Oxfordshire Minerals and Waste Plan
Minerals and Waste Core Strategy

Background Paper February 2012

Provision for Aggregates Supply

Note: This background paper was prepared prior to publication of the government's National Planning Policy Framework on 27 March 2012 and it has not been updated to reflect this new national policy document.

1. Introduction

1.1 This background paper sets out data which provides part of the evidence base for the policies on aggregates supply in the Minerals and Waste Core Strategy. In particular, it explains: the level of provision to be made for land-won aggregates; the proportion of overall supply that the plan expects will come from each of the areas identified for sand and gravel working; how planned population growth and economic development is related to the proposed strategy for mineral working; provision for soft sand and crushed rock; and provision for and sources of secondary and recycled aggregates.

2. Provision to be made for land won aggregates

2.1 The Oxfordshire sub-regional apportionment of the Government's guidelines for aggregates provision, in South East Plan policy M3, is 1.82mtpa for sand and gravel and 1.0mtpa crushed rock. In July 2010 the Secretary of State revoked the South East Plan (but this decision was subsequently overturned in the courts). Guidance issued by DCLG at the same time in July 2010 include that: 'Planning authorities in the South East should work from the apportionment set out in the "Proposed Changes" to the revision of [South East Plan] Policy M3, published on 19 March 2010'. But it went on to say: 'Planning authorities can choose to use alternative figures for their planning purposes if they have new or different information and a robust evidence base'. The Oxfordshire figures in the "Proposed Changes" are 2.1mtpa for sand and gravel and 0.66mtpa crushed rock. The Localism Act 2011 provides for revocation of regional strategies, and it is expected that the South East Plan will be revoked in 2012.

2.2 In November 2010, the County Council commissioned the consultants Atkins to undertake a local assessment of aggregates supply requirements for Oxfordshire. Atkins' report (January 2011) put forward a range of supply figures based on four different methodologies. The consultants recommended that the two most robust methodologies proposed were based on an average of the last 10 years' sales and on aggregates use linked to forecast population growth.

2.3 The methodology based on an average of the last 10 years' sales gave a figure for sand and gravel of 1.29mtpa. Table 1 shows that over the past 10 years actual sales of sand and gravel in Oxfordshire have declined steadily to a level less than half this figure, as shown in Table 1. A level of provision of 1.29mtpa would therefore provide headroom to allow for meeting increased market demand and/or replacing current imports to Oxfordshire from neighbouring counties.

Table 1: Sales of sand and gravel 2001-2010

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Sales (000 tonnes)	1925	1787	1606	1479	1289	1166	1059	770	627	597
Landbank (years)	6.7	6.0	5.0	4.5	3.8	3.1	3.0	3.7	4.9	4.7

Source: Oxfordshire Minerals and Waste Plan: Annual Monitoring Report 2011

2.4 The other recommended methodology was based on forecast need for aggregates related to population growth. Linking per capita consumption of primary aggregates to forecast population is a robust proxy because it implicitly includes all types of new development and also aggregate usage associated with maintenance and repair of the existing built fabric. A five year average of 2.73 tonnes per capita was applied to forecast population figures, which resulted in a required supply of 1.23mtpa.

2.5 In February 2011 the Council decided that provision for aggregates in the draft Minerals Planning Strategy should be based on an average of the figures from the two methodologies recommended by the consultants. Figures of 1.26mtpa for sand and gravel and 0.63mtpa crushed rock were agreed as the basis on which to plan for provision. Supply of and demand for aggregates will continue to be monitored and the provision figures will be reviewed if monitoring indicates this is necessary. It is expected that the plan will in any case be subject to 5-yearly reviews.

2.6 The Minerals and Waste Core Strategy will subdivide the sand and gravel provision figure to give separate figures for soft and sharp sand and gravel. In the draft Minerals Planning Strategy, September 2011, the provision figure of 1.26 mtpa is subdivided in proportion to average production of soft sand and sharp sand & gravel over the last 3 years. Over the period 2007 to 2009, the average split was 20% soft sand and 80% sharp sand and gravel, giving an interim apportionment subdivision of 0.25 mtpa for soft sand and 1.01 mtpa for sharp sand and gravel. The average split changed to 23% soft sand and 77% sharp sand and gravel over the period 2008 to 2010, but the figures in policy M2 have not be changed in response to this single year change. The production split between soft sand and sharp sand and gravel will continue to be monitored and the figures will be reviewed if monitoring indicates this is necessary.

2.7 The most recent date for which data is available on existing reserves of aggregate minerals with planning permission for extraction (permitted reserves) is 31 December 2010. The provision made in the draft Minerals Planning Strategy is from this base date. The agreed provision figures result in a requirement over the 20 year period 2011 to 2030 (the plan period) for:

- Sharp sand and gravel – 20.2 million tonnes (1.01 x 20).
- Soft sand – 5.0 million tonnes 0.25 x 20).
- Crushed rock – 12.6 million tonnes (0.63 x 20).

2.8 Permitted reserves at the end of 2010 and permission granted since are shown in Table 2.

Table 2: Permitted reserves of aggregate minerals

	Soft sand	Sharp sand & gravel	Crushed rock
	million tonnes		
Permitted reserves at end 2010	2.554	5.938	12.292
Permissions since end 2010	0.86	–	0.375
Total permitted reserves	3.414	5.938	12.667

Source: Oxfordshire Minerals and Waste Plan: Annual Monitoring Report 2011

2.9 Taking into account these permitted reserves, the additional requirement over the plan period for which provision needs to be made is:

- Sharp sand and gravel – 14.26 million tonnes;
- Soft sand – 1.59 million tonnes;
- Crushed rock – no additional requirement.

2.10 Mineral operators and landowners have submitted nominations for sites to be considered for inclusion in the Minerals and Waste Plan. A mineral sites allocations development plan document is to be prepared following the Core Strategy and a detailed assessment of the possible suitability of these nominated sites for possible inclusion in that document has not yet been carried out. But a preliminary assessment of the likely deliverability of these sites has been carried out.

2.11 Table 3 shows the total potential yield from site nominations in each of the sand and gravel strategy areas in the draft Minerals Planning Strategy. Table 4 shows the assumed provision which would come from each of the sand and gravel strategy areas. Comparison of the figures in column ‘e’ of table 3 with the totals in table 2 indicate that each of the strategy areas potentially has sufficient deliverable resources of minerals to meet the provision required for the strategy over the plan period.

Table 3: Potential yield (million tonnes) from nominated sites in each sand and gravel strategy area

Lower Windrush Valley		Eynsham / Cassington / Yarnton		Sutton Courtenay		Caversham		Cholsey	
Site	Yield	Site	Yield	Site	Yield	Site	Yield	Site	Yield
SG-18	0.5	SG-04	0.2	SG-19	0.54	SG-11	4.0	SG-33	4.0
SG-21	3.2	SG-05	0.23	SG-53	0.75			SG-57	0.35
SG-22	1.2	SG-08	2.5	SG-62	1.1			SG-60	0.51
SG-23	1.6	SG-16	1.12						
SG-24	1.6	SG-20	1.5						
SG-27	1.6	SG-20a	1.6						
SG-28	0.395	SG-20b	1.86						
SG-30	0.350								
SG-32	0.275								
SG-34	1.310								
SG-36	0.4								
SG-39	2.0								
Total yield	**14.43**	**Total yield**	**9.01**	**Total yield**	**2.39**	**Total yield**	**4.0**	**Total yield**	**4.86**

Table 4: Total potential provision from each strategy area

Sand and gravel strategy area	**(a) Existing / expected production capacity** (million tonnes per annum)	**(b) Provision required 2011-2020** (million tonnes)	**(c) Proposed production capacity 2020-2030** (million tonnes per annum)	**(d) Provision required 2021-2030** (million tonnes)	**(e) Total provision required (b) + (d)** (million tonnes)
Lower Windrush Valley	0.55[1]	5.5o	0.35[2]	3.5	**9.0**
Eynsham / Cassington / Yarnton	0.3[3]	3.0	0.3	3.0	**6.0**
Sutton Courtenay	0.2	2.0	–	–	**2.0**
Caversham	0.17[4]	1.7	0.17	1.7	**3.4**
Cholsey	–	–	0.2[5]	2.0	**2.0**

[1] Figure gained from two current permissions, at Gill Mill and Stonehenge Farm.
[2 2] This assumes only one quarry in the Lower Windrush Valley after 2020, by when the reserves at Stonehenge Farm are expected to be exhausted.
[3] Likely capacity figure estimated from industry site nominations in this area.
[4] Based on rate of working proposed in current application at Caversham MW.0158/11.
[5] Based on proposed rate of work in site nominations in Cholsey area.

3. Distribution of mineral working between west and southern Oxfordshire

3.1 The draft Minerals Planning Strategy seeks to distribute sand and gravel working appropriately between west Oxfordshire and southern Oxfordshire, taking into account where demand is expected in the county and the distribution of mineral resources. The draft strategy recognises that there are existing permissions, particularly in west Oxfordshire, which will largely determine how much is worked from different areas over much of the period to 2020; and also that the location and capacity of existing processing plant will be a significant factor. The draft strategy seeks to ensure that, taking into account existing permissions and plant in west Oxfordshire, the balance of provision is from quarries in southern Oxfordshire. Table 5 shows the expected possible rates of supply from each strategy area, and the proportion of total supply from each area, over the plan period.

Table 5: Proportion of resources expected to come from each sand and gravel strategy area through the plan period

Sand and gravel strategy area	**Existing / expected production capacity to 2020** (million tonnes per annum)	**Proportion of total required provision to 2020** (1.01 mtpa)		**Proposed production capacity 2020-2030** (million tonnes per annum)	**Proportion of total required provision 2020-2030** (1.01 mtpa)
Lower Windrush Valley	0.55[6]	45%		0.35[7]	34%
Eynsham/ Cassington/ Yarnton	0.3[8]	25%		0.3	29%
Sutton Courtenay	0.2	16%		–	0%
Caversham	0.17[9]	14%		0.17	17%
Cholsey	–	0		0.2[10]	20%
TOTAL	**1.22**	**100%**		**1.02**	**100%**

[6] Figure gained from two current permissions, at Gill Mill and Stonehenge Farm.
[7] This assumes only one quarry in the Lower Windrush Valley after 2020, by when the reserves at Stonehenge Farm are expected to be exhausted.
[8] Likely capacity figure estimated from industry site nominations in this area.
[9] Based on rate of working proposed in current application at Caversham MW.0158/11.
[10] Based on proposed rate of work in site nominations in Cholsey area.

3.2 Table 4 shows that the existing and expected production capacity in west Oxfordshire, comprising the Lower Windrush Valley and Eynsham / Cassington / Yarnton areas, accounts for 70% of provision to 2020 but that this proportion decreases to 63% in the period 2020 to 2030, with provision from areas in the south of the county together increasing from 30% up to 2020 to 37% after 2020.

3.3 An objective of the Plan is to reduce the miles that minerals need to be transported by road. This means, as far as is practicable, locating mineral working (particularly sand and gravel) in relation to where the demand for aggregates for construction is expected. The ability to achieve this objective is limited by the distribution of potentially workable deposits of minerals. It is also limited in the first half of the plan period by the location of existing permitted capacity; there is more scope to alter the balance of working between strategy areas in the latter half of the plan period, to enable a reduction in mineral miles. The proposed shift in level of provision away from west Oxfordshire and towards southern Oxfordshire over the plan period is intended to help achieve this.

3.4 This draft strategy also addresses concerns of the Highways Agency and the Environment Agency about potential adverse impacts (increased traffic on the A40 / A34 and impacts rivers and groundwater flows respectively) of any increase in mineral working in West Oxfordshire; draft policy M3 says there should be no increase in the level of mineral extraction in the west Oxfordshire areas combined.

3.5 In response to the consultation on the draft Minerals Planning Strategy, many of the respondents from West Oxfordshire objected that the majority of sand and gravel working would continue to take place in the west Oxfordshire areas during the plan period, but the majority of planned residential and economic development is in the south of the county (particularly in Science Vale); and that this imbalance will lead to significant movement of minerals from west Oxfordshire to southern Oxfordshire by road along the A40 and the A34.

3.6 This paper presents data on forecast population growth and planned economic development as the best indicators of the spatial distribution of likely development over the planned period that are available on a consistent basis for the whole of Oxfordshire. Whilst construction of new homes, offices, industrial and other buildings and associated roads will require large quantities of aggregates, particularly for foundations, concrete and road materials, very significant quantities of aggregates are also used in maintaining and improving the existing built fabric of the County.

3.7 Table 6 shows forecast population growth in the five Districts in Oxfordshire from 2011 to 2026, grouped into the northern and southern parts of the County. The population figures for Oxford has been divided equally between north and south, reflecting its central location and that

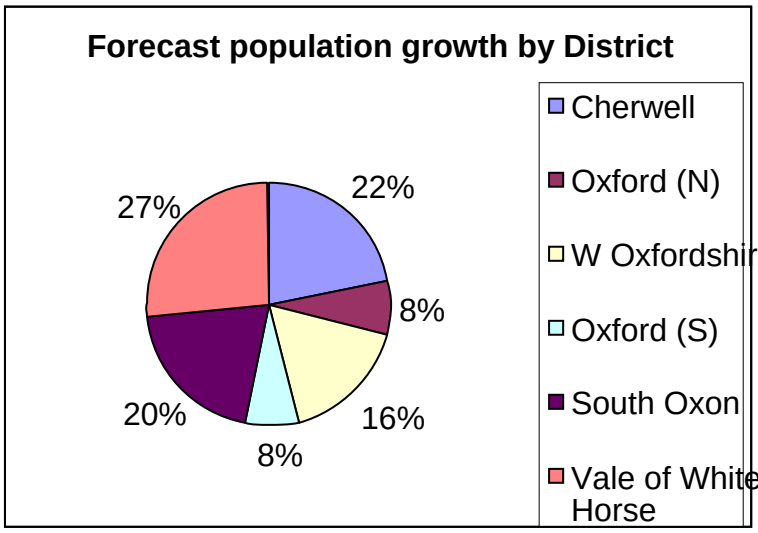
the city could equally well be supplied with aggregates from the northern (ie west Oxfordshire) or southern parts of the County. This table shows that existing population is evenly divided between the northern and southern parts of the county, and that slightly more of the forecast population growth is in the southern part (55%) compared with the northern part (45%).

Table 6: Forecast population growth in Oxfordshire by District 2011 – 2026

District	Population 2011	% of total	Population 2026	% of total	Population Increase 2011–2026	% of total increase
Cherwell	135,000	21%	149,000	21%	14,000	21.9%
Oxford (North)	73,500	11.5%	78,500	11%	5,000	7.8%
West Oxfordshire	106,000	17%	116,000	17%	10,000	15.6%
SUB TOTAL	314,500	49.5%	343,500	49%	29,000	45%
Oxford (South)	73,500	11.5%	78,500	11%	5,000	7.8%
South Oxfordshire	128,000	20%	141,000	20%	13,000	20.3%
Vale of White Horse	121,000	19%	138,000	20%	17,000	26.6%
SUB TOTAL	322,500	50.5%	357,500	51%	35,000	55%
TOTAL	**637,000**	**100%**	**701,000**	**100%**	**64,000**	**100%**

3.8 Figure 1 shows the data in Table 6 in the form of a pie chart. This illustrates that the forecast population growth in the southern part of Oxfordshire is slightly higher than that in the northern part of the county.

Figure 1: Forecast population growth by District 2011 – 2026



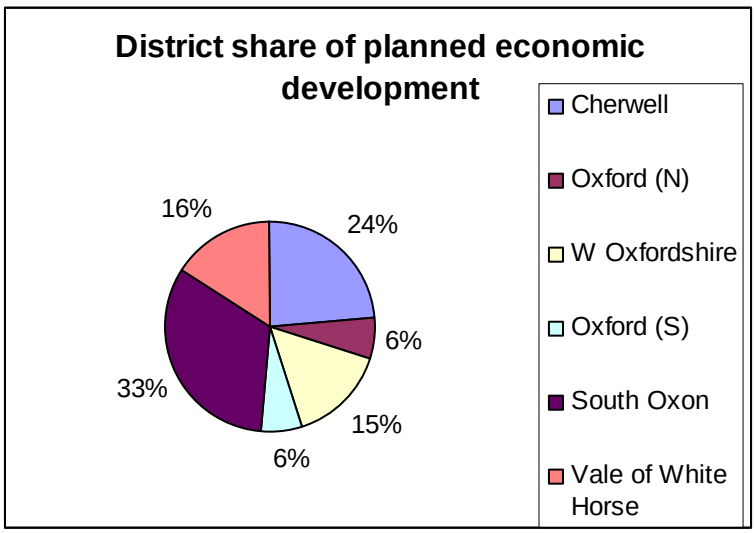
3.9 Table 7 sets out the amount of land planned for economic development in the five Districts in Oxfordshire for the period 2011 – 2031, grouped into the northern and southern parts of the County. Oxford has been divided between north and south depending on the location of planned development sites in the City. These figures have been provided by the District Councils and represent the most up to date information on this as at January 2012, based on existing planning permissions and planned allocations for economic development to 2031.

Table 7: Planned provision of land for economic development in Oxfordshire by District 2011 – 2031

District	Land for Economic Development 2011 – 2031 (hectares)	% of total
Cherwell	76 ha (Includes Bicester Eco town)	24%
Oxford (North)	20 ha (Northern Gateway)	6%
West Oxfordshire	**45.5 ha**	15%
SUB TOTAL	**141.5 ha**	**45%**
Oxford (South)	17.5 ha (Science Park and Business Park)	6%
South Oxfordshire	102 ha (Includes Culham)	33%
Vale of White Horse	50.3 ha (Includes Harwell Campus)	16%
SUB TOTAL	**169.8 ha**	**55%**
TOTAL	**311.3 ha**	**100%**

3.10 Figure 2 illustrates the proportions of planned economic development by District, based on the figures in Table 7. Vale of White Horse, Oxford (South) and South Oxfordshire together account for 55% of planned economic development, with Cherwell, Oxford (North) and West Oxfordshire together accounting for the remaining 45%.

Figure 2: Planned economic development by District 2011 – 2031



4. Soft sand provision

4.1 Table 8 shows the potential yield from sites nominated for soft sand extraction in the three strategy areas identified for soft sand working over the plan period in the draft Minerals Planning Strategy. The net total requirement for soft sand over the plan period is 1.59 million tonnes, which can readily be met from the potential yield from sites nominated for possible inclusion in the plan.

Table 8: Potential yield (million tonnes) from nominated sites in each soft sand strategy area

North and South of the A420 to the west of Abingdon		East and south east of Faringdon		Duns Tew	
Site	Yield (mt)	Site	Yield (mt)	Site	Yield (mt)
SS-01 SS-04 SS-05	1.0 1.1 0.5	SS-03 SS-07 SS-08 SS-12	1.7 0.5 1.14 1.20	SS-06	0.3
Total yield	**2.6**	**Total yield**	**4.54**	**Total yield**	**0.3**

5. Crushed rock provision

5.1 Table 9 shows the potential yield from sites nominated for crushed rock extraction in the three strategy areas identified for crushed rock working over the plan period in the draft Minerals Planning Strategy. There is no additional requirement for crushed rock provision over the plan period but the potential yield from the sites nominated for possible inclusion in the plan is provided for information.

Table 9: Potential yield (million tonnes) from nominated sites in each crushed rock strategy area

North of Bicester to the East of the River Cherwell		South of the A40 near Burford		East and south east of Faringdon	
Site	Yield (mt)	Site	Yield (mt)	Site	Yield (mt)
None	–	CR-02 CR-07 CR-10	4.5 4.5 1.6	CR-06 CR-11	0.24 0.66
Total yield	**–**	**Total yield**	**10.6**	**Total yield**	**0.9**

6. Review of Mineral Permissions (ROMPs)

6.1 The Environment Act 1995 introduced a requirement for Mineral Planning Authorities to periodically review mineral planning permissions that are more than 15 years old. These reviews give Authorities the opportunity to ensure that conditions attached to mineral planning permissions remain up-to-date and relevant. Landowners or operators must submit Review of Mineral Permission (ROMP) applications to the County Council to seek to agree up to date planning conditions.

6.2 Where sites are subject to a ROMP and cannot lawfully be worked until new conditions have been agreed, it is established practice that the reserves within the ROMP site are not included in calculations of permitted reserves and landbank, to reflect the uncertainty over their future deliverability. There are two significant ROMPs in Oxfordshire containing aggregate minerals that are nor currently included in the calculation of permitted reserves and landbank:

- Shenington – Planning permission to extract ironstone from land in the Shennington and Alkerton area was granted in 1957. A ROMP application was submitted to the County Council in 1997 but has been stalled and is as yet undetermined. The application covers approximately 122 hectares in eight separate sites, containing 4,811,000 tonnes of potentially saleable ironstone.

- Thrupp Farm, Radley – A planning permission to extract sand and gravel from some 38 hectares at Thrupp Farm, Radley cannot be worked until a ROMP application has been submitted and new conditions agreed. This site is estimated to contain approximately 1 million tonnes of sharp sand and gravel.

6.3 Although not included in the current permitted reserves, these two sites will be shown as existing permitted mineral working sites in the Minerals and Waste Plan.

7. Secondary and recycled aggregates

7.1 The South East Plan (policy M2) sets a target for provision to be made for secondary and recycled aggregate production in Oxfordshire of 0.9 million tonnes per annum by 2016. This has been carried forward into policy M1 of the draft Minerals Planning Strategy as an appropriate aspirational target.

7.2 The report by consultants Atkins (January 2011) on Local Assessment of Aggregates Supply Requirements does put forward figures for alternative (secondary and recycled) aggregates supply requirements. These range between 0.64 and 0.88 million tonnes per annum, being derived from the proposed figures for primary aggregates requirements

based on an assumption that 27% of demand for aggregates is met by alternative aggregates. The target figure of 0.9 million tonnes per annum in policy M1 would enable any of these levels of provision to be met.

7.3 There is not a direct link between the figure of 0.9 million tonnes per annum in policy M1 and the provision for primary aggregates in policy M2 of the draft Minerals Planning Strategy. Whereas the figures in policy M2 are based on a local assessment of aggregate supply requirements, there is currently insufficient data available on supply and demand for a similar exercise to be carried out reliably for secondary and recycled aggregates. But the figure of 0.9 million tonnes per annum has been tested against available information on production capacity for and availability of secondary and recycled aggregates to ensure that it is a reasonable target.

Sources and production of secondary and recycled aggregates

7.4 Annual monitoring surveys provide incomplete information on production of secondary and recycled aggregates in the County. Sources of production of recycled aggregates in Oxfordshire are:

- Construction and demolition waste;
- Road construction materials waste;
- Spent rail ballast.

7.5 The main sources of secondary aggregates in Oxfordshire are the by products of combustion processes. At present Didcot A power station produces significant quantities of ash, much of which is recycled for use as aggregate. Didcot power station is expected to close in 2015. But it is expected that by that time smaller quantities of bottom ash will be produced at the Ardley enery from waste incinerator, which will also be recycled for use as aggregate.

7.6 A review carried out in 2010 of permitted facilities indicated a total capacity for the production of secondary and recycled aggregates in Oxfordshire of approximately 860,000 tonnes per annum. This figure does not include in-situ recycling at temporary construction and demolition and roadworks sites. Some 240,000 tonnes per annum of this capacity is at facilities with temporary planning permissions, which in some cases end before 2016.

Construction and demolition waste

7.7 Draft Waste Planning Strategy policy W1 states that provision should be made for waste facilities to manage 1,300,000 tonnes per annum of construction, demolition and excavation (CDE) waste. The Council's Waste Needs Assessment[11] concludes that the South East Plan recycling targets should be applied to the management of Oxfordshire's

[11] OCC (2011) Waste Needs Assessment

CDE waste, including a recycling target of 60% by 2020. This results in a minimum requirement for provision of 780,000 tonnes per annum of CDE recycling capacity. Recycled CDE waste includes both hard (aggregate) material and soils. Research by Capita Symonds consultants for WRAP (2008) found that approximately 18% of recycled CDE waste is soils, so of a total of 780,000 tonnes per annum of CDE recycling capacity, approximately 82% could be expected to be recycled aggregate, i.e. 640,000 tonnes per annum.

7.8 The aggregates industry considers that high rates of recovery of aggregate material from CDE wastes are already being achieved, so there may be limited scope for increased supply and use of recycled aggregates from this source.

Road planings

7.9 The County Council recycles as much as possible of the road planings created by road resurfacing works, for use as aggregate material. Approximately 20,000 tonnes per annum of these recycled aggregates are produced (based on an average of production over recent years).

Rail ballast

7.10 Spent rail ballast is brought by train to Appleford Sidings for recycling to produce aggregate materials. The capacity available is uncertain but is estimated to be at least 100,000 tonnes a year.

Bottom ash

7.11 An energy from waste incinerator is being constructed at Ardley and is expected to be operational by 2015. This plant will produce approximately 70,000 tonnes per annum of bottom ash, which can be recycled for use as aggregate.

7.12 Table 10 shows these sources of secondary and recycled aggregates and contribution that each source might be expected to make to reaching the target of 0.9 million tonnes per annum. This indicates a small shortfall of 70,000 tonnes per annum. However, as already noted, the total in table 10 does not include in-situ recycling, for which data is not available; it is believed that if this was added in the total would exceed 0.9 million tonnes per annum.

Table 10: Sources of secondary and recycled aggregates

Sources of secondary and recycled aggregates	**Capacity (tonnes per annum)**
Construction and demolition waste Recycled road planings Spent rail ballast Bottom ash	640,000 20,000 100,000 (estimate) 70,000
TOTAL	**830,000**