

BARNSELY, DONCASTER AND ROTHERHAM JOINT STRATEGIC WASTE DPD

TOPIC PAPER – WASTE CAPACITY REQUIREMENTS

INTRODUCTION

1. The Barnsley, Doncaster and Rotherham (BDR) Metropolitan Boroughs need to find and allocate sufficient sites within the three boroughs to accommodate new waste management facilities. In order to achieve this, BDR are producing a Joint Strategic Waste Development Plan Document, or DPD. National waste policy set out in Planning Policy Statement 10¹, requires a waste DPD to set out policies and proposals for waste management that ensure sufficient opportunities for the provision of waste management facilities in appropriate locations, including for waste disposal, for a period of at least 10 years after adoption of the DPD. The Yorkshire and Humber Plan² sets out how much waste needs to be managed by BDR and other authorities in the region up to 2021 in order to meet international and national targets for recycling and recovery and reducing the amount of waste landfilled.
2. The DPD must be based on sound evidence, including an understanding of the amount of waste generated within the area and how this might be expected to grow, or decline, over time. This topic paper describes in more detail the amount of different waste types and future waste management capacity requirements that BDR need to plan for in the Joint Strategic Waste DPD.
3. The DPD must be prepared to be relevant to controlled³ and non-controlled waste streams, including:
 - **Municipal solid waste (MSW)** – waste which is collected by local authorities. It is mainly composed of household waste but also includes street sweepings, waste from reuse and recycling centres as well as local authority collected commercial and industrial waste, it does not include domestic sewage and waste water;

¹ *Planning Policy Statement 10: Planning for Sustainable Waste Management*. ODPM, July 2005.

² *Yorkshire and Humber Plan Regional Spatial Strategy to 2026*. Government Office for Yorkshire and the Humber, May 2008.

³ Controlled wastes are defined under the Environmental Protection Act and include household, commercial and industrial waste, and are subject to the provisions of the Control of Pollution Act. The Control of Pollution (Amendment) Act 1989 makes it a criminal offence for a person who is not a registered carrier to transport controlled waste to or from any place in Great Britain. Components of other waste streams such as agricultural waste have more recently been included in the definition of controlled waste.

- **Commercial and industrial (C&I) waste** – Commercial waste is waste from premises used wholly or mainly for the purposes of a trade or business or for the purpose of sport, recreation, education or entertainment but not including household; agricultural or industrial waste. Industrial waste is waste arising from the provision of public services and industrial activities, but excluding construction and demolition material;
 - **Construction and demolition (C&D) waste** – waste which is comprised of waste building materials, packaging and rubble resulting from construction and remodelling, repair and demolition operations on roads, houses, commercial buildings and other structures;
 - **Hazardous waste** – waste which, because of its characteristics, poses a present or potential hazard to human health or the environment;
 - **Agricultural waste** – waste which is produced by the agricultural industry and includes organic matter such as manure, slurry, silage effluent, animal treatment dips (for example sheep dip) and crop residues, as well as a wide range of materials such as discarded pesticide containers, plastics such as silage wrap, bags and sheets, waste packaging, tyres, batteries, clinical waste, old machinery and oil etc.; and
 - **Wastes from mines or quarries** – (or mineral wastes) are the residues, tailings or other non-valuable material produced after the extraction and processing of material to form mineral products. Mine and quarry waste includes materials such as overburden, rock inter-bedded with the mineral, and residues left over from initial processing of the extracted material into saleable products. Mine and quarry waste is usually either tipped locally, used for infilling prior to restoration of land or re-used.
4. For reasons set out in the next section, the Joint Strategic Waste DPD will only allocate sites for strategic waste management facilities to deal with MSW and C&I wastes. Proposals that come forward for smaller facilities or facilities managing other waste streams will be judged against the criteria set out in the other policies within the DPD.

CURRENT AND FUTURE WASTE ARISING IN BDR

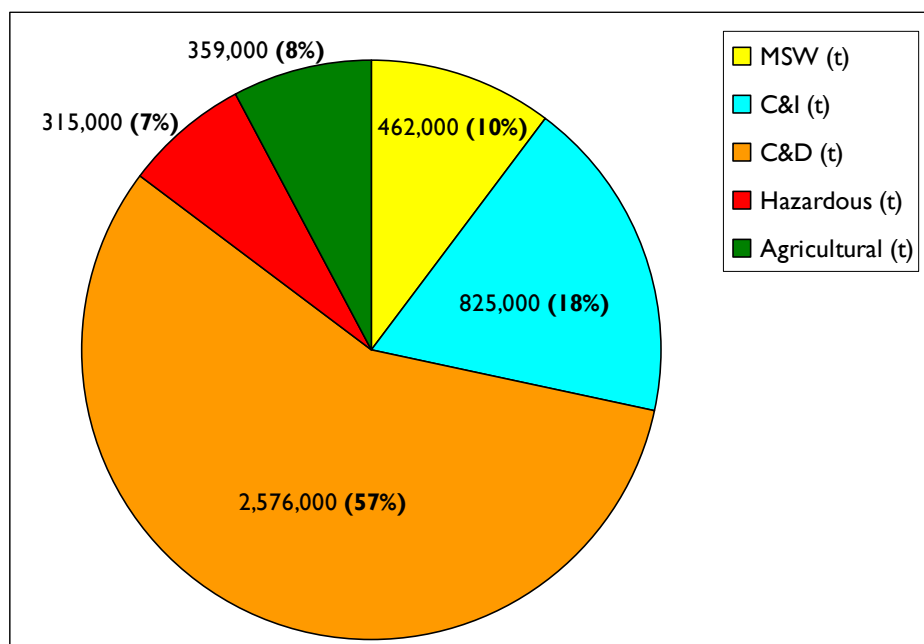
Municipal Solid Waste and Commercial & Industrial Waste

5. In 2005, BDR residents, businesses and industry produced approximately 1.29 million tonnes of waste⁴. Municipal solid waste (also referred to simply as municipal waste) represented just over a third of this total (462,000 tonnes), while the greater portion was commercial and industrial waste (825,000 tonnes). However, both of these waste streams together represent less than a third of the total waste arisings in BDR, see **Figure 1**.

⁴ *Yorkshire and Humber Plan Regional Spatial Strategy to 2026*. Government Office for Yorkshire and the Humber, May 2008; based on figures quoted in Tables 10.5 and 10.6.

6. All three boroughs have vastly improved recycling rates for municipal waste since 2000 through the introduction of kerbside collections, reaching 20% in 2005/06 in Barnsley⁵, 34% in 2007/08 in Doncaster⁶ and 28% in 2006/07 in Rotherham⁷. However, the remaining 70% or so of municipal waste in BDR is still being sent to landfill. In contrast, only a third of C&I wastes across the Yorkshire and Humber region were estimated to be landfilled in 2002/03, with the remainder being recycled, composted or treated through energy recovery or alternative recovery methods.

Figure 1 Proportion of all waste streams produced in BDR in 2005



Note: As discussed in the sections below, the tonnages for C&D, hazardous and agricultural wastes are estimates for the South Yorkshire sub-region, which includes Sheffield, thus the actual tonnages of these waste streams produced in BDR are likely to be lower.

7. The amount of municipal waste produced in BDR is forecast within the Yorkshire and Humber Plan to increase to around 525,000 tonnes per year by 2021. The forecast growth rates used in the Yorkshire and Humber Plan are explained in detail in a report by Enviros⁸ (June 2007). The municipal waste forecast is based on an average growth rate of less than 1% per annum formulated from variable growth scenarios including regional historical growth rates, a decreasing rate of growth, projected housing growth rates and the national historic MSW growth rate over 5 years of 0.5% estimated in Waste Strategy 2007.

⁵ *Municipal Waste Management Strategy*. Barnsley Metropolitan Borough Council, April 2007.

⁶ *Doncaster's Municipal Waste Management Strategy. Report to the Safer, Stronger and Sustainable Communities Overview and Scrutiny Panel*. Doncaster Metropolitan Borough Council, 1st September 2008.

⁷ *Rotherham Local Development Framework. Annual Monitoring Report 2007*. Rotherham Metropolitan Borough Council, December 2007.

⁸ *Waste Arisings Forecasting*. A Report by Enviros Consulting Limited for the Government Office for Yorkshire and the Humber, June 2007, and associated spreadsheet "Revised RSS Forecast Table" provided on the Data Statistic Digest CD prepared by the Environment Agency, Yorkshire & Humber Assembly and Regional Development Agency 2007.

8. By contrast, commercial and industrial waste is forecast to remain fairly constant, increasing only slightly to around 830,000 tonnes per year in 2021 (an increase of less than 1% overall between 2005 and 2021). The C&I waste growth forecast is based on predicted full time employment in different industries for the 21 districts within the Yorkshire and Humber region⁹.

C&D Waste

9. By far the largest waste stream, the Yorkshire & Humber region produced an estimated 10,497,000 tonnes of C&D waste in 2005, a quarter of that (2,576,000 tonnes) was estimated to be produced in the South Yorkshire sub region¹⁰. These figures are estimates based on national surveys of C&D waste, which have been carried out four times for the Government (ODPM then CLG) by Capita Symonds Ltd, in 1999, 2001, 2003 and 2005.
10. The surveys gathered data on waste arisings and treatment methods from operators of crushers and screens, licensed landfills and sites exempt from licensing. Due to the data being obtained from sample surveys and then scaled up, the figures presented in the reports are only estimates and the accuracy of the figures is estimated by Symonds as +/- 10%. For this reason, the report states that while the national estimates are reasonably robust, this is less true of the regional and local estimates, because the survey response rates are not high enough. Therefore, the estimates should only be used with caution by Planning Authorities as a “reasonable indication of arisings and recycling of construction, demolition and excavation wastes, to provide contextual background in the undertaking of functions such as development control”.
11. The forecast growth for C&D waste used in the work done for the Yorkshire and Humber Plan¹¹ is a variable growth rate based on predictions of future commercial and industrial activity and house building activity. The growth rate fluctuates between 0.2% and 0.58% per annum over the period 2005-2021, resulting in a fairly constant level of C&D waste arisings predicted for the whole of the region (11,244,000 tonnes per annum by 2021). If the South Yorkshire sub-region continues to produce around a quarter of the region’s C&D waste, this would equate to approximately 2,811,000 tonnes in 2021. Due to the limitations of the survey data described above, it is not possible to estimate how much of this would be produced in BDR alone.
12. The main management route for C&D waste is recycling on site for use as aggregate. Lesser amounts are used for backfill of voids left by quarries, landfill restoration, spread on exempt sites or disposed of in landfill sites. Thus, a high percentage (93%¹²) of C&D waste is managed on site and does

⁹ *Waste Arisings Forecasting*. A Report by Enviro Consulting Limited for the Government Office for Yorkshire and the Humber, June 2007.

¹⁰ *Survey of Arisings and Use of Alternatives to Primary Aggregates in England in 2005. Construction, Demolition and Excavation Waste*. Capita Symonds Ltd, February 2007.

¹¹ *Waste Arisings Forecasting*. A Report by Enviro Consulting Limited for the Government Office for Yorkshire and the Humber, June 2007.

¹² *Waste Arisings Forecasting*. A Report by Enviro Consulting Limited for the Government Office for Yorkshire and the Humber, June 2007.

not enter dedicated waste management facilities, and only 7% will require landfill. For this reason, it is not considered necessary for the Joint Strategic Waste DPD to allocate specific sites for new facilities for recycling C&D waste.

Hazardous Waste

13. Being one of the more industrialised sub-regions, South Yorkshire produces 35% of the region's hazardous waste (approximately 315,000 tonnes in 2005)¹³. While Environment Agency information on hazardous waste production trends over the period 1998-2003 show that amounts of hazardous waste did not generally decrease or increase, with the introduction of new legislation in July 2005 (the Hazardous Waste Regulations¹⁴), more waste is now classified as hazardous than was previously classed as 'special' waste including for example fluorescent light tubes, televisions and dental amalgam. Thus, forecasts for hazardous waste show some increases in future arisings within the region (1,063,000 tonnes per annum by 2021) due to more waste being classed in this category (as opposed to growth in waste arisings themselves). If the South Yorkshire sub-region continues to produce just over a third of the region's hazardous waste, it is estimated that 372,000 tonnes of hazardous waste would be produced per year by 2021.
14. The Enviros report for the Yorkshire and Humber Plan stated that 35% of hazardous waste was landfilled in the region in 2003 (based on an Environment Agency source "Hazardous Waste production Trends by sub region 1998/9 - 2003"). A more recent Environment Agency note¹⁵ states that landfill provided the main outlet for special waste (now known as hazardous waste) in 2004, with 54% landfilled, 24% subject to some form of treatment and 9% recycled.

Agricultural Waste

15. Based on two surveys undertaken in 1998 and 2003, an estimated 5,772,000 tonnes of agricultural waste was produced in the Yorkshire and Humber region in 2003 (decreasing from 7,324,000 in 1998)¹⁶. Due to a lack of suitable indicator of estimating future agricultural growth in the region, the forecast growth for agricultural waste used in the work done for the Yorkshire and Humber Plan by Enviros is a 6% decrease every year based on the historic data from the two surveys. However, Enviros notes that there are limitations in estimating a growth rate based on only two data sets as it is difficult to establish an ongoing relationship, and the two surveys were not

¹³ *Waste Arisings Forecasting*. A Report by Enviros Consulting Limited for the Government Office for Yorkshire and the Humber, June 2007, and associated spreadsheet "Revised RSS Forecast Table" provided on the Data Statistic Digest CD prepared by the Environment Agency, Yorkshire & Humber Assembly and Regional Development Agency 2007.

¹⁴ *The Hazardous Waste (England and Wales) Regulations 2005*. Statutory Instrument 2005 No. 894, HMSO.

¹⁵ *Yorkshire and the Humber Region Hazardous waste production and disposal 1999 to 2005*. Environment Agency, August 2007. From the Data Statistic Digest CD prepared by the Environment Agency, Yorkshire & Humber Assembly and Regional Development Agency.

¹⁶ *Waste Arisings Forecasting*. A Report by Enviros Consulting Limited for the Government Office for Yorkshire and the Humber, June 2007.

directly comparable (the 2003 survey included additional plastic wastes – seed trays, pots and films – not included in the 1998 survey). As the additional plastic component only represented 0.02% of the total waste this was not considered significant, and the 6% decreasing growth rate was used, resulting in an estimated 1,982,000 tonnes agricultural waste per year being produced in the region by 2021. Due to its more urban nature than other parts of the region, South Yorkshire only produces 7% of the region's agricultural waste¹⁷, which amounts to approximately 404,000 tonnes in 2003, 359,000 in 2005, decreasing to 139,000 tonnes per year by 2021.

16. In May 2006, 'non-natural' agricultural wastes became 'controlled wastes' and are subject to the same regulations that apply to commercial and industrial waste. The following types of agricultural wastes are included:
- plastics;
 - silage wrap and sheets;
 - discarded pesticide containers;
 - packaging waste;
 - tyres and batteries;
 - clinical waste; and
 - old machinery and oil.
17. Due to the change in legislation, there may be an increase in the amount of agricultural waste that needs to be managed within BDR, however, it is likely to be accounted for within the C&I or hazardous waste streams. It is important to note that the majority of agricultural wastes are animal matter and vegetable and plant wastes (around 98%¹⁸), which are generally treated and disposed on farms, largely to land and do not require dedicated facilities. The very small component (2%) of non-natural agricultural wastes that are likely to arise in the South Yorkshire sub-region per year (less than 10,000 tonnes per year decreasing over time) should therefore be able to be treated within facilities dealing with C&I or hazardous waste.

Mine and Quarry Waste

18. Mine and quarry waste tonnages are included within the arisings and forecast estimates for industrial waste discussed above. Mine and quarry waste is usually either tipped locally, used for infilling prior to restoration of land or re-used and therefore does not require separate, dedicated facilities.

¹⁷ *Strategic Waste Management Assessment 2000: Yorkshire and the Humber*. Environment Agency, 2000.

¹⁸ *Strategic Waste Management Assessment 2000: Yorkshire and the Humber*. Environment Agency, 2000.

FUTURE WASTE MANAGEMENT CAPACITY REQUIREMENTS

Statutory targets

19. As discussed above, a large proportion of waste produced in the BDR area is currently disposed of in landfills. National and regional legislation and policies seek to manage waste higher up the 'waste hierarchy', i.e. place less emphasis on disposal to landfill and more on recycling and recovering value from waste materials. Waste Strategy 2007 introduced higher national targets for recycling and composting of household waste and recovery of municipal waste than those set out in the earlier national strategy (see **Table I**).

Table I Recycling, composting and recovery targets from Waste Strategy 2007

Waste type and management	2010	2015	2020
Target for recycling and composting of household waste (a component of municipal waste)	40%	45%	50%
Target for recovery of municipal waste (includes the recycling and composting targets above)	53%	67%	75%
<i>Remainder that would need to be landfilled if targets met</i>	47%	33%	25%

20. The Yorkshire and Humber Plan assumed that the remainder of municipal waste not included in the recycling and composting, or recovery targets will be sent to landfill i.e. the volume of waste estimated for landfilling is the total waste arisings, minus waste to be recycled, composted or recovered (as shown in the bottom row of Table I). However, for biodegradable municipal waste, it must also be ensured that Landfill Allowances Trading Scheme (LATS) targets are met¹⁹, as required by the Waste Emissions Trading Act. LATS allowances have been allocated to all English Waste Disposal Authorities, including BDR, for the period up to 2020 and relate to the quantity of biodegradable municipal waste (BMW) that they can send to landfill. These allowances decrease year on year to ensure that the UK meets its EU Landfill Directive targets.
21. At present there are no statutory targets set for the non-municipal waste streams, beyond the Waste Strategy 2007 objective of reducing the quantity of C&I waste disposed of by landfill by 20% by 2010 compared to 2004, which has no mechanism attached by which to achieve it. In the absence of targets, the Yorkshire and Humber Plan estimates of future waste capacity requirements for the plan period are based on continuation of the current rates of landfilling for C&I (33%), C&D (7%) and hazardous waste (35%), and assumptions that the remaining percentage of each waste stream would require treatment: i.e. 67% of C&I waste, 93% of C&D and 65% of hazardous wastes.

¹⁹ Note that the BDR authorities will be able to trade, save or borrow LATS allowances.

Recycling and recovery requirements

22. Policy ENVI3 in the Yorkshire and Humber Plan acknowledges that in the short term there is generally adequate landfill capacity within the Yorkshire and Humber region to manage the waste produced (this is discussed further below). However, in order to meet the national targets for recycling and recovery and move the management of waste streams up the waste hierarchy (i.e. away from disposal to landfill), Policy ENVI3 requires waste planning authorities to ensure that adequate sites for treatment and recovery facilities are available to manage the quantities of municipal, commercial and industrial waste set out in Tables 10.4-10.8 of the Plan.
23. While the Yorkshire and Humber Plan combines the capacity requirements for municipal, commercial and industrial waste, it is important to note that the commercial and industrial waste stream is not a single homogenous stream but consists of numerous different types of waste (e.g. paper, glass, plastic, oils, metals etc.). Therefore, it will not necessarily be the case that municipal, commercial and industrial waste can all be treated in one facility. Some components of the commercial and industrial waste stream may be able to be managed with municipal waste, but not all.
24. **Table 2** below reproduces the treatment and recovery capacity requirements for BDR from Policy ENVI3 in the Yorkshire and Humber Plan. Tables 10.4-10.8 of the Plan include recycling, physical, chemical and biological treatment within the current treatment capacity figures, and composting and recovering energy from waste within current recovery capacity figures.

Table 2 Treatment and recovery capacity requirements in BDR for 2010, 2015 and 2020

Waste Planning Authority	Total Annual Treatment + Recovery Capacity Required for MSW and C&I waste (000 tonnes per year)			Total Current Treatment + Recovery Capacity for MSW and C&I waste (000 tonnes per year)	Total Treatment + Recovery Capacity Shortfall for MSW and C&I waste (000 tonnes per year)		
	2010	2015	2020		2010	2015	2020
Year	2010	2015	2020	2004	2010	2015	2020
Barnsley	206	229	245	61	145	168	184
Doncaster	319	355	385	87	232	268	298
Rotherham	276	301	321	73	203	228	248
BDR	801	885	951	221	580	664	730
Sheffield	585	624	654	772 ^a	-187	-148	-118
South Yorkshire	1386	1509	1605	993	393	516	611

Sources: The Yorkshire and Humber Plan (May 2008) (Tables 10.8), and Sheffield Development Framework Core Strategy Submission Version Waste Management Background Report (September 2007).

^a Sheffield City Council state in their Waste Management Background Report (paragraphs 2.47 and 2.48) that the current capacity in their new Energy from Waste Plant and treatment facilities is less than stated in the Yorkshire and Humber Plan, thus the lower figure for current treatment and recovery capacity for Sheffield has been used.

Note: Differences to the Yorkshire and Humber Plan occur in the totals for South Yorkshire due to rounding, as well as the lower current capacity figure for Sheffield. A minus indicates a surplus capacity rather than a shortfall.

25. Note that Policy ENVI3 reports the capacity requirements on a sub-regional basis, and the South Yorkshire sub-region includes Sheffield as well as BDR. Sheffield already has a large amount of treatment and recovery capacity (approximately 772,000 tonnes per year), whereas BDR together only have around 221,000 tonnes capacity currently. Thus, the total treatment and recovery capacity needed to manage municipal, commercial and industrial waste produced in BDR, is higher than for the sub-region (730,000 tonnes per year by 2020).
26. In reality, under existing waste management contracts with waste companies managing municipal, commercial and industrial waste there is a large amount of movement of waste between authorities, and a portion of BDR's waste is managed within facilities in Sheffield, while some of Sheffield's waste is disposed in landfills within BDR. Therefore, it is assumed that these contracts will continue, and as Sheffield has treatment and recovery surplus to Sheffield's requirements (shown as negative figures in Table 2), the BDR Joint Strategic Waste DPD is planning to meet the lower **treatment and recovery capacity requirement** for the South Yorkshire sub-region, that is **611,000 tonnes by 2020**. Within this overall treatment and recovery requirement, BDR will need to provide for at least **155,000 tonnes recycling and composting capacity by 2020**.
27. The future recycling and composting requirement is estimated by applying the Waste Strategy 2007 recycling and composting targets to the predicted municipal waste arisings, and subtracting the current recycling and composting capacity in BDR (approximately 108,000 tonnes as set out in Table 10.7 in the Yorkshire and Humber Plan). **Annex I** provides a more detailed breakdown of the waste capacity requirement data.

Landfill requirements

28. The Environment Agency provided BDR with a spreadsheet of landfill capacity available in South Yorkshire in 2006, based on site returns provided by landfill operators and a telephone survey of operators. **Table 3** shows that there is sufficient landfill capacity within existing landfills in BDR to meet the requirements for landfill after the recycling, composting and recovery targets have been met. However, a shortfall in landfill capacity will occur for the whole South Yorkshire sub-region from 2026 (see **Annex I** for a year on year analysis). As the uncertainty increases in the longer term for estimates of arisings and capacity requirements, these figures will need to be monitored and updated as new data become available. Therefore, at this stage, the Joint Strategic Waste DPD does not have to make provision for a new landfill site within BDR.

Table 3 Landfill capacity requirement for BDR and South Yorkshire 2006-2026

	BDR	South Yorkshire
Landfill Capacity 2006 (m ³) ^a	15,157,586	18,448,359
Landfill Capacity 2006 (tonnes) ^b	12,631,322	15,373,633
Landfill Capacity 2006 (kt)	12,631	15,374
Total Requirement 2006-26 (kt) = 20 yrs ^c	9,164	15,584
Shortfall (Surplus shown by minus)	- 3,467	211

^a Environment Agency survey of landfill operators for landfill capacity available in 2006.

^b A conversion ratio of 1.2 m³ per tonne has been used to convert the landfill void capacity from cubic metres to tonnages. This is in line with standard densities of non-hazardous waste (see Environment Agency's Strategic Waste Management Assessment 2000 for Yorkshire and the Humber, p. 38).

^c Landfill requirements for years (2006 to 2009) + (2010 to 2014) + (2015 to 2020) + (2021 to 2026) from Tables A3 and A9 (see **Annex 1**).

HOW MUCH LAND WILL BE NEEDED?

29. As shown above, the BDR authorities need to make provision in their Joint Strategic Waste DPD for 611,000 tonnes of treatment and recovery capacity by 2020 for municipal, commercial and industrial waste, of which 231,000 tonnes should be recycling and/or composting capacity.
30. In order to estimate how much land is required to meet the capacity requirements in the Yorkshire and Humber Plan, which are described in tonnages of waste to be managed, it is necessary to understand the siting requirements for different sized facilities.
31. Generic site requirements in hectares for different types of facility based on annual throughputs (i.e. tonnages of waste managed per year) are set out in "Planning for Waste Management Facilities", a research study for the ODPM undertaken in 2004²⁰. This study looked at the physical and operational characteristics of different types and sizes of waste management facility, including the typical site area in hectares. Facilities with a throughput of 250,000 tonnes per year typically require between 2-5 hectares. Smaller facilities with around 50,000 tonnes per year would generally only need 1-2 hectares.
32. BDR could meet its total treatment and recovery requirement to 2015 through the provision of 2 large scale facilities, which would require identification of two sites with approximately 5 hectares each available. A further site for a smaller scale facility would be needed to manage the additional 95,000 tonnes per year required by 2020. However, a site of at least 5 hectares could allow for expansion of facilities or co-location of

²⁰ *Planning for Waste Management Facilities. A Research Study.* Prepared for the ODPM by Enviro Consulting, August 2004. http://www.communities.gov.uk/pub/713/PlanningforWasteManagementFacilitiesresearchstudyPDF1908Kb_id1145713.pdf

additional waste management facilities in the future, or the development of a resource recovery park comprising more than one waste facility, for example a transfer station, materials recycling facility and composting facility.

33. There is a need to provide flexibility within the Joint Strategic Waste DPD and take into account the 'deliverability' of a site (i.e. the likelihood that a proposal for waste management will actually come forward on that site and be granted planning permission). Authorities within Yorkshire and Humber have informally agreed to assume that there will be a 50% deliverability rate of sites allocated within waste DPDs. To this end, BDR have decided to allocate six strategic sites (at least 30 hectares) within the Joint Strategic Waste DPD.

Land Use Consultants
October 2008

ANNEX I WASTE DATA

The following tables set out in more detail South Yorkshire's municipal, commercial and industrial waste management requirements from Yorkshire and Humber Plan (May 2008), landfill data provided by the Environment Agency, and Sheffield's Core Strategy Submission Version Waste Management Background Report (September 2007).

Table A1 - Municipal Waste (BDR) arisings and management routes (kt/year)

	2005	2010	2015	2021
Total Waste ^a	462	478	498	525
Maximum Landfill ^b	277	225	164	131
Minimum Recycling ^c	116	191	224	263
Minimum Treatment/Recovery ^d	69	62	110	131

^a Barnsley, Doncaster & Rotherham figures summed from Table 10.5 in Yorkshire & Humber Plan, May 2008

^b After achieving minimum recovery rates in Waste Strategy 2007 (60%, 47%, 33%, 25%)

^c From Waste Strategy 2007 (25%, 40%, 45%, 50%)

^d After achieving minimum recycling rates, residual recovery to reach Waste Strategy 2007 targets (15%, 13%, 22%, 25%)

Table A2 - Commercial & Industrial (BDR) arisings and management routes (kt/year)

	2005	2010	2015	2021
Total Waste ^a	825	817	822	830
02/03 Landfill Rate ^b	272	270	271	274
Treatment/Recovery ^c	553	547	551	556

^a Barnsley, Doncaster & Rotherham figures summed from Table 10.6 in Yorkshire & Humber Plan, May 2008

^b Landfilling at 33%, assumption used in Enviro Report "Waste Arisings Forecasting" for Yorkshire & Humber Plan, based on 2002/03 EA survey.

^c Treatment rate 67%, assumption used in Enviro Report "Waste Arisings Forecasting" for Yorkshire & Humber Plan, based on 2002/03 EA survey.

Table A3 - MSW and C&I Capacity Required (BDR) (kt/year)

	2005	2010	2015	2021
Total CMI Waste ^a	1287	1295	1320	1355
Total CMI Landfill ^a	549	494	436	405
Total CMI Minimum Recycling ^b	116	191	224	263
Total CMI Residual Treatment/Recovery ^c	622	610	660	687
Total CMI Treatment/Recovery ^d	738	801	884	950

^a MSW and C&I figures summed from Table A1 and A2.

^b MSW only as no targets for C&I waste recycling

^c Waste requiring treatment after achieving minimum recycling rates for MSW

^d Total treatment i.e. including MSW recycling, but excluding landfill

Table A4 - Municipal Waste (Sheffield) arisings and management routes (kt/year)

	2005	2010	2015	2021
Total Waste ^a	249	251	256	265
Maximum Landfill ^b	149	118	84	66
Minimum Recycling ^c	62	100	115	133
Minimum Treatment/Recovery ^d	37	33	56	66

^a Sheffield figure from Table 10.5 in Yorkshire & Humber Plan, May 2008

^b After achieving minimum recovery rates in Waste Strategy 2007 (60%, 47%, 33%, 25%)

^c From Waste Strategy 2007 (25%, 40%, 45%, 50%)

^d After achieving minimum recycling rates, residual recovery to reach Waste Strategy 2007 targets (15%, 13%, 22%, 25%)

Table A5 - Commercial & Industrial (Sheffield) arisings and management routes (kt/year)

	2005	2010	2015	2021
Total Waste ^a	688	675	676	679
02/03 Landfill Rate ^b	227	223	223	224
Treatment/Recovery ^c	461	452	453	455

^a Sheffield figures from Table 10.6 in Yorkshire & Humber Plan, May 2008

^b Landfilling at 33%, assumption used in Enviro Report "Waste Arisings Forecasting" for Yorkshire & Humber Plan, based on 2002/03 EA survey.

^c Treatment rate 67%, assumption used in Enviro Report "Waste Arisings Forecasting" for Yorkshire & Humber Plan, based on 2002/03 EA survey.

Table A6 - MSW and C&I Capacity Required (Sheffield) (kt/year)

	2005	2010	2015	2021
Total CMI Waste ^a	937	926	932	944
Total CMI Landfill ^a	376	341	308	290
Total CMI Recycling (min) ^b	62	100	115	133
Total Treatment/Recovery (exc Rec) ^c	498	485	509	521
Total Treatment/Recovery (inc.Rec exc. Landfill)	561	585	624	654

^a MSW and C&I figures summed from Table A4 and A5.

^b MSW only as no targets for C&I waste recycling

^c Waste requiring treatment after achieving minimum recycling rates for MSW

^d Total treatment i.e. including MSW recycling, but excluding landfill

Table A7 - Current Capacity (BDR) (kt/year)

	2005	2010	2015	2021
Treatment Capacity (exc MRF) ^a	113	113	113	113
MRF ^a	31	31	31	31
Compost ^a	77	77	77	77
EFW ^a	0	0	0	0
Total Treatment/Recovery ^b	221	221	221	221
Total Treatment Shortfall ^c	517	580	663	729
Recycling/Composting Shortfall (inc. in total above) ^d	8	83	116	155

^a Barnsley, Doncaster & Rotherham figures summed from Table 10.7 in Yorkshire & Humber Plan, May 2008

^b Sum of all types of treatment & recovery capacity

^c Total CMI Treatment required from Table A3 minus Total Treatment & Recovery capacity Table A7

^d Total CMI Minimum Recycling required from Table A3 minus Total MRF/compost capacity Table A7

Table A8 - Current Capacity (Sheffield) (kt/year)

	2005	2010	2015	2021
Treatment Capacity (C&I) ^a	550	550	550	550
Compost ^a	6	6	6	6
EFW (MSW + some C&I) ^a	216	216	216	216
Total Treatment & Recovery ^b	772	772	772	772
Total Treatment Shortfall (incl. recycling) ^c	-211	-187	-148	-118

^a From Sheffield Core Strategy Submission Version Waste Management Background Report, September 2007.

^b Sum of all types of treatment & recovery capacity

^c Total CMI Treatment required from Table A6 minus Total Treatment & Recovery capacity Table A8

Table A9 - Shortfall (South Yorkshire)

	2005	2010	2015	2021
Total Landfill required ^a	926	835	743	695
Total Treatment/Recovery required	1298	1386	1509	1604
Total Treatment/Recovery capacity	993	993	993	993
Total Treatment Shortfall	305	393	516	611

^a Total CMI landfill requirements from BDR (Table A3) and Sheffield (Table A6)

^b Total CMI treatment/recovery requirements summed from BDR (Table A3) and Sheffield (Table A6)

^c Total CMI Treatment required from Table A3 minus Total Treatment & Recovery capacity Table A7

Table A10 - Landfill capacity remaining (kt/year)

Year	BDR ^b	South Yorkshire ^c
2006 ^a	12,631	15,374
2007	12,082	14,448
2008	11,532	13,522
2009	10,983	12,596
2010	10,489	11,761
2011	9,994	10,926
2012	9,500	10,091
2013	9,006	9,256
2014	8,512	8,421
2015	8,076	7,678
2016	7,640	6,935
2017	7,205	6,192
2018	6,769	5,448
2019	6,334	4,705
2020	5,898	3,962
2021	5,493	3,267
2022	5,088	2,571
2023	4,683	1,876
2024	4,277	1,180
2025	3,872	485
2026	3,467	- 211

^a Environment Agency survey of landfill operators for landfill capacity available in 2006.

^b Landfill requirements for years 2006 to 2026 from Table A3

^c Landfill requirements for years 2006 to 2026 from Table A9