OXFORDSHIRE COUNTY COUNCIL

OXFORDSHIRE MINERALS AND WASTE LOCAL PLAN

PART 1: CORE STRATEGY

BACKGROUND PAPER

WASTE NEEDS ASSESSMENT

March 2015

Construction, Demolition and Excavation waste

WNA 2012

3.33 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[37]) makes up the remaining 400,000 tonnes.

3.34 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.

3.35 In England, 60% of this type of waste is recycled as hard aggregate and soils[38]. 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 A6/1 – Appendix 6).

BPP Review

3.36 In 2012 waste arisings are estimated at 1,358,000 tonnes. This assessment is based on:

- construction activity statistics and estimates of quantities of waste produced per £100k project value from Site Waste Management Plans;
- a DCLG survey[39];
- information published by the National Federation of Demolition Contractors.

3.37 CDE waste arisings in Oxfordshire comprise:

- 274,000 tonnes (20%) of mixed predominantly non-inert construction and demolition material;
- 423,000 (31%) tonnes of 'hard' demolition waste;
- 662,000 tonnes (49%) of predominantly 'soft' excavation waste.

3.38 Over the plan period waste arisings could experience a slight but steady decline (to 1.2 million tonnes per annum by 2031). Alternatively arisings could grow (to 2.1 million tonnes per annum by 2021 and will 'flat line' thereafter). These forecasts variously take into account:

- Planned housing numbers (from adopted Local Plans);

[37] Capita Symonds (for DCLG) Survey of Arisings and Use of Alternatives to Primary Aggregates in England 2005: Construction, Demolition and Excavation waste (Feb 2007)
[38] WRAP Updating data on construction, demolition and excavation waste: interim progress report (Jan 2010)
[39] See 31

- Availability/development of previously developed land;
- Commercial development;
- Major projects;
- Waste management costs;
- Regulatory pressures;
- Voluntary initiatives.

3.39 Just over half (52%) of CDE waste arisings in Oxfordshire are re-used, recycled or reprocessed; 25% is subject to a recovery process; 23% goes direct to landfill (table 6/2 – Appendix 6). The WNA 2012 waste management targets are unambitious. By 2030 the aim should be to recycle or reprocess 70% of the total waste stream, recover 25% and send no more than 5% to landfill.

Table 8:
BPP recommended waste management targets for construction, demolition and excavation waste in Oxfordshire

Method	2010	2015	2020	2025	2030
Recycling, Use or Conversion to Product	54%	55%	60%	65%	70%
Recovery	24%	25%	25%	25%	25%
Landfill / Restoration	22%	20%	15%	10%	5%

Baseline arisings and management

3.40 The BPP study estimate of waste arisings (1.358 million tonnes in 2012) is similar to the WNA 2012 estimate (1.300 million tonnes in 2008). But the WNA 2012 estimate was for 'waste to be managed'. The BPP estimate is for waste produced and includes waste that is re-used on site. This might explain why the BPP Study baseline is higher than that of the WNA 2012 estimate. If a waste to be managed estimate is to be preferred for this waste stream, the BPP Study estimate of baseline arisings needs to be adjusted.

3.41 The BPP Study identified that about 10% of demolition and excavation waste is re-used on site. Construction waste is less likely to be re-used in the same way in view of its different content[40]. Converted to a 'waste to be managed' estimate, the BPP baseline estimate reduces to 1.251 million tonnes.

Table 9:
Assessment of construction, demolition and excavation waste to be managed in Oxfordshire (2008) from estimated waste arisings (tonnes).

Waste	Construction	Demolition	Excavation	Total
Arisings	273,000*	423,000	662,000	1,358,000
Re-use	0	41,000	66,000	107,000
Managed	273,000	382,000	596,000	1,251,000

[40] Includes plaster board, timber off-cuts, wiring etc.

* Adjusted to fit with the assessed total of 1,358,000 tonnes

3.42 Although applied as a baseline for 2012 in forecasting, the BPP Study baseline uses 2008 data. In Oxfordshire there was a 26% drop in house building activity between 2008 and 2012 (Table 1/2: Appendix 1) and it is possible that the drop in construction activity generally could have been even more pronounced[41].

3.43 If the decline in house building activity is used as an indicator of the decline in building activity generally, the BPP Study adjusted estimate of waste managed in Oxfordshire for 2012 would reduce to 926,000 tonnes.

Table 10:
Alternative Option 1 – estimate of Oxfordshire CDE managed waste based on adjustment to the BPP Study estimate (tonnes)

Source	2008	2012	
	Estimate (tonnes)	Decline in building activity 2008-2012	Revised estimate (tonnes)
BPP	1,251,000	26%	926,000

3.44 In 2012, CDE waste originating in Oxfordshire and managed at sites licensed by the Environment Agency[42] was 758,776 tonnes (Appendix 7). If waste managed at exempt sites (believed to be about 30% of the total) is taken into account, CDE managed waste could have been almost 1.084 million tonnes.

Table 11:
Alternative Option 2 – estimate of Oxfordshire CDE managed waste 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 (100%)

3.45 The difference between the two alternative estimates is about 158,000 tonnes. Of these, Option 2 is more likely to include waste that has been double counted, including waste transferred from a sorting facility to a recycling facility for processing. Nevertheless, the difference between the two estimates (15%) is relatively small and suggests that a baseline within these

[41] 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.
[42] The 2013 Waste Data Interrogator provides waste data for 2012.

two bounds could be seen as fairly reliable. The mean of the two estimates is 1,005,000 tonnes per annum and is an appropriate baseline. Comparison with other South East Waste Planning Authorities (see Appendix 2) suggests this is still a high figure.

Table 12:
Composition of Oxfordshire CDE managed waste (2012) (tonnes)

Construction	Demolition	Excavation	Total
201,000 (20%)	324,000 (31%)	492,000 (49%)	1,005,000

Component proportions taken from BPP Study

3.46 The proportion of 'hard' demolition waste found in Oxfordshire CDE waste (31% - as reported by BPP Consulting) appears to be lower than the national average (Table A6.1 – Appendix 6)[43]. This is unexpected, as house building on previously developed land in Oxfordshire is higher than the national average[44], but the finding is consistent with the result of an earlier study[45] that grouped Oxfordshire with Berkshire and Buckinghamshire – areas with similar profiles to Oxfordshire.

3.47 A great deal is already done to recycle demolition waste into usable aggregate and the BPP Study found that 96% of demolition waste is already recycled in Oxfordshire[46]. The overall amount of CDE waste recycled is, however, much lower[47]. An adjusted profile for managed CDE waste is provided in table A6.3 (Appendix 6).

[43] Environment Agency Building the Future: a survey on the arising and management of construction and demolition waste in Wales 2005-06 found that 48% of CDE waste is hard material.
[44] In the three years 2007/08 – 2009/10 78% of the housing in Oxfordshire was built on previously developed land compared to 71% nationally (2011).
[45] Capita Symonds (for DCLG) Survey of Arisings and Use of Alternatives to Primary Aggregates in England 2005: Construction, Demolition and Excavation waste (Feb 2007)
[46] Table 25 of the BPP Study
[47] Most demolition waste is hard inert material and can be recycled as secondary aggregate, but this is not possible for construction and excavation waste. Much of the 'soft' excavation waste comprises clay type sub-soils that are difficult to recycle and are more likely to be used in backfilling quarries or used for engineering in active landfills.

Figure 10:
Oxfordshire CDE waste management (2012)

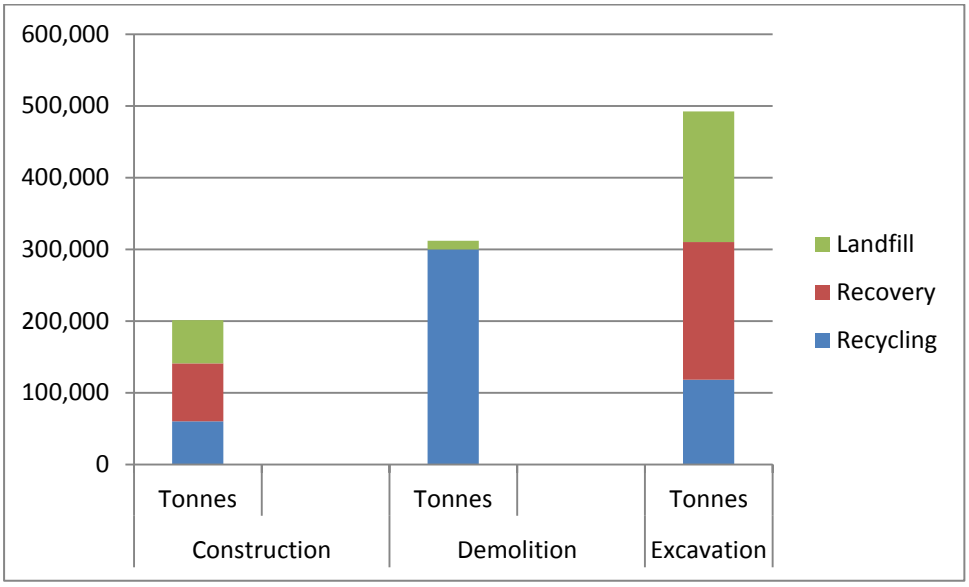
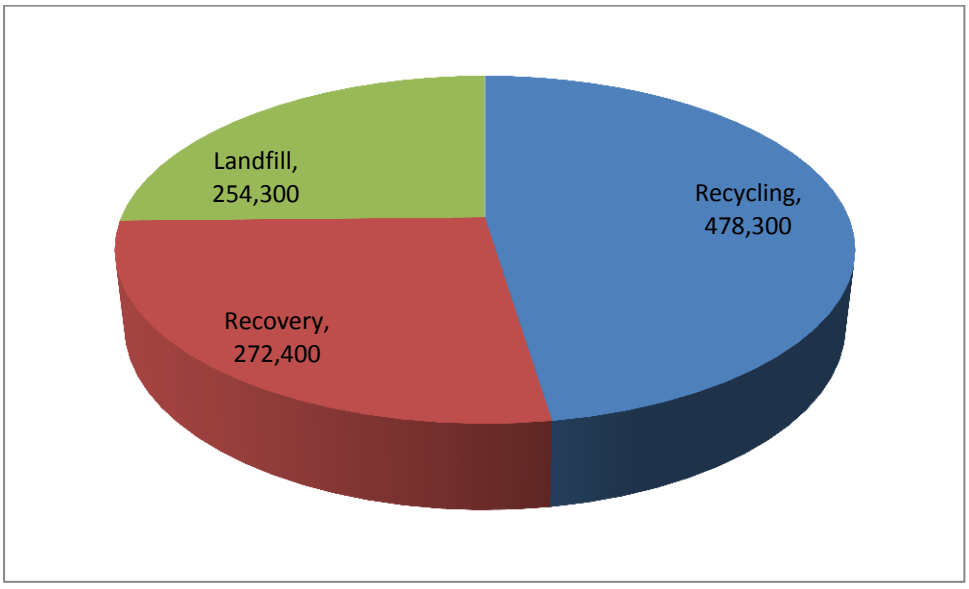


Figure 11
Oxfordshire Construction, Demolition and Excavation Waste Management (2012) (tonnes)



Forecast waste arisings

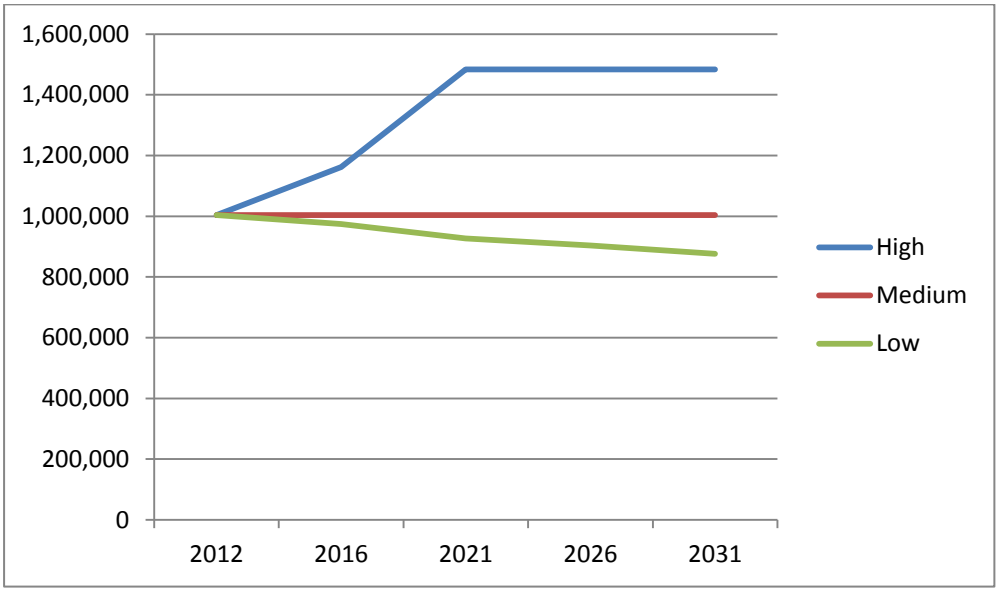
3.48 Applying the forecasting methodology used in the BPP Study, and using the revised baseline of 1.005 million tonnes per annum, CDE waste to be managed could be as low as 0.881 million tonnes per annum by 2031 or as high as 1.483 million tonnes per annum (table A6.4 – Appendix 6). The low estimate assumes that planned growth will not take place at the levels

envisaged. The higher estimate assumes that planned housing growth is achieved but arisings partly held in check by pressures to reduce waste. A median estimate assumes that planned development will take place but over a longer time period.

Table 12:
Options for CDE waste forecasts

	2012 - 2020		2021 - 2030	
	Scenario	Tonnes (2021)	Scenario	Tonnes (2031)
Low	Reduction 1% p.a.	921,800	Reduction 0.5% p.a.	876,700
Medium	No change	1,005,000	No change	1,005,000
High	Growth 5% p.a.	1,483,000	No change	1,483,000

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



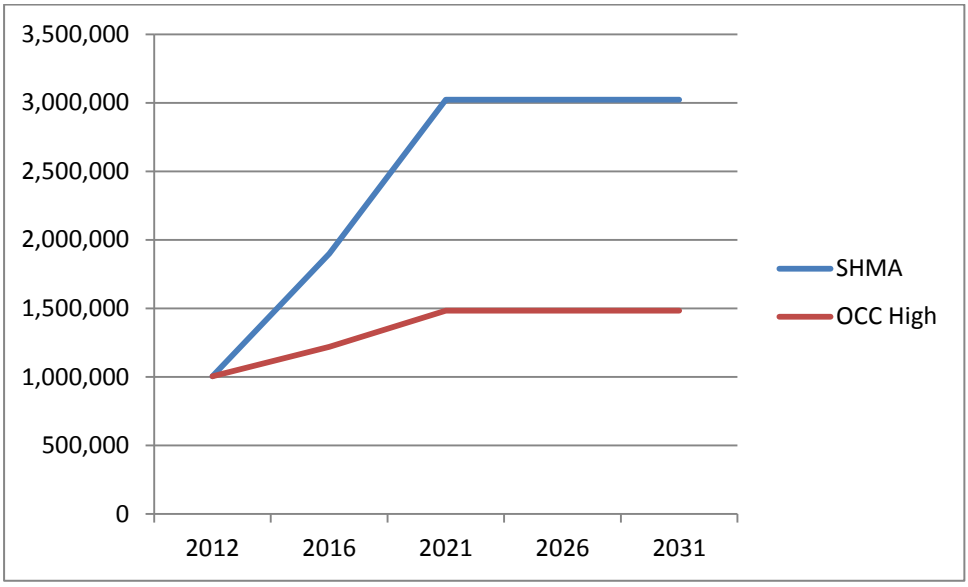
3.49 Since the BPP Study was concluded, the rate at which the Oxfordshire economy is expected to grow has been revised[48] and if realised this could result in new construction taking place at levels higher than those experienced

[48] 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).

before the recession and well above currently planned levels of growth. To accommodate this economic growth, it has been recommended that new housing should be provided at a rate of some 5,000 dwellings per annum[49], again much higher than that achieved previously[50] (table A1.2 – Appendix 2). District Local Plans are now considering whether and how to make provision for these levels of growth and whilst an increase in currently planned development seems likely, it is not yet clear what this will be and how soon this may take place.

3.50 Against this background, it seems very unlikely that waste arisings for this waste stream will reduce over the plan period. CDE waste arisings are far more likely to increase. If building activity was to take place at the rate recommended by the Strategic Housing Market Assessment (SHMA), and this was reflected across the building industry, the amount of CDE waste to be managed could be twice as high as that currently envisaged in the high estimate (table A6.5 – Appendix 6).

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



Forecast arisings based on 531 tonnes of waste per new dwelling (as at 2011)

3.51 That CDE managed waste will be higher than current levels is very probable, particularly as the nation recovers from economic recession. But an increase to 3,000,000 tonnes of waste per annum in Oxfordshire seems unlikely and

[49] Strategic Housing Market Assessment for Oxfordshire March 2014
[50] 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..

would also require that other forms of construction, including housing improvements keep pace with the level of house building recommended by the SHMA[51]. The 'High Growth' scenario (Figure 12) allows for future growth at rates that are higher than those seen in the mid-2000's (table A1.2 – Appendix 2) and a possible reduction in unit waste produced. A realistic level of waste to be planned for is therefore in the order of 1.5 million tonnes per annum.

Waste Management

3.52 The EU Waste Framework Directive requires that 70% of construction and demolition waste is recycled[52]. The BPP Study indicates that this target is being met in Oxfordshire (table A6.2 – Appendix 6). However, the monitoring of this target requires a disaggregation of CDE waste data and this is not readily available[53].

3.53 Oxfordshire appears to recycle a lower proportion of CDE waste than that produced nationally[54]. Advances in waste technology[55] may allow for this to be improved on but the composition of the waste stream in Oxfordshire, which seemingly comprises a greater proportion of clay like sub-soil, makes the achievement of a 60% recycling target more challenging. Although excavation waste can be screened to separate out topsoils and stones/rocks, most of the waste that can be recycled comes from the construction and demolition components of the waste stream. The achievement of a 70% recycling target for construction, demolition *and* excavation waste (as recommended by BPP) therefore seems over ambitious.

3.54 The component parts of this waste stream are clearly managed very differently and there could be a case for identifying separate recycling targets for each. However, this would be unduly complex and difficult to monitor. A single recycling target is therefore considered more appropriate. It is difficult to envisage a target of more than 60% being realistic[56]. Table A6.3 (Appendix 6) demonstrates that this target is likely to be more challenging than the 70% recycling target for construction and demolition waste set by the EU Waste Framework Directive.

3.55 The value of identifying separate targets for recovery and landfill (as proposed by BPP Consulting) is also questionable. Nearly all non- recycled waste will be used to restore worked out quarries, irrespective of whether it is licensed by the Environment Agency as either a recovery or disposal operation.

[51] Waste from house improvements (extensions etc) is currently equal to waste from new build.
[52] DefRA – Government Review of Waste Policy in England 2011 (paragraph 47)
[53] The Environment Agency Waste Data Interrogator only reports on CDE waste totals, and not the separate components.
[54] WRAP: Construction, demolition and excavation waste arisings, use and disposal in England (April 2010)
[55] 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.
[56] A recycling target of 60% was confirmed in the former South East Plan following public examination.

Recognising this distinction in separate waste planning targets would again be difficult to monitor and appears to serve no useful purpose, especially as operators report a shortage of material for restoration of Oxfordshire's worked out quarries. The most appropriate targets for this waste stream are therefore those that seek to maximise the amounts of waste that can be recycled.

Table 12
Waste Management Targets for Construction, Demolition and Excavation 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%

3.56 Applying these targets to the high waste forecast for this waste stream results in the following pattern of management throughout the plan period (see also table A6.6 – Appendix 6).

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