OXFORDSHIRE MINERALS AND WASTE LOCAL PLAN

PART 1 – CORE STRATEGY

WASTE NEEDS ASSESSMENT

August 2015

OXFORDSHIRE COUNTY COUNCIL

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Glossary of terms

Terms	Definitions
Oxfordshire Minerals and Waste Local Plan (OMWLP)	The current plan, adopted in 1996, which contains relevant planning policy for minerals and waste in Oxfordshire and forms part of the statutory Development Plan.
The new Minerals and Waste Local Plan (the plan)	A two part plan which will replace the existing Minerals and Waste Local Plan. This will provide up to date minerals and waste planning polices and proposals for the period to 2031.
Minerals and Waste Local Plan: Part 1 (Core Strategy)	The Core Strategy will set out the vision, objectives and policies for meeting the County's minerals and waste requirements. It will include core environmental policies and defines broad locations for new development.
Minerals and Waste Local Plan: Part 2 (Site Allocations)	The Site Allocations Document will define specific locations for mineral extraction and for waste management development.

List of Abbreviations

Abbreviation	Definitions
LATS	Landfill Allowance Trading Scheme
PPS10	Former government planning policyon waste
SEP	South East Plan
MSW	Municipal Solid Waste
C&I	Commercial and Industrial waste
CDE	Construction, Demolition and Excavation waste
DPDs	Development Plan Documents
HWRCs	Household Waste Recycling Centres
OWP	Oxfordshire Waste Partnership
DEFRA	Department for Environment, Food and Rural Affairs
WRAP	Waste and Resources Action Programme
ELV	End of Life Vehicles
SEWPAG	South East Waste Planning Advisory Group
NDA	Nuclear Decommissioning Authority
ILW	Intermediate Level Radioactive Waste
LLW	Low Level Radioactive Waste
VLLW	Very Low Level Waste
HVLA	High Volume Low Activity
MRF	Materials Recycling Facility
STC	Sludge Treatment Centre
A.D.	Anaerobic Digestion
EfW	Energy from waste
NORM	Naturally Occurring Radioactive Materials
DECC	Department of Energy and Climate Change
SHMA	Strategic Housing Market Assessment
WNA	Waste Needs Assessment
ONS	Office of National Statistics

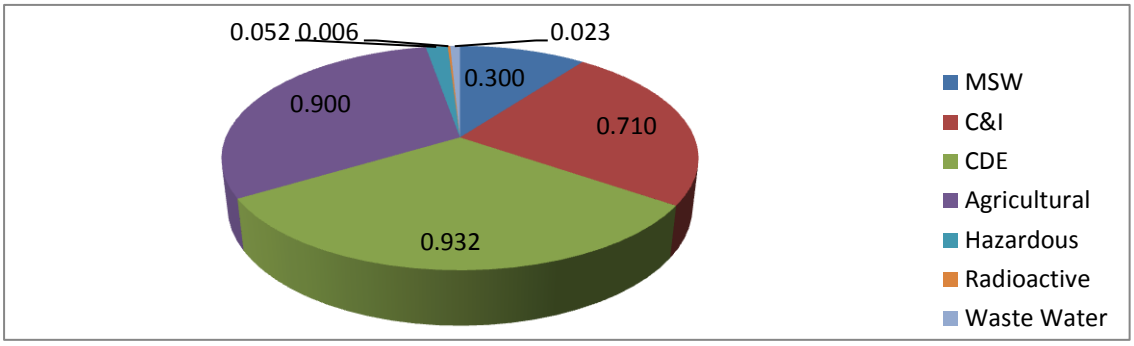
EXECUTIVE SUMMARY

1. The Waste Needs Assessment (WNA) identifies the waste management capacity that will be needed in the period covered by the Minerals and Waste Local Plan: Part 1 (Core Strategy). It provides forecasts for the waste that will be generated in the period to 2031 and considers how this should be managed. It also provides information on the waste management capacity already able to meet these needs and any additional capacity required.

2. National and local waste policy is driven by the need to divert waste from landfill and move waste management up the waste hierarchy. The WNA therefore looks to keep to a minimum the amount of waste that needs to be disposed in landfill. It also provides the basis for Oxfordshire to be net self-sufficient in managing its own waste, as far as is practical.

3. In 2012 Oxfordshire produced almost 3.0 million tonnes of waste, 13% of which is managed or disposed outside the county. Oxfordshire also managed or disposed of about 0.6 million tonnes of waste from other areas, including London, and much of this was disposed in non-hazardous landfill.

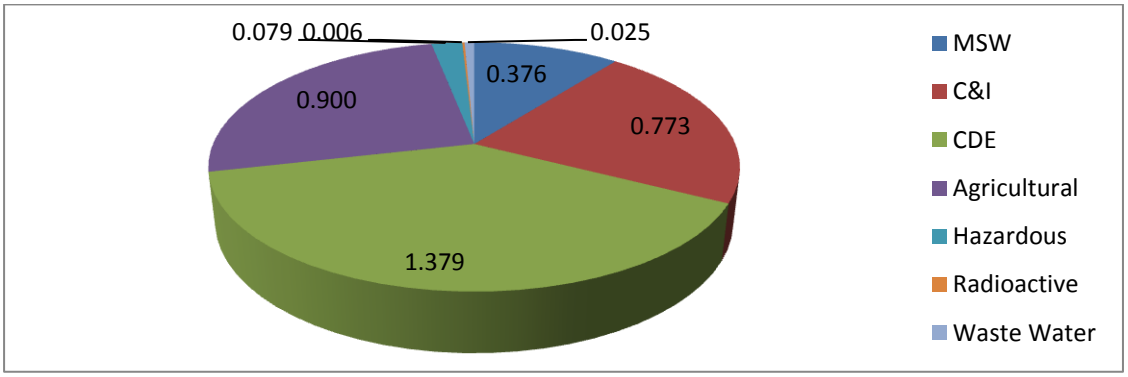
Waste produced in Oxfordshire in 2012 (million tonnes)



Source: Oxfordshire County Council

4. By 2031 the amount waste produced in Oxfordshire is likely to have increased to some 3.5 million tonnes per annum. Waste will continue to cross the county boundary, but this is likely to be in smaller quantities.

Waste to be produced in Oxfordshire in 2031 (million tonnes)



Source: Oxfordshire County Council

5. Targets for the principal waste streams (municipal waste, commercial and industrial waste and construction demolition and excavation waste) aim to achieve net self-sufficiency. No more than 5% of non-hazardous waste will be sent to landfill from 2026, with 70% of the waste being recycled, composted or pre-treated e.g. by means of anaerobic digestion. The residue will be treated and used to generate energy from waste. For construction, demolition and excavation waste 60% will be recycled and the remainder recovered or disposed and mainly used to help restore quarries.

6. Oxfordshire still has considerable landfill space available for both inert and non-inert wastes, although some non-hazardous landfills are being closed before they are full. Despite this, the only requirement for additional landfill is for the disposal of inert wastes and this can be provided through the restoration of exhausted quarries. Existing recycling and recovery facilities are adequate at present but the need to improve on current recycling rates and the anticipated closure of some temporary facilities means that sites for new facilities will be required later in the plan period.

Oxfordshire: additional waste capacity requirement for principal waste streams to 2031 (tonnes per annum)

Facility type	2012	2016	2021	2026	2031
Non-hazardous Landfill	-	-	-	-	-
Inert landfill	-	-	-	-	776,529*
Non-hazardous waste recycling	-	-	138,100	193,700	316,300
Non-hazardous residual waste treatment	-	-	-	-	-
Composting / food waste treatment	-	-	-	-	-
Inert waste recycling	-	-	-	-	120,400

Source: Oxfordshire County Council
*Cubic metres

1.0 INTRODUCTION

1.1 This Waste Needs Assessment (WNA) identifies the waste management capacity that may be required in the period to 2031 – the period covered by the Minerals and Waste Local Plan: Part 1 (Core Strategy) (the Plan). In doing so it estimates the amount of waste that will be generated in this period and how this should be managed. It also provides information on the waste management capacity currently available and how this can help meet the needs identified throughout the plan period.

1.2 An assessment of Oxfordshire's waste needs was first produced in January 2008[1]. This was reviewed and updated by the county council in May 2011[2] and informed earlier consultation on a draft waste planning strategy[3]. The WNA was next updated in May 2012[4] and informed the Minerals and Waste Core Strategy Proposed Submission Document (CSPSD). This was submitted to the Secretary of State but withdrawn prior to examination[5].

1.3 In March 2013 the County Council commissioned BPP Consulting to undertake a critical review[6] of the WNA (May 2012). This was in response to responses on waste needs that were made to the CSPSD. BPP Consulting was subsequently commissioned to undertake further work with a view to assisting the council in an update of the WNA (May 2012). The consultant's brief summarised the work required:

"Assistance is primarily required in a review and update of baseline waste arisings for various waste streams and of forecasts/estimates for the amounts of waste that need to be managed for the period to 2030. Advice is also required on the waste management targets that might be applied to each waste stream to ensure that waste is managed in accordance with the waste hierarchy."

1.4 Final recommendations were produced by BPP Consulting in February 2014 and were published[7] alongside the WNA (May 2012) as support documents to the Consultation Draft of the Plan[8]. BPP's review took the form of several reports as listed in Table 1.

[1] Study by ERM Consultants: Waste Arisings, Capacity and Future Requirements Study (Final Report) January 2008
[2] Oxfordshire Minerals and Waste Development Framework: Waste Needs Assessment (May 2011)
[3] Oxfordshire Minerals and Waste Development Framework: Minerals and Waste Core Strategy. Waste Planning Strategy Consultation Draft (September 2011).
[4] Oxfordshire Minerals and Waste Development Framework: Waste Needs Assessment (May 2012)
[5] The former Minerals and Waste Core Strategy was withdrawn in July 2013.
[6] BPP Consulting: Oxfordshire Minerals and Waste Development Framework – Waste Needs Assessment Critical Review Final Report (10 May 2013)
[7] https://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy
[8] Oxfordshire Minerals and Waste Local Plan: Core Strategy Consultation Draft (February 2014)

Table 1: Reports produced by BPP Consulting on Oxfordshire Waste Needs

No.	Title	Issued
1	Oxfordshire Waste Data Refresh Exercise: Executive Summary	14.02.2014
2	Review of Municipal Solid Waste Forecasts for Oxfordshire	03.02.2014
3	Baseline, Forecasts & Targets for Commercial & Industrial Waste Generated in Oxfordshire	10.02.2014
4	Baseline, Forecasts & Targets for Construction, Demolition & Excavation Waste Generated in Oxfordshire	10.02.2014
5	Estimate of Baseline, Forecast, Management & Flows for Hazardous Waste Arising in Oxfordshire	10.02.2014
6	Assessment of Production & Management of Agricultural waste in Oxfordshire	03.02.2014

1.5 Some of the work included in the WNA (May 2012) still has relevance and is referred to in this report. The various reports undertaken by BPP Consulting are hereafter collectively referred to as 'the BPP Study'.

2.0 WASTE POLICY

2.1 The following paragraphs draw attention to provisions from various national and local policy documents that are relevant to assessing the county's waste needs.

European Union Waste Framework Directive (2008/98/EC)

2.2 This European Directive requires Member States to take appropriate action to encourage a reduction in waste produced and to recover secondary raw materials or sources of energy through recycling, re-use or reclamation of any waste produced. Such approach to the management of waste is now well documented and is referred to in Article 4 of the Direction as 'the waste hierarchy'.

Figure 1: The Waste Hierarchy

Source: European Waste Framework Directive (Dec 2008)

2.3 Article 16 of the Direction refines earlier obligations that introduced the concepts of proximity and self-sufficiency. The Government has subsequently made clear[9] that there is no expectation that each waste planning authority deals solely with its own waste – citing as an example those wastes that are produced in small quantity and for which it would be uneconomic to have a facility in each authority area. Nevertheless, the proximity principle clearly points to areas being as self-sufficient as possible, at least in providing sufficient capacity to adequately manage forecast needs. In this document the concept is referred to as net self-sufficiency.

2.4 Article 28 of the Directive requires each Member State to prepare a Waste Management Plan. The Minerals and Waste Local Plan (the Plan), when adopted, will form part of the nation's Waste Management Plan. The Plan

[9] DCLG: Guidance for local planning authorities on implementing planning requirements of the European Union Waste Framework Directive (2008/98/EC). December 2012

must include details of major disposal and recovery installations, an assessment of the potential closure of existing facilities and the need for additional infrastructure. This, in essence, is what this Waste Needs Assessment addresses.

2.5 The Directive sets targets for the diversion of waste from landfill. For household waste and construction and demolition waste these are as follows:

- by 2020, reuse or recycle 50% of all household waste produced[10];
- by 2020, reuse, recycle or recover 70% of construction and demolition waste (not including waste resulting from excavation).

2.6 The requirements of the European Directive are transposed into UK law by various enactments, regulations and policy statements.

Government Guidance on the European Waste Framework Directive[11]

2.7 This document set out the Government's expectations of Local Waste Planning Authorities in ensuring compliance with European Directive 2008/98/EC. Largely superseded by the later National Planning Policy for Waste (below), it has yet to be formally withdrawn. The relevant considerations are already expanded on above.

Waste Management Plan for England

2.8 Introduced in December 2013, this replaced the strategy that was first published in 2007 and later reviewed in 2011. It is a 'high level' document providing an analysis of the current waste management situation in England, and evaluates how to best support implementation of the objectives and provisions of the European Directive. Together with the national planning policy on waste (see below) local waste plans are required to help meet the European Directive's requirement that a national waste plan be produced. Previous plans have included targets for recycling and diversion of waste from landfill; the current plan does not introduce targets except in so far as reference is made to specific programmes developed in conjunction with others e.g. for reducing food packaging.

National Policy Statement (Hazardous Waste)

2.9 This policy statement[12] identifies thresholds for projects[13] that will be decided at national rather than a local level. It makes clear that hazardous waste does

[10] This target originally derives from Council Directive 1999/31/EC of 26 April 1999 (the Landfill Directive)

[11] Department for Communities and Local Government: Guidance for local planning authorities on implementing planning requirements of the European Union Waste Framework Directive (2008/98/EC) December 2012

not include radioactive waste, except where this type of waste is exempted from environmental permitting. But facilities handling radioactive waste may fall to be considered as a nationally significant infrastructure project (NSIP) if this is seen as a subsidiary part of a hazardous waste management operation.

2.10 The policy statement anticipates a need for additional hazardous waste facilities. Despite the economic downturn there has not been any significant decline in hazardous waste arisings nationally[14] and arisings are expected to increase as the economy improves. A national need for the following type of specialist facilities has been identified:

- waste electrical and electronic equipment plants;
- oil regeneration plant;
- treatment plant for air pollution control residues;
- facilities to treat oily wastes and oily sludges;
- bioremediation / soil washing to treat contaminated soil diverted from landfill;
- hazardous waste landfill.

National Policy Statement (Waste Water)

2.11 This policy statement also specifies a threshold above which proposals should be considered at national, not local, level. This applies to treatment projects that are designed to serve a population of 500,000 or more and for facilities to transfer or store waste water exceeding 350,000 cubic metres. The Statement currently applies to proposals in the pipeline in north-east London (a new sewage treatment plant at Deephams) and a sewage collection and treatment scheme along the Thames (the Thames Tunnel). It defines the criteria to be used in the determination of such proposals and emphasises the benefits of increasing treatment capacity that is able to extract energy through waste treatment. No facilities of this scale have been identified in Oxfordshire.

National Planning Policy Framework

2.12 Introduced in March 2012, this document replaced the previous topic based national planning policy statements. Its emphasis is on the need to encourage sustainable development. There are no specific provisions on waste planning.

[12] Department for Environment and Rural Affairs: A framework document for planning decisions on nationally significant hazardous waste infrastructure (June 2013)
[13] Disposal by way of landfill or deep storage – 100,000 tonnes per annum and in all other cases 30,000 tonnes per annum
[14] Some 3.3 million tonnes of hazardous waste were consigned in England in 2010

National Planning Policy for Waste

2.13 Local Plans should be based on "robust analysis of best available data and information" and avoid "spurious precision". Collaborative working with other authorities on data collection should take place where waste arisings cross neighbouring areas and forecasts of waste arisings should take account of the Government's most recent advice, including the amounts that can be recycled.

2.14 Local Plans should also drive waste management up the waste hierarchy, planning for a mix of types and scale of facilities (including adequate provision for waste disposal). In particular, forecast tonnages of municipal waste and commercial and industrial waste should be identified: also the proportions requiring different forms of management. The need for capacity of more than local significance should be considered, including for the disposal of residues from treated wastes.

2.15 In preparing Local Plans, adequate consideration must be given to the extent to which the capacity of existing operational facilities would satisfy identified needs. Collaborative working with other waste planning authorities and local district councils should take place to provide a suitable network of facilities to deliver sustainable waste management.

National Planning Guidance (Waste)

2.16 In two-tier areas, most proposals for waste management are matters to be determined by the County Council. Waste Local Plans should make provision for the following types of waste[15]:

- Municipal/household;
- Commercial/industrial;
- Construction/demolition;
- Low Level Radioactive Waste;
- Agricultural waste;
- Hazardous waste; and
- Waste Water.

2.17 For the purposes of the Duty to Cooperate[16] waste is a strategic matter. This includes collection and evaluation of data, engaging in dialogue and liaison on those waste streams where there is a need for few facilities. There is no requirement to agree on issues, but every effort should be made to cooperate.

[15] The National Planning Policy for Waste requires that Local Plans make provision for MSW and C&I waste.

[16] The Localism Act introduced a statutory requirement that Local Planning Authorities cooperate with other Local Planning Authorities and Statutory Agencies on strategic planning matters.

2.18 Assessment of waste management need is likely to involve:

- understanding waste arisings (in particular baseline arisings) from within the authority area, and imports and exports;
- identifying capacity gaps by waste stream;
- forecasting waste arisings at the end of a plan period and at interim dates
- assessing the type of waste management capacity required at the end of a plan period and at interim dates.

2.19 When assessing facility capacity, the following information may be relevant:

- locational details;
- type of facility;
- licence/permit details (including restrictions on tonnage);
- capacity information;
- site lifetime or maximum capacity;
- origin of wastes managed by type and location;
- facility outputs, particularly amounts recovered;
- destination of residues;
- potential for increasing throughput/capacity or diversification.

2.20 When forecasting waste tonnages, the following considerations should apply:

- for municipal waste a growth profile should be based on household/ population growth and waste arisings per household/per capita;
- for commercial and industrial waste certain levels of growth should be assumed unless there is clear evidence to demonstrate otherwise;
- for construction, demolition and excavation waste it should be assumed that net arisings will remain constant over time, but other factors may also be relevant including that a sizeable proportion of waste is managed on site or at exempt facilities. Significant planned regeneration or major infrastructure projects should also be taken into account;
- for hazardous waste forecasts should be based on extrapolating time series data.

2.21 Account should be taken of the unique waste needs of London and the need for surrounding areas to take some of the capitol's waste. The planned movement of waste up the waste hierarchy will mean that landfill sites may take longer to reach their expected capacity and extensions of time considered.

2.22 Annual Monitoring Reports should report on:

- any reason for allocated sites not being developed;
- potential additional capacity from permitted sites;
- any loss of capacity from closed sites or facilities with temporary permission;
- adjustment to waste arisings resulting from more up to date data or information.

National Policy on Radioactive Waste

2.23 Most radioactive waste is produced by the nuclear industry. For higher activity wastes (mainly High Level Waste and Intermediate Level Waste) a Government White Paper[17] set out a process for delivering a national facility for deep geological disposal, preceded by safe and secure interim storage. This process is now the subject of review[18] but the intended long term disposal solution with interim storage remains unchanged.

2.24 Assessment of the amount of radioactive waste (including legacy waste) from nuclear facilities that may need to be disposed are undertaken by the Nuclear Decommissioning Authority (NDA)[19]. This includes lower activity wastes that may be capable of being disposed in non-hazardous landfill or alternatively at the national Low Level Waste Repository near Drigg in Cumbria. This facility is operated by the Low Level Waste Repository Ltd (LLWR Ltd) which, in conjunction with NDA, has produced a more detailed inventory of lower activity wastes[20].

2.25 Policy for the management of radioactive waste from the decommissioning of nuclear facilities is developed by NDA and effectively has the status of national policy for planning purposes. A government policy statement on low level waste management was published in 2007, but the NDA and LLWR Ltd has published a more recent management plan[21] followed by a UK Strategy[22] (due to be updated in 2016). The general approach to waste management follows the principles of the waste hierarchy. Opportunities for consolidated storage of intermediate levels waste are to be explored and options for the disposal of very low level wastes (both on-site and off-site) determined by operators on a site by site basis using a criteria-based approach. Site Operators also produce their own site waste management strategies which can also be relevant.

2.26 Much smaller quantities of waste are produced by the non-nuclear industry (hospitals, pharmaceutical industries and research/educational establishments). The UK Strategy for the management of solid Low Level Waste from the non-nuclear industry (part 1) was published in March 2012 and this applies the principles of the waste hierarchy, albeit the protection of human health is said to be of over-riding importance. The relevance of the proximity principle is recognised in determining the location of management and disposal facilities, recognising that each and every Waste Planning Authority cannot be self-sufficient in providing facilities for the management and disposal of its own wastes.

[17] Managing Radioactive Waste Safely – A Framework for Implementing Geological Disposal June 2008
[18] DECC Implementing Geological Disposal July 2014
[19] Most recently the 2013 UK Radioactive Waste Inventory: Waste quantities from all sources.
[20] UK Management of Solid Low Level Radioactive Waste from the Nuclear Industry May 2011
[21] UK Nuclear Industry Low Level Waste Management Plan 2009
[22] NDA Strategy April 2011

2.27 Radioactive waste may also be produced from processes that involve Naturally Occurring Radioactive Materials (NORM). The UK Strategy for the Management of Naturally Occurring Radioactive Materials (DECC) provides relevant guidance.

Oxfordshire Minerals and Waste Local Plan

2.28 The Local Plan was adopted in 1996, and policies that were saved by the Secretary of State in 2007[23] remain part of the development plan. OMWLP will eventually be replaced by the new Minerals and Waste Local Plan but the following policies could be relevant to this Needs Assessment.

Table 2: Oxfordshire Minerals and Waste Local Plan: relevant waste policies

No.	Policy
W2	Except where largely transported by road, accept waste from London and other parts of the South East for treatment and/or disposal in Oxfordshire;
W7	Control the release of landfill to achieve progressive restoration.

Oxfordshire Joint Municipal Waste Management Strategy

2.29 Prior to April 2014, the County and District Councils worked in formal partnership through the Oxfordshire Waste Partnership (OWP). A joint municipal waste strategy was first agreed by the partnership in 2007; this was then updated in 2013. OWP has now been wound up, but local authority responsibilities for waste management remain unaltered i.e. household and some commercial waste is collected by the District Councils (as municipal waste) and recycled: that which cannot be recycled is treated or disposed by the County Council.

2.30 The Oxfordshire Joint Municipal Waste Management Strategy 2013 remains a policy statement which will continue to guide waste management in Oxfordshire for the foreseeable future. The Strategy anticipates a growth in municipal waste arisings, in line with housing growth, to some 350,000 tonnes per annum in 2030/31. The following policies may be relevant to assessment of Oxfordshire's waste needs.

[23] Letter from Government Office for the South East (Housing and Planning Directorate) 25 September 2007

Table 3: Oxfordshire Joint Municipal Waste Management Strategy policies

No.	Policy Summary
3	Seek zero growth (or better) in municipal waste per person per annum.
4	Recycle or compost at least 65% of household waste by 2020 and at least 70% by 2025
6/8	Encourage businesses to reuse, reduce and recycle waste by offering services, including for hazardous waste and WEE
7	Send no more than 5% of household waste to landfill

Thames Water 25-year Sludge Strategy

2.31 This document was adopted in December 2008 and sets out a long term strategy aimed at addressing increased loads and a decline in agricultural land that can be used for disposal. This is likely to lead to an increase in the amount of dry solids treated at plant sites. The Strategy includes loading information at strategic treatment facilities.

2.32 Thames Water Utilities Ltd also produces guidance for local planning authorities on the appropriate approach to waste water planning in Local Plans[24] but this does not address the quantification of future needs.

[24] A Water Services Infrastructure Guide for Local Planning Authorities (April 2010)

3.0 WASTE TO BE MANAGED

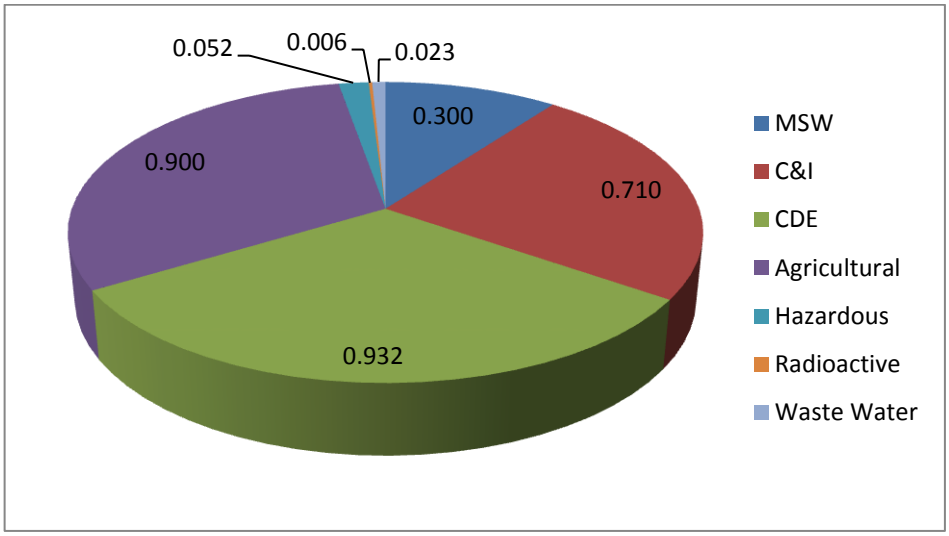
3.1 The Local Plan includes policies for each of the seven waste streams identified in the Planning Practice Guidance for Waste. Each waste stream is addressed separately in this report, and information provided on how much waste is currently being produced; how it is currently managed; how much is likely to be produced during the plan period; and what is the most appropriate way for that waste to be managed in future. Appendix 1 provides a comparison of the way these issues were addressed in the WMA (May 2012).

Overall Position

Baseline Arisings

3.2 Oxfordshire produced almost 3 million tonnes of waste in 2012, as shown in Figure 2. Most baselines have had to be estimated and the process that has been used is described in the each waste section. Baselines have been rounded to the nearest '000 tonnes and adjusted where necessary to a consistent base year of 2012. Appendix 2 also provides details of baseline arisings for the principal waste streams[25] for other areas in the South East.

Figure 2: Oxfordshire baseline waste arisings 2012 (million tonnes)



Source: Oxfordshire County Council

Current Management

3.3 Knowledge of the way each waste stream is currently managed helps to identify realistic targets for the diversion of waste from landfill. Where information is available, details are provided in each waste section.

[25] Municipal Solid Waste (MSW); Commercial and Industrial (C&I) Waste; Construction, Demolition and Excavation (CDE) Waste.

Forecast Arisings

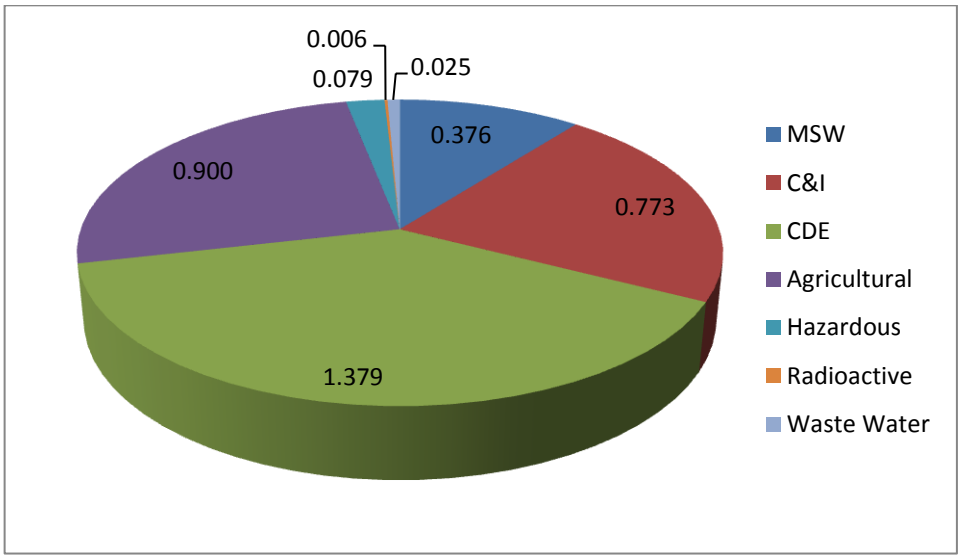
3.4 Waste forecasts consider a number of factors, including influences on the rate at which different wastes may be produced in future. But the rate at which the county's population and economy are expected to grow are key considerations. Forecasts in the WNA (May 2012) were unable to take into account the results of the 2011 Census which are now available. For Oxfordshire the Office of National Statistics (ONS)[26] predicts that population will increase by 10.7%, although this forecast is trend-led and does not take account of local factors. The County Council's own forecasts [27] take account of planned housing and employment growth and predict a population increase of 14% over the same period.

3.5 But most recently (March 2014) a Strategic Housing Market Assessment (SHMA) was prepared by consultants[28] to inform preparation of District Local Plans. If the recommended number of houses were to be built, Oxfordshire's population would increase by as much as 28% in the period to 2031 (Table A3/1)[29]. The study produced a number of housing forecasts and for waste purposes that which is based on planned and committed (policy led) economic growth (Projection 4)[30] is used.

3.6 Figure 3 provides a summary of forecast waste arisings for each waste stream over the plan period: for the principal waste streams table A4/1 shows waste growth at five-year intervals. The way in which these figures have been derived is explained in each waste section. Oxfordshire could be producing as much as 3.538 million tonnes of waste per annum by 2031. Where alternative scenarios have been explored higher range forecasts have been used as this should avoid any risk of under estimating the new infrastructure that may be required. For this reason the 10% contingency that was applied to forecasts in the WNA (May 2012) is no longer thought to be necessary[31].

[26] Office of National Statistics 2012-based Sub-National Population Projections (May 2014)
[27] Oxfordshire County Council Population Forecasts (Jan 2014)
[28] G L Hearn Oxfordshire Strategic Housing Market Assessment Final Report April 2014
[29] Tables with an 'A' prefix appear in the relevant Appendix i.e. table A3/1 is the first table in Appendix 3
[30] This takes account of the Strategic Economic Plan produces by the Oxfordshire Local Enterprise Partnership (March 2014) and which was based on work by Cambridge Econometrics: Economic Forecasting to inform the Oxfordshire Strategic Economic Plan and Strategic Housing Market Assessment (Feb 2014).
[31] Oxfordshire baseline arisings, on which forecasts are based, are also comparatively high when compared to other areas.

Figure 3: Oxfordshire waste forecasts 2031 (million tonnes)



Source: Oxfordshire County Council Waste Management Group

Future Management

3.7 Hazardous waste, radioactive waste and waste water accounts for only 3% of future arisings. The future management if this waste streams clearly needs to respect the principles of the waste hierarchy, but it is really not practical to set and monitor targets for the management of these waste streams. In any event, in some cases targets are already set and monitored by other agencies[32]

3.8 Agricultural waste makes up about a quarter of forecast waste, but the great majority of this waste will continue to be managed and disposed on farms so again the setting of waste management targets is neither practical nor necessary.

3.9 For the remaining waste streams (referred to in this report as the principal waste streams) waste management targets can appropriately be set. These provide the means for ensuring that waste management capacity is provided in a way that helps maximise the diversion of waste from landfill and for measuring the extent to which Oxfordshire can be considered net self-sufficient in the management of its own waste[33]. Table 4/2 provides a summary of the waste management targets that are being set for each of the principal waste streams; table A4/3 shows how these impact on forecast arisings. The considerations that have led to the targets being set are explained in each waste section.

[32] The Nuclear Decommissioning Authority sets targets for Site Licensing Companies in the future management of radioactive wastes.
[33] See waste objective 3.7(i).

Municipal Solid Waste

3.10 Municipal Solid Waste (MSW), also referred to as Local Authority Collected Waste, mainly comprises waste collected by District Councils from households or deposited at Household Waste Recycling Centres. MSW may also include some local authority collected commercial waste[34] (in Oxfordshire this component normally amounts to about 20,000 tpa - or 6% of the overall total). Disposal of municipal waste is the responsibility of the County Council. Collection and disposal operations are undertaken by commercial operators on behalf of the various councils.

Baseline Arisings

3.11 MSW arisings in 2012/13 were 299,850 tonnes, an increase of 2,323 tonnes on the previous year. Preliminary assessment of waste arisings for 2013/14 shows a further increase (to 307,824 tonnes) and suggests that a reversal in the downward trend in waste arisings is now being seen.

Table 4: MSW arisings for Oxfordshire 2012/13 and 2013/14 (tonnes)

Year	Household waste	Other collected waste, road sweepings etc.	Municipal waste
2012/13	279,207	20,373	299,580
2013/14	285,283	22,541	307,824

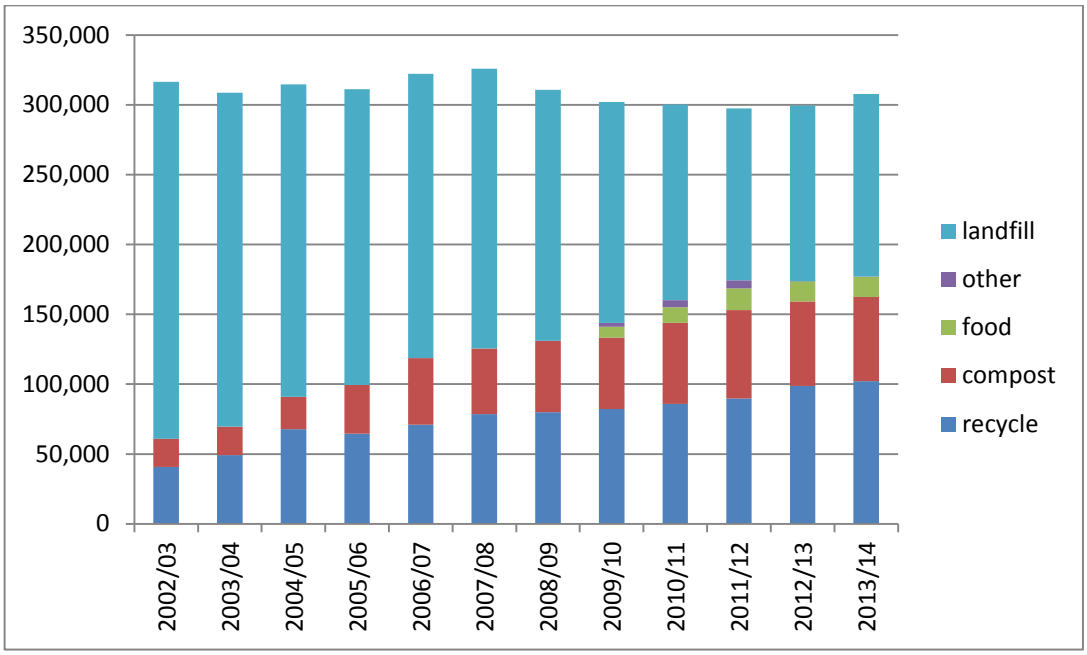
Source: Oxfordshire County Council (Waste Management Group)

Current Management

3.12 Figure 4 shows that there has been little change in the proportion of waste recycled, composted or sent to landfill since 2011/12 (Table A5/1). Appendix 5 also provides information on recycling rates by District and the initial destination of collected waste (see tables A5/7 – A5/9).

[34] Detail provided in the Waste Needs Assessment (May 2012) is not repeated here.

Figure 4: Oxfordshire Municipal Solid Waste management 2002/03 – 2013/14 (tonnes)



Source: Oxfordshire County Council (Waste Management Group)

Forecast Arisings

3.13 The WNA (May 2012) relied on a forecast taken from the original Oxfordshire Joint Municipal Waste Management Strategy. This forecast was revised in the Oxfordshire Waste Management Partnership's later study[35] and the BPP Study concluded that this "did not seem an unreasonable basis for forward planning". But the consultants also advised that alternative growth scenarios (high, medium and low) should be explored[36].

3.14 The government expects growth in UK household waste arisings to be no more than 8.7% in the period to 2020[37] with a decline (by as much as 11.4%) more likely. But local factors also need to be taken into account, including expected population growth (see below) and the amounts of waste likely to be produced per capita. Oxfordshire residents produce 0.424 tonnes of waste per person[38] - less than most other counties[39]. Oxfordshire's Joint Municipal Waste Management Strategy expects that from 2012 there will be no growth in the amount of waste each person produces[40]. This needs to be considered alongside the significant population growth expected in Oxfordshire.

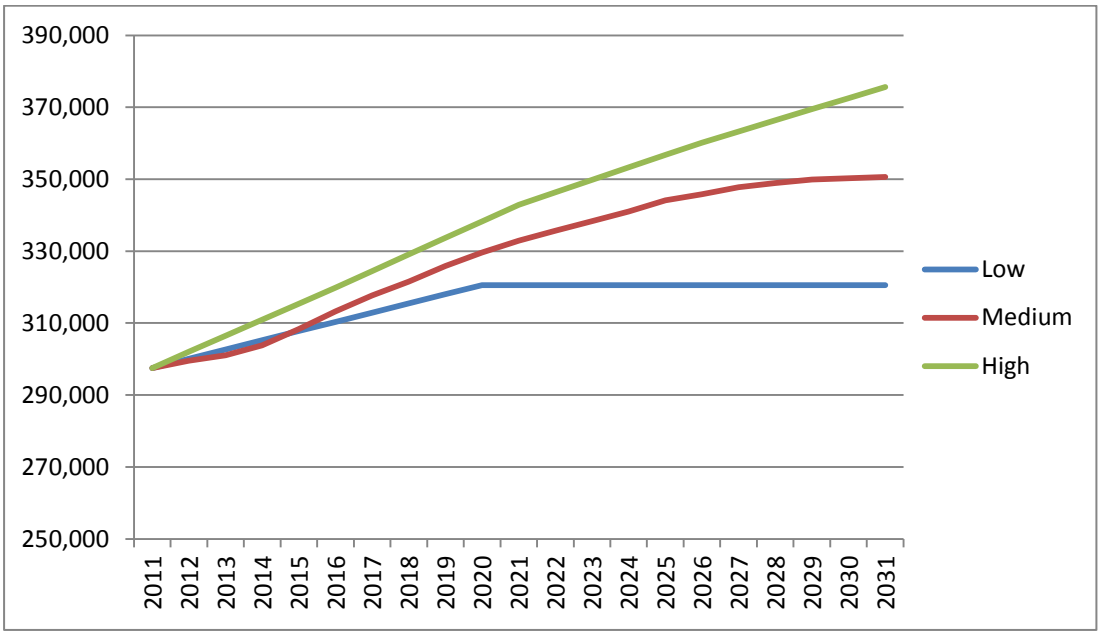
[35] Oxfordshire Joint Municipal Waste Management Study 2013
[36] BPP Consulting Review of Municipal Solid Waste Forecasts for Oxfordshire (Feb 2014).
[37] Defra: Forecasting 2020 Waste Arisings and Treatment Capacity (Revised Feb 2013)
[38] In 2012 the County Council estimates that population was 658,551; in the financial year 2012/13 279,207 tonnes of household waste was produced.
[39] Oxfordshire Joint Municipal Waste Management Strategy 2013 (para 7.2)
[40] Policy 3 of Oxfordshire Joint Municipal waste Management Study

3.15 Table A3/1 sets out the population projections used to help formulate a range of waste forecasts (Table A5/2). By 2031 forecast waste arisings could be as low as 265,000 tonnes per annum or as high as 375,600 tonnes per annum. The forecasts shown in Table 5 (and Figure 5) represent the most realistic low, medium and high forecasts in the range (see also detail in table A5/3).

Table 5: Range of forecasts for Oxfordshire MSW arisings to 2031 (tonnes)

Range	Source	Tonnage	Method
Low	Defra	320,583	Applies the highest government forecast (for 8.7% growth in household waste by 2020) to Oxfordshire household waste base line waste arisings, adding 20,000 tonnes to convert to 'municipal' waste (see table 4): then 'flat lines' to 2031).
Medium	OJMWMS	350,604	Applies the Oxfordshire Waste Partnership methodology (no growth in the amount of waste per head from 2012: arisings to increase proportionate to population growth) using updated OCC population forecasts (Jan 2014) and a revised household waste production factor (0.424 tonnes per head in 2012/13). 20,000 tonnes added to total to produce a 'municipal' waste total (see table 4).
High	SHMA	375,619	Applies the 2012/13 household waste production factor (0.424 tonnes) to the SHMA Proj 4 population projection for 2031: then adds 20,000 tonnes (being waste collected by local authorities from other sources – table 4).

Figure 5: Oxfordshire forecast Municipal Solid Waste arisings to 2031



Source: Oxfordshire County Council Waste Management Group

3.16 Since the review of the Joint Municipal Waste Management Strategy 2013, the Oxfordshire Waste Partnership has been wound up and the County Council's Waste Management Group has subsequently produced updated long range forecasts to 2040 (Table A5/4). These projections suggest that by 2031 waste arisings could be between 341,000 tpa and 423,000 tpa but:

- they do not take account of the rates of growth recommended in the Strategic Housing Market Assessment;
- they assume an increase in waste produced per household beyond 2012 and this is not consistent with the Joint Municipal Waste Management Strategy.

3.17 The 2040 forecasts nevertheless provide further evidence that of the options set out in Table 5, the high forecast (375,619 tonnes of waste produced in 2031) would still be realistic, being a mid-point between the two extremes.

Future Management

3.18 The waste management targets used in the earlier stages of plan preparation[41] were consistent with those of the Oxfordshire Joint Municipal Waste Management Strategy (policies 4 and 7). For the later part of the plan period these are still considered appropriate: but for the earlier part of the period the recycling and composting targets have been adjusted to reflect actual performance in 2012/13.

[41] Waste Needs Assessment (May 2012)

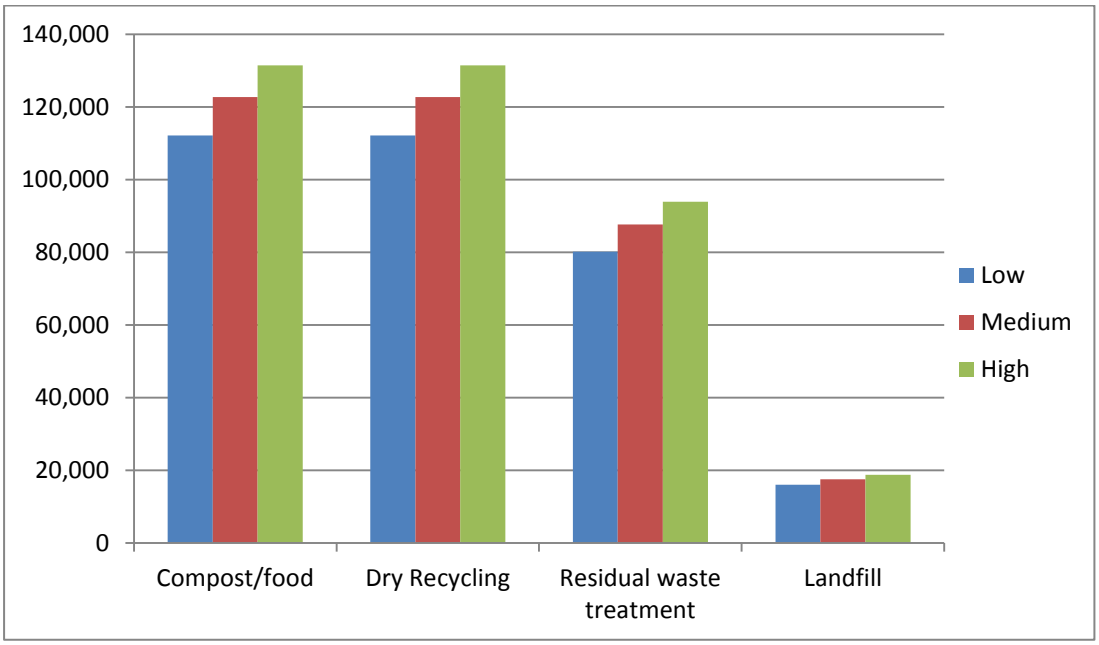
Table 6: Oxfordshire MSW management targets to 2031

Waste Management	Target Year				
	2012	2016	2021	2026	2031
Composting & food waste treatment*	25%	29%	32%	35%	35%
Dry Recycling*	33%	33%	33%	35%	35%
Treatment of residual waste	0%	30%	30%	25%	25%
Landfill	42%	8%	5%	5%	5%

* Recycling target split between green waste/food waste and dry recyclables and reflects composition of recycled waste in 2012/13
Source: Oxfordshire Waste Partnership

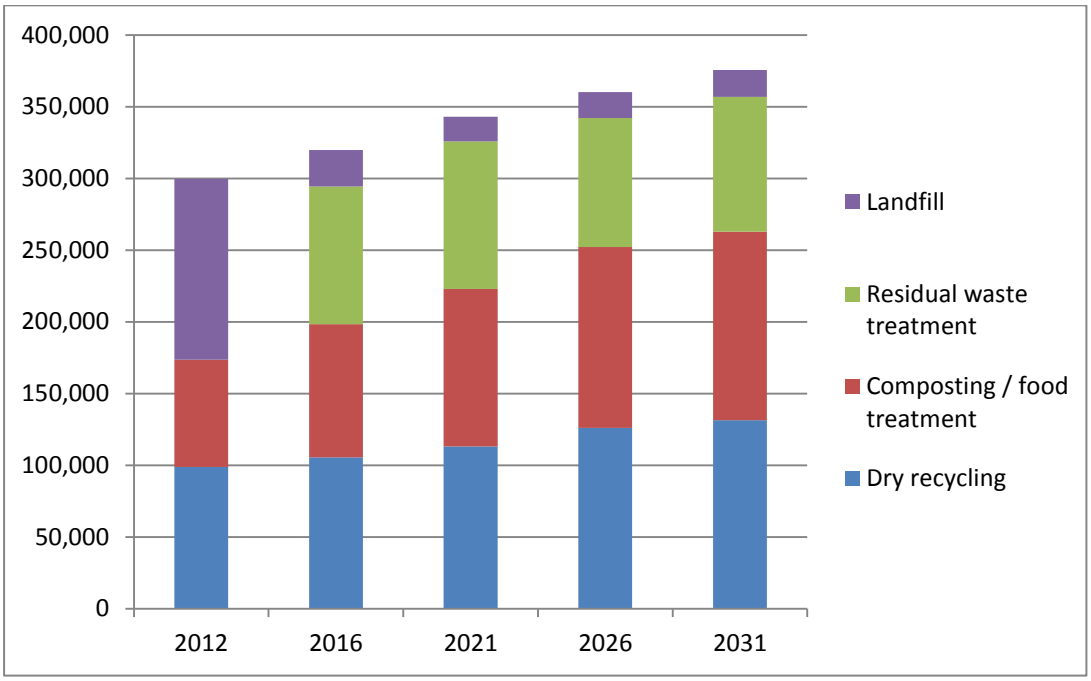
3.19 The result of applying these targets to the high, medium and low waste forecasts at the end of the plan period is shown in Figure 6 below (detail in Table A5/5). The subsequent table shows the effect of applying the waste management targets to the high growth forecast throughout the plan period (detail in Table A5/6).

Figure 6: Oxfordshire managed Municipal Solid Waste forecast for 2031 (tonnes)



Source: Oxfordshire County Council

Figure 7: Oxfordshire Municipal Solid Waste - high forecast for managed waste (2011/12 – 2031) (tonnes)



Source: Oxfordshire County Council

Commercial and Industrial waste

3.20 Commercial and Industrial (C&I) waste is for the most part collected and managed by commercial operators and comprises a variety of wastes produced by commercial and public organisations, including metallic waste[42].

Baseline Arisings

3.21 Because of a lack of reliable data, baseline arisings for C&I waste have been estimated. The BPP Study estimated baseline arisings for Oxfordshire as 710,000 tonnes in 2010. Previous estimates have suggested arisings of just over 1.0 million tonnes (in 2006/07) and 455,174 tonnes (in 2012)[43].

3.22 The Environment Agency's Waste Data Interrogator (Table A9/2) indicates that 795,278 tonnes of Oxfordshire HIC[44] waste was managed at licensed facilities in 2012. MSW arisings were 299,850 tonnes in 2012/13, suggesting that almost 500,000 tonnes of C&I waste from Oxfordshire was managed that year.

[42] More detail is provided in the Waste Needs Assessment (May 2012)
[43] Table 2 of BPP Consulting Baseline, Forecasts & Targets for Commercial & Industrial Waste Generated in Oxfordshire (10.02.2014)
[44] Household, Industrial and Commercial waste.

Table 7: Assessment of managed C&I waste for Oxfordshire using data available from Environment Agency Waste data Interrogator 2012 (tonnes)

Type of waste	Tonnes
HIC	795,278
MSW	299,850
C&I (HIC less MSW)	495,428

Source: Oxfordshire County Council

3.23 Table 8 shows a comparison of the various estimates.

Table 8: Comparison of recent estimates of Oxfordshire C&I waste (tonnes)

Source	Base Date	Scope	Tonnes
WNA (May 2012)	2010	Managed	566,800
SEWPAG	2010	Arisings	567,104
BPP Consulting	2010	Arisings	710,000
EA WDI	2011	Managed	471,929

Source: Oxfordshire County Council

3.24 The SEWPAG estimate (see also Table A2/2) does take account of local employment information but the data used in the BPP Study is more sophisticated and is based on waste production factors that are from a more representative survey base. The WNA (May 2012) estimate was based on a projection from earlier estimates. It is therefore difficult to prefer either to that of the BPP Study.

3.25 The figure derived from Environment Agency data not include waste managed on the site of production (e.g. at sites such as Didcot Power Station). It is therefore not surprising that the estimate is lower than that of the BPP Study as Didcot A Power Station was still operational in 2011. Waste output had certainly declined prior to its closure in 2013 (see Table A6/1) but was still relevant and likely to have been taken into account by the BPP Study. Indeed the higher outputs from Didcot A at the turn of the century could well explain why C&I arisings for Oxfordshire were thought to be as high as 1.0 million tonnes in 2006/07 (see para 3.21 above).

3.26 The BPP Study's estimate appears to be the most reliable of those available and can be used as a baseline for 2012, albeit a more recent national study[45] suggests this may be a high estimate (see also section 6).

[45] Jacobs (for Defra) "New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England" Final Project Report August 2014

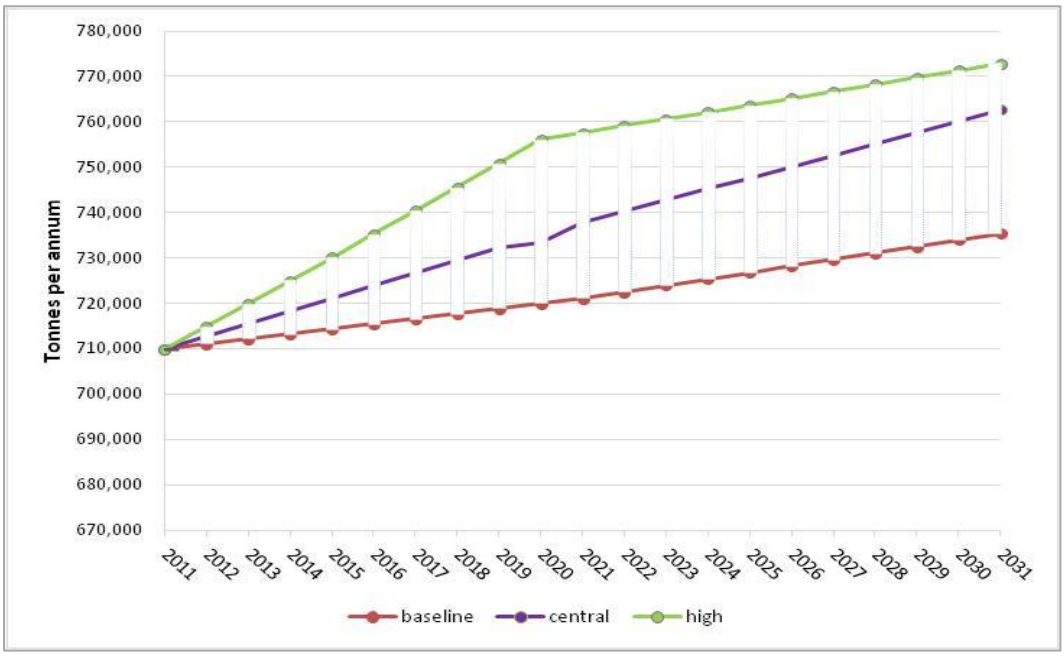
Current Management

3.27 The BPP Study estimated that some 52% of waste arisings in Oxfordshire are reused or recycled.

Forecast Arisings

3.28 The BPP Study produces forecasts that take account of an economic forecasting report produced by the County Council in 2013. High, central and baseline forecasts have been produced (table A6/2) that are generally higher than those that would be derived from the use of the national trends forecast by DefRA for this waste stream. But because the BPP Study uses local data, as with its baseline estimate, its forecasts are also considered more appropriate. The aim should be to provide for capacity that is sufficient to manage the high forecast i.e. a growth in waste arisings to 773,000 tonnes by 2031 (noting again that not all of this waste will need to be managed at independent facilities).

Figure 8: Oxfordshire forecast C&I Arisings (tonnes)



Source: BPP Consulting

Future Management

3.29 The WNA (May 2012) set a recycling and composting target for 2030 of 70% - consistent with targets set in other Waste Planning Strategies[46]. The BPP Study suggests the achievement of such a target may be problematic in Oxfordshire, but other plans look to achieve this sooner and the county already achieves good recycling rates for municipal waste due to a range of

[46] Waste and Minerals Plan for East Sussex, South Downs and Brighton & Hove – Adopted February 2013

recently built recycling, composting and treatment facilities. These facilities are equally capable of managing C&I waste so, taking into account the relative buoyancy in the Oxfordshire economy, the achievement of an overall 70% recycling and composting target by 2025 (as proposed in WNA 2012) is still considered an appropriate aim.

3.30 The WNA (May 2012) did not provide a separate target for composting and food waste treatment. To be consistent with the targets for MSW the recycling target needs to be split. Animal and vegetable wastes comprise about 8% of the C&I waste stream[47]. It is not clear how much might be 'green' waste but this is likely to be significantly less than for municipal waste. For the time being a target of 5% is considered appropriate for composting and food waste treatment with a corresponding adjustment to the target for dry recycling.

Table 9: Oxfordshire C&I Waste Management Targets to 2031

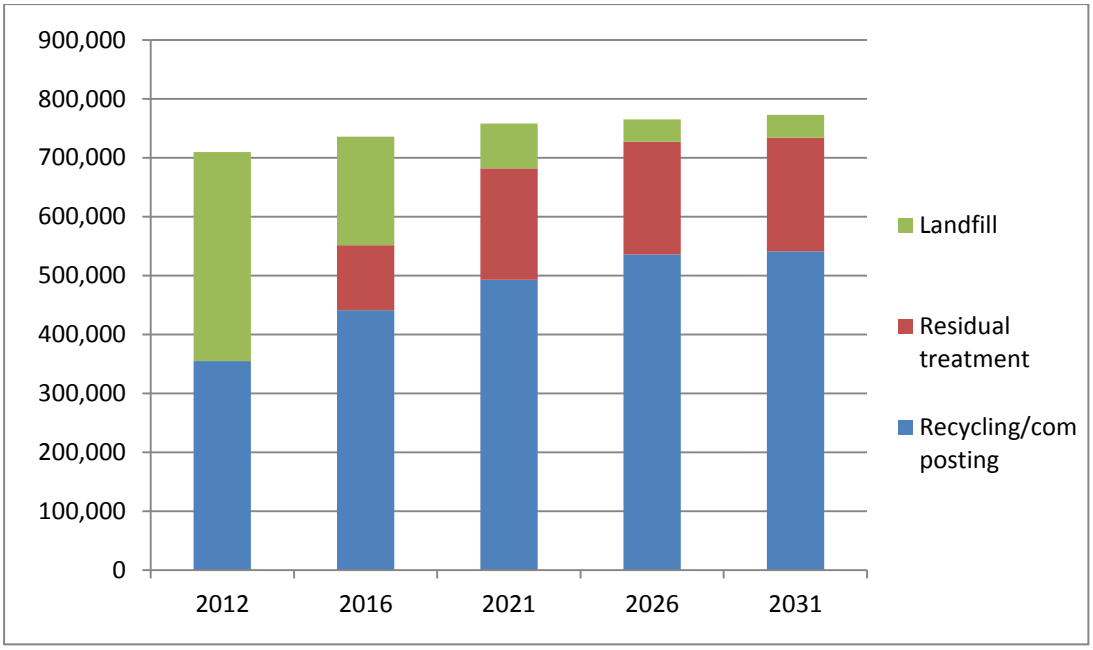
Waste Management	Target Year				
	2012	2016	2021	2026	2031
Composting & food waste treatment	0%	5%	5%	5%	5%
Dry Recycling,	50%	55%	60%	65%	65%
Treatment of residual waste	0%	15%	25%	25%	25%
Landfill	50%	25%	10%	5%	5%

Source: Oxfordshire County Council

3.31 If these targets are applied to the high waste forecast for this waste stream, the pattern of management throughout the plan period would be as shown in Figure 9 (details provided in Table A6/3). This shows the noticeable reduction that can be expected in the amount of waste that will be sent to landfill and which results from increased recycling and the treatment of residual waste at the Ardley Energy Resource Facility which opened in 2014.

[47] Survey of Commercial and Industrial Waste arisings 2010 (Jacobs – for DeFRA)

Figure 9: Oxfordshire Commercial and Industrial Waste Management (2012 – 2031) (tonnes)



Source: Oxfordshire County Council

Construction, Demolition and Excavation waste

3.32 Derived mainly from building sites and civil engineering operations, this is a complex waste stream, with arisings often re-used or recycled on site. Waste that leaves a site is collected by private operators and managed at bespoke facilities – often located in working quarries. Most of the waste comprises inert material, but some non-hazardous waste arises from surplus or discarded construction materials. Some excavation waste may be categorised as hazardous where the ground has been contaminated by earlier industrial working e.g. gas works.

Baseline Arisings

3.33 The WNA (May 2012) concluded that managed waste arisings, estimated as 1.3 million tonnes in 2008, had halved by 2012 as a result of the recession. The BPP Study arrived at a similar estimate for waste arisings (1,358 million tonnes) using 2008 data, although this includes waste re-used on site or recycled for use off-site.

3.34 The BPP Study also found that the profile of the waste stream in Oxfordshire was biased toward excavation waste, with half of the waste comprising soil, sub-soil and naturally occurring rock.

Table 10: Initial estimate of CDE waste arising in Oxfordshire in 2008 (tonnes)

Waste	Construction	Demolition	Excavation	Total
Arisings	273,000 (20%)	423,000 (31%)	662,000 (49%)	1,358,000

Source: BPP Consulting Study (para 3.2)

3.35 Waste managed on site[48] is not directly controlled by the planning system, so for planning purposes a managed waste baseline allows for a more realistic assessment of the waste management capacity for which provision should be made in the Plan. The BPP Study's baseline of 1.358 million tonnes reduces to 1.059 million tonnes if waste managed on site is excluded[49].

Table 11: Initial assessment of managed CDE waste in Oxfordshire (2008) (tonnes).

Waste	Construction	Demolition	Excavation	Total
Arisings	273,000	423,000	662,000	1,358,000
Re-use	0	233,000	66,000	299,000
Managed	273,000 (26%)	190,000 (18%)	596,000 (56%)	1,059,000

Source: Oxfordshire County Council using information from BPP Consulting Study (section 5 and table 12)

3.36 To bring this baseline into line with the other waste streams assessed, a further adjustment is required to take account of the decline in construction activity between 2008 and 2012[50]. In Oxfordshire this appears to have been less severe than many other areas but this still needs to be taken into account. There was a 26% decline in house building between 2008 and 2012 (see Table A3/2) and if this is indicative of construction activity generally the BPP Study estimate for managed waste should be adjusted further to 784,000 tonnes.

[48] The great majority being demolition and excavation waste

[49] BPP Consulting Baseline, Forecasts & Targets for Construction, Demolition & Excavation Waste Generated in Oxfordshire 10 Feb 2014. Table 12 shows 55% of demolition waste is reused or managed on site: table 14 shows that 10% of excavation waste is reused.

[50] A 60% drop in construction activity nationally was reported by the Construction Resources and Waste Platform between 2008 and 2009. Also, in Oxfordshire, CDE waste managed at licensed sites in 2010 was 369,259 – a drop of almost 60% from that managed in 2007.

Table 12: Option 1 – estimate of Oxfordshire CDE managed waste 2012 (adjusted BPP Study estimate) (tonnes)

Source	2008	2012	
	Estimate (tonnes)	Decline in building activity 2008-2012	Revised estimate (tonnes)
BPP	1,059,000	26%	784,000

Source: Oxfordshire County Council

3.37 It is possible to derive an estimate of managed waste from information published by the Environment Agency[51]. This data suggests that waste produced in Oxfordshire and managed at licensed facilities (in Oxfordshire and elsewhere) was 758,776 tonnes in 2012 (see table A9/2). It can be assumed that waste managed at sites that are exempt from normal licensing requirements is in the order of 30%[52] and, suitably adjusted, an alternative estimate to that produced from the BPP Study would be in the order of 1.084 million tonnes.

Table 13: Option 2a – estimate of Oxfordshire CDE managed waste in 2012 based on licensed waste site data from the Environment Agency (tonnes)

Waste	2012		
	Licensed Sites	Exempt Sites	Total
CDE	758,776 (70%)	325,190 (30%)	1,083,966

Source: Oxfordshire County Council

3.38 There is, however, a danger that this over-estimates the amount of managed waste because it includes some that will have been double counted at a licensed sorting facility before transfer to a licensed treatment or disposal facility (where it will be recorded again). If waste coded as 'transfer'[53] is excluded a corrected estimate of 932,211 tonnes is produced.

Table 14: Option 2b – estimate of Oxfordshire CDE managed waste in 2012 based on licensed waste site data from the Environment Agency and adjusted to exclude double counting (tonnes)

Waste	2012		
	Licensed Sites (option 2areduced by 20% to allow for double counting)	Exempt Sites	Total
CDE	607,021	325,190	932,211

Source: Oxfordshire County Council

[51] The Waste Data Interrogator provides data on waste managed at licensed sites.
[52] Capita Symonds: Survey of Arisings and Use of Alternatives to Primary Aggregates in England 2005 - Construction, Demolition and Excavation waste (Feb 2007)
[53] Table A8/2 indicates that 20% of the inert waste originating in Oxfordshire was transferred.

3.39 Rounded to produce a total of 932,000 tonnes per annum, this is thought to represent a reasonable baseline estimate for 2012[54]. It is also effectively the mean of options 1 and 2a. The composition of this baseline would be as shown in the following table.

Table 15: Composition of Oxfordshire CDE managed waste (2012) (tonnes)

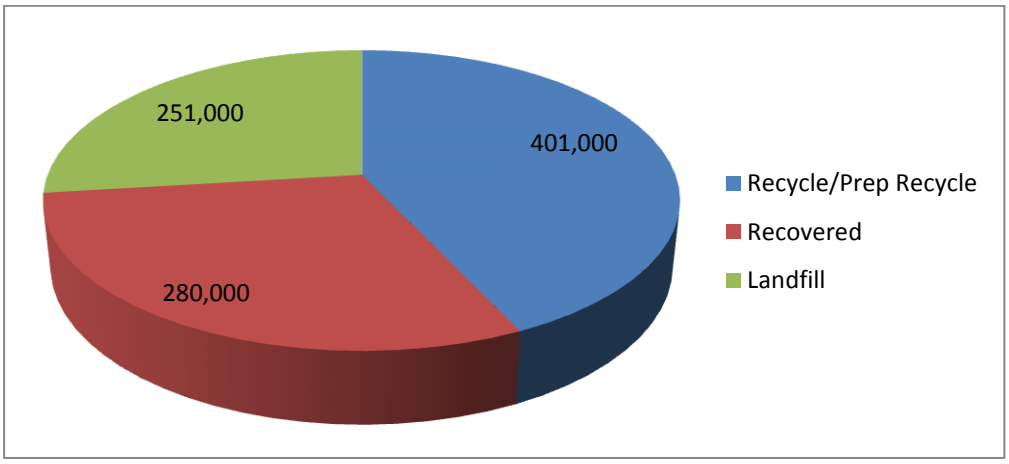
Construction	Demolition	Excavation	Total
242,000 (26%)	(168,000) (18%)	522,000 (56%)	932,000

Source: Oxfordshire County Council using components from BPP Consulting

Current Management

3.40 Nationally, some 61% of managed waste was recycled in 2008 (Table A7/1). The BPP Study found that in the same year some 55% of waste arisings were recycled or prepared for recycling in Oxfordshire (see Table A7/2). This suggests that Oxfordshire is below the national average for recycling of this waste stream. But the two results are not directly comparable and appear to view the term 'recycling' differently. Table A7/3 attempts to apply the methodology of the BPP Study to the Oxfordshire managed waste baseline. The outcome is illustrated in Figures 10 and 11 and, if correct, suggests that only 43% of managed waste (401,000 tonnes) is recycled in Oxfordshire. But this data needs to be treated with some caution, particularly as the county appears to have capacity to recycle all of the waste it currently generates (see Table 12/7).

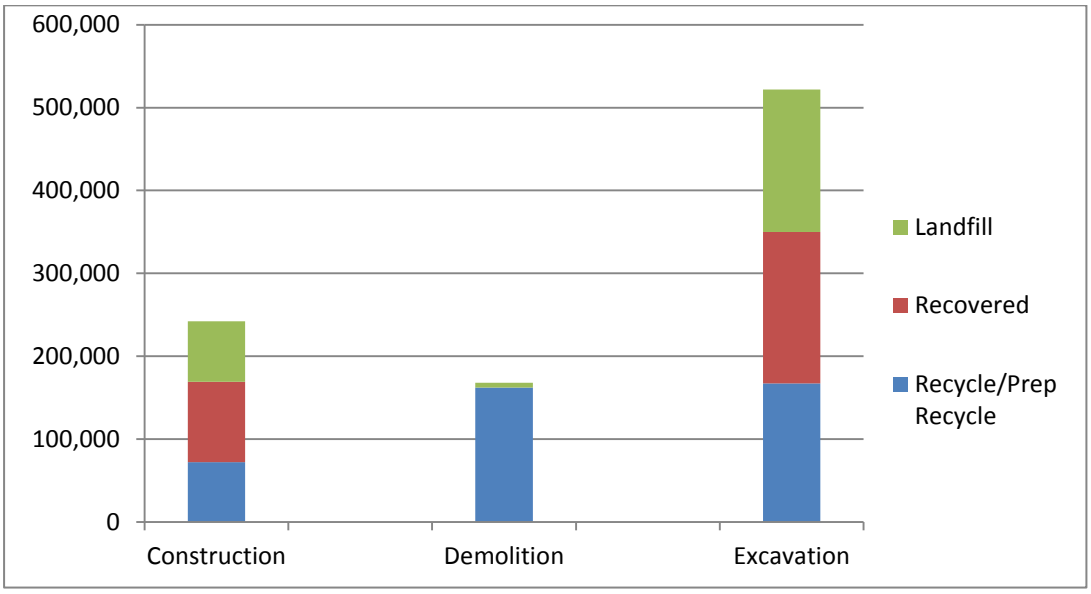
Figure 10: Oxfordshire Construction, Demolition and Excavation Waste Management (2012) (tonnes)



Source: Oxfordshire County Council using components from BPP Consulting

[54] Comparison with similar data sourced for other areas (table A2/2) suggests this should still be regarded as a high estimate.

Figure 11: Oxfordshire Construction, Demolition and Excavation waste management by component waste stream (2012)



Source: Oxfordshire County Council using components from BPP Consulting

Forecast Arisings

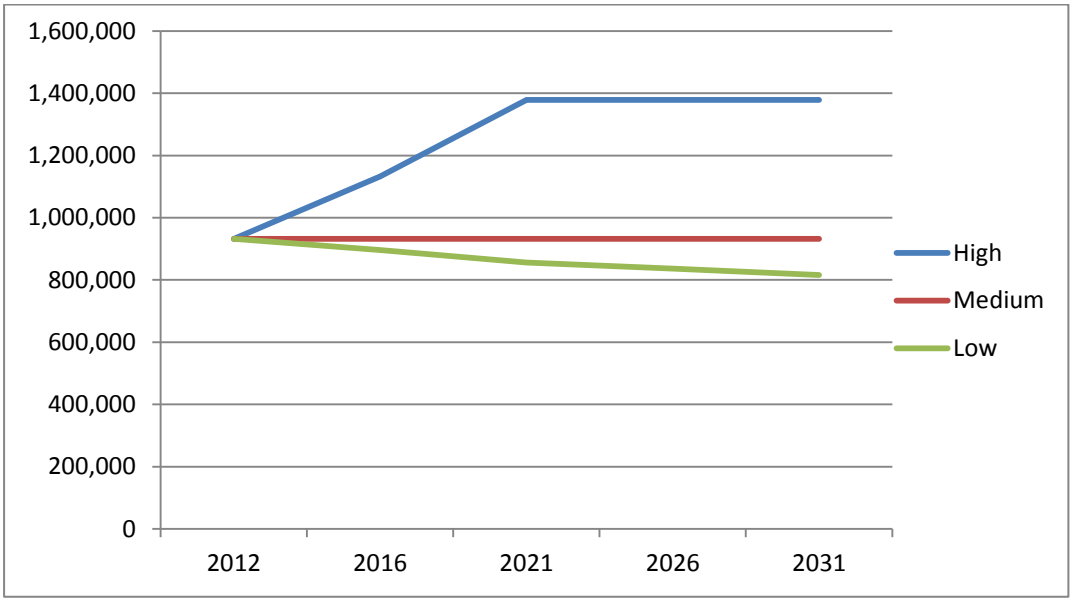
3.41 The BPP Study produced three forecasts for this waste stream. A lower estimate assumed that planned growth would not be achieved. A higher estimate assumed that planned housing growth would be exceeded but waste growth partly held in check by pressures to reduce the amount of waste generated. A median estimate assumed that planned development would be achieved, but over a longer time period. Table A7/4 applies this methodology to the assessed baseline for 2012: table 16 summarises the outcome and figure 12 provides an illustration.

Table 16: Forecasts for Oxfordshire CDE waste (tonnes)

	Scenario (2012 – 2020)	**Tonnes (2020)**	**Scenario (2021 – 2031)**	**Tonnes (2031)**
Low	Reduction 1% p.a.	860,000	Reduction 0.5% p.a.	816,000
Medium	No change	932,000	No change	932,000
High	Growth 5% p.a.	1,379,000	No change	1,379,000

Source: Oxfordshire County Council

Figure 12: Forecast Construction, Demolition and Excavation Waste for Oxfordshire to 2031 (planned growth) (tonnes).



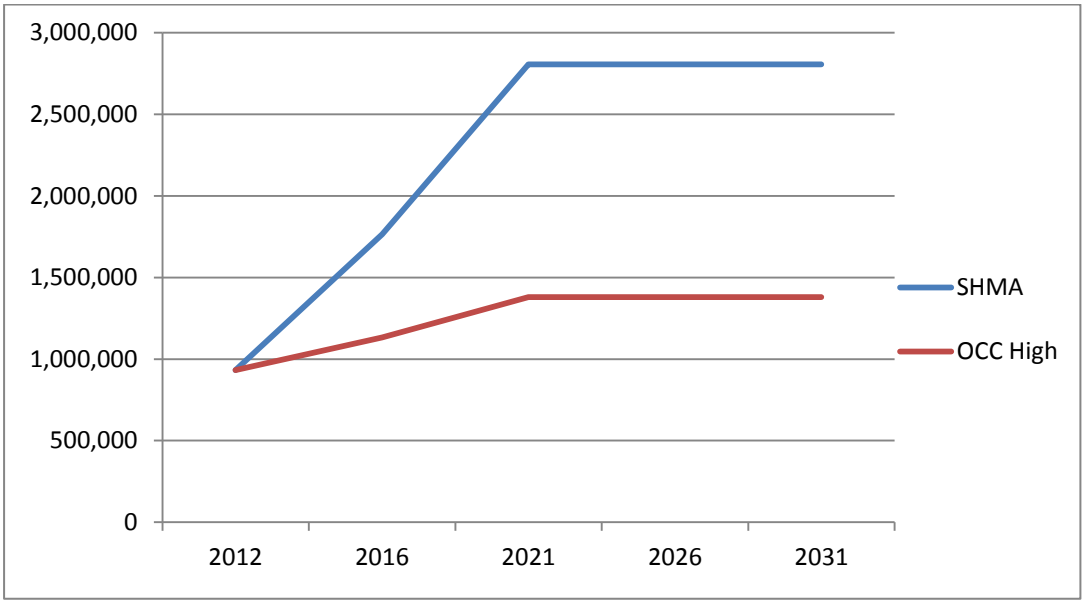
Source: Oxfordshire County Council

3.42 Since the BPP Study was concluded, the rate at which the Oxfordshire economy is expected to grow has been revised[55] and consultants have produced a Strategic Housing Market Assessment (SHMA) recommending that new housing is provided at a rate of some 5,000 dwellings per annum[56].

3.43 If the levels of growth recommended by the SHMA were reflected across the building industry the amount of CDE waste to be managed could be twice as high as that envisaged by the high estimate (see figure 13 and table A7/5).

[55] Local Enterprise Partnership: Strategic Economic Plan for Oxfordshire (March 2014). By 2031 the number of jobs could increase by 23% (380,600 in 2011 to 468,800 in 2031).
[56] G L Hearn: Strategic Housing Market Assessment for Oxfordshire (March 2014)

Figure 13: Forecast Construction, Demolition and Excavation waste for Oxfordshire to 2031 (SHMA growth) (tonnes)



Source: Oxfordshire County Council
Forecast arisings based on 531 tonnes of waste per new dwelling (as at 2011)

3.44 However, an increase in managed waste to some 2,800,000 tonnes per annum is considered unlikely. District Local Plans will consider whether and how to make provision for the housing growth recommended by the SHMA. This would call for building levels far higher than those achieved before the recession[57] . Even if this can be achieved, it seems unlikely that other forms of construction (including housing improvements) would show a similar increase[58]. The 'High Growth' scenario (Figure 13) is already based on a baseline that appears higher than that of most other areas (Table A2/1). Taking into account that a reduction in unit waste produced can also be expected from improved practice and waste reduction initiatives, the 'High Growth' forecast (1.379 million tonnes per annum from 2020) envisaged in the BPP Study is considered the more realistic for waste planning purposes.

Future Management

3.45 The EU Waste Framework Directive requires that 70% of construction and demolition waste is recycled[59]. Table A7/2 suggests that 77% of Oxfordshire's construction and demolition waste is being recycled and the target being met. However, the target is not easily monitored[60] and consideration could also be given to whether a target should be set that also makes provision for excavation waste.

[57] In the 10 year period to 2012 housing completions in Oxfordshire averaged 2,334 units per annum, with the highest being 3,534 units in 2005/06 – see table A3/2 for details.
[58] Waste from house improvements (extensions etc) is currently equal to waste from new build.
[59] DefRA – Government Review of Waste Policy in England 2011 (paragraph 47)
[60] The waste data published by the Environment Agency provides information for inert waste, but not for construction and demolition waste specifically.

3.46 The BPP Study recommended that by 2030 the aim should be to recycle or re-process 70% of construction demolition ***and*** excavation waste arisings, with the remainder being recovered (25%) or sent to landfill (5%).

Table 17: BPP Study targets for CDE waste in Oxfordshire

Method	2015	2020	2025	2030
Recycling, Use or Conversion to Product	55%	60%	65%	70%
Recovery	25%	25%	25%	25%
Landfill / Restoration	20%	15%	10%	5%

Source: BPP Consulting

3.47 Whilst Oxfordshire recycles a high proportion of construction and demolition waste (with almost 96% of demolition waste being recycled) about half of the total waste stream is made up of excavation waste and the overall proportion of demolition waste (31%) is lower than the national average[61]. This significantly reduces the extent to which the entire waste stream can be recycled. In particular the potential for recycling excavation is effectively limited to topsoil, although larger amounts of this waste can be recovered and put to good use in quarry restoration.

3.48 Advances in technology[62] may allow for an improvement in recycling but the achievement of a 70% recycling target for construction, demolition ***and*** excavation waste in Oxfordshire (as recommended by BPP) seems over ambitious. The WNA (May 2012) set a recycling target of 60% and this is considered more realistic[63].

3.49 The BPP Study also proposed a separate target for waste recovery, recognising that this was below recycling in the waste hierarchy but still preferred to landfill. This is recognised as a desirable step, but the monitoring data that is currently available makes the monitoring of such a target almost impossible. The Environment Agency effectively determines whether waste is recovered or disposed (in landfill) through the type of environmental permit that it deems appropriate. Not only is this outside the normal planning process, but much of the waste that is not recycled is used beneficially in restoring worked out quarries and monitoring whether it is 'recovered' or 'disposed' by way of landfill achieves little, if any, practical planning benefit. Two targets are therefore proposed – for recycling, use or conversion to product; and for recovery/landfill.

[61] In Oxfordshire this element appears higher than the national average

[62] Processing capacity for excavation materials using mineral processing methods (wet washing and screening) can achieve higher rates of recycling, but the plant is expensive: there are already two examples of this technology operating in Oxfordshire.

[63] This was also the target set by the former South East Plan and had been the subject of public examination

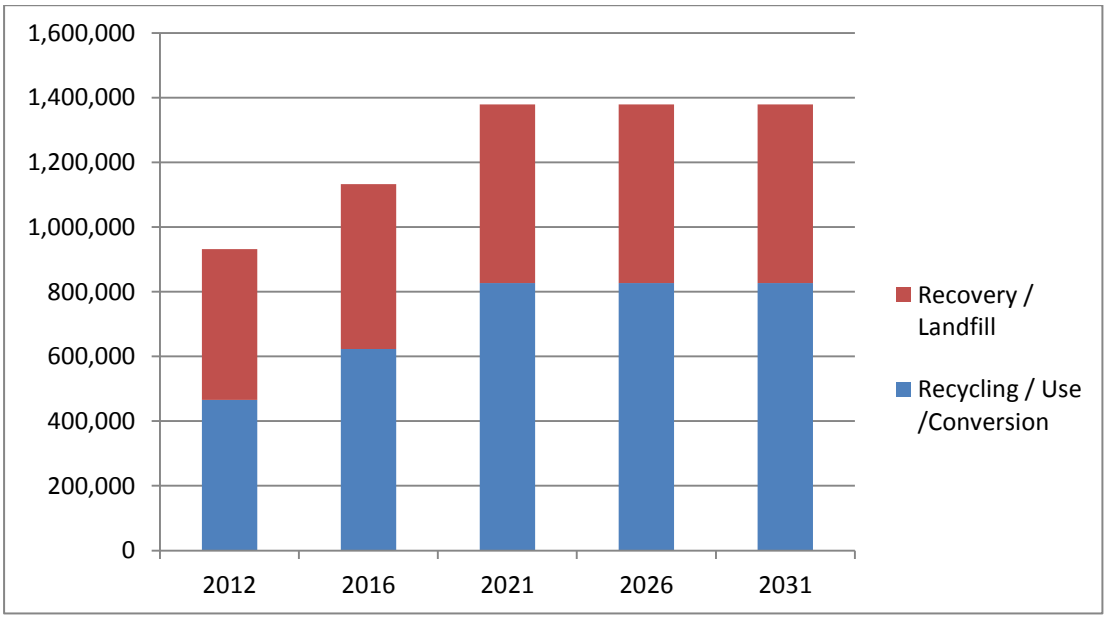
Table 18: Oxfordshire Waste Management Targets for CDE waste

Method	2012	2015	2020	2025	2030
Recycling, Use or Conversion to Product	50%	55%	60%	60%	60%
Recovery/Landfill	50%	45%	40%	40%	40%

Source: Oxfordshire County Council

3.50 The result of applying these targets to the high waste forecast is illustrated in figure 14 (details in table A7/6).

Figure 14: Oxfordshire Construction, Demolition and Excavation Waste Management (2012 – 2031) (tonnes)



Source: Oxfordshire County Council Waste Management Group

Hazardous waste

3.51 This form of waste can be harmful to human health and is strictly regulated. It comprises a variety of liquid, gaseous or solid wastes[64] typically arising from chemical processing. Some excavation waste may be classified as hazardous waste, but it is otherwise recognised as 'Commercial and Industrial' waste collected by commercial operators and managed at specialist facilities.

[64] A detailed breakdown is shown in table 3 of the BPP Consulting Estimate of Baseline, Forecast, Management & Flows for Hazardous Waste Arising in Oxfordshire 10 Feb 2014

Baseline Arisings

3.52 Waste arisings fluctuate, following no regular pattern. In the period 1999 – 2006 arisings exceeded 50,000 tonnes on two occasions - in 2000 and 2002[65] - but were otherwise below this line. In 2008 waste arisings were 41,000 tonnes[66] and in 2010 SEWPAG recorded arisings in Oxfordshire at 31,000 tonnes. The BPP Study estimated waste arisings at 52,000 tonnes (using data from the Environment Agency's Waste Data Interrogator).

Current Management

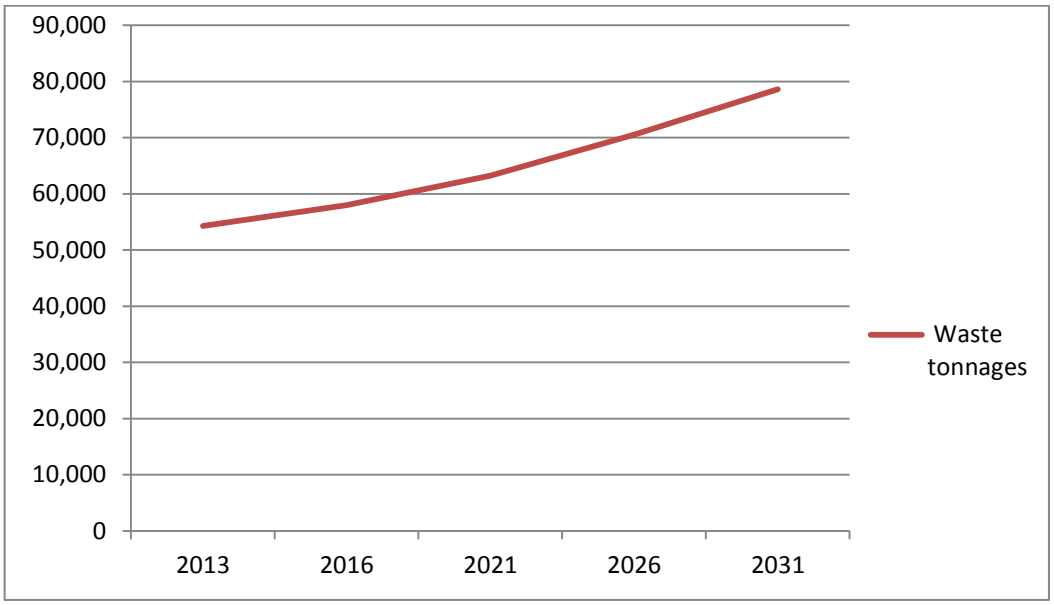
3.53 In 2012 only 20% of Oxfordshire's waste arisings were managed in the county, but this is not unexpected as specialist facilities often serve a much larger area than a single county. About 10% of Oxfordshire's waste was landfilled and, with the exception of some 2% of waste which was incinerated, the remainder was recovered, recycled or treated[67]. Of the waste that was landfilled, some (asbestos waste) was disposed at Ardley Landfill (in the north of the county) but the remainder was disposed in neighbouring counties.

Forecast Arisings

3.54 Although there has been no consistent pattern, waste arisings are generally higher than they were 15 years ago and with the Oxfordshire economy expected to experience further growth a general increase in waste arisings can be expected during the plan period. The BPP Study assumes modest growth culminating in a need to manage up to 78,000 tonnes of waste per annum toward the end of the plan period (see table . Figure 15 shows linear growth throughout the plan period (see table A6/4).

[65] Study into the Arisings and Management of hazardous Waste in the South East Region – Scott Wilson for SEERA April 2009.
[66] Oxfordshire Waste Needs Assessment (May 2012)
[67] Table 1 of BPP Consulting Estimate of Baseline, Forecast, Management & Flows for Hazardous Waste Arising in Oxfordshire 10 Feb 2014

Figure 15: Oxfordshire Hazardous waste arisings 2013 – 2031 (tonnes)



Source: BPP Consulting

Future Management

3.55 The BPP Study found[68] that there is sufficient capacity within a reasonable travel time to manage this waste stream effectively and that the vast majority of waste was already being managed through recovery rather than landfill. This, together with the fact that the forecast increase in waste arisings during the plan period (26,000 tonnes per annum) is relatively modest indicates that there would be no advantage to setting waste management targets for this waste stream.

3.56 Oxfordshire is of a size and location that makes unreasonable any expectation that it could become net self-sufficient in managing this type of waste. Waste from other areas is already managed at facilities in Oxfordshire (see Appendix 8) and an even greater proportion sent out of county to be managed elsewhere. Nevertheless, any additional waste management capacity that can be provided in Oxfordshire, particularly of the right type[69], will inevitably reduce waste miles that would otherwise be travelled.

Agricultural waste

3.57 Agricultural waste is mostly organic form and managed within the unit of production - or occasionally on farms nearby. Exemption from the need to obtain a normal waste license can be registered with the Environment Agency for most of this type of waste. Intensive farm units, in particular, can produce

[68] Section 3, recommendation 1 and 2.
[69] The BPP Study makes recommendations on this.

organic waste in such quantity for treatment with other forms of organic waste at other commercial facilities. Small amounts of non-organic waste are also produced and these may also be managed at commercial facilities that have been developed to manage other forms of waste. Such waste would be collected by commercial operators.

Waste Arisings

3.58 In 1998 the Environment Agency estimated that arisings in Oxfordshire were in the order of 900,000 tonnes[70]. The BPP Study estimated arisings at 910,900 tonnes in 2011/12. Of this, only 2% (11,500 tonnes) was thought to be non-organic waste[71]. A small amount of this waste may be classified as Hazardous Waste.

Current Management

3.59 Because much of the waste is not managed at licensed facilities there is little information available on the proportions that are spread on land or recovered. Most of the waste managed at licensed facilities in 2012 (1,480 tonnes - less than 1% of the likely total) was recovered in some way.

Forecast Arisings

3.60 Waste arisings appear to be relatively stable and there is no reason to expect a significant change in future years. Annual arisings are therefore forecast to be in the order of 910,000 tonnes per annum throughout the plan period.

Future Management

3.61 The fundamental approach to the management of this waste stream is unlikely to alter during the plan period. Even if it were possible, there appears to be no practical benefit to introducing any form of waste management targets. Opportunity may arise to generate energy from organic waste through treatment (e.g. by means of anaerobic digestion) on site or off-site, although this will be determined entirely by commercial judgement and is more likely to be achieved in combination with the management of other forms of organic waste.

Radioactive Waste

3.62 Low Level (LLW), Intermediate Level (ILW) and High Level (HLW) radioactive waste is classified according to the level of radiation and the heat produced during decay. Radioactive waste arises from both nuclear and non-nuclear activities. Naturally occurring radioactive material (NORM) is also generated by some industrial processes, including drilling for oil and gas.

[70] Strategic Waste Management Assessment 2000: South East.
[71] Non-organic waste including discarded pesticide containers, plastics, tyres, batteries, old machinery, waste oil and general packaging.

Baseline Arisings

3.63 The largest amounts of radioactive waste in Oxfordshire are generated by operational development at the Culham Science Centre[72] and from the decommissioning of facilities at Harwell[73]. The amount of waste produced at each site varies annually.

3.64 The RUBB tent facility at Culham processes approximately 30 tonnes of large metallic items each year which are either LLW or radiologically exempt. The Waste Handling Facility (WHF) produces ~200 drums containing soft or small items of LLW and occasionally processes small amounts of low end ILW[74].

3.65 Such radioactive waste as is produced at the Harwell nuclear licensed site arises from the on-going decommissioning programme. The amount and type of waste produced can be varied, but typically includes LLW comprising soils and rubble from the demolition of buildings or dismantling of underground services. There is capacity to process and store LLW and ILW on site at Harwell but some waste can be transferred for storage[75] or disposal elsewhere[76].

3.66 The Contaminated Ground Water Treatment Plant (CGWTP - in the Western Storage Area) is one of the major waste management facilities at Harwell. This treats up to 500,000 tonnes of groundwater per annum that has been contaminated from the earlier burial of radioactive waste – since removed from the site. The CGWTP is licensed by the Environment Agency as a hazardous waste treatment facility.

3.67 Elsewhere in Oxfordshire, radioactive waste is produced at medical and educational establishments and as a result of some industrial processes. Currently there are 28 such facilities licensed by the Environment Agency. These wastes are controlled and transported to other licensed facilities for management or disposal. There is no information on the amounts of radioactive waste produced, but this is likely to be very small by comparison to the radioactive waste generated at Culham and Harwell.

3.68 There are no known producers of NORM in Oxfordshire.

[72] The Joint European Taurus (JET) is a project designed to generate energy from nuclear fusion that produces some radioactive wastes.
[73] The Atomic Energy Research Establishment operated an extensive research facility designed to generate energy from nuclear fission and the decommissioning of this facility produces radioactive waste.
[74] Information provided to support development of the facility in a recent planning application.
[75] Some higher level wastes are currently being transferred to Sellafield in Cumbria.
[76] Northamptonshire County Council has reported that in 2014 some 3,360 tonnes of LLW was disposed at the East Northamptonshire Waste Resource Facility operated by Augean, much of which will have been waste from Harwell.

Current Management

3.69 Only Culham and Harwell are licensed to treat or store radioactive waste in Oxfordshire: neither site has facilities for disposal. More information on the capacity of facilities is provided in Section 6.

3.70 Some waste at the lower end of the LLW spectrum – referred to variously as Very Low Level Waste (VLLW) or High Volume Low Activity (HVLA) waste – can be disposed in specially licensed non-hazardous landfill facilities. There are no such facilities in Oxfordshire. Other forms of LLW have to be disposed in the national Low Level Waste Repository (LLWR) operated by LLWR Ltd near Drigg in Cumbria. Some waste may be beneficially stored at licensed sites pending transfer to disposal facilities as the activity level of the waste may decrease over time.

3.71 There are presently no facilities available nationally for the disposal of ILW or HAW (although HAW is not generated in Oxfordshire in any event). The Government intends that a national facility be developed for the disposal of such wastes and is currently consulting on the most appropriate way to identify a suitable location. The facility will comprise a form of deep geological disposal and is unlikely to be available to receive waste before 2040. Meanwhile, the intention is that waste is stored at a number of suitable locations nationally. In Oxfordshire such waste is currently stored in facilities at Culham and Harwell.

Forecast Arisings

3.72 Information on the amount of low level radioactive waste likely to arise from decommissioning activities at Culham and Harwell was set out in a report by the LLWR Ltd and NDA in 2011.

Table 19: Low Level Radioactive Waste at Culham and Harwell (tonnes)

Site	<200Bq/g		>200 Bq/g		Total
	volume	%	volume	%	
Culham	3,567	54	3,003	46	6,570
Harwell	88,823	94	5,187	6	94,010
Total	92,390	92	8,190	8	100,580

Source: UK Management of Solid Low Level Radioactive Waste from the Nuclear Industry: Low Level Waste Strategic Review (March 2011)

3.73 A more recent report by the Nuclear Decommissioning Authority (NDA)[77] forecast a lower level of future LLW arisings for the two sites, but the forecast is only to 2020. The LLWR Ltd forecast, however, covers the anticipated lifetime for decommissioning work at the two sites and, for Harwell, this extends to at least the end of the plan period. Table 20 combines the results of both forecasts.

3.74 Decommissioning activities at Culham and Harwell will also give rise to some Intermediate Level Radioactive Waste. The most recent assessment of existing and forecast arisings for this form of waste is from 2013, updating an earlier audit carried out in 2010[78]. The results of both audits are also included in table 20.

Table 20: Forecast arisings of Intermediate and Low Level Radioactive Waste for Harwell and Culham resulting from decommissioning activity (tonnes)

	Waste in Store		**Waste in Store + future arisings (packaged volume)**	
	As at 2010	As at 2013	As at 2010	As at 2013
Culham				
ILW	30	62	817	825
LLW	600	220	8,100	7,160
Harwell				
ILW	2,130	2,300	6,870	6,600
LLW	2,820	1,240	99,600	39,800

Source: Nuclear Decommissioning Authority UK Radioactive Waste Inventories 2010 and 2013. Future arisings as assessed in 2013 are for the period to 2020 only

3.75 A national survey of naturally occurring radioactive materials (NORM) was undertaken in 2013 and the results included in a consultation document produced by the Department for Energy and Climate Change[79]. There is no expectation of NORM being produced in Oxfordshire.

Future Management

3.76 Decommissioning activities at Harwell are likely to continue throughout the plan period and provision will continue to be needed for facilities to safely manage and store waste prior to disposal. For lower level wastes there are existing disposal routes off-site, but these cannot necessarily be relied on for the entire plan period. Similar considerations apply at Culham, although the present indication is that waste production will be less prolonged and of a

[77] Nuclear Decommissioning Authority 2013 UK Radioactive Waste Inventory: Waste quantities from all sources
[78] Nuclear Decommissioning Authority 2010 UK Radioactive Waste Inventory (February 2011)
[79] Department for Energy and Climate Change Strategy for the management of Naturally Occurring Radioactive Material (NORM) in the UK Consultation Draft (Feb 2014)

scale whereby economies of scale may apply if the site waste can be managed in conjunction with waste from Harwell.

Waste Water

3.77 Human waste is classified as 'Waste Water' and includes solid waste that results from treatment at local sewage treatment works. In Oxfordshire these are managed by Thames Water Ltd plc.

Baseline Arisings

3.78 Thames Water's 25 Year Sludge Strategy was adopted in 2008 and provides information and forecasts on the disposal of Waste Water and, in particular, solid arisings. This refers to sludge loadings for 2011 being some 23,506 tonnes (dry solids).

Current Management

3.79 Waste is currently managed through a network of local waste water works with solid waste treated at a number of strategic sites (see section 6). About 60% of treated sludge is still spread on agricultural land although this is reducing.

Forecast Arisings

3.80 Thames Water's 25 Year Sludge Strategy forecast a steady increase in sludge loadings from 23,506 tonnes (dry solids) in 2011 to 25,405 tonnes (dry solids) in 2031. This forecast has since been revised as a result of an internal review of the planned functioning of the various strategic treatment facilities. The revised forecast extends to 2041, well beyond the plan period. The forecast for 2030 (below) is much the same as the previous forecast, but a reduction in the amount of waste requiring disposal is envisaged subsequently as more waste is treated and less spread on agricultural land.

Table 21: Oxfordshire: estimated sludge loadings to 2031 (tonnes dry solids)

Sewage Sludge Arisings 2012	Sludge Strategy forecast 2030	Revised forecast 2041
20,000	25,000	16,500

Source: Thames Water PLC Ltd

Future Management

3.81 The area available for spreading sludge on land is reducing, in part due to the reluctance of the food supply chain to accept products grown on treated land. Recycling to land remains Thames Water's preferred option where sufficient land is available, but the company predicts that the amount of sludge treated

by means of thermal destruction could increase from 36% to 56%, depending on its ability to commission new treatment facilities

4.0 CROSS-BOUNDARY MOVEMENT OF WASTE

Imported Waste

4.1 For some time, Oxfordshire has taken waste from other areas for management or disposal[80]. Much of this has been in the form of non-hazardous waste and until recently more than half was from London[81]. Significant amounts of waste are also received from Berkshire. Both flows are far greater than might otherwise be expected to cross an administrative boundary for cost-effective management or disposal.

Baseline Arisings

4.2 Tables A8/1-3 provide details of waste received from other areas for 2011, 2012 and 2013 and this is summarised in table 22. This waste accounted for more than a third of the waste managed in Oxfordshire.

Table 22: Origin of waste managed at facilities in Oxfordshire 2011 - 2013 (tonnes)

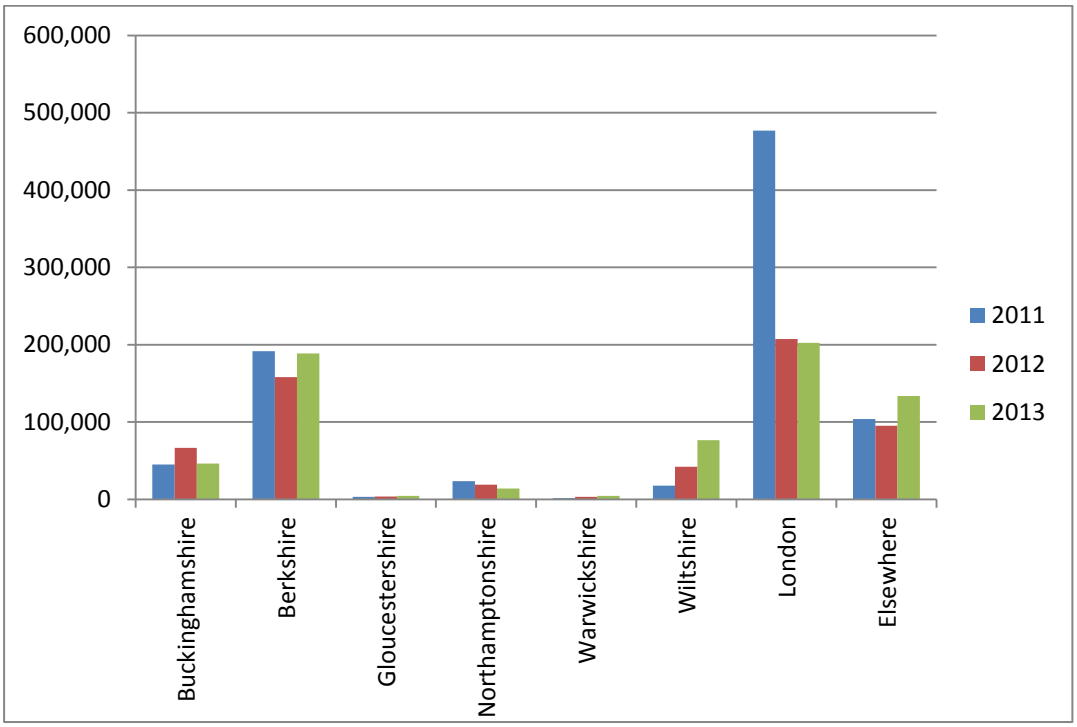
	Oxfordshire		**Other Areas**		**Total**
	Tonnes	%	Tonnes	%	
2011	1,119,572	56%	862,335	44%	1,981,907
2012	1,230,009	67%	594,472	33%	1,824,481
2013	1,244,831	65%	670,443	35%	1,915,274
Total	**3,594,412**	**63%**	**2,127,250**	**37%**	**5,721,662**

Source: Oxfordshire County Council

4.3 Most of the imported waste (84%) came from areas immediately adjoining the county boundary or from London. Most of the remainder came from other parts of the South East.

[80] In 2008 this amounted to some 700,000 tonnes – 30% of the waste managed in Oxfordshire.
[81] In the 3 years between 2008 – 2010 this averaged 240,000 tonnes per annum.

Figure 16: Waste from other areas managed at facilities in Oxfordshire 2011 – 2013 (tonnes)

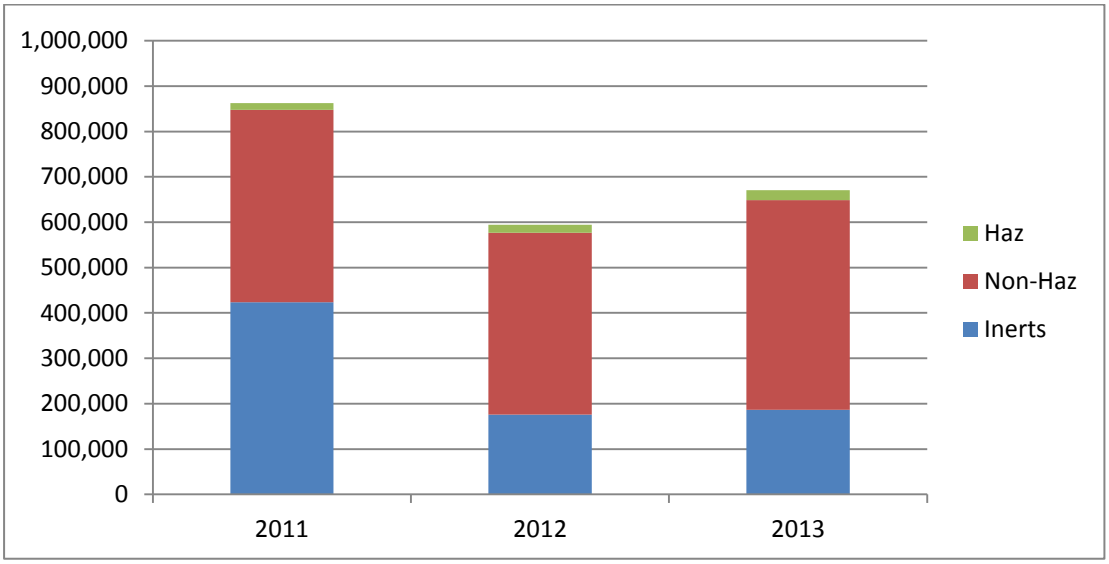


Source: Oxfordshire County Council

4.4 The majority of imported waste has been non-hazardous waste, although this was matched in 2011 by a significant amount of inert waste from the development of the Olympic site in the London Borough of Newham. Non-hazardous waste from London amounted to 186,562 tonnes in 2013 (table A8/3) and the great majority was moved by rail from West London. Non-hazardous waste from Berkshire is slightly less but is nonetheless significant (136,962 tonnes). The majority of this is from Central Berkshire[82]. Figure 18 (below) suggests that non-hazardous waste is beginning to travel from a wider area: this may be the result of landfills closing and not being replaced.

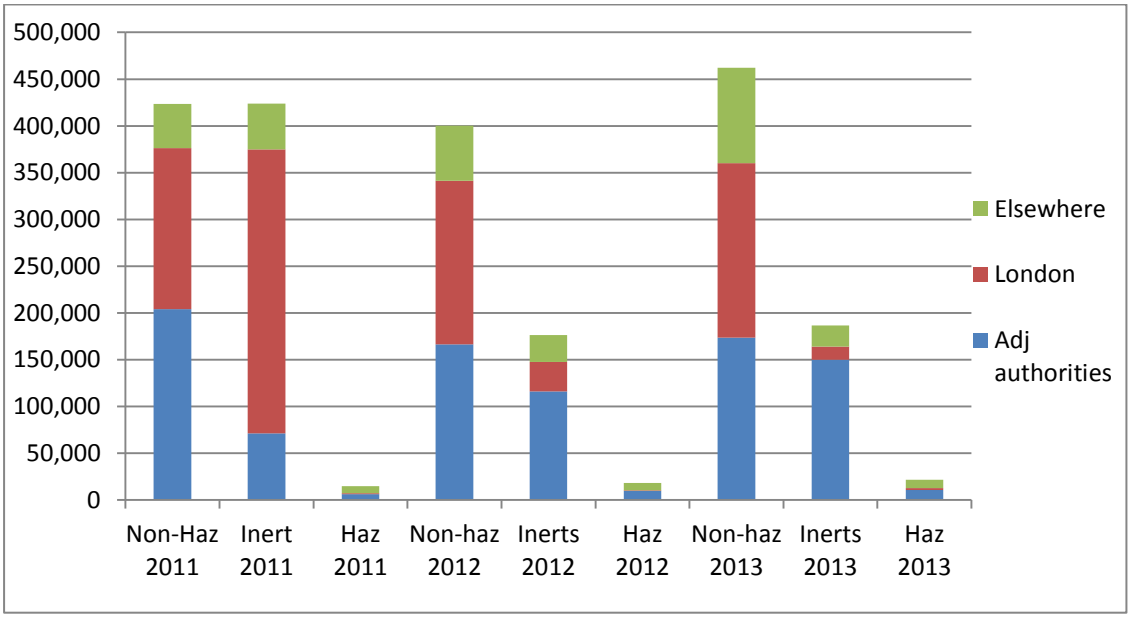
[82] The central Berkshire authorities (Wokingham, Reading and Bracknell Forest) have a combined contract for waste management and are also referred to as the Re3 authorities. In 2013 non-hazardous waste from this area amounted to nearly 105,000 tonnes although not all of this was municipal waste and not all disposed in landfill.

Figure 17: Type of waste received for management at facilities in Oxfordshire (2011 – 2013) (tonnes)



Source: Oxfordshire County Council Waste Management Group

Figure 18: Types of wastes received for management at facilities in Oxfordshire, by area of origin (tonnes)



Source: Oxfordshire County Council Waste Management Group

Current Management

4.5 In 2013 72% of the non-hazardous waste import was disposed in landfill, as was some 52% of inert waste (NB not all inert waste is managed at licensed facilities, so this does not include waste used in land reclamation or restoration of former quarries). Table 23 shows that the majority of waste disposed in landfill comes from London. Of the remainder, about a half comes

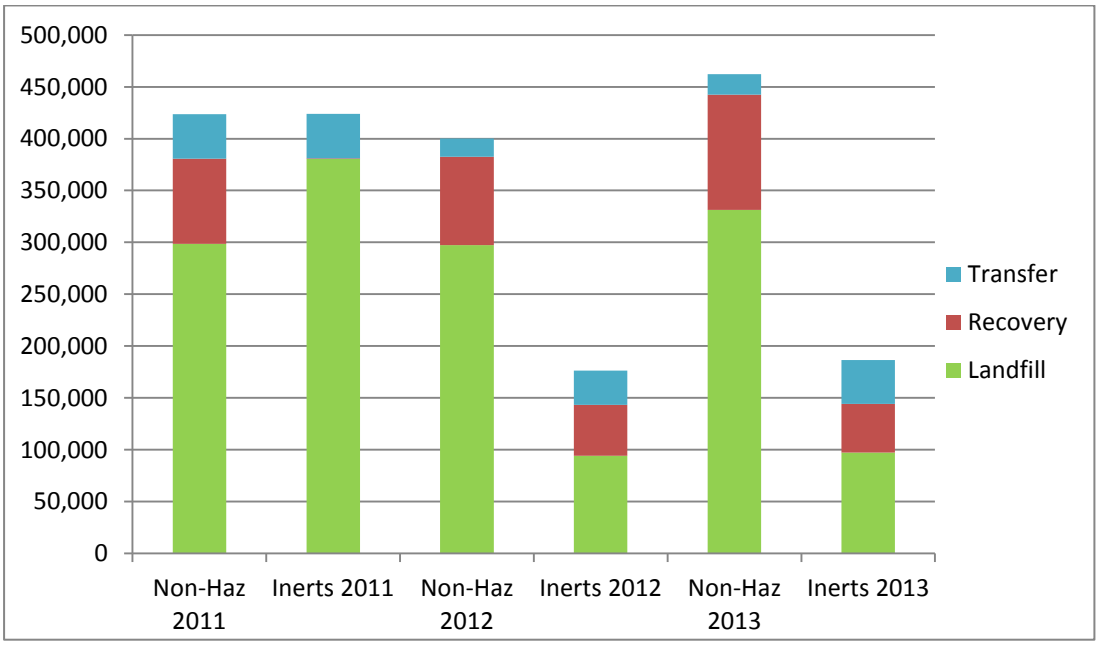
from Berkshire. Figure 19 illustrates the proportions of waste disposed, recovered or transferred.

Table 23: Waste received from other areas for disposal in Oxfordshire landfill in 2011 - 2013 (tonnes).

	Non-hazardous		Inert		Total	
	London	Elsewhere	London	Elsewhere	London	Elsewhere
2011	152,752	145,919	303,114	77,136	455,866	223,055
2012	160,293	137,041	25,221	69,119	185,514	206,160
2013	174,567	156,884	10,229	87,285	184,796	244,169

Source: Oxfordshire County Council

Figure 19: Management of waste produced elsewhere at facilities in Oxfordshire (2011, 2012 & 2013) (tonnes)



Source: Oxfordshire County Council

Forecast Arisings

4.6 With regard to London waste, the former regional planning strategy for the South East (the South East Plan) committed Oxfordshire to disposing of some 2.26 million tonnes of non-hazardous waste in the period 2006 – 2015; and 1.26 million tonnes in the period 2016 – 2026 (total 4.52 million tonnes). The London Plan (adopted in 2011) committed the Boroughs to becoming self-sufficient in meeting their waste needs by 2031 and subsequent alterations to that Plan[83] reduced this further to 2026. This confirms that Oxfordshire can

[83] The Further Alterations to the London Plan (FALP) were adopted in March 2015

expect to receive declining amounts of waste from London and that this should effectively be discontinued well before the end of the plan period. Table 24 shows the amount of waste that may be produced in London over the plan period and the amounts that the capitol expects to be exported for management/disposal in other areas.

Table 24: Future management of London non-hazardous waste 2016 - 2031 ('000 tonnes per annum)

Waste type	2016	2021	2026	2031
HIC arisings	7,769	7,863	8,034	8,173
HIC managed in London	5,821	6,677	8,034	8,173
HIC exported	1,948	1,186	0	0

Source: table 5.4 – Further Alterations to the London Plan (adopted March 2015)

4.7 The London Plan does not attempt to apportion this waste to areas beyond the plan boundary. The former South East Plan (SEP) anticipated that the region would receive about half of the waste to be exported from London (the remainder being managed in the East of England). SEP apportioned this waste in a way that left Oxfordshire with 19% of the total in the period to 2016; and 17% in the period to 2026. Applying this method to the waste now forecast to be managed outside the capitol, in 2016 Oxfordshire could expect to receive nearly 200,000 tonnes of waste from London, but by 2021 this would have reduced to 100,000 tonnes with flows ceasing altogether by 2026.

Table 25: Future export of London non-hazardous waste to Oxfordshire 2016 – 2031 ('000 tonnes per annum)

Waste type	2016	2021	2026	2031
London HIC exported	1,948	1,186	0	0
London HIC exported to S.E.	0.974	0.593	0	0
London HIC received in Oxon	0.185	0.101	0	0

Source: Oxfordshire County Council

4.8 But table 25 can present only a hypothetical position. Since the South East Plan was revoked, some of the areas that were expected to take waste from London are now not likely to do so (because of an acknowledged lack of capacity). Most of the waste that was expected to be received in Oxfordshire was from West London, but the long-term municipal waste contract on which the earlier assessment was made has now expired and, under a new contract, that waste is now being sent to South Gloucestershire (so from 2014 it may be that only small amounts of Commercial and Industrial waste are received i.e. thousands of tonnes but not scores of thousands of tonnes). Movements of inert waste are likely to be similarly low, unless contracted from significant engineering projects (e.g. Cross rail of Thames Tideway Tunnel) and transported by rail.

4.9 With regard to Berkshire waste, the central Berkshire authorities have produced estimates for the amount of municipal waste they expect to send to Oxfordshire for disposal in the period to 2031[84]. These amounts are expected to increase annually[85] as shown in table A14/6. Some food waste from Windsor and Maidenhead is treated under a long term contract at a facility near Wallingford but no other regular movements of waste are anticipated at present[86]. Section 6 looks further at the capacity of Oxfordshire landfills to dispose of waste from Berkshire.

4.10 There are very few certainties regarding likely movements of waste from other areas and any attempt at forecasting tonnages becomes rather academic. Although it seems highly likely that the amounts of waste from central Berkshire will increase, Oxfordshire is otherwise likely to receive less waste from other areas, particularly as a result of West London's municipal waste being disposed in South Gloucestershire. As was demonstrated in 2011, there could be potential for larger amounts of inert waste to be imported as a result of large scale engineering work near London (or possibly HS2) but this is likely to be dependent on the ability to transport such waste by rail. Such waste, if received, is likely to be beneficial in the restoration of worked out quarries.

Exported Waste

Baseline Arisings

4.11 Tables A9/1-3 provide details of waste originating in Oxfordshire that was managed at facilities in other areas in 2011, 2012 and 2013: this amounted to about a quarter of the waste generated.

Table 26: Destination of waste produced in Oxfordshire 2011 - 2013 (tonnes)

	Oxfordshire		**Other Areas**		**Total[87]**
	Tonnes	%	Tonnes	%	
2011	1,119,572	77	341,255	23	1,460,827
2012	1,230,069	78	354,373	22	1,584,442
2013	1,244,831	76	382,541	24	1,627,372
Total	**3,594,472**	**77**	**1,078,169**	**23**	**4,672,641**

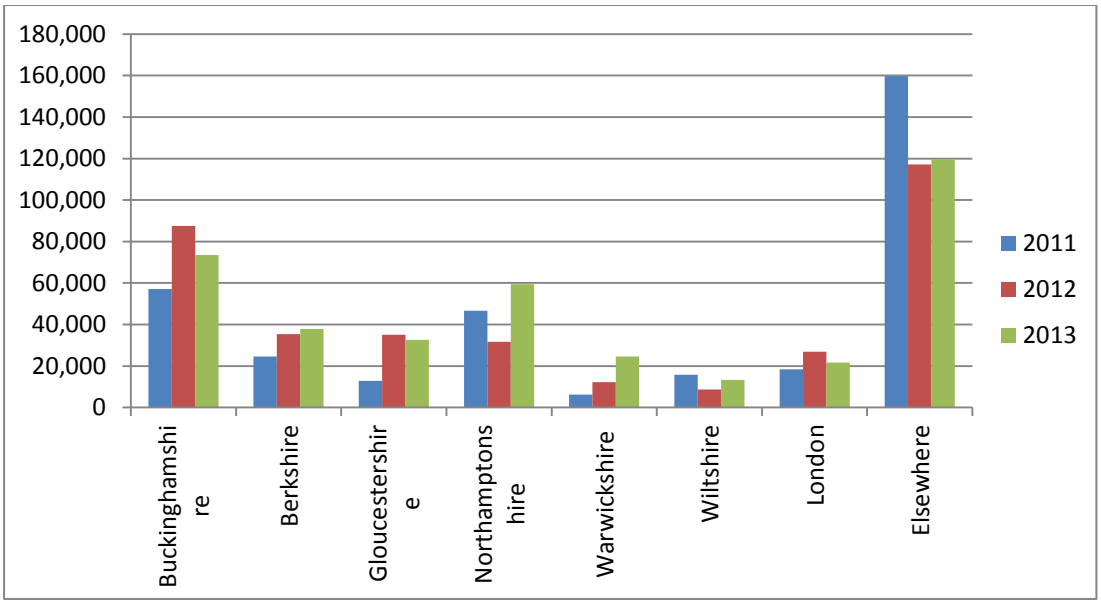
Source: EA Waste Data Interrogator, Oxfordshire County Council

[84] Reading, Wokingham and Bracknell Forest unitary authorities had established a waste partnership (the Re3 authorities) and entered into contract for the disposal of municipal waste to Sutton Courtenay landfill.
[85] From 37,464 tonnes in 2012 to 57,167 tonnes in 2031.
[86] West Berkshire was sending municipal waste for disposal at Sutton Courtenay, but this is now being treated in an incinerator in north Hampshire.
[87] This figure is a close approximation of the total 'waste arising' in Oxfordshire.

Current Management

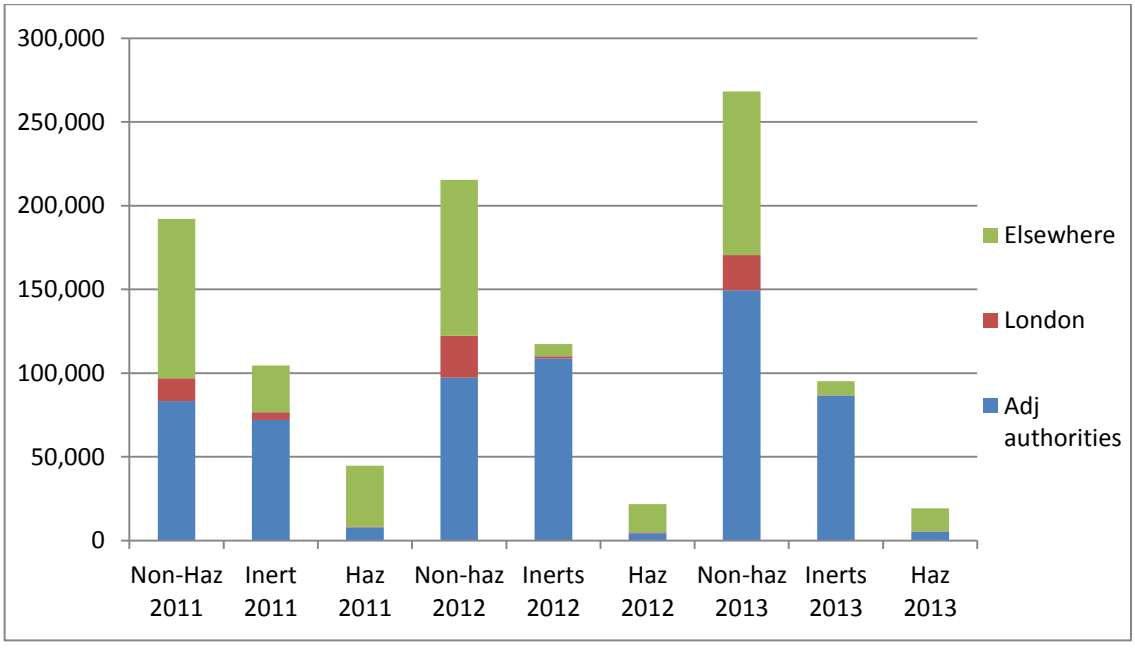
4.12 Just over half (57%) of the waste that left Oxfordshire in the last 3 years is managed at facilities in adjoining authority areas. Of the remainder, more than half (55%) is managed at facilities in the South West or the West Midlands with very little reaching London. Figure 21 shows that non-hazardous waste is likely to travel further than inert waste to be managed or disposed.

Figure 20: Destination of waste produced in Oxfordshire 2011 - 2013 (tonnes)



Source: Oxfordshire County Council

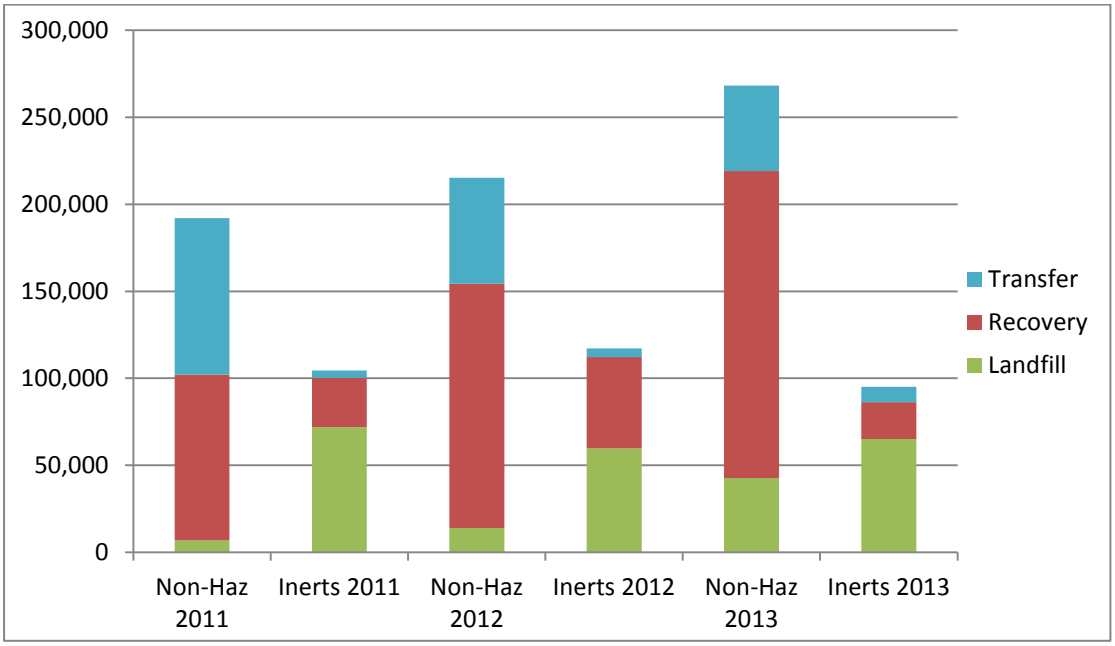
Figure 21: Destination of waste produced in Oxfordshire by waste type 2011 - 2013 (tonnes)



Source: Oxfordshire County Council Waste Management Group

4.13 Some 28% of the waste that was not handled in Oxfordshire was disposed in landfill, the greater portion (60%) being inert waste. Most of the remainder was recovered and most of this (88%) was non-hazardous waste.

Figure 22: Waste produced in Oxfordshire and managed elsewhere (by waste method) 2011 - 2013 (tonnes)



Source: Oxfordshire County Council

Forecast Arisings

4.14 In the period 2011 – 2013 there has been little change in the proportion of Oxfordshire waste that was managed or disposed in other areas. Basic economic principles will normally apply and lead to waste being managed at the nearest available facility: it is therefore inevitable that waste will continue to travel across the county boundary for management or disposal and this will particularly apply for hazardous waste, which relies on specialist facilities that serve particularly catchments (wider than a single county).

4.15 More waste will leave the county if Oxfordshire fails to provide facilities that can manage at least an amount of waste equivalent to that which it produces. For this reason a key objective of the plan is for the county to be net self-sufficient in the management of its principal waste streams. If the plan's policies are effective, the proportion of waste leaving the county to be managed in other areas should not increase.

4.16 Areas which are currently managing or disposing of the more significant amounts of Oxfordshire waste[88] on a regular basis have already been

[88] Movements of waste below the following thresholds would not be defined as significant: non-hazardous waste - 2,500 tpa; inert waste – 5,000 tpa; hazardous waste – 100 tpa.

identified and liaison has taken place with relevant Waste Planning Authorities with a view to establishing whether there are any reasons why such movements could not continue and whether there are opportunities to manage that waste more efficiently. This liaison will continue and, indeed, is expected as a result of the Duty to Cooperate requirement.

5.0 WASTE MANAGEMENT CAPACITY

Capacity Assessment

5.1 Oxfordshire aims to be net self-sufficient in managing much[89] of the waste it produces, and for other forms of waste the aim is to be as net self-sufficient as possible. This section confirms the waste management capacity that is already to manage the county's waste: section 6 uses this information to assess how much additional capacity may need to be provided if the plan's aims are to be achieved.

5.2 Sites that already managing waste are listed by District in Appendix 10. Some may contain more than one type of waste management facility. Facilities can be grouped in a number of different ways, but for the purposes of the Minerals and Waste Local Plan the following categorisation has been adopted (further details in Appendix 11).

Table 27: Oxfordshire: waste management facility categories

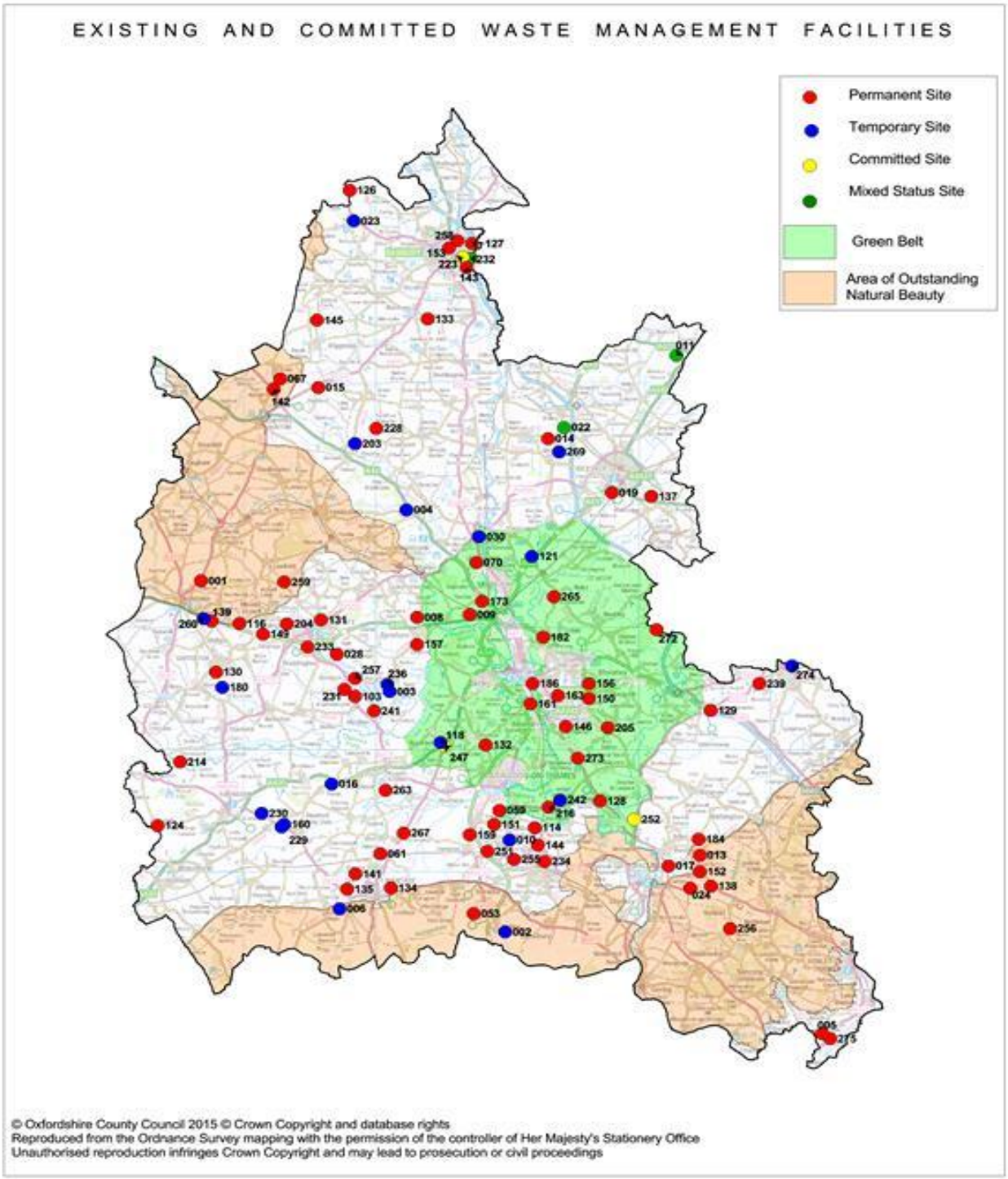
No.	MWDF Category
1(a)	Non-hazardous landfill
1(b)	Hazardous landfill
2.	Inert landfill
3.	MSW/C&I Recycling or Transfer
4.	MSW/C&I Residual Treatment
5.	Composting/Biological Treatment
6	CDE waste Recycling/Transfer
7.	Metal Recycling
8.	Hazardous/Radioactive
9.	Waste Water

Source: Oxfordshire County Council

5.3 Appendix 12 lists existing and committed sites by category: their locations are shown in Map 1. The following sections show how much capacity is provided by both permanent and temporary facilities and the potential impact of closing facilities[90] when a temporary facility is expected to close.

[89] MSW, C&I and CDE waste.
[90] Where the operation has consent to operate for a period beyond 2031 (the plan period) it is treated in the capacity assessment as a permanent facility.

Map 1: Existing and committed waste management facilities)



5.4 The National Planning Practice Guidance for Waste provides guidance on how to assess the capacity of a facility. Each of the assessments shown in Appendix 12 is a summary of a more detailed profile prepared in conjunction with the site operator where possible (see template and explanatory note in Appendix 13). This seeks to identify the maximum capacity at which a facility could reasonably operate. A number of factors are relevant, including the rate at which a facility has been operating - although this will not necessarily represent its maximum capacity. Sites often have potential to manage greater tonnages than shown by throughputs that may have been affected by the recent economic downturn.

5.5 Table 28 shows the capacity available to manage the principal waste streams: this reduces through the plan period as the capacity provided by temporary facilities cannot be relied on following the expiry of a planning permission.

Table 28: Oxfordshire – capacity available to manage waste at existing facilities 2012 – 2031 (tonnes per annum)

Facility type	**2015**	**2016**	**2021**	**2026**	**2031**
Non-hazardous waste recycling	600,300	598,900	429,900	429,900	317,800
Non-hazardous residual waste treatment	300,000	300,000	300,000	300,000	300,000
Composting / food waste treatment	219,600	219,600	219,600	214,600	174,600
Inert waste recycling	1,153,100	1,145,100	1,105,100	889,600	706,600

Source: Oxfordshire County Council (totals do not include committed facilities)

5.6 One of the aims of the plan is to achieve a balanced distribution of waste management capacity across the county in relation to population (and related waste arisings). Table 29 shows that with the exception of Oxford there is a reasonable balance in the number of waste facilities in each district, but the distribution of waste management capacity less well balanced.

Table 29: Waste management capacity by District Council area

Area	Population	Number of facilities	Waste Management Capacity		
			Tonnes per annum	Tonnes per head	Licensed landfill (m3)
Cherwell	142,359	25	1,055,500	7.4	4,163,176
Oxford City	151,739	5	16,200	0.1	0
South Oxfordshire	136,013	21	343,100	2.5	142,430
Vale of White Horse	122,432	29	565,200	4.6	5,503,115
West Oxfordshire	106,008	29	570,200	5.4	1,709,641
Oxfordshire	**658,551**	**101**	**2,550,200**	**3.9**	**11,518,362**

Source: Oxfordshire County Council

Category 1a: Non-hazardous landfill

5.7 Three years ago (2012) Oxfordshire had six recognised landfill sites with capacity to dispose of more than 10 million tonnes of waste[91]. One of these facilities (Alkerton) ceased operating that year, reducing the void[92] by nearly one million cubic metres, and two further facilities are expected to close this year (2015).

5.8 According to the Environment Agency, the void available at the end of 2013 was nearly 7.9 million cubic metres. But taking into account expected site closures and recent waste deposits this is likely to have reduced by some 2.5 million cubic metres to no more than 5.5 million cubic metres by the end of 2015 (see also Table A14/1).

[91] See Oxfordshire Waste Needs Assessment (May 2012)
[92] For the purpose of this study it is assumed that 1 tonne of non-hazardous waste amounts to 1 cubic metre of void space.

Table 30: Oxfordshire Non-hazardous landfill void (cubic metres)

Site Name	District	Permitted End Date	Expected End Date	Void (m3) Dec 2013	Void (m3) Dec 2015
Finmere Quarry	Cherwell	2035	2035	682,442	691,892
Ardley Quarry	Cherwell	2019	2015	1,356,347	0
Alkerton Phase 3	Cherwell	2014	2012	0	0
Dix Pit	West Oxon	2030	2015	1,559,641	0
Slape Hill Quarry	West Oxon	2019	2019	150,000	48,875
Sutton Courtenay	Vale	2030	2030	4,195,583	4,743,976
Total Oxfordshire				**7,944,013**	**5,484,742**

Source: Oxfordshire County Council. Void space (2013) provided by Environment Agency

5.9 Information on the amount of waste deposited in each landfill recently is provided in Table A14/1 and has informed assessment of the void estimated for December 2015.

Category 1b: Hazardous landfill

5.10 There are no hazardous landfill sites in Oxfordshire. The Ardley non-hazardous landfill facility is licensed to accept stable non-reactive hazardous waste (principally asbestos) and part of the non-hazardous void[93] is thus set aside for its disposal. Some 3,000 tonnes of this type of waste was landfilled in 2013 leaving a void of about 160,000 m3 (table A14/2) but this will have been closed by the operator by the end of the year (2015).

Category 2: Inert landfill

5.11 Some inert waste is used for engineering and capping purposes at non-hazardous landfill facilities and this can impact on the capacity that is available for the disposal of non-hazardous waste. But generally, inert waste that is not re-used or recycled is either 'disposed' at landfills licensed for the disposal of that type of waste, or in the restoration of quarries. Waste used to help restore a quarry can be termed a 'recovery' operation – which is above landfill in the waste hierarchy. But the end result of both 'disposal' and 'recovery' operations is that worked out quarries are properly restored so, for the purposes of this study inert landfills also include restoration sites.

5.12 Table 29 (see also further detail in table A14/4) show that as at December 2013 existing sites provided a void space of some 4.5 million cubic metres –

[93] This was believed to be in the order of 200,000 m3 in 2010.

sufficient for the disposal of some 6.75 million tonnes of inert waste[94]. This was about 1.0 million tonnes less than that available in December 2011. The void estimated to be available at the end of this year is actually greater, and this is as a result of a resent revision by operators at Shellingford and Ewelme of the void available at those sites.

Table 31: Oxfordshire Inert landfill void (cubic metres)

Site Name	District	Permitted End Date	Expected End Date	Void (m3) Dec 2013	Void (m3) Dec 2015
Prospect Farm Chilton	Vale of White Horse	Unspecified	Unspecified	60,000	53,857
Finmere Quarry	Cherwell	2018	2018	351,000	351,000
Ewelme No.2 Landfill	South Oxfordshire	2032	2032	142,430	276,782
Ardley Fields Landfill	Cherwell	2019	2015	75,000	75,000
Shipton Quarry Landfill	Cherwell	2025	2025	2,124,387	2,017,476
Shellingford Quarry Landfill	Vale of White Horse	2028	2028	1,161,400	1,767,772
Tubney Wood Landfill	Vale of White Horse	2015	2015	86,132	0
Gill Mill (Area 13)	West Oxfordshire	2020	2020	91,514	71,266
Chinham Farm	Vale of White Horse	2018	2018	74,319	36,066
Moorend Lane Farm	South Oxfordshire	2017	2017	67,636	33,818
Childrey Quarry	Vale of White Horse	2015	2015	Unavailable	0
Upwood Park*	Vale of White Horse	2029	2029	90,000	90,000
Old Brickworks Farm*	Cherwell	2017	2017	45,000	45,000
Enstone Quarry*	West Oxfordshire	Unavailable	Unavailable	100,000	100,000
Worton Farm*	Cherwell	2017	2017	50,000	50,000
Total				**4,518,818**	**4,968,038**

Source: Oxfordshire County Council. Void for 2013 provided by Environment Agency.
* site is permitted but not yet operational

[94] For the purposes of this study 1.5 tonnes of inert waste amounts to 1 cubic metre of void space.

Category 3: Recycling/Transfer

5.13 These facilities generally recover 'dry' waste[95] and divert it from landfill. Much of the waste recovered will then travel to other facilities for further processing or treatment. Wastes that cannot be recycled will go to landfill. The recycling rate (measured in terms of the proportion of waste that is 'saved' from landfill) will vary depending on the type of operation being conducted at each facility. An appropriate recycling rate is either agreed with the relevant operator or if discussion has not been possible a recycling rate of 70% assumed for material recycling facilities and 20% for transfer stations.

5.14 There are currently 34 sites that host transfer or recycling facilities. Some of these are due to close before the end of the plan period.

Table 32: Oxfordshire: estimated recycling capacity (tonnes per annum)

Facility type	Sites	Estimated capacity	Proportion of total capacity
Permanent waste facilities	24	317,800	53%
Temporary waste facilities	10	282,500	47%
All types of waste facility	34	600,300	100%

Source: Oxfordshire County Council

5.15 The Waste Needs Assessment (May 2012) outlines the difficulty of undertaking separate assessments for MSW and C&I waste (facilities are capable of handling both types of waste and proportions depend on contractual arrangements that change frequently). The capacity available for managing both waste streams is therefore considered jointly.

Category 4: Residual waste treatment

5.16 A major Energy Resource Facility has been developed at the Ardley landfill site which is capable of treating 300,000 tonnes of waste per annum. The facility started to accept waste in 2014 and is now fully operational. It is expected to operate close to its capacity.

5.17 The facility is designed to treat residual waste (that which cannot otherwise be recovered - including green waste, food waste and dry recyclables). The facility was approved by the Secretary of State[96] and there are no restrictions on the locations from which waste can be accepted. There is a requirement that all municipal waste sent from Oxfordshire must be accepted[97].

[95] Green waste and food waste is managed at facilities identified under Category 5.
[96] This was a result of an appeal by the operator against the Council's decision to refuse to grant planning permission for the development.
[97] In the order of 100,000 tpa

5.18 A similar facility is being developed at the Calvert landfill site in Buckinghamshire, and planning permission has recently been granted for another facility at Javelin Park in Gloucestershire. These facilities, together with an existing facility at Colnbrook (Berkshire) provide for the needs of a wide geographic area around Oxfordshire.

5.19 The Ardley Energy Resource Facility will itself produce another form of waste. Much of this (incinerator bottom ash) will be processed on site and used elsewhere (as secondary aggregate). Some hazardous residues are to be recovered from emissions and disposed in hazardous landfill in Gloucestershire.

5.20 There are one or two facilities in Oxfordshire handling animal waste, but these are not reported on the Waste Data Interrogator and are therefore not included in the capacity assessment.

Category 5: Composting/Biological Treatment

5.21 These facilities manage organic waste from the municipal and commercial and industrial waste streams i.e. green (garden) waste, discarded foods, wood etc. Green waste in particular can be processed in open windrows to produce compost: alternatively it can be treated, often with food waste, in closed vessels or by a process of anaerobic digestion to produce energy. A slurry bi-product may need to be disposed separately on agricultural land.

5.22 The seven facilities in Oxfordshire are capable of treating some 250,000 tonnes of waste per annum. Most of the facilities are permanent facilities and are likely to operate throughout the plan period.

Table 33: Oxfordshire: estimated composting/biological treatment capacity (tonnes per annum)

Facility type	Sites	Estimated capacity	Proportion of total capacity
Permanent waste facilities	5	174,600	80%
Temporary waste facilities	2	45,000	20%
All types of waste facility	7	219,600	100%

Source: Oxfordshire County Council

Category 6: Inert Waste Recycling/Transfer.

5.23 The hard material from this type of waste is either recycled through mobile crushers at construction sites or through fixed plant at dedicated facilities. Generally speaking on-site operations do not require planning permission and are of a ‘short term’ nature: they are therefore not included in this assessment.

5.24 The material processed at dedicated sites normally arrives directly from a construction/demolition site or via a transfer and sorting facility. Only sites that are capable of processing this type of waste are included in the assessment. Material sorted at transfer stations is not included (to avoid a risk of double counting) but they are nevertheless valuable in diverting waste from landfill.

5.25 There are currently 26 'dedicated' recycling facilities in Oxfordshire. There are more permanent facilities, but the capacity provided by temporary facilities forms a significant part of the overall total.

Table 34: Oxfordshire: estimated inert waste recycling capacity (tonnes per annum)

Facility type	Sites	Estimated capacity	Proportion of total capacity
Permanent waste facilities	18	706,600	61%
Temporary waste facilities	8	446,500	39%
All types of waste facility	26	1,161,100	100%

Source: Oxfordshire County Council

5.26 Most of the facilities listed in Appendix 12 recycle hard aggregate; only two are predominantly soil recycling facilities. Two of the larger facilities employ a washing process and can demonstrate an extremely high recycling rate. As a result the hard aggregate is of a much higher quality and material that might in other circumstances be considered a residue can be separated into a usable product.

5.27 The Waste Needs Assessment 2012 recorded some uncertainty over the capacity provided by two of the key sites. Table A12/7 now confirms the sites at Appleford Sidings (114) and Hardwick (257) as permanent facilities.

Category 7: Metal Recycling

5.28 These sites manage metal wastes from both domestic and commercial/industrial sources. They operate as both transfer and recycling facilities, where material is broken down, processed and in some cases reduced in volume before onward transmission. The value of the waste processed is relatively high and nearly all metal waste is recycled in some way. Very little material is discarded and landfilled.

5.29 Of the sites currently operating in Oxfordshire many are of long-standing and their planning status acquired by historic event. All of the facilities are permanent and all of the sites listed in the Waste Needs Assessment (May 2012) are still operating.

Table 35: Oxfordshire: estimated metal waste recycling capacity (tonnes per annum)

Facility type	Sites	Estimated capacity	Proportion of total capacity
Permanent waste facilities	21	164,700	100%
Temporary waste facilities	0	0	0%
All types of waste facility	21	164,700	100%

Source: Oxfordshire County Council

5.30 The Environment Agency's Waste Data Interrogator suggests that as much as 62% of the waste handled at these sites is classified as hazardous waste (as distinct from waste from domestic or commercial/industrial sources that is not classified as hazardous). A high proportion of the waste is classified as hazardous because most end of life motor vehicles contain hazardous oils and other solvents.

Table 36: Oxfordshire: types of waste managed at Metal Recycling Facilities in 2013 (tonnes)

Waste type	Amount	Proportion
Hazardous	24,055	62%
Household, Industrial or Commercial	9,284	24%
Inert/Construction, Demolition or Excavation	5,335	14%
Total	38,674	100%

Source: Oxfordshire County Council using data from EA Waste Data Interrogator 2013

Category 8: Hazardous and Radioactive wastes

5.31 There has been little change to the number of sites identified in the WNA 2012 which can provide capacity for the management of some 543,350 tonnes of waste (table A12/9). But total capacity is skewed by the inclusion of the Groundwater Contamination Remediation Plant at Harwell. This treated some 523,000 tonnes of groundwater in 2013, slightly in excess of its estimated capacity of 500,000 tonnes per annum.

5.32 If the radioactive waste management facilities at Harwell and Culham are discounted, there is capacity to manage just over 40,000 tonnes of hazardous waste arisings per annum (table A12/9).

Table 37: Oxfordshire: estimated hazardous and radioactive waste recycling capacity (tonnes per annum)

Facility type	Sites	Estimated capacity (tpa)	Proportion of total capacity
All waste facilities	12	543,650	100%
Contaminated Groundwater Treatment Plant (Harwell)	1	500,000	91%
B462 (Harwell)	1	3,000	0.5%
Culham JET (temporary)	1	300	< 1%
Hazardous waste facilities	9	40,350	10%

Source: Oxfordshire County Council

5.33 Facilities that are able to store or process radioactive waste are limited to Harwell and Culham. At the Culham Science Centre there is a small facility that processes and stores waste from the Joint European Taurus nuclear fusion project. The larger site is, however, at the former nuclear energy research facility at Harwell. The B462 complex processes intermediate radioactive waste and will retain this in a secure store pending disposal in a national deep geological disposal facility (expected to be available by 2040). Other facilities at Harwell store lower level radioactive wastes pending disposal out of county. A major liquid effluent treatment plant is currently undergoing decommissioning and this is being replaced by a smaller facility within the B462 complex.

Category 9: Waste Water

5.34 There has been no change to the number of strategic waste water treatment facilities operated by Thames Water plc. Recent investment in the plant at Sandford (Oxford) has led to a significant increase in capacity.

Table 38: Strategic Waste Water Treatment facility loadings (tonnes dry solids)

Facility	Current Throughput	Current Capacity	Projected Throughput
Banbury	3,520	5,984	5,984
Bicester	1,760	2,464	1,936
Didcot	1,760	2,640	1,936
Oxford	19,712	23,584	21,120
Wantage (Grove)	986	N/A	1,056
Witney	4,224	4,928	4,928

Source: Thames Water Utilities Ltd (28.04.2015)

6.0 WASTE MANAGEMENT CAPACITY REQUIREMENT

Introduction

6.1 The following sections assess the extent to which capacity at existing waste management facilities (table 28) can meet the Plan's needs (table A4/3). Policies in the Plan identify how any shortfalls should be addressed.

6.2 Any shortfalls identified may reduce if capacity that already has the benefit of planning permission is built. Details of these schemes are included in the capacity tables in Appendix 12. Further proposals can be expected to come forward during the plan period, and sites already nominated for inclusion in the Part 2 Plan[98] are shown in Appendix 15. Table 39 shows the additional capacity that could be provided if the sites are found acceptable. Appendix 16 matches this capacity against the needs that have been identified.

Table 39: Possible additional waste management capacity (operator nominations).

Cat No.	Category	Sites	Additional Capacity
1	Non-haz landfill	None	No new nominations
2	Inert landfill	20b, 026, 027, 213, 222, 224, 230	Nominations for 3,975,000 m3 additional capacity
3	MSW/C&I recycling/transfer	002, 006, 023, 180, 236, 250, 261,276	Nominations for 244,600 tpa additional capacity
4	MSW/C&I residual treatment	023, 103, 138, 217	Nominations for 650,000 tpa additional capacity
5	Composting/biological treatment	226, 249A, 249B	Nominations for 65,000 tpa additional capacity
6	CDE recycling	001,002, 005, 006, 007, 010, 018, 020b, 021, 026, 027, 103, 121, 225, 236, 245, 248, 262, 276	Nominations for 1,187,000 tpa additional capacity
7	Metal recycling	None	No new nominations
8	Hazardous	None	No new nominations
9	Waste Water	None	No new nominations

Source: Oxfordshire County Council

[98] A major 'call for sites' exercise was undertaken in 2008/09 and refreshed in 2015.

Category 1a: Non-hazardous landfill

6.3 The landfill void likely to be available at the end of 2015 will be approximately 5.5 million cubic metres (Table A14/1). This is unlikely to increase during the plan period (no nominations have been received for this type of development). Table 40 demonstrates that available capacity is more than adequate for the waste from Oxfordshire that will need to be disposed in landfill[99].

Table 40: Availability of non-hazardous landfill space for disposal of Oxfordshire waste arisings 2015 – 2031 (cubic metres)

	2015	2016	2017-2021	2022-2026	2027-2031
Oxon MSW		25,600	119,600	86,400	90,800
Oxon C&I		184,000	811,800	341,500	191,800
Oxon Total		209,600	931,400	427,900	282,600
Remaining Void	**5,484,742**	**5,275,142**	**4,343,742**	**3,915,842**	**3,633,242**

Source: Oxfordshire County Council (void assessed for the end of each forecast period)

6.4 Void space is available for waste from other areas: alternatively the remaining landfills would take far longer to be fully restored than is currently envisaged. Table A14/5 considers options for how the available void space might be utilised, and the results are summarised below (figures rounded to the nearest 100,000 cubic metres).

Table 41: Options for assessing availability of Oxfordshire landfill void (m3)

Scenario	Detail	Void left in 2031 (m3)
1a	Accommodation of Oxfordshire waste only	3,600,000
1b	Accommodation of Oxfordshire waste and imported waste (as at 2013 – 328,154 tpa)	-1,600,000
1c	Accommodation of Oxfordshire waste and imported waste (as at 2013 but reduced by 140,000 tpa to reflect no further municipal waste from West London)	600,000
2a	Accommodation of waste based on 2013 fill rate for each site	1,300,000
2b	Accommodation of waste based on 2013 fill rate for each site but adjusted to reflect no further municipal waste from West London	1,500,000
3	Accommodation of waste at the rate required to secure the restoration of each landfill to its permitted end date	1,600,000
4	Accommodation of Oxfordshire and Central Berkshire waste only	2,800,000

Source: Oxfordshire County Council

[99] Not all waste can be recycled or treated.

6.5 If waste were to be received from other areas at current rates (scenario 1b) the available void would be filled before 2027. Alternatively the void would be filled just after the end of the plan period if waste from West London is discounted (scenario 1c). Option 4 perhaps provides the most useful forecast: once planned waste from Oxfordshire and Berkshire is disposed, some 175,000 tonnes of additional waste could be disposed each year from other areas. This is about the same as the amount of waste currently received from other areas[100].

Category 1b: Hazardous landfill

6.6 About 12% of Oxfordshire's hazardous waste is landfilled at present. Assuming an on-going need to dispose of a similar proportion of hazardous waste in landfill, Oxfordshire would need to provide space to dispose of some 10,000 tonnes of waste by the end of the plan period. This would equate to a requirement for a void of about 150,000 m3 over the plan period. To this should be added the 10,000 tonnes of fly ash that is likely to be generated each year by the Ardley Energy Resource Facility.

6.7 With the closure of the Ardley landfill this year, Oxfordshire will have no capacity for the disposal of hazardous waste, and no nominations have been received for additional facilities. The county is likely therefore likely to be dependent on facilities in neighbouring areas for its disposal needs. Liaison with the Waste Planning Authorities already taking Oxfordshire waste indicates that it should be possible for these needs to be accommodated.

Category 2: Inert landfill

6.8 The current landfill void (as assessed for December 2015) is 4.9 million cubic metres. This provides capacity to dispose of some 7.2 million tonnes of waste (Table A14/4). Table 42 demonstrates that the void is adequate to dispose of Oxfordshire forecast arisings to at least 2026.

Table 42: Availability of inert landfill space for disposal of Oxfordshire waste 2015 – 2031 (cubic metres)

	2015	2016	2017-2021	2022-2026	2027-2031
Oxfordshire forecast CDE wastes to be landfilled		339,900	1,727,333	1,838,667	1,838,667
Available Void	**4,968,038**	**4,628,138**	**2,900,805**	**1,062,138**	**-776,529**

Source: Oxfordshire County Council (void assessed for the end of each forecast period)

[100] In 2013 Oxfordshire received almost 330,000 tonnes of waste from other areas, but this will now have reduced by at least 140,000 tonnes with the change to the contract for West London waste (see section 4).

6.9 Planning permissions[101] for future mineral extraction create a further void of 2.45 million cubic metres and this will require an additional 3.675 million tonnes of material for successful restoration. There will thus be a surplus void of 1.7 million cubic metres at the end of the plan period if only Oxfordshire waste is disposed. Nominations submitted by operators could increase this surplus by a further 3.975 million cubic metres (Appendix 15).

Table 43: Potential void for disposal of inert waste to 2031 (cubic metres)

	Existing (2015)	**Commitments (to 2031)**	**Nominations (to 2031)**
Actual Void	**-776,529**	+ 2,450,000	+ 3,975,000
Net Void	**-776,529**	+1,673,471	+3,198,471

Source: Oxfordshire County Council

6.10 In 2013 Oxfordshire disposed of some 430,687 tonnes of waste from other areas of which 97,514 tonnes were inert wastes (detail in table 44 below). The committed void is more than adequate for the disposal of a similar amount of waste[102]; indeed Oxfordshire is likely to need further waste from other areas to secure the satisfactory restoration of its voids.

Table 44: Source of waste disposed in Oxfordshire 2013 (tonnes)

	Inert Wastes (tonnes)	**Non-hazardous Wastes (tonnes)**	**Hazardous Wastes (tonnes)**
Adjoining authorities	69,824	119,471	883
London	10,229	174,567	292
Rest of UK	17,461	37,413	547
Total	97,514	331,451	1,722
	430,687		

Source: Oxfordshire County Council

Category 3: Recycling/Transfer

6.11 There is capacity to recycle some 600,300 tonnes of municipal and commercial/industrial waste each year and this adequate for current needs. But some 282,500 tonnes of capacity will be lost during the plan period and the amount of waste to be recycled is forecast to increase, so in the period 2016-2021 existing capacity becomes inadequate. Table 45 shows that this inadequacy grows throughout the plan period and grows to create a shortfall of more than 300,000 tonnes per annum.

[101] Includes Gill Mill where the issue of planning permission is dependent on the prior completion of a legal agreement

[102] 97,514 tonnes requires 65,000 m3 void = 1.4 million cubic metres over the plan period.

Table 45: Capacity required for MSW and C&I waste recycling 2015-2031 (tonnes per annum)

	2015	2016	2021	2026	2031
MSW target	98,800	105,600	113,200	126,000	131,600
C&I target	355,000	404,700	454,800	497,600	502,500
Total Waste	453,800	510,300	568,000	623,600	634,100
Capacity (perm)	317,800	317,800	317,800	317,800	317,800
Capacity (temp)	282,500	281,100	112,100	112,100	0
Total Capacity	600,300	598,900	429,900	429,900	317,800
Surplus/Deficit	**146,500**	**88,600**	**-138,100**	**-193,700**	**-316,300**

Source: Oxfordshire County Council

6.12 Capacity with planning permission that has not yet been built is not sufficient to overturn the capacity deficiency that arises before 2021, which would still be in the order of 80,000 tpa (and 260,000 tpa in 2031). Adequate provision has been made for municipal waste needs, so the requirement is mainly for commercial and industrial waste. Nominations have been made for some 245,000 tpa of additional capacity (table 38) but these sites may not provide for all of the additional capacity that may be required.

6.13 This does, however, present a 'worse case' scenario, the following factors also being relevant;

- the assessment is based on an estimate of future waste that uses a methodology employed by Defra for an assessment of commercial and industrial waste arisings in England[103]. The government has recently commissioned further work that uses a different methodology to estimate arisings[104] and this has resulted in an estimate that is 21% lower than the earlier estimate;
- capacity provided at metal recycling sites[105] has not been included in the assessment as it is not entirely clear the contribution these should make. These sites do recycle metal that is derived from the commercial and industrial waste stream but some waste managed is also classified as hazardous[106].

[103] This was based on a survey of waste producers and estimated arisings for England in 2009 as 47,884,000 tonnes.
[104] Jacobs "New Methodology to Estimate Waste Generation by Commercial and Industrial Sector in England" Project Report August 2014. This uses a new estimation method based on datasets provided by the Environment Agency.
[105] Total capacity is assessed at 164,700 tpa (see table A12/8.
[106] The waste processed at these sites in 2013 amounted to 38,674 tonnes of which 62% was classified as hazardous (see table 36)

6.14 Clear conclusions cannot be drawn at this stage, but if Oxfordshire's forecast C&I waste arisings were reduced by 21% (in line with the recent national adjustment) C&I waste arisings for 2031 would reduce to 611,000 tonnes and the capacity requirement for MSW and C&I waste recycling (70%) to 427,000 tpa – reducing the capacity deficit by some 75,000 tpa. The capacity provided at metal recycling sites would not meet the reduced capacity requirement, but assuming metal wastes comprise 5% of the C&I waste stream these sites could contribute a further 40,000 tonnes to the capacity deficit.

Category 4: Residual Waste Treatment

6.15 The Ardley Energy Resource Facility provides capacity for the treatment of 300,000 tonnes of municipal and commercial/industrial waste per annum. There are no other facilities at present to address these needs but the Ardley ERF is expected to provide adequate capacity for Oxfordshire's residual waste treatment requirement.

Table 46: Capacity required for management of MSW and C&I residual waste treatment 2015-2031 (tonnes per annum)

	2015	**2016**	**2021**	**2026**	**2031**
MSW arisings	0	96,000	102,900	90,000	94,000
C&I arisings	0	110,400	189,500	191,400	193,300
Total Waste	0	206,400	292,400	281,400	287,300
Capacity (perm)	300,000	300,000	300,000	300,000	300,000
Surplus/Deficit	**300,000**	**93,600**	**7,600**	**18,600**	**12,700**

Source: Oxfordshire County Council

6.16 Planning permission has been granted for a gasification plant at Finmere Quarry and, if implemented, this would increase available capacity by 98,000 tonnes per annum. Considerable interest has been expressed by operators to add further to this capacity (table 39).

Category 5: Composting/biological treatment

6.17 Oxfordshire has capacity to compost/treat some 219,600 tonnes of municipal and commercial/industrial waste each year. Some 45,000 tonnes of capacity could be lost during the plan period as two sites are subject to planning permissions that expire before 2031. But even without these sites Table 47 shows that capacity is already sufficient to meet the plan's needs.

Table 47: Capacity required for management of MSW and C&I waste composting and biological treatment 2015-2031 (tonnes per annum)

	2015	2016	2021	2026	2031
MSW arisings	74,900	92,800	109,700	126,000	131,600
C&I arisings	0	36,700	37,900	38,200	38,600
Total Waste	74,900	129,700	147,600	164,200	170,200
Capacity (perm)	174,600	174,600	174,600	174,600	174,600
Capacity (temp)	45,000	45,000	45,000	40,000	0
Total Capacity	219,600	219,600	219,600	214,600	174,600
Surplus	**144,700**	**89,900**	**72,000**	**50,400**	**4,400**

Source: Oxfordshire County Council

Category 6: Inert Waste recycling

6.18 Existing facilities provide capacity for recycling some 1.2 million tonnes of waste and this is more than adequate to meet current needs. But some 446,500 tonnes capacity could be lost during the plan period and recycling needs could increase by more than 204,000 tonnes per annum. Table 48 shows that existing capacity will not be adequate to meet the plan's needs for the latter part of the plan period.

Table 48: Capacity required for management of CDE waste recycling 2015-2031 (tonnes per annum)

	2015	2016	2021	2026	2031
CDE arisings	540,000	623,000	827,000	827,000	827,000
Capacity (perm)	706,600	706,600	706,600	706,600	706,600
Capacity (temp)	446,500	438,500	398,500	183,000	0
Total Capacity	1,153,100	1,145,100	1,105,100	889,600	706,600
Surplus/Deficit	**613,100**	**522,100**	**278,100**	**62,600**	**-120,400**

Source: Oxfordshire County Council

6.19 The deficit of 120,400 tonnes per annum in 2031 will reduce when a planned facility at Upwood Park (Vale of White Horse) becomes operational but this is not significant and additional capacity will still need to be found. Operator nominations for facilities that could provide for almost 1.2 million tonnes of waste per annum have already been made.

Category 7: Metal Recycling

6.20 Existing facilities provide capacity for recycling some 164,700 tonnes of metal waste per annum. The amount of metal waste managed in 2013 was nearly 39,000 tonnes (although this has been as much as 50,000 tonnes previously). Table 49 shows that existing capacity is adequate (although needs are difficult to estimate accurately[107]).

Table 49: Capacity required for management of metal waste 2015-2031 (tonnes per annum)

	2015	2016	2021	2026	2031
Metal arisings	35,000	36,800	37,900	38,300	38,700
Capacity (perm)	164,700	164,700	164,700	164,700	164,700
Surplus	**129,700**	**127,900**	**126,800**	**126,400**	**126,000**

Source: Oxfordshire County Council

Category 8: Hazardous and Radioactive wastes

Hazardous waste

6.21 Existing facilities provide capacity for transfer or recycling of some 43,350 tonnes of hazardous waste per annum. This leaves a mathematical deficit of nearly 12,000 tonnes per annum to manage existing waste arisings and this could increase to nearly 39,000 tonnes per annum at the end of the plan period.

Table 50: Capacity required for management of hazardous waste 2012-2031 (tonnes per annum)

	2012	2016	2021	2026	2031
Hazardous waste arisings	52,000	58,750	65,500	72,250	79,000
Capacity (perm)*	40,350	40,350	40,350	40,350	40,350
Deficit	**-11,650**	**-18,400**	**-25,150**	**-31,900**	**-38,650**

Source: Oxfordshire County Council
*Excluding the water treatment facility at Harwell (site 53Ai)

6.22 Existing capacity will be increased with the construction of a Materials Recycling Facility in Banbury which is designed to manage up to 5,000 tonnes of hazardous waste per annum. But because of the specialist nature of these facilities, much of the capacity already available in Oxfordshire is used for the management of waste from other areas. In turn, some 80% of Oxfordshire's

[107] Needs have been assessed as 5% of the Commercial and Industrial waste forecast.

waste is thought to be managed or disposed elsewhere, and this is likely to continue. There is no disposal capacity in Oxfordshire, so in the absence of new facilities the additional waste that will be generated by the Ardley ERF (paragraph 6.6) will also need to be disposed out of county.

Radioactive waste

6.23 There is capacity at Culham and Harwell to process and store the intermediate level radioactive waste arising from nuclear energy research. But the facility at Culham is the subject of a temporary planning permission and provision is being made for waste from Culham to be stored at Harwell in the longer term. A new secure store at Harwell will be added to the B462 complex shortly[108] and the complex should provide sufficient capacity for both sites' waste together with waste from a similar research facility that is undergoing decommissioning at Winfrith in Dorset.

6.24 Most of the Low Level radioactive waste arising at the two sites is from the demolition of existing structures and the associated ground works and will need to be disposed. There are no suitable disposal facilities in Oxfordshire: such facilities are not abundant elsewhere and the development of additional facilities raises complex issues, including viability. There is a national disposal facility near Drigg in Cumbria and this is the only available facility for the disposal of some forms of low level waste. Very low level radioactive waste can be disposed in a suitably engineered non-hazardous landfill site and waste from Harwell is currently being taken to a facility in east Northamptonshire, and the Waste Planning Authority has confirmed this facility should be available until at least 2027.

6.25 Only very small amounts of radioactive waste are believed to be generated by other sources in Oxfordshire, and facilities at Harwell may be able to help in their future management prior to disposal.

Category 9: Waste Water

6.26 Table 51 shows that there is sufficient capacity for the treatment of waste water. Much of the surplus is created by the recent completion of a major improvement to the strategic facility at Sandford (South Oxfordshire) that serves Oxford.

[108] This facility is currently not included in table A12/9

Table 51: Capacity for forecast waste water sludge loading 2011-2031 (tonnes per annum)

	2011	2016	2021	2026	2031
Waste Water arisings	23,506	24,141	24,613	25,060	23,405
Capacity (perm)	42,000	42,000	42,000	42,000	42,000
Surplus	**18,494**	**17,859**	**17,387**	**16,940**	**18,595**

Source: Thames Water Utilities Ltd

6.27 Forecast arisings are from the Thames Water 25-year Sludge Strategy which pre-dates recent population forecasts (including the SHMA). Table 38 shows more up to date loadings for the strategic treatment sites and confirms that the Company expects these capable of coping with future demand (to 2026).

Overall Conclusions

6.28 The Plan aims to be net self-sufficient in providing for the needs of the principal waste streams:

- municipal solid waste;
- commercial and industrial waste;
- construction, demolition and excavation waste.

To achieve this, capacity is required to manage and dispose of waste in accordance with the plan's waste management targets.

6.29 Except for recycling, there is adequate capacity to manage and dispose of non-hazardous waste but existing capacity is not adequate for inert waste

Table 52: Additional capacity requirement for the principal waste streams 2012-2031 (tonnes per annum)

Facility type	2012	2016	2021	2026	2031
Non-hazardous Landfill	-	-	-	-	-
Inert landfill	-	-	-	-	776,529*
Non-hazardous waste recycling	-	-	138,100	193,700	316,300
Non-hazardous residual waste treatment	-	-	-	-	-
Composting / food waste treatment	-	-	-	-	-
Inert waste recycling	-	-	-	-	120,400

Source: Oxfordshire County Council (blank value indicates surplus)
*Cubic metres

6.30 The majority of agricultural waste will continue to be managed at source on the unit of production, and the small amount of waste to be managed elsewhere will be provided for at commercial and industrial waste management facilities.

6.31 Some hazardous waste will continue to be managed and disposed out of county but opportunity taken where possible to improve on the capacity already provided in Oxfordshire. A similar approach is justified for radioactive waste.

6.32 The strategic waste water treatment sites should be adequate to accommodate the county's needs, although some on-going facility upgrade and enhancement may be required.

APPENDIX 1

Waste Needs Assessment (May 2012)

Summary of findings

Municipal Solid Waste

A1.1 A total of 297,306 tonnes of waste was produced in 2011/12[109], continuing a general decline in annual arisings that began in 2008/09. 41% of this waste was sent to landfill; nearly all of the remainder was recycled or composted.

A1.2 The Oxfordshire Waste Partnership (OWP)[110] anticipated that waste arisings would increase to 349,000 tonnes per annum by 2030: this assumed the housing growth rates set out in the former South East Plan would be met and that from 2012 there would be no increase in the amount of waste produced per household.

A1.3 By 2030 it was anticipated that 70% of waste arisings would be recycled or composted (including food waste treatment). No more than 5% of the remaining (residual) waste would be sent to landfill. With the exception of a small amount of clinical and hazardous waste collected, all other residual waste would be recovered at the Ardley Energy from Waste plant.

Commercial & Industrial Waste

A1.4 The WNA 2012 estimated that some 566,800 tonnes[111] of managed waste was produced in Oxfordshire in 2009[112]. A recent national survey suggests that half of this (283,400 tonnes) was diverted from landfill.

A1.5 Waste arisings are expected to increase to some 642,600 tonnes by 2030. This is based on a growth rate of 0.63% that was applied by the former South East England Partnership Board in a 2010 update of its regional waste management model. This growth rate equates to the growth in employment forecast for Oxfordshire over the same period.

A1.6 By 2030 70% of forecast should be recycled or composted (including food waste treatment). Of the remainder (residual waste) no more than 5% would be sent to landfill; the remainder would be recovered in the Ardley EfW plant or at similar plant elsewhere.

Construction, Demolition and Excavation Waste

A1.7 Construction, demolition and excavation (CDE) waste managed each year is in the order of 1.3 million tonnes. CDE waste managed at licensed sites between 2005 and 2007 averaged 900,000 tonnes per annum. CDE waste managed at sites that are exempt from licensing (estimated as 30% of the waste stream[113]) makes up the remaining 400,000 tonnes.

[109] The final total was confirmed as 297,527 tonnes
[110] In connection with the Review of the Oxfordshire Joint Municipal Waste Management Strategy
[111] This is less than total arisings – some waste will have been managed at the source site.
[112] Applied the results of a national survey by DefRA to estimated arisings for Oxfordshire by sector in 2002/03 by the Environment Agency
[113] Capita Symonds (for DCLG) Survey of Arisings and Use of Alternatives to Primary Aggregates in England 2005: Construction, Demolition and Excavation waste (Feb 2007)

A1.8 The economic down turn has led to a significant drop in CDE arisings - as a result of less building activity. CDE waste to be managed in 2011-12 is estimated at 650,000 tonnes, but this would eventually return to 1.3 million tonnes by 2015 and 'flat line' thereafter.

A1.9 In England, 60% of this type of waste is recycled as hard aggregate and soils[114]. The former South East Plan set a recycling target of 60% from 2020 and the same target seems appropriate for Oxfordshire. Most recycled waste comprises hard aggregate (about 50% of the waste stream nationally) and the remainder recycled soils (Table A7/1 – Appendix 7).

Hazardous Waste

A1.10 The study reported that Oxfordshire had produced some 41,000 tonnes of hazardous waste in 2008. Higher levels of arisings had been recorded in previous years, but in 2010 SEWPAG recorded that arisings had fallen (to 31,000 tonnes).

A1.11 It was expected that the rate at hazardous waste was produced would continue to fluctuate and to be no higher than 60,000 tonnes by 2030.

A1.12 No targets were set for the management of this waste stream, but it was noted that the former South East Plan gave priority to a need to provide for certain types of specialist facility across the region.

Agricultural Waste

A1.13 In 1998 arisings in Oxfordshire were estimated at 900,000 tonnes. The waste stream was not considered in further detail.

Radioactive Waste

A1.14 Some 100,000 tonnes of low level radioactive waste from sites at Culham and Harwell will need to be managed or disposed. Most of the waste will come from the demolition of buildings at Harwell associated with nuclear energy research. Much of the waste is likely to be Very Low Level radioactive waste[115], of a type that could be safely disposed at a licensed non-hazardous landfill.

A1.15 Some 7,744 tonnes of Intermediate Level radioactive waste[116] will also need to be managed and stored following decommissioning work at the two sites.

[114] WRAP Updating data on construction, demolition and excavation waste: interim progress report (Jan 2010)
[115] <200Bq/g

Waste Water

A1.16 In 2006 Oxfordshire treated some 22,600 tonnes of disposable solids[117]. The majority of the treated waste is spread on land, although there are thermal destruction plants at Beckton and Crossend (London) which produce energy from solid waste produced throughout the south-east.

A1.17 By 2031 there will have been an 8% increase in sludge loadings (tonnes dry solids).

[117] Thames Water 25-year Sludge Strategy (December 2006)

APPENDIX 2

Baseline waste arisings

South East Waste Planning Authorities

Table A2/1: Baseline Waste Arisings: South East Sub-Regions (tonnes)

Sub-Region	Population (2011)	MSW (2009/10)		C&I (2010)		CDE (2010)		Hazardous (2010)	
		tonnes	head	tonnes	head	tonnes	head	tonnes	head
Berkshire	878,431	488,545	0.556	793,164	0.903	332,211	0.378	44,246	0.050
Buckinghamshire	771,788	437,711	0.567	513,211	0.665	509,139	0.660	24,809	0.032
East Sussex	812,514	416,651	0.513	358,856	0.442	212,335	0.261	28,736	0.035
Hampshire	1,925,724	1,090,356	0.566	1,507,169	0.783	1,221,086	0.634	113,477	0.059
Kent	1,764,617	921,870	0.522	1,353,841	0.767	1,355,350	0.768	172,994	0.767
Oxfordshire	666,082	313,609	0.471	567,104[118]	0.851	369,259[119]	0.554	31,365	0.047
Surrey	1,152,114	590,917	0.513	688,175	0.597	676,208	0.587	47,061	0.041
West Sussex	821,356	468,128	0.570	499,072	0.608	280,371	0.341	52,631	0.064
South East	**8,792,626**	**4,757,151**	**0.541**	**6,280,589**	**0.714**	**4,955,959**	**0.564**	**505,870**	**0.057**

p.h. tonnes of waste per head of population

Tonnages as assessed by South East Waste Planning Advisory Group
- MSW from Waste Data Flow
- C&I assessed by Urban Mines Consultants using raw data from DefRA national C&I survey
- CDE is waste managed at licensed facilities according to EA Waste Data Interrogator
- Hazardous taken from EA Hazardous Waste Interrogator

[118] BPP estimates 710,000 tonnes for Oxfordshire (1.066 tonnes per head)
[119]. The total for Oxfordshire is adjusted to 607,021 tonnes (table 12) and equates to 0.991 tonnes per head of population.

APPENDIX 3

Population and Housing Data

Table A3/1: Oxfordshire Future Population: Comparison of Forecasts

	ONS	OCC		SHMA		
Year	**Jun-14**	**Aug-12**	**Jan-14**	**Proj 1**	**Proj 2**	**Proj 4**
2011		655,727	654,791	654,791	654,791	654,791
2012	661,000	658,682	658,551			
2013	664,000	662,471	661,973			
2014	668,000	668,528	667,595			
2015	672,000	676,977	677,193			
2016	**677,000**	**684,100**	**687,947**	**675,791**	**683,477**	**707,241**
2017	681,000	690,269	697,541			
2018	685,000	695,004	705,348			
2019	689,000	699,946	714,327			
2020	693,000	703,968	721,824			
2021	**696,000**	**707,021**	**727,717**	**694,287**	**711,360**	**761,557**
2022	700,000	709,976	732,999			
2023	704,000	712,238	737,236			
2024	708,000	713,296	741,234			
2025	712,000	713,683	744,893			
2026	**716,000**	**713,311**	**748,085**	**713,456**	**737,657**	**802,318**
2027	719,000	712,723	751,277			
2028	723,000	712,515	754,469			
2029	726,000	712,724	757,661			
2030	729,000	712,914	760,853			
2031	**732,000**	**713,086**	**764,045**	**731,554**	**762,255**	**838,724**

Source: ONS, Oxfordshire County Council, SHMA (GL Hearn)

NB: OCC (Aug 2012) projections for 2027-2031 are as used by Atkins for OCC LAA 2013

Table A3/2 Oxfordshire Housing Completions 2006/07 – 2012/13

Districts	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total
Cherwell	853	455	426	438	370	356	340	3238
Oxford	821	529	665	257	200	228	213	2913
South	168	512	253	191	211	480	504	2319
Vale	538	448	324	438	334	376	326	2784
West	814	863	578	384	424	359	278	3700
Oxfordshire Totals	**3194**	**2807**	**2246**	**1708**	**1539**	**1799**	**1661**	**14954**

Source: Oxfordshire County Council

APPENDIX 4

Management of the Principal Waste Streams

Table A4/1: Oxfordshire waste arisings 2012 - 2031 (million tonnes)

	2012	2016	2021	2026	2031
LACW	0.300	0.320	0.343	0.360	0.376
C&I	0.710	0.736	0.758	0.766	0.773
CDE	1.005	1.220	1.483	1.483	1.483

Source: Oxfordshire County Council

Table A4/2: Oxfordshire waste management targets 2012 – 2031

Waste Management / Waste Type	Target Year				
	2012	2016	2021	2026	2031
Municipal waste					
Composting & food waste treatment	25%	29%	32%	35%	35%
Dry Recycling	33%	33%	33%	35%	35%
Treatment of residual waste	0%	30%	30%	25%	25%
Landfill	42%	8%	5%	5%	5%
Total	100%	100%	100%	100%	100%
Commercial and industrial waste					
Composting & food waste treatment	0%	5%	5%	5%	5%
Dry Recycling	50%	55%	60%	65%	65%
Treatment of residual waste	0%	15%	25%	25%	25%
Landfill	50%	25%	10%	5%	5%
Total	100%	100%	100%	100%	100%
Construction, demolition and excavation waste					
Recycling	52%	55%	60%	60%	60%
Landfill/Restoration*	48%	45%	40%	40%	40%
Total	100%	100%	100%	100%	100%

Source: Oxfordshire County Council
Targets for 2012 approximate to actual performance for that year
* includes waste disposed as part of a recovery operation

Table A4/3: Oxfordshire: estimated waste required to be managed 2012 – 2031 (tonnes per annum)

Waste Management / Waste Type	Target Year				
	2012	2016	2021	2026	2031
Municipal waste					
Composting & food waste treatment	74,900	92,800	109,700	126,000	131,600
Dry Recycling	98,800	105,600	113,200	126,000	131,600
Treatment of residual waste	0	96,000	102,900	90,000	94,000
Landfill	125,900	25,600	17,200	18,000	18,800
Total	299,600	320,000	343,000	360,000	376,000
Commercial & industrial waste					
Composting & food waste treatment	0	36,700	37,900	38,200	38,600
Dry Recycling	355,000	404,700	454,800	497.600	502,500
Treatment of residual waste	0	110,400	189,500	191,400	193,300
Landfill	355,000	184,000	75,800	38,300	38,600
Total	710,000	735,800	758,000	765,500	773,000
Construction, demolition & excavation waste					
Recycling	522,600	671,200	889,900	889,900	889,900
Landfill / Restoration	482,400	549,100	593,200	593,200	593,200
Total	1,005,000	1,220,300	1,483,100	1,483,100	1,483,100

Source: Oxfordshire County Council
Figures rounded to nearest 100 tonnes
Landfill totals do not include hazardous waste arising from residual waste treatment.

APPENDIX 5

Municipal Solid Waste Data

Table A5/1: Oxfordshire Municipal Solid Waste management 2002/03 – 2013/14

Year	Recycle/ Reuse	Compost	Food	Landfill	Other	Total
2002/03	40,799	20,079	-	255,484	-	316,362
2003/04	49,238	20,336	-	238,980	-	308,554
2004/05	67,812	23,055	-	223,711	-	314,578
2005/06	64,515	34,899	-	211,666	-	311,080
2006/07	70,919	47,638	-	203,673	-	322,230
2007/08	78,659	46,951	-	200,278	-	325,888
2008/09	79,828	51,189	-	179,734	-	310,751
2009/10	82,249	51.084	7,807	158,199	2,696	302,035
2010/11	85,785	57,989	11,312	139,992	5,088	300,166
2011/12	89,793	63,213	15,680	122,985	5,635	297,306
2012/13	98,778	60,473	14,437	125,818	74	299,580
2013/14	102,049	60,288	14,428	130,623	436	307,824

Source: Oxfordshire County Council Waste Management Team
Figures for 2013/14 are provisional

Table A5/2: Oxfordshire Municipal Solid Waste forecast arisings 2031 (tonnes)

Source	Tonnes (2031)	Clarification
Defra (low)	265,001	Applies the lowest government forecast (for 11.4% drop in household waste by 2020) to Oxfordshire household waste base line arisings for 2012/13, adding 20,000 tonnes to convert to 'municipal' waste, 'flat lining' to 2031.
Defra (central)	292,930	Applies the median government forecast (for 1.3% drop in household waste by 2020) to Oxfordshire household waste base line arisings, adding 20,000 tonnes to convert to 'municipal' waste: then 'flat lines' to 2031.
Mid-Range	320,310	The mean of the lowest and highest forecasts shown in this table.
Defra (high)	320,583	Applies the highest government forecast (for 8.7% growth in household waste by 2020) to Oxfordshire household waste base line waste arisings, adding 20,000 tonnes to convert to 'municipal' waste: then 'flat lines' to 2031.
SHMA Proj 1	330,179	Applies the amount of household waste produced per head in 2012 (0.424 tonnes) to the SHMA initial population projection for 2031 (based on ONS 2013 interim projections): then adds 20,000 tonnes (being waste collected by local authorities from other sources).
SHMA Proj 2	343,196	As SHMA Proj 1 but uses corrected ONS population projections to take account of recent shortfalls in expected housing completions.
OJMWMS (1)	348,771	The Oxfordshire Waste Partnership forecast: this uses OCC population projections (Aug 2012) and assumes no growth in the amount of waste per head from 2012.
SHMA median	349,655	The median of the three SHMA projections.
OJMWMS (2)	350,604	As OJMWMS (1) but uses more up to date OCC population forecasts (Jan 2014) and applies the more up to date household waste production factor (0.424 tonnes per head). 20,000 tonnes added to total to produce a 'municipal' waste total.
SHMA Proj (4)	375,619	As SHMA Proj 2 but takes account of planned economic growth by LEP.

Source: Oxfordshire County Council

Table A5/3: Forecast 'Municipal' waste arisings for Oxfordshire 2011-2031 (tonnes)

Scenario	2011	2012	2013	2014	2015	2016
Low	297,527	300,089	302,651	305,212	307,774	310,336
Medium	297,527	299,580	301,028	303,792	308,384	313,225
High	297,527	301,996	306,464	310,933	315,401	319,870

2017	2018	2019	2020	2021	2022	2023	2024
312,898	315,459	318,021	320,583	320,583	320,583	320,583	320,583
317,735	321,557	325,922	329,654	332,877	335,654	338,369	341,019
324,476	329,082	333,688	338,294	342,900	346,357	349,813	353,270

2025	2026	2027	2028	2029	2030	2031
320,583	320,583	320,583	320,583	320,583	320,583	320,583
344,130	345,780	347,762	348,953	349,872	350,291	350,604
356,726	360,183	363,270	366,357	369,445	372,532	375,619

Source: Oxfordshire County Council

Table A5/4: Long Range Alternative Forecast for 'Muncipal' waste arisings (tonnes)

	2014	2016	2021	2026	2031	2036	2041
Low	308,626	318,429	328,716	335,403	340,548	347,009	352,267
Medium	311,978	325,184	353,703	368,208	379,575	394,088	406,097
High	315,347	335,463	380,343	403,928	422,745	447,174	467,730

Source: Oxfordshire County Council (Waste Management Group)

Table A5/5: Oxfordshire managed 'Municipal' waste forecasts for 2031 (tonnes)

	Low	Medium	High
Compost/food	112,204	122,711	131,467
Dry Recycling	112,204	122,711	131,467
Residual waste treatment	80,146	87,652	93,905
Landfill	16,029	17,530	18,780
Total	320,583	350,604	375,619

Source: Oxfordshire County Council

Table A5/6: Oxfordshire 'Municipal' waste: high forecast managed waste (2011/12 – 2031) (tonnes)

	2011/12	2016	2021	2026	2031
Dry recycling	91,154	99,160	113,157	126,064	131,467
Composting / food treatment	78,893	99,160	109,728	126,064	131,467
Residual waste treatment	4,270	95,961	102,870	90,046	93,905
Landfill	123,210	25,589	17,145	18,009	18,780
Total	297,527	319,870	342,900	360,183	375,619

Source: Oxfordshire County Council

Table A5/7: Oxfordshire: MSW Management by District and HWRCs (2013/14) (tonnes)

	Recycle/ Reuse	Compost	Food	Landfill	Other	Total
Cherwell	13,427	135	17,541	25,997	-	57,100
Oxford	16,881	734	5,842	31,301	-	54,758
S. Oxon	17,275	9,592	5,307	16,870	151	49,195
Vale	15,422	7,048	4,662	14,014	161	41,307
W. Oxon	12,453	10,452	3,084	20,986	-	46,975
HWRC	26,590	10,320	-	21,456	123	58,489
Total	102,048	38,281	36,436	130,624	435	307,824
(%)	33%	12%	12%	42%	<1%	100%

Source: Oxfordshire County Council Waste Management Team

Table A5/8: Oxfordshire: method of waste collection by District Council (August 2014)

District	Dry Recyclable	Food Waste	Green Waste	Residual Waste
Cherwell	Blue Bin or Boxes* (fortnightly)	Brown Bin (comingled with green waste) (fortnightly)	Brown Bin (fortnightly)	Green Bin (fortnightly)
Oxford City	Blue Bin or Boxes (fortnightly)	Small Green Bin (green kitchen caddy) (weekly)	Green Waste Bag or brown Bin (fornightly)	Green Bin or Lilac sacks (fortnightly)
South Oxfordshire	Green Bin (fortnightly)	Small Green Bin (green kitchen caddy) (weekly)	Brown Bin (fortnightly)**	Grey Bin (fortnightly)
Vale of White Horse	Green Bin (fortnightly)	Small Green Bin (green kitchen caddy) (weekly)	Brown Bin (fortnightly)**	Grey Bin (Fortnightly)
West Oxfordshire	Black Box (weekly)	Small Black bin (silver kitchen caddy) (weekly)	Black Bin (fortnightly)	Grey Bin (fortnightly)

* *glass not accepted at kerbside*
** *opt in scheme*
Source: Oxfordshire County Council Waste Management Team

Table A5/9: Oxfordshire: destination of collected waste by District and HWRCs (2014)

Source	Transfer	Recycle	Compost/ Organic	Residual
Cherwell	Banbury	Various	Ardley	Ardley
Ox City	Enstone	Various	Ardley Yarnton	Ardley
SODC	Culham Sutton Courtenay	Various	Crowmarsh	Ardley
VoWH	Culham Sutton Courtenay	Various	Crowmarsh Hinton Waldrist	Ardley
WODC	Stanton Harcourt Witney	Various	Chipping Norton	Ardley
HWRCs				Ardley

Source: Oxfordshire County Council Waste Management Team
More details for recycled waste can be found at www.recycleforoxfordshire.org.uk

APPENDIX 6

Commercial and Industrial Waste

and

Hazardous Waste

Data

Table A6/1: Waste output from Didcot A Power Station 2000-2013 (tonnes)

2000 Total ash produced: **395,295** Recycle/recover : **142,402** Landfill : **252,893**	**2007** Total ash produced: **376,458** Recycle/recover : **239,282** Landfill :**137,176**
2001 Total ash produced: **303,767** Recycle/recover : **97,219** Landfill : **206,548**	**2008** Total ash produced: **278,184** Recycle/recover : **192,134** Landfill :**86,050**
2002 Total ash produced: **329,858** Recycle/recover : **203,601** Landfill : **126,257**	**2009** Total ash produced: **208,316** Recycle/recover : **125,557** Landfill : **82,759**
2003 Total ash produced: **516,340** Recycle/recover : **204,724** Landfill :**311,616**	**2010** Total ash produced: **150,568** Recycle/recover : **23,780** Landfill : **126,788**
2004 Total ash produced: **295,599** Recycle/recover : **145,570** Landfill : **150,029**	**2011** Total ash produced: **93,957** Recycle/recover : **43,854** Landfill : **50,103**
2005 Total ash produced: **226,414** Recycle/recover : **130,889** Landfill : **95,525**	**2012** Total ash produced: Recycle/recover : 141,367 Landfill : 77,316
2006 Total ash produced: **403,837** Recycle/recover : **175,522** Landfill : **228,315**	**2013** Total ash produced: Recycle/recover : 124,939 Landfill : 0

Source: Oxfordshire County Council

Table A6/2: Forecast C&I waste arisings for Oxfordshire 2012-2031 (tonnes)

Forecast	2012	2016	2021	2026	2031
Low	710,000	715,000	720,000	728,000	735,000
Medium	710,000	724,000	737,000	750,000	763,000
High	710,000	736,000	758,000	765,500	773,000

Source: BPP Consulting

Table A6/3: Management of Commercial and Industrial waste 2012-2031 (tonnes)

	2012	**2016**	**2021**	**2026**	**2031**
C&I arisings	**710,000**	**736,000**	**758,000**	**765,500**	**773,000**
Recycling	320,000	404,600	454,800	497,500	502,400
Composting	35,000	36,800	37,900	38,300	38,700
Residual treatment	0	110,400	189,500	191,400	193,300
Landfill	355,000	184,000	75,800	38,300	38,600

Source: Oxfordshire County Council

Table A6/4: Forecast Hazardous waste arisings for Oxfordshire 2012-2031 (tonnes)

2012	2016	2021	2026	2031
52,000	58,000	63,000	71,000	79,000

Source: BPP Consulting

APPENDIX 7

Construction, Demolition and Excavation waste

Data

Table A7/1: CDE waste managed (England) 2005 and 2008 (million tonnes)

	2005		2008	
Recycled aggregate	42.1	47%	43.5	50%
Recycled soils	4.4	5%	9.2	11%
Excavation waste – exempt sites	15.4	17%	11.0	13%
Landfill engineering / capping	9.6	11%	10.6	12%
Quarry restoration	10.2	11%		
Inert CDE – waste to landfill	7.9	9%	8.9	10%
Non-inert CDE – waste to landfill	No info	-	2.9	3%
Non-inert CDE – waste to recovery	No info	-	0.8	1%
Sub-total (excludes non-inert)	89.6	100%	83.2	96%
Total	n/a	n/a	86.9	100%

Source: 'Construction, demolition and excavation waste arisings, use and disposal for England 2008': Capita Symonds for WRAP

Table A7/2: Management of Oxfordshire CDE waste arisings 2008 (tonnes)

	Constr-uction	Demol-ition	Sub-Total	%	Excavation	Total	%
Recycling	16,000	221,000	237,000	34%	69,000	306,000	23%
Prepare for Recycling	44,000	252,000	296,000	43%	142,000	438,000	32%
Recovered	81,000	0	81,000	11%	233,000	314,000	23%
Disposed	63,000	19,000	82,000	12%	218,000	314,000	22%
Total	204,000	492,000	696,000		662,000	1,358,000	

Source: table 15 of BPP Consulting report on Baseline, Forecasts & Targets for Construction, Demolition & Excavation waste generated in Oxfordshire (Feb 2014)

Table A7/3: Oxfordshire CDE managed waste 2012 (tonnes)

	Construction		Demolition		Excavation		TOTAL	
	Tonnes	%	Tonnes	%	Tonnes	%	Tonnes	%
Recycling	19,000	8%	76,000	45%	52,000	10%	147,000	16%
Prepare for Recycling	53,000	22%	86,000	51%	115,000	22%	254,000	27%
Recovery	97,000	40%	0	0%	183,000	35%	280,000	30%
Landfill	73,000	30%	6,000	4%	172,000	33%	251,000	27%
Totals	242,000	26%	168,000	18%	522,000	56%	932,000	100%

Source: Oxfordshire County Council

Table A7/4: Estimates of Oxfordshire waste to be managed 2012-2031 ('000 tonnes)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
High	932	979	1,028	1,079	1,133	1,190	1,250	1,313	1,379
Medium	932	932	932	932	932	932	932	932	932
Low	932	923	914	905	896	887	878	869	860

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379
932	932	932	932	932	932	932	932	932	932	932
856	852	848	844	840	836	832	828	824	820	816

Source: Oxfordshire County Council

Table A7/5: Waste to be managed based on rate of housing construction recommended by Oxfordshire Strategic Market Housing Assessment (tonnes)

	2012	2016	2021	2026	2031
No. of houses	1,661	3,146	5,003	5,003	5,003
Waste per house (tonnes)	604	604	604	604	604
Total Waste	932,000	1,900,000	3,022,000	3,022,000	3,022,000

Source: Oxfordshire County Council

Table A7/6: Management of forecast construction, demolition and excavation waste (Oxfordshire high estimate) (tonnes)

	2012	2016	2021	2026	2031
Recycling/Use/ Conversion	466,000	623,000	827,000	827,000	827,000
Recovery/Landfill	466,000	510,000	552,000	552,000	552,000
Total	932,000	1,133,000	1,379,000	1,379,000	1,379,000

Source: Oxfordshire County Council

APPENDIX 8

Origin of waste managed and disposed in Oxfordshire

(2011 – 2013)

Table A8/1: Origin of Waste (England, Wales and Scotland) managed in Oxfordshire (2011)
By Waste Sector and Management Category

Area	Inerts			Non-hazardous			Hazardous	Total
	Transfer	Treat/MRS	Landfill	Transfer	Treat/MRS	Landfill		
Buckinghamshire	4,181	294	11,188	395	5,088	20,153	3,689	44,988
Berkshire	32,142	51	3,288	22,598	27,970	104,681	669	191,399
Oxfordshire	144,198	43,254	340,601	112,041	180,646	284,449	14,383*	1,119,572
Gloucestershire	2,119	-	36	430	456	16	206	3,263
Northamptonshire	21	60	781	2,693	2,412	15,778	1,588	23,333
Warwickshire	619	-	3	616	128	-	22	1,388
Wiltshire	177	-	16,423	57	686	1	109	17,453
London	517	-	303,114	54	19,357	152,752	913	476,707
S.E. other	2,954	421	41,000	10,177	4,721	189	1,397	60,859
S.W. other	5	-	-	900	337	8	1,790	3,040
E.Mid other	49	-	-	1,244	25	-	258	1,576
W.Mid other				3,622	82	-	280	3,984
E.E.	63	2	4,417	124	17,843	5,093	3,435	30,977
Other	-	-	-	16	2,920	-	432	3,368
Total	**187,045**	**44,082**	**720,851**	**154,967**	**262,671**	**583,120**	**29,171***	**1,981,907**

1. Buckinghamshire includes Milton Keynes
2. Berkshire Unitary Authorities detail on separate sheet
3. Wiltshire includes Swindon
4. Does not include 37,646 tonnes registered 'Not Codeable' (355 tonnes Hazardous; 12,238 Non-hazardous; 25,053 Inert)

* Excludes 409,443 tonnes of contaminated groundwater treated at Harwell Science Campus

Table A8/2: Origin of Waste (England, Wales and Scotland) managed in Oxfordshire (2012) By Waste Sector and Management Category

Area	Inerts			Non-hazardous			Hazardous	TOTAL
	Transfer	Treat/MRS	Landfill	Transfer	Treat/MRS	Landfill		
Buckinghamshire	2,749	23,428	10,629	274	9,467	14,221	5,611	66,379
Berkshire	24,597	591	8,894	732	39,737	82,410	881	157,842
Gloucestershire	2,173	180	453	309	359	11	265	3,750
Northants	17	523	498	725	1411	13,203	2,567	18,944
Oxfordshire	144,311	291,357	205,839	103,942	164,463	311,530	8,567	1,230,009
Warwickshire	524	9	-	335	63	2,073	70	3,074
Wiltshire	204	12,196	28,394	62	959	-	121	41,936
London	509	5,631	25,221	54	14,781	160,293	857	207,346
S.E. other	2,195	5,815	17,394	10,224	11,260	11,915	1,317	60,120
S.W. other	11	24	2,359	359	2,191	-	839	5,783
E.Mid other	20	-	-	899	66	2	105	1,092
W.Mid other	2	13	-	1,922	38	-	67	2,042
E.E.	37	524	498	1,624	1,477	13,205	5,045	22,410
Other	-	-	-	12	3,484	1	257	3,754
Total	**177,349**	**340,291**	**300,179**	**121,473**	**249,756**	**608,864**	**26,569**	**1,824,481**

1. Buckinghamshire includes Milton Keynes
2. Berkshire Unitary Authorities detail on separate sheet
3. Wiltshire includes Swindon
4. Excludes the 429,578 tonnes of contaminated groundwater treated at Harwell Science Campus

Table A8/3: Origin of Waste (England, Wales and Scotland) managed in Oxfordshire (2013)
By Waste Sector and Management Category

Area	Inerts			Non-hazardous			Hazardous	TOTAL
	Transfer	Treat/MRS	Landfill	Transfer	Treat/MRS	Landfill		
Buckinghamshire	2,620	751	16,071	335	12,872	7,384	6,178	46,211
Berkshire	31,563	2,336	16,833	1,459	33,735	101,768	1,076	188,770
Oxfordshire	147,149	245,244	331,544	102,287	170,732	231,108	16,767	1,244,831
Gloucestershire	3,164	49	202	433	301	3	344	4,496
Northamptonshire	12	146	338	436	3,022	7,441	2,613	14,008
Warwickshire	869	23	0	550	21	2,875	107	4,445
Wiltshire	686	38,058	36,380	18	1,042	0	415	76,599
London	322	3,356	10,229	284	11,711	174,567	2,043	202,512
S.E. other	3,013	2,021	6,599	11,982	23,916	30,311	1,677	79,519
S.W. other	9	0	42	462	3,497	3,653	332	7,995
E.Mid other	54	0	0	1,707	184	41	209	2,195
W.Mid other	1	0	8	1,980	41	0	303	2,333
E.E.	10	0	541	157	10,447	3,386	6,109	20,650
Other	2	0	10,271	3	10,138	22	274	20,710
Total	**189,474**	**291,984**	**429,058**	**122,093**	**281,659**	**562,559**	**38,447**	**1,915,274**

1. Buckinghamshire includes Milton Keynes
2. Berkshire Unitary Authorities detail on separate sheet
3. Wiltshire includes Swindon
4. Does not include 37,646 tonnes registered 'Not Codeable' (355 tonnes Hazardous; 12,238 Non-hazardous; 25,053 Inert)
5. Oxfordshire figures exclude 522,941 tonnes of contaminated groundwater treated at Harwell Science Campus

APPENDIX 9

Destination of waste arising in Oxfordshire

(2011 – 2013)

Table A9/1 Destination of Waste originating in Oxfordshire (2011)
By Waste Sector and Management Category

Area of Origin	Inerts			Non-hazardous			Hazardous	TOTAL
	Transfer	Treat/MRS	Landfill	Transfer	Treat/MRS	Landfill		
Buckinghamshire	-	5,574	29,183	13,100	7,581	1,519	116	57,073
Berkshire	2,959	5,115	2,606	300	8,942	3,221	1,463	24,606
Gloucestershire	-	1	6,521	28	5,751	75	383	12,759
Northamptonshire	265	3,508	-	36,379	3,750	-	2,730	46,632
Oxfordshire	144,198	43,254	340,601	112,041	180,646	284,449	14,383*	1,119,572
Warwickshire	-	-	5,895	-	192	-	123	6,210
Wiltshire	547	2,721	7,160	125	589	1,760	2,909	15,811
London	401	4,077	-	13,530	55	-	395	18,458
S.E. other	5	1,471	543	56	5,383	-	2,862	10,320
S.W. other	-	-	-	70	44,031	-	11,201	55,302
E.Mid other	-	16	1,086	16	3,847	2	552	5.519
W.Mid other	-	621	24	24,165	12,338	168	3,131	40,447
E.E.	70	313	18,968	1,373	2,413	-	994	24,131
Other	-	4,819	-	770	565	5	17,828	23,987
Total	**148,445**	**71,490**	**412,587**	**201,953**	**276,083**	**291,199**	**59,070**	**1,460,827**

1. Buckinghamshire includes Milton Keynes
2. Berkshire Unitary Authorities detail on separate sheet
3. Wiltshire includes Swindon
4. Oxfordshire figures exclude 409,443 tonnes of contaminated groundwater treated at Harwell Science Campus

Table A9/2: Destination of Waste originating in Oxfordshire (2012)
By Waste Sector and Management Category

Area of Origin	Inerts			Non-hazardous			Hazardous	TOTAL
	Transfer	Treat/MRS	Landfill	Transfer	Treat/MRS	Landfill		
Buckinghamshire	6	24,876	35,930	5,947	9,697	10,858	160	87,474
Berkshire	4,107	3,000	9,725	713	15,590[120]	213	1,963	35,311
Gloucestershire	-	3492	3944	-	27,398	5	288	35,127
Northamptonshire	-	11,034	-	15,782	4,228	-	601	31,645
Oxfordshire	144,311	291,357	205,839	103,942	164,463	311,530	8,627[121]	1,230,069
Warwickshire	-	960	8,316	-	2,680	-	212	12,168
Wiltshire	761	1,758	884	256	1,126	2,792	1,044	8,621
London	128	1,073	1	12,970	12,113	-	629	26,914
S.E. other	3	2,959	16	40	7,430	1	6,762	17,211
S.W. other	-	16	-	56	32,480	-	1,347	33,899
E.Mid other	-	2	520	22	3,026	14	747	4,331
W.Mid other	1	339	-	23,322	10,387	35	4,793[122]	38,877
E.E.	-	262	442	22	1,749	-	1,117	3,592
Other	2	2,712	-	1,824	12,567	-	2,098	19,203
Total	**149,319**	**343,840**	**265,617**	**164,896**	**304,934**	**325,448**	**30,388[123]**	**1,588,442**

1. Buckinghamshire includes Milton Keynes
2. Berkshire Unitary Authorities detail on separate sheet
3. Wiltshire includes Swindon
4. Oxfordshire figures exclude contaminated groundwater treated at Harwell Science Campus

[120] Includes 5,092 tonnes managed by way of Energy from Waste plant
[121] WDI produces slightly higher figure when running report for OCC summary table 'Origin of Waste (England, Wales and Scotland) managed in Oxfordshire (2012)
[122] Not including 485 tonnes of aqueous sludges treated at Minworth Sludge Digestion and Combined and Heat Power plant
[123] Includes 874 tonnes of hazardous or chemical waste treated by way of incineration

Table A9/3: Destination of Waste originating in Oxfordshire (2013)
By Waste Sector and Management Category

Area of Origin	Inerts			Non-Hazardous			Hazardous	Total
	Transfer	Treat/MRS	Landfill	Transfer	Treat/MRS	Landfill		
Buckinghamshire	66	7,412	20,286	429	8,378	36,065	854	73,490
Berkshire	6,003	1,867	16,011	2,298	10,268	492	945	37,884
Gloucestershire	0	30	418	362	31,147	173	380	32,510
Northamptonshire	778	3,011	14,563	28,932	11,718	0	460	59,462
Oxfordshire	147,149	245,244	331,544	102,287	170,732	231,108	16,767	1,244,831
Warwickshire	0	126	9,458	0	14,944	0	13	24,541
Wiltshire	1,720	817	3,989	95	1,624	2,455	2,632	13,332
London	43	82	128	479	20,665	0	246	21,643
S.E. Other	6	717	17	19	13,803	0	4,227	18,789
S.W. Other	205	22	9	115	45,391	1,972	2,158	49,872
E.Mid Other	0	9	47	26	2,474	724	922	4,202
W.Mid Other	1	1,257	63	14,648	12,754	688	5,050	34,461
E.E.	1	1,043	123	48	1,441	0	538	3,194
Other	0	4,855	0	1,520	1,981	48	757	9,161
Total	**155,972**	**266,492**	**396,656**	**151,258**	**347,320**	**273,725**	**35,949**	**1,627,372**

1. Buckinghamshire includes Milton Keynes
2. Berkshire Unitary Authorities detail on separate sheet
3. Wiltshire includes Swindon
4. Oxfordshire figures exclude 522,941 tonnes contaminated groundwater treated at Harwell Science Campus

APPENDIX 10

Waste management facilities by District

Table A10/1: Oxfordshire Safeguarded Waste Sites

CHERWELL DISTRICT				
No.	**Site**	**Parish**	**Grid Ref**	**Type of Facility**
009	Worton Farm	Yarnton	SP 471113	Recycle/Transfer
				Biological Treatment
				CDE Recycling
011	Finmere Quarry	Finmere	SP 628322	Recycle/Transfer
				Residual Treatment
014	Ashgrove Farm	Ardley	SP 534256	Biological Treatment
019	Bicester STW	Bicester	SP 579210	Waste Water Treatment
022	Ardley Landfill	Ardley	SP 543259	Residual Treatment
				Recycle/Transfer (HWRC)
				Recycle/Transfer
023	Alkerton landfill	Alkerton	SP 383432	Recycle/Transfer (HWRC)
030	Shipton Quarry	Shipton-on-Cherwell	SP 478174	CDE Recycling
070	NW corner of TW Depot	Kidlington	SP 476153	CDE Recycling
121	Old Brickworks Farm	Bletchingdon	SP 518158	CDE Recycling
126	Varney's Garage	Hornton	SP 380457	Metal Recycling
127	Thorpe Mead 2a/3a	Banbury	SP 469403	Metal Recycling
133	Newlands Farm	Bloxham	SP 439352	CDE Recycling
				Metal Recycling
137	Windmill Nursery	Blackthorn	SP 609207	Metal Recycling
143	Banbury Transfer Station	Banbury	SP 469402	Recycling/Transfer
145	Ferris Hill Farm	Hook Norton	SP 355351	CDE Recycling
153	Merton Street Depot	Banbury	SP 465402	Hazardous
173	Charlett Tyre Yard	Yarnton	SP 480119	Recycle/Transfer
223	Allotment Land, Thorpe Meade	Banbury	SP 467403	Recycle/Transfer
				Hazardous
232	Banbury Strategic STW	Banbury	SP 471402	Waste Water Treatment
				Biological Treatment
258	Thorpe Lane Depot	Banbury	SP 467406	Recycling/Transfer
269	Dewars Farm	Middleton Stoney	SP 537247	Residual Treatment

OXFORD CITY				
150	Horspath Road Depot	Oxford	SP 556046	Recycle/Transfer
156	Pony Lane	Oxford	SP 557047	Hazardous
161	Redbridge HWRC	Oxford	SP 518038	Recycle/Transfer (HWRC)
163	Cowley Marsh Depot	Oxford	SP 541048	Recycle/Transfer
186	Jackdaw Lane	Oxford	SP 524051	Metal Recycling
SOUTH OXFORDSHIRE DISTRICT				
005	Playhatch Quarry	Eye & Dunsden	SU 740765	CDE Recycling
013	Ewelme No.2	Ewelme	SP 646905	Recycle/Transfer
				CDE Recycling
				Hazardous
017	Battle Farm	Crowmarsh	SU 622905	Biological Treatment
024	Oakley Wood	Nuffield	SU 640890	Recycle/Transfer (HWRC)
128	Berinsfield Car Breakers	Berinsfield	SU 570958	Metal Recycling
129	Milton Pools	Gt. Haseley	SP 654032	Metal Recycling
138	Mains Motors, Woodside	Ewelme	SU 649893	Metal Recycling
146	Oxford STW	Sandford	SP 544019	Waste Water Treatment
152	Ewelme No.1	Ewelme	SU 646902	Hazardous
182	The Tyre Depot	Elsfield	SP 527092	Recycle/Transfer
184	Rumbolds Pit	Ewelme	SU 645927	CDE Recycling
205	Greenwoods	Garsington	SP 576018	Metal Recycling
216	Culham No.1	Culham	SU 531953	Recycle/Transfer
234	Didcot Strategic STW	Didcot	SU 520913	Waste Water Treatment
239	Menlo Industrial Park	Thame	SP 691054	Metal Recycling
242	Culham JET	Culham	SU 536958	Radioactive
252	Upper Farm	Warborough	SU 596943	Biological Treatment
256	Hundridge Farm	Ipsden	SU 669854	CDE Recycling
272	Fords Yard, Menmarsh Road	Waterperry	SP 613098	Metal Recycling
273	The Metal Yard	Nuneham Courtenay	SU 553993	Metal Recycling

VALE OF WHITE HORSE DISTRICT				
No.	Site	Parish	Grid Ref	Type of Facility
002	Prospect Farm	Chilton	SU 498851	Recycle/Transfer
				CDE Recycling
010	Sutton Courtenay Landfill	Sutton Courtenay	SU 515930	Recycle/Transfer
				Transfer (residual waste)
				Biological Treatment
				CDE Recycling
016	Glebe Farm	Hinton Waldrist	SU 366972	Biological Treatment
053	Harwell Western Storage/ Harwell B462	Harwell	SU 474866	Radioactive
				Groundwater Treatment
059	Sutton Wick Lane	Drayton	SP 492946	Metal Recycling
061	Wantage Strategic STW	Grove	SU 403915	Waste Water Treatment
114	Appleford Sidings	Sutton Courtenay	SU 520931	CDE Recycling
118	Tubney Wood	Tubney	SP 449006	CDE Recycling
124	Church Lane	Coleshill	SU 234938	Biological Treatment
132	Whitecross Metals	Wootton	SP 483004	Metal Recycling
134	Quelches Orchard	Wantage	SU 411887	Metal Recycling
135	Roadside Farm	E. Challow	SU 378886	Metal Recycling
141	Grove Industrial Park	Grove	SU 385895	Recycle/Transfer
				CDE Recycling
144	Hill Farm	Appleford	SO 523922	Recycle/Transfer
151	Drayton Depot Transfer Station	Drayton	SU 489940	Hazardous
159	Drayton HWRC	Drayton	SU 475933	Recycle/Transfer (HWRC)
160	Stanford-in-Vale HWRC	Stanford-in-Vale	SU 330939	Recycle/Transfer (HWRC)
229	Shellingford Quarry	Shellingford	SU 328937	CDE Recycling
247	Upwood Quarry	Tubney	SP 452003	CDE Recycling
251	Milton Park (part)	Milton	SU 487918	Recycle/Transfer
255	Didcot Power Station	Milton	SU 508918	Recycle/Transfer
263	Swannybrook Farm	Kingston Bagpuize	SU 407967	CDE Recycling
267	Oxford Road Depot	E. Hanney	SU 421932	Hazardous

WEST OXFORDSHIRE DISTRICT				
No.	Site	Parish	Grid Ref	Type of Facility
001	Shipton Hill	Fulbrook	SP 267138	CDE Recycling
003	Dix Pit	Stanton Harcourt	SP 410045	Recycle/Transfer (HWRC)
				Transfer (residual waste)
004	Slape Hill Quarry	Glympton	SP 423196	Recycle/Transfer
008	New Wintles Farm	Eynsham	SP 431108	CDE Recycling
015	Showell Farm	Chipping Norton	SP 356296	Biological Treatment
028	Gill Mill Quarry	Ducklington	SP 370078	CDE Recycling
067	Old Railway Halt	Gt. Rollright	SP 327303	Metal Recycling
103	Lakeside Park	Standlake	SP 383044	CDE Recycling
116	Worsham Quarry	Minster Lovell	SP 296103	Recycle/Transfer
130	Claridges Car Breakers	Carterton	SP 279060	Metal Recycling
131	T&B Motors ,62/64 West End	Witney	SP 358106	Metal Recycling
139	Sturt Farm (2a/4)	Shilton	SP 275105	Metal Recycling
142	Sandfields Farm	Over Norton	SP 447240	Recycle/Transfer
				CDE Recycling
149	Brize Norton X-fer	Minster Lovell	SP 313098	Recycle/Transfer
157	Lower Yard (Unit 8)	Eynsham	SP 431086	Hazardous
180	Elmwood Farm	Black Bourton	SP 283051	Recycle/Transfer
204	Downs Road (old FloGas site)	Witney	SP 329103	Recycle/Transfer
214	Manor Farm	Kelmscott	SU 251990	Recycle/Transfer
228	Units 1, Enstone Airfield	Enstone	SP 397256	Recycle/Transfer
231	Plot J, Lakeside Business Park	Standlake	SP 384044	Hazardous
233	Witney Strategic STW	Ducklington	SP 348084	Waste Water Treatment
236	Dix Pit Complex	Stanton Harcourt	SP 403050	CDE Recycling
241	Lakeside Industrial Park	Standlake	SP 384044	Recycle/Transfer
				CDE Recycling
257	Rear of Cemex Batching Plant	Hardwick	SP 387057	CDE Recycling
259	Riding Lane Scrap Yard	Crawley	SP 330137	Metal Recycling
260	Burford Quarry	Burford	SP 269107	CDE Recycling

APPENDIX 11

Categorisation of Waste Management facilities

Table A11/1: Oxfordshire Waste Management Facility Categories

No.	Plan Category	Description	E.A. Type Code[124]
1(a)	Non-hazardous landfill	Landfill sites taking Household or Commercial & Industrial waste. Void for cells taking inert wastes to be recorded in 2: void for cells taking non-reactive hazardous or very low level radioactive waste to be recorded in 1(b).	A04; A07.
1(b)	Hazardous landfill	Landfill sites taking hazardous waste (including cells at non-hazardous landfill sites taking non-reactive hazardous waste or very low level radioactive waste).	A01; A02; A26.
2	Inert landfill	Landfill sites taking Construction, Demolition and Excavation waste. Includes cells at non-hazardous landfill sites taking inert waste.	A05; A06; A25.
3	Recycling or Transfer	Facility recycling non-biodegradable Household or Commercial &Industrial waste. Includes facilities taking skip waste, tyres, and wood. (Recycling of Construction, Demolition and Excavation waste recorded in 6.)	A11; A13; A14; A15.
4	Residual Waste Treatment	Facility treating Household or Commercial & Industrial waste other than 3 and 5: includes Energy from Waste, Mechanical Biological Treatment, Pyrolysis and Gasification.	A16; A18.
5	Composting/ Biological Treatment	Facility treating biodegradable Household, Agricultural or Commercial & Industrial waste: includes Open Windrow Composting, In-vessel composting and Anaerobic Digestion.	A08; A22; A23.
6	CDE waste Recycling/ Transfer	Facility with equipment to produce recycled aggregate or screened soils from Construction, Demolition and Excavation waste.	A24; A30; Exempt.
7	Metal Recycling	Facility taking End of Life Vehicles (ELV) and/or general metal waste (including scrapyards).	A19; A19a; A20
8	Hazardous/ Radioactive	Any facility transferring, recycling or treating hazardous or radioactive waste, including clinical waste, oils, and asbestos.	A09; A12; A17; A21; A27; A28; A29; A31; A32.
9	Waste Water	Facilities identified by Thames Water Ltd as of strategic importance for treating waste water and sewage	SO819

[124] A03 (Borehole) and A10 (In-House Storage Facility) not included as beyond the scope of the Waste Needs Assessment.

Table A11/2: Environment Agency: Waste Licence Types and Definitions

EA Type Code	EA Type Description	OCC Facility Category
A01	Co-Disposal Landfill Site	1(b)
A02	Other Landfill Site taking Special Waste	1(b)
A03	Borehole	n/a
A04	Household, Commercial & Industrial Waste Landfill	1(a)
A05	Landfill taking Non-Biodegradable Wastes	2
A06	Landfill taking other wastes	2
A07	Industrial Waste Landfill (Factory Curtilage)	1(a)
A08	Lagoon	5
A09	Special Waste Transfer Station	8
A10	In-House Storage Facility	n/a
A11	Household, Commercial & Industrial Waste Transfer Station	3
A12	Clinical Waste Transfer Station	8
A13	Household Waste Amenity Site	3
A14	Transfer Station taking Non-Biodegradable Wastes	3
A15	Material Recycling Treatment Facility	3
A16	Physical Treatment Facility	4
A17	Physico-Chemical Treatment Facility	8
A18	Incinerator	4
A19	Metal Recycling Site (Vehicle Dismantler)	7
A19a	ELV Facility	7
A20	Metal Recycling Site (mixed MRS's)	7
A21	Chemical Treatment Facility	8
A22	Composting Facility	5
A23	Biological Treatment Facility	5
A24	Mobile Plant	6
A25	Deposit of waste to land as a recovery operation	2
A26	Pet Cemetery	1(b)
A27	Pet Crematorium	8
A28	WEE Treatment site	8
A29	Landfill Gas Engine	8

A30	Mining Waste Operations	6
A31	Mining Waste Operations with a facility for Haz Waste	8
A32	Mining Waste Operations with a Cat ‘A’ Mining Waste Facility	6
SO819	Sewage Sludge Treatment	9

APPENDIX 12

Waste management facilities

Capacity Assessment

Table A12/1 Category 1a: Non-hazardous Landfill

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status/Anticipated End Date	Void m3 Dec 2015 (Used in WNA,2015)
11i	Finmere Quarry	Opes Industries	Cherwell	Finmere	SP 628 322	Non-Hazardous Landfill	2035	691,892
022i	Ardley Landfill	Viridor	Cherwell	Ardley	SP 543 259	Non-Hazardous Landfill	Jun-15	0
023i	Alkerton Phase 3	SITA	Cherwell	Alkerton	SP 383 432	Non-Hazardous Landfill	Closed 2013	0
003ii	Dix Pit	FCC	West Oxfordshire	Stanton Harcourt	SP 410 045	Non-Hazardous Landfill	Mar-15	0
004i	Slape Hill	Sheehans	West Oxfordshire	Glympton	SP 423 196	Non-Hazardous Landfill	May-19	48,875
010i	Sutton Courtenay	FCC	Vale of White Horse	Sutton Courtenay	SU 515 930	Non-Hazardous Landfill	2030	4,743,976
							Total Capacity	**5,484,742**

Table A12/2 Category 1b: Hazardous Landfill

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status/Anticipated End Date	Void (m3) (Dec 2015) (Used in WNA 2015)
022i	Ardley Landfill	Viridor	Cherwell	Ardley	SP 543 259	Hazardous Landfill	Jun-15	0
							Total Capacity	**0**

Table A12/3 Category 2: Inert Landfill

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status/ Anticipated End Date	Void m3 Dec 2015 (Used in WNA,2015)
002i	Prospect Farm	Raymond Brown	Vale of White Horse	Chilton	SU 498 851	Inert Landfill	Unspecified	53,857
011iii	Finmere Quarry Landfill	Opes Industries	Cherwell	Finmere	SP 628 322	Inert Landfill	Temporary 2018	351,000
013i	Ewelme No.2 Landfill	Grundon	South Oxfordshire	Ewelme	SP 646 905	Inert Landfill	Temporary, 2032	276,782
022ii	Ardley Fields Landfill	Viridor	Cherwell	Ardley	SP 543 259	Inert Landfill	2015	75,000
030i	Shipton Quarry Landfill	Earthline	Cherwell	Shipton-on-Cherwell	SP 478 174	Inert Landfill	Temporary, 2025	2,017,476
229i	Shellingford Quarry Landfill	Earthline	Vale of White Horse	Shellingford	SU 328 937	Inert Landfill	Temporary, 2028	1,767,772
118ii	Tubney Wood Landfill	Hills	Vale of White Horse	Tubney	SP 449 006	Inert Landfill	Temporary, 2015	0
028i	Gill Mill Quarry (Area 13)	Smiths of Bletchingto n	West Oxfordshire	Ducklington	SP 370 078	Inert Landfill	Temporary, 2020	71,266
N/A	Chinham Farm	Hills	Vale of White Horse			Inert Landfill	Temporary, 2018	36,066
N/A	Moorend Lane Farm		South Oxfordshire	Thame		Inert Landfill	Temporary, 2017	33,818
N/A	Childrey Quarry	Mr D. Lewis	Vale of White Horse	Childrey		Inert Landfill	Temporary, 2015	0
247i	Upwood Quarry	Hills	Vale of White Horse	Tubney	SP 452 003	Inert Landfill	Not Operational, 2029	90,000
121ii	Old Brickworks Farm	R Miller	Cherwell	Bletchingdon	SP 518 158	Inert Landfill	Not Operational, 2017	45,000
N/A	Enstone Quarry		West Oxfordshire			Inert Landfill	Unavailable	100,000

009iv	Worton Farm	M&M Skip Hire	Cherwell	Yarnton	SP 471 113	Inert Landfill	Not Operational, 2017	50,000
N/A	Woodeaton Quarry	McKenna	South Oxfordshire	Woodeaton		Commitment	2026	340,000
N/A	Caversham (extension)	Lafarge	South Oxfordshire	Eye & Dunsden		Commitment	2028	860,000
N/A	Gill Mill (extension)	Smiths	West Oxfordshire	Ducklington		Commitment	2041	1,250,000

Total Capacity **7,418,038**

Total Capacity (Operational + Non-Operational Sites) **4,968,038**

Total Capacity (Commitments) **2,450,000**

Table A12/4: MSW/C&I Recycling/Transfer

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Capacity used by WNA, 2015
009i	Worton Farm	M&M Skip Hire	Cherwell	Yarnton	SP 471 113	Recycle/Transfer	Permanent	60,000
011ii	Finmere Quarry	Opes Industries	Cherwell	Finmere	SP 628 322	Recycle/Transfer	Temporary, 2020	90,000
022iii	Ardley Landfill	Viridor	Cherwell	Ardley	SP 543 259	Recycle/Transfer (HWRC)	Temporary, 2019	7,500
022v	Ardley Landfill	Viridor	Cherwell	Ardley	SP 543 259	Recycle/Transfer	Temporary, 2019	10,000
023ii	Alkerton Landfill	S&W Recycling	Cherwell	Alkerton	SP 383 432	Recycle/Transfer (HWRC)	Temporary, 2019	6,500
143	Banbury Transfer Station	Grundon	Cherwell	Banbury	SP 469 402	Recycle/Transfer	Permanent	9,000
173	Charlett Tyre Yard	Charlett Tyres	Cherwell	Yarnton	SP 480 119	Recycle/Transfer	Permanent	1,000
223i	Allotment Land, Thorpe Meade	Grundon	Cherwell	Banbury	SP 467 403	Recycle/Transfer	Committed	60,000
258	Thorpe Lane Depot	Cherwell DC	Cherwell	Banbury	SP 467 406	Recycle/Transfer	Permanent	100
161	Redbridge Waste Centre	W&S Recycling	Oxford City	Oxford	SP 518 038	Recycle/Transfer (HWRC)	Permanent	15,600
163	Cowley Marsh Depot	City Council	Oxford City	Oxford	SP 541 048	Recycle/Transfer	Permanent	3,000
013ii	Ewelme No.2(*)	Grundon	South Oxfordshire	Ewelme	SP 646 905	Recycle/Transfer	Permanent	25,000
013iv	Ewelme No.2(*)	Grundon	South Oxfordshire	Ewelme	SP 646 905	Recycle/Transfer	Permanent	12,000
024	Oakley Wood	W&S Recycling	South Oxfordshire	Nuffield	SU 640 890	Recycle/Transfer (HWRC)	Permanent	9,900

182	Tyre Depot	Philips Tyres	South Oxfordshire	Elsfield	SP 527 092	Recycle/Transfer	Permanent	1,500
216	Culham No.1	Biffa	South Oxfordshire	Culham	SU 531 953	Recycle/Transfer	Permanent	50,000
002ii	Prospect Farm	Raymond Brown	Vale of White Horse	Chilton	SU 498 851	Recycle/Transfer	Temporary, 2020	35,000
010iii	Sutton Courtenay Landfill	FCC	Vale of White Horse	Sutton Courtenay	SU 515 930	Recycle/Transfer	Temporary, 2030	98,000
141ii	Grove Industrial Park	Aasvogel	Vale of White Horse	Grove	SU 385 895	Recycle/Transfer	Permanent	5,000
144	Hill Farm	J James Ltd	Vale of White Horse	Appleford	SO 523 922	Recycle/Transfer	Permanent	10,000
159	Drayton WRRC	W&S Recycling	Vale of White Horse	Drayton	SU 475 933	Recycle/Transfer (HWRC)	Permanent	12,400
160	Stanford-in-Vale HWRC	W&S Recycling	Vale of White Horse	Stanford-in-Vale	SU 330 939	Recycle/Transfer (HWRC)	Permanent	7,600
251	Milton Park	Oxford Wood Recycling Ltd.	Vale of White Horse	Milton	SU 487 918	Recycle/Transfer	Permanent	500
255	Didcot Power Station	RWE Npower	Vale of White Horse	Milton	SU 508 918	Recycle/Transfer	Permanent	0
003i	Dix Pit	FCC	West Oxfordshire	Stanton Harcourt	SP 410 045	Recycle/Transfer (HWRC)	Temporary, 2028	14,100
003iii	Dix Pit	FCC	West Oxfordshire	Stanton Harcourt	SP 407 043	Recycle/Transfer	Temporary, 2028	0
004iii	Slape Hill Quarry	Sheehans	West Oxfordshire	Glympton	SP 423 196	Recycle/Transfer	Temporary, 2018	20,000
116iii	Worsham Quarry	Fraser Evans	West Oxfordshire	Minster Lovell	SP 296 103	Recycle/Transfer	Permanent	12,000
142i	Sandfields Farm	K J Millard	West Oxfordshire	Over Norton	SP 447 240	Recycle/Transfer	Permanent	3,000
149	Brize Norton X-fer	B&E Transport (Witney)	West Oxfordshire	Minster Lovell	SP 313 098	Recycle/Transfer	Permanent	12,000

180	Elmwood Farm	Cotswold Wood	West Oxfordshire	Black B'ton	SP 283 051	Recycle/Transfer	Temporary, 2015	1,400
204	Downs Road (old FloGas site)	May Gurney	West Oxfordshire	Witney	SP 329 103	Recycle/Transfer	Permanent	15,000
214	Manor Farm	KWC Amor	West Oxfordshire	Kelmscott	SU 251 990	Recycle/Transfer	Permanent	200
228	Unit 1, Enstone Airfield	Viridor	West Oxfordshire	Enstone	SP 397 256	Recycle/Transfer	Permanent	30,000
241i	Lakeside Industrial Park	Micks Skips	West Oxfordshire	Standlake	SP 384 044	Recycle/Transfer	Permanent	23,000

Total Capacity	**660,300**
Total Capacity (Permanent)	**317,800**
Total Capacity (Temporary)	**282,500**
Total Capacity (Committed)	**60,000**

(*) Ewelme no 2 has planning permission to operate till end of 2031, but for the purposes of the plan its called a permanent facility.

Table A12/5 Category 4: Residual Waste Treatment

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Capacity used by WNA, 2015
011v	Finmere Quarry	Opes Industries	Cherwell	Finmere	SP 628 322	Residual Treatment	Committed	98,000
022iv	Ardley Landfill(*)	Viridor	Cherwell	Ardley	SP 543 259	Residual Treatment	Permanent	300,000
269	Dewars Farm	Smiths of Bletchington Raymond Brown	Cherwell	Middleton Stoney	SP 537 247	Residual Treatment	Temporary, 2021	0

Total Capacity	**398,000**
Total Capacity (Permanent)	**300,000**
Total Capacity (Temporary)	**0**
Total Capacity (Committed)	**98,000**

(*)Ardley EfW has planning permission to operate till end of 2049, but for the purposes of the plan it's called a permanent facility.

Table A12/6 Category 5: Composting/Biological Treatment

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Capacity used by WNA, 2015
009ii	Worton Farm	Oxford Renew'ble	Cherwell	Yarnton	SP 471 113	Compost/Food treatment	Permanent	45,000
014ii	Ashgrove Farm	Agrivert	Cherwell	Ardley	SP 534 256	Compost/Food treatment	Permanent	35,000
232ii	Banbury Strategic STW	TW Ltd	Cherwell	Banbury	SP 471 402	Compost/Food treatment	Committed	40,000
017i/ii	Battle Farm	Agrivert	South Oxfordshire	Crowmarsh	SU 622 905	Compost/Food treatment	Permanent	73,500
252	Upper Farm	Midland Pig	South Oxfordshire	Warborough	SU 596 943	Compost/Food treatment	Committed	33,000
010ii	Sutton Courtenay Landfill	FCC	Vale of White Horse	Sutton Courtenay	SU 515 930	Compost/Food treatment	Temporary, 2030	40,000
016	Glebe Farm	Agrivert	Vale of White Horse	Hinton Waldrist	SU 366 972	Compost/food treatment	Temporary, 2024	5,000
124	Church Lane	National Trust	Vale of White Horse	Coleshill	SU 234 938	Compost/Food treatment	Permanent	100
015	Showell Farm	Agrivert	West Oxfordshire	Chipping Norton	SP 356 296	Compost/Food treatment	Permanent	21,000

Total Capacity	**292,600**
Total Capacity (Permanent)	**174,600**
Total Capacity (Temporary)	**45,000**
Total Capacity (Committed)	**73,000**

Table A12/7 Category 6: CDE Recycling

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Final Capacity used by WNA, 2015
009iii	Worton Farm	M&M Skip Hire	Cherwell	Yarnton	SP 471 113	CDE Recycling	Permanent	48,000
030ii	Shipton Quarry	Earthline	Cherwell	Shipton-on-Cherwell	SP 478 174	CDE Recycling	Temporary, 2025	150,000
070	NW corner of TW Depot	Clancy Docwra	Cherwell	Kidlington	SP 476 153	CDE Recycling	Permanent	20,000
121i	Old Brickworks Farm	R Miller	Cherwell	Bletchingdon	SP 518 158	CDE Recycling	Temporary, 2017	40,000
133i	Newlands Farm	Smiths	Cherwell	Bloxham	SP 439 352	CDE Recycling	Permanent	32,000
145	Ferris Hill Farm	Matthews	Cherwell	Hook Norton	SP 355 351	CDE Recycling	Permanent	25,000
005	Playhatch Quarry	Grabloader	South Oxfordshire	Eye & Dunsden	SU 740 765	CDE Recycling	Permanent	65,000
013iii	Ewelme No.2(*)	Grundon	South Oxfordshire	Ewelme	SP 646 905	CDE Recycling	Permanent	16,000
184	Rumbolds Pit	Richard Hazel	South Oxfordshire	Ewelme	SU 645 927	CDE Recycling	Permanent	20,000
256	Hundridge Farm	Onsyany Skips	South Oxfordshire	Ipsden	SU 669 854	CDE Recycling	Permanent	5,000
002iii	Prospect Farm	Raymond Brown	Vale of White Horse	Chilton	SU 498 851	CDE Recycling	Temporary, 2022	35,000
010vi	Sutton Courtenay Landfill	Hanson	Vale of White Horse	Sutton Courtenay	SU 515 930	CDE Recycling	Temporary, 2030	85,000
114	Appleford Sidings	Hanson	Vale of White Horse	Sutton Courtenay	SU 520 931	CDE Recycling	Permanent	100,000
118i	Tubney Wood	Hills	Vale of White Horse	Tubney	SP 449 006	CDE Recycling	Temporary, 2015	8,000

141i	Grove Industrial Park	Aasvogel	Vale of White Horse	Grove	SU 385 895	CDE Recycling	Permanent	40,000
229ii	Shellingford Quarry	Earthline	Vale of White Horse	Shellingford	SU 328 937	CDE Recycling	Temporary, 2021	30,000
247ii	Upwood Quarry	Hills	Vale of White Horse	Tubney	SP 452 003	CDE Recycling	Committed	8,000
263	Swannybrook Farm	NAP Grab Hire	Vale of White Horse	Kingston Bagpuize	SU 407 967	CDE Recycling	Permanent	20,000
001	Shipton Hill	Hickman Bros	West Oxfordshire	Fulbrook	SP 267 138	CDE Recycling	Permanent	9,000
008ii	New Wintles Farm	McKenna	West Oxfordshire	Eynsham	SP 431 108	CDE Recycling	Permanent	110,000
028iii	Gill Mill	Smiths of Bletchington	West Oxfordshire	Ducklington	SP 370 078	CDE Recycling	Permanent	120,000
103	Lakeside Park	Ethos Recycling	West Oxfordshire	Standlake	SP 383 044	CDE Recycling	Permanent	25,000
142ii	Sandfields Farm	K J Millard	West Oxfordshire	Over Norton	SP 447 240	CDE Recycling	Permanent	9,600
236i	Dix Pit Complex	Sheehans	West Oxfordshire	Stanton Harcourt	SP 403 050	CDE Recycling	Temporary, 2029	98,000
236ii	Dix Pit Complex (Soils)	Sheehans	West Oxfordshire	Stanton Harcourt	SP 403 050	CDE Recycling	No Permission	0
241ii	Lakeside Industrial Park	Micks Skips	West Oxfordshire	Standlake	SP 384 044	CDE Recycling	Permanent	2,000
257	Rear of Cemex Batching Plant	Fergal Contracting	West Oxfordshire	Hardwick	SP 387 057	CDE Recycling	Permanent	40,000
260	Burford Quarry	Pavestone UK	West Oxfordshire	Burford	SP 269 107	CDE Recycling	Temporary, 2024	500

Total Capacity	**1,161,100**
Total Capacity (Permanent)	**706,600**

(*) Ewelme no 2 has planning permission to operate till end of 2031, but for the purposes of the plan its called a permanent facility.

Total Capacity (Temporary)	**446,500**
Total Capacity (Committed + No Permission)	**8,000**

Table A12/8 Category 7: Metal Recycling

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Capacity used by WNA, 2015
126	Varney's Garage	Pannozzo/Grossi	Cherwell	Hornton	SP 380 457	Metal Recycling	Permanent	600
127	Thorpe Mead 2a/3a	Banbury Motors	Cherwell	Banbury	SP 469 403	Metal Recycling	Permanent	300
133ii	Newlands Farm	Smiths	Cherwell	Bloxham	SP 439 352	Metal Recycling	Permanent	50,000
137	Windmill Nursery	Dulcie Hughes	Cherwell	Blackthorn	SP 609 207	Metal Recycling	Permanent	10,000
186	Jackdaw Lane	Metal Salvage	Oxford City	Oxford	SP 524 051	Metal Recycling	Permanent	1,000
128	Breinsfield Car Breakers	Auto Storage	South Oxfordshire	Berinsfield	SU 570 958	Metal Recycling	Permanent	1,000
129	Milton Pools	R L Mead	South Oxfordshire	Gt. Haseley	SP 654 032	Metal Recycling	Permanent	1,000
138	Mains Motors, Woodside	Main Motors	South Oxfordshire	Ewelme	SU 649 893	Metal Recycling	Permanent	10,000
205	Greenwoods	Yassine Saleh	South Oxfordshire	Garsington	SP 576 018	Metal Recycling	Permanent	300
239	Menlo Industrial Park	ASM	South Oxfordshire	Thame	SP 691 054	Metal Recycling	Permanent	25,000
272	Fords Yard, Menmarsh Road	A McGee	South Oxfordshire	Waterperry	SP 613 098	Metal Recycling	Permanent	2,000
273	The Metal Yard	T R Rogers	South Oxfordshire	Nuneham Courtenay	SU 553 993	Metal Recycling	Permanent	2,000
059	Sutton Wick Lane	Abingdon Car Breakers	Vale of White Horse	Drayton	SP 492 946	Metal Recycling	Permanent	1,000
132	Whitecross Metals	Alumini Holdings	Vale of White Horse	Wootton	SP 483 004	Metal Recycling	Permanent	25,000
134	Quelches Orchard	Brakespeares	Vale of White Horse	Wantage	SU 411 887	Metal Recycling	Permanent	5,000
135	Roadside Farm	Haynes	Vale of White Horse	E. Challow	SU 378 886	Metal Recycling	Permanent	5,000
067	Old Railway Halt	John Aldridge	West Oxfordshire	Gt.	SP 327 303	Metal Recycling	Permanent	7,500

				Rollright				
130	Claridges Car Breakers	Claridge	West Oxfordshire	Carterton	SP 279 060	Metal Recycling	Permanent	1,000
131	T&B Motors, 62/64 West End	T&B Motors	West Oxfordshire	Witney	SP 358 106	Metal Recycling	Permanent	1,000
139	Sturt Farm (2a/4)	College Motors	West Oxfordshire	Shilton	SP 275 105	Metal Recycling	Permanent	1,000
259	Riding Lane Scrap Yard	Smith Bros	West Oxfordshire	Crawley	SP 330 137	Metal Recycling	Permanent	15,000

Total Capacity	**164,700**
Total Capacity (Permanent)	**164,700**
Total Capacity (Temporary)	**0**
Total Capacity (Committed)	**0**

Table A12/9 Category 8: Hazardous/Radioactive

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Capacity used by WNA, 2015
153	Merton Street Depot	Grundon	Cherwell	Banbury	SP 465 402	Hazardous/Radioactive	Permanent	3,000
223ii	Allotment Land, Thorpe Meade	Grundon	Cherwell	Banbury	SP 467 403	Hazardous/Radioactive	Committed	5,000
150	Horspath Road Depot	City Council	Oxford City	Oxford	SP 556 046	Hazardous/Radioactive	Permanent	50
156	Pony Lane	City Insulation	Oxford City	Oxford	SP 557 047	Hazardous	Permanent	100
152ii	Ewelme No.1	Grundon	South Oxfordshire	Ewelme	SU 646 902	Hazardous/Radioactive	Permanent	11,000
242	Culham JET	CSC Ltd	South Oxfordshire	Culham	SU 536 958	Hazardous/Radioactive	Temporary, 2022	300
053Ai	Harwell Western Storage	Magnox	Vale of White Horse	Harwell	SU 474 866	Hazardous/Radioactive	Permanent	500,000
053Aii	Harwell B462	Magnox	Vale of White Horse	Harwell	SU 474 866	Hazardous/Radioactive	Permanent	3,000
151	Drayton Depot Transfer Station	OCC	Vale of White Horse	Drayton	SU 489 940	Hazardous/Radioactive	Permanent	20,000
267	Oxford Rd Depot	Vale Housing	Vale of White Horse	E.Hanney	SU 421 932	Hazardous	Permanent	100
157	Lower Yard (Unit 8)	Amity Insulation	West Oxfordshire	Eynsham	SP 431 086	Hazardous/Radioactive	Permanent	100
231	Plot J, Lakeside Business Park	Alder and Allen	West Oxfordshire	Standlake	SP 384 044	Hazardous/Radioactive	Permanent	6,000
							Total Capacity	**548,650**

(*) Ewelme no 2 (road sweepings plant) has planning permission to operate till end of 2032, but for the purposes of the plan its called a permanent facility.

Total Capacity (Permanent)	**543,350**
Total Capacity (Permanent) without Site 53Ai	**43,350**
Total Capacity (Temporary)	**300**
Total Capacity (Committed)	**5,000**

Table A12/10 Category 9: Waste Water

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Status	Capacity used by WNA, 2015
019	Bicester Strategic STW	TW Ltd	Cherwell	Bicester	SP 579 210	Waste Water	Permanent	2,000
232i	Banbury Strategic STW	TW Ltd	Cherwell	Banbury	SP 471 402	Waste Water	Permanent	5,000
146	Oxford STW	TW Ltd	South Oxfordshire	Sandford	SP 544 019	Waste Water	Permanent	25,000
234	Didcot Strategic STW	TW Ltd	South Oxfordshire	Didcot	SU 520 913	Waste Water	Permanent	3,000
061	Wantage Strategic STW	TW Ltd	Vale of White Horse	Grove	SU 403 915	Waste Water	Permanent	3,000
233	Witney Strategic STW	TW Ltd	West Oxfordshire	Ducklington	SP 348 084	Waste Water	Permanent	4,000

Total Capacity	**42,000**
Total Capacity (Permanent)	**42,000**
Total Capacity (Temporary)	**0**
Total Capacity (Committed)	**0**

APPENDIX 13

Waste management facilities

Capacity Assessment Profile (template)

OXFORDSHIRE COUNTY COUNCIL WASTE SITE PROFILE DOCUMENT
BASELINE - REVISED

SECTION 1: SITE DETAILS

Site No. **Facility No.** **Site Area**	**Operator:** . **Site Location:** **Grid Ref:**	**Contact :** **Phone:** **Fax:** **Email:**
Facility:		**Waste Type:**

SECTION 2: AGENT DETAILS

Contact Name: **Company Name:** **Phone:** **Email:**	**Address:**

SECTION 3: ENVIRONMENT AGENCY (E.A.) DATA

EA EPR Ref.		**E.A. Code:**
E.A. Exempt Para:		**Licensed capacity:**
Exemption Reference (if applicable)**:**		**Voidspace** (Landfill only) **Amount:** **Date:**
Exemption Expiry Date:		
Past annual throughputs (tonnes):		
2002:	**2006:**	**2010:**
2003:	**2007:**	**2011**
2004:	**2008:**	**2012:**
2005:	**2009/2010:**	**2013:**

SECTION 4: INFORMATION SUPPLIED BY OPERATOR

FOR AN EXISTING FACILITY	**Throughput (tonnes)**		
Date Information Provided:	**2006**		**2010**
	2007		**2011**
Voidspace (Landfill only) **Amount:**	**2008**		**2012**
	2009		**2013**
Date:	**Likely Capacity**	**Throughput**	**Recycling Rate**

POSSIBLE NEW DEVELOPMENT OR EXPANSION	**Brief description:**		
Date Information Provided:	**Likely Capacity**	**Throughput**	**Recycling Rate** (if applicable)

SECTION 5: RELEVANT PLANNING PERMISSIONS

Ref	**Development**	**Date Issued**	**Status and Duration**	**Relevant planning restrictions** (e.g. capacity, vehicle movements etc)

SECTION 6: PLANNING APPLICATIONS PENDING DETERMINATION

Ref	**Development**	**Date submitted**	**Proposed Duration**	**Comments** (including any anticipated additional capacity)

SECTION 7: OCC ASSESSMENT

COMMENT (EXISTING FACILITY)			
Facility Category: 5			
Capacity	**Throughput:**	**Recycling** (if applicable)	**Voidspace:**
Planning Status:		**Duration** (if temporary)	

COMMENT (POSSIBLE DEVELOPMENT OR EXPANSION)			
Facility Category:			
Capacity	**Throughput:**	**Recycling** (if applicable)	**Voidspace:**

Officer:	**Date:**

Oxfordshire County Council: Waste Facility Profile
Explanatory Note

The County Council is preparing a Minerals and Waste Local Plan. To inform development of the plan, an assessment of the capacity that can be provided by existing and proposed waste management facilities is required. The government expects such information to be published and kept up to date.

A Waste Facility Profile records information that is helpful to assessing the potential capacity of an existing or proposed facility. It sets out what the council believes to be an appropriate capacity for each facility, and how this contributes to the overall capacity that may be available.

Section 1: Site details.

Confirms the name by which the site is commonly known, its full postal address and O.S. grid reference. Information relating to the operator, the type of waste facility and the waste(s) handled is also included.
Each waste site has a number and where a site contains more than one facility a suffix is also used e.g. 334 (ii).
A site plan is attached to the Profile for the purpose of showing the general location of the site (it may not correctly identify detailed boundaries).

Section 2: Agent Details.

This person will be the first point of contact, unless we are advised otherwise.

Section 3: Environment Agency (E.A.) Data.

If a facility operates under an Environmental Permit (or 'Waste Licence') the reference is shown together with any limit on the amount of waste that can be handled. The amounts of waste handled in recent years is set out where known (this is information provided to EA by the waste operator).
If registered as exempt from licensing relevant details are shown (where this is known) but information on throughput is unlikely to be available.

Section 4: Information Supplied by the Operator

This section provides relevant data supplied by an operator (previously through a planning application, site nomination or voluntarily through discussion) including:

- Annual throughput
- The typical percentage of waste recycled (where relevant)
- Remaining void (for landfill)
- Possible new developments/expansion

Section 5: Relevant Planning Permissions

Details of relevant planning permissions are set out, including any conditions that are relevant to the capacity assessment in section 7 – in particular the period over which a temporary facility may operate. A permission is identified as a 'commitment' where it has not yet been implemented, and the capacity recorded separately (see "possible new development or expansion" in section 7).

Section 6: Applications Pending Determination

Contains details of any planning applications that are under active consideration.

Section 7: OCC Assessment.

For existing facilities this section confirms:

- the category into which the council believes the facility should be placed (see also "Classification of Waste Sites" sheet);
- the capacity of the facility expressed as annual throughput* (and for landfills, the remaining void);
- the planning status of the site (committed / operational / non-operational; temporary / permanent); and
- how we arrived at these conclusions.

Assessment of the facility's capacity may have regard to any of the following:

- (i) the amounts of waste handled in recent years (sections 3 and 4);
- (ii) a capacity limit set by the Environment Agency (section 3);
- (iii) information supplied in a planning application (section 3);
- (iv) a condition imposed on a planning permission (section 3);
- (v) the physical constraints of a site;
- (vi) information volunteered by an operator through a site nomination, correspondence or discussion (section 4).

The overall aim is to identify a facility's maximum annual operational throughput. Information gleaned from a planning application (iii) or decision (iv) is particularly relevant; information separately provided by an operator (vi) is also valuable. The most recent information on throughput (i) is for 2012. When used with information from previous years, this can help establish the extent to which the capacity limit set by an Environmental Permit (ii) is relevant. The physical limits of a permitted site (vi) may also be a further consideration in assessment of capacity.

Possible new development or expansion

Possible opportunity for adding to permitted capacity is recorded where:

- the planning permission has not been implemented (section 5);
- a planning application is under consideration (section 6);
- a nomination has been made by an operator or land owner (section 4).

The intention is to identify *possible* opportunity, not to pre-judge the likelihood of planning permission being granted or implemented.

* Also a recycling rate for transfer/recycling facilities; varies depending on the activity undertaken

APPENDIX 14

Landfill Data

Table A14/1: Category 1a: Non-hazardous landfill
Baseline Assessment December 2013 and December 2015

Site Name	Permitted End Date	Anticipated End Date	2013 Actual Fill rate (tonnes)*	Void (m3) (Dec 2013)*	2014 Estimated Fill rate (tonnes)	Void (m3) (estimated) (Dec 2014)	Void (m3) (estimated) (Dec 2015)	Void (m3) from Operator*** (March 2015)	Void (m3) Adjustment from March-Dec 2015 (Dec 2015)
Finmere Quarry	2035	2035	21,318	682,442	21,318	661,124	639,086	707,880	691,892
Ardley Quarry	2019	June 2015	105,487	1,356,347	105,487	1,250,860	0	1,181,347	0
Alkerton Phase 3	2014	Closed 2013	0	0	0	0	0	0	0
Dix Pit	2028	March 2015	86,353	1,559,641	86,353	1,473,288	0	1,500,000	0
Slape Hill	2019	May 2019	1,500	150,000	1,500	148,500	147,000	50,000	48,875
Sutton Courtenay	2030	2030	474,699	4,195,583	334,699**	3,860,884	3,526,185	4,995,000	4,743,976
Total									**5,484,742**

* December 2013 void and fill rate as reported by Environment Agency
** Sutton Courtenay landfill fill rate for 2014 reduced to take account of waste from West London no longer being deposited
***These void space estimates were provided by the operators for March 2015 and are considered to be the most reliable estimates for these facilities.

- For calculating a Dec 2015 baseline, approximate 75% of the estimated 2014 fill rate was subtracted from the March estimate (adjustment from March-Dec 2015).
- For Ardley and Dix, the operator void information was superseded by the knowledge that the sites are now closed or in the process of being closed.
- For Slape Hill the operator confirmed that the EA's estimates were incorrect; the void space was 50,000 rather than 150,000m3.
- The sites for which there was no operator response (N/A), the usual method of year by year extraction of fill rate from void space has been used.

Table A14/2: Category 1b: Hazardous landfill
Baseline Assessment December 2013 and December 2015

No.	Site	Operator	District	Parish	Grid Ref	Facility Category	Permitted End Date	Anticipated End Date	Void m3 (Dec 2013)	Void (m3) (Dec 2015) (Used in WNA 2015)
022i	Ardley Landfill	Viridor	Cherwell	Ardley	SP 543 259	Non- Hazardous Landfill (SNRHW)	Temporary, 2019	Jun-15	190,000	0

Table A14/3: Waste to Oxfordshire licensed landfill sites by waste type and origin (tonnes)

	2008		2009		2010		2011		2012		2013	
	HIC	CDE	HIC	CDE	HIC	CDE	HIC	CDE	HIC	CDE	HIC	CDE
London	254,313	144	216,869	90,651	259,133	321,103	153,198	303,114	160,757	25,222	174,567	10,229
Berkshire	215,576	2,897	184,956	183	144,872	4,546	104,885	3,288	82,857	8,894	101,768	16,833
Rest of UK	13,874	53,754	29,892	34,605	45,857	19,798	45,579	75,386	46,177	63,230	55,116	70,452
Imports Total	483,763	56,795	431,717	125,439	449,862	345,447	303,662	381,788	289,609	97,346	331,451	97,514
Oxfordshire	548,111	337,361	378,967	246,816	403,483	217,544	286,348	336,063	312,651	205,839	231,108	331,544
Total	**1,031,874**	**394,156**	**810,684**	**372,255**	**853,345**	**562,991**	**590,010**	**717,851**	**602,260**	**303,185**	**562,559**	**429,058**

HIC = household, industrial & commercial wastes
CDE = construction, demolition & excavation wastes

Table A14/4 Category 2: Inert Landfill
Baseline Assessment December 2013 and December 2015 (m3 unless specified)

Site Name	End Date	Void 12/2013*	Fill Rate 2013 (tonnes)	Fill Rate 2013	Fill Rate 2014 estimate (tonnes)	Fill Rate 2014 estimate	Void 12/2014 estimate	Void 12/2015 estimate	Operator Void***	03/2015–12/2015 adjust-ment	Void (12/2015) (Used in WNA 2015)
Prospect Farm Chilton	None	60,000	4,607	3,071	4,607	3,071	56,929	53,857	N/A	N/A	53,857
Finmere Quarry Landfill	2018	351,000	0	0	0	0	351,000	351,000	351,000	N/A	351,000
Ewelme No.2 Landfill	2032	142,430	6,436	4,291	6,436	4,291	138,139	133,849	280,000	276,782	276,782
Ardley Fields Landfill	2015	75,000	0	0	0	0	75,000	75,000	N/A	N/A	75,000
Shipton Quarry Landfill	2025	2,124,387	80,183	53,455	80,183	53,455	2,070,932	2,017,476	N/A	N/A	2,017,476
Shellingford Quarry Landfill	2028	1,161,400	31,992	21,328	31,992	21,328	1,789,100	1,767,772	N/A	N/A	1,767,772
Tubney Wood Landfill	2015	86,132	125,359	83,573	125,359	83,573	2,559	0	N/A	N/A	0
Gill Mill (Area 13)	2020	91,514	11,601	7,734	11,601	7,734	79,000	71,266	0	N/A	71,266
Chinham Farm	2018	74,319	28,690	19,127	28,690	19,127	55,193	36,066	N/A	N/A	36,066
Moorend Lane Farm	2017	67,636	25,364	16,909	25,364	16,909	50,727	33,818	N/A	N/A	33,818

Childrey Quarry	2015	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	2,666	0	0	0	0
Upwood Park**	2029	90,000	0	0	0	0	90,000	90,000	N/A	90,000	90,000
Old Brickworks Farm**	2017	45,000	0	0	0	0	45,000	45,000	N/A	45,000	45,000
Enstone Quarry**	Over Due	100,000	0	0	0	0	100,000	100,000	N/A	100,000	100,000
Worton Farm**	2017	50,000	0	0	0	0	50,000	50,000	N/A	50,000	50,000
											4,968,038
Woodeaton Quarry	2026	0	0	0	0	0	340,000	340,000	N/A	N/A	340,000
Caversham (extension)	2028	0	0	0	0	0	860,000	860,000	N/A	N/A	860,000
Gill Mill (new extension)	2041	0	0	0	0	0	1,250,000	1,250,000	N/A	N/A	1,250,000
											2,450,000

* December 2013 void and fill rate as reported by Environment Agency
** Site is permitted but not operational
***These void space estimates were provided by the operators for March 2015 and are considered to be the most reliable estimates for these facilities.

- For calculating a Dec 2015 baseline, approximate 75% of the estimated 2014 fill rate was subtracted from the March estimate (adjustment from March-Dec 2015).
- The sites for which there was no operator response (N/A), the usual method of year by year extraction of fill rate from void space has been used.
- For Shellingford the estimate of 1,789,100 m3 was provided for December 2014.

The Shellingford Quarry void for Dec 2015 also takes account of increase created by permitted quarry extension
1.0 cubic metre of capacity provides for disposal of 1.5 tonnes of waste

Table A14/5: Assessment of Oxfordshire non-hazardous landfill capacity (m3)

	2015	2016	2017-2021	2022-2026	2027-2031
Scenario 1a					
Oxon MSW		25,600	119,600	86,400	90,800
Oxon C&I		184,000	811,800	341,500	191,800
Total		209,600	931,400	427,900	282,600
Void	5,484,742	5,275,142	4,343,742	3,915,842	3,633,242
Scenario 1b					
Oxon MSW/C&I		209,600	931,400	427,900	282,600
Imports		328,154	1,640,770	1,640,770	1,640,770
Total		537,754	2,572,170	2,068,670	1,923,370
Void	5,484,742	4,946,988	2,374,818	306,148	-1,617,222
Scenario 1c					
Oxon MSW/C&I		209,600	931,400	427,900	282,600
Imports		328,154	1,640,770	1,640,770	1,640,770
Sub-Total		537,754	2,572,170	2,068,670	1,923,370
Less W. London		140,000	700,000	700,000	700,000
Total		397,754	1,872,170	1,368,670	1,223,370
Void	5,484,742	5,086,988	3,214,818	1,846,148	622,778
Scenario 2a					
Fill Rate		497,517	2,625,585	979,280	106,590
Void	5,484,742	4,987,225	2,361,640	1,382,360	1,275,770
Scenario 2b					
Fill Rate		357,517	1,925,585	1,624,581	106,590
Void	5,484,742	5,127,225	3,201,640	1,577,059	1,470,469
Scenario 3					
Fill Rate		303,783	1,445,415	1,335,165	1,100,086
Void	5,484,742	5,449,097	4,003,682	2,668,517	1,568,431
Scenario 4					
Fill Rate		249,073	1,176,589	696,616	507,767
Void (2)	5,484,742	5,235,669	4,059,080	3,362,464	2,854,697

Negative void total (red) represents shortfall

Table A14/6: Municipal Waste disposal forecasts to 2031 by Reading, Wokingham and Bracknell Forest Councils (tonnes)

Year	Scenario A	Scenario B
2012	37,464	37,464
2013	37,959	37,959
2014	38,459	38,459
2015	38,963	38,963
2016	39,473	39,473
2017	39,988	39,988
2018	50,507	40,507
2019	51,033	41,033
2020	51,563	41,563
2021	52,098	42,098
2022	52,639	42,639
2023	53,186	43,186
2024	53,738	43,738
2025	54,295	44,295
2026	54,858	44,858
2027	55,427	45,427
2028	56,001	46,001
2029	56,581	46,581
2030	57,167	47,167
Total	**931,399**	**801,399**

APPENDIX 15

Additional capacity resulting from Operator Nominations (June 2015)

Table A15/1: Sites nominated to provide additional waste management capacity

Site No.	Site Name	Location	Operator	Details of 2008/09 nomination		2015 Update & impact on nomination	
				Description	Additional Capacity (2026)	Description	Additional Capacity (2031)
1	Shipton Hill	Fullbrook	Hickman Brothers Landscapes Ltd	Continuation of facility for waste transfer of C&D and green waste	Cat 6: 5,000 tpa	CLEUD for extended area granted in 2012 but operator advises no alteration to original intention regarding total capacity.	Cat 6: 5,000 tpa
2	Prospect Farm	Chilton	Chilton Waste Services	Continued operation of Waste Transfer and Recycling (mixed waste) to 2012, plus extension to establish permanent facility.	Cat 3: *80,000 tpa* Cat 6: *50,000 tpa*	Now operated by Raymond Brown Aggregates who wishes to retain the MRF/ARF site on a permanent basis and to operate within its current EA Permit level of 75,000 tpa, providing for C&I And CDE waste. Future recycling rates to be used are 84% (for C&I) and 95% (for CDE) (see also site profile).	Cat 3: 17,000 tpa Cat 6: 43,000 tpa
3	Dix Pit	Stanton Harcourt	FCC	Continuation of landfill to 2015 (permitted lifetime 2028) and retention of HWRC (to 2028). Development of new WTS (permanent).	Cat 1: *1,000,000 m3* Cat 3: *50,000 tpa*	WRG now FCC. Landfill now closed, HWRC still operating and WTS built. Nomination no longer valid.	0 tpa

5	Playhatch Quarry	Playhatch	Grabloader Ltd	Expansion of approved recycling facility (C&D waste) producing secondary and recycled aggregate.	Cat 6: 30,000 tpa	Nomination renewed.	Cat 6: 30,000 tpa
6	Childrey Quarry	Childrey	Mr D. Lewis	Continued operation of inert landfill for quarry restoration (to 2010) and development of waste transfer and recycling facilities (C&I and C&D waste).	Cat 3: 4,000 tpa	Permission to continue infilling for restoration of the quarry granted until end 2015. Nomination for transfer and recycling facilities renewed.	Cat 3: 4,000 tpa
					Cat 6: 5,000 tpa		Cat 6: 5,000 tpa
7	Greenhill Farm Quarry	Bletchingdon	Mr. D. Hackett	Recycling facility (C&D waste).	Cat 6: 38,000 tpa	Site area altered and capacity reduced (in 2010). Nomination to continue in that form.	Cat 6: 28,000 tpa
009d	Worton Farm	Cassington	Worton Farms Ltd	Biomass Gasification Plant.	Cat 4: 15,000 tpa	Nomination withdrawn.	0 tpa
10	Sutton Courtenay Landfill	Sutton Courtenay	FCC	Retention/development of temporary facilities (open windrow composting, soil treatment, MRF and WTS) to facilitate closure of landfill by approved date (2030).	Cat 3:*150,000 tpa*	WRG now FCC. Composting, MRF and WTS permitted and operational (to 2030). Nomination for these facilities no longer valid. Soil Treatment nomination to proceed.	Cat 6: 100,000 tpa
					Cat 5: 40,000 tpa		
					Cat 6:100,000 tpa		
011ii	Finmere Quarry	Finmere	Opes Industries	Materials Recycling Facility (C&I waste) linked to life of landfill.	Cat 3: *90,000 tpa*	MRF is permitted and now nearing completion. Nomination no longer valid.	0 tpa
12	Gosford Grain Silos	Kidlington	Grundon Waste Management Ltd	Waste reduction and MRF facility (MSW and C&I waste).	Cat 3:110,000 tpa	Redeveloped for railway. Nomination no longer valid.	0 tpa

13	Goulds Grove (Ewelme No. 2)	Ewelme	Grundon Waste Management Ltd	Continued operation of Waste Transfer and Recycling facility (mixed waste) on a permanent basis.	Cat 3: *25,000 tpa* Cat 6: *20,000 tpa*	Landfill operations now permitted to 2032 and C&I and CDE recycling permitted to 2031. Nomination no longer valid.	0 tpa
15	Showell Farm	Chipping Norton	Agrivert	Continued operation of open composting facility and development of biomass treatment facility (green waste).	Cat 5: 15,000 tpa	Development now permitted and operational with a capacity of 21,000 tpa. Biomass facility not expected to be pursued. Nomination no longer valid.	0 tpa
16	Glebe Farm	Hinton Waldrist	Agrivert	Continued operation of open composting facility.	Cat 5: 5,000 tpa	Development now permitted and operational (to 2024) with a capacity of 5,000 tpa. Nomination no longer valid.	0 tpa
17	Crowmarsh Battle Farm	Crowmarsh Gifford	Agrivert	Continued operation of open composting facility; development of new anaerobic digestion facility, waste transfer, wood treatment and recycling.	Cat 5: 45,000 tpa	Development now permitted and operational. Nomination no longer valid.	0 tpa
18	Holloway Farm, Waterstock	Milton Common	John Sheehan (Oxford) Ltd	Recycling facility (C&D waste).	Cat 6: 48,000 tpa	Nomination renewed. Site now proposed for similar facility to aggregates plant at Dix Pit and capacity increased.	Cat 6: 98,000 tpa
19	Bicester Sewage Works	Bicester	TWA	Further development of strategic sewage facility	Cat 8 (now Cat 9) 3,000 tpa	Nomination withdrawn.	N/A

020a	Wicklesham Quarry	Faringdon	Grundon Waste Management Ltd	Waste Transfer Station (C&I waste).	Cat 3: *60,000 tpa*	The proposal for a C&I WTS is no longer being pursued. Nomination no longer valid.	0 tpa
020b	Wicklesham Quarry	Faringdon	Grundon Waste Management Ltd	Inert Landfill for restoration of existing quarry.	Cat 2:*100,000 m3*	Nomination renewed for the importation of inert waste to aid in low level quarry restoration. Filled void to be between 100,000-200,000 m3.	Cat 2: 200,000 m3
020b	Wicklesham Quarry	Faringdon	Grundon Waste Management Ltd	New nomination		Recycling of CDE wastes (15,000 tpa) for the duration of quarry operations (to 2026).	0 tpa
21	Greensands	East Hendred	Farntech Construction Ltd	Soil recycling facility (C&D waste) and storage for reclaimed building materials.	Cat 6:40,000 tpa	Permission refused and appeal dismissed. Nomination renewed.	Cat 6: 40,000 tpa
22	Ardley Quarry and landfill	Ardley	Viridor Waste Management	Energy from waste plant and reception building for landfill (with potential for additional facilities).	Cat 4:300,000 tpa	EfW plant built. Nomination no longer valid.	0 tpa
23	Alkerton Landfill and Civic Amenity	Alkerton	Sita UK	Continued operation of HWRC and Landfill (to 2014). Development of Integrated Waste Management facility for treatment, recovery and recycling.	Cat 3:*50,000 tpa* Cat 4:*150,000 tpa*	Landfill closed. Nomination otherwise renewed.	Cat 3: 50,000 tpa Cat 4: 150,000 tpa
25	Alkerton Quarry	Banbury	Peter Bennie Ltd	Inert Landfill for quarry restoration and	Cat 2:400,000 m3	Restoration to low level agriculture now approved.	0 tpa

				recycling facility (C&D waste).	Cat 6: 30,000 tpa	Nomination no longer valid.	
26	Whitehill Quarry	Burford	Smith and Sons (Bletchington) Ltd	Inert Landfill for quarry restoration and recycled aggregates facility.	Cat 2:500,000 m3 Cat 6: 30,000 tpa	Nomination renewed.	Cat 2: 500,000 m3 Cat 6: 30,000 tpa
27	Former Quarry off Downs Road (Standlake Arena)	Standlake	Smith and Sons (Bletchington) Ltd	Inert Landfill for quarry restoration and recycled aggregates facility.	Cat 2:250,000 m3 Cat 6: 25,000 tpa	Nomination renewed.	Cat 2: 250,000 m3 Cat 6: 25,000 tpa
28	Gill Mill Quarry Complex (Phase 13)	Ducklington	Smith and Sons (Bletchington) Ltd	Continued operation of inert landfill and expanded recycled aggregates facility (to 2020).	Cat 6:120,000 m3 Cat 2:200,000 m3	Recycled aggregate plant now permitted and operational. The current inert landfilling is scheduled to end by Dec 2015. Thereafter the inert landfill capacity increases to 1.25 million m3 as part of a new planning permission. Nomination no longer valid.	0 tpa
30	Shipton on Cherwell Quarry	Shipton on Cherwell	Earthline Ltd	Inert Landfill for quarry restoration with recycling facility (C&D waste).	Cat 6: *50,000 tpa*	Facilities permitted and operational. Nomination no longer valid. *NB new nomination to extend the quarry and restoration with inert waste to be prepared.*	0 tpa
61	Sewage	Grove	Thames	Further development of	Cat 8	Nomination updated; no	

	Treatment Works, Oxford Road		Water	Strategic Sewage Treatment facility.	(now Cat 9) *5,000 tpa*	capacity increase.	0tpa
103	Land at Lakeside Industrial Estate	Standlake	Ethos Recycling Ltd	Energy from Waste Plant (MSW waste); Waste Recycling Facility (C&D waste).	Cat 4:150,000 tpa Cat 6:270,000 tpa	Nomination renewed. .	Cat 4: 150,000 tpa Cat 6: 270,000 tpa
121	Old Brickworks Farm	Bletchingdon	Mr R. Miller	Develop permanent waste recycling facility (C&D waste) with use of residual inert waste in restoration of borrow pit.	Cat 2: 25,000 tpa Cat 6: 48,000 tpa	Nomination renewed. The additional capacity of 48,000 tpa to contribute throughout the plan period	Cat 6: 48,000 tpa
138	Woodside, Old Henley Road	Ewelme	Mains Motors Ltd	Efw facility and continued operation of ELV Waste Recycling facility.	Cat 4:*150,000 tpa*	Nomination renewed.	Cat 4: 150,000 tpa
143	Banbury WTS	Banbury	Grundon Waste Management Ltd	New nomination		Permanent facility to be established to continue the outside separation and storage operations. No additional capacity involved.	0 tpa
152	Goulds Grove (Ewelme No. 1)	Ewelme	Grundon Waste Management Ltd	Redevelopment of existing facility to provide new hazardous Waste Transfer Station.	Cat 8: *2,000 tpa*	Permanent facility now established. Nomination no longer valid.	0 tpa

180	Elmwood Farm	Black Bourton	Cotswold Wood Fuels Limited.	Continued operation and expansion of Wood Recycling facility.	Cat 3: 8,000 tpa	Nomination renewed. Planning application for expansion of facility from 1,400 tpa to 15,000 tpa under consideration.	Cat 3: 13,600 tpa
213	Land west of Shellingford Quarry	Shellingford	Multi Agg Ltd	Restoration of extended quarry using imported inert fill.	Cat 2:520,000 m3	Nomination renewed. Additional capacity calculated by dividing 1.8 mm3/1.5, (total void at eastern extension/inert waste factor. then subtracting this from 3.4mm3 (figures submitted in nomination for both eastern and western extension) = 2.2m3.	Cat 2: 2,200,000m3
217	Culham No.4 Site, Clifton	Clifton	LEDA Properties	Development of site for strategic waste management facilities.	Cat 4:*200,000 tpa*	Nomination renewed.	Cat 4: 200,000 tpa
221	M.O.D. land at Palmer Avenue ('G' Site)	Lower Arncott	Defence Estates	Strategic waste treatment facility	Cat 4:300,000 tpa	Insufficient evidence to sustain nomination.	0 tpa
222	Land to the north of Wroxton Fields Quarry	Wroxton	Peter Bennie Ltd	Inert Landfill for quarry restoration.	Cat 2:500,000 m3	Nomination renewed.	Cat 2: 500,000 m3
223	Allotment Land, Overthorpe Mead	Banbury	Grundon Waste Management Ltd	Materials Recovery facility (MSW and C&I hazardous waste).	Cat 3: 55,000 tpa	Permission granted and commencement made. Nomination no longer valid.	0 tpa

224	Ambrose Quarry	Ewelme	Grundon Waste Management Ltd	Inert Landfill for quarry restoration.	Cat 2: 25,000 m3	Nomination renewed.	Cat 2: 25,000 m3
225	Cedars Lane Storage	Benson	Main Bros Ltd	Inert Waste Recycling facility.	Cat 6: 30,000 tpa	Nomination renewed.	Cat 6: 30,000 tpa
226	Dewars Farm, Ardley	Ardley	Summerleaze Ltd	Anaerobic Digestion Plant (MSW and C&I food waste).	Cat 5:45,000 tpa	Nomination renewed.	Cat 5: 45,000 tpa
230	Chinham Farm	Stanford-in-the-Vale	Hills Quarry Products Ltd	Inert Landfill for quarry restoration.	Cat 2:300,000 m3	Restoration underway. Nomination renewed.	Cat 2: 300,000 m3
232	Banbury Sewage Treatment Works	Banbury	Thames Water	Further development of Strategic Sewage Treatment facility.	Cat 8 (now Cat 9) 3,000 tpa	Nomination renewed.	Cat 9: 1,000 tpa
233	Witney Sewage Treatment Works	Witney	Thames Water	Further development of Strategic Sewage Treatment facility.	Cat 8 (now Cat 9) 3,000 tpa	Nomination renewed.	Cat 9: 1,000 tpa
234	Didcot Sewage Treatment Works	Didcot	Thames Water	Further development of Strategic Sewage Treatment facility.	Cat 8 (now Cat 9) 3,000 tpa	Nomination renewed. No additional capacity nominated.	0 tpa

236	Dix Pit Complex	Stanton Harcourt	Controlled Reclamation (Oxford) Ltd	Continued operation of inert landfill (to 2011) with soil recycling (to 2011) and development of permanent aggregate recycling and skip waste transfer & recycling facility.	Cat 3: 30,000 tpa Cat 6: 90,000 tpa	Landfill now over full. C&D recycling facility permitted and operational but nominated for a further and longer term increase in capacity to 165,000 tpa. Skip waste recycling nomination renewed.	Cat 3: 30,000 tpa Cat 6: 165,000 tpa
245	Challow Marsh Farm	East Challow	McDowell Trading Ltd	Recycling facility (C&D waste).	Cat 6: 20,000 tpa	Nomination renewed.	Cat 6: 20,000 tpa
247	Upwood Park	Besselsleigh	Hills Quarry Products Ltd	Recycling facility (C&D waste) & import of inert fill.	Cat 2: 90,000 m3 Cat 6: *15,000 tpa*	Development now permitted. Nomination no longer valid.	0 tpa
248	Thrupp Lane, Radley	Radley	H Tuckwell & Sons Ltd	Recycling facility (C&D waste).	Cat 6:100,000 tpa	Nomination renewed for an inert waste recycling and secondary aggregate production facility.	Cat 6: 100,000 tpa
249 A	High Cogges Farm	Witney	High Cogges Farm Partnership	Development of Anaerobic digestion plant for food & wastes (alternative to 249 B)	Cat 5: 10,000 tpa	Nomination renewed.	Cat 5: 10,000 tpa
249 B	High Cogges Farm	Witney	High Cogges Farm Partnership	Development of Anaerobic digestion plant for food & wastes (alternative to 249 A)	Cat 5: 10,000 tpa	Nomination renewed.	Cat 5: 10,000 tpa

250	Broughton Pogges Business Park	Broughton Pogges	Recycle-lite.com	Development of materials Recycling Facility for mixed wastes (inc. glass, paper, batteries & food).	Cat 3: 50,000 tpa	Nomination renewed.	Cat 3: 50,000 tpa
261	Knights-bridge Farm, Yarnton	Yarnton	John Sheehan (Oxford) Ltd	Aggregate recycling and skip waste transfer and recycling.	Cat 3: 30,000 tpa Cat 6: 90,000 tpa	Aggregate recycling centre developed on other land and nomination withdrawn. Appeal refused on waste recycling facility but nomination renewed (as alternative to site 236).	Cat 3: 30,000 tpa
262	Lower Heath Farm	Cottisford	Direct Farm Eggs	Waste Recycling and transfer (C&I and CDE waste)	Cat 6: *50,000 tpa*	Nomination renewed.	Cat 6: 50,000 tpa
276	Oday Hill	Sutton Wick	H Tuckwell & Sons Ltd.	New nomination		The site is currently an operational quarry as well as a sand & gravel processing plant. Proposed use would be inert/C&I waste recycling and secondary aggregate	Cat 3: 50,000 tpa Cat 6: 100,000 tpa

Further information on 2008/09 capacity assessment is in WNA (May 2012)

APPENDIX 16

Summary of potential capacity to meet Identified needs

Table A16/1: Assessment of Oxfordshire Additional Capacity from Site Nominations

Facility Category		Capacity required at 2031	Comment
1A	Non-inert landfill	None	No new nominations
1B	Hazardous landfill	20,000 tpa	No new nominations. Oxfordshire is likely to be dependent on facilities in neighbouring areas for its hazardous waste disposal needs.
2	Inert landfill	1,209,477 m3	Nominations for 3,975,000 m3 additional capacity
3	Dry Recycling	316,300 tpa	Nominations for 244,600 tpa additional capacity
4	Residual treatment	None	Nominations for 650,000 tpa additional capacity
5	Composting/ Biological Treatment	None	Nominations for 65,000 tpa additional capacity
6	CDE recycling	120,400 tpa	Nominations for 1,187,000 tpa additional capacity
7	Metal recycling	None	No new nominations
8	Hazardous/ Radioactive	35,650 tpa (hazardous)	No new nominations.
9	Waste Water	None	Nominations for 2,000 tpa additional capacity

Figures rounded – generally to nearest '000 tonnes: precise figures given elsewhere in report