

Joint Lancashire Local Waste Assessment

May 2017

Table of Contents

1. Introduction	2
2. Lancashire's waste industry and its economic context	3
2.1 Economic Context	5
2.1 The Waste Industry	6
2.1.1 Relationships within the Plan area	9
2.2 Policy Context and Targets	15
3. Production and Management of Waste	17
3.1. Municipal, Commercial and Industrial Waste	18
3.1.1 Arisings	18
3.1.2 Assessment of Capacity	20
3.1.3 Projections of Demand	23
3.1.4 Meeting Forecast Demand	27
3.2 Construction, Demolition and Excavation Waste	29
3.2.1 Arisings	29
3.2.2 Assessment of Capacity	31
3.2.3 Projections of Demand	
3.2.4 Meeting Forecast Demand	35
3.3 Hazardous Waste	
3.3.1 Arisings	
3.3.2 Assessment of Capacity	41
3.3.3 Projections of Demand	41
3.3.4 Meeting Forecast Demand	42
3.4 Radioactive Waste	43
3.4.1 Low Level Waste	43
3.4.2 Naturally Occurring Radioactive Material	43
3.5 Agricultural Waste	43
3.6 Wastewater and sewage	44
3.7 Deposits and Forecast Demand for Non-hazardous Landfill	45
3.7.1 Deposits	45
3.7.2 Assessment of capacity	45

3.7.3 Projections of demand46
3.7.4 Meeting forecast demand46
Appendix 1 Location and capacity of major recovery and disposal facilities
Appendix 2 Municipal Solid Waste
3.1.1 Arisings
3.1.2 Assessment of Capacity50
3.1.3 Projections of Demand51
3.1.4 Meeting Forecast Demand55
Appendix 2 Imports and Exports
Appendix 2a Non Hazardous Waste58
Appendix 2b Hazardous Waste64
Appendix 2c Construction Demolition and Excavation Waste
Appendix 3 MSW Objectively Assessed Need Scenarios 114
Appendix 4 C&I Objectively Assessed Need Scenarios
Appendix 5 CDE Objectively Assessed Need Scenarios
Appendix 6 Hazardous Objectively Assessed Need
Appendix 7 Landfill Void Utilisation

This document has been prepared jointly by Lancashire County Council, Blackpool Council and Blackburn with Darwen Borough Council.

Further details of the local plan, and to download this and other documents, please visit our website <u>www.lancashire.gov.uk</u>. Or contact:

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1. Introduction

The Joint Lancashire Minerals and Waste Plan covers the administrative areas of Lancashire County Council, Blackburn with Darwen Borough Council and Blackpool Council (the Joint Authorities). The Joint Plan consists of an adopted Core Strategy and an adopted Site Allocation and Development Management Policies Local Plan.

This local waste assessment is prepared in response to section 13(1) of the Town and Country Planning (Local Plan) (England) Regulations 2012, and the National Planning Policy Framework. In accordance with section 17(6) it will inform the monitoring and review of the Minerals and Waste Local Plan.

It seeks to identify objectively assessed need, a requirement (at paragraph 14) of the NPPFs presumption in favour of sustainable development. In line with this presumption the acceptability of meeting the objectively assessed need will be determined through the plan making process.

If you have any suggestions to make please send them, with your name and address, to the address below:

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2. Lancashire's waste industry and its economic context

The Plan area contrasts some of the most densely populated urban areas with large expanses of sparsely populated and highly valued rural countryside. Housing and industry are focused in the main sub-regions around central Lancashire, Lancaster, east Lancashire, Ormskirk and Skelmersdale, and the Fylde coast.

The Plan area has a history of landfilling, linked to the infilling of redundant quarry voids. The industry is characterised now by a declining number of landfill sites, the majority of them of a significant size, and a large number of widely distributed waste transfer, recycling and recovery facilities, usually on industrial estates or associated with active landfill sites.

The map below illustrates the distribution of major disposal and recovery facilities within the Plan area (a key can be found at appendix 1).



Major Disposal and Recovery Installations

© Environment Agency

2.1 Economic Context

In 2011 there were around 5,000 people working in the water supply, sewerage, waste management and remediation industries (figures on the waste management industry alone are not available) (ONS, 2011), distributed throughout the Plan area but the larger concentrations are in Chorley, South Ribble, Lancaster, Preston, and West Lancashire. This represents about 0.7% of the workforce, in line with national levels.

The water supply, sewerage and waste management industry's contribution to Gross Value Added (GVA) in the Plan area was 1.2% in 2015 (higher than the national contribution of 1.0%), which is a reduction of 1.5% from 2009. This represents a contribution of around £330 million.

This contribution is illustrated below (secondary vertical axes have been used to allow comparisons between industries with significantly different levels of GVA). As can be seen there is limited correlation between these industries, however, manufacturing and water supply, sewerage and waste management have both experienced a similar pattern of decline in GVA since 2007.



Local growth projections prepared for the Lancashire Enterprise Partnership indicate modest growth in GVA for these industries over the next 30 years.



2.1 The Waste Industry

4.9 million tonnes¹ of waste passed through a waste management facility in the Plan area in 2015 (EA website data). Recently there has been a reduction in landfill inputs and an increase in physiochemical treatment and material recovery as more waste is diverted away from landfill as the economics of waste management began to be affected by the landfill tax escalator around 2009.

¹ This differs from waste arisings, as waste is likely to be treated in several waste management facilities (waste transfer station then material recycling facility for example), leading to double counting; they do however provide an indication of the size of the waste industry within the Plan area.



1,500,000 tonnes of construction, demolition and excavation waste passed through a waste management facility in the Plan area in 2015 (EA, national waste interrogator). Throughputs have shown a modest increase over the last five years. These figures differ from waste arisings, as the waste is likely to be treated in several waste management facilities (waste transfer station then material recycling facility for example), leading to double counting, and a large majority of the waste will be managed at exempt sites, or reused on site, and so will not be recorded through the national waste interrogator.



Municipal solid waste arisings were increasingly managed through recovery as the waste technology parks come online. This trend is illustrated in the figure below, showing that in 2015, of the 613,000 tonnes that were collected, 260,000 tonnes was recycled or composted, 238,000 was landfilled and 61,000 was treated through recovery. The increase in recovery in particular has led to a noticeable reduction in waste sent to landfill.



Section 3 will present, by sector, information on waste arisings, future projections of these, waste management capacity, and any shortfall in this capacity relative to the projected arisings.

2.1.1 Relationships within the Plan area

Other industries

These waste management trends are illustrated alongside housing delivery and GVA, to identify any correlation which may assist in projecting objectively assessed need. It can be seen that there is limited correlation between the waste throughput and construction industry GVA, but no significant relationship with housing completions, manufacturing or the water supply, sewerage and waste management GVA.

None the less there is a link between economic growth and waste generation, notwithstanding that efficiencies in production processes have lead over time to a reduction in the amount of waste produced per unit of production. However, there are other clearer drivers to growth and investment in the waste management industry: fluctuations in raw material prices (in particular iron ore, less markedly oil) lead to impacts on the competitiveness of recycled materials as a feedstock to manufacturing processes; currency fluctuations impact both domestic and foreign markets; changing demand from the Far East; these factors are influencing the drive for higher material quality, both in the wastes collected and the product of the waste management process; some areas of the industry are also influenced by the energy market, due to the price of electricity as an operating cost. Other policy drivers are discussed below.



Comparison between Manufacturing GVA and Tonnage of Waste Managed 6,000 4,000 3,500 5,000 Waste Managed (Tonnes) 3,000 4,000 ons) 2,500 Total Waste Managed 2,000 3,000 Em **GVA Manufacturing** 2,000 **Š** 1,500 1,000 1,000 500 0 204 205 206 201 208 209 201 201 201 201 201 201 201 Year



Comparison between Construction GVA and Tonnage of Constuction, Demolition and **Excavation Waste Managed** 2,500 2500000 2,000 2000000 **Waste Managed (Tonnes)** 1,500 (uoillim3) 1,000 **BV** CDE Waste 1500000 Managed GVA Construction 1000000 500000 500 0 0 2009 2010 2011 2013 2014 2015 2012 Year



Specific information is available for municipal solid waste. Municipal waste relationships with GVA and housing completions are illustrated below. It can be seen that there is a limited correlation.







Population

It is expected that there will be an increase in population over the plan period. This population increase may result in more waste being generated within the municipal waste stream and also the commercial and industrial waste stream, as a result of

additional jobs being created. Population change may also impact upon the arisings of other waste streams, such as sewage waste generation.

Lancashire County Council has produced population projections to 2021, informed by census data and data produced by the Office for National Statistics (ONS). These population projections suggest that over the plan period, the population of Lancashire will increase by a further 2.9% from 1,452,000 in 2009 to 1,495,000 in 2021.

If an assumption is made that the volume of municipal solid waste arisings (MSW) have a direct relationship to population, this would suggest that MSW arisings will also increase over the plan period and could result in a similar percentage increase of total MSW waste arisings (2.9%). However the data on MSW arisings, detailed further below, show that the ongoing increase in population has not resulted in an increase of waste arisings.



Infrastructure

Alongside local development factors that may influence waste arisings, it considered essential to review any known factors at a wider than local level, which may have an impact on future waste arisings. The National Infrastructure Delivery Plan 2016-2021 details numerous infrastructure projects which may have implications for waste in Lancashire, including:

- General commitment to complete essential maintenance to the national and local road network and to support development though removal of 'bottlenecks'.
- New airport infrastructure at Manchester.
- New port capacity at Liverpool.
- Smart motorway projects.
- HS2 rail.

2.2 Policy Context and Targets

The Waste Management Plan for England describes the waste management policies that apply within England for 'Directive wastes'². Key policy documents include the Waste Policy Review, National Planning Policy for Waste, and the National Policy Statement for Hazardous Waste, and the Government's Hazardous Waste Strategy. Other relevant policy documents for non-Directive wastes include the UK strategies for the management of solid low level radioactive waste from the nuclear industry, and non-nuclear industries.

Relevant targets or policy requirements are described below³ (any local targets will be described in the relevant chapters):

- to drive waste management up the waste hierarchy
- to provide a framework in which communities take more responsibility for their own waste, and enable sufficient and timely provision of waste management facilities to meet the needs of their community
- to assess the need for additional waste installation infrastructure based on the existing and future generation of waste arisings and existing waste management capacity
- identify where waste will be managed
- to secure the recovery of waste without endangering human health and without using processes or methods that could harm the environment and, in particular, without risk to water, air, soil, plants or animals; or causing nuisance through noise or odours; or adversely affecting the countryside or places of special interest
- to help implement the national waste strategy and supporting targets:
 - $\circ~$ to recycle at least 50% of household waste by 2020
 - $\circ~$ to recover at least 70% of C&D waste by 2020
 - to reduce the amount of biodegradable municipal waste going to landfill by 65% of 1995 levels by 2020
- also consider proposed targets through the Circular Economy revisions to the Directives to increase recycling targets for household waste to 65% by 2030, and to limit the amount of waste landfilled to 10% of arisings by 2030.

Household and municipal waste targets are also contained in the Joint Lancashire Municipal Waste Management Strategy. The C&D target is a national target, and is monitored and reported at the national level – England is achieving a 93% recovery rate (waste management plan ref). There is also a joint Government/Industry target to halve C&D waste to landfill by 2012, compared to a 2008 baseline.

² Radioactive wastes and waste water are not covered by the revised Waste Framework Directive, or the Waste Management Plan for England.

³ Informed by Planning Policy Statement 10 and the EU waste framework directive (transposed into UK law through the Waste (England and Wales) Regulations 2011)

Other policy drivers include those arising in the international market, such as Operation Green Wall in China, or due to the policy incentives available for energy generation.

3. Production and Management of Waste

This document sets out information on waste arisings and existing waste management capacity, as well assumptions on future arisings, to inform the monitoring and review of the Local Plan. It sets out methods of:

- Identifying forecast demand
- Assessing the adequacy of supply
- Assessing the supply options
- Meeting the forecast demand

This is broken down by waste type:

- Commercial, Industrial and Municipal
- Inert
- Hazardous
- Radioactive
- Agricultural
- Waste water and Sewage

The level of information available for each waste type, and the level of detail presented, varies for each waste type. Data limitations, where they exist, are referenced in the chapters below. In addition, the lack of a shortfall should not necessarily be read as a lack of support for waste management facilities to come forwards through the planning system – whilst sufficient capacity may appear to exist the specific market or need that the proposal would provide for may not be addressed through the permitted capacity; likewise the permitted capacity may include some capacity that is not available, for commercial or operational reasons, as described later.

Nonetheless they represent a proportionate evidence base, using the most up to date information available, in accordance with the requirements of the NPPF.

The forecast of demand is made over a 20 year period, from 2012 to 2032.

3.1. Municipal, Commercial and Industrial Waste

The Core Strategy seeks to plan for municipal, commercial and industrial waste⁴ by identifying the anticipated volumes of waste requiring management during the plan period (through anticipating arisings and applying national and regional waste recycling targets), and through identifying land allocations throughout the plan area in the Site Allocation and Development Management Policies Local Plan sufficient to allow for the anticipated facilities to come forward if necessary.

3.1.1 Arisings

There is only limited information available on arisings of commercial and industrial waste. Information is not collected routinely, the last survey in the North West was carried out by the Environment Agency in 2009, which estimates arisings of 1,564,000. The Core Strategy is based on evidence from the 2003 Environment Agency survey, which estimates arisings of 1,782,000 tonnes per annum within the plan area. Surveys were also carried out in 2006 and 2007, which both recorded similar arisings, of around 1,623,000 tonnes.

Recently the Welsh Government commissioned a commercial and industrial waste survey to update their evidence dating from 2007; this survey found no significant difference between arisings in 2007 and 2012⁵.

There is more detailed information available for municipal waste arisings. This is presented in appendix 2.

⁴ Due to the similar nature of these wastes and the fact that most waste facilities can manage municipal or commercial or industrial wastes without distinction, and that municipal solid waste management is often contracted out to privately managed facilities, they are considered here together. It is difficult to separate industrial and commercial capacity and arisings from municipal waste capacity and arisings using the Environment Agency's National Waste Interrogator, however, separate information is available for municipal solid waste, and is presented at Appendix 2 for information.

⁵ Environment Agency Wales (2007) Survey of Industrial and Commercial Waste Arisings in Wales



Alongside this should be considered the movements of waste into and out of the plan area. In 2015 approximately 650,000 tonnes of the waste managed at facilities in the Plan area was imported to the plan area, the majority from the North West; approximately 360,000 tonnes of waste was exported from the plan area to be managed in other areas, the vast majority is managed in the North West region. Information on destinations or sources of the waste is presented in the appendices. The plan area was a net importer in 2015, by around 286,000 tonnes. Past trends indicate relatively stable imports (averaging around 561,000 tonnes) and decreasing levels of exports in recent years. However, these are influenced, not only by economics and contracts, but by how the waste return completed by the waste carrier was filled in. Waste managed in the plan area could have been recorded as originating in the North West rather than in Lancashire and would thus appear as an import.

	Exports from the	Imports to the Plan	Net Self sufficiency
	Plan area (tonnes)	area (tonnes)	
2015	364,000	650,000	286,000 imports
2014	335,000	875,000	540,000 imports
2013	503,000	531,000	28,000 imports
2012	462,000	352,000	110,000 exports
4 year average	416,000	602,000	241,000 imports

Waste Movements - National Waste Interrogator (Contains Environment Agency information © Environment Agency and database rights)

• The most recent information estimates arisings at 1.62 million tonnes in 2009.

• Information on waste movements indicates considerable variation year to year. The last six years imports average around 500,000 tonnes.

3.1.2 Assessment of Capacity

There was 15 million tonnes of active permitted capacity⁶ in the plan area in 2015 (excluding landfill); approximately 4 million tonnes of waste was managed at these facilities, representing a utilisation rate of 27%. This figure includes all manner of waste permit types including waste transfer, recycling, end of life vehicle dismantlers, incineration, physio-chemical treatment.

Of the 15 million tonnes of active permitted capacity described above, there is 8.7 million tonnes of annual capacity excluding the transfer stations (to avoid double counting, as much of the waste sent to transfer stations is likely to be send to on to other waste management facilities), waste water treatment works and inert waste facilities. 2.3 million tonnes was managed at these facilities, representing a utilisation rate of 26%.

In addition some of the facilities are time limited, mainly those co-located on landfill sites. These are described in the table below. These waste management facilities will have to close as part of the restoration of the landfill site when the landfill site they are co-located on reaches the end of its operational life.

District	Site	Nature of Planning
		Permission
Chorley	Clayton Hall WTS	Temporary to 2028
Fylde	Westby WTS	Temporary to 2018
	Clifton Marsh WTS	Temporary to 2035
Hyndburn	Whinney Hill WTS	Temporary to 2042

Time limited waste recycling facilities

⁶ Information is presented on permitted capacity using data sourced from the Environment Agency Waste Interrogator, to identify active (in 2015) sites, and thus exclude sites that are not operational, to provide as clear a picture as possible on the actual waste capacity available. The permitted capacity recorded is the maximum amount of waste the site is allowed to accept under their permit, this is not the operational capacity⁶.

Whilst some sites may be designed to, and capable of, manage the maximum permitted capacity, many others will be constructed to deal with less waste and so will be constrained by the design of the facility, other sites may have restrictions placed on their operation through other regulatory regimes (i.e. through planning conditions). In addition some sites (standard rules permits, or sites without a maximum specified limit) will have a 'zero' entry. It will also exclude sites which are not permitting by the Environment Agency, either because they are exempt as small scale, or are permitted under other regulatory regimes.

- Permitted capacity is 8,700,000tpa for waste recycling/composting and treatment, excluding transfer stations to avoid double counting
- There are a small number of facilities in the Plan area where operations will, under the current planning permission, cease during the plan period. Their closure will cause a minor impact on capacity.



3.1.3 Projections of Demand

Several projections of demand are presented below.

- Projections based on adopted plan: The Core Strategy plans for a 0% growth rate.
- Projections based on past trends: Estimates of waste arisings, since 2003, have averaged at **-4.2% negative growth rate**.
- Economic projections: Projections prepared for the LEP illustrate economic growth projections to 2032 and beyond. There is a limited degree of correlation between construction and total waste throughputs, as can be seen from section 2. Between 2012 and 2032 the projection of economic growth for the construction industry average around a **2.3% growth rate**.

As described in 3.2.1 the estimates of waste arisings are considerably different to those predicted and planned for in the Core Strategy. The growth rate planned for, and the target in the strategy, have both overestimated arisings when compared to more recent estimates. However, projecting this past trend forwards runs the risk of underestimating future need by projecting forwards and compounding a possible recessionary trend. It is not clear how much of the past reduction in arisings is attributable to waste minimisation initiatives and how much to the economic conditions.

Projected arisings

Projections of waste arisings, and need for waste management facilities, are described below. Projections are presented using two base points: based on 2009 waste arisings (the most recently available information); and on 2009 waste arisings plus an average of the last 3 years waste imports.





Targets

The more recent waste survey estimates that 30% of waste is currently recycled, and a further 37% is recyclable or possibly recyclable. It also states that 1% is currently

recovered, and a further 70% is recoverable or possibly recoverable. There is a degree of uncertainty with these figures, as they represent the initial destination of waste rather than the final management method; much of the 70% that is or may be recoverable is likely to already be sent for recycling or recovery from the waste management facility that initially receives the waste from the commercial and industrial sector. In addition there is likely to be a considerable degree of duplication between the potentially recoverable and potentially recyclable wastes.

None the less, the evidence indicates that recycling could increase up to 85%, and recovery up to 70%. More demanding targets could be incorporated into the projection of demand, to acknowledge these opportunities to assist in driving waste management up the waste hierarchy. To enable a gradual transition these are added as a steady continuation of the Core Strategy targets, rather than an abrupt increase. This results in recycling targets rising to 60% in 2032, and recovery stable at 30% throughout the period. This is illustrated in the figure below. However, there is no degree of certainty as to whether these targets are technically or economically feasible.



Need based on 2009 waste arisings

The figure below illustrates the difference in projected demand arising from the different growth rates, based on projections of 2009 waste arisings.



Need based on 2009 waste arisings and imports

The figure below illustrates the difference in projected demand arising from the different growth rates, based on 2009 waste arisings including imports.



3.1.4 Meeting Forecast Demand

	Commercial	and	Industrial
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	Recycling and composting (tonnes)	Recovery (tonnes)
Predicted demand in 2032	Using the different recycling and growth rates described above:	Using the different recycling and growth rates described above:
	2009 arisings scenario – Range from 413,000 to 1,535,000	2009 arisings scenario – range from 206,000 to 767,000
	Plus imports scenario – Range from 565,000 to 2,163,000	Plus imports scenario – Range from 283,000 to 1,081,000
Permitted capacity	8,700,000 (2.3 million througputs in 2015)	
Shortfall in 2032	No shortfall anticipated	No shortfall anticipated

• However, there is considerable uncertainty over the projected arisings, the permitted capacity, and the capacity needed to move waste up the waste hierarchy (the double counting of waste, as it is recycled, treated and then recovered in different facilities that is not reflected appropriately in the figures above). This points to the need for flexibility in interpreting and applying these figures.

Municipal, commercial and industrial

	Recycling and composting (tonnes)	Recovery (tonnes)
Predicted demand in 2032	Using the different recycling and growth rates described above and in the MSW appendix: Low scenario ⁷ – Range from 763,000 to 2,153,000 High scenario ⁸ – Range from 968,000 to 2,873,000	Using the different recycling and growth rates described above and in the MSW appendix: Low scenario – range from 348,000 to 1,041,000 High scenario – Range from 425,000 to 1,355,000
Permitted capacity	8,700,000 (2.3 million througputs in 2015)	
Shortfall in 2032	No shortfall anticipated	No shortfall anticipated

• However, there is considerable uncertainty over the projected arisings, the permitted capacity, and the capacity needed to move waste up the waste hierarchy (the double counting of waste, as it is recycled, treated and then recovered in different facilities that is not reflected appropriately in the figures above). This points to the need for flexibility in interpreting and applying these figures.

⁷ 2009 arisings for Industrial and commercial waste with no change targets for municipal solid waste arisings.

⁸ With imports arisings for Industrial and commercial waste with EC targets for municipal solid waste arisings.

3.2 Construction, Demolition and Excavation Waste

The Core Strategy seeks to plan for construction, demolition and excavation waste by identifying the anticipated volumes of waste requiring management during the plan period (through anticipating arisings and applying national and regional waste recycling targets), and through identifying land allocations throughout the plan area in the Site Allocation and Development Management Policies Local Plan of some sites put forwards by the industry that would be suitable in principle (note this is a slightly different approach to the commercial and industrial site allocations).

The 2007 survey estimated that in the plan area 40% of construction, demolition and excavation waste was sent to landfill for disposal, with the rest being either recycled, reused or otherwise recovered. As described in chapter 2 there is a national target to recycle or recover 70% of construction, demolition and excavation waste, and it is estimated that the current national rate is 93% (though as described below, the majority of this recycling takes place outside of waste management facilities).

3.2.1 Arisings

There is very limited information available on arisings of construction, demolition and excavation waste, and there is no useful time series information due to the limited correlation between the available surveys. Information is not collected routinely; the last survey in the North West was carried out by Smithsgore/TerraConsult for the NWRTAB in 2007, which estimates arisings in the plan area of 3.2 million tonnes in 2006. The Core Strategy is based on evidence published in 2004 (ODPM/Capita Symonds Ltd), the Plan areas share of which indicates it produced around 2.2 million tonnes in 2003.

In 2015 approximately 1.5 million tonnes of inert waste was deposited at licenced facilities. However, a large amount of the total waste arisings will be managed on the site they arise at or at exempt operations and so will not be recorded as throughputs: as described in section 2.

Alongside this should be considered the movements of waste into and out of the plan area. In 2015, 160,000 tonnes of waste managed at facilities in the Plan area was exported from the plan area, the majority to sites within the North West; 504,000 tonnes of waste were imported to the plan area. Information on destinations or sources of the waste is presented in the appendices⁹. Past trends indicate considerable fluctuation, but a trend for increases in imports and exports, with a relatively stable balance between the two.

⁹ Though there are issues around coding – uncoded north west was 155,000 tonnes in 2013, 109,000 tonnes in 2012 but 9,000 tonnes in 2011, much of this could have originated from sites within Lancashire, and would not therefore count as imports, which could account for the discrepancy

	Exports from the	Imports to the	Net Self Sufficiency
	Plan area	Plan area	
2015	160,000	504,000	344,000 imports
2014	142,000	412,000	270,000 imports
2013	358,000	231,000	127,000 exports
2012	304,000	172,000	132,000 exports
2011	187,000	49,000	138,000 exports
2010	112,000	120,000	8,000 imports

Waste Movements - National Waste Interrogator (Contains Environment Agency information © Environment Agency and database rights)

- The most recent information estimates arisings at 3.2 million tonnes in 2006.
- Within this context, imports of 500,000tpa are not insignificant in affecting demand during the plan period.
- Information on waste movements indicates considerable variation year to year.

3.2.2 Assessment of Capacity

There was 1.8 million tonnes per annum of permitted inert waste management capacity¹⁰ active in 2015. However, a significant number of sites described in 3.1 will also accept inert waste, and separating these out from the total permitted capacity is not possible. Moreover, as discussed earlier the majority of inert waste is managed under exemptions to the environmental permitting regime, either on construction sites or offsite at specific land improvement schemes.

The figure below presents information on sites with specific planning permission to accept inert wastes. Some facilities are time limited, mainly those co-located on landfill sites. The facilities with temporary permissions will have to close as part of the restoration of the landfill site or quarry when the site they are co-located on reaches the end of its operational life.

¹⁰ Information is presented on permitted capacity using data sourced from the Environment Agency Waste Interrogator, to identify active (in 2015) sites, and thus exclude sites that are not operational, to provide as clear a picture as possible on the actual waste capacity available. The permitted capacity recorded is the maximum amount of waste the site is allowed to accept under their permit, this is not the operational capacity¹⁰.

Whilst some sites may be designed to, and capable of, manage the maximum permitted capacity, many others will be constructed to deal with less waste and so will be constrained by the design of the facility, other sites may have restrictions placed on their operation through other regulatory regimes (i.e. through planning conditions). In addition some sites (standard rules permits, or sites without a maximum specified limit) will have a 'zero' entry. It will also exclude sites which are not permitting by the Environment Agency, either because they are exempt as small scale, or are permitted under other regulatory regimes.

District	Sito	Nature of Planning
DISTILL	Sile	<u>Nature or Flamming</u>
		Permission
Blackpool	Bristol Avenue	Permanent
Blackburn	RU Recycling	Permanent
Burnley	Enviro Skips Hapton Valley	Permanent
Chorley	Clayton Hall Landfill	Temporary to 2028
	Common Bank Industrial Estate	Permanent
Fylde	Westby Landfill	Temporary to 2018
Hyndburn	Heyes Lane Industrial Estate	Permanent
	The Stoneyard	Permanent
Lancaster	Ellel Quarry	Permanent
	Lune Industrial Estate	Permanent
	Lancaster West Business Park	Temporary to 2048
	Back Land Site, Heysham Business Park,	Permanent
	Middleton	
Preston	Bradleys Sand Pit	Temporary to 2021
	Red Scar Industrial Estate	Permanent
Ribble	Bankfield Quarry	Temporary to 2018
Valley		
South	Lancashire Business Park	Permanent
Ribble		
West	Simonswood Trading Estate	Permanent
Lancs	Unit 2 Simonswood Industrial Estate	Permanent
Wyre	Poulton Industrial Estate	Permanent

Facilities for inert waste recycling (not including more general waste management facilities that may also handle inert waste).

3.2.3 Projections of Demand

Several projections of demand are presented below:

- Projections based on adopted plan: the Core Strategy planned for a 1% growth rate.
- Economic projections: Projections prepared for the LEP illustrate economic growth projections to 2032 and beyond. There is a limited degree of correlation between construction GVA and inert waste throughputs, as can be seen from section 2. Between 2012 and 2032 the projection of economic growth for the construction industry averages around a **2.3% growth rate**.
- There is very limited time series information on construction, demolition and excavation waste arisings or quantities management. There is also a significant difference in the methodologies used in the two surveys described above, so no projections are presented based on these surveys. Past trends in waste throughputs indicate a **5% growth rate**.

Projected arisings

Projections of waste arisings, and need for waste management facilities, are described below.



Targets

Compared to the national target to recycle or recover 70% of waste, the Core Strategy targets appear onerous. Revised targets are presented below to achieve the national target.



Need

The figure below illustrates the difference in projected demand arising from the different growth rates, using the revised national waste recycling targets described above.


3.2.4 Meeting Forecast Demand

	Recycling and composting	Recovery
Predicted demand in 2032	Range from 1.6 million to 6.2 million tonnes using the different growth and recycling scenarios described above	Range from 1.2 million to 3.6 million tonnes using the different growth and recycling scenarios described above
Permitted capacity	There is considerable degree of uncertainty over permitted capacity, particularly given the availability of exempt sites	There is considerable degree of uncertainty over permitted capacity, particularly given the availability of exempt sites
Shortfall in 2032	There is considerable degree of uncertainty over the presence or otherwise of a shortfall in capacity, particularly given the availability of exempt sites	There is considerable degree of uncertainty over the presence or otherwise of a shortfall in capacity, particularly given the availability of exempt sites

- Estimated need is significantly higher than the Core Strategy assumption
- There is considerable uncertainty around the value of the available data for forward planning. This points to the need for flexibility in interpreting and applying these figures.

3.3 Hazardous Waste

The development plan seeks to plan for hazardous waste through generic planning policies. The Core Strategy did not seek to identify targets, instead it projected waste arisings in 2003 forwards for the plan period, predicting arisings throughout the plan period of 165,000 tonnes per annum. Prior to 2005 hazardous waste was categorised as 'special waste', and classified using different criteria; consequently direct comparisons between the amount of special waste and hazardous waste arisings is inherently unreliable.

3.3.1 Arisings

The plan area produced 136,000 tonnes of hazardous waste in 2015 (EA Haz Waste Interrogator, 2015). The vast majority (47%) of this is produced in Lancaster. This does not necessarily represent hazardous waste arisings, as wastes may be received at one facility for treatment then sent onwards for disposal at another facility, thus resulting in double counting.

The 136,000 tonnes are made up of 253 different types of waste; a large proportion of this figure is from 2 waste types, mainly produced in Lancaster and Ribble Valley.

Time series data on past arisings of hazardous waste in the Plan area is described in the table below.

Year	Hazardous waste arisings (tonnes)
2015	136,000
2014	118,000
2013	136,000
2012	152,000
2011	137,000
2010	146,000
2009	147,000
2008	166,000

Hazardous Waste Arisings in the Plan area - Hazardous Waste Interrogator (Contains Environment Agency information © Environment Agency and database rights).



In 2015 the Plan area imported 128,000 tonnes of hazardous waste and exported 90,000 tonnes of hazardous waste, making it a net importer. However, this balance is fluid and previous years have seen the Plan area as both a net importer and net exporter, as described in the table below. This fluctuation reflects both the varied sources of hazardous wastes (from the manufacturing/recycling industry, and the construction/site clearance industry) and their different links to economic activity, and the national scale of the hazardous waste industry, caused by the specialist nature of the waste management industry, the relatively small quantities of each waste type produced, and the national distribution of the production industries.

Year	Imports to the Plan area	Exports from the Plan area
2015	128,000	90,000
2014	138,000	82,000
2013	172,000	102,000
2012	141,000	122,000
2011	133,000	112,000
2010	113,000	116,000

Hazardous Waste Movements (tonnes) - Hazardous Waste Interrogator (Contains Environment Agency information © Environment Agency and database rights).

The most significant exports were for incineration with energy recovery, recovery and treatment, as described in the table below: nearly all of the waste sent for incineration with energy recovery was sent to Rutland (19,000 tonnes) and County Durham (13,000 tonnes); the majority of waste sent for treatment was sent to Trafford (4,000 tonnes) and Salford (3,000 tonnes).

Imports of large tonnages of waste were mainly sent from the North West (10,000 tonnes for landfill and 21,000 tonnes for recovery), Yorkshire and Humber (16,000 tonnes for recovery), Wales (13,000 tonnes for landfill) and the North East (10,000 tonnes for recovery).

Planning	Incineration with	Incineration	Landfill	Recovery	Rejected	Transfer	Transfer	Treatment
Region	energy recovery	without energy				(D)	(R)	
		recovery						
East Midlands	21701		30	1779		325	67	251
East of				171		4	68	29
England								
North East	13382		380	163		22	50	109
North West		9759	870	6129	3	4166	5728	10495
South East	251	581	2	175			25	
South West				189		11	2	
West Midlands	28	1	68	3784	27	351	1170	1753
Yorkshire &	25	1	1253	1910		131	2020	1214
Humber								

Waste Exports from the Plan area (tonnes) in 2015 - Hazardous Waste Interrogator (Contains Environment Agency information © Environment Agency and database rights).

Planning Region	Incineration with	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment
	energy recovery					
East Midlands		5	4406	406	1383	
East of England	38		1705	205	99	
London			1369	10	14	
Northern Ireland			375			
North East		6	10246	1900	664	
North West		10316	21702	4062	7832	1
Not Codeable		7	7	1	16	
Scotland		184	9070	289	619	
South East	4	1	1689	132	50	
South West		0	312	125	996	
Wales		13726	2537	1034	1392	
West Midlands		1436	7421	367	599	
Yorkshire & Humber		253	16563	799	1598	1

Waste Imports to the Plan area (tonnes) in 2015 - Hazardous Waste Interrogator (Contains Environment Agency information © Environment Agency and database rights).

3.3.2 Assessment of Capacity

There were 412,000 tonnes of active A9 Hazardous Waste Transfer permitted capacity¹¹ in the plan area in 2015 (excluding landfill); approximately 105,000 tonnes of waste was managed at these facilities, representing a utilisation rate of 25%. There was a further 175,000 tonnes per annum permitted capacity for incineration; approximately 70,000 tonnes of waste was managed at these facilities, representing a utilisation rate of 40%. There is also 30,000m³ permitted and constructed void space of hazardous waste landfill¹² (with a significant further volume of capacity recently permitted but not constructed).

3.3.3 Projections of Demand

National planning guidance states that "since existing data on hazardous waste arisings is likely to be robust, waste planning authorities should plan for future arisings based on extrapolating time series data". Over the past 8 years, waste growth has averaged at -2.2%; however from 2011 to 2012 waste arisings increased by 15,000 tonnes which was an increase of 10% from the previous year. 2013 saw a return to a reducing trend as waste arisings decreased by 10% from the previous year (15,000 tonnes). 2014 continued this trend as waste arisings decreased by 13% from the previous year (18,000 tonnes). In 2015, waste arisings increased by 18,000 tonnes which was an increase of 15% from 2014.

An alternative scenario for a growth in waste arisings is also projected below. To address concerns that hazardous waste arisings are linked to economic growth this scenario uses a growth rate of 2.3%, informed by the LEP model described above.

¹¹ Information is presented on permitted capacity using data sourced from the Environment Agency Waste Interrogator, to identify active (in 2013) sites, and thus exclude sites that are not operational, to provide as clear a picture as possible on the actual waste capacity available. However, the permitted capacity recorded is the maximum amount of waste the site is allowed to accept under their permit, this is not the operational capacity.

Whilst some sites may be designed to, and capable of, manage the maximum permitted capacity, many others will be constructed to deal with less waste and so will be constrained by the design of the facility, other sites may have restrictions placed on their operation through other regulatory regimes (i.e. through planning conditions). In addition some sites (standard rules permits, or sites without a maximum specified limit) will have a 'zero' entry. It will also exclude sites which are not permitting by the Environment Agency, either because they are exempt as small scale, or are permitted under other regulatory regimes.

¹² There is a further 150,000m³ of constructed void space of hazardous waste landfill which is restricted.



3.3.4 Meeting Forecast Demand

The assessment of forecast demand will consider an aggregated figure, rather than one broken down by recycling/recovery/landfill, due to the lack of national recycling targets, and the intra-national nature of the industry.

	Waste management capacity
Predicted demand in 2032	Between 69,000 and 209,000 tonnes
Active permitted capacity (excluding landfill)	587,000
Shortfall in 2032	n/a

- Estimated need is significantly lower than the Core Strategy assumption
- There is uncertainty over the projected arisings, permitted capacity, and the capacity needed to move waste up the waste hierarchy (the double counting of waste, as it is recycled, treated and then recovered in different facilities that is not reflected appropriately in the figures above), that points to the need for flexibility in interpreting and applying these figures.
- This is complicated somewhat by the large catchment areas typical of some hazardous waste management facilities.

3.4 Radioactive Waste

The development plan seeks to plan for radioactive waste by allocating a site for the disposal of low level waste arising from the operation and decommissioning of one facility within the Plan area. No information is presented on predicted arisings in the Core Strategy.

There are a number of facilities within the plan area, such as hospitals and universities (non-nuclear industry) and power stations or fuel fabricators (nuclear industry), which are authorised as producers of nuclear waste. The majority of this waste will comprise of low volume low level radioactive waste and high volume low level radioactive waste. There are also varying amounts of intermediate level and high level radioactive waste.

Intermediate and high level wastes are usually produced by the nuclear industry, and stored on site until such time as a national repository is available. They are not considered further here. Non-nuclear low volume low level waste are produced by the non-nuclear industry and can usually be disposed of in landfills or incinerators alongside other wastes, they are not considered here further..

3.4.1 Low Level Waste

The Nuclear Decommissioning Authority maintains an inventory of nuclear waste likely to arise from the nuclear industry. In the plan area it anticipates approximately 247,000m³ of packaged LLW; 19,000m³ from Heysham and 228,000m³ from Springfields. The rate that these are produced is largely dependent on the operation and mainly the decommissioning programmes for these facilities.

The Plan area contains one landfill with an environmental permit for accepting low level waste, Clifton Marsh. The position nationally is considered in the National Waste Programme: Low Activity Low Level Waste Capacity Assessment (2013). It finds adequate capacity nationally until 2030 if any necessary time extensions are granted (and subject to a site granting permission to accept LLW).

3.4.2 Naturally Occurring Radioactive Material

Naturally occurring radioactive material is produced predominantly by the oil and gas industry. In the plan area there is potential for onshore gas exploration, appraisal and production to generate quantities of NORM. There is considerable uncertainty around the quantities that may arise at the moment, and it will need to be monitored if the industry develops.

3.5 Agricultural Waste

It is estimated that 99% of agricultural waste comprises of animal matter resulting from the housing of animals, or vegetable and plant matter (EA, 2000). The remaining 1%, in Lancashire estimated at 20,000 tonnes (EA, 2000) will be treated

and managed by the waste management industry in the same way as commercial and industrial waste, and construction and demolition waste.

There is no up to date information available on agricultural waste arisings. It is not considered here further, though it may be prudent to include the 20,000 tonnes per year in the forecast demand for commercial and industrial waste.

3.6 Wastewater and sewage

No information is available on sewage and waste water arisings and management capacity. It is known, from representations in the public domain, that development proposals in some district local plans do cause potential capacity issues for sewerage undertakers. United Utilities are consulted on any local plan consultation in the Plan area, and they will have an opportunity to propose sites as part of any review. Asset Management Plans produced by United Utilities will, when available, inform future monitoring.

3.7 Deposits and Forecast Demand for Non-hazardous Landfill

The development plan seeks to plan for landfill by identifying the anticipated volumes of waste requiring management during the plan period (through anticipating arisings and applying national and regional waste recycling targets) and assessing available supply of void space. The Core Strategy anticipated arisings of 14 million tonnes of non-hazardous waste, and estimated existing capacity of void space at 17 million tonnes. Given the issues around construction, demolition and excavation waste data availability inert landfill is not considered further.

3.7.1 Deposits

In 2013 the Core Strategy estimated deposits to landfill would be 268,000 tonnes for municipal waste and 570,000 tonnes for commercial and industrial waste, a total of 830,000 tonnes.

In 2013, approximately 848,000 tonnes of waste was deposited in non-hazardous landfills in the plan area. Deposits of non-hazardous waste, illustrated in the figure below, have shown a significant decline since 2006.



3.7.2 Assessment of capacity

In 2013 the amount of permitted landfill void was 9.5 million m³ (increasing to 15 million m³ when you include the 6 million tonnes of additional permitted capacity at Whinney Hill that is reliant on the creation of void through the continued quarrying in Whinney Hill Quarry). The figure below illustrates the historic trend in landfill void availability.



3.7.3 Projections of demand

The scenarios described in section 3.1 and 3.2 produce in a range of landfill inputs over time; the figures below present the highest demand scenario (high waste growth rate and Core Strategy recycling target) and lowest demand scenario (low waste growth rate and more onerous recycling targets). The EU Action Plan for the Circular Economy proposes a target of reducing landfill to a maximum of 10% of municipal waste by 2030.



3.7.4 Meeting forecast demand

The figure below illustrates the projected availability of landfill void, using these demand scenarios. It can be seen that available void space is exhausted in 2029/30 under the high input scenario but continues to be available until beyond 2040 under the low input scenario, assuming that the current (2013) permitted void space is utilised fully.

A key consideration in this regard is the permitted capacity in phase 2 of Whinney Hill's global scheme, which is reliant on the continuation of quarrying operations to create the void. If this capacity is not implemented then available landfill void is exhausted in 2022/23 under the high input scenario and 2026/27 in the low input scenario.



Appendix 1 Location and capacity of major recovery and disposal facilities

No:	Site	Address	Facility
1	T R S Tyres Ltd	White Lund Industrial Estate	Treatment Facility
2	Thornton Waste Treatment Facility	Hillhouse Business Park	Treatment Facility
3	Carr Farm Anaerobic Digestion Facility	Carr Farm	Treatment Facility
4	Preston W W T W	Clifton Marsh	Treatment Facility
5	Leyland Waste Treatment Facility	Lancashire Enterprise Park	Treatment Facility
6	Blackburn W W T W	Cuerdale Lane	Treatment Facility
7	Orion (U K) Environmental Services Ltd	Roman Way Industrial Estate	Treatment Facility
8	Red Scar Tyres	Red Scar Industrial Estate	Treatment Facility
9	M Forshaw Ltd	Redscar Business Park	Treatment Facility
10	Blainscough Works	Preston Road	Treatment Facility
11	Fairport Engineering Ltd	Market Place	Treatment Facility
12	H R Plastics Ltd	Waterbarn Mill	Treatment Facility
13	Bridge Street Refinery	Bridge Street	Treatment Facility
14	Hyndburn W W T W	Mill Lane	Treatment Facility
15	Burnley W W T W	Barden Lane	Treatment Facility
16	Salt Ayre Materials Recycling Centre	Salt Ayre Landfill Site	MRT Facility
17	Recycling Lives Centre	Red Scar Bussiness Park	MRT Facility
18	Red Scar Processing Facility	Red Scar Bussiness Park	MRT Facility
19	Sandons Farm Waste Recycling Facility	Wigan Lane	MRT Facility
20	Viridor Polymer Recycling Ltd	Gerrard Place	MRT Facility
21	Darwen Materials Recycling Facility	Lower Eccleshill Road	MRT Facility
22	J 7 Global Ltd	Junction 7 Business Park	MRT Facility
23	Great Harwood Reclamation Centre	Heys Lane Industrial Est	MRT Facility
24	Metro Metals (Burnley) Ltd	Widow Hill Court	MRT Facility
25	Norpol Recycling Ltd	Charles Street	MRT Facility
26	John Robson (Metals) Ltd	Stump Cross Farm	Metal Recycling Facility
27	Rowan Scrap Metal	Rough Hey Road	Metal Recycling Facility
28	Inglemere Metals Ltd	Cowley Road	Metal Recycling Facility
29	Tom Martin & Co Ltd	Walton Summit Industrial Esta	Metal Recycling Facility
30	T Lethbridge Ltd	Gorse Street	Metal Recycling Facility
31	Ribblesdale Cement Works	West Bradford Road	Incinerator Facility
32	Tradebe Solvent Recycling Ltd	Middleton Road	Incinerator Facility
33	Whinney Hill Landfill Site	Whinney Hill Road	Non-hazardous Landfill
34	Westby Landfill Site	Anna's Road	Non-hazardous Landfill
35	Deerplay Landfill	Bacup Road	Non-hazardous Landfill

36	Clayton Hall Sand Quarry LFS	Dawson Lane	Non-hazardous Landfill
37	Ribblesdale Works	West Bradford Street	Non-hazardous Landfill
38	Jameson Road Landfill Site	Jameson Road	Non-hazardous Landfill
39	Clifton Marsh Landfill Site	Lytham Road	Non-hazardous Landfill
40	Whitemoss Landfill Site	Whitemoss Road South	Hazardous Landfill

Appendix 2 Municipal Solid Waste

Municipal solid waste is considered in chapter 3.1 as part of the general discussion around commercial and industrial waste, due to the similar nature of these wastes and the fact that most waste facilities can manage municipal or commercial or industrial wastes without distinction, and that municipal solid waste management is often contracted out to privately managed facilities.

It is difficult to separate industrial and commercial capacity and arisings from municipal waste capacity and arisings using the Environment Agency's National Waste Interrogator, however, separate information is available for municipal solid waste, and is presented here for information.

There are three Waste Disposal Authorities (authorities with a statutory responsibility to dispose of waste collected by district or city councils) in the Plan area, Lancashire, Blackpool and Blackburn with Darwen. All three Authorities have a Joint Municipal Waste Management Strategy (the MWMS) in place, adopted in 2008.

To meet the targets and objectives of the Municipal Waste Management Strategy Blackpool has joined with Lancashire County Council to develop and operate 2 waste technology parks. The MWMS included a transfer station in the east of Lancashire that has not yet been delivered, and the possibility of a treatment facility at the same site (as phase 2) should the need arise. Blackburn with Darwen is not part of this waste network and has entered into a short term contract to dispose of its residual waste to landfill.

The development plan seeks to plan for municipal waste management, and assist in meeting delivering the MWMS, by planning for the MWMS targets in the Core Strategy, and through identifying land allocations in the east of Lancashire in the Site Allocation and Development Management Policies Local Plan sufficient to allow for the remaining facility to come forward if necessary.

3.1.1 Arisings

Municipal Solid Waste has shown a significant reduction in arisings, year on year, since 2006. In 2015/16 733,000 tonnes of MSW were collected, showing a decrease on the previous year. However, this follows 2 years of increased waste arisings. This change is illustrated in the figure below, which also compares arisings to the 1% growth projection used to forecast arisings in the MWMS.



As can be seen, the MWMS significantly overestimated the amount of MSW that would be produced in the plan area; by almost 200,000 tonnes in 2015-16. However, it is not clear whether this reduction has been driven by the economic climate described above, or by recycling and waste minimisation initiatives at the local and national level. It is likely that it is a combination of the two factors.

• The most recent information records risings of 733,000tpa in 2015/16

3.1.2 Assessment of Capacity

The waste technology parks have a combined capacity to manage 340,000 tonnes per annum (tpa) of residual waste for recovery, and 238,000tpa of recycling and composting, with a further 119,000tpa of recycling capacity provided by the waste transfer stations. In addition Blackburn with Darwen has contracted the capacity to manage 57,500tpa of recycling and composting.

• Permitted capacity is 415,000tpa for recycling and composting and 340,000tpa for recovery. A further 35,000tpa of recycling and composting facilities is permitted but not yet built.

However, the waste technology parks are not currently operating to their full capacity following the end of the PFI contract with Global Renewables Lancashire Ltd and more recent budget decisions. This has resulted in the mothballing of part of the waste treatment plant, and the IVC green waste composting plant. There is as a result a need to contract out for the windrow composting of green waste. In addition, the recovery capacity is being used to produce refuse derived fuel or a reduced density waste for landfill so further recovery capacity, or additional disposal capacity, is to be outsourced.

3.1.3 Projections of Demand

Several projections of demand are presented below.

- Projections based on adopted target: The MWMS has a target of reducing growth in waste arisings to **0% growth rate** compared to 2009 levels,
- Projections based on adopted plan: The MWMS, together with the Core Strategy, plans for a 1% growth rate. The Core Strategy evidence base uses 2006 MSW arisings figures.
- Projections based on past trends: Actual waste arisings, over the last 10 years, have averaged at **-1.4% negative growth rate**.
- Economic projections: Projections prepared for the LEP illustrate economic growth projections to 2032 and beyond. There is a limited degree of correlation between manufacturing and municipal waste arisings, as can be seen from section 2.1.2. Between 2012 and 2032 the projection of economic growth for the manufacturing industry average around a **1.75% growth rate**.

As described in 3.1.1 the actual levels of waste arisings are considerably different to those predicted and planned for in the MWMS and Core Strategy. The growth rate planned for, and the target in the strategy, have both been overly pessimistic when compared to actual arisings to 2016. However, projecting this past trend forwards runs the risk of underestimating future need by projecting forwards and compounding a recessionary trend. It is not clear how much of the past reduction in arisings is attributable to waste minimisation initiatives and how much to the economic conditions.



The scenarios below consider the difference in projected demand resulting from the use of the various growth rates and alternative recycling and recovery targets.

Core Strategy rolled forwards

The Core Strategy is based on the Municipal Waste Management Strategy, and as such seeks to plan for the recycling targets identified in the Strategy. However, the Strategy and these targets only runs to 2020. These targets are illustrated in the figure below, projected forwards at a flat rate from the end of the Strategy at 2020 to 2032.



The figure below illustrates the difference in projected demand arising from the different growth rates, using the 2020 MWMS targets described above.



More rigorous EU targets

There is also a possibility of new, more demanding, targets emerging from Europe, as the European Commission has proposed the establishment of an EU framework on the circular economy, including a 65% recycling target for municipal waste by 2030. Given the relatively high targets already identified in the Municipal Waste Management Strategy, these result in a steady continuation of the projected recycling rates, rather than a significant increase, as described in the figure below.



The figure below illustrates the difference in projected demand arising from the different growth rates, using the revised waste recycling targets described above.



3.1.4 Meeting Forecast Demand

The table below summarises the comparison between the permitted capacity and the projections described above. Further detail on the scenarios is available in the appendices.

	Recycling and composting (tpa)	Recovery (tpa)
Predicted demand in 2032 Using the different recycling and growth rates described above: No change targets scenario – Range from		Using the different recycling and growth rates described above: Both scenarios – Range from 142,000 to 274,000
	350,000 to 618,000 EC targets scenario – Range from 403,000 to 710,000	
Permitted capacity	450,000 (including 35,000 permitted but not built in- vessel composting at WTSs)	340,000
Shortfall in 2032	It can be seen that under three of the scenarios there is no shortfall; under 5 of the scenarios there is a shortfall, ranging from 60,000 in the lower scenario to 260,000 in the highest scenario	No shortfall anticipated

- There is a shortfall in permitted capacity for recycling and composting at the end of the forecast period under five of the eight scenarios used to predict future demand.
- There is a need for the waste disposal authorities to secure additional green waste composting (windrow composting) capacity during the plan period.
- Recovery capacity has currently been repurposed, and there is likely to be a need to secure additional recovery capacity to cater for the new output from this process.
- There is also likely to be a need for additional recovery capacity, over and above that necessary to meet the national recovery targets, due to the

reduction in landfill locally and nationally driving the cost of this waste disposal method up and rendering it unaffordable when considering local authority budgets.

• There is a degree of uncertainty over the projection of future waste arisings, in particular there is a recent increase in waste production, possibly indicating an emerging trend.

Appendix 2 Imports and Exports

Information is provided below of waste movements into and out of the Plan area for 2011 to 2015.

It can be seen from the tables below that, whilst the totals are relatively large, the movements to individual authority areas are very small when compared to the estimated waste arisings in the plan area.

Appendix 2a Non Hazardous Waste

Imports to Plan Area From	Tonnes	As % of total estimated arisings	Exports from Plan Area to	Tonnes	As % of total estimated arisings
WPA not codeable (North West)	311585	19	Trafford WPA	60597	4
Sefton	99872	6	East Riding of Yorkshire WPA	50640	3
WPA not codeable (Merseyside)	58822	4	Liverpool WPA	47390	3
Cumbria	41727	3	Wigan WPA	18419	1
Liverpool	38284	2	North East Lincolnshire WPA	11951	1
Flintshire UA	17901	1	Walsall WPA	11642	1
Manchester	9934	1	Derbyshire WPA	11359	1
Medway UA	7606	0	St Helens WPA	11314	1
Scottish WPA	6885	0	Stockton-on-Tees WPA	10375	1
Bexley	4578	0	Warwickshire WPA	10213	1
Outside UK	3938	0	Kirklees WPA	10204	1
Shropshire	3858	0	Bury WPA	9490	1
Derbyshire	3812	0	North Yorkshire WPA	8699	1
West Sussex	3576	0	Sheffield WPA	8403	1
Kirklees	3445	0	Cumbria WPA	7649	0
Knowsley	3020	0	Warrington WPA	7606	0
WPA not codeable (Yorks & Humber)	2295	0	Stoke-on-Trent City WPA	7020	0
Bury	2122	0	Tameside WPA	6032	0
WPA not codeable (Cheshire)	1683	0	Medway WPA	5698	0
Milton Keynes UA	1533	0	Cheshire West and Chester WPA	4373	0
Lincolnshire	1404	0	Wolverhampton WPA	4074	0
Stockport	1240	0	Sandwell WPA	4024	0
Salford	1170	0	Barnsley WPA	3964	0
Staffordshire	1130	0	Calderdale WPA	3732	0

WPA not codeable (West Midlands)	1022	0	Shropshire WPA	2897	0
Sunderland	1016	0	Lincolnshire WPA	2881	0

Imports to the Plan area from	Tonnes	As % of total estimated arisings	Exports from the Plan area to	Tonnes	As % of total estimated arisings
WPA Not Codeable (North West)	406748	25	Liverpool WPA	59435	4
WPA Not Codeable (Not Codeable)	134900	8	Trafford WPA	54091	3
Blackpool UA	113372	7	Bury WPA	30117	2
Cumbria	51484	3	Derbyshire WPA	25349	2
WPA not codeable (Merseyside)	43144	3	East Riding of Yorkshire WPA	24755	2
Sefton	24729	2	Calderdale WPA	17609	1
Salford	18700	1	Wigan WPA	13008	1
St Helens	9810	1	St Helens WPA	12713	1
Flintshire UA	7892	0	Stoke-on-Trent City WPA	11168	1
Bexley	7695	0	Newcastle Upon Tyne WPA	9715	1
Bury	5216	0	Sheffield WPA	9029	1
Outside UK	4383	0	Warrington WPA	8435	1
West Sussex	3445	0	Cheshire West and Chester WPA	7022	0
Liverpool	3430	0	Walsall WPA	6486	0
Scottish WPA	3071	0	Cumbria WPA	5424	0
Manchester	2994	0	Lincolnshire WPA	4048	0
Medway UA	2526	0	Sandwell WPA	2927	0
WPA not codeable (Yorks & Humber)	2135	0	Oldham WPA	2888	0
WPA not codeable (Cheshire)	1764	0	Barnsley WPA	2464	0
Bolton	1626	0	Wolverhampton WPA	2117	0
WPA not codeable (West Midlands)	1534	0	Salford WPA	1863	0
Wrexham UA	1499	0	Bristol City WPA	1830	0
County Durham UA	1471	0	Halton WPA	1720	0
Stockport	1373	0	Shropshire WPA	1684	0
Staffordshire	1226	0	Staffordshire WPA	1493	0
WPA not codeable (Wales)	1041	0	Medway WPA	1272	0

Imports to Plan Area From	Tonnes	As % of total estimated arisings	Exports from Plan Area To	Tonnes	As % of total estimated arisings
WPA not codeable (North West)	325219	20	Bury WPA	127845	8
WPA Not Codeable (Not Codeable)	91076	6	Liverpool WPA	77488	5
Cumbria	27346	2	Trafford WPA	69946	4
Salford	7751	0	Rochdale WPA	33855	2
WPA not codeable (Merseyside)	7508	0	Derbyshire WPA	30131	2
East Riding of Yorkshire UA	6632	0	Calderdale WPA	18651	1
Northern Ireland	6183	0	St Helens WPA	17515	1
Scottish WPA	6169	0	Wigan WPA	13907	1
Manchester	4572	0	Warrington WPA	12234	1
St Helens	4544	0	East Riding of Yorkshire WPA	11015	1
Bexley	3989	0	Oldham WPA	10969	1
Outside UK	3203	0	Cumbria WPA	9591	1
WPA not codeable (Yorks & Humber)	2660	0	Sheffield WPA	8531	1
West Sussex	2545	0	Manchester WPA	5818	0
Flintshire UA	2338	0	Salford WPA	5723	0
Cheshire West and Chester	1926	0	Sandwell WPA	4856	0
WPA not codeable (Cheshire)	1546	0	Nottingham City WPA	4195	0
County Durham UA	1456	0	Lincolnshire WPA	4091	0
Bolton	1145	0	Barnsley WPA	3809	0
Derbyshire	1113	0	Halton WPA	3720	0
Halton UA	1108	0	North East Lincolnshire WPA	2121	0
Staffordshire	1104	0	Wolverhampton WPA	2017	0
Surrey	1098	0	Leeds WPA	2008	0
WPA not codeable (West Midlands)	1037	0	Northamptonshire WPA	1946	0
Bury	1009	0	Staffordshire WPA	1891	0

Imports to the Plan Area From	Tonnes	As % of total estimated arisings	Exports from Plan Area To	Tonnes	As % of total estimated arisings
WPA Not Codeable (Not Codeable)	143180	9	Bury WPA	123941	8
WPA not codeable (North West)	112021	7	Liverpool WPA	97770	6
Cumbria	27931	2	Trafford WPA	43820	3
Sefton	13000	1	Staffordshire WPA	23916	1
Bolton	8507	1	Derbyshire WPA	23326	1
WPA not codeable (Cheshire)	4925	0	East Riding of Yorkshire WPA	22516	1
Salford	4238	0	Rochdale WPA	21539	1
Wirral	3831	0	Leeds WPA	15550	1
Scottish WPA	3461	0	Oldham WPA	14959	1
Bexley	2114	0	St Helens WPA	9149	1
Manchester	2066	0	Sheffield WPA	7239	0
WPA not codeable (Yorks & Humber)	2004	0	Calderdale WPA	5676	0
Leicestershire	1734	0	Manchester WPA	5225	0
West Sussex	1559	0	Cumbria WPA	4862	0
Staffordshire	1225	0	Barnsley WPA	3826	0
Bury	1188	0	Salford WPA	2921	0
WPA not codeable (West Midlands)	1118	0	Halton WPA	2644	0

Imports to the Plan area from	Tonnes	As % of total estimated arisings	Exports from the Plan area to	Tonnes	As % of estimated total arisings
WPA Not Codeable (Not Codeable)	310937	19	Bury WPA	124677	19
Cumbria	40996	3	Rochdale WPA	26809	2
Sefton	13879	1	Trafford WPA	21847	1
WPA not codeable (North West)	10881	1	East Riding of Yorkshire WPA	19549	1
North Yorkshire	7503	0	Derbyshire WPA	17716	1
Scottish WPA	3233	0	Leeds WPA	17622	1
WPA not codeable (Yorks & Humber)	2832	0	Knowsley WPA	14176	1
WPA not codeable (Cheshire)	2784	0	Oldham WPA	13489	1
Lincolnshire	2741	0	Salford WPA	9348	1
WPA not codeable (North East)	2507	0	St Helens WPA	8700	1
Leicestershire	1981	0	Calderdale WPA	8001	0
Nottinghamshire	1360	0	Staffordshire WPA	6379	0
Wigan	1137	0	Sheffield WPA	5372	0

Appendix 2b Hazardous Waste

Exports 2015

Exports to District (2015)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Rutland	19230								19230
County Durham	13381		37			0			13418
Cheshire West and Chester		7216		501	3	31	114		7864
Knowsley		1		275		2921	1634	984	5815
Liverpool				1795		172	411	2408	4787
Salford		656		0		236	959	2842	4694
Trafford				43		6	397	3897	4343
Bolsover	2472								2472
Wolverhampton				1954		3	7		1964
Stoke-on-Trent	1			1340	0	103	336	179	1960
St. Helens				993		432	74	364	1864
Wakefield				1573		27	36	1	1638
Stafford							1	1563	1564
Bolton		969		357		94	80		1501
Kirklees			1217	128		16	14	56	1431
Sefton				1362					1362
Rotherham				44		28	1102	24	1198
Leeds		1		0		8	169	974	1152
Bury			870	136			2		1007
Oldham		917		28			5		950

Exports to District (2015)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Walsall				35		133	773		942
New Forest	251	547							798
Derbyshire Dales				705					705
Tameside						1	694		695
Wirral							632		632
Wigan				122		138	275		535
Newark and Sherwood				392		19	36		447
Dudley				405	26		2		433
Sheffield						22	299	107	429
Harrogate				6		30	362		397
North East Derbyshire				385					385
Rochdale				309		33			343
Cheshire East				28		63	250		342
East Northamptonshire			19	1		299			319
Redcar and Cleveland			259			0			260
Erewash						1	5	251	257
Stockton-on-Tees	1		7	151				55	214
Rother				163					163
Bradford				144			12		156
North Wiltshire (Now Wiltshire)				151			0		151
Stockport				15		5	116		136

Exports to	Incineration with	Incineration	Landfill	Recovery	Rejected	Transfer	Transfer	Treatment	Total
District (2015)	energy recovery	without energy				(D)	(R)		
		recovery							
South				108		0		26	135
Cambridgeshire									
Sandwell				3		99	18		120
Melton				120					120
South Lakeland				115					115
Halton				10		7	83		100

Exports 2014

Exports to	Incineration	Incineration	Landfill	Recovery	Rejected	Transfer	Transfer	Treatment	Total
District (2014)	with energy	without energy				(D)	(R)		
	recovery	recovery							
Rutland	19934								19934
Trafford				208		6	425	9591	10231
Cheshire West		7117		919	21	25	394		8476
and Chester									
Knowsley				396		2564	2357	712	6029
Salford		1116		1		255	1024	2337	4732
Liverpool				853		93	171	2449	3565
Warrington				17		2	0	2488	2508
Bolsover	2446								2446
Kirklees			1220	353		24	56	25	1678
Stoke-on-Trent				727	0	60	288	308	1384
Bolton		1156		49		46	11		1261
Wyre Forest				1227		9			1236
St. Helens				712		309	115	85	1221
Walsall				33	1	262	878		1175
Bury			1105				1		1106
Sefton				988			16		1003
New Forest		939							939
Oldham		932		2			4		939
Rotherham				44		0	807	4	854
Derbyshire				841					841
Dales									
Stockton-on-			3	608		13	27	139	790
Tees									

Exports to District (2014)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
South		-		684		0		32	715
Cambridgeshire									
Halton				12		569	132		713
Leeds		2		0		5	255	425	688
Wolverhampton		0		676		1			677
Wigan				152		117	371		639
Rother				570					570
Erewash				56		5	0	444	506
Wirral							488		488
South								460	460
Gloucestershire									
Wakefield				329		51	44	1	425
Newark and				362		25	26		413
Sherwood									
Sheffield				10		48	238	105	402
North East				375		0	1		377
Derbyshire									
Cheshire East				32		156	120		308
Harrogate						23	198		222
North Wiltshire				212			1		213
Ipswich				184					184
Dudley				167			2		169
Sandwell				26		108	25		158
Stockport				15		8	120		143
Hartlepool			122						122
East			56			55	4		115
Northamptonshire									

Exports 2013

Exports to District (2013)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Rutland	25459								25459
Trafford				210		0	46	23400	23657
Cheshire West and Chester		5843		729	18	109	386	0	7084
Salford		1156		198		437	141	3017	4950
Knowsley				874		2109	1223	258	4464
Liverpool				438		225	169	3545	4377
Bolsover	4235			2			0		4237
Kirklees			2639	69		24	92	60	2885
Warrington				26		2	4	2526	2558
Stoke-on-Trent				1063	3	25	633	223	1946
Oldham		1552					3		1555
Kingston upon Hull, City of				1545		0			1546
Derbyshire Dales				1462					1462
Bury			1357				1		1358
South Cambridgeshire		0		1269		2	3	70	1344
Stockton-on- Tees		16	6	1001		118	1	45	1185
Sefton				1097					1097

Exports to District (2013)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Walsall				23		225	780	1	1029
Rotherham				284		24	700	1	1008
Bolton		522		66		41	324		953
Wigan	6			233		92	333		664
St. Helens				531		98			630
New Forest		538							538
Erewash				174		3	2	347	526
Sheffield				1		24	317	176	519
Leeds		10		159	0	3	79	258	508
Newark and Sherwood				407		19	17		444
Wakefield				341		20	44	0	405
Cheshire East				97		120	110		327
Hartlepool			326						326
North East Derbyshire				251	24		3		278
Halton			77	12		34	119		241
Dudley				240			1		241
Ipswich				76			145		221
Exports to District (2013)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
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Rother				183					183
Tameside				1			174		176
Sandwell				7		125	18	17	167
Barnsley				151			2		154
Stockport				16		9	108		133
Harrogate	9			17		20	85		131
North East Lincolnshire				121		0	0		121

Exports 2012

Exports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Long term storage	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Rutland	23986									23986
Trafford					50			43	21944	22037
Derbyshire	13383		1		2039	25	3	37	192	15680
Flintshire	8989				0		6	29		9024
Cheshire West and Chester		5280		91	667	1	191	183	304	6716
Stoke-on-Trent City					4537		255	592	219	5604
Salford		1349			440		309	48	2213	4359
Liverpool					530		139	235	3108	4013
Knowsley		0			428		1680	700	523	3331
Kirklees			1826		118		3	43	229	2218
Bury			2182					2		2184
Sunderland					1978		1			1979

Exports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Long term storage	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Bolton		644			125		39	864		1673
Stockton-on- Tees			60		852		18		644	1574
Oldham		1385					3	17		1405
Warrington					17		5		1244	1266
Sefton					999			0		1000
Rotherham					265		36	676	7	984
Walsall					459		123	344	5	931
Halton			10		16		37	854		917
East Sussex					748					748
Cambridgeshire		0			622		3	2	59	685
Sheffield					4		48	404	221	678
Leeds		35			124		3	101	401	663
Wakefield	2				573		22	31	0	628

Exports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Long term storage	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
Staffordshire					23		60	45	477	604
Wigan	23				202		82	259		566
Nottinghamshire					511		19	22		552
Worcestershire					514		31	1		545
Blaenau Gwent							488			488
Tameside					94			386		480
St Helens					359		113	8		479
Hampshire		448			0			0		448
Newport					58		1	299		358
Barnsley					340			3		343
Suffolk					221					221
Wolverhampton					185			8		194
Dudley					153			15		168
Stockport					21		13	134		168

Exports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Long term storage	Recovery	Rejected	Transfer (D)	Transfer (R)	Treatment	Total
North East					160		0	1		161
Lincolnshire										
Wrexham		64						55	26	145
Cumbria							5	131		136
Hartlepool			135							135
Blackburn with					0		21	110		131
Darwen										
Leicestershire					89		5	23		117

Exports 2011

Exports to District (2011)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Other Fate	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Trafford					39		56	25815	25910
Derbyshire	22006		2		1762	4	11	202	23987
Rutland	12266								12266
Cheshire West and Chester		5080			197	367	408	788	6842
Sunderland	2232					1	4033		6266
Knowsley				5	3	2576	1157	413	4153
Liverpool					756	93	64	3074	3986
Salford		1397			489	295	239	1383	3804
Stoke-on-Trent City					2492	137	915	229	3779
Sefton					1592				1592
Bolton		642			102	52	792	0	1587
Bury			1513				2		1515

Exports to District (2011)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Other Fate	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Oldham		1153				0	19		1172
Wakefield					1023	21	26		1070
Kirklees			317		87	64	18	577	1062
Halton			40		9	59	946		1054
Flintshire	839				0	9	32		880
Walsall					384	161	242	42	828
Newport					718	1	62		781
Hartlepool			634						634
Sheffield					12	83	288	222	606
Rotherham					104	54	426		583
Worcestershire					1	76	499		576
Blaenau Gwent						548			548
Nottinghamshire					507	17	16		541
Wigan	29				202	54	229	1	514

Exports to District (2011)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Other Fate	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Cambridgeshire		0			315	7	10	146	478
Hampshire		453			4	0	0		457
Stockton-on-Tees			122		227	0	0	103	453
Leeds		36			6	7	86	253	388
St Helens					297	82	1		380
Barnsley					358		2		360
Warrington					18	3	0	295	317
Staffordshire					13	83	53	101	250
Dudley					247	2			249
Warwickshire			75		22	36	108	0	240
North East Lincolnshire					228	0	1		228
Wrexham		92					91	19	202
Stockport					36	9	118		163

Exports to District (2011)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Other Fate	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Leicestershire					28	80	21		129
Northumberland					29	63	26		119
Gateshead					1	106			106

Imports to District (2015)	Incineration with	Landfill	Recovery	Transfer	Transfer	Treatment	Total
	energy recovery			(D)	(R)		
Wakefield			8830	30	61		8921
Falkirk			6147	98	97		6342
Sunderland			4963	665	292		5920
Knowsley		665	4075	107	278		4460
Salford		162	4052	117	95		4265
Stoke-on-Trent		1061	3363	8	100		3471
Cheshire East		48	2962	350	51	1	3364
Warrington		120	3087	55	60		3203
Wirral		240	403	49	2718		3170
Cheshire West and		3671	1806	820	509		3135
Chester							
Rotherham			1827	31	221	1	2079
Wigan		199	1013	327	438		1778
Bradford		0	950	250	469		1669
Kirklees		82	1514	101	51		1666
West Lindsey			1566	22	29		1617
County Durham		6	1084	461	69		1613
Liverpool		765	329	286	885		1500
St. Helens		1178	1098	164	172		1435
Stockton-on-Tees			1154	180	57		1392
Halton		177	168	775	430		1374
Middlesbrough			1234	28	4		1266
Rother		1	1209				1209
Harrogate		4	1177	9	5		1191
Newport			973	1	196		1170
The Vale of Glamorgan			1165	0			1166

Imports to District (2015)	Incineration with	Landfill	Recovery	Transfer	Transfer	Treatment	Total
	energy recovery			(D)	(R)		
Allerdale			876	93	171		1140
Flintshire		6280	246	617	267		1130
North Ayrshire Mainland			1044	34			1078
Barking and Dagenham			1031	0	1		1033
North Tyneside			996	4	28		1028
Wellingborough				129	846		975
Bristol, City of			109	7	833		949
Wrexham		6529	33	247	661		941
East Riding of Yorkshire			859	59	11		930
Trafford		1015	483	286	160		929
South Staffordshire			874	1	2		877
Glasgow City			782	29	1		813
Sandwell			627	82	99		808
Sheffield		118	568	9	140		717
Herefordshire, County of			628	16	4		649
Bury		143	118	51	463		632
Gateshead			571	33	19		622
Oldham		14	139	83	376		598
Harlow	38		573				573
Sefton		336	370	109	82		561
North East Lincolnshire			500	18	18		536
Aberdeen City			320	25	184		529
Staffordshire Moorlands		9	395	18	36		448
Walsall			378	30	39		447
High Peak			305	70	40		416
Northampton			282	97			379
Bolton		206	312	22	43		377
Barrow-in-Furness		222	0	138	221		359

Imports to District (2015)	Incineration with	Landfill	Recovery	Transfer	Transfer	Treatment	Total
	energy recovery			(D)	(R)		
Hinckley and Bosworth			251	0	101		351
South Cambridgeshire			346	0	0		347
Redcar and Cleveland			43	253	32		328
Kingston upon Hull,			251	21	53		325
City of							
Erewash			199	9	117		324
Barnsley			50	4	259		314
Mid Suffolk			211	23	77		311
Rochdale	0	57	109	73	117		299
Amber Valley			118	58	119		295
Shropshire		136	259	19	16		294
South Lakeland		127	141	23	128		293
Derby			251	5	23		279
Dundee City			257	6			264
Wyre Forest			255				255
Darlington			202	43	0		245
Manchester		172	107	38	84		229
Stirling				31	186		217
Coventry			215				215
Leeds		4	23	77	110		211
Lisburn			205				205
Carlisle		13	16	31	149		196
North Warwickshire		1	2	161	26		189
Bedford (Now Bedford			144	44			188
UA)							
Northumberland				95	79		173
North Wiltshire			163	5			168
South Gloucestershire			0	61	104		166
Dartford	4		132	30	3		165

Imports to District (2015)	Incineration with	Landfill	Recovery	Transfer	Transfer	Treatment	Total
	energy recovery			(D)	(R)		
Angus			0	52	106		157
South Oxfordshire			152	3			154
North Lanarkshire			152	0	0		153
Midlothian		2	139	12			151
Isle of Anglesey		231		20	125		144
Birmingham			135	0	8		144
Worcester			142	0			142
Newark and Sherwood			136	2	0		138
Chesterfield			127	1	10		138
South Tyneside			0	88	50		137
Tameside		754	8	26	101		135
Wandsworth			130	4			134
Cannock Chase			20	6	106		132
North Hertfordshire			119	11	1		130
Rutland			125				125
Antrim			123				123
Bromley			120	1			121
Gwynedd		233		23	93		115
Babergh			115				115
North East Derbyshire			44	4	66		115
Tamworth			1	0	114		114
North Lincolnshire			0	49	65		114
Broxtowe			110	1			110

Imports to District (2014)	Incineration with energy	Incineration without	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
	recovery	recovery						
Cheshire West			20229	2250	470	640		23589
and Chester								
Wakefield				9319	87	96		9502
Falkirk				7202	55	183		7440
Flintshire			5623	343	406	328		6699
Wrexham			5451		146	1089		6686
Sunderland				4472	451	354		5277
Stoke-on-Trent			1928	2428	2	5		4362
Knowsley			559	2916	144	577		4196
Salford			292	3171	161	282		3906
Warrington			213	3097	76	44		3429
Cheshire East		8	53	2347	233	105	1	2747
Stockton-on-		11		2491	35	54		2591
Tees								
St. Helens			1770	444	169	81		2464
Liverpool			1062	210	247	896		2415
Wirral			189	276	104	1842		2411
Kirklees			4	2219	88	51		2363
Rother				2244				2244
East Lindsey				1828				1828
Trafford			979	418	147	180		1725
Halton			411	107	402	512		1433
Sefton			963	230	105	112		1409
Bradford			1	837	286	190		1314

Imports to	Incineration	Incineration	Landfill	Recovery	Transfer	Transfer	Treatment	Total
District (2014)	with energy	without			(D)	(R)		
	recovery	energy						
		recovery						
Newport	1		17	1084	1	119		1223
Wigan			393	20	176	583		1172
Glasgow City				997	13	30		1039
Wellingborough			3	3	188	822		1016
The Vale of				998	0			998
Glamorgan								
Allerdale			7	683	54	236		980
Manchester	0		720	81	34	81		916
Herefordshire,				896	4	4		905
County of								
Barking and				872	0	1		873
Dagenham								
Rotherham				403	17	451		872
Middlesbrough				767	85	7		859
County Durham				257	375	215		847
North Ayrshire				795	5			800
Mainland								
Dundee City				789	0			789
South				779	5	0		784
Staffordshire								
Harrogate				732	32	12		777
North East				736	34	4		775
Lincolnshire								
Sandwell			3	677	16	62		758
Shropshire			223	416	17	60		716
Walsall		6		<u>3</u> 10	1 <u>15</u>	276		706

Imports to	Incineration	Incineration	Landfill	Recovery	Transfer	Transfer	Treatment	Total
District (2014)	with energy	without			(D)	(R)		
	recovery	energy						
		recovery						
Bristol, City of				4	5	693		701
Leeds			417	17	158	63		655
Stafford			10	591		9		611
North				460	16	51		527
Lincolnshire								
Barrow-in-				5	49	444		497
Furness								
North				332	128	22		482
Warwickshire								
Erewash				208	23	247	0	478
Conwy			398	0	14	60		472
West Lindsey				437	2	26		465
Bolton			140	210	37	60		448
Gwynedd			250	5	82	111		447
North Tyneside				354	52	27		433
Bury			41	52	68	258		419
Staffordshire			7	372	26	11		416
Moorlands								
Isle of Anglesey			300	3	13	95		409
Oldham			2	3	73	324		403
Gateshead				275	89	28		393
Sheffield			144	153	4	83		384
Northampton				324	37	0		361
East Riding of				186	61	105		352
Yorkshire								
Renfrewshire				266	1	84		351
Rochdale			36	25	96	182		339

Imports to	Incineration	Incineration	Landfill	Recovery	Transfer	Transfer	Treatment	Total
District (2014)	with energy	without			(D)	(R)		
	recovery	energy						
		recovery						
Harlow				329				329
South Lakeland	5		59	1	33	216		314
South				297	0			298
Cambridgeshire								
Aberdeen City				50	23	220		293
Stirling				0	63	221		285
High Peak			5	159	60	48		273
Wychavon				257	1	11		269
Derby				259				259
Exeter					65	175		240
Redcar and				0	175	61		236
Cleveland								
Carlisle			1	7	5	219		233
South				230	0			231
Oxfordshire								
Barnsley				34	5	187		226
Bedford (Now				157	48	2		207
Bedford UA)								
Amber Valley				78	14	113		205
Wyre Forest				205				205
South				4	58	143		204
Gloucestershire								
Antrim					98	106		204
New Forest				0	24	180		204
Northumberland				17	55	119		191
Worcester				186				186

Imports to District (2014)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Tamworth					0	183		184
Aberdeenshire				41	92	50		183
Tameside			30	2	13	128		172
Coventry				164	6	2		172
Angus				0	63	105		168
Craven			87		61	20		167
Kingston upon Hull, City of				11	21	133		166
Babergh				159				159
Stockport			78	29	7	38		152
Mid Suffolk				90	3	57		150
Hinckley and				0	40	104		145
Bosworth								
North				143	0			143
Lanarkshire								
Lisburn				141				141
Birmingham			0	103	20	16		140
Rugby				17	10	112		139
Great Yarmouth				123	15			138
North Wiltshire				117	17			134
Eden			1	48	5	79		133
Cannock Chase					10	121		130
Doncaster				19	3	108		130

Imports to District (2013)	Incineration without	Landfill	Recovery	Transfer	Transfer	Total
	energy recovery			(D)	(R)	
Cheshire West and Chester		43689	3081	499	540	47809
Salford		4598	3336	134	553	8620
Wakefield			7192	802	75	8069
Falkirk			7297	73	259	7629
Sunderland			6578	561	185	7324
Knowsley		439	5254	60	61	5813
Flintshire		3213	97	518	741	4569
Stafford		16	3838	1	26	3880
Wrexham		2739	33	140	961	3873
Stoke-on-Trent		1440	2383	1	10	3834
Rother			3134			3134
Warrington		83	2800	71	40	2993
Trafford		2275	375	99	163	2912
Kirklees		63	2582	60	170	2874
Liverpool		1402	318	269	470	2459
Cheshire East		46	2160	117	50	2372
Wirral		268	268	299	1385	2220
St. Helens		1236	707	116	86	2145
Halton		782	108	462	524	1876
Stockton-on-Tees			1433	59	359	1851
Middlesbrough			1745	48	2	1795
Bradford		14	1483	82	108	1686
Rotherham		310	921	20	389	1640
Wychavon		1571	36	1	1	1609
Newport			1500		40	1540

Imports to District (2013)	Incineration without	Landfill	Recovery	Transfer	Transfer	Total
	energy recovery			(D)	(R)	
Shropshire		793	403	12	27	1235
South Staffordshire			1155			1155
East Lindsey			1137	4	11	1152
The Vale of Glamorgan			1082	2	52	1135
North Lincolnshire			1005	24	87	1116
North East Lincolnshire			1055	38	14	1107
Barrow-in-Furness		639	0	58	390	1087
Allerdale			707	98	271	1076
Sefton		450	477	62	45	1034
Wigan		492	6	93	404	995
Glasgow City			965	24	3	992
Barking and Dagenham			905		2	907
North Ayrshire Mainland			770	19		790
Wellingborough			1	156	548	706
West Lindsey			682	15		697
County Durham			286	221	187	694
North Tyneside			576	99	15	691
Herefordshire, County of			616	34	24	675
Walsall			332	106	225	663
Pembrokeshire			622	3	3	628
Sandwell		11	592	2	24	628
South Oxfordshire			590			590
Bolsover			547	0		547
Bolton		133	208	36	144	521
Gateshead			315	100	106	521
Rochdale		300	53	30	117	500

Imports to District (2013)	Incineration without	Landfill	Recovery	Transfer	Transfer	Total
	energy recovery			(D)	(R)	
Harrogate			457	4	7	468
Staffordshire Moorlands		52	338	40	6	435
East Riding of Yorkshire			44	78	310	432
Erewash			248	31	145	425
South Cambridgeshire			382	0		382
Northampton			361			361
Gwynedd		176	0	45	137	359
Oldham		23	1	42	291	357
Manchester		181	45	34	83	343
Derby		0	307	0	30	338
Leeds			138	101	97	336
South Lakeland		30	7	42	233	312
Redcar and Cleveland			33	123	146	301
Harlow			290			290
Sheffield		52	168	20	46	285
South Gloucestershire			264	8	10	282
Wyre Forest			273			273
Tameside		20	129	21	93	264
High Peak		3	78	116	68	264
Carlisle			2	8	254	264
Aberdeen City			168	17	78	263
Bristol, City of			4	9	250	263
Renfrewshire			154	4	88	246
Northumberland			16	57	169	242
Bury		5	4	100	116	224
Cannock Chase		24		31	168	223

Imports to District (2013)	Incineration without	Landfill	Recovery	Transfer	Transfer	Total
	energy recovery			(D)	(R)	
Chesterfield			213	0	0	213
North Warwickshire			1	31	178	210
Rugby				81	128	209
Mid Suffolk			134	13	61	208
Tamworth				0	207	207
Calderdale		21	22	33	126	202
Worcester			132	7	52	191
Coventry			95	26	65	186
Hinckley and Bosworth			0	14	170	185
Eden		1	63	9	107	179
Bedford			155	8	6	170
Babergh			164			164
Stockport		96	44	5	13	158
Kingston upon Hull, City of			15	2	141	158
Antrim				145	11	155
Conwy		27	2	39	83	151
Newcastle upon Tyne			2	53	76	130
Amber Valley			96	8	23	128
Stirling			0	15	110	125
Isle of Anglesey		15		5	104	124
Birmingham			76	2	45	123
Thurrock			0	111	10	121
Rutland			117			117
Ross & Cromarty			117			117
Cheltenham			1	114	0	114
North Hertfordshire			114			114

Imports to District (2013)	Incineration without	Landfill	Recovery	Transfer	Transfer	Total
	energy recovery			(D)	(R)	
Dundee City			113			113
North East Derbyshire			23	18	67	108
Charnwood			27	3	74	104
Bath and North East			102	2		104
Somerset						
Wiltshire			89		14	103

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Wakefield			5	11254	443	78		11781
Cheshire West and Chester			6438	2038	375	921		9774
Manchester			9103	18	53	162		9336
Falkirk				8745	59	127		8931
Stoke-on-Trent City			2921	3689	12	13		6653
Staffordshire			940	4816	80	389		6225
Sefton			362	4554	49	30		4995
Knowsley			663	3594	436	135	5	4833
Salford			655	2424	234	697		4010
East Sussex				3821		0		3821
Cumbria			544	1143	333	1377		3397
Sunderland				2825	385	131		3341
Warrington			73	3124	59	71		3328

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Kirklees			15	2805	89	113		3022
Halton			1595	211	303	527		2637
St Helens			1651	557	95	107		2409
Derbyshire	3		2	1882	124	306		2318
Lincolnshire				2263	16	4		2283
Wirral			901	628	384	281		2193
Liverpool			655	939	248	300		2142
Trafford			1349	407	82	103		1941
Rotherham			1327	449	6	13		1795
Wrexham			106	51	705	922		1784
Stockton-on-Tees				1159	412	190		1762
Flintshire			200	255	657	583		1695
Cheshire East			282	917	130	60		1390
Newport				1311	0	45		1357
Vale of Glamorgan				1171	52	73		1296

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Wigan			790	67	78	307		1242
North Lincolnshire				1016	95	63		1173
Glasgow City				943	10	128		1080
Northamptonshire				286	135	610		1031
City of Derby				500		507		1007
Shropshire			159	717	12	34		922
Bradford City	6			817	40	30		894
Oxfordshire				878		2		880
Middlesbrough				729	74	15		818
North Ayrshire				701				701
Redcar and Cleveland	20			319	58	295		693
North Tyneside				645	21	24		690
Bolton			287	186	30	187		689
East Riding of Yorkshire				432	184	73		689

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Barking and Dagenham				662	0	0		662
North Yorkshire			4	508	85	62		659
County Durham				180	213	249		641
Herefordshire				591	7	0		598
Sandwell				532	35	10		576
Leicestershire				20	147	404		571
Essex				536		0		536
Bridgend			531	1				532
North East Lincolnshire				447	52	18		517
Cambridgeshire				489	1	8		498
Gwynedd			293	21	37	136		487
South Gloucestershire		57		409	13	4		482
Tameside	20		117	247	38	53		474

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Worcestershire			15	308	4	145		472
Northumberland			0	181	95	196		472
Gateshead				259	86	125		470
Oldham			52	245	26	121		445
Sheffield			2	358	34	49		442
Rochdale			106	90	69	165		430
Fife				396				396
Walsall				5	213	141		359
Suffolk			1	281	6	50		337
Wolverhampton			124	178	0	2		304
N Ireland			0	159	21	85		265
Leeds				23	167	74		263
North Lanarkshire				130	0	103		232
Coventry				137	57	37		230

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Bristol City				29	34	164		227
Renfrewshire				96	4	123		224
Bury			6		124	83		214
Dumfries and Galloway				101	0	112		213
Nottinghamshire				174	35	3		212
Birmingham City			0	165	3	33		201
Hampshire				77	102	9		187
Stockport			53	16	49	67		184
Warwickshire			1	8	80	76		166
Newcastle Upon Tyne				8	71	84		163
Hertfordshire				100	6	36		142
Bedford				140	0			141
Norfolk				92	30	9		132

Imports to District (2012)	Incineration with energy recovery	Incineration without energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Gloucestershire				83	41	5		128
Leicester City				126	0			126
Wiltshire				121	4			125
Conwy			70		19	34		123
Barnsley				29	20	72		120
Isle of Anglesey			16	11	12	79		119
Blaenau Gwent				118				118
Telford and Wrekin			103		1	14		118
Rutland				104	11	3		118
Thurrock				2	108	5		115
East Ayrshire						113		113
Kingston Upon Hull City				41	11	53		105

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Wakefield		11	13030	59	151		13251
Falkirk			11720	115	384		12219
Salford		86	6121	87	529		6823
Staffordshire		260	6044	58	198		6561
Stoke-on-Trent City		2547	3562	3	10		6122
Knowsley		296	4374	552	199	3	5426
Manchester		5229	45	36	83		5413
Kirklees		75	3480	96	56		3707
East Sussex			3095		7		3102
Rotherham		341	2463	9	219		3032
Cumbria		329	985	291	1373		2977
Derbyshire	7	31	2211	64	535		2847
Warrington		188	2511	61	44		2805

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
North Ayrshire			2741		13		2753
Stockton-on-Tees			2044	190	440		2674
Cheshire West and Chester		1088	941	233	123		2385
St Helens		1819	226	124	84		2253
Sefton		1211	790	25	34		2078
Wigan		1474	72	58	218		1822
Glasgow City			1532	16	83		1632
Liverpool		436	625	342	183		1586
Newport			1290	13	92		1395
Lincolnshire			1320	8	2		1330
Flintshire		194	328	489	261		1272
Wrexham		118	162	666	325		1271
Cheshire East		134	1036	71	25		1266
Gateshead		173	498	271	195		1136

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Bradford City	8		1044	23	44		1119
Middlesbrough			1048	53	7		1108
Northamptonshire			251	195	650		1095
Vale of Glamorgan			953	35	86		1075
Tameside	29	630	279	50	40		1027
Sunderland	16		787	86	63		952
Halton		286	128	226	294		935
Shropshire		86	692	19	67		864
Oxfordshire			835		0		835
County Durham			249	285	297		830
Trafford	57	35	440	111	184		826
City of Derby			384	410	25		819
North Tyneside		10	719	57	25		811
Aberdeenshire			747		27		774

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
West Berkshire			746	1	1		748
Wirral		279	1	359	100		739
N Ireland		376	293	15	54		737
North Yorkshire		201	417	46	60		724
Bolton		181	298	23	179		681
Suffolk			616		32		648
North Lincolnshire		436	145	53	11		644
Essex			610	0	9		619
Herefordshire			612	3	2		617
Sheffield		2	426	45	103		577
Leicestershire			26	115	418		560
Cambridgeshire			510	22	3		535
North Lanarkshire			294		210		504
Kent			356	13	114		483

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Worcestershire			327	7	138		472
Redcar and Cleveland			154	177	133		464
Leeds		18	41	164	195		419
Rochdale		4	169	24	198		395
Oldham		12	182	35	135		365
Gwynedd		256		44	51		351
Sandwell			305	1	43		350
Stockport		140	54	18	136		348
Fife			311	9	13		333
Surrey			327	0	5		332
North East Lincolnshire			147	166	13		327
Walsall		5	31	159	91		286
South Gloucestershire			233	4	34		270

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
East Riding of			106	118	43		266
Yorkshire							
Thurrock			31	162	65		257
Aberdeen City			140	53	63		256
Medway			249				249
Norfolk			186	40	16		242
Nottinghamshire			201	13	4		218
Wiltshire			216	2			218
Bath and North East Somerset			190		27		217
Birmingham City		9	171	5	22		208
Bristol City			184	16	2		202
Northumberland			24	61	112		197
Bury		33	4	102	51		190
Barking and Dagenham			175		11		186
Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
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Bedford			177				177
Dorset			176		0		176
Conwy	5	143		15	13		175
Newcastle Upon Tyne			10	149	16		175
Leicester City			164				164
Blaenau Gwent			160		1		161
Hertfordshire			104	33	21		159
Hartlepool			6	24	126		156
Warwickshire			37	44	74		155
Bournemouth		7		8	138		153
Coventry			50	60	42		152
(Unknown)			2	67	68		137
Hampshire			92	37	6		135
Renfrewshire			60	1	66		126

Imports to District (2011)	Incineration with energy recovery	Landfill	Recovery	Transfer (D)	Transfer (R)	Treatment	Total
Midlothian			117		6		123
Telford and Wrekin		120	2				122
Calderdale		43	15	23	30		111
Buckinghamshire			105	0	1		105
Kingston Upon Hull City			79	8	19		105

Appendix 2c Construction Demolition and Excavation Waste

Imports to the Plan area from	Tonnes	Exports from Plan area to	Tonnes
WPA Not Codeable (North	132314	Bolton WPA	44110
West)			
Wigan	119783	Derbyshire WPA	37005
Manchester	116168	Rotherham WPA	12759
WPA not codeable	66350	Trafford WPA	9699
(Merseyside)			
Liverpool	48802	St Helens WPA	8553
WPA not codeable	7127	Cumbria WPA	8339
(Cheshire)			
Cumbria	4912	Manchester WPA	7220
North Yorkshire	2975	Bury WPA	6269
Salford	1887	Shropshire WPA	5877
Scottish WPA	1471	Warrington WPA	3697
Kent	195	Liverpool WPA	3366
Cheshire West and Chester	193	Nottinghamshire WPA	3192
Wrexham UA	169	Wigan WPA	2964
Cambridgeshire	109	Wakefield WPA	2095
Birmingham City	105	County Durham WPA	1799
Walsall	105	Barnsley WPA	1387
Conwy UA	88	Doncaster WPA	547
WPA not codeable (Yorks &	84	East Riding of Yorkshire	249
Humber)		WPA	
Stockport	79	Knowsley WPA	221
Staffordshire	74	Kent WPA	195
Halton UA	73	Bradford City WPA	188

Importo to the Dian area from	Tannaa	Exports from the	Tonnos	
Imports to the Plan area from	Tonnes	Plan area to	Tonnes	
WPA Not Codeable (North	145364	Rolton M/DA	69946	
West)		DOILON WEA	00040	
WPA not codeable	134819	Dorbyshiro W/PA	15200	
(Merseyside)			15299	
Liverpool	48393	Rotherham WPA	12255	
Wigan	37961	Manchester WPA	9748	
Manchester	25157	Liverpool WPA	7809	
WPA not codeable	6371		6606	
(Cheshire)			0000	
Cumbria	5830	St Helens WPA	5831	
Knowsley	2333	Cumbria WPA	2415	
North Yorkshire	2298	Wakefield WPA	2182	
Scottish WPA	961	County Durham WPA	1967	
Cheshire West and Chester	286	Bury WPA	1752	
WPA Not Codeable (Not	282	Marrington M/PA	1671	
Codeable)			1071	
Shropshire	165	Wigan WPA	1592	
WPA not codeable (West	155		1044	
Midlands)			1044	
Leicestershire	112	Trafford WPA	868	
Lincolnshire	99	Barnsley WPA	398	
WPA not codeable (Yorks &	97	Sefton WPA	212	
Humber)		Cellon WI A	212	
Staffordshire	93	Worcestershire WPA	205	
Wirral	86	Salford WPA	179	

Imports to the Plan area	Tonnes	Exports from the Plan	Tonnes
WPA not codeable (North	155106	Wigan WPA	134349
West)	100100		10-10-10
WPA not codeable	33482	Bolton WPA	79424
(Mersevside)	00102		10121
WPA Not Codeable (Not	11434	St Helens WPA	45580
Codeable)			10000
Cumbria	5875	Rochdale WPA	36566
Knowsley	5097	Derbyshire W/PA	15764
North Vorkshire	4621	Rotherham WPA	11796
	4021		5740
Irafford	4290	Manchester WPA	5746
Liverpool	3728	Bury WPA	4879
Wigan	3202	Wakefield WPA	4427
Northern Ireland	1355	Cumbria WPA	4390
Sefton	616	Gateshead WPA	4193
Scottish WPA	446	Liverpool WPA	3563
Derbyshire	423	Oldham WPA	2178
Bolton	210	Knowsley WPA	1062
Halton UA	196	Sefton WPA	980
Staffordshire	184	Calderdale WPA	879
WPA not codeable (Yorks	151	Worcestershire WPA	744
& Humber)			
County Durham UA	127	Warrington WPA	663
Oldham	117	Trafford WPA	604
Manchester	99	Barnsley WPA	308

Imports to the Plan area from	Tonnes	Exports from the Plan area to	Tonnes
WPA not codeable (North West)	110570	Wigan WPA	120820
WPA Not Codeable (Not Codeable)	53666	Bolton WPA	102306
Cumbria	3718	Derbyshire WPA	18119
North Yorkshire	1356	Rochdale WPA	11519
Scottish WPA	598	Rotherham WPA	9404
Staffordshire	431	East Riding of Yorkshire WPA	8121
Manchester	407	Liverpool WPA	5458
East Riding of Yorkshire UA	267	Cumbria WPA	5449
Liverpool	113	Bury WPA	4488
Wolverhampton	105	Devon WPA	4250
Wigan	99	Salford WPA	2989
St Helens	95	Oldham WPA	1730
Suffolk	65	Knowsley WPA	1509
Flintshire UA	62	St Helens WPA	1339
Northamptonshire	33	Calderdale WPA	1282
Powys UA	32	Kirklees WPA	1177
Warrington UA	31	Gateshead WPA	1061
Gwynedd UA	30	Halton WPA	955

Imports to the Plan area from	Tonnes	Exports from the Plan area to	Tonnes
WPA Not Codeable (Not Codeable)	20828	Wigan WPA	91830
WPA not codeable (North West)	10444	Derbyshire WPA	30213
WPA not codeable (North East)	5863	Bolton WPA	26351
Cumbria	4395	Rochdale WPA	10466
Scottish WPA	1972	St Helens WPA	6498
Wolverhampton	642	Oldham WPA	4009
Manchester	629	Rotherham WPA	3962
Cheshire West and Chester	606	Manchester WPA	2768
Wakefield	542	Bury WPA	2676
Liverpool	437	Cumbria WPA	2464
Medway UA	397	Calderdale WPA	1975
Stoke-on-Trent UA	348	Knowsley WPA	1693
Newcastle Upon Tyne	337	Leeds WPA	634

Appendix 3 MSW Objectively Assessed Need Scenarios

	Arisings:	Recycled	Recycled	Recovere	Recovere	Landfille
	1%	and	and	d (%)	d (tonnes)	d
	growth	Composte	composte			(tonnes)
	rate	d (%)	d (tonnes)			
2012	724000	50%	362000	0%	0	362000
2013	728968	52%	379063	0%	0	349905
2014	736258	54%	397579	0%	0	338679
2015	743620	56%	416427	25%	185905	141288
2016	751056	57%	428102	25%	187764	135190
2017	758567	58%	439969	25%	189642	128956
2018	766153	59%	452030	25%	191538	122584
2019	773814	60%	464289	27%	208930	100596
2020	781552	61%	476747	27%	211019	93786
2021	789368	61%	481514	27%	213129	94724
2022	797262	61%	486330	27%	215261	95671
2023	805234	61%	491193	27%	217413	96628
2024	813287	61%	496105	27%	219587	97594
2025	821419	61%	501066	27%	221783	98570
2026	829634	61%	506076	27%	224001	99556
2027	837930	61%	511137	27%	226241	100552
2028	846309	61%	516249	27%	228503	101557
2029	854772	61%	521411	27%	230789	102573
2030	863320	61%	526625	27%	233096	103598
2031	871953	61%	531891	27%	235427	104634
2032	880673	61%	537210	27%	237782	105681

MWMS targets: 1% growth scenario

EC targets: 1% growth scenario

	Arisings: 1%	Recycled and	Recycled and	Recover ed (%)	Recover ed	Landfi II (%)	Landfille d
	growth	compost	Compost		(tonnes)		(tonnes)
	rate	ed (%)	ed				
0040	704000	500/	(tonnes)	00/	00404	470/	0.40050
2012	724000	50%	307806	0%	98484	47%	340250
2013	728968	52%	379063	0%	0	48%	349905
2014	736258	54%	397579	0%	0	46%	338679
2015	743620	56%	416427	25%	185905	19%	141288
2016	751056	57%	428102	25%	187764	18%	135190
2017	758567	58%	439969	25%	189642	17%	128956
2018	766153	59%	452030	25%	191538	16%	122584
2019	773814	60%	464289	27%	208930	13%	100596
2020	781552	61%	476747	27%	211019	12%	93786
2021	789368	61%	481514	27%	213129	12%	94724
2022	797262	62%	494302	27%	215261	11%	87699
2023	805234	63%	507298	27%	217413	10%	80523
2024	813287	64%	520503	27%	219587	9%	73196
2025	821419	65%	533923	27%	221783	8%	65714
2026	829634	66%	547558	27%	224001	7%	58074
2027	837930	67%	561413	27%	226241	6%	50276
2028	846309	68%	575490	27%	228503	5%	42315
2029	854772	69%	589793	27%	230789	4%	34191
2030	863320	70%	604324	27%	233096	3%	25900
2031	871953	70%	610367	27%	235427	3%	26159
2032	880673	70%	616471	27%	237782	3%	26420

MWMS targets: -1.7% growth scenario

	Arisings:	Recycled	Recycled	Recovere	Recovere	Landfille
	-1.7%	and	and	d (tonnes)	d (%)	d
	growth	composte	Composte			(tonnes)
	rate	d (tonnes)	d (%)			
2012	724000	50%	307806	0%	98484	340250
2013	728968	52%	379063	0%	0	349905
2014	716576	54%	386951	0%	0	329625
2015	704394	56%	394461	25%	176098	133835
2016	692419	57%	394679	25%	173105	124635
2017	680648	58%	394776	25%	170162	115710
2018	669077	59%	394755	25%	167269	107052
2019	657703	60%	394622	27%	177580	85501
2020	646522	61%	394378	27%	174561	77583
2021	635531	61%	387674	27%	171593	76264
2022	624727	61%	381083	27%	168676	74967
2023	614106	61%	374605	27%	165809	73693
2024	603667	61%	368237	27%	162990	72440
2025	593404	61%	361977	27%	160219	71209
2026	583316	61%	355823	27%	157495	69998
2027	573400	61%	349774	27%	154818	68808
2028	563652	61%	343828	27%	152186	67638
2029	554070	61%	337983	27%	149599	66488
2030	544651	61%	332237	27%	147056	65358
2031	535392	61%	326589	27%	144556	64247
2032	526290	61%	321037	27%	142098	63155

EC targets: -1.7% growth scenario

	Arisings : -1.7%	Recycled and	Recycled and	Recover ed (%)	Recover ed	Landfi II (%)	Landfille d
	rate	ed (%)	ed (toppes)		(tonnes)		(tonnes)
2012	724000	50%	307806	0%	98484	47%	340250
2013	728968	52%	379063	0%	0	48%	349905
2014	716576	54%	386951	0%	0	46%	329625
2015	704394	56%	394461	25%	176098	19%	133835
2016	692419	57%	394679	25%	173105	18%	124635
2017	680648	58%	394776	25%	170162	17%	115710
2018	669077	59%	394755	25%	167269	16%	107052
2019	657703	60%	394622	27%	177580	13%	85501
2020	646522	61%	394378	27%	174561	12%	77583
2021	635531	61%	387674	27%	171593	12%	76264
2022	624727	62%	387331	27%	168676	11%	68720
2023	614106	63%	386887	27%	165809	10%	61411
2024	603667	64%	386347	27%	162990	9%	54330
2025	593404	65%	385713	27%	160219	8%	47472
2026	583316	66%	384989	27%	157495	7%	40832
2027	573400	67%	384178	27%	154818	6%	34404
2028	563652	68%	383284	27%	152186	5%	28183
2029	554070	69%	382308	27%	149599	4%	22163
2030	544651	70%	381256	27%	147056	3%	16340
2031	535392	70%	374774	27%	144556	3%	16062
2032	526290	70%	368403	27%	142098	3%	15789

MWMS targets: 0% growth scenario

	Arisings:	Recycled	Recycled	Recovere	Recovere	Landfille
	0%	and	and	d (tonnes)	d (%)	d
	growth	composte	Composte			(tonnes)
	rate	d (tonnes)	d (%)			
2012	724000	50%	307806	0%	98484	340250
2013	728968	52%	379063	0%	0	349905
2014	728968	54%	393643	0%	0	335325
2015	728968	56%	408222	25%	182242	138504
2016	728968	57%	415512	25%	182242	131214
2017	728968	58%	422801	25%	182242	123925
2018	728968	59%	430091	25%	182242	116635
2019	728968	60%	437381	27%	196821.4	94766
2020	728968	61%	444670	27%	196821	87476
2021	728968	61%	444670	27%	196821	87476
2022	728968	61%	444670	27%	196821	87476
2023	728968	61%	444670	27%	196821	87476
2024	728968	61%	444670	27%	196821	87476
2025	728968	61%	444670	27%	196821	87476
2026	728968	61%	444670	27%	196821	87476
2027	728968	61%	444670	27%	196821	87476
2028	728968	61%	444670	27%	196821	87476
2029	728968	61%	444670	27%	196821	87476
2030	728968	61%	444670	27%	196821	87476
2031	728968	61%	444670	27%	196821	87476
2032	728968	61%	444670	27%	196821	87476

EC targets: 0% growth scenario

	Arisings: 0% growth	Recycled and compost	Recycled and Compost	Recover ed (%)	Recover ed (tonnes)	Landfi II (%)	Landfille d (tonnes)
	rate	ed (%)	ed (tonnes)				
2012	724000	50%	307806	0%	98484	47%	340250
2013	728968	52%	379063	0%	0	48%	349905
2014	728968	54%	393643	0%	0	46%	335325
2015	728968	56%	408222	25%	182242	19%	138504
2016	728968	57%	415512	25%	182242	18%	131214
2017	728968	58%	422801	25%	182242	17%	123925
2018	728968	59%	430091	25%	182242	16%	116635
2019	728968	60%	437381	27%	196821.4	13%	94766
2020	728968	61%	444670	27%	196821.4	12%	87476
2021	728968	61%	444670	27%	196821.4	12%	87476
2022	728968	62%	451960	27%	196821.4	11%	80186
2023	728968	63%	459250	27%	196821.4	10%	72897
2024	728968	64%	466540	27%	196821.4	9%	65607
2025	728968	65%	473829	27%	196821.4	8%	58317
2026	728968	66%	481119	27%	196821.4	7%	51028
2027	728968	67%	488409	27%	196821.4	6%	43738
2028	728968	68%	495698	27%	196821.4	5%	36448
2029	728968	69%	502988	27%	196821.4	4%	29159
2030	728968	70%	510278	27%	196821.4	3%	21869
2031	728968	70%	510278	27%	196821.4	3%	21869
2032	728968	70%	510278	27%	196821.4	3%	21869

MWMS targets: 1.75% growth scenario

	Arisings: 1.75%	Recycled and	Recycle d and	Recover ed (%)	Recover ed	Landfill ed	Landfill ed (%)
	growth	Compost	compost		(tonnes)	(tonnes	
	rate	ed (%)	ed)	
			(tonnes)				
2012	724000	50%	362000	0%	0	362000	50.00%
2013	728968	52%	379063	0%	0	349905	48.00%
2014	741725	54%	400531	0%	0	341193	46.00%
2015	754705	56%	422635	25%	188676	143394	19.00%
2016	767912	57%	437710	25%	191978	138224	18.00%
2017	781351	58%	453184	25%	195338	132830	17.00%
2018	795025	59%	469064	25%	198756	127204	16.00%
2019	808938	60%	485363	27%	218413	105162	13.00%
2020	823094	61%	502087	27%	222235	98771	12.00%
2021	837498	61%	510874	27%	226124	100500	12.00%
2022	852154	61%	519814	27%	230082	102259	12.00%
2023	867067	61%	528911	27%	234108	104048	12.00%
2024	882241	61%	538167	27%	238205	105869	12.00%
2025	897680	61%	547585	27%	242374	107722	12.00%
2026	913389	61%	557167	27%	246615	109607	12.00%
2027	929374	61%	566918	27%	250931	111525	12.00%
2028	945638	61%	576839	27%	255322	113477	12.00%
2029	962186	61%	586934	27%	259790	115462	12.00%
2030	979025	61%	597205	27%	264337	117483	12.00%
2031	996157	61%	607656	27%	268963	119539	12.00%
2032	1013590	61%	618290	27%	273669	121631	12.00%

EC targets: 1.75% growth scenario

	Arisings: 1.75% growth	Recycled and compost	Recycled and Compost	Recover ed (%)	Recover ed (tonnes)	Landfi II (%)	Landfill ed (tonnes)
	rate	ed (%)	ed (tonnes)				
2012	724000	50%	307806	0%	98484	47%	340250
2013	728968	52%	379063	0%	0	48%	349905
2014	741725	54%	400531	0%	0	46%	341193
2015	754705	56%	422635	25%	188676	19%	143394
2016	767912	57%	437710	25%	191978	18%	138224
2017	781351	58%	453184	25%	195338	17%	132830
2018	795025	59%	469064	25%	198756	16%	127204
2019	808938	60%	485363	27%	218413	13%	105162
2020	823094	61%	502087	27%	222235	12%	98771
2021	837498	61%	510874	27%	226124	12%	100500
2022	852154	62%	528336	27%	230082	11%	93737
2023	867067	63%	546252	27%	234108	10%	86707
2024	882241	64%	564634	27%	238205	9%	79402
2025	897680	65%	583492	27%	242374	8%	71814
2026	913389	66%	602837	27%	246615	7%	63937
2027	929374	67%	622680	27%	250931	6%	55762
2028	945638	68%	643034	27%	255322	5%	47282
2029	962186	69%	663909	27%	259790	4%	38487
2030	979025	70%	685317	27%	264337	3%	29371
2031	996157	70%	697310	27%	268963	3%	29885
2032	1013590	70%	709513	27%	273669	3%	30408

Appendix 4 C&I Objectively Assessed Need Scenarios

	Arisings	Recycled	Recycled	Recovered	Recovered	Landfilled
	(0%)	and	and	(%)	(tonnes)	(ionnes)
			(topposied			
2012	2288000	(70)		200/	696400	755040
2012	2288000	31%	846560	30%	686400	755040
2013	2288000	38%	869440	30%	686400	732160
2014	2288000	39%	892320	30%	686400	709280
2015	2288000	40%	915200	30%	686400	686400
2016	2288000	41%	938080	30%	686400	663520
2017	2288000	42%	960960	30%	686400	640640
2018	2288000	43%	983840	30%	686400	617760
2019	2288000	44%	1006720	30%	686400	594880
2020	2288000	45%	1029600	30%	686400	572000
2021	2288000	46%	1052480	30%	686400	549120
2022	2288000	47%	1075360	30%	686400	526240
2023	2288000	48%	1098240	30%	686400	503360
2024	2288000	49%	1121120	30%	686400	480480
2025	2288000	50%	1144000	30%	686400	457600
2026	2288000	51%	1166880	30%	686400	434720
2027	2288000	52%	1189760	30%	686400	411840
2028	2288000	53%	1212640	30%	686400	388960
2029	2288000	54%	1235520	30%	686400	366080
2030	2288000	56%	1281280	30%	686400	320320
2031	2288000	58%	1327040	30%	686400	274560
2032	2288000	60%	1372800	30%	686400	228800

Ambitious targets with imports: 0% growth scenario

Ambilious largels with imports: -4.2% growin scenar	Ambitious tarc	ets with ir	nports: -4.2	2% growth	scenario
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	Arisings	Recycled and	Recycled	Recovered	Recovered	Landfilled
	(-4.2%)	composted	and	(%)	(tonnes)	(tonnes)
		(%)	composted			
			(tonnes)			
2012	2011651	37%	846560	30%	686400	755040
2013	1927161	38%	832924	30%	657571	701409
2014	1846220	39%	818939	30%	629953	650952
2015	1768679	40%	804660	30%	603495	603495
2016	1694395	41%	790136	30%	578148	558877
2017	1623230	42%	775413	30%	553866	516942
2018	1555054	43%	760532	30%	530604	477543
2019	1489742	44%	745534	30%	508318	440543
2020	1427173	45%	730454	30%	486969	405808
2021	1367232	46%	715325	30%	466516	373213
2022	1309808	47%	700179	30%	446923	342641
2023	1254796	48%	685043	30%	428152	313978
2024	1202095	49%	669944	30%	410170	287119
2025	1151607	50%	654904	30%	392942	261962
2026	1103239	51%	639946	30%	376439	238411
2027	1056903	52%	625089	30%	360628	216377
2028	1012513	53%	610352	30%	345482	195773
2029	969988	54%	595749	30%	330972	176518
2030	929248	56%	591866	30%	317071	147966
2031	890220	58%	587258	30%	303754	121502
2032	852831	60%	581993	30%	290996	96999

Ambitious targets with imports: 2.3% growth scenario

	Arisings	Recycled	Recycled	Recovered	Recovered	Landfilled
	(2.3%)	and	and	(%)	(tonnes)	(tonnes)
		composted	composted			
		(%)	(tonnes)			
2012	2449531	37%	846560	30%	686400	755040
2013	2505870	38%	889437	30%	702187	749000
2014	2563505	39%	933839	30%	718338	742282
2015	2622466	40%	979812	30%	734859	734859
2016	2682782	41%	1027407	30%	751761	726702
2017	2744486	42%	1076672	30%	769052	717781
2018	2807610	43%	1127660	30%	786740	708066
2019	2872185	44%	1180424	30%	804835	697523
2020	2938245	45%	1235019	30%	823346	686122
2021	3005825	46%	1291500	30%	842283	673826
2022	3074958	47%	1349927	30%	861655	660602
2023	3145683	48%	1410358	30%	881473	646414
2024	3218033	49%	1472854	30%	901747	631223
2025	3292048	50%	1537479	30%	922488	614992
2026	3367765	51%	1604298	30%	943705	597680
2027	3445224	52%	1673377	30%	965410	579246
2028	3524464	53%	1744785	30%	987614	559648
2029	3605527	54%	1818593	30%	1010330	538842
2030	3688454	56%	1929325	30%	1033567	482331
2031	3773288	58%	2044189	30%	1057339	422936
2032	3860074	60%	2163316	30%	1081658	360553

Ambitious targets: 0% growth scenario

	Arisings	Recycled	Recycled	Recovered	Recovered	Landfilled
	(0%)	and	and	(%)	(tonnes)	(tonnes)
		composted	composted			
		(%)	(tonnes)			
2012	1623000	37%	600510	30%	486900	535590
2013	1623000	38%	616740	30%	486900	519360
2014	1623000	39%	632970	30%	486900	503130
2015	1623000	40%	649200	30%	486900	486900
2016	1623000	41%	665430	30%	486900	470670
2017	1623000	42%	681660	30%	486900	454440
2018	1623000	43%	697890	30%	486900	438210
2019	1623000	44%	714120	30%	486900	421980
2020	1623000	45%	730350	30%	486900	405750
2021	1623000	46%	746580	30%	486900	389520
2022	1623000	47%	762810	30%	486900	373290
2023	1623000	48%	779040	30%	486900	357060
2024	1623000	49%	795270	30%	486900	340830
2025	1623000	50%	811500	30%	486900	324600
2026	1623000	51%	827730	30%	486900	308370
2027	1623000	52%	843960	30%	486900	292140
2028	1623000	53%	860190	30%	486900	275910
2029	1623000	54%	876420	30%	486900	259680
2030	1623000	56%	908880	30%	486900	227220
2031	1623000	58%	941340	30%	486900	194760
2032	1623000	60%	973800	30%	486900	162300

Ambitious targets: -4.2% growth scenario

	Arisings	Recycled	Recycled	Recovered	Recovered	Landfilled
	(-4.2%)	and	and	(%)	(tonnes)	(tonnes)
		composted	composted			
		(%)	(tonnes)			
2012	1426971	37%	600510	30%	486900	535590
2013	1367038	38%	590837	30%	466450	497547
2014	1309622	39%	580917	30%	446859	461755
2015	1254618	40%	570788	30%	428091	428091
2016	1201924	41%	560486	30%	410111	396441
2017	1151443	42%	550041	30%	392887	366694
2018	1103083	43%	539486	30%	376385	338747
2019	1056753	44%	528847	30%	360577	312500
2020	1012370	45%	518150	30%	345433	287861
2021	969850	46%	507418	30%	330925	264740
2022	929116	47%	496674	30%	317026	243053
2023	890094	48%	485937	30%	303711	222721
2024	852710	49%	475227	30%	290955	203669
2025	816896	50%	464558	30%	278735	185823
2026	782586	51%	453948	30%	267028	169118
2027	749718	52%	443409	30%	255813	153488
2028	718229	53%	432955	30%	245069	138872
2029	688064	54%	422597	30%	234776	125214
2030	659165	56%	419842	30%	224915	104960
2031	631480	58%	416573	30%	215469	86188
2032	604958	60%	412838	30%	206419	68806

Ambitious target: 2.3% growth scenario

	Arisings	Recycled	Recycled	Recovered	Recovered	Landfille
	(2.3%)	and	and	(%)	(tonnes)	d
		composted	composted			(tonnes)
		(%)	(tonnes)			
2012	1737582	37%	600510	30%	486900	535590
2013	1777547	38%	630925	30%	498099	531305
2014	1818430	39%	662421	30%	509555	526540
2015	1860254	40%	695033	30%	521275	521275
2016	1903040	41%	728794	30%	533264	515489
2017	1946810	42%	763741	30%	545529	509161
2018	1991587	43%	799909	30%	558076	502269
2019	2037393	44%	837338	30%	570912	494790
2020	2084253	45%	876065	30%	584043	486703
2021	2132191	46%	916130	30%	597476	477981
2022	2181231	47%	957575	30%	611218	468600
2023	2231400	48%	1000442	30%	625276	458536
2024	2282722	49%	1044774	30%	639657	447760
2025	2335225	50%	1090616	30%	654369	436246
2026	2388935	51%	1138014	30%	669420	423966
2027	2443880	52%	1187015	30%	684817	410890
2028	2500090	53%	1237669	30%	700567	396988
2029	2557592	54%	1290025	30%	716680	382230
2030	2616416	56%	1368573	30%	733164	342143
2031	2676594	58%	1450052	30%	750027	300011
2032	2738155	60%	1534555	30%	767277	255759

Appendix 5 CDE Objectively Assessed Need Scenarios

year	Arisings	Total	Recyclin	Recyclin	Recover	Recover	Landfill
	(1%	Amount	g (%)	g	y (%)	у	(tonnes
	growth			(tonnes)		(tonnes))
	rate)						
201	1%	336323	52%	1748881	41%	1378925	235426
2	4.04	2		400000	400/	4050540	00==04
201	1%	339686	53%	1800338	40%	1358746	237781
3	4.07	4	5 40(4050050	000/	4000005	040450
201	1%	343083	54%	1852650	39%	1338025	240158
4	4.07	3	550/	4005000	000/	4040754	0.40500
201	1%	346514	55%	1905828	38%	1316754	242560
5	4.07	1	500/	4050004	000/	4000004	000000
201	1%	349979	56%	1959884	38%	1329921	209988
6	4.07	3	570/	004 4004	070/	4007070	040007
201	1%	353479	57%	2014831	31%	1307873	212087
/	40/	1	500/	2070000	200/	4005050	04 4000
201	1%	357013	58%	2070680	36%	1285250	214208
8	10/	9	500/	2427446	250/	1000044	046050
201	1%	360584	59%	2127440	35%	1262044	216350
9	10/	0	C09/	2105120	250/	1074004	100005
202	1%	304189	60%	2185139	35%	12/4004	182095
202	10/	0	60%	2206000	250/	1007/11	102016
202	170	7	60%	2206990	35%	1207411	103910
202	10/	7	60%	2220060	250/	1200295	195755
202	170	371510	00%	2229000	35%	1300265	100700
202	10/	1	60%	2251251	35%	1212288	197613
202	1 /0	2	00 %	2251551	35%	1313200	10/013
	10/	278077	60%	2273865	35%	1326421	180/80
202	1 /0	л Л	00 /8	2273003	5576	1520421	109409
202	10/	382767	60%	2206603	35%	1330685	10138/
6	170	2	0078	2230003	5570	1559005	131304
202	1%	286594	60%	2319569	35%	1353082	103207
7	170	9 000004	0070	2010000	0070	1000002	100201
202	1%	390460	60%	2342765	35%	1366613	195230
8	170	8	0070	2012100	0070	1000010	100200
202	1%	394365	60%	2366193	35%	1380279	197183
9	170	4	0070	2000100	0070	1000210	107100
203	1%	398309	60%	2389854	35%	1394082	199155
0	170	1	0070	2000001	0070	1001002	100100
203	1%	402292	60%	2413753	35%	1408023	201146
1		2					
203	1%	406315	60%	2437891	35%	1422103	203158
2		1					

Core Strategy targets: 1% growth scenario

Core Strategy targets: 2.3% growth scenario

year	Arising	Total	Recyclin	Recyclin	Recover	Recover	Landfill
	s (2.3%	Amount	g (%)	g	y (%)	y ,	(tonnes
	growth			(tonnes)		(tonnes))
2012	1ale)	358532	52%	186/367	/10/	1/60082	250073
2012	2.570	2	5270	1004307	4170	1403302	200975
2013	2.3%	366778	53%	1943926	40%	1467114	256745
		4					
2014	2.3%	375214	54%	2026157	39%	1463336	262650
0045	0.00/	3	550/	044440	0.001/	4.450000	000004
2015	2.3%	383844	55%	2111143	38%	1458608	268691
2016	2.3%	392672	56%	2198967	38%	1492156	235604
2010	2.070	7	0070	2100001	0070	1102100	200001
2017	2.3%	401704	57%	2289714	37%	1486305	241022
		1					
2018	2.3%	410943	58%	2383471	36%	1479396	246566
0010	0.00/	3	E00/	0400004	250/	4474000	050007
2019	2.3%	420395	59%	2480331	35%	1471383	252237
2020	2.3%	430064	60%	2580385	35%	1505224	215032
2020	2.070	1	0070	2000000	0070	1000221	210002
2022	2.3%	439955	60%	2639734	35%	1539845	219978
		6					
2023	2.3%	450074	60%	2700447	35%	1575261	225037
2024	2.20/	6	600/	0760550	250/	1611400	220212
2024	2.3%	400420	00%	2702000	35%	1011492	230213
2025	2.3%	471016	60%	2826097	35%	1648556	235508
	,	1					
2026	2.3%	481849	60%	2891097	35%	1686473	240925
		5					
2027	2.3%	492932	60%	2957592	35%	1725262	246466
2028	2 30/	0	60%	3025617	25%	176/0/3	252125
2020	2.570	4	0070	3023017	5570	1704343	252155
2029	2.3%	515867	60%	3095206	35%	1805537	257934
		6					
2030	2.3%	527732	60%	3166396	35%	1847064	263866
0001		6	000/	0000000	050/	4000545	000005
2031	2.3%	539870	60%	3239223	35%	1889547	269935
2032	2.3%	4 552287	60%	3313725	35%	1933006	276144
2002	2.070	5	0070	0010720	0070	100000	210177
L		1	1	1	1	1	

Core Strategy targets: 5% growth scenario

year	Arisings (5% growth rate)	Total Amount	Recyclin g (%)	Recycling (tonnes)	Recovery (%)	Recovery (tonnes)	Landfill (tonnes)
2012	5.0%	408410 1	52%	2123733	41%	1674481	285887
2013	5.0%	428830 6	53%	2272802	40%	1715322	300181
2014	5.0%	450272 1	54%	2431470	39%	1756061	315190
2015	5.0%	472785 7	55%	2600322	38.%	1796586	330950
2016	5.0%	496425 0	56%	2779980	38%	1886415	297855
2017	5.0%	521246 3	57%	2971104	37%	1928611	312748
2018	5.0%	547308 6	58%	3174390	36%	1970311	328385
2019	5.0%	574674 0	59%	3390577	35%	2011359	344804
2020	5.0%	603407 7	60%	3620446	35%	2111927	301704
2022	5.0%	633578 1	60%	3801469	35%	2217523	316789
2023	5.0%	665257 0	60%	3991542	35%	2328400	332629
2024	5.0%	698519 9	60%	4191119	35%	2444820	349260
2025	5.0%	733445 9	60%	4400675	35%	2567061	366723
2026	5.0%	770118 2	60%	4620709	35%	2695414	385059
2027	5.0%	808624 1	60%	4851744	35%	2830184	404312
2028	5.0%	849055 3	60%	5094332	35%	2971693	424528
2029	5.0%	891508 0	60%	5349048	35%	3120278	445754
2030	5.0%	936083 4	60%	5616501	35%	3276292	468042
2031	5.0%	982887 6	60%	5897326	35%	3440107	491444
2032	5.0%	103203 20	60%	6192192	35%	3612112	516016

National target: 1% growth scenario

year	Arisings	Total	Recyclin	Recyclin	Recover	Recover	Landfill
	(1%	Amount	g (%)	g	y (%)	у	(tonnes)
	growth			(tonnes)		(tonnes)	
0040	rate)	000000	0.40/	4440400	0.40/	007470	444055
2012	1%	336323	34%	1143499	24%	807176	141255 8
2013	1%	239686	34%	1154934	24%	815247	142668
2010	170	4	0470	110-00-	2470	010247	3
2014	1%	343083	35%	1200792	25%	857708	137233
		3					3
2015	1%	346514	35%	1212800	25%	866285	138605
		1					7
2016	1%	349979	35%	1224928	25%	874948	139991
2017	10/	3	260/	1070505	260/	010046	121222
2017	170	303479	30%	1272525	20%	919040	134322
2018	1%	357013	36%	1285250	26%	928236	135665
2010	170	9	0070	1200200	2070	020200	3
2019	1%	360584	36%	1298102	26%	937518	137021
		0					9
2020	1%	364189	37%	1347502	27%	983313	131108
		8					3
2022	1%	367831	37%	1360977	27%	993146	132419
2023	10/_	7	270/	127/587	27%	1003077	4
2023	1 /0	1	51 /0	1374307	21 /0	1003077	6
2024	1%	375225	38%	1425856	28%	1050630	127576
		2					6
2025	1%	378977	38%	1440114	28%	1061137	128852
		4					3
2026	1%	382767	38%	1454515	28%	1071748	130140
2027	10/	2	200/	1507720	200/	1101105	8 100710
2027	170	0 0	39%	1507720	29%	1121125	123710
2028	1%	390460	39%	1522797	29%	1132336	124947
2020	170	8	0070	1022101	2070	1102000	5
2029	1%	394365	39%	1538025	29%	1143660	126196
		4					9
2030	1%	398309	40%	1593236	30%	1194927	119492
		1					7
2031	1%	402292	40%	1609169	30%	1206876	120687
2022	10/	Z 106215	400/	1625260	200/	101001E	0 121904
2032	1 /0	1	+0 /0	1023200	50 /0	1210940	5

National target: 2.3% growth scenario

year	Arising	Total	Recyclin	Recyclin	Recover	Recover	Landfill
	s (2.3% growth rate)	Amount	g (%)	g (tonnes)	у (%)	y (tonnes)	(tonnes)
2012	2.3%	358532 2	34%	1219009	24%	860477	150583 5
2013	2.3%	366778 4	34%	1247047	24%	880268	154046 9
2014	2.3%	375214 3	35%	1313250	25%	938036	150085 7
2015	2.3%	383844 3	35%	1343455	25%	959611	153537 7
2016	2.3%	392672 7	35%	1374354	25%	981682	157069 1
2017	2.3%	401704 1	36%	1446135	26%	1044431	152647 6
2018	2.3%	410943 3	36%	1479396	26%	1068453	156158 5
2019	2.3%	420395 0	36%	1513422	26%	1093027	159750 1
2020	2.3%	430064 1	37%	1591237	27%	1161173	154823 1
2022	2.3%	439955 6	37%	1627836	27%	1187880	158384 0
2023	2.3%	450074 6	37%	1665276	27%	1215201	162026 8
2024	2.3%	460426 3	38%	1749620	28%	1289194	156544 9
2025	2.3%	471016 1	38%	1789861	28%	1318845	160145 5
2026	2.3%	481849 5	38%	1831028	28%	1349179	163828 8
2027	2.3%	492932 0	39%	1922435	29%	1429503	157738 2
2028	2.3%	504269 4	39%	1966651	29%	1462381	161366 2
2029	2.3%	515867 6	39%	2011884	29%	1496016	165077 6
2030	2.3%	527732 6	40%	2110930	30%	1583198	158319 8
2031	2.3%	539870 4	40%	2159482	30%	1619611	161961 1
2032	2.3%	552287 5	40%	2209150	30%	1656862	165686 2

National target: 5% growth scenario

year	Arisings	Total	Recyclin	Recycling	Recove	Recovery	Landfill
	(5%	Amount	g (%)	(tonnes)	ry (%)	(tonnes)	(tonnes)
	growth rate)						
2012	5%	408410	34%	1388594	24%	980184	1715322
		1					
2013	5%	428830 6	34%	1458024	24%	1029193	1801089
2014	5%	450272 1	35%	1575952	25%	1125680	1801089
2015	5%	472785 7	35%	1654750	25%	1181964	1891143
2016	5%	496425 0	35%	1737488	25%	1241063	1985700
2017	5%	521246 3	36%	1876487	26%	1355240	1980736
2018	5%	547308 6	36%	1970311	26%	1423002	2079773
2019	5%	574674	36%	2068826	26%	1494152	2183761
2020	5%	603407 7	37%	2232609	27%	1629201	2172268
2022	5%	633578 1	37%	2344239	27%	1710661	2280881
2023	5%	665257 0	37%	2461451	27%	1796194	2394925
2024	5%	698519 9	38%	2654375	28%	1955856	2374968
2025	5%	733445 9	38%	2787094	28%	2053648	2493716
2026	5%	770118 2	38%	2926449	28%	2156331	2618402
2027	5%	808624 1	39%	3153634	29%	2345010	2587597
2028	5%	849055 3	39%	3311316	29%	2462260	2716977
2029	5%	891508 0	39%	3476881	29%	2585373	2852826
2030	5%	936083 4	40%	3744334	30%	2808250	2808250
2031	5%	982887 6	40%	3931550	30%	2948663	2948663
2032	5%	103203 20	40%	4128128	30%	3096096	3096096

Year	Growth rate	Arisings (tonnes)	Growth rate	Arisings (tonnes)
2012	-3.50%	152000	2.30%	152000
2013	-3.50%	136000	2.30%	136000
2014	-3.50%	131240	2.30%	139128
2015	-3.50%	126647	2.30%	142328
2016	-3.50%	122214	2.30%	145601
2017	-3.50%	117936	2.30%	148950
2018	-3.50%	113809	2.30%	152376
2019	-3.50%	109825	2.30%	155881
2020	-3.50%	105982	2.30%	159466
2021	-3.50%	102272	2.30%	163134
2022	-3.50%	98693	2.30%	166886
2023	-3.50%	95238	2.30%	170724
2024	-3.50%	91905	2.30%	174651
2025	-3.50%	88688	2.30%	178668
2026	-3.50%	85584	2.30%	182777
2027	-3.50%	82589	2.30%	186981
2028	-3.50%	79698	2.30%	191282
2029	-3.50%	76909	2.30%	195681
2030	-3.50%	74217	2.30%	200182
2031	-3.50%	71619	2.30%	204786
2032	-3.50%	69113	2.30%	209496

Appendix 6 Hazardous Objectively Assessed Need

Appendix 7 Landfill Void Utilisation

HIGH	C&I	MSW	Total	Total	Landfill	Landfill
	Landfilled	Landfilled	Landfilled	Landfilled	Void –	Void –
	(tonnes)	(tonnes)	(tonnes)	(m3)*	without	with
					Phase 2	Phase 2
2012	535590	362000	897590	1059156	8957000	15056000
2013	531305	353602	884907	1044190	7912810	14011810
2014	526540	344798	871339	1028179	6884630	12983630
2015	521275	144909	666184	786097	6098534	12197534
2016	533264	139685	672949	794079	5304454	11403454
2017	545529	134233	679762	802119	4502335	10601335
2018	558076	128548	686624	810217	3692118	9791118
2019	570912	106273	677185	799078	2893040	8992040
2020	584043	99815	683858	806952	2086087	8185087
2021	597476	101562	699038	824864	1261223	7360223
2022	611218	103339	714557	843177	418046	6517046
2023	625276	105147	730423	861900	-443854	5655146
2024	639657	106987	746645	881041	-1324894	4774106
2025	654369	108860	763229	900610	-2225505	3873495
2026	669420	110765	780185	920618	-3146123	2952877
2027	684817	112703	797520	941073	-4087196	2011804
2028	700567	114675	815243	961987	-5049183	1049817
2029	716680	116682	833363	983368	-6032551	66449
2030	733164	118724	851888	1005228	-7037779	-938779
2031	750027	120802	870829	1027578	-8065357	-1966357
2032	767277	122916	890193	1050428	-9115785	-3016785

Projected Landfill Inputs and Landfill Void Utilisation under the High input scenario

*conversion ratio of 1 tonne occupying 1.18 cubic metere (0.85t/cubic metre)

LOW	C&I	MSW	Total	Total	Landfill	Landfill
	Landfilled	Landfilled	Landfilled	Landfilled	Void –	Void –
	(tonnes)	(tonnes)	(tonnes)	(m3)*	without	with
					Phase 2	Phase 2
2012	535590	340250	875840	1033491	8957000	15056000
2013	519360	340743	860103	1014922	7942078	14041078
2014	503130	320178	823308	971504	6970575	13069575
2015	486900	129669	616569	727551	6243024	12342024
2016	470670	120449	591119	697520	5545504	11644504
2017	454440	111539	565979	667855	4877649	10976649
2018	438210	102931	541141	638546	4239103	10338103
2019	421980	82000	503980	594697	3644406	9743406
2020	405750	74217	479967	566360	3078046	9177046
2021	389520	72769	462289	545501	2532544	8631544
2022	373290	65404	438694	517659	2014885	8113885
2023	357060	58299	415359	490124	1524761	7623761
2024	340830	51446	392276	462886	1061875	7160875
2025	324600	44838	369438	435937	625938	6724938
2026	308370	38468	346838	409269	216669	6315669
2027	292140	32330	324470	382874	-166205	5932795
2028	275910	26416	302326	356745	-522950	5576050
2029	259680	20721	280401	330873	-853823	5245177
2030	227220	15238	242458	286100	-1139923	4959077
2031	194760	14940	209700	247447	-1387370	4711630
2032	162300	14649	176949	208800	-1596170	4502830

Projected Landfill Inputs and Landfill Void Utilisation under the Low input scenario

*conversion ratio of 1 tonne occupying 1.18 cubic metere (0.85t/cubic metre)

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