

## Chapter 15 Waste

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### Introduction

- 15.1 Terence O'Rourke has been commissioned by Countryside Properties to examine the waste issues associated with the proposed development south-west of Bicester.
- 15.2 The scoping report identified waste as a secondary issue. This chapter examines waste issues from the construction and post-construction phases of the proposal. The baseline level of waste arisings in Oxfordshire and the south east of England have been determined and consideration has been given to the remaining capacity of the waste management facilities in the region. From this, the levels of waste potentially arising from the proposed development are put into context. The chapter focuses on solid waste from three streams:
- municipal solid waste (MSW)
  - commercial waste
  - construction and demolition waste (C&D).

### Legislation and policy

- 15.3 Planning Policy Statement 10: Planning for Sustainable Waste Management (July 2005) provides the basic principles to be transposed into regional and local planning. The overall objective of government policy on waste, as set out in the strategy for sustainable development, is to protect human health and the environment by producing less waste and by using it as a resource wherever possible.
- 15.4 The National Waste Strategy 2000 sets targets for the recovery and recycling of waste, which inform planning policy on a regional, county and local level. The targets are currently set as follows:
- by 2005, to reduce the amount of industrial waste and commercial waste landfilled to 85% of the 1998 levels
  - by 2005, to recycle or compost at least 25% of household waste
  - by 2010, to recycle or compost at least 30% of household waste
  - by 2015, to recycle or compost at least 33% of household waste.
- 15.5 There are also national targets for reducing landfill to 75% of 1995 levels by 2010 and to 50% of 1995 levels by 2013.
- 15.6 The Oxfordshire Structure Plan 2016 (adopted October 2005) includes a general policy (policy G6) encouraging resource conservation by *'minimising the use of construction materials, maximising the use of recycled and secondary materials in place of primary aggregates and minimising production of waste. New developments should make adequate provision to facilitate storage, re-use, recycling and composting of waste'*.

## Methodology

### *Baseline*

- 15.7 The assessment of solid waste in Bicester, Oxfordshire and the south east of England was undertaken by conducting a desk-based assessment using data from various sources. These are listed in figure 15.1.

Discussions with the Oxfordshire County Council Waste Management Unit
Environment Agency Website <a href="http://www.environment-agency.co.uk">www.environment-agency.co.uk</a>
Department for Environment, Farming and Rural Affairs website <a href="http://www.defra.co.uk">www.defra.co.uk</a>
Toolbase Services Website, The Home building Industry's Information Resource, <a href="http://www.toolbase.org">www.toolbase.org</a>
Oxfordshire Structure Plan 2016 (adopted 2005))
The Office of the Deputy Prime Minister's (ODPM) report on the surveys of arisings and use of construction, demolition and excavation waste as aggregate in England in 2003 (Capita Symonds Ltd in association with WRC plc, October 2004)
Environment Agency, Strategic Waste Management Assessment (SWMA); South East, 2000
Municipal Waste Management Survey, March 2005 produced by the Department for Environment, Food and Rural Affairs
Update of the 'Model for future waste management capacity needs in the South East, Environmental Resources Management (ERM) on behalf of South East England Regional Assembly (SEERA), September 2005

Figure 15.1 Data sources and references

- 15.8 The waste management unit of Oxfordshire County Council was contacted in July 2005 for county information on C&D waste arisings, commercial waste arisings and MSW arisings. Information was also requested on the percentage of waste that is being recycled and the number and type of waste management facilities in the county.
- 15.9 The waste management unit was not able to provide the data in the format that will be examined in the Minerals and Waste Development Framework. However, reference was made to the primary sources of the data and these were examined as follows:
- construction and demolition waste arisings – no county-level information is available, regional figures are set out in the ODPM report
  - commercial and industrial waste arisings – county-level information is available from Environment Agency surveys (SWMA report, 2000)
  - municipal solid waste arisings and level of recycling – county-level information was provided by the waste management unit and further information was obtained from the Municipal Waste Management Survey produced by Defra in 2005.
- 15.10 For data on the capacity of waste management facilities in Oxfordshire, reference has been made to the SWMA report and a study undertaken by ERM updating the model for future waste management capacity needs in the south east, September 2005.

***Impact assessment****Waste benchmarking*

- 15.11 The Environment Agency has data for the average amounts of MSW that is produced by households. These data were used to calculate waste from the residential area of the proposed development. C&D waste was calculated using average figures taken from the Toolbase Services website. This provides an average quantity of construction waste for a 2000ft<sup>2</sup> house.

*Effect significance*

- 15.12 There are no known published 'standard' criteria for assessing the significance of additional waste. Significance has been assessed by cross-referencing the quantity of waste expected from the proposals with the baseline levels of waste and the capacity of the receptors. The predicted waste arisings from the site were examined in the context of the expected quantity of waste from the rest of Oxfordshire and the south east region.

**Baseline**

- 15.13 Oxfordshire residents, businesses and public organisations produce approximately 1.6 million tonnes of waste a year, mainly comprising MSW, commercial and industrial, and C&D wastes, with smaller quantities of hazardous wastes. At present the main method of management is disposal at local landfill sites. In addition, Oxfordshire has for many years received waste from London, which does not have sufficient facilities to deal with its own waste.

***Construction and demolition waste***

- 15.14 The ODPM's report on the surveys of arisings and use of construction, demolition and excavation waste as aggregate in England in 2003 (Capita Symonds Ltd in association with WRC plc, October 2004) has been examined.
- 15.15 As part of this work, three related surveys were carried out during the first six months of 2004 to establish estimates for the arisings and use of C&D waste in 2003 in England. These surveys were designed to generate estimates for recycled aggregates and soil, C&D waste used and disposed of at licensed landfills, and C&D waste spread on registered exempt sites.
- 15.16 The surveys have provided estimates of the use and disposal of construction, demolition and excavation waste in 2003 as shown on figure 15.2. A total of 90.93 million tonnes of waste was produced in England, and of this 15.23 million tonnes were produced in the south east of England. The south east was the region that made the largest contribution of waste. The level of waste produced by a region is dependent on national and local economies and is related to the level of development in the region. Of the waste produced in the south east, 36% is recycled and 14% is disposed of to landfill.

Region	Recycled as aggregate soil	Used for landfill engineering or restoration	Used to backfill quarry voids	Used at Para 9 and 19 sites	Disposed of as waste at landfills	Total CDEW
North west	5.21	0.92	1.00	2.89	1.09	11.11
North east	2.61	0.26	0.81	0.84	0.36	4.88
Yorkshire and the Humber	5.08	0.55	2.57	2.75	0.89	11.84
West Midlands	4.94	0.54	1.14	0.78	0.73	8.13
East Midlands	4.88	0.84	1.84	1.10	1.22	9.88
East of England	5.96	0.63	2.06	2.18	1.79	12.62
London	6.15	0.05	0.29	0.58	0.17	7.24
South east	5.52	1.99	2.74	2.91	2.07	15.23
South west	5.09	0.67	0.96	2.41	0.87	10.00
England	45.45	6.45	13.41	16.43	9.19	90.93
Bands (90% confidence)	+/-10%	+/-31%	+/- 26%	+/-38%	+/- 19%	+/-10%

Figure 15.2 Regional estimates for use / disposal of construction, demolition and excavation waste (CDEW) in England in 2003 (million tonnes) (source: ODPM, 2004)

### ***Municipal solid waste (MSW)***

- 15.17 The south east produces more waste than any other region. Around half of this is C&D waste reflecting the density of development and level of economic activity in the region. The south east is also one of the three largest producers of MSW.
- 15.18 The Municipal Waste Management Survey, March 2005, produced by DEFRA provides data on the level of MSW generated in the south east region and how this was managed from 2001 to 2004.
- 15.19 In 2001/02, 4,477 thousand tonnes of MSW was produced in the region, 79% was disposed of at landfill and 19% recycled. In 2002/03 the amount of waste had increased to 4,538 thousand tonnes, with 76% disposed of to landfill and 21% recycled. In 2003/04, the level of MSW decreased slightly to 4,524 thousand tonnes, with 73% disposed of to landfill and 24% recycled.
- 15.20 This survey also set out the amount of MSW generated by each household per week. In the south east, 24.3 kilogrammes of waste is generated by each household per week in 2001 and 2002, compared with 23.8 kilogrammes for England as a whole.
- 15.21 Oxfordshire County Council waste management unit confirmed that from April 2004 to April 2005, the Council managed 301,500 tonnes of household waste, of which 90,870 was

recycled or composted. The recycling and composting rate for the county was therefore 30.15%.

- 15.22 The estimates of growth of MSW for the south east predicts that MSW is set to almost double over the next 20 years if the current national average rate of waste growth (3% per annum) is maintained (SWMA 2000). The level of MSW produced in 2000 was 4,111 thousand tonnes and this is set to increase to 5,638 thousand tonnes in 2010, 6,199 thousand tonnes in 2013 and 7,733 thousand tonnes in 2020.

### ***Commercial waste***

- 15.23 The strategic waste management assessment (SWMA) of the south east confirmed that the region produced 9 million tonnes of industrial and commercial waste between 1998 and 1999. Just over half of this waste was from industry. The proportion of waste produced by commerce in the south east was much higher than the national average and reflects the importance of commerce to the economy of the south east.
- 15.24 Figure 15.3 shows the breakdown of waste types generated by industry and commerce in Oxfordshire. The industrial waste mainly comprised mineral waste and residues (38%), followed by general waste and food. With regard to commerce arisings, the largest component was general industrial and commercial wastes followed by paper and card and other general and biodegradable waste.

Waste type	Industrial	Commerce
Inert/C&D	16	2
Paper and card	42	32
Food	69	6
General industrial and commercial	101	228
Other general and biodegradable	47	26
Metals and scrap equipment	23	7
Contaminated general	29	8
Mineral wastes and residues	225	0
Chemical and other	33	6
TOTAL	585	315

Figure 15.3 Amount and composition of industrial and commercial waste produced in Oxfordshire (000s tonnes) between 1998 and 1999 (Environment Agency, 2000)

- 15.25 The major waste management method for both commercial and industrial wastes was landfill, with about 50% of all wastes going for disposal through this route (46% for industrial waste and 56% for commercial activities). Industry and commerce also recycled significant quantities of their wastes (33% for industrial waste and 22% for commercial activities).
- 15.26 As with C&D arisings, the prediction of commercial waste arisings is not proportional to the population of the area. It is dependent on local and national economics and the buoyancy of the market, which dictates increases or decreases in demand.

***Current waste management infrastructure***

- 15.27 There were 715 licensed waste management facilities operational in the south east during 1998 and 1999 (SWMA, 2000). There were 198 landfill sites, around half of which were licensed to accept inert wastes only. About 13.4 million tonnes of waste was disposed at landfill sites.

Facility type	Number
Landfills accepting inert only waste	106
Landfills accepting household, industrial and commercial waste	58
Landfills accepting special waste	34
Transfer stations (inc. civic amenity sites)	297
Treatment facilities (inc. composting sites)	220
<b>TOTAL</b>	<b>715</b>

Figure 15.4 Waste management facilities in the south east in 1998-99 (Environment Agency, 2000)

- 15.28 There are two waste recycling sites in Cherwell district, one in Alkerton and one in Ardley Fields as shown on figure 15.5. Alkerton is a waste recycling site and landfill 7 miles west of Banbury to the north of Alkerton village. Ardley Fields waste recycling site and landfill is near Bicester, 1 mile south of the Ardley village and 1.5 miles south of junction 10 of the M40. Both of these landfill sites also take hazardous waste.
- 15.29 There is capacity at the landfill sites in Oxfordshire and it has been predicted that life expectancy of these sites is 12.9 years. This is based on a theoretical calculation but provides a good general indication of the maximum remaining life in each sub-region.
- 15.30 Further information on waste management capacity needs is set out in the SEERA report (September 2005). This study predicts that there will be 0.891 million tonnes of capacity in Oxfordshire for non-hazardous waste in 2025. This assessment is based on achieving targets for waste disposal by recycling, composting and recovery.

***Assessment of sensitivity***

- 15.31 The waste management facilities in Cherwell district are the receptors sensitive to waste generated by the proposed development. The sensitivity is based on their capacity to manage and dispose of the additional waste arising from the proposals.
- 15.32 There is capacity at the waste management facilities in Oxfordshire. These facilities are therefore considered to be of low sensitivity with respect to the development proposals.

**Potential effects*****During construction******Site preparation wastes***

- 15.33 Potential site preparation wastes include cut and fill material, which will arise from excavation activities required for the provision of the foundations of the road and proposed

structures. It is expected that cut and fill operations will be balanced on-site and spoil re-used to avoid the need for any off site disposal. The level of waste generated by the excavation activities is considered to be negligible and no significant effects are predicted.

- 15.34 The ground conditions assessment identified a number of areas on-site where there is made ground and hot spots of contamination. Remediation will be required which will involve on-site treatment where possible due to the costs associated with off-site disposal. However, it may be necessary to remove some hazardous waste from the site and dispose of this at a licensed landfill. Hazardous waste can be taken to Ardley Fields and Alkerton waste recycling sites. The levels of waste that will require removal will be limited and of negligible magnitude. No significant effects have been predicted.

#### *Construction and demolition waste*

- 15.35 Using average figures from the Toolbase Services website, it is anticipated that the construction of up to 1,585 dwellings would result in approximately 5,752 tonnes of waste, comprising the following:
- 2157 tonnes wood
  - 1438 tonnes drywall
  - 431 tonnes cardboard
  - 108 tonnes metals
  - 108 tonnes plastic
  - 732 tonnes masonry
  - 36 tonnes hazardous material
  - 755 tonnes other.
- 15.36 Figure 15.2 shows that 1523 million tonnes of construction, demolition and excavation waste was generated in the south east in 2003. The estimated tonnage of C&D waste generated by the proposals represents 0.04% of the annual CDEW arising in the south-east.
- 15.37 This percentage represents the construction activity for the dwellings only as this is considered to be the origin of the majority of construction waste arisings. If the construction of the associated development were included, a worst case scenario would be the doubling of the waste arisings. This would cover the wastes generated by the primary schools, secondary schools, local centre including retail, pub and community centre, hotel and employment land. This would therefore represent approximately 0.08% of waste arisings in the south east attributable to the construction of the proposed development.
- 15.38 This waste will be produced over the course of the projected seven-year construction phase, so the following predictions are very much worst case. In addition, 36% of C&D waste is typically re-used or recycled.
- 15.39 The effect of construction waste from the proposal on the current waste management infrastructure is not considered to be significant given the negligible magnitude of change and the low sensitivity of the waste management disposal facilities.

***Post-construction***

- 15.40 Post-construction MSW will arise from the new dwellings and associated development on-site. The 2001 census stated that there were 11,612 households in Bicester. If the average MSW production per household per week is 24.3kg as described in this baseline, this equates to 282 tonnes per week and 14,673 tonnes per annum.
- 15.41 The Environment Agency estimates that the average percentages of waste from residences are 30% cardboard, 25% food scraps, 10% glass, 8% metals, 8% plastics, and 19% textiles or 'other'. Therefore, the total arisings from the residences in Bicester equates to the following tonnage per waste stream:
- 4401.9 tonnes cardboard
  - 3668.25 tonnes food scraps
  - 1467.3 tonnes glass
  - 1173.84 tonnes metals
  - 1173.84 tonnes plastics
  - 2787.87 tonnes textiles / other.
- 15.42 Given that the number of dwellings in the proposed development is up to 1,585, this is equivalent to 38.5 tonnes per week and 2002.8 tonnes per annum. This represents an additional 13.6% of the current arisings in the town of Bicester. By comparison with the total MSW arisings for the Oxfordshire for 2004 / 2005 of 301500 tonnes, this represents a very small increase of 0.66%.
- 15.43 In addition to the waste generated by the dwellings, there will be an increase in waste arising from the associated development proposed for the site such as the primary schools, secondary school, local centre including retail, community centre, pub, health village, employment land and hotel. These land uses will also generate waste post-construction.
- 15.44 Not all this waste will be destined for landfill, as a proportion will be recycled. The National Waste Strategy sets a future target to recycle or compost at least 33% of household waste by 2015 and to reduce the amount of industrial waste and commercial waste landfilled to 85% of the 1998 levels by 2005. Oxfordshire had already achieved a recycling and composting rate of 30.15% in 2004/2005.
- 15.45 The building design will incorporate facilities for the residents to separate waste streams using the three-bin system already in operation in Bicester. Recycling opportunities will further reduce the level of waste generated by the proposed development with negligible increase of only 0.46% at a county level.
- 15.46 The unadopted Cherwell Local Plan 2011 identifies the site at south west Bicester for urban extension. Although the local plan remains unadopted, service provision and capacity will have been assessed during the creation of its policies, and the current or future waste infrastructure considered adequate to support this type of development.
- 15.47 The sensitivity of the existing waste management facilities in Oxfordshire was considered to be low, due to the adequate remaining capacity of the infrastructure. The likely increase in recycling rates as the Government targets are satisfied, will further reduce the already



insignificant level of waste that the development is predicted to produce. Therefore, based on the matrix in figure 4.4, no significant effects have been predicted.

### **Mitigation**

15.48 No significant effects have been predicted as a result of the proposal on the waste management infrastructure of Oxfordshire. Therefore no mitigation measures are considered necessary.

### **Residual effects**

15.49 There will be no significant residual effects.

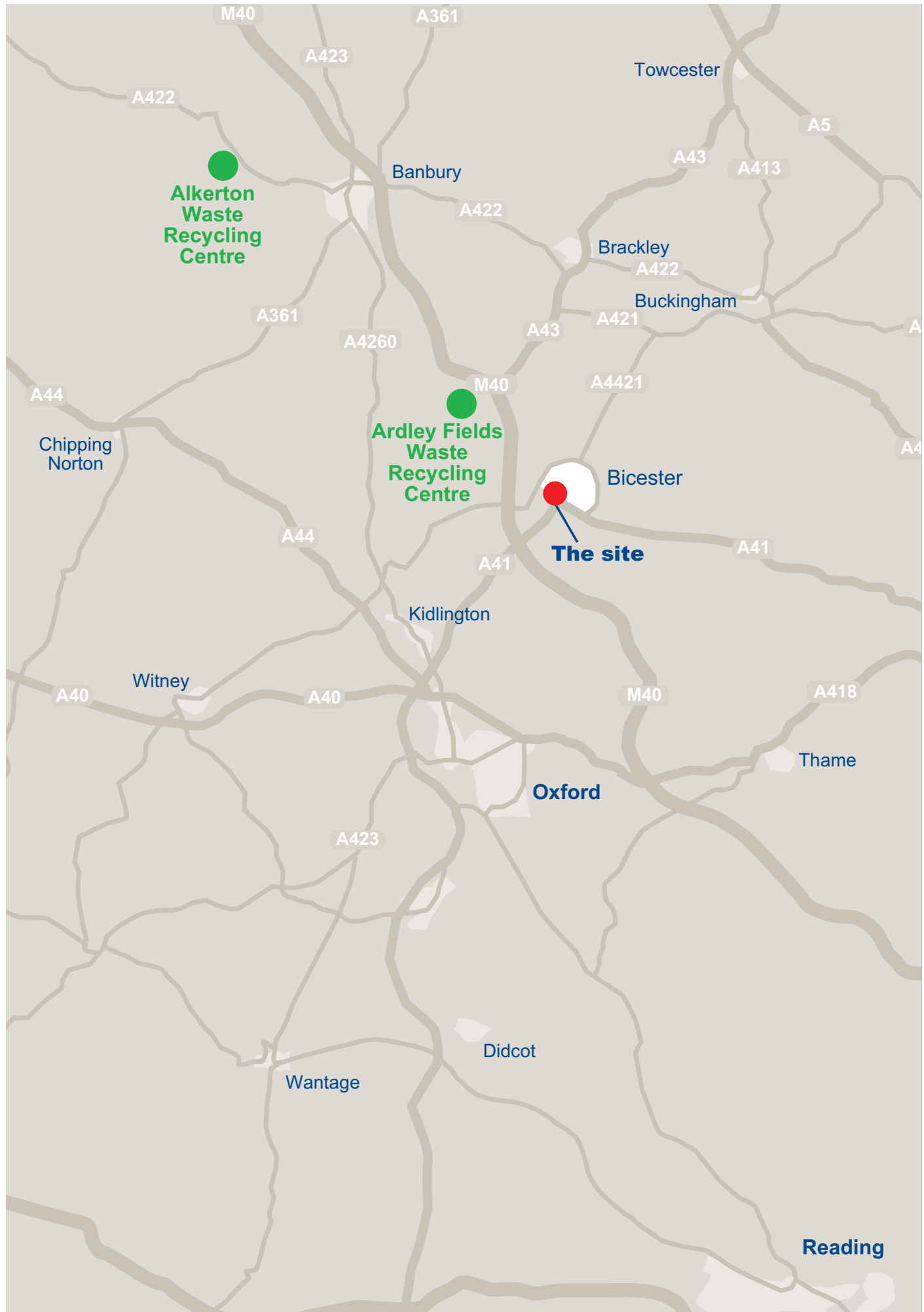


Figure 15.5 Location of the waste recycling sites in Cherwell District

not to scale

