

WASTE STRATEGY REPORT  
2012-2013



# 1 INTRODUCTION

## 1.1 Lancaster University

Lancaster University is a Higher Education Institution based in Lancaster in the North West of England. The University is recognised as one of the top universities in Britain for the quality of its teaching and research.

The University occupies a campus of over 100 hectares within a semi-rural location located to the south of Lancaster city centre. The campus is also used by a number of partner organisations, commercial tenants and service providers. The University employs over 2,500 staff and educates approximately 17,000 full-time and part-time students. Over 6,000 of these students live in Halls of Residence on the campus.

The University is strongly committed to managing its estate and operations in a sustainable and responsible manner. The University recognises the impacts its activities have on the environment and acknowledges its responsibility to manage and minimise these impacts.

Within its wider sustainability commitments, the University is keen to ensure that it manages waste and resources in an efficient and sustainable manner by aiming to avoid waste generation, where possible and prioritising reuse and recycling over the disposal of waste materials.

## 1.2 Introduction to the Waste Strategy

The purpose of this *Waste Strategy* is to set out an overarching framework for waste management at Lancaster University from 2012 to 2020.

The *Waste Strategy* sets out the legislative requirements and Lancaster University drivers, as well as the national and Lancaster University specific waste management targets.

Short, medium and longer term strategic objectives, structured in respect of the waste hierarchy set out the detail of how Lancaster University will meet its legislative and internal targets.

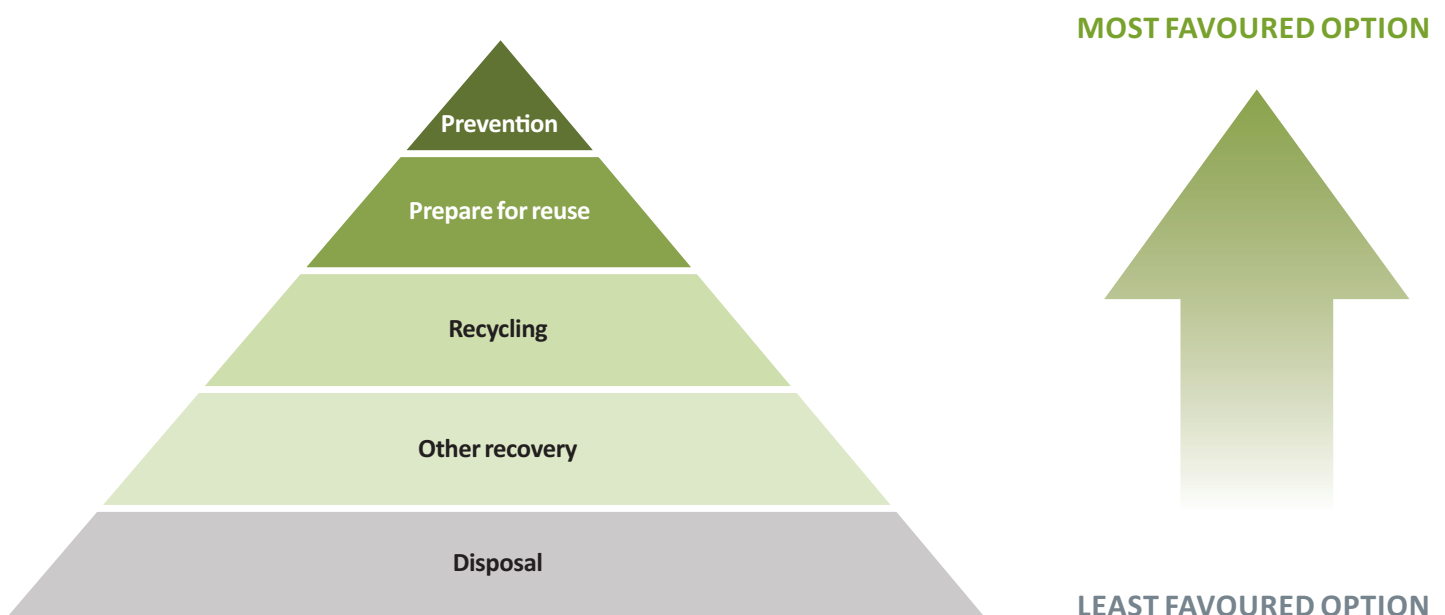
## 1.3 Introduction to the Waste Hierarchy

Since the initial regulation of waste management, in the mid 1970s, the collection and treatment of wastes have altered dramatically. Through European Union legislation there has been significant improvement of operational standards, a requirement for manufacturers to recognise and take responsibility for their products at the end of the products life and a significant move away from landfill as the primary disposal route for wastes.

The paradigm shift from a disposal to a recycling and resource management economy is predicated on the *Waste Hierarchy* which is implemented by government policy and targets.

The *Waste Hierarchy* is both a guide to sustainable waste management and a legal requirement for organisations to follow when managing their wastes. The hierarchy gives top priority to waste prevention, followed by preparing for re-use, recycling, other types of recovery (including energy recovery), and last of all disposal. This strategy reviews the current performance against the tiers within the *Waste Hierarchy* and sets targets for the short, medium and long term.

Diagram 1: Waste Hierarchy



## 1.4 Description of Hierarchy Categories

CATEGORY	DESCRIPTION
Prevention	Prevention or elimination is the hardest tier within the hierarchy for which to set targets and instigate change. Ceasing to produce waste or preventing waste being generated is very cost effective but establishing metrics to monitor progress is difficult. Steps in the right direction to preventing waste include extending the life span of products and minimising the amount of hazardous or difficult wastes generated.
Prepare for re-use	Preparing for reuse is focused on taking waste materials and either directly or through processes of checking, cleaning, repairing, refurbishing then reusing in their original form either as whole items or as spare parts.
Recycling	Recycling involves processing waste materials into a new substance or product e.g. cardboard in to new cardboard. If waste is processed so the output material achieves compliance with the quality protocol specification e.g. garden and food waste to compost this is regarded as recycling.
Other recovery	Other recovery is where waste cannot be recycled due to contamination, lack of facilities or economic cost. It is however possible to still recover value from the material. The most common approach is to generate energy. Examples include food waste processed through anaerobic digestion to create methane and digestate, waste incineration with energy recovery and re-use of ash as aggregates, gasification and pyrolysis which produce energy (fuels, heat and power) and in some cases materials from waste spread to land such as sewage sludge.
Disposal	Disposal is the least desirable option in the hierarchy as there is no opportunity to recover the materials. This option includes incineration without heat recovery and landfill. Landfilled biodegradable waste breaks down releasing methane that is a powerful greenhouse gas. Although the landfill gas can be captured, the process is not as efficient as using a treatment facility. In addition to environmental impacts, the government has imposed a landfill tax that has significant financial implications.

## 1.5 Lancaster University Waste Strategy Drivers

The need to develop a *Waste Strategy* at Lancaster University was driven by a variety of factors, as detailed below:

- **Rising waste and recycling costs.**  
Since 2005-06 the University's waste management and treatment/disposal costs have increased by approximately 100%, although there have been significant increases in recycling over this period. Future trends are for significant further cost rises driven by landfill tax, landfill gate fees, waste treatment costs and probable loss of certain waste cost exemptions.
- **Consideration of alternative waste collection and treatment/disposal options.**  
Can waste and recycling be collected and treated using different methods at Lancaster University? On-site collection arrangements and off-site disposal/treatment options needed to be reviewed, given the rapid changes in the waste management industry in recent years. Clarity was required on what is the best approach in terms of recycling and cost.
- **Desire to obtain additional value from recyclates.**  
Certain recyclates can have a high value and the University is keen to obtain the maximum value from their resale.
- **Desire to improve recycling rates and limit landfill disposal.**  
In addition to costs, there is desire to adopt more sustainable practices that reduce waste generation and enhance reuse and recycling rates and generally push waste management up the waste hierarchy.
- **Bin storage fire safety.**  
There have also been number of fires at bin storage areas on campus. Concern is not only about localised impact, but also the fire risk to occupants and property.

## 1.6 Lancaster University Waste Strategy Review

In order to address these issues a *Waste Strategy Review* (WSR) was undertaken for Lancaster University in 2011.

The objectives of the WSR were as follows:

- Undertake a detailed analysis of the existing *Waste Strategy* and drivers.
- Review operations at similar HE sector Institutions and benchmark Lancaster University.
- Review existing and forthcoming legislative requirements and targets.
- Undertake a detailed site assessment and review with LU waste management staff.
- Review waste management contractual arrangements.
- Develop a series of costed options for a future *Waste Strategy*.

## 1.7 Waste Strategy Review - Conclusions

The *Waste Strategy Review* produced a number of principal conclusions:

- Lancaster University general waste treatment/disposal costs are a little below sector average and are currently lower than full 'commercial' rates due to the *Schedule 2 Exemption* Lancaster University benefits from for domestic waste.
- Lancaster University recyclates collection/treatment costs are approximately sector average and the University benefit from a rebate for certain high value recyclates.
- Recyclates collection/treatment cost is higher than general waste (per tonne), although this situation is likely to change in the medium term as general waste treatment/disposal costs are driven higher and on-site recyclates collection tonnages gradually increase.
- Treatment of general waste at the off-site Materials Recovery Facility (MRF) [Global Renewables Thornton Plant] significantly increases Lancaster University recycling rate.
- On-site segregation of recyclates maximises the overall recycling rate and enables extra value to be extracted from recyclate streams.
- There are a large number of local bin stores across campus (similar to other HE institutions, particularly those with residences), although locally facilities may be insufficient. Unusually, in comparison to the sector, there is no central waste storage area.
- Twelve external bin stores require upgrading to meet fire safety requirements.
- Food waste is not currently segregated for treatment.
- Lancaster University has no staff and equipment costs associated with waste and recycling collection and disposal.
- General waste disposal/treatment costs are dominated by waste treatment cost, landfill gate fees, and Landfill Tax.
- The reduction in waste treatment/disposal costs due to Lancaster University's *Schedule 2 Exemption* will cease in short/medium term.
- There is significant value in recyclates segregated on-site.

## 1.8 Waste Strategy Review - Options

The *Waste Strategy Review* developed and considered a number of options based on different levels of investment, maximising efficiency of operations, changes to operational practices and long term culture change.

A number of the options were recognised as having major benefits, although the benefits would become apparent on different timescales.

These options have been recommended to be implemented and/or reviewed (for implementation) at a range of future dates.

Key options recommended for implementation included:

- Minimise general waste production (through waste minimisation and reuse projects and segregating and extracting as much recyclates on-site as possible).
- Introduction of food waste segregation and processing (reducing waste to landfill).
- Development of centralised waste compound (to allow future option of on-site recyclate collection).
- Ongoing monitoring of new technologies such as micro waste derived fuel plants (to reduce general waste volume).

The *Waste Strategy Review* identified certain options possess less benefit at present, although they should be reviewed in future. These options included:

- Doubling waste collection frequency, which was found to increase existing collection costs by 25% and not reduce the number of bins stores required.
- Immediately moving to a system where bins are towed from local bin stores to a central compound. This would have high capital and operational costs, and offer more limited savings in short to medium term. Although this option should be reconsidered in the medium and long term.

The *Waste Strategy Review* also considered the proposed improvements to a number of local bin stores, plans and a cost schedule of which had been previously prepared by Lancaster University.

The proposed improvements relate to 12 bin storage locations with significant fire risks. The principal risk issue at these bin stores, being the lack of a contained compound, which would prevent bins being moved close to nearby buildings. The bin stores identified for improvement include some of the largest and most centrally located on campus, serving particularly large areas.

The *Waste Strategy Review* was unable to identify an alternative collection system that removed the requirement for (these) local bin stores in some form. A logical approach to the proposed upgrades might be to implement them in a phased manner, with the highest risk bin stores tackled first, in order to spread capital costs.

The preferred options from the *Waste Strategy Review* and the proposed timescales for their implementation and/or review are set out in section 5 of this *Waste Strategy*.

## 1.9 Resource Management v Waste Management

Waste and resource management links with a range of broader environmental concerns, such as material security, energy, environmental protection and climate change.

Carbon emissions act as a good proxy for the overall environmental impacts of waste and, generally speaking, the higher up the waste hierarchy waste is treated, the smaller the carbon and other greenhouse gas emissions.

The implementation of a progressive *Waste Strategy* can establish the University's status as 'best in class' when compared with other Higher Education Establishments.

The Lancaster University recycling rate for 2010/11 is 53% (with reuse at 2%) compared with an average of 45% across 142 Universities which submitted data to the *People and Places Green League*. With the contribution of residual waste recovery (which will be achieved with existing waste contracts in the short term), the combined recovery/recycling/reuse rate should be in the region of 75%.

Initiatives to increase reuse via the refurbishment of furniture, electrical equipment and household goods from Halls of Residence, linked to processing of recyclate by local contractors, contribute to employment in the local and regional economy. Ensuring compliance with legislation protects the organisation against financial sanctions and adverse publicity due to inappropriate waste management.

Establishing a "zero waste economy" is a long term aspiration but requires reduction in the amount of waste produced and ensuring that all material resources are fully valued - financially and environmentally - both during their productive life and at 'end-of-life' as waste.

## 1.10 Procurement and Encouraging Resource Efficiency

The generation of waste has a financial impact, with landfill tax rising to at least £80 per tonne by 2014-15, therefore, any actions to reduce waste generation, enhance recycling and avoid landfill will have significant financial benefits.

Where goods are delivered with excess packaging, there is not only a hidden cost within the purchase price but also the additional cost of recycling or disposal of the waste.

Reaching the higher eschelons of the waste hierarchy, e.g. prevention, will be partially achieved in conjunction with the University's purchasing policy that includes:

- Staff training to encourage need analysis when purchasing products and services. This will help reduce excess purchasing and promote the selection of products that do not cause excessive waste.
- Supplier engagement and input into contract specification to reduce product packaging.
- Avoiding the use of disposable items wherever possible and when necessary specifying the use of biodegradable disposables that can potentially be composted.
- Increasing the purchase of recycled goods e.g. Copier paper with high recycled content.
- Promoting the range of reuse measures e.g. refilling toners and ink-jet cartridges, duplex printing, durable cups, mugs, glasses and plates rather than disposable alternatives, rechargeable batteries.



## 2 WASTE COLLECTION, COMPOSITION, PERFORMANCE AND COST

### 2.1 Waste & Recycling Collection and Treatment Arrangements

Lancaster University Facilities operate across the campus managing arrangements for the storage, collection and treatment/disposal of general waste and recyclates.

Internal recycling bins are provided across the campus within offices, teaching areas and communal areas for the segregation and collection of cans and plastic bottles, paper, confidential paper and general waste. All new and refurbished buildings have internal recycling bins installed when complete. Public space external recycling stations are also provided in high traffic pedestrian locations across campus.

There are currently 48 external bin stores located across campus. These stores have segregated bins for the collection and storage of general waste, cardboard, newspaper and magazines, paper, aluminium cans and plastic bottles.

The University owns all of the external waste and recycling bins and containers across the campus. In addition cardboard skips are provided in five external bins where high volumes of card are generated.

In respect of waste and recyclate transfer, typically Lancaster University cleaning staff transfer waste and recyclates from office, academic and teaching areas to the external bin stores.

Campus residents are normally required to transfer recyclates to bin stores, but not (for the majority of residents) general waste, which is transferred by cleaning staff. External contractors collect and transfer the waste and recyclates from the external bin stores.

Historically, residual waste was landfilled. Since May 2010 this residual waste, collected by Lancaster City Council, has been treated by Global Renewables Ltd in their Mechanical Biological Treatment (MBT) process at Thornton Cleveleys, Blackpool.

Waste delivered to the plant is pre-sorted to remove additional recyclable materials such as plastics, glass and metals. The next step segregates and then processes the biodegradable fractions, paper and food waste is digested to produce methane (that is used to produce energy) and an Organic Growth Medium which is intended to be used for land restoration.

A minimum amount of reject material is landfilled. This treatment process is legally defined as recovery rather than disposal. Through using this option the University can report additional recycling and a combined recycling and recovery rate overall of 53%. The rate is however anticipated to increase to at least 75% when the plant is finally licensed by the EA as fully operational.

## 2.2 Waste and Recycling Performance

The environmental benefits of managing resources more efficiently, through preventing and minimising waste generation and by increasing recycling rates are understood by Lancaster University. Changes in performance in waste and recycling levels, in the context of the waste hierarchy are explained below.

**Total Waste Generation and Waste Prevention:** Since 2007, the total amount of waste materials (residual waste plus all recyclates and reuse materials) generated has been around 1,900-1,950 tonnes per annum. This figure has remained fairly static despite significant development of the campus and the intensification of on-site activity and represents a gradual reduction in waste generation.

**Reuse:** In 2010-11 approximately 2% of waste generated at Lancaster University was segregated for reuse in a variety of projects. The reuse figure has remained around 2% for the last four years.

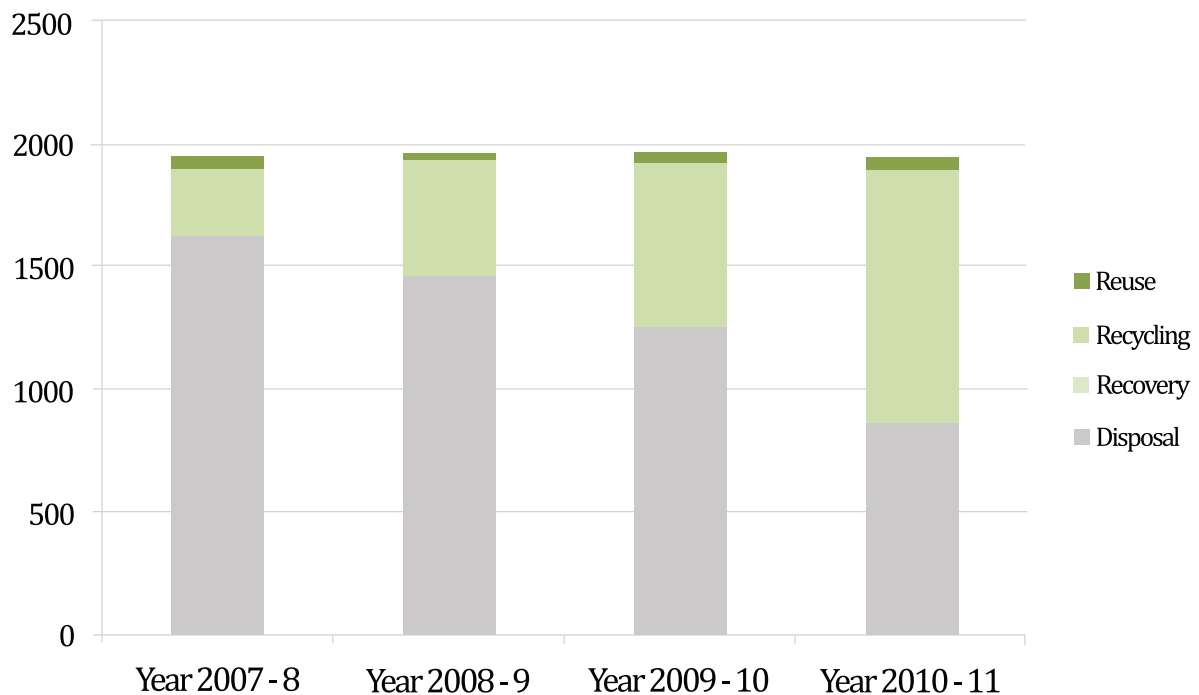
**Recycling:** There has been a significant increase in the recycling rate at Lancaster University from less than 4% in 2006-2007 to 53% in 2010-11.

**Recovery:** No waste generated at Lancaster University is classified as being 'recovered' at present. Recovery of waste will commence when the Thornton off-site treatment plant operated by Global Renewables is finally licenced by the Environment Agency for treatment/sale of the soil type material generated from the treatment of biodegradable waste. It is anticipated the plant will be licenced for this material within the next 12 months. It is anticipated that up to 30% of waste will ultimately be recovered, once the Thornton treatment plant is fully operational.

**Disposal:** The total volume of residual waste generated at Lancaster University has gradually declined from over 1,625 tonnes in 2006-07 to 1,300 tonnes in 2010-11. In 2006-07 all 1,625 tonnes of residual waste were disposed of to landfill. Off-site treatment comprising extraction of recyclable material has meant that in 2010-11 residual waste sent for disposal at landfill has declined to 868 tonnes (or 45% of total waste) in 2010-11.

The chart below details the changes in waste disposal and recycling rates at Lancaster University in the context of the waste hierarchy.

Figure 1: Lancaster University waste generation in the context of the waste hierarchy (tonnages)



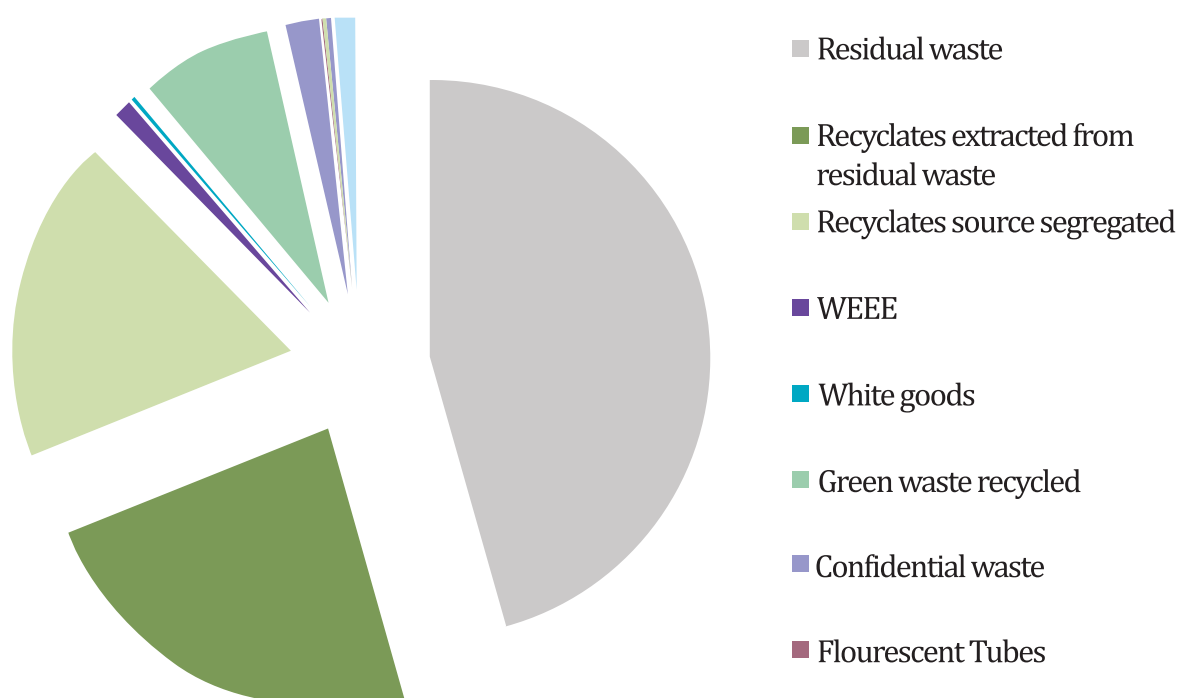
## 2.3 Waste Composition

A wide variety of waste streams are produced at the University.

A detailed compositional analysis is planned to understand the exact make up of waste at the University. This will assist in informing where existing recycling systems are failing to capture materials.

The known composition of waste streams at Lancaster University is detailed below, in the context of the waste hierarchy.

Figure 2: Lancaster University waste composition 2010/2011



## 2.4 The Cost of Waste Management

The total cost of waste management consists of a combination of collection and transport costs, Landfill Tax and landfill gate fees and waste treatment and segregation fees. To encourage treatment of waste further up the waste hierarchy, the government introduced a Landfill Tax in October 1996.

The current rate for 2011-12 is £56 per tonne. Landfill Tax is planned to increase at £8/tonne/year for the next three years.

Beyond 2014 there will be a floor, so that the rate will not fall below £80 per tonne to 2019-20. In addition to Landfill Tax, the UK median value for landfill gate fees is approximately £20/tonne.

The current University arrangements for recycling and recovery limit the long term exposure to landfill tax increases, assuming residual waste continues to be sent to a treatment facility. However there is clearly exposure to changes in gate fees at waste treatment plants. The full cost of these fees is estimated to be approximately £100/tonne as of 2011-12. Waste collection and transfer fees are approximately £55/tonne.

Despite potential volatility in markets for recyclates, increasing collection of these materials should be more cost competitive than the charges for treatment/disposal of waste in the medium to long term and offers the prospect of obtaining some rebates depending on quality and volume.

In Lancaster University's case recyclate collection/transfer/treatment costs have fallen from over £300/tonne to under £150/tonne between 2006-07 and 2010-11.

Table 1: Landfill Tax for 2011-12 to 2014-15

YEAR	2011-12	2012-13	2013-14	2014-15
Landfill Tax per tonne (Active waste)	£56	£64	£72	£80

# 3 LEGISLATION AND COMPLIANCE

## 3.1 Introduction to Waste Legislation

Ineffective waste management has the potential to both pollute the environment and negatively impact human health. There is now extensive waste management legislation in place on both a UK and European Union level.

The UK government has implemented the key provisions of the revised *EU Waste Framework Directive* (rWFD) by requiring waste producers (like the University) and Local Authorities to demonstrate consideration and prioritisation of the waste hierarchy in waste management activities and operations.

The University has a legal obligation (a Duty of Care) to demonstrate it knows exactly how its wastes are being managed. Through working collaboratively with our waste contractors the University will endeavour to ensure compliance with all relevant waste legislation.

The University also aims to ensure that only ethical and environmentally appropriate methods are adopted and where possible that long term focus is given to preventing the production of waste, encouraging reuse and recycling activities and avoiding waste disposal.

# 4 WASTE STRATEGY TARGETS AND PERFORMANCE

## 4.1 National targets

National targets for reducing waste disposed of to landfill and recycling rates have been set by the UK Government, through the implementation of the *Waste Framework Directive* covering diversion rates for biodegradable municipal waste and recycling rates and these have applied to local authorities.

The targets require local authorities to divert 25% of biodegradable waste away from landfill by 2010, 50% by 2013 and 65% by 2020. A recycling target of 50% by 2020 has also been set.

## 4.2 HE Sector Targets and Performance

The HE/FE sector does not have specific waste disposal or recycling targets set through national legislation or guidance, or set out in sector specific guidance, through a sector body such as HEFCE.

Recycling rates in the HE/FE sector are quite variable from institution to institution. Mean HE/FE sector recycling rates in the HE/FE sector have increased from 18% in 2005-06 to approximately 45% in 2010-11

## 4.3 Lancaster University Performance and Aspirations

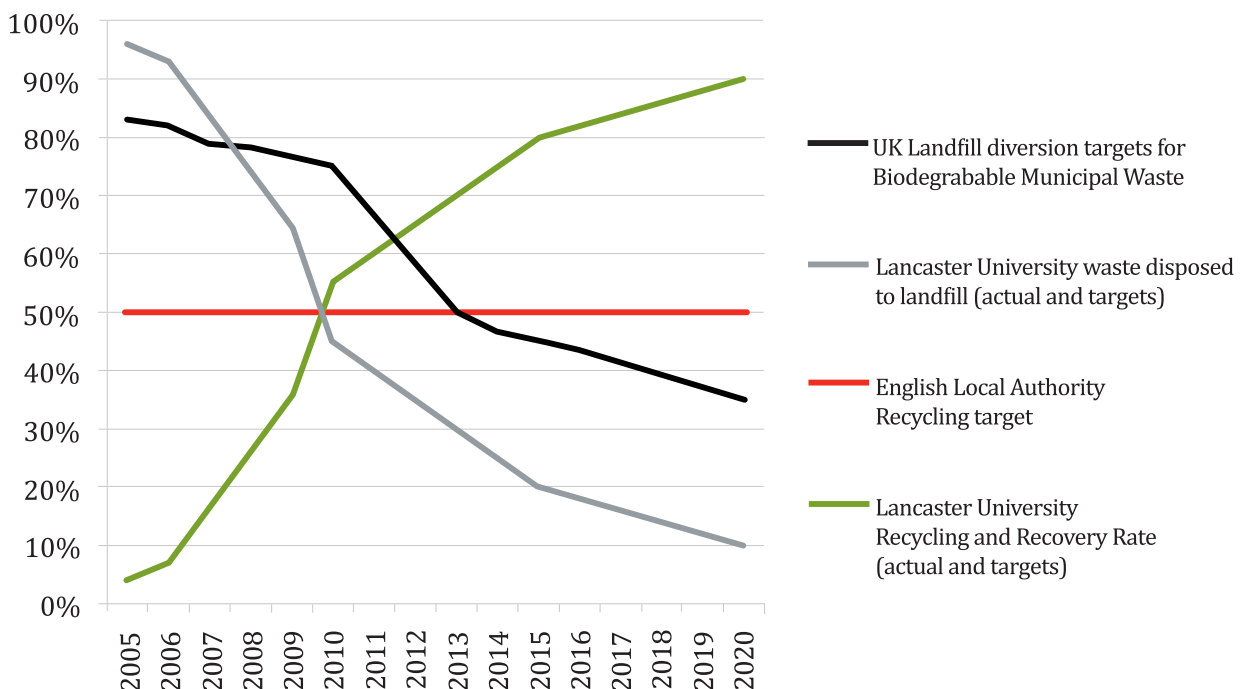
Lancaster University has seen major improvements in its recycling rate and a significant increase in waste diverted from landfill disposal over recent years.

Between 2005-06 and 2010-11 recycling rates have increased from approximately 4% to 53% (plus 2% reuse), exceeding the mean HE/FE sector recycling rates by 2010-11. Waste diverted from landfill disposal has mirrored this trend. In 2005-06 over 95% of Lancaster University waste was disposed of to landfill. This had reduced to 45% by 2010-11.

Lancaster University aims to surpass the UK national targets as set out in the *Waste Framework Directive* and being implemented through local authorities, and aspires to be a leader in waste reduction and recycling within the HE Sector. This waste strategy has been developed in order to enable Lancaster University to achieve these aims.

The table below shows performance of Lancaster University compared with English Local Authority targets for diversion of biological municipal waste from landfill and recycling targets for household waste.

Figure 3: Lancaster University waste management performance compared with national targets and sector performance.



## 5 THE WASTE STRATEGY

### 5.1 Introduction

*Lancaster University Waste Strategy* has been devised in order to set out an overarching framework for waste management at Lancaster University.

The *Waste Strategy* takes into account the wide range of factors and issues detailed above that are influencing and driving waste management at the University, including in particular the findings of the waste strategy review, Lancaster University internal drivers, legislative requirements and national and sector waste targets and performance.

A range of projects, plans and actions, together with waste and recycling targets have been developed, within a series of timeframes in order to form the strategy, and these are detailed below.

### 5.2 Waste Strategy Timeframe

The *Waste Strategy* has been developed with a three phase timeframe as detailed below. Each phase of the strategy has a waste reduction target and a series of projects designed to help achieve this target or to improve waste management. The *Waste Strategy* runs from 2011-12 until 2019-20.

The *Waste Strategy* timeframe has been developed to be compatible with the timeframes of *Lancaster University Masterplan* and *Lancaster University Carbon Management Plan*.

Table 2: Waste Strategy Timeframe

2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Short Term	Medium Term			Long Term				

### 5.3 Short Term Waste Strategy (2011 - 2012)

#### Target: 60% waste reused/recycled or recovered over 2011-12

The following projects, plans and actions are planned to be implemented in order to achieve this target or otherwise improve waste management:

- Undertake food waste segregation/treatment feasibility project and waste composition analysis.
- Maintenance of existing general waste and recycling contracts over 2011-12.
- Temporary upgrade of external bin stores to reduce fire safety risk.
- Preparation of phased and costed bin store upgrade plan.
- Develop a plan for and assess costs central reusable waste storage/assessment facility.
- Formalise and fully document waste procedures.
- Review and tender waste and recycle contracts.

### 5.4 Medium Term Waste Strategy (2012-2015)

#### Target: 80% waste reused/recycled or recovered by 2014-15

The following projects, plans and actions are planned to be implemented in order to achieve this target or otherwise improve waste management:

- Extend compulsory recycling across campus for all student resident accommodation.
- Develop temporary central waste storage compound/storage facilities for green and skip waste and certain higher value recyclates, including metal or wood.
- Install food waste treatment plant to serve areas producing high volumes of food waste
- Review on-site and off-site contracted waste and recycling collection/treatment costs
- Develop reusable waste storage/assessment facility (for furniture, *The Exodus Project* and other reuse projects).
- Implement permanent upgrade of external bin stores to reduce fire safety risks, phased over five years, including proposed rationalisation of bin stores.
- Review and tender waste and recycling contracts.
- Develop with Procurement guidelines and purchasing policies to ensure maximum resource efficiency and minimum waste generation.
- Complete roll-out of internal waste and recycling bins and recycling arrangements to all existing buildings.
- Integrate waste procedures, targets, documentation and management systems into formal environmental management system.



## 5.5 Long Term Waste Strategy (2015-2020)

### **Target: 90% waste reused/recycled or recovered by 2019-20**

The following projects, plans and actions are planned to be implemented in order to achieve this target or otherwise improve waste management:

- Extend waste food collection to all commercial outlets and trial food waste collection from student residences.
- Develop a permanent central waste compound with space to enable sorting/storage/compaction of on-site high volume segregated recyclates (in addition to the high value recyclates).
- Trial on-site collection/sorting of selected high volume recyclates in central waste compound
- Review on-site and off-site contracted waste and recycling collection/treatment costs
- Extend reuse facility/project to enable maximum capture of reusable items across campus
- Extend and mainstream 'resource efficiency' through procurement by requiring full lifetime costs of items to be considered in order to minimise waste.
- Review commercial case for installation of micro waste to energy plants.

## 5.6 Waste Strategy Review, Update and Reporting

Performance in implementing the *Waste Strategy* will be reviewed on an annual basis to assess progress and reported to CEMENT and CEEB.

In addition, following the completion of the short term *Waste Strategy* (2011-12) an updated and more detailed *Waste Strategy Action Plan* will be developed and agreed for the following year (2012-13), taking into account the projects, plans and actions set out in this document.

A new *Waste Strategy Action Plan* will be developed for each subsequent year within the *Waste Strategy* timeframe.

A full review of the *Waste Strategy* will take place in summer 2015 following the implementation of the initial four years of strategy.

## 6 CONCLUSIONS

The *Waste Strategy* sets out a framework for waste management over the next decade at Lancaster University.

The *Waste Strategy* offers many environmental benefits, not least through managing resources more efficiently, through preventing and minimising waste generation and by increasing recycling rates, and helping to achieve legislative compliance.

The *Waste Strategy* covers a key period in waste management, within which the routes for the disposal, treatment and recycling of waste will have completely altered. In addition, attitudes to waste generation and disposal are likely to have altered considerably.

The projects within the *Waste Strategy* detail how Lancaster University plans to alter the way in which waste is managed on-site, treated and disposed off-site. It is also designed to encourage a reduction in waste generation and alter University staff, students and visitors attitudes to waste management and generation.

# APPENDIX 1

## LINKING THE WASTE STRATEGY TARGETS TO THE WASTE HIERARCHY

## Short Term Strategic Objectives (2011-2012)

CATEGORY	DESCRIPTION
Prevention	<ul style="list-style-type: none"> <li>• Create a reporting metric for waste prevention e.g. overall waste production kg/per student or FTE.</li> </ul>
Prepare for re-use	<ul style="list-style-type: none"> <li>• Continued promotion of <i>The Exodus Project</i> was started in 2009. The project aims to collect and reuse unwanted items from the Halls of Residence which would otherwise be disposed as waste such as non-working and working electrical equipment, books, CDs, DVDs, bedding, clothing, cutlery, crockery and stationery.</li> <li>• Promote the Furniture Reuse Scheme.</li> </ul>
Recycling	<ul style="list-style-type: none"> <li>• Temporary upgrade of external bin stores to reduce fire risk.</li> <li>• Preparation of phased and costed bin store upgrade plan.</li> <li>• Undertake food waste segregation feasibility assessment.</li> <li>• Develop temporary central waste storage compound for green and skip waste and certain higher value recyclates such as metal or wood.</li> <li>• Plan central reusable waste storage/assessment facility.</li> <li>• Extended trial of certain student residence recycling and waste removal systems. The University operates a source segregated collection of recyclables covering both Halls of Residence and the general campus. The current arrangement is effectively a “bring system” with students and support staff putting materials in specific containers. The trial will experiment with other options.</li> <li>• Assisting Green Lancaster ‘Recycling Rangers’ who help promote the benefits of recycling and sustainable waste management to students across the campus.</li> <li>• Upgrade collection points including clear iconography.</li> <li>• Promote ‘Waste on the Go’ campaign to capture and recycle waste generated in public spaces on the wider campus.</li> <li>• Identify staff environmental champions and include information in new staff induction programme.</li> </ul>
Other recovery	<ul style="list-style-type: none"> <li>• Residual waste is currently collected by Lancaster City Council and treated by Global Renewables Ltd at Thornton Cleveleys, Blackpool. Global Renewables Ltd plant, is a Mechanical Biological Treatment (MBT) process. The facility segregates and then processes the biodegradable fractions within the waste to produce methane (that is used to produce energy) and an Organic Growth Medium which is intended to be used for land restoration. This treatment is legally defined as recovery rather than disposal.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• There is a recognition that some wastes can only be disposed of to landfill e.g. Asbestos.</li> </ul>

## Medium Term Strategic Objectives (2012-2015)

CATEGORY	DESCRIPTION
Prevention	<ul style="list-style-type: none"> <li>• Develop with procurement guidelines and purchasing policies to ensure maximum resource efficiency and minimum waste generation.</li> <li>• Draft a <i>Waste Minimisation Plan</i>.</li> <li>• Consider removal of vending machines and sale of pre-packaged goods at catering outlets.</li> <li>• Implement a purchasing/tendering policy that places significant emphasis on goods with minimum packaging.</li> <li>• Contractual arrangements to ensure suppliers/installers have a take back for packaging and waste materials.</li> <li>• Consider lease equipment so legal responsibility and waste generation is not reside the University.</li> <li>• Purchasing just in time to maintain minimum stock wastage.</li> </ul>
Prepare for re-use	<ul style="list-style-type: none"> <li>• Develop reusable waste storage/assessment facility (for furniture, <i>The Exodus Project</i> and other reuse projects).</li> <li>• Consider potential reuse of carpet tiles via Spruce Recycling.</li> <li>• Review option of refurbishing used IT equipment.</li> <li>• Provision of more Clothes Banks on campus.</li> </ul>
Recycling	<ul style="list-style-type: none"> <li>• Extend compulsory recycling across campus for all student accommodation.</li> <li>• Complete roll-out of internal waste and recycling bins and recycling arrangements to all existing buildings.</li> <li>• Develop permanent central waste compound with space to enable sorting/storage/compaction of on-site high volume segregated recyclates (in addition to the high value recyclates).</li> <li>• Implement permanent upgrade of external bin stores to reduce fire safety risks, phased over three years, including proposed rationalisation of bin stores.</li> <li>• Annual audit of content of residual waste stream to identify recyclable materials not being recycled.</li> <li>• Instigate detailed data collection to identify collection points with low recycling rates.</li> <li>• For one off arisings e.g. construction, ensure that the recycling rate of waste is reported.</li> </ul>
Other recovery	<ul style="list-style-type: none"> <li>• Install food waste treatment plant to serve areas producing high volumes of food waste.</li> <li>• Food waste segregated in Halls, offices, academic and catering facilities and sent to an off-site composting or Anaerobic Digestion facility. This in itself would not increase the recycling or recovery rate compared with waste going off-site mixed in with the residual waste. However, it would reduce contamination of recyclate and potentially the cost of treatment compared to MBT processes.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Monitor legislative changes that result in landfill bans for specific waste streams e.g. wood, aluminium.</li> </ul>

## Long Term Strategic Objectives (2015-2020)

CATEGORY	DESCRIPTION
Prevention	<ul style="list-style-type: none"> <li>• Extend and mainstream 'resource efficiency' through procurement by requiring full lifetime costs of items to be considered in order to minimise waste.</li> <li>• Purchasing policy that favours products that include a minimum recycled content and are fully recyclable.</li> <li>• Purchasing policy to avoid generating hazardous wastes e.g. paint.</li> </ul>
Prepare for re-use	<ul style="list-style-type: none"> <li>• Extend reuse facility/project to enable maximum capture of reusable items across campus.</li> </ul>
Recycling	<ul style="list-style-type: none"> <li>• Extend waste food collection to all commercial outlets and trial food waste collection from student residences.</li> <li>• Trial on-site collection/sorting of selected high volume recyclates in central waste compound.</li> <li>• Investigate on-site composting of grounds maintenance arisings.</li> </ul>
Other recovery	<ul style="list-style-type: none"> <li>• Review commercial case for installation of micro waste to energy plants.</li> <li>• Identify recovery facilities for waste streams that cannot be processed through the current route e.g. paints, chemical waste.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Aim to develop a <i>Zero Waste to Landfill</i> policy</li> </ul>