doorstep recycling	39%	43%	11%	5%	2%	+75
Local tips/household waste recycling centres	37%	43%	14%	5%	2%	+73
Local transport information	14%	32%	36%	13%	5%	+28
Local bus services	22%	29%	28%	12%	9%	+30
Sport/ leisure facilities	13%	31%	32%	14%	10%	+20
Libraries	26%	36%	29%	6%	2%	+54
Museums/ galleries	18%	35%	38%	6%	4%	+42
Theatres/ concert halls	13%	33%	37%	11%	7%	+28
Parks and open spaces	25%	41%	21%	9%	4%	+53

Source: Interim Place Survey 2009

The Council will endeavour to continue effective consultations and communications with stakeholders and one measure that the Council may consider is the setting up of local community involvement groups/forums who will be able to have an input into discussions regarding waste treatment facilities.

4.7 Proposed approach to meeting these challenges

Having assessed the waste management challenge that North Lincolnshire 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, a broad strategic approach has been developed. The Waste Strategy, which follows the waste management hierarchy, and accounts for the findings from the studies and assessments conducted, is that the Council needs to implement arrangements that:

- Limit the growth in waste arisings through the use of waste reduction and minimisation programmes;
- Allow the Council to be able to achieve any future statutory recycling and other targets imposed by the Government;
- Treat the remaining waste in facilities located in North Lincolnshire in order to recover energy in the form of a fuel, electricity and/or heat from it. This will enable North Lincolnshire Council to meet the targets set by the Government and help achieve the long term target of achieving greater sustainability; and
- Provide sufficient future landfill capacity for any waste which is either unsuitable for recycling or cannot be made into a useable product after being processed in the treatment facility.

The Environmental Options assessment has shown that the most suitable option for meeting future landfill targets is to treat the residual waste in an MBT facility. The options of either a small EfW facility (such as that located in a neighbouring authority) or a pyrolysis/gasification are less favourable, but would still have

benefits to the environment, plus the possibility of revenues from electricity. The technologies for pyrolysis/gasification are still being developed and there are known issues regarding suitable sites for EfW facilities within the County such as the size of the Council's waste generation. However, all of the treatment options, with the exception of MHT and EfW facilities placed outside North Lincolnshire have benefits.

Deliverability is a key issue for any waste management project and therefore, if these solutions can not be delivered, North Lincolnshire Council may well have to consider other options that conform to the underlying principles of diverting waste away from landfill and usefully recovering value from it. It is important to note that whatever solution is adopted, land will be required for both the treatment facility and for facilities to handle any additional material collected for composting.

The adoption of the Waste strategy will mean that North Lincolnshire will make an effective contribution towards meeting the UK target for reducing the amount of BMW which is landfilled.

5. Implementation of the Necessary Actions

This section:

- Identifies key responsibilities;
- Discusses possible partnerships with neighbouring authorities and the private sector;
- Outlines North Lincolnshire's activities for developing both waste minimisation and recycling initiatives;
- Discusses how North Lincolnshire will arrange for a new waste disposal contract which will enable the landfill allowance targets to be met; and
- Assesses the impact on our carbon footprint.

It also presents the proposed timetable for implementing the Strategy, discusses how the Council plans 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 groups that will have a role to play in implementing North Lincolnshire's Waste Strategy, namely:

- **National Government:**
Provides the legislative framework for the management of wastes in the County. It also provides incentives through taxation and other means, and from time to time can provide funding through various bodies such as WRAP and Defra;
- **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;
- **North Lincolnshire 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 North Lincolnshire's residual waste, and providing capacity for any landfilled waste;
- **Voluntary groups:**
Providing both facilities that enable items to be re-used, and providing 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; and
- **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, which is constructed in North Lincolnshire.

5.2 Partnerships with neighbouring authorities

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

North Lincolnshire Council along with the three neighbouring unitary local authorities of North East Lincolnshire Council, East Riding of Yorkshire Council and Kingston upon Hull City Council were created following the abolition of the former Humberside County Council in 1996. Immediately following the reorganisation of local government the two authorities on the north bank of the Humber joined together and contracted to a single private sector organisation for the management of their MSW until 2024. Similarly, the North East Lincolnshire Council entered alone into a long-term contract for the management of its municipal waste stream for the same period.

North East Lincolnshire Council is currently updating its waste strategy, which was previously published in 2004. The new draft strategy sets higher recycling targets, and includes a target to stop landfilling of any biodegradable MSW by 2020 at the latest, with the aim of achieving this by 2015. Achieving this target will require additional treatment capacity. North East Lincolnshire already treats some of its residual MSW in a combined heat and power (CHP) facility, and its preferred approach to meeting the target, based on its assessment of current treatment technologies, their costs, and the risks associated with them, is to use a second CHP facility located at the same site as that used for the current CHP facility.

Although the new plant will have a capacity which is higher than the estimated arisings of waste which is currently landfilled. North East Lincolnshire Council is seeking to partner with waste management companies to provide a facility that would treat both North East Lincolnshire's residual MSW and suitable commercial/industrial waste generated in North East Lincolnshire. It is our understanding that there will be no available capacity to treat waste from North Lincolnshire Council.

To the west, Doncaster Metropolitan Borough Council has been party to a longstanding and joint waste management arrangement with the other South Yorkshire metropolitan authorities of Barnsley and Rotherham. Each of these three authorities has separately prepared waste management strategies, and together produced a Joint Strategic Waste Development Plan Document.

This led to the formation of the BDR waste partnership which has procured, under PFI, a contract for the treatment of their residual waste. Currently public consultation is taking place on proposals for a new waste recycling centre on land at Bolton Road between Bolton-on-Deerne and Manvers. The proposals follow the selection by the BDR Waste Partnership of 3SE – a partnership between Shanks Group PLC and Scottish & Southern Energy – as its preferred partner. The proposed technology is an MBT facility to be used up to 2026. The facility will be producing SRF which will be burnt in the Ferrybridge power station. Again there is no capacity available for the treatment of municipal waste from North Lincolnshire.

To the south, Lincolnshire County Council is the waste disposal authority for the constituent District Councils that collect waste on behalf of their respective residents. They announced in June 2008 that they plan to build an EfW facility to the south of Lincoln with a capacity of 150,000 tonnes per year. This facility is programmed to be operational by 2015, and is currently under construction. As with the other projects mentioned above there is no capacity from these for treating waste from North Lincolnshire, and the options for joint working on residual waste is severely limited.

Informal discussions have been held from time to time with each of the authorities named above about possible opportunities for collaborative working on waste. To date an agreement has been reached on the shared provision and use, by Lincolnshire County Council, of two of the Council's Household Recycling Centres adjacent to the southern boundary of North Lincolnshire and a procurement alliance (PANNEL) has been agreed with North East Lincolnshire Council. The necessary procurement, by the Council, of a replacement residual waste treatment service contract presents a potential opportunity to expand on these existing, limited, joint working arrangements. A number of prospective partners are evident and these

include not only neighbouring local authorities, but a number of private sector organisations within North Lincolnshire and the local Primary Care Trust, each of whom have similar waste management and/or energy needs.

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. However, historically it has not been at the top of the waste agenda as the primary focus has been on recycling and disposal.

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 their waste by weight or volume. 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 Council may be required to consider such a scheme if waste growth cannot be controlled voluntarily, but recognises that the findings from the public consultation indicate that there is currently little public support for this type of initiative.

Finding ways to minimise the amount of waste that is produced is a cost-effective way of protecting the environment. Waste minimisation is a pro-active response as it reduces the amount of waste that which is produced and also reduces the costs for collecting and managing the waste.

Examples of Government initiatives to reduce packaging waste are:

- The Courtauld Commitment – this is an agreement between the Waste and Resources Action Programme (WRAP) and major grocery organisations, which will lead to new packaging solutions and technologies which reduce the amount of packaging that ends up in the household bin. The agreement is a powerful vehicle for change and will result in real reductions in packaging and food waste, and thirty major retailers, brands and suppliers have joined the Courtauld Commitment since it was launched in July 2005.
- Plastic bags - 13 billion carrier bags which are distributed in the UK each year, and each adult receives on average nearly 300 disposable bags every year. In February 2007, a voluntary agreement was announced with UK retailers to reduce the overall environmental impact of carrier bags by 25% by the end of 2008. 22 major retailers and six trade associations signed up to the agreement. However, as this has not resulted in a substantial reduction in the number of bags distributed, the Government will bring forward legislation in the Climate Change Bill, which will require retailers to impose a minimum charge on single-use carrier bags, originally planned for the end of 2009. This will happen if sufficient progress is not made on a voluntary basis.

There have been a number of programmes to develop national waste awareness and minimisation campaigns, an example being the 'Recycle Now' initiatives. The main initiatives for reducing waste are:

- Reducing food waste
- Home Composting
- Re-use schemes
- Encouraging behaviour change with regard to consumption

The Council is continuing to encourage the uptake of home-composting and other initiatives through the use of the Council's website and the local media. The Council has become a member of the 'Waste Information Network' which is an initiative set up to share information amongst local authorities in order to

increase the efficiency of their waste management service. This is done through a combination of information sharing, joint procurement framework arrangements and mentoring.

5.3.1 Food waste

Approximately 6.7 million tonnes of food, or nearly one third of all the food we buy, is thrown away by UK households every year. Some of the waste is made up of things like peelings, cores and bones, but the majority is, or once was, perfectly good food which could have been eaten. The wasted food costs the average family £420 a year, and also has serious environmental implications. For instance, if all of the waste food was eaten, the carbon dioxide impact would be the equivalent of taking 1 in 5 cars off the road.

The "Love Food, Hate Waste" campaign aims to raise awareness of the need to reduce the amount of food that we throw away, and how doing this will benefit us as consumers and the environment. It provides handy tips, advice and recipes for leftovers to help everyone waste less food. This is an example of an initiative which will be further encouraged in the future to help us manage this important resource.

5.3.2 Home composting

Suitable garden and vegetable waste can be composted at home, and can save money by reducing the need to buy fertilisers and peat-based composts. The Council, initially in partnership with the Waste Resource Action Programme (WRAP), operated a subsidised home composting scheme in which residents could purchase home composters for a fraction of the normal retail cost. To date 20,000 of these have been delivered to homes in North Lincolnshire. The Council continues to encourage home composting, but without the aid of 3rd party funding.

Further information on home composting can be found at: <http://www.recyclenow.com/home/composting/>

5.3.3 Re-use schemes

Unwanted items, such as furniture, household appliances and toys, can be passed onto friends or relatives, sold, or offered to other people through the use of websites such as freecycle (www.freecycle.org). They can also be passed on to local charity shops. The Council is continuing discussions with a number of 'third sector' voluntary organisations in an attempt to build capacity within this sector and to explore potential partnership working. Throughout the UK there are many examples of this approach mainly involving the operational delivery of collection and re-use schemes for furniture and other bulky household items.

5.3.4 Behaviour change

There are many ways in which changes in consumption behaviour can reduce waste (and some of these also offer the potential to save money). For example:

- Hire equipment such as DIY tools that will only be used occasionally, or consider sharing them with friends, relatives or neighbours;
- Reduce the use of disposable products such as plastic cups and disposable razors;
- Buy longer life products, such as rechargeable batteries;
- Choose products that have as little packaging as possible; for example, loose fruit and vegetables;
- Use reusable bags rather than the plastic bags provided by retailers;
- Reduce the amount of junk mail that is received by contacting the Mailing Preference Service; and
- Use reusable cotton nappies rather than disposable nappies, and, if possible, use a nappy washing service.

This is one of the most challenging aspects of delivering a waste management system in the long term, as it is very difficult to predict future trends in waste packaging for instance, which in turn will affect the wastes that people produce. An example of this is how waxed cartons e.g. Tetrapak were invented in the late 60s/early 70s and displaced much in the way of glass packaging. However it created a whole new waste stream. A similar new packaging material that has been developed in the recent past is the type of metallised plastic used in crisp wrappers and increasingly in cereal packets. Again, this is a new waste stream, and like waxed cartons it is a compound material that is difficult to recycle.

These examples show one way in which behavioural change can cause challenges to the management of our wastes. Another is sheer quantity of materials that we produce. As mentioned earlier, the residents of North Lincolnshire produce an above average quantity of waste per person and this needs to be addressed to keep costs down and reduce carbon footprint.

The principal way in which behavioural change is managed is by the use of communications and engagement with the community. This can take a number of forms, such as leafleting, the Council website and the local newspaper. As the latter is now printed less frequently, other ways must be found to publicise activities.

The Council will be looking to form new groups and develop new activities that will help get the message across that recycling and waste minimisation are important and need to be constantly improved.

5.3.5 Downsizing residual waste containers

In order to support its waste minimisation programme, North Lincolnshire Council has adopted measures that include the non-collection of excess or side waste and a 'flat lid' policy. The Council has also introduced differential charging for new and replacement residual waste bins. This provides households with the opportunity to 'downsize' their standard 240 litre capacity residual waste container, free of charge, for a smaller 140 litre version. From April 2008, all new occupiers of homes, both existing and new-build, will be issued with a 140 litre residual waste container as standard.

North Lincolnshire Council will continue to promote its waste minimisation initiatives. Further information on these activities can be found on the recycling section of North Lincolnshire Council's web site, which will become more important as time goes on in connecting with the population.

5.4 Improving recycling

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 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 compliment their existing waste promotion campaigns. North Lincolnshire Council has adopted the new logo that is now widely used in all relevant promotional/campaign material. See logo below:



The Council recognise that the introduction of the alternate week collection scheme raised a number of concerns for householders. One of the main concerns is the limited space in the residual waste container, and the main reason for this is the volume required for disposal of both plastic bottles and cardboard. Consequently, in September 2007, the Council introduced a scheme to separately collect both plastic bottles and cardboard for recycling.

The Council will also further increase household waste recycling through a combination of measures including the following:

- Optimising existing kerbside box and bin collections to encourage the highest levels of householder participation and to maximise yields of material recovered. This will include the provision of tailored service solutions for individual households to match their specific needs with the requirements of this Strategy;
- Revising the collection rounds to integrate with the commercial collections service.
- Continuing to improve and enhance the network of HRCs through a programme of investment in security and management of commercial waste arisings.
- Developing the recycling of WEEE, in compliance with Government's legislation, at the eight HRCs in order to help meet the new targets set by the EU.
- Incentivising materials capture through the municipal waste recycling service contract.
- Further promoting and practically assisting the recycling of waste from schools.
- Assessing opportunities to improve recycling opportunities at high-rise flats and other 'hard to reach' properties.

The Council has set a revised target to recycle a minimum of 60% of household waste by 2019/20, and anticipates that this target will be achieved if the measures described above are implemented and the alternate week collection regime is maintained in its current form with augmentation by a new organic waste treatment arrangement. This will enable the collection of food waste, either separately or together with the collected green wastes. This recovered material must be treated in an ABPR compliant process e.g. Anaerobic digestion (AD) or in-vessel composting (IVC).

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 recyclables;
- Capacity to treat residual municipal waste (with or without food waste);
- Capacity to manage similar, non-municipal, waste streams arising locally; and
- Additional landfill capacity.

5.5.1 Recycling

The currently available capacity for both dry recyclable materials and green waste is sufficient to handle the predicted tonnages of these materials collected by the Council for the duration of this strategy period. In order, however, for North Lincolnshire to meet and maintain its recycling target rate of 60%, additional treatment capacity may be required.

The level of recycling would increase if additional food/kitchen waste was collected from households for composting. However, whilst garden waste can be composted at existing facilities, the requirements of the Animal By-Product Regulations would require the additional food/kitchen waste to be composted in specialised 'in-vessel' composting facilities or digested anaerobically. This means that if additional food/kitchen waste was to be collected for composting, new treatment facilities would have to be constructed in the North Lincolnshire area.

An opportunity possibly exists to construct such a facility on the site of the existing Lower Trent Composting Plant (LTCP). This would necessitate an amendment to the existing planning permission and environmental permit. The approval of the State Veterinary Service (now Animal Health) would also be required. If this was deemed not to be an appropriate location or insufficient capacity exists on site, then a separate site would be required. A suitable location for such a site needs to be identified within the Local Development Framework.

5.5.2 Waste treatment

5.5.2.1 Residual Waste

The contract with SITA for residual waste disposal expired in 2011. This has been replaced by an interim contract with Biffa to support the ongoing process of procuring a permanent solution for treating residual waste. A new residual waste management contract, which integrates with the existing contracts for recycling and the proposed changes to the organics system, is required.

The Council conducted a "soft market testing" exercise with potential contractors for a residual waste treatment plant in October 2006 and again in January 2009. The aim of this was to assess how competitive the bidding process for this new facility would be. The exercise identified a number of planning issues regarding the development of the LDF that will need to be considered. There were also concerns that because the amount of waste produced in North Lincolnshire is relatively small, when compared to that produced by other WDAs, bidders may be more likely to concentrate on larger, more attractive, contracts.

An Outline Business Case (OBC) for the procurement of capacity for residual waste treatment has been produced. This highlighted the need to begin this procurement as quickly as possible.

From the assessment of options conducted during the formulation of this latest strategy review, the highest scoring option for residual waste treatment is a local MBT facility. However, the rules and procedures for procuring a new waste disposal contract mean that whilst North Lincolnshire Council can specify that the successful contractor must meet North Lincolnshire's landfill allowance targets, and that the treatment plant must not compromise any future action that North Lincolnshire Council may take to further increase recycling or composting, the risks involved in specifying the type of technology are most suited to a more open approach such as through competitive dialogue.

It should also be noted that whilst the EOA process has identified the best option for the environment, the studies have shown that in terms of the quantities of CO₂ saved, as shown in the WRATE analysis, a number of other technologies were very close. The figures show that options for MBT, EfW locally and ATT locally are all 'good' options and all have considerable benefits to the environment compared with the current regime.

Of the other factors that were considered, such as deliverability and technical considerations, these issues can be overcome to a large extent through the procurement process, particularly if the funding of the project allows a degree of risk to be adopted, or if the Council has a stake in the facility through part or full ownership.

An important issue, that may limit the scope for new facilities, lies in the quantity of waste produced. The amount needing to be disposed of is around 47,000 tonnes per annum rising to around 69,000 tonnes in 25 years time. This is generally on the small side for most technologies based upon incineration such as EfW, and also for ATT technologies where the optimum size is currently considered to be 80,000 tonnes per annum. One of the key factors will therefore be the source of the 3rd party waste that is used to top up the facility.

Identifying possible sites for the construction of waste treatment facilities is a key feature of the Local Development Planning process. 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 be different issues for different types of plants, such as emissions from a combustion facility, odour from compost plants, and visual impacts (particularly from the chimney associated with any combustion facility). Consequently, the process for obtaining planning permission will include public consultation.

North Lincolnshire is an ideal place to locate a waste management facility, as there is an abundance of brown-field sites, together with well developed power transmission infrastructure and transport links.

Two notable projects have obtained planning permission in recent years. One of these was an MBT proposal on a site provided by the Council on the Normanby Enterprise Park, as a part of a recent procurement project with a capacity of 69,000 tonnes. The other was a private company looking to develop an ATT technology with a capacity of 96,000 tonnes. There are other initiatives mooted, and a considerable scope for other facilities on the South Humber bank strategic development area and various industrial sites within the Scunthorpe area.

5.5.2.2 Organic Waste

North Lincolnshire Council receives around 25,000 tonnes of green garden and food wastes every year. Currently, 18,000 tonnes of this is collected separately both at the kerbside and through the network of Household Recycling Centres (HRC). The balance, an estimated 7,000 tonnes of food waste, is collected along with the residual waste. Consideration is currently being given to the relative merits, or otherwise, of recovering the food waste. This could be achieved either as part of the existing greenwaste collections or as a stand alone food waste only collection scheme. Recovery of food wastes by either of these two routes will require a new service contract and/or a new ABPR compliant treatment facility to be procured.

As discussed before, there are considerable benefits to using AD for the processing of food wastes, through the generation of electricity mainly, but also the production of a soil improver/ fertiliser which may

find a local agricultural market. The alternative of IVC also represents a good alternative to the current arrangement as the technology is well established, comparatively simple and well proven.

The preferred option for the treatment of the organic wastes is AD. The problem lies in the sizing of the plant and the cost implications of collecting and treating this element of the Council's waste stream. For commercial reasons, the ideal size for an AD plant is around 40,000 tonnes per annum. The contractors also prefer to have a waste input that is all food wastes generally as this gives the greatest amount of biogas possible which increases the revenues and reduces the gate fee.

It is only feasible to collect approximately 6,000 to 8000 tonnes of municipal food waste from North Lincolnshire; the balance would be green and garden waste which is less desirable for AD. This indicates that a plant of an overall capacity of around 12,000 – 15,000 tonnes may be feasible, but this will result in a higher gate fee. This assumes that the plant was dedicated solely to North Lincolnshire waste.

If it were to be a 'merchant' facility treating wastes from a variety of sources, this would make the plant much more viable and recent studies conducted confirm this. Further assessments will be undertaken to find ways in which an AD solution for organic waste can be procured, through partnerships, joint ownership or by part financing the project and having equity (a share) of the plant.

5.5.3 Landfill capacity

There is sufficient capacity at the Roxby landfill site to take all of North Lincolnshire's residual municipal waste until the end of the interim waste disposal contract in 2013/14 and any extension. The full lifespan of this site is not known. This will be dependant upon input rates, and currently the site also receives waste from a number of private sector waste collection companies.

For the remaining landfill sites in the Borough an important factor that may reduce landfill capacity in the area is the duration of planning consents. It is our understanding that these will need to be renewed in the near future for several local sites, effectively reducing the available capacity.

This pressure along with the large amount of waste coming into the Borough means that although landfill capacity is significantly greater than in other similar sized areas, the availability cannot be guaranteed. Due to the need to move towards a 'zero waste' system it is intended that landfill in future will generally only be needed for small quantities of residues left over after treatment in the new facilities which will be procured.

5.6 Further consultation

A Strategic Environmental Assessment (SEA) of the waste strategy will be conducted. This is currently being prepared in tandem with this document. It will include consultation through public engagement with all stakeholders, including internal stakeholders such as the elected representatives, who are consulted at all stages of the process.

The provision of any new waste treatment facilities will require additional consultation with all stakeholders as part of the process for obtaining planning permission for such facilities. This process has already been undertaken by the private companies mentioned above in respect of the residual waste facilities that have planning permission. It demonstrates that planning permission is very much achievable in North Lincolnshire for waste facilities.

5.7 Impact of the waste strategy on our carbon footprint

Methane emissions from biodegradable waste in landfills account for 40% of all UK methane emissions and 3% of all UK greenhouse gas emissions (methane is 25 times as damaging a greenhouse gas as carbon dioxide). Consequently, any measure that reduces the amount of waste that is landfilled will reduce the carbon dioxide emissions associated with waste management activities.

The recycling of materials saves the energy and emission that would otherwise be required to extract raw materials. In the UK, the 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 5.1 shows the carbon benefits of diverting waste from landfill in terms of the kilograms of carbon dioxide saved per tonne of material recycled.

Table 5.1: Carbon benefits of diverting waste from landfill

Material	kg carbon dioxide saved per tonne material recycled ⁸
Paper	1,400
Kitchen waste	223
Garden waste	78
Plastic	1,022
Ferrous metal	1,350
Aluminium	11,036
Glass	584

Paper and food/garden waste are biodegradable, and produce methane if they are landfilled. Therefore, 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, metal and glass are not biodegradable, and do not produce any methane if they are landfilled. Therefore, there are no additional savings in carbon dioxide resulting from the avoidance of landfill gas emissions with respect to these materials.

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

Table 5.2 shows the net greenhouse gas impacts (in terms of savings per tonne of waste diverted from landfill), of a variety of waste treatment 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.

⁸ Source – Table A30 in Annex A, England Waste Strategy 2007

Table 5.2: Net greenhouse gas impacts of waste treatment technologies

Treatment process	kg carbon dioxide saved per tonne treated ⁹
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, it has expressed a preference for recovering energy from waste that cannot be reused or recycled. It has also expressed the view that any given technology is (where applicable) more beneficial if both heat and electricity can be recovered. Particular attention should therefore be given to siting plant to maximise opportunities for CHP.

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

The overall impact of the England Waste Strategy 2007 was 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. This is equivalent to annual use of around 3 million cars.

The carbon savings from the technologies modelled in the EOA assessment are shown in the table below and are calculated from the WRATE studies data for the whole service. It shows that there are major savings in the amount of carbon that is produced by adopting one of the leading technologies in the study. This may be as much as approximately 27,000 tonnes of CO₂ per annum.

Table 5.3 Calculated Carbon Savings

	EfW (R)	MBT(C)	ATT	MBT(EfW)
Climate change: GWP 100a (kg CO ₂ -Eq)	23,965,817	26,821,808	17,577,003	25,645,057

5.8 Overall conclusions

The current waste management system has been effective in raising recycling rates to a level which compares well with other authorities, in terms of both performance and the cost to the householder. The service has a high level of expressed satisfaction amongst local residents.

There is no intention of making any substantial changes to the kerbside collection service. Instead, opportunities of providing a more effective collection service through enhanced communications and behavioural change campaigns will be examined.

⁹ Source – Table E1 in Annex E, England Waste Strategy 2007

The high level of waste that is received per capita is an issue that needs to be addressed through general communications, and through review of the HRC service. Minimisation of wastes deposited at HRCs will be achieved through initiatives aimed at reducing the abuse of the system by opening HRCs to traders, but at the same time implementing better security and monitoring of their use.

There is an intention to expand and enhance the collection of recyclable materials from commercial premises by integrating the current collection infrastructure with the commercial collection service.

In order to tackle the medium-term objective of moving to a 'zero waste' waste management system, a new residual and organic waste management contracts is to be procured, ideally based on building waste facilities within the Borough.

In order to have high level of flexibility in delivering the Council's new waste management facilities, the approach has to be attractive to the market. As a result of the relatively small amount of municipal waste available it is likely that additional incentives will need to be provided to commercial organisations to make the projects deliverable.

Bearing this in mind and the conclusion that it would be preferable to have a shorter contract length than is currently standard practice, there may be a need to provide some of the funding of the plant. The best way to do this is through 'prudential borrowing' which is a government approved way of raising funds. This essentially is a framework applying to Authorities that allows them to borrow in accordance with the Prudential Code, which has been developed as a professional code of practice to support Authorities in making their decisions.

Prudential borrowing will also provide an easier route for prospective contractors as it will reduce the amount of money that they have to raise. It would also have benefits such as reducing the gate fee and is the best way of reducing the length of the contract. It means that the Council will have a stake in whatever plant is procured. This will ensure that there is a greater say over how the plant is managed and run.

This would mean the Council pays towards the capital and therefore take on greater risk, but also a greater share of the rewards. The generation of electricity is particularly attractive to the Council in providing long-term returns on their investment.

The Council used to collect food waste together with the green waste collection. However, this had to be stopped as catering and animal wastes have to be processed via IVC or AD due to their Animal By-Products Regulations (ABPR) categorisation. This has meant that their overall recycling/composting rate has decreased. The Council is therefore looking to procure a treatment facility to treat separately collected food waste. Ideally this would be an AD plant, in order to provide an integrated approach with the long-term carbon strategy and to get the maximum value from the waste through energy recovery.

The affect of diverting food waste from the residual waste stream on the treatment technology procured for treatment of residual waste will have to be taken into consideration. If the type of treatment facility for residual waste decided upon is an MBT plant, this will be in direct competition for the food waste in the residual stream. Therefore, it is important an integrated approach is taken and that flexibility in both solutions is provided.

In the absence of locally available merchant capacity, the Council has tried to procure an AD facility in the past. However, it was considered too expensive for the relatively small quantity of food waste it was going to treat. If the Council wishes to procure a facility, it is likely the most affordable solution will be to join with

neighbouring authorities and procure a larger facility to treat their collective food waste. This is more likely to provide greater value for money through economies of scale. Alternatively the prudential borrowing route could be applied to the procurement of an organic waste treatment plant as with a residual treatment plant as outlined above.

6. Action Plan

In order to ensure that the strategy is implemented, there is clearly a need for all activities to be co-ordinated and monitored. North Lincolnshire Council will, through its performance management system and service planning linked to the Cabinet and Scrutiny Committees, monitor waste activities and ensure that the strategy is delivered.

The Council will also undertake a range of consultation measures, as the strategy is implemented.

The studies in the preceding chapters, together with the Action Plan provided below give an analysis of the current waste management system and the measures that the Council plan to take in order to meet future waste policy objectives.

The actions have been colour coded according to their prioritisation as outlined below;

- **High Priority**
- **Medium Priority**
- **Low Priority**

6.1 Short term action plan (April 2012 – March 2017)

- 1) Procurement of Residual Waste Service

There is a need to procure a sustainable approach to dealing with the Council's residual waste, which is currently landfilled. Although the LATS system has been abolished there is still a need to secure a solution which allows the Council to gain revenues and other benefits, such as carbon reduction. This will, also 'future proof' the Council against any changes to the landfill tax regime.

- 2) Procurement of Organic Waste Treatment Service

There is a need to procure a sustainable approach to dealing with the Council's organic waste. Currently, the green waste element of this waste stream is windrow composted, but a substantial tonnage of food waste is landfilled within the residual waste element. Although the LATS system has been abolished there is still a need to secure a solution which allows the Council to gain revenues and other benefits, such as carbon reduction. This will, also 'future proof' the Council against any changes to the landfill tax regime.

- 3) Procurement of a Municipal Waste Recycling Service

This is ongoing. The new service will commence in November 2012. The specification includes for the provision of logistical support to the HRC network and brokering of all recovered commodities. Both the Council and its contracting partner will be incentivised to maximise householder participation and material capture rates for the installed kerbside and bring recycling schemes which will remain unchanged.

- 4) Waste Collection Round Optimisation

This is ongoing. Reconfiguration of established waste and recycling collection rounds is necessary to provide an equitable workload for the collection resource and maximise operational efficiency. The new

rounds will also acknowledge expressed customer concerns and factor in future anticipated growth in the number of households. Household and commercial waste collections will be integrated as far as is practical to do so. This will enhance vehicle utilisation and provide opportunities for businesses to access the same recycling services as those enjoyed by residents. The marginal cost of providing separate commercial recycling collections will be significantly reduced. This will improve the competitiveness of the service and encourage take up. Implementation of the revised collection rounds will coincide with commencement of the replacement Municipal Waste Recycling service

- 5) Commercial Waste Recycling

Despite high levels of recycling of the household waste stream, the recovery of value from commercial waste produced locally is limited. The Council now offers separate collection of recyclable materials from those commercial waste producers with whom it has accounts. Take up of this service is low. Many more businesses operating locally have no formal contracts in place and little or no information is available regarding their waste outputs in terms of volume or composition. Performance data relating to the operation of the Household Recycling Centre (HRC) network supports the view that small and medium sized enterprises (SME) currently consign waste via this route without the Council's prior knowledge or consent. Working with partners, including the Environment Agency and Trade Associations, the Council is keen to manage this unregulated business and actively encourage the take up of this service but in an open and lawful manner and at a reduced cost to the public purse. .

- 6) Household Waste Recycling Centre Improvements

The level of HRC provision remains amongst the highest within local government. The network is highly valued by local residents but individual sites are under utilised. The infrastructure is also in need of improvement if the sites are to remain fit for purpose. The Council has resolved to bring the operational management of the network back into direct control and has allocated funds through the capital programme for much needed improvement. This will include the installation of technology, including automatic number plate recognition (ANPR), which will enable the capture of management information and aid the regulation of site users. Proposals include permitting the use of the network by commercial organisations based locally and providing reuse opportunities for third sector partners.

- 7) Waste Reduction Strategies

Practical waste reduction measures include Home Composting and the Mail Preference Service. The continued operation of alternate weekly collections of residual waste and the implementation of policies in respect of side waste, raised lids and container provision have all conspired to encourage more resource recovery and a reduction in landfilling. Despite this, the amount of waste collected and received per capita remains 20% above the UK average. A significant proportion of this is believed to be commercial waste similar in composition and consigned as household waste through the HRC network. The Council will continue to promote any and all measures that move the management of waste up the hierarchy and awaits, with interest, the first National Waste Prevention Plan expected in 2013.

- 8) Education Campaigns

Encouragement of sustainable waste management through schools has always been a key element of the ongoing campaign to raise awareness and positively influence behaviours. This will continue. Targeted campaigns such as Love Food, Hate Waste have also been used to discourage wasteful behaviour and encourage more reuse and recycling. Practical interventions such as access control measures on HRC's have been and continue to be used effectively to alert the commercial sector to their legal obligations with regard to waste management. This will be further enhanced by proposals to legitimise the use of HRC's by

businesses based locally. Transformation of the way in which the Council communicates and engages with service users is also ongoing. The use of social media to deliver and receive key service messages and the use of digital technology to provide improved access to services and information is imminent.

- 9) Woodfuel Programme

The Council is currently researching opportunities to utilise the waste wood it routinely receives at the network of HRC's plus that generated by its woodland management activity. Specifically, the Council is keen to explore the use of this material as a fuel in the wood burning boilers now installed within a number of school and leisure facilities locally.

- 10) Third Sector Programme

Capacity within voluntary and community groups (the Third Sector) operating locally is limited. A number of these are currently involved in the localised delivery of waste collection and reuse schemes e.g. furniture. In recent years attempts have been made to increase capacity within the sector to enable them to become more involved in larger scale initiatives throughout the whole of North Lincolnshire. This work will continue.

- 11) Waste Reduction - Ongoing Campaigns

The Council's ongoing programme of practical waste reduction measures and policies will continue to be used to ensure that the need for the public to minimise the amount of waste generated is addressed. This will continue to be done by the Council's Waste Management team using all available media, and through engagement with the community as a whole.

- 12) Tailored Collections

The current programme of permitting the exchange of residual waste capacity for additional recycling capacity will continue and will be actively promoted. This has been identified as being vital in sustaining the capture of dry recyclables and organic wastes.

- 13) Customer Survey

Subject to the adoption of a Corporate system for continuously capturing and assessing the extent of expressed satisfaction with waste management and other Council service delivery e.g. Govmetric, an annual survey will be conducted. The information obtained will inform the annual service review and other policy drivers.

- 14) Annual Service Review

An annual service review will be carried out of the installed waste management systems and policies to confirm their fit for purpose status. This will focus on the performance of the kerbside collection systems, the interface with the residual and organic waste treatment systems and the effectiveness or otherwise of adopted policies around container provision and servicing. Emphasis will also be given to peripheral waste services e.g. assisted collections, bulky items collections, clinical waste collections, HRC access permits and the eligibility criteria for these.

- 15) Joint Working Initiatives

The concept of joint working with neighbouring authorities will continue to be explored and will include education and other campaigns, service delivery and benchmarking. Other initiatives include the possibility of joint procurement projects and the provision of Recycling Credits to third parties.

- 16) Waste Composition Analysis

The periodic, detailed analysis of the residual and other elements of the municipal waste stream is essential for strategy and policy development. In certain circumstances, it may also be a contractual requirement and will inform discussions around performance and future service development. Any and all waste compositional analyses will rigidly adhere to HM Government guidelines on data protection..

- 17) Impact Assessment

In accordance with the Council's policy instrument, the impact of any and all proposed waste service amendments will be assessed. This will include assessing the carbon impacts and the effect, if any this may have on footprinting studies. This will allow the improvements that have been made to be demonstrated to a wide selection of stakeholders.

Table 6.1: Short-term action plan (2012 – March 2017)

Priority	Action	Projected Start Year	Timescale (if applicable)	Activities	Impact
	1) Procurement of Residual Waste Service	2012	2yrs	EU procurement project based upon the restricted procedure or competitive dialogue depending upon chosen technology.	Aim is to help this to develop a 'zero waste' waste management system, and to divert as much residual waste from landfill as we can.
	2) Procurement of Organic Waste Service	2012	2yrs	EU procurement project based upon the restricted procedure or competitive dialogue depending upon chosen technology.	Aim is to maximise the value gained from organic waste as a resource for the generation of energy.
	3) Procurement of Municipal Waste Recycling Service	2012	1 yr	EU procurement project based upon the restricted procedure or competitive dialogue depending upon chosen technology.	Aim is to improve participation and capture rates for recyclable materials and maximise income without disrupting services.
	4) Waste Collection Round Optimisation	2012	1 yr	Use of bespoke software to reorganise waste collection rounds and provide most efficient solution.	More equitable distribution of workload, improved customer experience, most efficient use of transport and room for future expansion.
	5) Commercial Waste Recycling	2012	2 yrs	Provide increased opportunity for SME's and other businesses to actively participate in recycling.	Encourage more sustainable waste management within business sector, increased compliance and enhanced community leadership role for NLC.
	6) Household Recycling Centre Improvements	2012	3 yrs	Physical and operational improvements to HRC network and service delivery.	Maintain sites fit for purpose. Better customer experience, increased recycling performance, use of sites by SME's and better regulated business.
	7) Waste Reduction Strategies	2012	Ongoing	Practical measures to counter increased waste growth and positively influence lifestyle changes.	Waste outputs on a per household and per capita basis decline, capture rates for recyclable materials improve, reduced cost base.
	8) Education and Campaigns	2012	Ongoing	Work with schools and other stakeholders to raise awareness of waste hierarchy and encourage more sustainable waste management.	Maintain and improve recycling performance, increased landfill diversion.
	9) Woodfuel Programme	2012	2 yrs	Research opportunity for 'closed loop' recycling of waste wood into wood fuel for use locally.	Supply wood fuel to NLC owned and operated wood fuel boilers e.g. The Pods.
	10) Third Sector Programme	2012	2 yrs	Build capacity within the voluntary & community sectors to enable delivery of furniture, etc., re-use schemes.	Encourage social enterprise, improve reuse of materials, increased landfill diversion, improve bulky items collection service.
	11) Waste Reduction – Ongoing Campaigns	2012	Ongoing	Active campaigning in support of local and national policy objectives to reduce waste and encourage recycling, etc.	Reduce the volumes of waste requiring to be managed, influence positive lifestyle changes, reduce waste management costs.

Priority	Action	Projected Start Year	Timescale (if applicable)	Activities	Impact
	12) Tailored Collections	2012	Ongoing	Continue to provide bespoke recycling opportunities for individual households within broad framework.	Practically encourages more recycling and reduces waste to landfill.
	13) Customer Survey	2012	Ongoing	Use of corporate and service based media to capture customer feedback on waste management service delivery, policy and strategy.	Assist in shaping service delivery.
	14) Annual Service Review	2012	Ongoing	Produce and publish non statutory annual waste management plan.	Inform service users and review service delivery.
	15) Joint Working Initiatives	2013	Ongoing	Consider local, sub-region and regional opportunities for joint working on waste.	Identify potential synergies and share best practice. Benchmarking opportunity. Improved working relationships.
	16) Waste Composition Analysis	2013	Bi-annual	Physical and chemical analysis of residual and other waste streams.	To inform waste management policy and strategy.
	17) Impact Assessment	2012	To coincide with service amendments	Complete Integrated Impact Assessment for changes in policy and/or amendments to service delivery.	Provide greater understanding of broader social, economic and environmental impacts of proposed service developments or reductions.

6.2 Medium term action plan (April 2017 – March 2025)

● 1) Re-Procurement of the Municipal Waste Recycling Service

The contract that is currently being procured for this service lasts for an initial period of 7 years with an option to extend. The re-procurement of this service is therefore an essential aspect of the medium-term action plan

● 2) Waste Strategy Review

It is important to maintain the Council's knowledge base regarding its waste management activities. As part of this it is proposed that a review of the strategy is undertaken. This will analyse performance and seek to identify ways in which the recycling and organic waste management systems can be improved. This will enable the Council to focus on the remainder of materials in the residual waste stream, which may have changed in the intervening years due changes in behaviour and the legislative drivers that operate at the time

● 3) Detailed waste flow study

As part of the process of ensuring that the Council has the best available data on which to base waste management decisions, it is proposed that a detailed waste flow study is undertaken. This will be done in tandem with the strategy review above. It will enable the flow of materials through the Council's waste management systems to be studied to enable the prioritisation of the activities needed to increase recycling rates further and guide the long term strategy with up to date data. The effect of variations in composition can be assessed for impact on the service as a whole and on specific technologies

● 4) Waste Composition study

It is important to periodically refresh the waste compositional analysis to understand any changes that are taking place. These may be due to external factors e.g. the design of packaging, over which the Council has no control, but which may impact on installed collection and treatment systems. It is also useful to know how established policies of the Council and targeted campaigns impact upon the volume and nature of waste presented for collection. This may help to identify the materials that may need to be targeted in order to improve recycling rates.

● 5) Joint Working initiatives

The potential for joint working with other authorities will continue to be evaluated as part of an ongoing process that will ensure that all of the possibilities for this are identified.

Table 6.2: Medium-term action plan (April 2017 – March 2025)

Priority	Action	Projected start Year	Timescale (if applicable)	Activities	Estimated Impact
	1) Re-Procurement of the Municipal Waste Recycling Service	2019/20	1 yr	EU restricted procurement procedure	Best value in obtaining the delivery of the kerbside collection service
	2) Waste Strategy review	2017/18	4 months	Detailed appraisal of the waste management system	Ongoing improvement monitoring and development of KPIs
	3) Detailed waste flow study	2017/18	4 months	Study the flow of materials through the Council's waste management systems	Inform the Waste Strategy. The effect of variations in composition can be assessed for impact on the service as a whole and on specific technologies
	4) Waste Composition study	2017/18	4 months	To establish whether further gains can be realised and which waste streams may need to be further targeted and from which type of producer	Inform the Waste Strategy. Increased landfill diversion, increased revenue from recyclables.
	5) Joint Working initiatives	2017	Ongoing	Ongoing	Initiatives to encourage joint working in the field of waste communications

6.3 Long term action plan (April 2025 onwards)

- 1) Re-procurement the Residual waste Contract

If the current residual procurement results in a contract of approximately 15 years in duration, this will need to be re-procured during the life-span of the long-term action plan. Depending on the nature of the original procurement this may be for an operator rather than design and build contract, and should therefore be of a shorter duration than previous procurements

- 2) Re-procurement the Organic Waste Contract

Similarly for the organic treatment service, if the current residual procurement results in a contract of approximately 15 years in duration, this will need to be re-procured during the life-span of the long-term action plan. As before

- 3) Joint Working

The requirement to re-procure the two main elements of waste service delivery presents yet another opportunity to align the activity within North Lincolnshire with that of neighbouring authorities. Consideration should be given to any opportunity that may be afforded. 5) Waste Strategy Review

- 4) Waste Strategy Review

It is important to maintain the Council's knowledge base regarding its waste management activities. As part of this it is proposed that a review of the strategy is undertaken. This will analyse the performance of the system and seek to identify ways in which the recycling and organic waste management systems can be improved. This will enable the Council to focus on the remainder of materials in the residual waste stream, which may have changed in the intervening years due changes in behaviour and the legislative drivers that operate at the time

Table 6.3: Long-term action plan (April 2025 onwards)

Priority	Action	Projected Start Year	Timescale if applicable)	Activities	Estimated Impact
	1) Re-procurement of the Residual waste Contract	2027/28	2 yrs	EU procurement via restricted procedure most likely	Increased value for money from the residual service is the aim of this
	2) Re-procurement of the Organic Waste Contract	2027/28	2 yrs	EU procurement via restricted procedure most likely	Increased value for money is the aim of this.
	3) Joint Working	2025	2 yrs	To gauge opportunities for collaborative working on waste with neighbouring authorities and other potential partners	Greater efficiency of service, economies of scale and improved working relationships within the sub region.
	4) Strategy review	2026	4months	Detailed appraisal of the entire system	Ongoing monitoring, service improvement and development, enhanced performance.