

## **CABINET – 16 FEBRUARY 2011**

### **OXFORDSHIRE MINERALS AND WASTE DEVELOPMENT FRAMEWORK: CORE STRATEGY – PREFERRED MINERALS STRATEGY**

**Report by Deputy Director (Growth & Infrastructure)**

#### **Introduction**

1. The Minerals and Waste Core Strategy will set out the vision and strategic objectives together with the spatial strategy, core policies and implementation framework for the supply of minerals and management of waste in Oxfordshire. Detailed site allocations will be identified in a subsequent document.
2. On 19 October 2010, Cabinet agreed a set of guiding principles for the minerals strategy and an interim preferred strategy for mineral working. The agreed approach for sand and gravel was to concentrate working in existing areas of working, at Lower Windrush Valley, Eynsham/ Cassington/Yarnton, Radley/Nuneham Courtenay, Sutton Courtenay and Caversham. But this was subject to the ability of these areas to provide for the medium to longer term being re-assessed when the requirement for sand and gravel supply had been established, and consideration being given to new areas of working if the re-assessment indicates this necessary.

#### **Local Assessment of Aggregates Supply Requirement**

3. Consultants Atkins have undertaken a locally based assessment of the requirement for aggregates supply in Oxfordshire. This would be an evidence based alternative to the top-down figures in the South East Plan and the Secretary of State's Proposed Changes.
4. Atkins' final report has been received. It has been published on the County Council website and placed in the Members' Resource Centre. The findings of the report are summarised in Annex 1.
5. The report considers four possible methods of assessing the aggregates supply requirement, which result in figures for sand and gravel ranging between 1.23 and 1.58 million tonnes a year. These figures are significantly lower than the figures in both the South East Plan (1.82 million tonnes a year) and the Secretary of State's Proposed Changes (2.1 million tonnes a year). Atkins consider that the two figures at the lower end of the range are most robust.

6. For crushed rock the resultant figures are between 0.64 and 0.81 million tonnes a year, compared with levels of 1.0 and 0.66 million tonnes a year in the South East Plan and the Secretary of State's Proposed Changes.
7. The report by Atkins was considered by the Minerals and Waste Plan Working Group on 24 January. The view of the Working Group is that the average of the two most robust scenarios for assessing local need should be used as a basis for the preferred minerals strategy for consultation, i.e.:
- |                 |                             |
|-----------------|-----------------------------|
| Sand and gravel | 1.26 million tonnes a year; |
| Crushed rock    | 0.63 million tonnes a year. |

8. The sand and gravel figure can be subdivided between sharp sand and gravel and soft sand, on the basis of recent past production, as follows:
- |                       |                                   |
|-----------------------|-----------------------------------|
| Sharp sand and gravel | 1.01 million tonnes a year (80%); |
| Soft sand             | 0.25 million tonnes a year (20%). |

### **Re-assessment of Minerals Strategy Approach**

9. The interim preferred minerals strategy has been tested for deliverability using the supply levels set out above against a preliminary assessment of potential sites.

#### *Sharp sand and gravel*

10. An assessment of potential sites for sharp sand and gravel working nominated by mineral operators or landowners has been undertaken to test the potential deliverability of the strategy option areas. The method and outcome of this assessment is summarised in Annex 2. The full site assessment results have been placed in the Members' Resource Centre.
11. Of the areas within the interim strategy, the potential resource within the Caversham area should be reduced because one site (Mapledurham) is not considered to be deliverable; and the Radley/ Nuneham Courtenay area should be discounted because neither of the sites within it is likely to be deliverable. All sites within the Lower Windrush Valley, Eynsham/ Cassington/Yarnton and Sutton Courtenay areas are potentially deliverable.
12. Of the strategy option areas not included in the interim strategy, all four sites in the Clanfield/Bampton area and the two sites in the southern (Dorchester–Warborough–Benson) part of the Warborough/Benson/ Shillingford area are unlikely to be deliverable. All sites within the Sutton/Stanton Harcourt, Clifton Hampden and Cholsey areas, and the northern (Drayton St Leonard–Stadhampton) part of the Warborough/ Benson/Shillingford area are potentially deliverable.

13. Based on the level of 1.01 million tonnes a year, and taking into account existing planning permissions, the net requirement for new provision for sharp sand and gravel over the plan period to 2030 is 11.73 million tonnes, as shown in Annex 3.
14. The total potentially deliverable sharp sand and gravel resource at nominated sites within the interim strategy areas is 33.25 million tonnes. However the rate at which this resource could be supplied is dependent on sufficient production capacity being available throughout the plan period. Analysis of potential capacity is shown in Annex 4.
15. The current total production capacity for sharp sand and gravel is 1.14 million tonnes a year. This is sufficient to meet the proposed requirement in paragraph 8 (1.01 million tonnes a year). The Lower Windrush Valley, Eynsham/Cassington/Yarnton and Caversham areas could provide throughout the period to 2030, but the Sutton Courtenay area could only provide up to around 2020. Additional production capacity would then be needed to make up a minimum shortfall of about 0.2 million tonnes a year.
16. Scope for an additional production unit in either the Lower Windrush Valley or Eynsham/Cassington/Yarnton area is limited by concerns relating to the impact of higher traffic levels and potential for increased flood risk. This means that production capacity in these two areas should be limited to three production units, as at present. An additional production unit would also not be deliverable at Caversham.
17. Consistent with the principles agreed for the interim preferred strategy, any shortfall in supply will need to be addressed by a new area being brought into production. The timing of such a move will be informed by the results of annual monitoring of production and supply.
18. The new area would essentially be to replace the Sutton Courtenay area, but would also provide some contingency in the event of other areas not being brought forward or the sand and gravel requirement being higher than expected. To enable demand for sand and gravel in southern Oxfordshire to continue to be met from a nearby source, a new strategy area should be identified in this part of the county. There are three potential areas which could meet the requirement: Clifton Hampden, Drayton St Leonard/Stadhampton and Cholsey. These areas are shown in Annex 5.
19. The assessment work completed to date points to the Cholsey area (between Cholsey and Wallingford Bypass) as being the least constrained. It has good access to the lorry route network and is closer (by road) to areas of demand for construction materials in southern Oxfordshire, particularly Didcot and the Science Vale area.
20. Based on the above considerations the Minerals and Waste Plan Working Group agreed at its meeting on 24 January to recommend that the strategy for sand and gravel should be amended by removal of the

Radley/Nuneham Courtenay area and inclusion of the Cholsey area. The revised strategy areas are shown in Annex 5.

#### *Soft sand*

21. The interim strategy for soft sand is for working in three existing areas: south east of Faringdon; Tubney/Marcham/Hinton Waldrist; and Duns Tew. The site nominations within these strategy areas could potentially provide a total of 9.6 million tonnes soft sand. This meets the proposed requirement in paragraph 8 (0.25 million tonnes a year).

#### *Crushed rock*

22. The interim strategy for crushed rock is for working in three existing areas: north of Bicester to the east of the River Cherwell; south of the A40 near Burford; and south east of Faringdon. There is a high level of existing permitted reserves of crushed rock and the requirement for additional provision will be relatively small.

#### **Next Steps**

23. The contents of the local assessment of aggregates supply requirement will be made available and comments invited from industry and other key stakeholders over the next two months. A formal public consultation on the preferred minerals strategy, combined with a preferred waste strategy, will be undertaken in June/July 2011. That will in turn shape the content of the Core Strategy document to be submitted to Government at the beginning of 2012, consistent with the previously agreed timetable.
24. In the meantime the supply level figures set out in paragraphs 7 and 8 should be adopted as emerging County Council policy. This will be a material consideration in the determination of future planning applications for mineral working.

#### **Sustainability Implications**

25. Sustainability appraisal is being carried out as an integral part of preparation of the Core Strategy and will be reported on when Cabinet considers the draft preferred options document for consultation in May 2011.

#### **Corporate Policies and Priorities**

26. The Council has a statutory duty to produce the Minerals and Waste Core Strategy. It will contribute to the Council's strategic objectives of world class economy, healthy and thriving communities and environment and climate change.

### **Financial and Staff Implications**

27. The programme of work for the Minerals and Waste Core Strategy is included within the Directorate work priorities. This report does not raise any additional financial or staffing implications.

### **Risk Management**

28. The Minerals and Waste Development Framework is a high risk project. The complexity of the Minerals and Waste Development Framework process and the potential implications for major mineral working and waste management proposals emphasise the importance of good project management and regular reporting on risk management.

### **RECOMMENDATION**

29. **The Cabinet is RECOMMENDED to:**
- (a) **Adopt the locally derived figures for aggregates supply requirement in paragraphs 7 and 8 of the report as the basis for the County Council's preferred spatial strategy approach for mineral working.**
  - (b) **Agree the County Council's preferred spatial strategy approach for mineral working for consultation is:**
    - i. **sand and gravel – concentration of working in existing areas of working, at Lower Windrush Valley, Eynsham/ Cassington/Yarnton, Sutton Courtenay, Cholsey and Caversham;**
    - ii. **soft sand – working in three existing areas: south east of Faringdon; Tubney/Marcham/Hinton Waldrist; and Duns Tew;**
    - iii. **crushed rock – working in three existing areas: north of Bicester to the east of the River Cherwell; south of the A40 near Burford; and south east of Faringdon.**
  - (c) **Agree that consultation on the preferred spatial strategy approach for mineral working be combined with consultation on a preferred waste spatial strategy, in June/July 2011.**

Martin Tugwell  
Deputy Director (Growth & Infrastructure)

Background papers: Nil

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February 2011

## **Local Assessment of Aggregates Supply Requirements for Oxfordshire** Report by Atkins Ltd for Oxfordshire County Council

### **Summary of Findings**

#### **Project brief**

1. The consultants Atkins were appointed in November 2010 to undertake a locally based assessment of the requirements for aggregates supply in Oxfordshire. The project brief asked for:
  - An analysis of current aggregates supply and demand in Oxfordshire, covering all types of aggregates.
  - An appropriate, transparent and robust methodology to produce a forecast demand for aggregates in Oxfordshire over the period to 2030, related to anticipated economic activity.
  - An assessment of the maximum practicable contribution that could be made from secondary and recycled aggregate sources.
  - An assessment of the appropriate levels of movement of aggregates by type into and out of Oxfordshire required over the period to 2030.
  - A breakdown of the quantities of aggregates supply required from the following sources in Oxfordshire over the period to 2030:
    - sand and gravel from quarries in Oxfordshire;
    - crushed rock from quarries in Oxfordshire;
    - secondary and recycled aggregates sites in Oxfordshire.
2. In particular, the purpose of the study was to establish the amount of sand and gravel for which provision should be made in the Minerals and Waste Core Strategy, as an alternative to the 'apportionment' figures in the South East Plan and the Secretary of State's Proposed Changes.

#### **Summary of Atkins' Report**

3. Atkins have produced their final report, which includes the following sections.
4. Chapter 2 gives background on the current 'managed aggregates supply system', national and regional aggregates guidelines, and regional and sub-regional apportionments.
5. Chapter 3 is an analysis of current aggregate supply and demand. The main findings are:
  - There was a significant fall in sales of sharp sand and gravel in Oxfordshire and elsewhere between 1999 and 2009: 68% in

Oxfordshire; 57% in the South East; 40% nationally. Local factors have contributed to the fall in sales, in particular the depletion of reserves at 3 of Oxfordshire's largest output quarries.

- 'Trade' in aggregates is required to match the amounts and types of aggregates available from local geology with what is required for local construction in each county. Information on aggregate movements for 2005 and 2009 and calculations of per capita consumption of aggregates since 2001 suggest Oxfordshire has changed from being a net exporter of aggregates to a net importer. The position should be checked when full data becomes available for 2009.
  - National data on alternative aggregates suggests their contribution to total aggregate supply has risen significantly but the rate of increase is now falling off. Survey data indicates there is sufficient processing capacity in Oxfordshire to cater for recorded production of alternative aggregates, but some of this capacity will be lost by 2016 because of the closure of Didcot A Power Station. Production of alternative aggregates is anticipated to grow by a small amount in the period to 2015, but level off thereafter. The anticipated level of production in Oxfordshire is estimated between 400,000 to 550,000 tonnes a year. Further capacity and production are anticipated from mobile plant. Rates of utilisation are considered high, and the contribution to total aggregate consumption is estimated to be about 27% in the South East, slightly higher than in England as a whole.
6. Chapter 4 explores a range of approaches to estimating future aggregates requirements. It examines the possibility of using various forecasts or predictions of construction or economic activity as indicators of aggregates demand. Forecasts indicate increased economic activity, suggesting that future aggregate consumption in Oxfordshire is likely to be similar to or slightly higher than recently. But the following problems were encountered: national or regional data do not provide a locally derived approach; forecasts are short term; there is not a sufficiently reliable link between past sales and construction or economic activity in Oxfordshire to enable a confident forecast of future aggregates demand; and there is insufficient information on imports and exports to derive an assessment of levels of movement of aggregates in future years. Therefore other methods of predicting future aggregates demand in Oxfordshire should be looked at.
7. Chapter 5 considers four methods of predicting future aggregates demand in Oxfordshire:
- i. Application of the 2003 sub-regional apportionment methodology to the regional figure in the Secretary of State's Proposed Changes to the South East Plan (March 2010). This gives an Oxfordshire sand and gravel figure of 1.53 mtpa. This is not a locally derived figure but provides a useful comparison to demonstrate the distortion caused by the new method of sub-apportionment used in the Secretary of State's Proposed Changes, in which the figure for Oxfordshire is 2.1 mtpa.

- ii. 'Smoothing' of past sales as a predictor of future demand. A number of different statistical approaches were applied. The best of these to use would be one of the simpler methods such as a seven or five year moving average or median. This should ensure an initial buffer above recent sales sufficient to absorb a short-term increase, but in the event of strongly increasing aggregate consumption there would be a shortfall. A more precautionary approach would be to apply an additional contingency buffer of say 10%. The resulting figures for Oxfordshire are: sand and gravel – 1.29 mtpa; crushed rock – 0.62 mtpa. Assuming alternative aggregates contribute 27% of total aggregate supply, the requirement would be 0.64 mtpa. This approach is based on past sales but is relatively uncomplicated and easy to review.
- iii. Comparison of national and local housing provision. This approach uses housing completions as a proxy for total aggregate consumption. Past data on primary aggregate sales and dwellings completed for England is used to produce an average notional tonnage consumed per 'development unit'. This is then applied to the new housing numbers planned for Oxfordshire over the period to 2026 to calculate a notional annual figure of total primary aggregates demand in Oxfordshire over the period. This is then subdivided between sand and gravel and crushed rock in proportion to past sales. An assumption is made that imports and exports will be in balance. The resulting figures for Oxfordshire are: sand and gravel – 1.58 mtpa; crushed rock – 0.81 mtpa. Assuming alternative aggregates contribute 27% of total aggregate supply, the requirement would be 0.88 mtpa. This method is subject to a number of assumptions and uncertainties. In particular, there is a large factoring up from approximately 60 tonnes of aggregate used in building a typical house to 922 tonnes per 'development unit'.
- iv. Comparison of national and local per capita consumption of primary aggregates. This approach uses population as a proxy for total aggregate consumption. Past data on primary aggregate sales and population for England is used to produce an average notional tonnage consumed per head. This is then applied to the population forecast for Oxfordshire over the period to 2030 to calculate a notional annual figure of total primary aggregates demand in Oxfordshire over the period. This is then subdivided between sand and gravel and crushed rock in proportion to past sales. An assumption is made that imports and exports will be in balance. The resulting figures for Oxfordshire are: sand and gravel – 1.23 mtpa; crushed rock – 0.64 mtpa. Assuming alternative aggregates contribute 27% of total aggregate supply, the requirement would be 0.69 mtpa. This method is also subject to a number of assumptions and uncertainties, but it is considered to be a more robust approach than the housing proxy method because it does not involve factoring up.



## Conclusions

8. The outcomes of the four methods of predicting future aggregates demand in Oxfordshire put forward in Atkins' report are summarised below, together with the current apportionment figures and other recently proposed figures.

<b>Method of predicting future aggregates supply requirement in Oxfordshire (Atkins report chapter 5)</b>	<b>Local sand and gravel supply requirement (million tonnes per annum)</b>	<b>Local crushed rock supply requirement (million tonnes per annum)</b>	<b>Secondary &amp; recycled aggregates supply requirement (million tonnes per annum)</b>
1) Application of 2003 sub-regional apportionment methodology to 2010 regional figure	1.53	–	–
2) 'Smoothing' of past sales as a predictor of future demand	1.29	0.62	0.64
3) Comparison of national and local housing provision (housing proxy)	1.58	0.81	0.88
4) Comparison of national and local per capita consumption of primary aggregates (population proxy)	1.23	0.64	0.69
<b>Other supply rates for comparison</b>			
Current South East Plan Apportionment (May 2009)	1.82	1.00	0.90
Secretary of State's Proposed Changes (March 2010)	2.10	0.66	–
SEERA proposed apportionment (March 2009) (which was accepted by the County Council)	1.58	0.71	–

9. Of the various methods they have considered, Atkins suggest that method 4 (population proxy) is the most robust. The figures resulting from this method are very close to those derived from method 2 (smoothing of past sales). This suggests that an average of the figures from these two methods might be appropriate to be used as a basis for

progressing work on the Minerals and Waste Core Strategy and for testing through consultation. These figures would be:

Sand and gravel	1.26 million tonnes per annum
Crushed rock	0.63 million tonnes per annum
Secondary & recycled	0.67 million tonnes per annum

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February 2011

## **Minerals and Waste Core Strategy – Preferred Minerals Strategy Preliminary Assessment of Sand and Gravel Site Nominations**

### **A. Methodology**

1. The preliminary site assessment has comprised three stages;

#### **Stage 1: Identify a long list of possible sites**

2. In 2006, mineral operators, landowners and agents were invited to nominate potential minerals sites for consideration for inclusion in the Oxfordshire Minerals and Waste Development Framework. These sites were included in the Minerals Sites Proposals and Policies Issues and Options paper which was published for consultation in April 2007. That paper also included sites identified by officers which were thought to have potential resources but had not been nominated. Those sites have not been considered further because deliverability is uncertain and there are more than sufficient potential resources within nominated sites.
3. A further 'call for sites' was made in December 2008, when mineral operators, landowners and agents were invited to renew their existing nominations, withdraw any they no longer wished to put forward and to submit new nominations. Approximately 60 site nominations were received for sand and gravel s, 10 for soft sand and 10 for crushed rock sites. A list of all sites nominated is on the County Council's website.

#### **Stage 2: Assessment of deliverability**

4. Using information from the nominations, the potential available resources in each nomination were estimated and this information was used to inform the generation of spatial strategy options during 2010. The preliminary site assessment has sought to update the information on the deliverability of the nominations; ie the resource potentially available and the likely timescale within which each site could be worked.
5. In November 2010, mineral operators, landowners and agents who had made nominations were asked to provide up to date information on the likely deliverability of sites by confirming when sites would be likely to become operational, and notifying any sites which they wished to withdraw.
6. This information has been collated and analysed to build up a picture of the likely timescale within which sites in each strategy area would be deliverable. In strategy option areas where there are few nominations, this analysis has demonstrated whether there is likely to be a sufficient number of nominations from which resources could be worked to make a strategic contribution to the need for sand and gravel over the plan period.

### **Stage 3: Planning criteria assessment**

7. Each of the site nominations has been assessed against the following planning criteria:
  - The estimated mineral resources in the site;
  - Whether the site is in or directly adjacent to an AONB;
  - Whether the site is in or directly adjacent to a site designated of international or national nature conservation importance – SAC, SSSI or NNR;
  - A recommendation from the County Archaeology Officer on whether the site should be precluded on the grounds of archaeological assets.
  - The agricultural land classification of the site;
  - The proportion of the site in Flood Zone 3b, the functional flood plain;
  - Distance from the site to the lorry route network suitable for HGVs.

#### Estimated resources

8. The estimate of resources in each nomination has been checked against the area of the site and information from British Geological Survey Mineral Assessment Reports.

#### Environmental constraints

9. There is a policy presumption against mineral working unless it can be shown that the need for the development outweighs any adverse environmental consequences on:
  - Areas of Outstanding Natural Beauty or their setting;
  - The conservation interest of a Special Area of Conservation, SSSI or National Nature Reserve;
  - A Scheduled Ancient Monument or other nationally important archaeological asset.
10. If a site is in or immediately adjacent to one of these areas and is constrained by other planning criteria, this could preclude further development.

#### Agricultural Land Classification

11. Planning Policy Statement 7 (2004), Sustainable Development in Rural Areas, notes that the presence of best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification), should be taken into account alongside other sustainability considerations. There is very little Grade 1 agricultural land in Oxfordshire. Where a site would significantly affect Grade 1 land it should be excluded from further consideration. Where sites affect Grade 2 or 3a land, further consideration is advised, but with caution.

Distance from site to lorry route network

12. The distance was measured from each site to the lorry route network identified on the map published by the County Council as being suitable for HGVs.

Proportion of site in Flood Zone 3b

13. Sand and gravel extraction is defined in PPS 25 (2010), Development and Flood Risk, as water compatible development and as such can take place in the functional flood plain, although it should still be subject to the sequential test. The infrastructure associated with mineral extraction is not water compatible development and should therefore be located outside the functional flood plain. Using the data from the Oxfordshire SFRA (2010), this assessment identifies sites which are wholly within the functional flood plain and where any processing plant would therefore need to be located within the functional flood plain. Such sites should be excluded from further assessment.

**B. Summary of Assessment Results**

14. A spreadsheet showing the deliverability of sites and the results of the assessment against planning criteria has been placed in the Members' Resource Centre.
15. The conclusions of the assessment for each of the sand and gravel strategy option areas are as follows:
- a) Lower Windrush Valley  
No nominated sites are precluded from further assessment at this stage. The potentially deliverable capacity of site nominations in this area is 14.5 million tonnes.
  - b) Eynsham/Cassington/Yarnton  
No nominated sites are precluded from further assessment at this stage. The potentially deliverable capacity of site nominations in this area is 12.2 million tonnes.
  - c) Sutton Courtenay  
No nominated sites are precluded from further assessment at this stage. The potentially deliverable capacity of site nominations in this area is 2.55 million tonnes.
  - d) Radley / Nuneham Courtenay  
Site SG-42 (land at Nuneham Courtenay) is precluded from further assessment on the grounds of the archaeological and historic environment assessment of the site. Site SG-41 (land north of Lower Radley) would not be deliverable in the first 10 years of the plan period. This area is therefore unlikely to be able to make a strategic contribution to sand and gravel supply in the short to medium term, and there is uncertainty about the longer term.

- e) Caversham / Mapledurham  
Site SG -12 (Chazey Wood, Mapledurham) is precluded from further assessment on the grounds that it is unlikely to be deliverable until after 2020, proximity to AONB and poor access. The remaining potentially deliverable resource of site nominations in the Caversham area is 4 million tonnes.
- f) Clanfield/Bampton  
All four nominated sites in this area are precluded on the grounds of the archaeological and historic landscape assessment and distance from markets. This area is therefore unlikely to make a strategic contribution to sand and gravel supply during the plan period.
- g) Clifton Hampden  
The one site nomination in this area is not precluded from further assessment. The potentially deliverable resource is 4 million tonnes.
- h) Warborough / Benson / Shillingford / Drayton St Leonard / Stadhampton  
Site SG03 (land adjacent to Benson Marina) is precluded from further assessment on the grounds that it is almost wholly in Flood Zone 3b, is adjacent to the AONB, and has Grade 1 agricultural land. Site SG-13 (land at Dorchester – Shillingford – Warborough) is precluded from further assessment on the grounds of the archaeological assessment and the Grade 1 agricultural land on site. The remaining potentially deliverable resource of site nominations in the Drayton St Leonard – Stadhampton area is 5.5 million tonnes.
- (i) Sutton/Stanton Harcourt  
No nominated sites are precluded from further assessment in this area. The potentially deliverable resource of site nominations in this area is 14 million tonnes.
- (j) Cholsey  
No nominated sites are precluded from further assessment at this stage. The potentially deliverable capacity of site nominations in this area is 4.9 million tonnes.

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January 2011

## ANNEX 3

## Minerals and Waste Core Strategy – Preferred Minerals Strategy

## Requirement for Sharp Sand and Gravel Supply Provision 2010 – 2030

Levels of need for sand and gravel supply suggested in the Atkins report	Total sand and gravel supply rate (million tonnes per annum)	Net requirement for sharp sand and gravel (80%) (mtpa)	Sharp sand & gravel required 2010 – 2030 (21 years) (mt)	Permitted reserves of sharp sand & gravel at Dec 2009 + permissions since (mt)	Net sharp sand & gravel provision required over plan period (mt)
1) Based on application of 2003 National & Regional Aggregate Provision Guideline to the 2009 guidelines	1.53	1.22	25.62	9.48	<b>16.14</b>
2) Based on application of a series of 'moving averages' to 7 years past sales figures, with buffer	1.29	1.03	21.63	9.48	<b>12.15</b>
3) Based on national & local housing provision proxy; use of aggregate consumption per 'development unit'	1.58	1.26	26.46	9.48	<b>16.98</b>
4) Based on national and local population proxy; comparison of Oxfordshire's projected population figures and primary aggregate consumption	1.23	0.98	20.58	9.48	<b>11.10</b>
5) Average of 2) and 4)	1.26	1.01	21.21	9.48	<b>11.73</b>

## ANNEX 4

## Minerals and Waste Core Strategy – Preferred Minerals Strategy

## Production Capacity and Likely Duration of Working in Strategy Option Areas

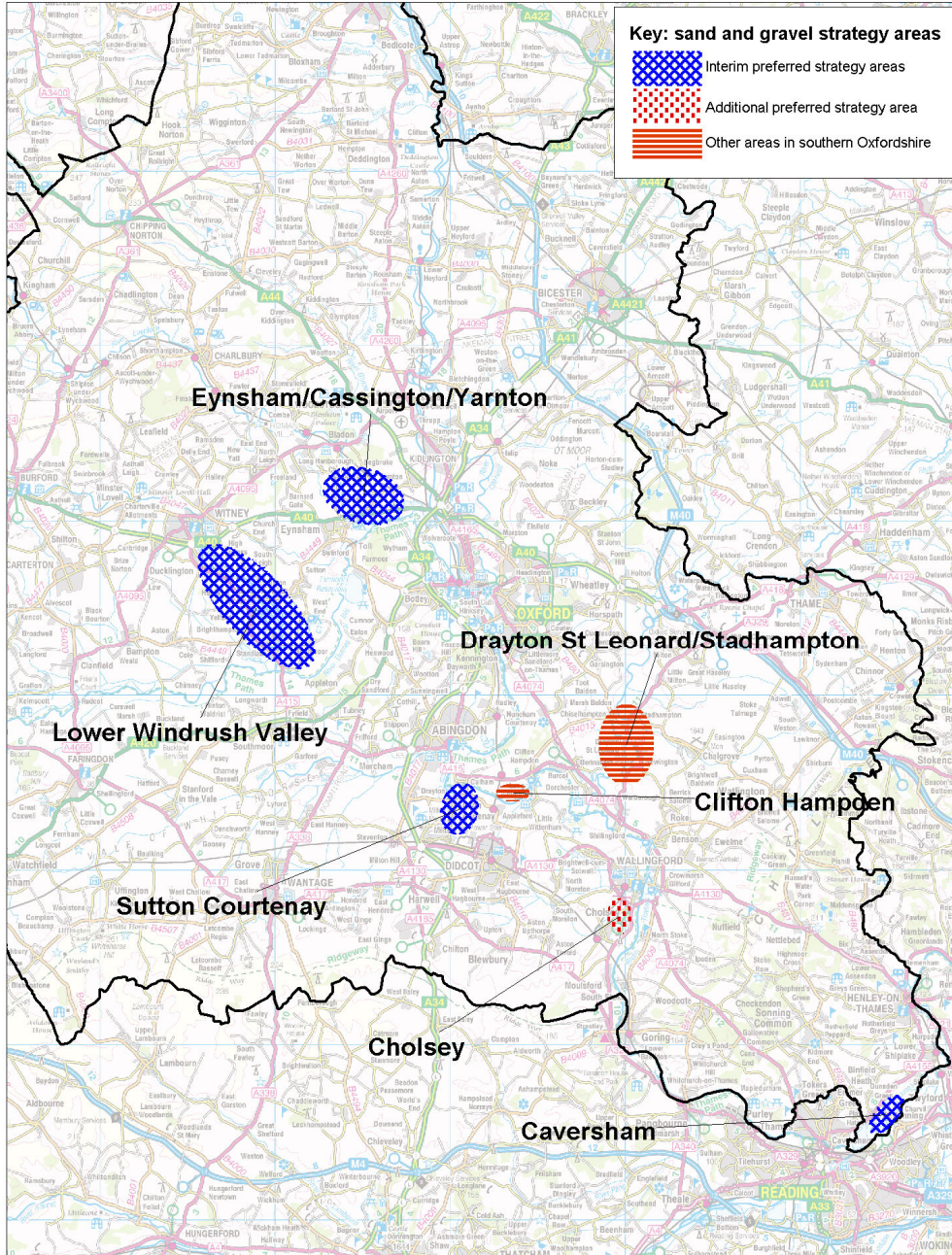
Strategy option areas	Permitted or proposed capacity per year (from planning permissions or applications) (tonnes a year)	Duration of working of current permissions at permitted rate	Net deliverable resource from site nominations after preliminary site assessment (million tonnes)	Duration of extraction of site nominations at permitted or proposed rate
<b>Interim strategy areas</b>				
Lower Windrush Valley (2 quarries)	500,000	10 years and 8 years respectively	14.5	29 years
Eynsham/Cassington/Yarnton (1 quarry)	180,000	–	12.2	68 years
Radley / Nuneham Courtenay	0	–	0	0
Sutton Courtenay (1 quarry)	330,000	3 years	2.55	8 years
Caversham (1 quarry)	130,000	3 years	4.0	31 years
Total of Interim Strategy Areas	1,140,000		33.25	
<b>Other strategy option areas</b>				
Clanfield/Bampton	0	–	0	0
Sutton/Stanton Harcourt	300,000	–	14.0	47 years
Clifton Hampden	250,000	–	4.0	16 years
Warborough/Benson/Shillingford/ Drayton St Leonard/Stadhampton	250,000	–	5.5	22 years
Cholsey	200,000	–	4.9	25 years



# Minerals and Waste Core Strategy – Preferred Minerals Strategy

## Potentially Deliverable Sand and Gravel Areas

Potentially deliverable sand and gravel areas



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