URS

Oxfordshire Minerals and Waste Development Framework

Sustainability Appraisal incorporating Strategic Environmental Assessment of the Pre Submission Minerals and Waste Core Strategy

Sustainability Appraisal Report
March 2012

Prepared for

Oxfordshire County Council

Revision Schedule

Oxfordshire Minerals and Waste Development Framework
Pre-Submission Minerals and Waste Core Strategy SA
March 2012

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Executive Summary

Oxfordshire County Council is preparing a Minerals and Waste Core Strategy Development Plan Document as part of its Minerals and Waste Development Framework. The Core Strategy will set out the Council's approach to planning for minerals and waste development and will replace the adopted Minerals and Waste Local Plan (1996-2006). As part of the plan preparation process, the Core Strategy is required to be subject to Strategic Environmental Assessment and Sustainability Appraisal.

Strategic Environmental Assessment involves the systematic identification and evaluation of the environmental impacts of certain plans and programmes and is required in the UK by the Environmental Assessment of Plans and Programmes Regulations 2004 (hereafter referred to as the 'SEA Regulations'), which came into force on 21st July 2004. These regulations transposed the European Union SEA Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.

Sustainability Appraisal (SA) broadens the concept of Strategic Environmental Assessment (SEA) to encompass economic and social impacts and is required under the Planning and Compulsory Purchase Act 2004. Government guidance requires that all Development Plan Documents are subject to both SEA and SA. Where SA is referred to in this report this incorporates the requirements of the SEA Regulations.

This SA report relates to the Pre Submission Core Strategy and has involved the appraisal of the pre submission policies against the SA objectives in order to assess their potential sustainability effects. A summary of the SA findings is provided below.

Strategic Policies

The appraisal of the strategic mineral policies found that overall the policies supported the majority of the SA objectives.

Policies M1 and M2 seek to make a sustainable contribution to Oxfordshire's sub-regional minerals apportionment based on a local assessment of supply (Atkins, January 2011). M1 also helps to contribute to moving waste up the waste hierarchy and protect land from development as it is promoting recycling and temporary mobile facilities. The nature of any adverse impacts of Policy M1 and M2 will depend to some extent on the location of sites allocated through the Sites Allocations DPD. The application of the Common Core Policies to any individual applications should assist in mitigating any significant adverse effects.

Policy M2 may result in less adverse effects than those experienced under the delivery of the current policy - Policy M3 of the South East Plan, which requires a higher level of provision. However it is recognised that effects in the long term may be more uncertain as less constrained sites which are subsequently allocated to meet the apportionment may not come forward and other more constrained sites may be needed. This is expected to be addressed through policy monitoring and the application of the Common Core Policies to individual applications.

Policy M3 sets out the spatial strategy for the working of aggregates (sharp sand and gravel, soft sand and crushed rock). It is recognised that whilst concentrating extraction predominantly in areas where working is currently taking place or has taken place recently has economic advantages and presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to beneficial effects for local communities, landscapes and wildlife; the long-term nature of mineral works means that communities and environments within/close to the identified areas will continue to experience the cumulative adverse effects of mineral working for the foreseeable future. The exception to this strategy would be when a new area at Cholsey is required post 2020 to assist the County in meeting its sub regional apportionment. Commencing work in a previously unworked area is likely to have adverse effects upon the local environment and community. Measures to mitigate these

negative effects and the potential cumulative effects in existing mineral working areas should be required at site selection and planning application stages. It is recognised that the Common Core Policies should assist in mitigating any significant adverse effects.

Policy M4 seeks to safeguard aggregate rail depots and encourage new rail depots and is therefore expected to have positive effects upon the SA objectives in relation to reducing the negative effects of transporting aggregates on the local environment, communities and road network. Encouraging rail transportation of aggregates is expected to have positive effects on reducing greenhouse gases (where this is bulk transportation) compared with road.

Policy M5 sets out the spatial strategy for the working of non aggregates seeking to concentrate clay extraction in areas where sharp sand and gravel are already being worked. Similar to policy M3 this is likely to present opportunities for large scale restoration projects and in the longer term recreational areas. There is potential for adverse cumulative effects upon the local environment and communities in these existing areas and mitigation measures should be required at site selection and planning application stages. It is recognised that the Common Core Policies should assist in mitigating any significant adverse effects. Policy M5 could be improved in relation to protecting surface and ground water quality and the protection of biodiversity by ensuring that any working within the area north and south of the A420 to the west of Abingdon will only be permitted if it would not lead to changes in water levels in the Cothill Fen Special Area of Conservation as Policy M3 also requires this for sand and gravel working.

Policy M6 is safeguarding mineral resources where these are considered to be of commercial interest and, in relation to Fuller's Earth, are of national scarcity. This policy is likely to have significant positive effects in relation to enabling Oxfordshire to meet its sub regional apportionment in the future and also for future economic growth.

Policy M7 sets out the requirements for prompt and phased restoration and appropriate after uses for mineral working in the County. This is likely to have a positive impact in the long term upon many of the SA objectives including biodiversity, landscape character, water quality, flooding and will provide potential recreational facilities for local communities.

The SA of the strategic policies for waste generally performed well against the SA objectives with some uncertain effects identified due to the unknown specific sites for waste management.

Policy W1 (amount of waste to be provided for), W3 (waste management targets), W4 (additional waste management capacity) all seek to ensure that sufficient capacity is delivered to manage the amount of waste arising in Oxfordshire. These policies are expected to have significant positive effects upon enabling the County to be self sufficient in its waste management and moving the management of waste up the waste hierarchy.

Policy W2 provides for disposal of a declining amount of waste from London and elsewhere at existing landfill sites in Oxfordshire and restricts new facilities for the treatment of waste from outside Oxfordshire unless there are clear benefits for the County. When assessed against the SA objectives, this policy could have potential positive effects as it will be reducing the current rate of disposal and ensuring treatment would also provide capacity for the County to meets its needs. Although the policy is not in line with the waste hierarchy the amount of waste accepted for disposal will be a declining amount and this will help Oxfordshire to be self sufficient.

Policy W5 outlines the provision and spatial strategy for waste management facilities in Oxfordshire. The policy responds to the Council's Waste Needs Assessments and makes provision in line with the identified needs and is therefore likely to have positive effects upon SA objective 11 enabling Oxfordshire to be self sufficient and contributing towards moving waste up the waste hierarchy. The policy aims to locate facilities as close as possible to sources of waste arising which is likely to have positive effects upon reducing greenhouse

gas emissions and minimising the negative impacts of transporting waste by road. Broad locations are identified for strategic facilities and facilities to serve more local needs are required to be located close to waste arisings for the smaller towns. Potential adverse effects of specific locations for the different types of waste management are uncertain at this stage however need to be considered during site selection and at the planning application stages.

Policy W6 provides guidance on sites for waste management facilities. The criteria adopted can help deliver sites that make best use of available land resources and therefore have significant positive effects upon protecting land and soil quality. Redevelopment of previously developed land and derelict land can help to enhance local landscape and potentially biodiversity. The policy would allow sites within Areas of Outstanding Natural Beauty where these are small scale and requires proposals to be in keeping with the objectives of the designation which along with the common core policies would provide appropriate mitigation. Sites within the greenbelt would need to meet very special circumstances and be needed to serve Oxford. This approach would therefore provide for waste management close to where it arises, potentially reducing the need to transport waste long distances.

Policy W7 provides for inert landfill for restoration of land. This can have beneficial impacts in restoring land quality and landscape character. The policy is likely to have adverse effects upon moving waste up the waste hierarchy however it is recognised that it is considered to be the option of last resort and has a role to play in the management of waste albeit a diminishing one and will assist Oxfordshire in being self sufficient in its waste management.

Oxfordshire is a net exporter of hazardous waste and Policy W8 and its supporting text acknowledge that due to the specialist nature of hazardous waste management facilities (they currently tend to serve large catchment areas than a single county) exporting of some hazardous waste for management elsewhere will continue to form part of the strategy for managing hazardous waste arising in Oxfordshire. The likely effects upon many of the SA objectives are uncertain as they depend upon the exact location and type of management proposed. It is expected that applications for these types of facilities would be assessed against the Environmental Agency's hazardous waste management regulations/criteria and the common core policies are expected to ensure the mitigation of significant adverse effects if applications come forward in Oxfordshire.

Policy W9 relates to the management of radioactive waste (intermediate and low level radioactive waste). For intermediate level radioactive waste, the policy proposes storage at Harwell for waste arising from both Harwell and Culham. Some potential negative transport impacts are identified although these are judged to be minor due to the short distance travelled and the small quantities of waste expected to be moved. For low level radioactive waste, Policy W9 proposes temporary storage at both Harwell and Culham, allowing for final disposal at existing landfills or a bespoke facility at Harwell if no other means of disposal is available. The potential effects of the final disposal route are therefore uncertain and will need to be considered in detail at the planning application stage when the preferred disposal option is put forward. The SA identifies key environmental issues to be considered if planning applications come forward at the sites to mitigate potential adverse impacts.

Policy W10 is safeguarding waste management sites to ensure that sites are not lost to other developments. This policy supports self sufficiency by providing local site alternatives to potential developers within the county indirectly leading to waste being managed close to where it arises and mitigating against potential negative transport impacts.

Common Core Policies

All of the Common Core Policies (C1 – C9) were found to be broadly in line with the SA objectives and are likely to have significant positive effects upon the objectives most relevant to the policy.

The appraisal identified that policies C2 and C3 could be improved and ambiguity reduced by replacing the phrase replacing “no unacceptable adverse impact” with “no significant adverse impact”, in order to be consistent with the terminology in the Environmental Impact Assessment regulations (The Town and Country Planning (Environmental Impact Assessment) Regulations 2011). For policy C9, the appraisal identified that public access to restored mineral workings should be carefully managed so as to not adversely impact on sensitive habitats and species resident in the restored area (particularly in Conservation Target Areas). A reference to this effect (or a cross reference to alert the reader to Policy C5) could be included in the supporting text to ensure no significant adverse effect in relation to biodiversity.

1 Introduction

1.1 Background

Oxfordshire County Council is currently replacing its Minerals and Waste Local Plan (adopted in 1996) with the Oxfordshire Minerals and Waste Development Framework (MWDF). This will set the overall framework for minerals and waste planning for Oxfordshire up to 2030. This will comprise a series of Local Development Documents including a Minerals and Waste Core Strategy Development Plan Document (DPD), Minerals Site Allocations DPD, and Waste Site Allocations DPD.

The Oxfordshire Minerals and Waste Core Strategy (MWCS) is one of the DPDs currently being prepared. Sustainability Appraisal (SA) incorporating Strategic Environmental Assessment (SEA) of the MWCS has been undertaken during the preparation of the DPD. The purpose of SA is to ensure the principles of sustainability are incorporated into the plan making process and therefore has assessed the sustainability of the MWCS options and policies at each stage.

The table below shows the timeline for the MWCS to date including approach to consultation as well as the Council's proposed timetable for future stages. Further details can be found on the Council's website: www.oxfordshire.gov.uk.

Table 1.1 MWCS Timeline

Stage	Date Published for Consultation
Minerals Spatial Options	February to March 2010
Minerals Revised Spatial Options	July 2010
Preferred Minerals Strategy consultation	September/ October 2011
Preferred Waste Strategy consultation	September/October 2011
Regulation 27 (proposed submission)	May 2012 (expected date)
Regulation 30 (submission)	July 2012 (expected date)
Pre examination	September 2012 (expected date)
Examination in Public	October-November 2012 (expected date)
Adoption	September 2013 (expected date)

1.2 Sustainability Appraisal and Strategic Environmental Assessment

SEA involves the systematic identification and evaluation of the environmental impacts of certain plans and programmes and is required in the UK by the Environmental Assessment of Plans and Programmes Regulations 2004 (hereafter referred to as the 'SEA Regulations'), which came into force on 21st July 2004. These regulations transposed the European Union SEA Directive

2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. The aim of the SEA Directive is

"*to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes, with a view to promoting sustainable development*".

DPDs are required to be subjected to SEA and also to the formal process of SA as required by the Planning and Compulsory Purchase Act 2004. The purpose of SA is to ensure that consideration is given to potential social, environmental and economic effects during the preparation of policies and plans. Government guidance suggests both SEA and SA of DPDs can be undertaken as a single integrated approach. Where SA is referred to in this report this incorporates the requirements of the SEA Regulations.

By taking account of these factors during the preparation of the MWCS DPD the aim is that the resulting planning decisions which emerge following the implementation of the DPD policies will be in keeping with the principles of sustainable development.

The SA has been undertaken with reference to the following guidance documents:

- A Practical Guide to the Strategic Environmental Assessment Directive (Office for the Deputy Prime Minister ODPM 2005)
- Communities and Local Government (CLG) Plan Making Manual which supersedes the Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents, (ODPM 2005)

SA is a five-stage process as outlined below:

- Stage A – Setting the context and objectives, establishing the baseline and deciding on the scope.
- Stage B – Developing and refining options and assessing effects of the DPD.
- Stage C – Preparing the SA report to document the findings of the appraisal;
- Stage D – Consulting on the DPD and SA report.
- Stage E – Monitoring the significant effects of implementing the DPD.

The findings of Stage A are documented in a Scoping report and summarised in this SA report. The Scoping report for the Oxfordshire MWDF was prepared in August 2005 by the Council and was updated by the Council in July 2009 and May 2011. It can be found on the Council's website www.oxfordshire.gov.uk and information within it has been summarised in this report

The appraisal is conducted at Stage B and outcomes recorded in the SA report during Stage C. Following statutory consultation (Stage D) the SA report may require updating to reflect significant changes to the DPD made in response to representations. Stage E concerns the ongoing monitoring of significant effects of the implementation of the DPD.

1.3 Purpose of this Report

This report is the Sustainability Report accompanying the consultation of the Pre Submission Minerals and Waste Core Strategy Development Plan Document.

The remainder of this report is structured as follows:

Section 2 provides a summary of the MWCS and outlines how the pre submission policies have been developed.

Section 3 discusses the sustainability context, baseline and objectives used for the appraisal;

Section 4 provides a summary of the appraisal methodology;

Section 5 discusses the appraisal findings;

Section 6 sets out proposals for monitoring;

Section 7 identifies the next steps and how to comment on this SA report.

Appendix A provides a summary of the consultation responses received on the SA;

Appendix B summarises the consideration of options and SA work undertaken to date for the MWCS;

Appendix C includes the compatibility assessments for the SA and MWCS objectives; and

Appendix D provides the appraisal matrices for the pre submission policies.

1.4 Compliance with SEA Regulations

Schedule 2 of the SEA Regulations set out the requirements for the content of the Environmental Report (referred to as the SA report). The table below provides an indication of where the information required for inclusion in the 'Environmental Report' (SA Report) can be found.

Table 1.2 Compliance with SEA Regulations

Environmental Report requirements	Where covered
An outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	Sections 2 and 3 of this Report and Scoping Report (2011)
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	Section 3 of this report and the Scoping Report (2011)
The environmental characteristics of areas likely to be significantly affected;	Sections 3 of this Report and Scoping Report (2011)
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;	Section 3 of this Report and Scoping Report (2011)
The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	Section 3 of this report and Scoping Report (2011), Appendix 2
The likely significant effects[1] on the environment, including on issues such as biodiversity, population,	Section 5 and Appendix D

[1] These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Environmental Report requirements	Where covered
human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	of this Report
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	Section 5 and Appendix D of this Report.
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	Sections 2 and 4 and Appendix B of this Report.
A description of the measures envisaged concerning monitoring in accordance with Article 10.	Section 6 of this Report
A non-technical summary	See separate NTS.

Table 1.3 explains how consultation on the SA has taken place during the preparation of the DPD and what will happen in future. Consultation responses received at earlier stages of the SA have been considered in subsequent stages. Appendix A provides a summary of these responses to date and how they have been addressed.

Table 1.3 MWCS SA Consultation

Stage	Document	Consultation
Stage A Scoping	Oxfordshire MWDF SA Scoping Report	5 week consultation period April/May 2009 - sent to the statutory consultees (Environment Agency, Natural England and English Heritage), to district councils in Oxfordshire, to neighbouring authorities and to a number of other interested stakeholders
Stage B Appraising the options	Minerals Spatial Options SA	Stakeholders including county councillors, district councillors and planning officers, parish representatives, environmental groups and mineral operators and the Environment Agency, Natural England and English Heritage. Published on Council website May 2010
	Minerals Spatial Options SA	Stakeholders including county councillors, district councillors and planning officers, parish representatives, environmental groups and mineral operators and

Stage	Document	Consultation
		the Environment Agency, Natural England and English Heritage. Published on Council website in September 2010
	Aggregates Apportionments Options SA Report	Public consultation September/October 2011
	Preferred Minerals Strategy SA Report	Public consultation September/October 2011
	Preferred Waste Strategy consultation	Public consultation September/October 2011
Stage D Statutory Consultation	Minerals and Waste Core Strategy SA Report	To be consulted for 6 weeks during May/June 2012 (expected date)

2 The Minerals and Waste Core Strategy

2.1 Context

Currently, local planning policy for minerals and waste in Oxfordshire is set out in the Minerals and Waste Local Plan (MWLP, adopted July 1996) which covered the period to 2006. Following changes to the planning system in 2004, policies in existing plans were 'saved' for three years to September 2007, at which point they would expire unless the Secretary of Stare agreed to 'save' them beyond that date.

Accordingly, Oxfordshire County Council applied to the Secretary of State for policies in the MWLP that met the criteria specified by the Government to be saved beyond September 2007. As a result, 46 policies in the MWLP are currently 'saved' policies. Three policies in the Oxfordshire Structure Plan (2016) were also saved beyond the expiry date, including one policy relevant to the MWCS concerning criteria for locating sand and gravel working.

The Council has been preparing the MWCS since 2006. Consultation on Issues and Options and Preferred Options for the MWCS was conducted during 2006 and 2007. Work was reviewed in light of the publication of the revised Planning Policy Statement 12 in 2008 and guidance from Government Office on preparation of Development Frameworks.

In 2010, spatial options for the minerals strategy were generated and key stakeholders were consulted on these during February and March 2010. The output from this initial round of consultation was used to revise the options, and further consultation was undertaken in July 2010. In July 2011 options for differing aggregates apportionment levels were developed from an assessment of local supply[2] and subjected to SA and then a draft minerals planning strategy was consulted upon in September/October 2011 which underwent SA.

A Waste Needs Assessment was prepared in 2010/2011 and options for a strategy for managing the County's waste and potential locations for waste management facilities were drawn up and were appraised (see Appendix B) in 2010/2011. A draft waste planning strategy was then consulted upon in September/October 2011 which also underwent SA.

The Minerals and Waste Core Strategy Pre-Submission DPD is the latest version of the document to be prepared.

2.2 MWCS Vision and Objectives

Oxfordshire County Council has developed separate visions and objectives for the waste and minerals strategies which form the MWCS. The MWCS will seek to achieve these visions and objectives through the proposed strategic waste and minerals policies as well as the core policies common to both strategies.

2.2.1 Minerals Strategy Vision and Objectives

The vision for Oxfordshire's minerals planning strategy is:

[2] Local Assessment of Aggregates Supply Requirements Final Report January 2011 Prepared for Oxfordshire County Council by Atkins Ltd

a) *In the period to 2030, the supply of aggregate materials to meet the development needs of Oxfordshire and help sustain its world class economy, and to make an appropriate contribution to wider needs, will be met by:*
- *an increased use of secondary and recycled aggregate materials;*
- *the continued import of materials such as hard crushed rock that are not available locally; and*
- *the balance of provision from locally produced sand and gravel, soft sand, limestone and ironstone; and*

b) *Mineral working will be located and managed to minimise:*
- *the distance that aggregates are transported by road;*
- *the use of unsuitable roads through settlements; and*
- *other harmful impacts of mineral extraction and transportation on Oxfordshire's environment and communities.*

c) *The restoration of mineral workings will enhance the quality of Oxfordshire's natural environment and the quality of life for Oxfordshire residents by:*
- *contributing to the creation of habitats and protection of biodiversity, particularly in relation to the Conservation Target Areas[1]; and*
- *providing access to the countryside and opportunities for recreation.*
- *Seeking to reduce the risk of flooding and providing flood storage capacity*

The minerals strategy vision is supported by ten planning objectives which set out the principles which the MWCS policies will seek to achieve:

i. *Enable Oxfordshire to meet requirements for supply of sand and gravel, soft sand, crushed rock and secondary and recycled aggregates over the plan period to meet planned economic growth and social needs and to make an appropriate contribution to wider needs.*

ii. *Enable a continued supply of limestone and ironstone for building and walling stone from small scale quarries for the maintenance, repair and construction of locally distinctive buildings and structures.*

iii. *Provide a framework for investment and development by mineral operators and landowners through a clear and deliverable spatial strategy which is sufficiently flexible to meet future needs and which is based on existing and planned infrastructure provision.*

iv. *Facilitate the economically and environmentally efficient supply of minerals in Oxfordshire and encourage the maximum practical recovery of aggregate resources from secondary and recycled materials for use in place of primary aggregates.*

v. *Minimise the impact of mineral development on flood risk and contribute to climate adaptation through restoration schemes which provide flood storage capacity in the floodplain.*

vi. *Minimise the distance minerals need to be transported by road and encourage where possible the movement of aggregates by conveyor, pipeline, rail and on Oxfordshire's waterways in order to reduce adverse impacts of mineral transportation on local communities, the environment and climate change; and minimise the impact of mineral traffic on local communities through implementation, monitoring and enforcement of routeing agreements.*

vii. *Protect Oxfordshire's communities, important landscapes, the River Thames and ecological, geological, archaeological and heritage assets from harmful impacts of mineral development and transportation.*

viii. *Provide benefits to Oxfordshire's natural environment and local communities through the restoration of mineral workings by contributing to nature conservation, enhancing the quality and extent of Conservation Target Areas, contributing to landscape character, improving access to the countryside, safeguarding local amenity and providing opportunities for local recreation.*

ix. *Safeguard resources of sand and gravel, crushed rock, and Fuller's Earth to ensure that these resources are potentially available for future use and are considered in future development decisions; and*

x. *Safeguard permanent facilities for producing secondary and recycled aggregate and for importing aggregates into Oxfordshire by rail.*

2.2.2 Waste Strategy Vision and Objectives

The vision for Oxfordshire's waste planning strategy is:

a) *By 2030 there will have been a transformation in the way Oxfordshire manages its waste, with:*
   - *increased re-use recycling and composting of waste;*
   - *treatment (so far as is practicable) of all residual waste that cannot be recycled or composted; and*
   - *only the minimum amount of waste that is necessary being disposed of at landfill sites.*

b) *The county will remain largely self-sufficient in dealing with the waste it generates. An economically and environmentally efficient network of clean, well-designed recycling, composting and other waste treatment facilities will have been developed to recover material and energy from the county's waste and support its thriving economy.*

c) *Waste management facilities will be distributed across the county, with larger-scale and specialist facilities being located at or close to large towns, particularly the growth areas, and close to main transport links, and with smaller-scale facilities serving more local areas. This network will have helped to build more sustainable communities that increasingly take responsibility for their own waste and keep to a minimum the distance waste needs to be moved within the county.*

The waste strategy vision is supported by eight planning objectives which set out the principles which the MWCS policies will seek to achieve:

i. *Provide for waste management capacity that enables Oxfordshire to be net self-sufficient in meeting its non-hazardous and inert waste needs and helps in providing for more specialist facilities that serve a wider area.*

ii. *Support initiatives that help to reduce the amounts of waste produced and provide for the delivery, as soon as is practicable, of waste management facilities that will drive waste as far up the waste hierarchy as possible; in particular facilities that will enable increased re-use, recycling and composting of waste and that enable the recovery of resources from remaining (residual) waste and avoid its disposal to landfill.*

iii. *Provide for waste to be managed as close as possible to where it arises to:*
   - *minimise the distance waste needs to be transported by road;*

- *reduce adverse impacts of waste transportation on local communities and the environment;*
- *enable communities to take responsibility for their own waste;*

generally providing for a broad distribution of facilities whilst recognising that some types of waste management facility are uneconomic or not practical below a certain size and therefore will need to serve a wider area.

iv. *Recognise that waste management is an integral part of community infrastructure and take opportunities to locate facilities in or close to the communities they serve, including in conjunction with planned growth, and for recovery and local use of energy (heat and power) from waste.*

v. *Recognise that waste will continue to be imported into Oxfordshire from London and elsewhere for disposal by landfill and seek to limit this to residual waste (following recycling and treatment elsewhere) and for the quantity of this waste to decrease over time as additional waste management facilities are provided closer to where the waste is produced.*

vi. *Avoid the loss of green field land, giving priority to the use of previously developed land for permanent waste development, and ensure that new waste management facilities are sensitive to the amenities of local communities and do not cause unnecessary harm to the County's distinctive natural and built environment.*

vii. *Promote sustainable waste practice in construction and demolition work based on the principle of keeping waste to a minimum, managing waste on site where possible, recycling construction waste as aggregate, and creating buildings and layouts that facilitate the recovery of resources from waste and take advantage of opportunities for the use of combined heat and power.*

viii. Secure the satisfactory restoration of landfill sites and other temporary waste management sites, where the facility is no longer required and acceptable in that location.

2.3 Developing and choosing the preferred strategy

In preparing the MWCS, the Council developed options for how to plan for future minerals and waste development, which have been used to consult and develop the MWCS in accordance with Planning Policy Statement 12.

In doing this the Council considered the merits of continuing to rely on the current planning policy framework. However, it was decided that this option would not provide a clear long term strategy for future minerals and waste development in Oxfordshire for the following reasons:

- Some saved policies from the previous plan may be out of date in relation to current policy and legislation; and
- Very few areas which are allocated in the Local Plan for minerals extraction are still to be worked.

This option was therefore not given further consideration by the Council, and has not been appraised in the SA.

As discussed in section 2.1, spatial options have been considered for minerals and waste development to help determine the spatial distribution of development. Options have also been considered for levels of aggregate provision and waste management in response to the outcomes of evidence base studies. In addition to evidence base studies, consultation on these options and, where relevant, the SA has informed the development of the strategic policies which set out the preferred strategy for delivering waste and minerals development in Oxfordshire.

Development of the common core policies has generally taken the lead from relevant national and regional planning policy and the preferred options for these policies were put forward at the September 2011 consultation and have been refined as a result of the SA and consultation.

Appendix B provides an overview of the options considered and chosen for the emerging preferred strategy policies consulted upon in September 2011, and the pre-submission policies. The pre submission policies are summarised in Appendix D and full wording is provided in the Minerals and Waste Core Strategy Pre Submission DPD. Table 2.1 lists the policy reference changes made since the September 2011 consultation.

Table 2,1 Revised policies

Pre submission policy	**Preferred policy September 2011**
Strategic Policies	
Policy M1: Provision for secondary and recycled aggregates	Policy M1: Provision for secondary and recycled aggregates
Policy M2: Provision to be made for working aggregate minerals	Policy M2: Provision to be made for working aggregate minerals
Policy M3: Locations for working aggregate minerals	Policy M3: Locations for working aggregate minerals
Policy M4: Aggregates rail depots	Policy M4: Aggregates rail depots
Policy M5: Non-aggregate mineral working	Previously part of Policy M3
Policy M6: Mineral safeguarding	Policy M5: Mineral safeguarding
Policy M7: Restoration of mineral workings	Policy M6: Restoration of mineral workings
Policy W1: The amount of waste to be provided for	Policy W1: The amount of waste to be provided for
Policy W2: Imports of residual non-hazardous waste	Policy W2: Waste imports
Policy W3: Waste management targets	Policy W3: Waste management targets
Policy W4: Provision of additional waste management capacity	Policy W4: Provision of additional waste management capacity
Policy W5: Strategy for provision of waste management facilities	Policy W5: Provision of additional waste management facilities
Policy W6: Sites for waste management facilities	Policy W6: Sites for waste management facilities
Policy W7: Landfill	Policy W7: Landfill
Policy W8: Hazardous and non legacy radioactive waste	Policy W8: Hazardous waste

Pre submission policy	**Preferred policy September 2011**
Policy W9: Legacy radioactive waste	Policy W9: Radioactive waste
Policy W10: Safeguarding	Policy W10: Safeguarding
Common Core Policies	
C1: Flooding	C1: Flooding
C2: Water Environment	C2: Water Environment
C3: Environmental and amenity protection	C3: Environmental and amenity protection
C4: Agricultural land and soils	New policy
C5: Biodiversity and geodiversity	C4: Biodiversity and geodiversity
C6: Landscape	C5: Landscape
C7: Heritage assets and archaeology	C6: Heritage assets and archaeology
C8: Transport	C7: Transport
C9: Rights of Way	C8: Rights of Way

3 Sustainability Context, Baseline and Objectives

3.1 Introduction

This section, in compliance with the SEA Regulations, sets the context for the appraisal and provides the details of the current state of the environment and its likely future state without the MWCS, drawing upon the Oxfordshire MWDF Scoping Report[3]. It also discusses the MWCS's relationship with other relevant plans and programmes and the environmental protection objectives relevant to the MWCS which have been considered. It identifies the key issues and problems that the MWCS and SA should respond to, as well as the SA framework which includes objectives used to carry out the appraisal of the MWCS.

3.2 Policy Context

The SEA Regulations require the Environmental Report (considered to be incorporated into this SA Report) to provide information on the relationship of the DPD with other relevant plans and programmes and the consideration of relevant environmental protection objectives. During the Scoping stage, policies, plans and programmes that were considered to influence or affect the Oxfordshire MWDF were reviewed. The purpose of this review was to identify the implications of the objectives of these policies, plans and programmes on the MWDF as well as implications for the SA. The full list of the Plans and Programmes reviewed during the Scoping Stage can be found in Appendix 1 of the Scoping Report.

The MWCS will form part of Oxfordshire County Council's MWDF and will therefore sit within the local planning policy framework as part of a hierarchy of international, national, regional, and local plans, policies and programmes. The following plans, policies and programmes are particularly relevant to the MWCS.

European	Waste Framework Directive (2008/98/EC)
National	Planning Policy Statement 10: Planning for Sustainable Waste Management
	Minerals Planning Statement 1: Planning and Minerals
	Planning Policy Statement 1: Delivering Sustainable Development
	Review of Waste Policy in England 2011
	Waste Strategy 2007
Regional	The South East Plan: The Regional Spatial Strategy for the South East May 2009
Local	Sustainable Community Strategy, Oxfordshire 2030
	Oxfordshire Joint Municipal Waste Management Strategy 2007

The review of relevant plans, policies and programmes identified the following environmental protection objectives which have been considered during the preparation of the MWCS set out in Table 3.1:

[3] Oxfordshire MWDF Scoping Report, Revised May 2011, www.oxfordshire.gov.uk .

Table 3.1 Environmental Protection Objectives

Relevant legislation, policy, plan or programme	**Environmental protection objectives**
World Heritage Convention (1972)	Calls for the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage sites
Ancient Monuments and Archaeological Areas Act (1979)	Provides for nationally important archaeological sites to be statutorily protected as "scheduled ancient monuments" (now Scheduled Monuments)
Planning (Listed Buildings and Conservation Areas) Act (1990)	Provides specific protection for buildings and areas of special architectural or historic interest
Renewed European Union (EU) Sustainable Development Strategy (2006)	Kyoto Protocol commitments of the EU-15 and most EU-25 to targets for reducing greenhouse gas emissions by 2008-2012, whereby the EU-15 target is for an 8% reduction in emissions compared to 1990 levels. Aiming for a global surface average temperature not to rise by more than 2°C compared to the pre-industrial level By 2010 12% of energy consumption, on average, and 21% of electricity consumption, as a common but differentiated target, should be met by renewable sources, considering raising their share to 15% by 2015 By 2010 5.75% of transport fuel should consist of biofuels, as an indicative target, (Directive 2003/30/EC), considering raising their proportion to 8% by 2015 Reaching an overall saving of 9% of final energy consumption over 9 years until 2017 as indicated by the Energy End-use Efficiency and Energy Services Directive
Climate Change Act (2008)	Greenhouse gas emission reductions through action in the UK and abroad of at least 80% by 2050, and reductions in carbon dioxide ($CO_{2)}$ of at least 26% by 2020, against a 1990 baseline. The 2020 target will be reviewed soon after Royal Assent to reflect the move to all greenhouse gases and the increase in the 2050 target to 80%.
Council Directive 96/62/EC (and daughter directives)	Sets pollution targets for 10 pollutants as follows (The date listed is the date by which the target should be achieved and maintained thereafter)

Relevant legislation, policy, plan or programme	Environmental protection objectives
on ambient air quality assessment and management (the 'Air Quality Framework Directive') The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (July 2007)	Benzene • 16.25 µg/m3 (cubic metre air) (Running Annual Mean) 31 December 2003 • 5 µg/ m3 (Annual Average) 31 December 2010 • 1,3-Butadiene 2.25 µg/ m3 (Running Annual Mean) 31 December 2003 Carbon monoxide • 10.0 mg/ m3 (Maximum daily running 8 Hour Mean) 31 December 2003 Lead • 0.5 µg/ m3 (Annual Mean) 31 December 2004 • 0.25 µg/ m3 (Annual Mean) 31 December 2008 Nitrogen dioxide • 200 µg/ m3 (1 Hour Mean) not to be exceeded more than 18 times per year 31 December 2005 • 40 µg/ m3 (Annual Mean) 31 December 2005 Nitrogen oxides • 30 µg/ m3 (Annual Mean) 31 December 2000 Ozone • 100 µg/ m3 (8 hour Mean) not to be exceeded more than 10 times per year) 31 December 2005 Particles (PM10) • 50 µg/ m3 not to be exceeded more than 35 times per year (24 Hour Mean) 31 December 2004 • 40 µg/ m3 (Annual Mean) 31 December 2004 Particles (PM2.5) • Exposure Reduction: 25 µg/ m3 (Annual Mean) by 2020 • Urban Areas: (Annual Mean) Target of 15% reduction in concentrations at urban background between 2010 and 2020 Sulphur dioxide • 266 µg/ m3 not to be exceeded more than 35 times per year (15 Minute Mean) 31 December 2005 • 350 µg/ m3 not to be exceeded more than 24 times per year (1 Hour Mean) 31 December 2004 • 125 µg/ m3 not to be exceeded more than 3 times per year (24 Hour Mean) 31 December 2004 • 20 µg/ m3 (Annual Mean) 31 December 2000 • 20 µg/ m3 (Winter Average: 1 October - 31 March) 31 December 2000
European Soil Thematic	• Establish common principles for the protection and sustainable use of soils;

Relevant legislation, policy, plan or programme	Environmental protection objectives
Strategy (2006)	• Prevent threats to soils, and mitigate the affects of those threats; • Preserve soil functions within the context of sustainable use; and • Restore degraded and contaminated soils to approved levels of functionality.
Safeguarding our Soils, A Strategy for England (2009)	By 2030, all England's soils will be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.'
Environmental Protection Act (1990)	Part IIA of the Environmental Protection Act requires Local Authorities to identify contaminated land in their area.
Urban Waste Water Treatment Directive 1991	The Directive aims to protect the environment from the adverse effects of waste water discharges. All urban waste water must undergo secondary treatment or equivalent, in particular for all discharges from agglomerations of more than 15,000 population equivalent (i.e. with a 5-day BOD of 60g of oxygen per day) and all discharges to freshwater and estuaries from agglomerations between 2,000 and 10,000 population equivalent.
Water Framework Directive 2000:	Aims to improve water quality and promote the sustainable use of all UK water bodies, including coastal waters, estuaries and all inland water bodies. It requires all UK river basins to reach "good status" by 2015, through demanding environmental objectives, including chemical, biological and physical targets. Three types of UK water quality standards are being developed (a formal classification instrument should be completed in late 2007): Priority substances (and Priority Hazardous Substances); Specific Pollutants; and Physico-chemical pollutants.
Groundwater Directive (2006/118/EC)	• groundwater quality standards to be established by the end of 2008; • pollution trend studies to be carried out by using existing data and data which is mandatory by the Water Framework Directive (referred to as "baseline level" data obtained in 2007-2008); • pollution trends to be reversed so that environmental objectives are achieved by 2015 by using the measures set out in the

Relevant legislation, policy, plan or programme	Environmental protection objectives
	Water Framework Directive (WFD); • measures to prevent or limit inputs of pollutants into groundwater to be operational so that WFD environmental objectives can be achieved by 2015; • reviews of technical provisions of the directive to be carried out in 2013 and every six years thereafter; • compliance with good chemical status criteria (based on EU standards of nitrates and pesticides and on threshold values established by Member States).
Groundwater Regulations 1998	Impose the requirement to hold an authorisation to make discharges of certain pollutants to groundwater
Waterways for Tomorrow 2000	DEFRA's aims for the inland waterways are to see an improving quality of infrastructure; a better experience for users through more co-operation between navigation authorities; and increased opportunities for all through sustainable development.
Birds Directive Directive 2009/147/EC	To protect all naturally occurring wild bird species and their habitats, with particular protection of rare species especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Since 1994 all SPAs form an integral part of the NATURA 2000 ecological network.
Bern Convention on the Conservation of European Wildlife and Natural Habitats, 1979	To protect endangered species and their habitats
Bonn Convention on the Conservation of Migratory Species of Wild Animals, 1979	To protect threatened animals that migrate across national boundaries and/or the high seas
Habitats and Species	To protect important natural habitat (listed in Annex I, amended in Directive 97/62/EC) and species (listed in Annex II), using

Relevant legislation, policy, plan or programme	Environmental protection objectives
Directive 92/43/EC, 1992	measures to maintain or restore their "favourable conservation status", principally through the designation of Special Protection Areas (SPA) and Special Areas of Conservation (SAC), but also (through land-use and development policies) by management of the landscape features of importance to wildlife outside SPAs and SACs; and To safeguard species needing strict protection (Annex IV). This Directive is transposed into UK law through the Conservation (Natural Habitats &c.) Regulations, 1994
The EU Sixth Environmental Action Plan 2002	Focuses attention on four priority areas for action: Tackling climate change, Nature and biodiversity, Environment and health, Sustainable use of natural resources and Management of wastes
The Wildlife and Countryside Act 1981 (as amended by the Countryside Rights of Way Act 2000)	• Part I is concerned with the protection of wildlife • Part II relates to the countryside and national parks (and the designation of protected areas) • Part III covers public rights of way • Part IV deals with miscellaneous provisions of the Act
European Landscape Convention (2000)	Commits the UK to "recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity"
Countryside and Rights of Way Act (2000)	• Section 85 requires public bodies to have regard to the purposes of designations of Areas of Outstanding Natural Beauty(AONB) • Create a framework for public access to the countryside • Provides greater protection to Sites of Special Scientific Interest (SSSIs) and new arrangements for the management of AONBs • Provides for the possibility of Conservation Area Boards for AONBs • Management Plans receive a statutory status.

Key messages drawn from the above objectives and context review have been taken into account in developing the MWCS. These messages are intended as guidance for the MWCS and the SA to inform the decision making process. The list of messages is not necessarily exhaustive and no priority should be inferred from the ordering:

- The need to ensure that distances travelled and traffic congestion are not exacerbated by minerals and waste HGVs, and that these vehicles do not worsen air quality in identified Air Quality Management Areas (AQMAs), or reduce quality of life for local residents.
- Avoid damage to, and where possible proactively contribute towards the protection and enhancement of international, national, regionally and locally designated nature conservation sites, including Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Local Wildlife Sites, Biodiversity Action Plan (BAP) Priority Species and Habitats, together with nationally and regionally important geological features.
- The need to proactively plan for post mineral restoration and for after use of temporary waste sites, to protect, maintain, enhance or restore biodiversity.
- The need to take into account the hydrological implications of proposed mineral and waste developments, including assessing flood risk, effects of abstraction or de-watering, potential pollution, and groundwater changes before identifying sites for minerals and waste development.
- The need to protect and conserve all aspects of the historic environment and particularly internationally and nationally important historic features.
- The need to ensure a steady supply of mineral materials for local markets, to meet the demand generated by planned and existing development identified in each of the four District Councils' plans, and the City Council's plans, and for markets identified outside the county.
- The need to maintain a land bank of permitted reserves for aggregate minerals in line with national and regional guidance.
- Waste management policies should support sustainable waste management measures to encourage a reduction in the amount of waste arisings going to landfill in Oxfordshire. The need to provide waste management facilities to allow the county to be self-sufficient in its treatment and/or disposal of its waste arisings, and to dispose of its apportionment of London's waste arisings over the plan period.
- Minerals and Waste policies should enable minerals extraction and secure the recovery of waste without endangering human health or residential amenity in local communities.

3.3 Baseline Review

3.3.1 Introduction

The collection of baseline information is a key component of the SA process and a legal requirement under the SEA Regulations.

Baseline information helps to provide a basis for predicting and monitoring effects and to identify sustainability issues for the SA to consider. When collecting baseline data, the aim is to assemble sufficient data on the current and likely future state of the area to enable effects of the plan or programme to be

adequately predicted. The sections that follow present a summary of key baseline data. More detailed information on the baseline conditions can be found in the MWDF Scoping Report (May 2011) - www.oxfordshire.gov.uk and baseline indicators are provided in Section 6 of this report.

3.3.2 Demographic Profile

Oxfordshire has a population of approximately 652,100[4] and is predominantly a rural county; it is the least densely populated county in the South East of England.

The population of Oxfordshire is expected to increase to 683,200 by 2020 and 736,500 by 2033[5] with growth expected in urban areas such as Oxford, Didcot, Bicester, Wantage, Grove and Witney. The elderly population is the age group with the greatest expected growth in population; increasing from 114,900 in 2012 to 193,500 in 2033.[6]

Oxfordshire has a number of economic migrants with Oxford City having the second highest proportion in the South East of people born outside the UK. The proportion of non-white people in Oxfordshire is broadly equal with the rest of the South East (4.9%). Overall life expectancy is similar to the national average, although there are variations between Districts. Generally deprivation is low, although there are some more highly deprived areas, such as some wards within Oxford city and in Banbury.

3.3.3 Environmental Profile

Oxfordshire has a number of environmental assets including areas of international and national importance designated for nature and landscape conservation. These include 7 SACs, 102 SSSIs, 4 NNRs, 11 Local Nature Reserves (LNRs) and 362 Local Wildlife Sites (formerly known as County Wildlife Sites)[7]. 99.34% of of the County's SSSIs are in favourable or recovering condition.[8]

The county is home to 67 of the UK BAP priority species and examples of 17 of the priority habitats identified in the UK BAP as being of international or national importance for biodiversity can be found in Oxfordshire. The Oxfordshire BAP currently contains Action Plans for 20 habitats and 21 species, including for lowland calcareous grassland, acid lowland meadow and reedbeds, which are the habitats most likely to be created through mineral restoration. Thirty six Conservation Target Areas have been identified in the county. The aim of these areas is to ensure that existing habitats are protected and maintained in good condition and at the same time expansion of areas of biodiversity value and linkage between these areas is encouraged, to provide more viable and sustainable biodiversity management units.

78% of the land in the county is under agricultural management (260,800ha). Important landscapes include the Chiltern Beechwoods, the limestone grasslands of the Cotswolds and the lowland meadows of the Thames valley. Three designated Areas of Outstanding Natural Beauty (AONBs) together cover 24% of Oxfordshire and cover parts of the Chilterns, the Cotswolds and the North Wessex Downs. Much of the central part of the county around Oxford is designated as Green Belt.

[4] Sub-National Population Projections 2008, www.ons.gov.uk
[5] ibid
[6] ibid
[7] Oxfordshire Minerals and Waste Development Framework, Minerals and Waste Core Strategy Background Paper No.1: Environmental and Community Protection and Planning for Mineral Working September 2011.
[8] Natural England – www.sssi.naturalengland.org.uk accessed February 2012.

Oxfordshire has nearly 13,000 Listed Buildings and structures, 2 registered battlefields, 55 Registered Parks and Gardens and 242 Conservation Areas. Blenheim Palace and Park is designated as a world heritage site, which reflects its outstanding international importance. Many of the Conservation Areas are villages which lie in close proximity to existing or planned mineral working. Eynsham, Ducklington, Nuneham Courtenay, Hatford and Shellingford are in existing working areas and Dorchester, Bampton, Benson and Stanton Harcourt & Sutton are in proposed new working areas.

There are approximately 350 Scheduled Monuments and many archaeological sites along the Thames valley. Some areas have experienced mineral working in the past which has had effects on archaeological sites, particularly the Lower Windrush Valley, the Lower Evenlode valley and in the Radley area.

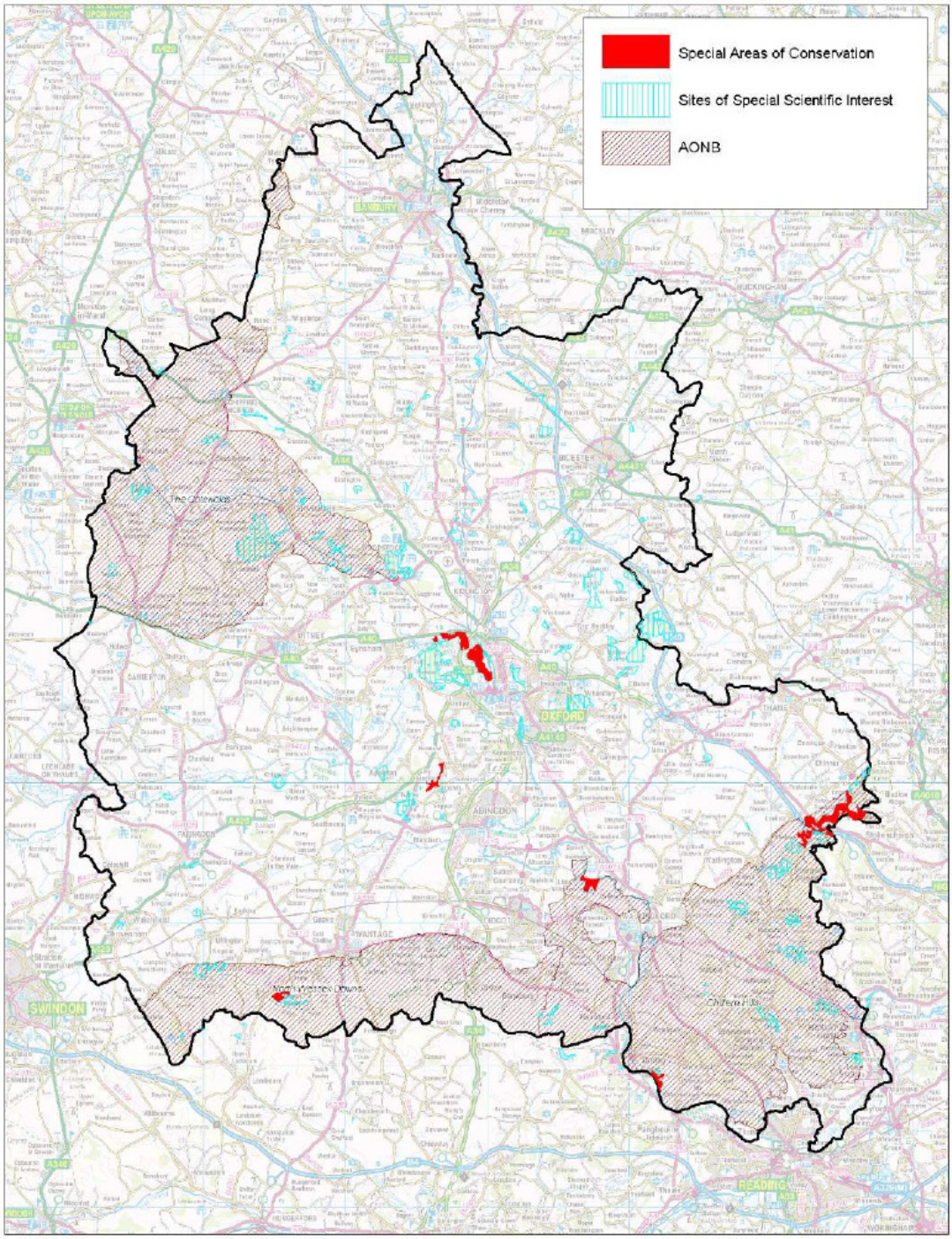

Figure 3.1 Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSI) and Areas of Outstanding Natural Beauty (AONB) in Oxfordshire[9]

[9] Oxfordshire Minerals and Waste Development Framework, Minerals and Waste Core Strategy Background Paper No.1: Environmental and Community Protection and Planning for Mineral Working September 2011

The River Thames is the second longest river in Great Britain and provides the backbone of one of the most intensively used water resource systems in the world, taking advantage of the use and subsequent return of highly treated wastewater and the natural purification capacity of the river. Water resources of the river, together with associated groundwater, support abstractions for public water supply and to a lesser extent for industry and agriculture.

The River Thames is also one of the most important environmental features of the county. It is a vital corridor for the migration of wildlife and provides a diverse range of habitats. These habitats all have their own particular water flow and level requirements that need to be respected.

The Thames is also highly valued for its navigational and recreational uses, which also have their own flow and level requirements. Tributaries of the Thames which flow through Oxfordshire include the Rivers Cherwell, Ock, Thame, Evenlode, Windrush and Ray. Chemical and biological river water quality varies considerably across the county.

Despite the resource that the rivers provide, the Thames valley is one of the driest in the country and the Environment Agency has classified the majority of the water catchment areas within Oxfordshire as 'no water available', 'over-licensed' or 'over-abstracted'. Public water supply demand is forecast to increase due to expected population growth.

Oxfordshire is particularly vulnerable to flooding along several of its river valleys, including the Thames valley and the Evenlode. In July 2007, extensive flooding affected parts of Oxfordshire including Abingdon, Oxford and Witney. Areas of Oxford at risk of flooding include Osney, Botley, South Hinskey, North Hinksey and Wolvercote[10]. Climate change in Oxfordshire is likely to result in warmer, drier summers but also milder, wetter winters with an increased risk of flooding.

In Oxfordshire, carbon dioxide (CO_2) emissions were estimated to be 8.1 tonnes of CO_2 per capita (tCO_2) in 2009, declining from 8.9 tCO_2 per capita in 2008 and 9 tCO_2 per capita in 2007 but higher than the national and regional average (7.4 tCO_2 and 6.9 tCO_2 respectively) . In 2009 domestic sources accounted for 28% of the county's total CO_2 emissions and road transport for 34%[11]. Traffic and associated congestion continues to increase in Oxfordshire which will have implications for county emissions of CO_2.

Six AQMAs have been designated in the county, primarily owing to road traffic emissions. The AQMAs have been declared in Abingdon, Chipping Norton, Henley, Central Oxford, Wallingford and Witney. A further AQMA in Botley is due to be declared shortly[12]. . Weather conditions associated with episodes of poor air quality in summer are likely to become more frequent as a result of climate change.

Oxfordshire has a number of major highway routes including the M40, A40 and A34 which connect Oxford and other towns. Oxford has good rail accessibility being located on the Reading to Birmingham line, the Cotswold Line from London to Worcester and Hereford, and with a branch line to Bicester. Didcot lies on the inter-city line from London to Bristol and South Wales and East Oxfordshire has good accessibility to the Chiltern line, which passes through Bicester on the Birmingham-London Marylebone line. West Oxfordshire has generally poor accessibility to rail travel, apart from the Cotswold Line.

[10] Environment Agency www.environment-agency.gov.uk [accessed February 2012]
[11] Local Authority Carbon Figures 2009, www.decc.gov.uk [accessed February 2012]
[12] Oxfordshire County Council, www.oxfordshire.gov.uk [accessed February 2012]

The proportion of travel by public transport to central Oxford is relatively high (33%) but travel by public transport to the rest of Oxford is much lower (11%). Public transport provision for travel from rural Oxfordshire to Oxford is a significant part of the county's emerging transport strategy.

The most common means of transportation of aggregate and of bulk movement of waste is by Heavy Goods Vehicle (HGV). There are a number of rail depots which also handle aggregate namely Hinksey sidings - Oxford, Oxford Road - Kidlington, Appleford Sidings - Sutton Courtenay and Hennef Way - Banbury.

3.3.4 Economic Profile

Oxfordshire has one of the strongest economies in the South East and is globally competitive in areas such as high performance engineering, bioscience, medical research and publishing[13]. It has an exceptional concentration of research and development (7.9% of the workforce compared with 2.9% for the South East) with world renowned establishments such as the Oxford University and Oxford Brookes University and the Diamond Synchrotron on the Harwell Science and Innovation Campus.. The Oxfordshire economy is relatively self-contained with the majority of its workforce (around 85%) resident in the County. Oxford is the principal employment centre, but there is significant economic activity centred on Banbury. Economic activity in the County is also characterised by micro businesses, and small and medium enterprises - 95% of Oxfordshire enterprises employ fewer than 20 people. In terms of gross value added (GVA) Oxfordshire performance ranks in the top 10% for the UK, having increased more than Cambridgeshire but significantly less than Berkshire since 1995. Oxfordshire GVA per head has been consistently above the South East average[14].

Economic forecasts indicate an increase in jobs in the county of between 51,200 to 75,400 between 2001 and 2026[15]. Of the total workforce of around 309,000 people, 206,000 are employed in urban areas with the most significant concentration being 85,700 in Oxford City. Almost exactly 100,000 people are employed in Oxfordshire's rural areas (i.e. in settlements of less than 10,000 people – this includes Harwell Science and Innovation Campus, Milton Park and other rural business parks). 23% of employees in rural areas are home based compared with 11% in urban areas. Workplace-based earnings for full-time workers in Oxfordshire averaged £543 in 2006, 1% below the English average (£547) and 4% below the South East average (£567)[16].

With 85,700 people or 28% of the county's employment, Oxford is the centre of a city-region that attracts business activity and inward investment as well as inward commuting from across the county.

Severe pockets of deprivation and economic under-performance affect about 15% of people in Oxford and Banbury and all districts have at least one area in the most deprived 20% in terms of education and skills. In rural areas, there is widespread deprivation in the form of poor access to services.

3.3.5 Minerals

Several important aggregate mineral resources are present in Oxfordshire. Sand and gravel is the most predominant, occurring extensively along the Thames and

[13] Oxfordshire 2030 A partnership plan for improving quality of life in Oxfordshire, Oxfordshire Partnership
[14] ibid
[15] South East Plan: Regional Spatial Strategy for the South East of England 2009
[16] Oxfordshire Quarterly Economic Update: March 2007 Oxford Economic Observatory, School of the Built Environment, Oxford Brookes University.

Cherwell valleys. Soft sand is present in south west Oxfordshire, often in conjunction with limestone. In the north of the county, ironstone and limestone are present and in the south west of the county, there is a deposit of Fuller's Earth, which is not worked at present. Production of aggregate minerals has decreased over time (Table 3.2). Table 3.3 shows where aggregates produced in Oxfordshire were distributed in 2009. Most sand and gravel (78%) was used locally within Oxfordshire with relatively small quantities exported to adjoining counties Wiltshire and Gloucestershire. Half of the crushed rock produced in Oxfordshire was used in the country; the main recipient counties were Northamptonshire and Warwickshire.

Table 3.2: Production of Aggregates in Oxfordshire (2005 – 2010)

Aggregate Type	Annual Production (thousand tonnes)					
	2005[17]	2006[17]	2007[17]	2008[17]	2009[17]	2010[18]
Soft Sand	199	183	166	151	165	142
Sharp Sand and Gravel	1,090	983	893	629	462	455
Total Sand and Gravel	1,289	1,166	1,059	780	627	597
Crushed Rock	564	495	717	543	363	272
Total Primary Aggregates	1,853	1,661	1,776	1,323	990	869

Table 3.3: Destinations of Aggregates Produced in Oxfordshire in 2009.

	Sand and Gravel (including soft sand)		Crushed Rock	
Destination	Tonnes	Percentage (%)	Tonnes	Percentage (%)
Oxfordshire	487,260	77.6	180,867	49.8
Berkshire	20,785	3.3	23,081	6.4
Buckinghamshire & Milton Keynes	13,663	2.2		
Rest of South East & London	15,565	2.5	0	0
Wiltshire & Gloucestershire	68,203	10.9	29,694	8.2
Northamptonshire & Warwickshire	4,993	0.8	118,788	32.7
Elsewhere	17,188	2.7	10,409	2.9
Total	627,783	100	362,839	100

Oxfordshire was a net importer of primary aggregates in 2009, importing 35% of sand and gravel and 71% of crushed rock[19]. Sales of sand and gravel in Oxfordshire in 2010 were 0.60 million tonnes, and sales of crushed rock were approximately 0.27 million tonnes. Large quantities of crushed rock are imported

[17] SEERA Aggregates Monitoring Reports 2005- 2009
[18] Oxfordshire County Council 2010 www.oxfordshire.gov.uk
[19] Oxfordshire Mineral and Waste Annual Monitoring Report 2011.

from the Mendips by rail for highway construction. Production of aggregates from recycled construction and demolition waste and from secondary materials, such as pulverised fuel ash from Didcot A power station has increased in the county. There is no reliable and comprehensive data on production and use of secondary and recycled aggregates available for Oxfordshire. In 2010, a review of permitted facilities indicates a total capacity for the production of secondary and recycled aggregates in Oxfordshire of approximately 860,000 tonnes per annum. This capacity total is almost the same as the South East Plan figure of 0.9 million tonnes per annum for 2016 however some 240,000 tonnes per annum of this capacity is at temporary facilities. The Didcot plant is due to cease operations in 2015 although the production of secondary aggregates will to some extent be replaced by the incinerator bottom ash from the Ardley Energy from Waste plant, when this becomes operational.

Figures 3.2 and 3.3 show the location of the sand and gravel reserves, and the limestone and ironstone reserves in Oxfordshire.

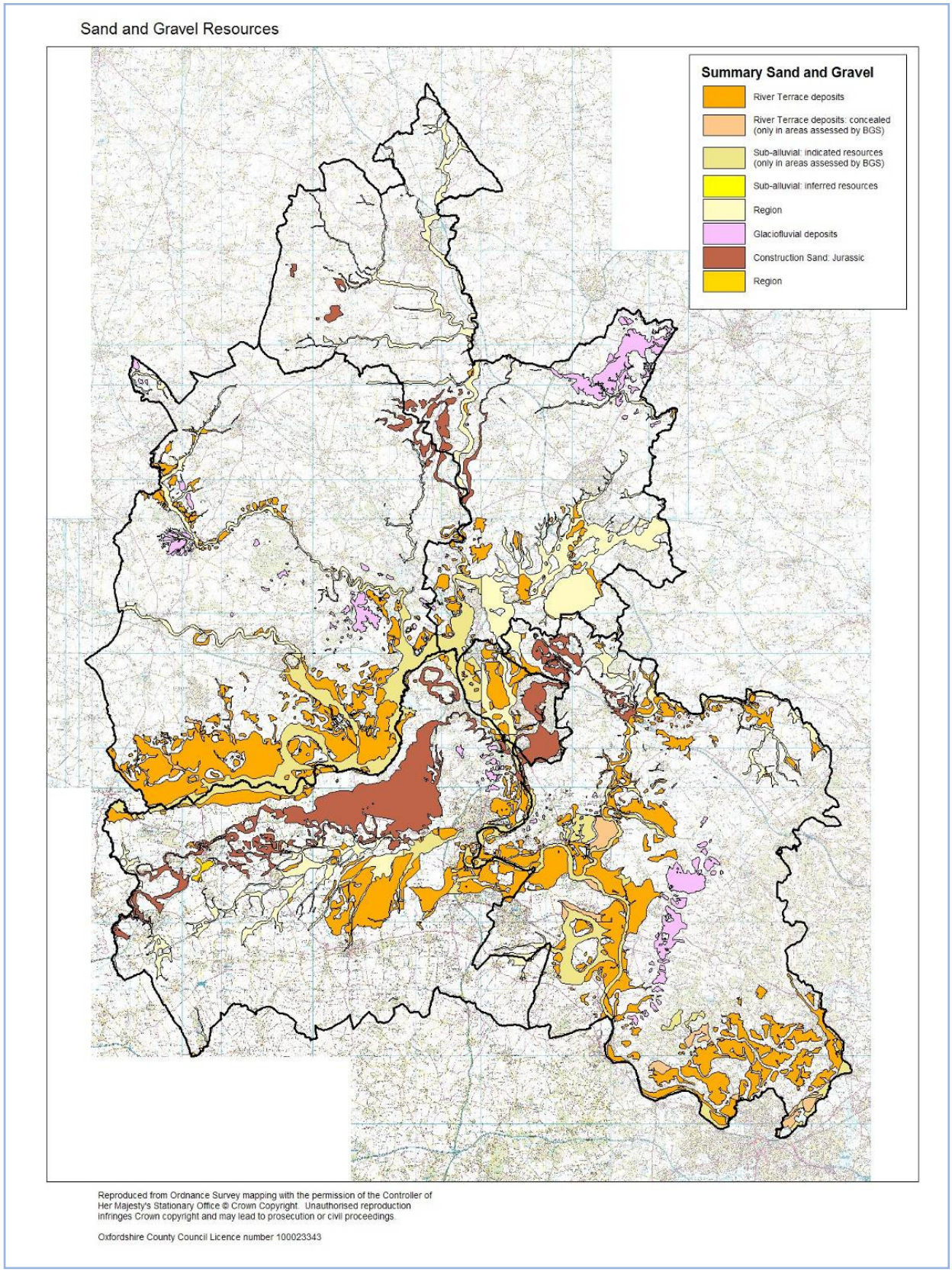

Figure 3.2 Sand and Gravel Resources in Oxfordshire

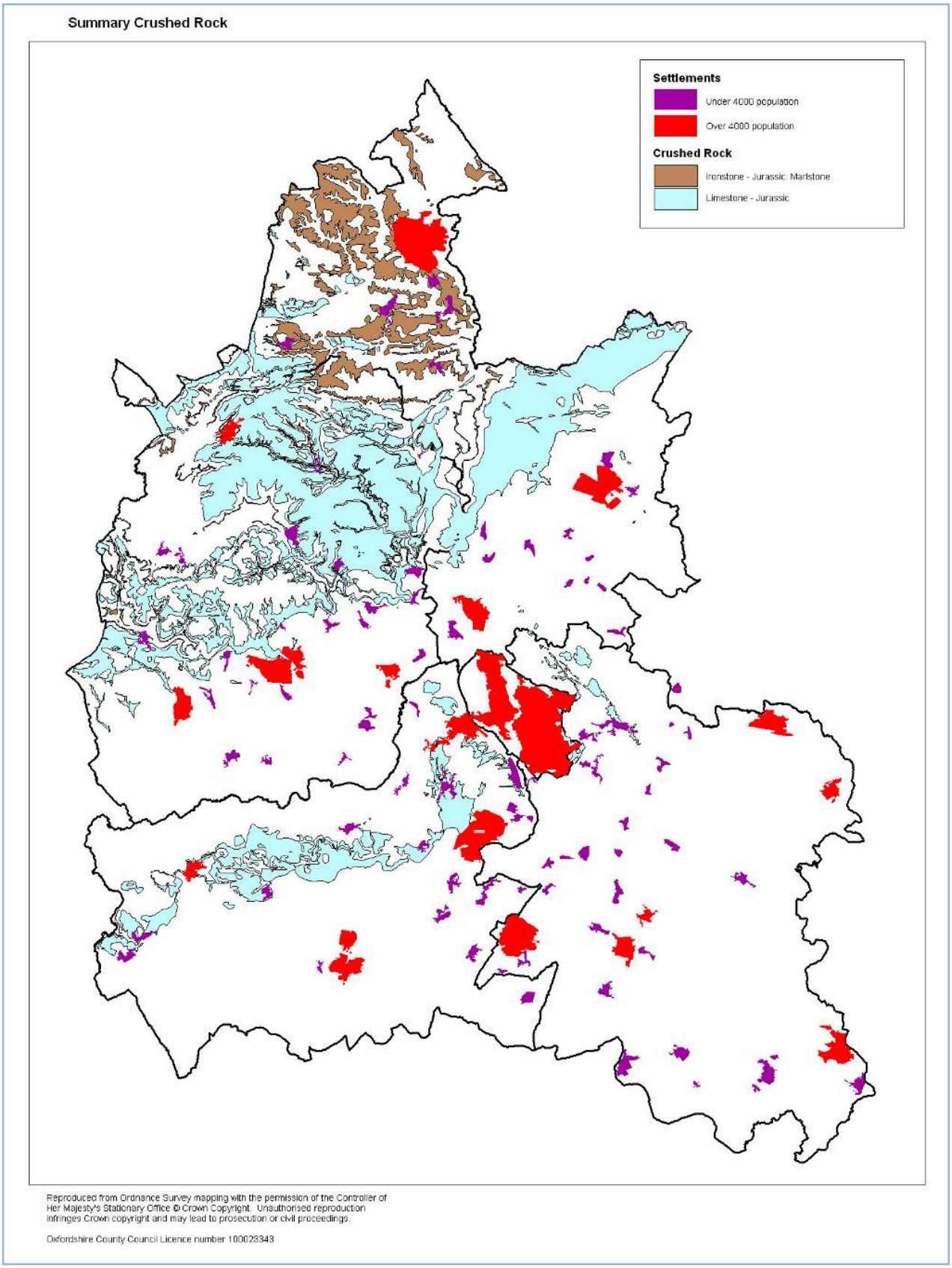

Figure 3.3 Crushed Rock Resources in Oxfordshire

Much of the main sand and gravel resource to the North of the River Thames in the west of the County lies on best and most versatile agricultural land, mostly Grade 2 and Grade 3a. Some of the sand and gravel deposit in South Oxfordshire lies on Grade 1 agricultural land.

Present movements of aggregate material from local quarries is by road transport in Oxfordshire, which generates a large number of Heavy Goods Vehicles (HGV) movements, concentrated in specific areas of the county such as in the Lower Windrush Valley, around Stanton Harcourt, Cassington, Standlake and in the Sutton Courtenay area. At present no aggregate is moved by barge on the River Thames or the Oxford canal, although this has been suggested in the past. Access from mineral resource to markets is constrained in some areas of the county by the narrow bridges over the River Thames and their weight restriction orders.

A recent review of planning permissions for construction and demolition waste recycling facilities for production of aggregates indicates a total production capacity in Oxfordshire of 385,000 tonnes per annum. Much of this capacity is in facilities that have planning permission for a temporary period only. This is significantly less than the Oxfordshire target for 2016 of 0.9 million tonnes per annum that was proposed in the South East Plan. Oxfordshire's current apportionment is 1.82 million tonnes (mt) of sand and gravel, and 1.0mt of crushed rock per annum[20]. The National and Regional guidelines for aggregates provision in England 2005-2020 (DCLG, June 2009) show a modest decline in the forecast national demand for aggregates between 2005 and 2020 compared with the previous (2003) guidelines. This masks a more significant decline in forecast demand for some regions, particularly the South East.

3.3.6 Waste

Of the total of approximately 1.5 million tonnes of waste managed in Oxfordshire each year, 43% is construction and demolition waste, 37% is commercial and industrial waste and 20% is municipal waste. The table below shows the annual arisings of different waste types in Oxfordshire.

Table 3.4: Annual Arisings/Management of Waste in Oxfordshire in 2010 / 2011 (tonnes)

Waste Type	Total Waste Arising/ Managed	Landfilled	Recycled/ composted	Recovered	Other Treatment
Construction and Demolition[21]	650,000	91,000	396,500	162,500	-
Commercial and Industrial[22]	566,800	283,400	283,400	-	-

[20] Policy M3 of the Regional Planning Guidance 9 apportions the regional aggregates requirement between Mineral Planning Authorities.

[21] Based on performance recorded in a study by Capita Symonds for WRAP "Construction, demolition and excavation waste arisings, use and disposal in England (2008)

[22] Environment Agency www.environment-agency.gov.uk

Waste Type	Total Waste Arising/ Managed	Landfilled	Recycled/ composted	Recovered	Other Treatment
Municipal Total[23]	300,166	139,992	122,606	32,481	5,087
All Waste	1516,966	514,392	802,506	194,981	5,087

Municipal Solid Waste (MSW - defined as household waste and any other waste collected by Waste Collection Authorities) arisings for the period 2010/11 in Oxfordshire are shown in Table 3.4 below by management type. Of just over 320,000 tonnes of municipal waste produced in Oxfordshire in 2010/11, about 52% was recycled or composted, with 48% being disposed, almost all by landfill.

Table 3.5: Municipal Waste Arising and Managed by Management Type 2010 – 2011 (tonnes)

	Waste Management Type					
	Landfill	Recycled * (excluding green waste composted)	Composting of Green Waste *	Food Waste	Thermal Treatment**	Total Municipal Waste
Household	119,773	83,430	36,821	32,481	5,087	277,592
Non-Household	20,129	2,355	-	-	-	22,574
Total	139,992	85,785	36,821	32,481	5,087	300,166
Percentage	46.6	28.6	12.3	10.8	1.7	100

* includes waste collected by waste collection authorities and at waste recycling centres. ** includes wood used as a refuse derived fuel and hazardous and clinical wastes disposed by specialist thermal treatment
(Source: Oxfordshire County Council, Waste Management Group)

For household waste only, the rate of recycling or composting rose to 55%, an increase of 6.3% from the previous year. This far exceeds the targets set in 2006 by the Oxfordshire Waste Partnership[24] to recycle or compost 45% of household waste by 2015 and is equal to the target set to be achieved by 2020. Most construction and demolition waste is recycled (61%) or recovered (25% mainly for use in restoration of mineral workings and landfills, land improvement and engineering works). About 14% is disposed to landfill. Half of the commercial and industrial waste is recycled, and the rest is disposed to landfill.

Table 3.5 shows how waste is expected to be managed in Oxfordshire from 2010 to 2030. By 2030, it is expected that municipal, commercial and industrial and construction and demolition waste arisings will have risen by more than half to 2,308,600 tonnes per annum. Over the same period Oxfordshire could also receive a further 8.1 million tonnes of waste for disposal from elsewhere, including London.

[23] Oxfordshire County Council Waste Management Team: Data from 1 April 2010 to 31 March 2011.
[24] Oxfordshire Joint Municipal Waste Management Strategy 2006

Table 3.6: Estimates of Waste to be Managed 2010 - 2030[25]

Waste Type	Year				
	2010	2015	2020	2025	2030
Construction and Demolition	650,000	1,300,000	1,3000,000	1,300,000	1,300,000
Commercial and Industrial	566,800	584,900	603,500	622,800	642,600
Municipal Solid Waste	300,166	325,100	337,900	351,700	366,000
Total	1,525,500	2,210,000	2,241,400	2,274,500	2,308,600

The County Council has recently carried out a review of waste capacity in the County. The results of the review are presented in Table 3.7 below.

Table 3.7 Capacity of Waste Management Facilities March 2011[26]

Type of facility	**Capacity (tonnes)**
Landfill	
Inert landfill	5,400,000 tonnes
Non -hazardous Landfill	12,000,000 tonnes
Hazardous landfill	0 tonnes
Total	17,400,000 tonnes
Recycling / Transfer & Composting	
MSW and C&I Recycling / Transfer	1,029,000 tonnes per annum
C&D Recycling / Transfer	1,104,000 tonnes per annum
MSW & C&I Composting	256,000 tonnes per annum
Total	2,389,000 tonnes per annum
Others	
MSW and C&I Incineration	300,000 tonnes per annum
MSW and C&I Treatment	2,000 tonnes per annum
Hazardous / Radioactive	24,000 tonnes per annum
Vehicle Dismantling & Other Metal Recovery	166,000 tonnes per annum
Total	492,000 tonnes per annum

3.4 Sustainability Issues and Problems

Following the policy context and baseline review, key sustainability issues facing minerals and waste planning in Oxfordshire were identified. These are listed below :

- Population growth will lead to increased waste production and demand for waste management facilities, aggregates for construction, across the whole county and also water and energy resources.
- Economic growth in Oxfordshire, which has slowed down behind neighbouring sub-regions in recent years, should be encouraged.
- Oxfordshire is globally competitive in areas such as high performance engineering, bioscience, medical research and publishing and economic

[25] Oxfordshire Minerals and Waste Development Framework: Waste Needs Assessment 2011
[26] Oxfordshire County Council, Waste Needs Assessment (May 2011) and information from planning publications and decisions 2010-2011.

forecasts indicate an increase in jobs in the county of between 51,200 to 75,400 between 2001 and 2026.

- Climate change poses a threat to parts of the county through flooding - as a result of warmer, drier summers, and milder, wetter winters. Oxfordshire is particularly vulnerable to flooding along several of its river valleys, including the Thames valley and the Evenlode.
- The County's CO_2 consumption per capita is higher than the national and regional average and ;
- Oxfordshire lies largely within the Thames valley region, which is one of the driest in the country and the majority of the water catchment areas within Oxfordshire have been classified as 'no water available', 'over-licensed' or 'over-abstracted'.
- Oxfordshire has low rainfall levels and the Thames valley is one of the most water stressed in the country. Population growth and smaller household size will increase demand for water.
- Groundwater associated with the River Thames supports large abstractions for public water supply and to a lesser extent for industry and agriculture and there is therefore a need to protect groundwater from any pollutants arising from land uses;
- Chemical and biological river water quality varies considerably across the county.
- Traffic generation on both motorways and major roads in the county is increasing and leads to congestion and contributes towards a reduction in air quality.
- Seven AQMAs have been identified in Oxfordshire, where levels of NO_2 from traffic exceed recommended European Union limit values for England.
- Oxfordshire has a number of areas of international and national biodiversity importance (7 SACs, 102 SSSIs, 4 NNRs) and the condition of these areas needs to be maintained,
- 24% of Oxfordshire is nationally designated for landscape importance - three AONBs cover parts of the Chilterns, the Cotswolds and the North Wessex Downs;
- Oxfordshire is a county with a rich historic environment including 350 Scheduled Monuments, 242 Conservation Areas and a World Heritage Site at Blenheim Palace and Park requiring protection .
- Oxfordshire has approximately one third of the unconstrained gravel resource in the South East region and plentiful sand and gravel resources. Possible increases in the sub regional apportionment for the county may require increased mineral working in the County.
- Some of the County's mineral reserves lie beneath 'best and most versatile' agricultural land, as defined by Defra.
- Although some new waste management capacity has been permitted, a capacity gap remains between provision and demand over the plan period. New capacity for waste management will be needed in order to meet targets for recovery, recycling and composting of waste and reduction in landfilling of waste.
- Provision needs to be made for secondary and recycled waste management facilities to continue to increase the amount of secondary and recycled aggregate which can be produced in the County.

3.5 SA Framework

In order to appraise the effects of the MWDF on sustainability, a series of Sustainability Objectives were developed during the scoping stage. These were developed and consulted on with key stakeholders and statutory consultees. They provide the benchmark for undertaking the appraisal and cover the full range of environmental impacts stipulated by the SEA Regulations, as well as economic and social issues relevant to Oxfordshire.

The objectives are underlain by detailed sub-objectives (appraisal criteria) which amplify the broad objectives and allow for the appraisal to capture the different level of detail as appropriate. Table 3.8 below shows the SA Objectives that have been used to appraise the emerging MWCS policies.

Table 3.8 SA Framework (objectives)

SA Objective	Appraisal Criteria/Sub-objectives
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	Will the MWDF protect, maintain and enhance UK BAP Priority Habitats? Will the MWDF conserve and enhance internationally, nationally and regionally important sites of nature conservation importance? Will the MWDF protect, maintain and enhance UK BAP Priority Species? Will it contribute to the aims of the Conservation Target Areas? Will it protect and conserve geological SSSIs and RIGs?
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	Will the MWDF conserve and enhance Oxfordshire's AONBs & their settings and take into account guidelines associated with specific landscape types? Will the MWDF protect and enhance the historic and prehistoric environment of Oxfordshire?
3. To maintain and improve ground and surface water quality	Will the MWDF affect groundwater quality? Will the MWDF affect surface water quality? Is the groundwater, surface water or both?
4. To improve and maintain air quality to levels which do not damage natural systems	Will the MWDF lead to increased traffic congestion in built up areas? Will the MWDF lead to increased dust and/or odours?
5. To reduce greenhouse gas emissions to reduce the cause of climate change	Will the MWDF lead to a decrease in production of greenhouse gases such as methane?
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	Number of sites that are permitted within flood risk zone as identified by PPS25.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	Will the MWDF reduce distances travelled by road? Are sites in the MWDF well located in relation to surrounding settlements for waste, or minerals for markets? Will the waste facilities or mineral operation serve local needs? Does the MWDF facilitate HGV routeing agreements and developer contributions for infrastructure improvements?
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	Will the MWDF have impacts which could have a harmful effect on human health? Will the MWDF result in loss of amenity through visual impact, noise, dust or vibration for local communities? Will the MWDF provide opportunities for enhancement of local amenity and access to the countryside?
9. To protect, improve and where necessary restore land and soil quality	Will the MWDF affect high grade agricultural land? Will the MWDF lead to soil pollution or contamination?

SA Objective	Appraisal Criteria/Sub-objectives
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	Will the MWDF policies reduce the amount of waste produced?
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	Will the MWDF encourage the provision of more locally based skills and facilities? Will the MWDF generate new jobs for the county? Will the MWDF support and encourage the growth of small and medium size business?

4 Appraisal Methodology

4.1 Approach

The approach adopted in undertaking the appraisal has involved the following tasks set out in Table 4.1 below

Table 4.1 SA Tasks

SA Task	SA Output
Testing the MWCS vision and objectives against the SA objectives;	A summary of the appraisal of the minerals and waste visions and objectives is provided in section 4 and Appendix D
Testing the emerging issues and options against the SA objectives	A summary of this appraisal is provided in Appendix B and reports documenting this include the Oxfordshire Minerals Spatial Strategy Options SA February 2010, Revised Minerals Spatial Strategy Options SA September 2010 and Aggregates Apportionment Options SA July 2011, Waste Spatial Strategy Options SA August 2011.
Testing the emerging policies against the SA objectives	A summary of the preferred minerals strategy SA and preferred waste strategy SA is provided in Appendix B
Testing the pre submission policies (Pre submission MWCS) against the SA objectives	Section 5 and Appendix D of this report

The appraisal has involved a textual analysis of the likely significant and non significant effects of the implementation of the MWCS policies. The assessment was a qualitative exercise based on professional judgement taking into account the information gathered in the MWDF Scoping Report and other available background information relevant to the issues raised.

Options and policies have been appraised against the SA framework in terms of the nature and timing of their effects. These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects. The short term is considered to be within the first 5 years of the MWCS being adopted; medium term between 5 and 10 years; and long term 10 years or longer.

Matrices have been used to record the appraisal and these are provided in Appendix D.

The following table provides an explanation of the symbols used in the appraisal:

Symbol	Likely effect on the SA Objective
++	The option is likely to have a significant positive effect
+	The option is likely to have a positive effect which is not considered to be significant
0	Neutral / no clear link
?	Uncertain or insufficient information on which to determine effect
-	The option is likely to have a negative effect which is not considered to be significant
- -	The option is likely to have a significant negative effect
+/-	The option is likely to have some positive and some negative effects

4.2 Difficulties encountered

A key problem in undertaking the appraisal of the MWCS was the overarching, strategic nature of the document and the uncertainty surrounding precisely how it would be implemented.

Available baseline data is not always up to date or does not always cover the most useful geographical extent. The best freely available data has been used but data gaps included local data for the use of secondary and recycled aggregates and the amount of grade I and grade II agricultural land in the County lost to development.

5 Appraisal Findings

5.1 Introduction

This section sets out the findings from the appraisal of the MWCS Pre submission policies including recommendations for improving policies with respect to significant adverse sustainability effects and other effects identified. The full appraisal tables can be found in Appendix D to this report.

5.2 Minerals Strategy Vision and Objectives

The minerals vision addresses all of the sustainability objectives, including SA Objective 6 on flood risk and climate mitigation and adaptation (which the SA at the preferred options stage identified as not being addressed). The proposed vision as worded has a positive or very positive fit in relation to all of the identified sustainability objectives. It is noted that there will be some unavoidable negative impacts from importation of material which is not available locally.

Overall, the proposed minerals strategy objectives are compatible with the SA objectives. The minerals strategy objectives seek to manage Oxfordshire's mineral planning needs in a way that protects the valued natural environment (objectives iv, vi, vii and viii), contributes to economic growth (objectives i iii, iv, and ix) as well as ensuring communities are provided with adequate facilities to meet anticipated needs (ix and x) in a manner that protects their health and safety (objectives vi, vii, viii). Objective vi supports reducing the need to transport minerals significant distances by road and this is further supported by Objective x. Together these objectives have the potential to reduce the negative impacts associated with HGV movements in specific areas of the County including: addressing the serious congestion on the County's roads, lowering the high level of greenhouse gas emissions per capita (currently above both UK and South East averages), reducing air and noise pollution and other local amenity impacts experienced by local communities in mineral working areas.

5.3 Waste Strategy Vision and Objectives

The Council's vision for waste planning is likely to have positive effects upon the key sustainability issues underlying the SA objectives. In particular, the waste vision is expected to have significant positive effects upon SA objective 10 on contributing towards moving the management of waste up the waste hierarchy as well as objective 11 on enabling Oxfordshire to be self-sufficient in waste management. By ensuring that facilities are well distributed across the county and close to main sources of waste arisings and main transport links, the vision supports SA objectives 4, 5 and 7 on air quality, climate mitigation and transport respectively. The vision also supports SA objectives relating to protection of the built and natural environment (and amenity) as it seeks to ensure that waste is managed in an environmentally efficient network of clean, well designed facilities.

Overall, the proposed waste strategy objectives are generally compatible with the SA objectives, with the exception of waste strategy objective v which seeks to continue to import waste from London into Oxfordshire. This waste strategy objective is considered to be incompatible with objective SA5 reducing greenhouse gas emissions and objective SA7 minimising the impacts of waste transportation especially where waste could be transported by road from London and elsewhere. Waste strategy objective v does however limit the waste to residual waste stating this would be following recycling and treatment elsewhere and aims to accept a reduced quantity of this waste in the longer term.

Waste strategy objective vi is compatible with SA objectives relating to protection of the built and natural environment as well as amenity. Waste strategy objectives i, ii, iii and iv are considered to be compatible with objective SA5 relating to the reduction in greenhouse gas. These objectives are also compatible with SA11 as they support provision of waste management facilities.

5.4 Strategic Policies

5.4.1 Policy M1: Provision for Secondary and Recycled Aggregates

Policy M1 seeks to make a sustainable contribution to Oxfordshire's sub-regional minerals apportionment for secondary and recycled aggregates based on a local assessment of supply[27] and consistent with the South East Plan target (Policy M2 – 0.9 million tonnes per annum (tpa)). The anticipated production varies from 400,000 to 550,000 with a level of uncertainty yet to be verified[28]. Further capacity and production are anticipated from mobile plant (approx 25%[29]) but this target is recognised as ambitious as rates of utilisation are already high and secondary and recycled aggregates are not currently substituted for primary aggregates in structural uses, only in lower specification construction uses like car parks.

Production of secondary/recycled aggregates is recognised as having environmental effects broadly similar to those caused by processing of primary aggregates. The nature of any adverse impacts will depend to some extent on the exact location of sites for secondary and recycled aggregates allocated through the Sites Allocations DPD. If these facilities exist in close proximity to active mineral workings there could be negative cumulative effects upon nearby receptors from increased traffic bringing material to sites and effects such as noise and dust which would need to be considered at site allocation and planning application stages. The adverse effects arising from the operation of temporary mobile units associated with individual developments are likely to be temporary and of a local nature than facilities which hold long term consents. The application of the Common Core Policies to any individual applications should assist in mitigating any significant adverse effects.

Restoration schemes for those secondary/recycling sites which are no longer needed in the longer term are likely to address biodiversity, landscape, water and soil restoration objectives.

The apportionment will support Oxfordshire's economic growth over the long term and in particular growth of the local economy, as recycling facilities tend to be located at existing quarries and landfills, thus continuing to support local jobs and businesses.

5.4.2 Policy M2: Provision to be made for mineral working

The adverse effects which might arise from a particular volume of mineral working in the County are difficult to predict based on the apportionment figure alone, as it is the spatial implications, i.e. the location and distribution of mineral working sites which make up the apportionment which will determine the effects. The proposed spatial distribution of this apportionment is appraised through Policy M3. However it can be expected that the adverse environmental and social effects of the proposed apportionment level might be less adverse than those experienced

[27] Local Assessment of Aggregates Supply Requirements Final Report January 2011 Prepared for Oxfordshire County Council by Atkins Ltd
[28] Ibid 2011
[29] Ibid 2011

under the delivery of the current policy, Policy M3 of the South East Plan, which requires a higher level of provision or the Secretary of State's proposed changes to Policy M3, which would require an even higher level of supply. The policy makes provision for aggregate supply to support the expected economic growth, based on a local assessment of future aggregate demand by consultants Atkins (January 2011[30]). It is however recognised that effects in the longer term are more uncertain i.e. sites chosen to deliver the strategy may not come forward and other sites which may or may not be more constrained might then be needed. This uncertainty would be addressed through policy monitoring and the implementation of the common core policies when planning applications come forward.

5.4.3 Policy M3: Strategy for the Location of Mineral Working

Sharp sand and gravel

Seeking to concentrate extraction predominantly in areas where working is currently taking place or has taken place recently has the economic advantages of using existing infrastructure as well as a skilled local labour force. It also presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to a degree of beneficial effects for the local communities (through recreation and leisure opportunities) as well as for local wildlife. However, there is still potential for ongoing cumulative negative effects throughout the plan period on the local communities especially with regard to traffic and amenity issues, unless these adverse effects are appropriately considered at the site allocation stage and through the common core policies in the MWCS when new planning permissions are sought.

The exception to this strategy is Cholsey, where significant new infrastructure will be required, and significant adverse effects are likely to be experienced by the local communities and environment post 2020, as a result of commencing work in this previously unworked area. This will need to be considered at the site allocation and planning application stage however it is recognised that the common core policies are expected to minimise the likelihood of significant adverse effects.

Potential adverse effects on nature conservation objectives and in particular designated European Sites are appropriately flagged by the revised policy. The policy now signals that land to the east and north east of the River Evenlode will not be identified as specific sites for mineral working in the Site Allocations development plan document. Within the area north and south of the A420 to the west of Abingdon the policy states that further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Cothill Fen Special Area of Conservation. The potential impacts on the hydrology of the Cothill Fen SACs from sites in this area will thus still need to be addressed at the individual application stage. Common core policies C2 and C5 would also assist in minimising the likelihood of significant adverse effects.

The need to mitigate against negative effects on local landscape character, including in particular effects on the already extensively modified landscapes in the LWV and ECY and the sensitive landscapes in Cholsey, which is surrounded by areas in the AONB, should be addressed at site selection and planning application stages. It is recognised that common core policy C6 would assist in ensuring there are no significant adverse effects.

[30] Ibid 2011

Soft sand

Identifying two areas of working in the south of the county and one in the north of the county will help minimise traffic impacts as well as spread the effects of soft sand working more equitably. However, there will be some cumulative effects on communities living close to existing sites and careful consideration should be given when identifying specific sites and permitting further extraction, so as to minimise the overall effects of continued working in these areas. The common core policies are expected to ensure there are no significant adverse effects.

The two areas in the south west of the county have different quality sands and the policy appropriately allows for the working of the two types of sand. Continuing with the existing pattern provides certainty to industry and also takes advantage of existing infrastructure. Potential adverse effects on nature conservation objectives and in particular designated European Sites will need to be addressed at the Site Allocation and/or individual planning application stage and the common core policy C5 aims to mitigate these types of effects.

Crushed rock

The policy in relation to crushed rock would lead to a distribution of effects of crushed rock working in the county therefore potentially preventing adverse effects on a single locality. This policy takes advantage of existing infrastructure as well as continuing to provide local employment. This has positive economic benefits. In the long term, there is potential for adverse cumulative effects on the communities living near the identified areas. Careful consideration should be given to the exact location of sites and works, relative to housing and other sensitive receptors to mitigate against potential additional adverse effects to those already experienced. It is recognised that the common core policies are expected to minimise potentially significant adverse effects upon sensitive receptors.

Where there is potential for adverse effects due to proximity to nature conservation sites, mitigation measures should be put in place to protect these areas at the site allocation and planning application stages. It is recognised that the common core policy C5 aims to mitigate these types of effects.

5.4.4 Policy M4: Aggregates rail depots

Policy M4 seeks to safeguard the necessary infrastructure and encourages new infrastructure to transport imported aggregates by rail, reducing the long term cumulative adverse impacts on the environment, local communities and local road network experienced by long distance transport of aggregates by road. Bulk transportation by rail is likely to have positive long term impacts upon the reduction of greenhouse gas emissions compared with transportation by road. Safeguarding and encouraging this type of infrastructure also supports sustainable growth of the Oxfordshire economy.

5.4.5 Policy M5: Non aggregate mineral working

Seeking to concentrate clay extraction in areas where sharp sand and gravel working is currently taking place or has taken place recently has the economic advantages of using existing infrastructure as well as a skilled, and presumably local, labour force. It also presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to a degree of beneficial effects for the local communities (through recreation and leisure opportunities) as well as for biodiversity. However, there is still potential for ongoing cumulative

negative effects throughout the plan period on the local communities especially with regard to traffic and amenity issues as a result of the concentration of working clay alongside sharp sand and gravel, unless these adverse effects are appropriately mitigated when new planning permissions are sought. It is recognised that the common core policies are expected to minimise potentially significant adverse effects.

Potential adverse effects on nature conservation objectives and in particular designated European Sites are appropriately flagged by Policy M3. Policy M3 now signals that land to the east and north east of the River Evenlode will not be identified as specific sites for sharp sand and gravel working in the Site Allocations development plan document. Within the area north and south of the A420 to the west of Abingdon the policy states that further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Cothill Fen Special Area of Conservation. This policy addition should be included in Policy M5 with respect to the extraction of clay, given that it is likely to come from similar areas, if not the same quarries.

The need to mitigate potential negative effects on landscape character, including in particular effects on the already extensively modified landscapes in the LWV and ECY should be required at site selection and planning application stages. Common core policy C6 is expected to minimise potentially significant adverse effects.

Large quantities of waste stone can be generated during the extraction of building stone, particularly in the initial phases of extraction. Waste stone can potentially have a use as aggregate; the use or disposal of it is an issue which needs to be considered on a case by case basis at the planning application stage. This issue should be identified in the supporting text to this policy.

5.4.6 Policy M6: Mineral safeguarding

The proposed policy recognises that in-situ mineral resources, where these are considered to be of commercial interest must not be sterilised by non-mineral development and that mineral deposits are finite and scarce resources must be safeguarded for the long term, including unknown future requirements for an increasing population and economic growth. Significant positive effects are therefore likely with regards to SA objective 11 and 12. Safeguarding proven resources is likely to ensure non mineral development is not prevented or hampered unduly.

As the policy is safeguarding mineral for the future and preventing sterilisation not permitting extraction in these areas effects upon SA objectives relating to the environment are likely to be neutral.

5.4.7 Policy M7: Restoration of mineral workings

The requirement for prompt and phased restoration to an after-use appropriate to the location, transport network capacity and amenity of local communities will have a positive long term impact on many of the SA objectives as it provides an opportunity to create or restore habitats and biodiversity, restore landscape character, improve water and soil quality; and address possible amenity impacts on local communities arising from the after-use of minerals sites. It also provides opportunities to develop new local amenity facilities, such as sport and recreational uses which can provide new business opportunities and reduce disparities in access to such facilities for rural communities. The long term

management of restored sites is important however, to maintain long term benefits, and this is appropriately recognised by the policy.

5.4.8 Policy W1: Amount of waste to be provided for

Policy W1 outlines the amount of waste to be provided for in Oxfordshire to enable the county to be net self-sufficient in the management of Municipal Solid Waste (MSW), Commercial and Industrial Waste (C&I) and Construction Demolition and Excavation (CD&E) waste. When assessed against the SA objectives, policy WI supports SA objectives relating to reducing carbon emissions and minimising the transport impacts of transporting waste as making local provision would reduce the distances travelled for waste management. This policy directly supports SA objective 11 on self-sufficiency as it seeks to enable Oxfordshire to be self-sufficient in the management of its waste. It is also supportive of local economic growth as development of new facilities to deliver the required capacity would create new job opportunities in Oxfordshire. Uncertainty regarding effects upon other objectives will depend upon where provision will be located however it is noted that other policies in the plan in particular the common core policies are likely to provide appropriate mitigation for potential significant adverse effects.

5.4.9 Policy W2: Waste imports

Policy W2 provides for disposal of a declining amount of waste from London and elsewhere at existing landfill sites in Oxfordshire. It does not provide for treatment facilities for waste from outside Oxfordshire unless there would be clear benefits within the county which are referred to in the supporting text as also helping to meet a waste management need for the County.

When assessed against the SA objectives, this policy could have potential positive effects as this is reducing the current rate of disposal and restricting new development where clear benefits cannot be proven. Although clear benefits are explained in the supporting text this could also be improved by requiring proposals which manage waste from elsewhere to demonstrate that they would not have significant adverse environmental effects.

The policy is not promoting the movement of waste up the waste hierarchy and is therefore in conflict with SA objective 10.However, it is recognised that it plays an important role in meeting waste management needs and the policy is proposing to accept declining amounts for disposal therefore assisting Oxfordshire to be self sufficient (SA objective 11).

5.4.10 Policy W3: Waste management targets

Policy W3 sets waste management target to provide for maximum diversion of waste from landfill. This policy supports SA objective 5 as diverting waste from landfill (especially bio-degradable waste would reduce the amount of methane associated with landfilling of such waste). It also supports the management of waste in line with the waste hierarchy as it sets provision for additional recycling, composting and recovery capacity and enables Oxfordshire to become self-sufficient in its waste management. There are likely to be positive effects upon SA objective 12 as facilities required to meet the set targets are likely to enhance the local economy and offer potential to create local jobs both directly and indirectly.

5.4.11 Policy W4: Additional capacity

Policy W4 seeks to make provision for additional waste management capacity and sets out guideline figures. Effects upon the majority of SA objectives are

dependent upon where this provision is located as its focus is ensuring that there is sufficient capacity to deal with Oxfordshire's waste arisings to 2030. This would be addressed by policies W5, W6 and the common core policies and effects are more likely in the medium to long term when provision is required. Positive effects are likely on the SA objective relating to moving waste up the waste hierarchy (by making provision for composting, recycling and treatment facilities) and the SA objective of enabling Oxfordshire to be self-sufficient in managing its waste as it seeks to deliver Oxfordshire's waste needs. The proposed capacity is also assessed as having an indirect positive effect on the local economy through new waste management facilities required to deliver the provision. These are likely to create new job opportunities.

5.4.12 Policy W5: Strategy for provision of waste management facilities

Policy W5 outlines the provision of different types of waste management facilities in Oxfordshire and their broad locations. This policy encourages the development of reuse, recycling, composting and food waste treatment facilities in areas of the County where this is needed. Strategic facilities are to be located in broad areas around Oxford and key towns in the north and the south of the County and facilities to meet local needs are to be located where they are well related to other main sources of waste. The policy is therefore likely to have significant positive effects upon SA objectives 10 and 11 – moving waste up the hierarchy and enabling Oxfordshire to be self sufficient.

It is recognised that there will be differing effects according to the exact location and type of facilities. This needs to be considered as part of future site selection and it is noted that the policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects. The following sections discuss the likely effects of the different waste management types for the different waste streams which the policy specifically covers.

Residual waste transfer stations

Municipal Solid Waste (MSW)

Policy W5 recognises the need to provide for bulking up and transfer stations of residual MSW waste from southern and western parts of Oxfordshire for efficient transportation to the Ardley energy from waste facility to be built in 2015. Ardley is located in the north of the county. The Council has identified in its Waste Needs Assessment Report that the location of the plant in the north of the county may give rise to the need for up to two additional transfer stations to facilitate the effective delivery of waste to the plant. The proposed locations of the two residual transfer stations are south (Abingdon/Didcot/Wantage and Grove) and west (Witney/Carterton) areas of the county.

Providing for the residual transfer stations in the identified areas would facilitate the efficient transportation of waste to Ardley. This is assessed as having positive impacts on the SA objectives related to transport and climate mitigation as the transfer stations are likely to lead to less waste movement across the county from the south and west to the north, thereby reducing potential negative transport impacts (congestion, noise, vibration and air pollution) as well as minimising greenhouse gases associated with waste transportation.

At a strategic level, the SA has not identified specific constraints for not locating the required residual waste transfer stations in the proposed broad areas. However, the potential impacts on the built and natural environment and local

amenity of the proposed facilities should be addressed in detail at the site selection stage and planning application stage to ensure that development does not lead to significant adverse impacts on sensitive receptors.

Recycling

MSW

At present, the Council's Waste Needs Assessment indicates that there is a surplus of MSW recycling provision in the county. However, there is a need to make provision for a new recycling facility to serve Banbury to replace the existing temporary facility at Alkerton. Making provision to meet local need in Banbury will ensure that waste is not transported far for recycling as it is dealt with closer to its source of arising. This has a positive effect on minimising greenhouse gas emissions associated with transporting waste by road as well as reducing the potential for other negative transport related impacts like congestion on the county's roads. Provision of recycling capacity also provides opportunities for further carbon savings as reprocessing of recycled material requires less energy than processing of raw materials. Overall, this policy is assessed as being in line with sustainability principles.

Commercial and Industrial (C&I) and Construction Demolition and Excavation (CD&E) Waste

The Council estimates that there is a capacity gap of approximately 200,000 tpa by 2030 for recycling C&I waste and approximately 500,000tpa a year by 2030 will be required for recycling of CD&E waste. The policy will make provision for recycling plants to manage these types of waste

The locations of strategic facilities would be in the broad areas around Bicester, Oxford, Abingdon and Didcot and facilities to serve more local needs would be where they are well located to sources of waste such the key towns to the west and north. Policy W5 is therefore likely to provide for facilities across the county that will lead to waste being managed as closely as possible to where it arises. This is likely to reduce impacts on the road network and minimising transport related greenhouse gas emissions. For CD&E waste there could also be positive effects upon protecting and restoring land and soil as the recycling provision is to produce aggregates and soils and therefore may help to reduce the need for land won aggregates or soils.

Potential effects upon the built and natural environment are uncertain due to the exact location of specific sites not being known. The effects upon local amenity and the built and natural environment associated with the provision of C&I and CD&E recycling facilities in the proposed broad areas and where applicable in locations serving local needs should be considered during site selection and planning application stages to mitigate against potential adverse effects. This should include consideration of the potential for landscape and visual, noise, odour (in relation to C&I recycling facilities handling biodegradable waste), biodiversity, air quality, flood risk and water quality impacts. It is recognised that the common core policies are expected to provide mitigation for significant adverse effects.

Residual Treatment

Additional residual treatment capacity for MSW and C&I waste has not been identified as being required by current evidence and therefore residual treatment facilities are only to be permitted if there is a need to divert waste from landfill that cannot be reasonably met by existing capacity within the County. The effects of this policy approach upon the SA objectives are likely to be neutral in the short

term as there is unlikely to be a demonstrable need. Long term effects are uncertain and will depend upon the exact locations of proposals brought forward. At the planning application stage there should be consideration of the potential for landscape and visual, noise, odour (in relation to facilities handling biodegradable waste), biodiversity, air quality, flood risk, and water quality impacts from the proposal. It is recognised that the common core policies are expected to provide mitigation for significant adverse effects.

5.4.13 Policy W6: Sites for waste management facilities

Policy W6 provides guidance on sites for waste management facilities. It prioritises land that is already in permanent waste management or industrial use, is previously developed, derelict or underused, involves existing agricultural buildings and their curtilages and at waste water treatment works.

This policy also allows small scale development within AONB to serve local needs and may allow facilities in the Green Belt to serve the needs of Oxford.

This policy has the potential for indirect positive impacts on protection of nature conservation by prioritising the use of previously developed land, existing waste and industrial sites, derelict sites, existing agricultural buildings and waste water treatment works thereby reducing development of green field land which is likely to host local biodiversity. However previously developed land and derelict land as well as existing agricultural buildings can be habitats for protected species. The likely effects will be dependent upon the implementation of the policy in conjunction with the common core policies which are expected to mitigate significant adverse effects.

Use of derelict buildings and development of previously developed sites can also help improve the local landscape. Proposals for small scale facilities in the AONB and proposals in the Green Belt which meet very special circumstances may have negative effects upon the landscape however the likely effects will be dependent upon the implementation of the policy in conjunction with the common core policies which are expected to mitigate significant adverse effects. The supporting text to Policy W6 also states that proposals in AONB would need to be in keeping with the objectives of the designation. This would help mitigate potential adverse impacts. Allowing small scale facilities in the AONB and facilities to serve Oxford in the Green Belt can help reduce the distances waste is transported from these localities therefore reducing impacts upon the local transport network and greenhouse gas emissions associated with transporting waste. Use of previously developed land and derelict land especially where sites may have been previously contaminated can help to restore land quality and therefore policy W6 supports SA objective 9.

5.4.14 Policy W7: Landfill

The Council estimates that an additional approximately 1.5 million cubic metres of capacity for disposal of inert waste that cannot be recycled will be required from around 2026. To meet this need, the Council proposes to make provision for this amount with priority given to use of inert waste to restore mineral workings. Permission will not be granted for new landfill sites for non-hazardous waste and existing non hazardous landfills may be extended in terms of their life. This is likely to prolong any negative effects upon areas affected by existing landfill sites already experienced however reduce the potential for adverse effects upon other areas of the county as a result of new sites.

Policy W7 does not support SA objective 10 with regards to moving waste up the hierarchy as landfill does not lead to more waste being recycled or recovered. However, it is recognised that although seen as the option of last resort, landfill must be adequately planned for as it still has a role to play in waste management and permission will only be granted for inert landfilling where material cannot be recycled.

Providing for inert landfill, especially for restoration purposes, is assessed as having positive effects on improving land quality (SA objective 9) and also landscape (SA objective 2),however the potential for existing non hazardous landfill sites to extend in life may have negative effects in terms of the restoration of sites in the short to medium term. Policy W7 also supports county self-sufficiency (SA objective 11).

The potential transport and climate mitigation impacts of the proposed approach are difficult to assess without knowing the location of sites required to be inert landfilled. This should be addressed during site selection to ensure that sites are located close to sources of arisings. The common core policies are likely to address any other potentially significant adverse impacts on the built and natural environment.

5.4.15 Policy W8: Hazardous Waste and Non Legacy Radioactive Waste

Oxfordshire is a net exporter of hazardous waste. The Council acknowledges that the county should be as self-sufficient as is reasonably possible in managing hazardous waste and non legacy radioactive waste. However, due to the specialist nature of these types of waste management facilities, they currently tend to serve large catchment areas than a single county. Oxfordshire estimates that additional capacity could be required for approximately 50,000tpa of hazardous waste produced in the county. Policy W8 does not provide for additional hazardous waste management capacity in Oxfordshire but supports applications designed to meet Oxfordshire's hazardous waste management needs and those that are required to meet a need for waste management that is not adequately provided for elsewhere.

The likely effects upon many of the SA objectives are uncertain as they depend upon the exact location and type of management proposed however it is expected that applications for these types of facilities would be assessed against the Environmental Agency's hazardous waste management regulations/criteria and the common core policies are expected to ensure the mitigation of significant adverse effects if applications come forward in Oxfordshire.

5.4.16 Policy W9: Legacy Radioactive Waste

Policy W9 relates to the management of radioactive waste (intermediate and low level radioactive legacy waste) generated by the two nuclear research facilities in the County at Harwell and Culham.

Intermediate level radioactive waste is produced at Harwell and smaller quantities at Culham. There is a requirement for storage of an estimated 10,000 cubic metres of intermediate level radioactive waste from Harwell and a smaller amount from Culham. Policy W9 proposes storage of this waste at Harwell (from Harwell and Culham), pending removal to a national disposal facility. This would lead to some waste from Culham being transported to Harwell. Although assessed as a negative impact against SA objectives on transport and climate change, this

impact is likely to be minor due to the distance travelled (approximately 7miles) and the quantities of waste moved (expected to be small).

In addition, any proposals would have to be made in accordance with policy W6 and the common core policies. The SA has identified the following sustainability issues that will need to be considered when dealing with applications for such a facility at Harwell:

- The close proximity to the North Wessex Downs AONB as well as potential local visual and landscape impacts;
- Potential for ground water and surface water contamination given the proximity of the site to the River Thames;
- Potential for land contamination; and
- Potential amenity and health impacts associated with management of intermediate legacy waste.

It is estimated that 100,000 cubic metres of low level radioactive waste capacity for waste mainly arising from demolition and clearance of buildings at Harwell and a smaller amount at Culham will be required. Policy W9 proposed temporary storage of this type of waste at both Harwell and Culham and potential disposal at these sites or elsewhere. When assessed against the SA objective policy W9 would lead to the least movement of low level radioactive waste as material will be stored where it is generated and therefore the policy performs well against SA objective 7. There is however uncertainty with regards to the potentially disposal of low level waste with positive effects likely for objective 7 if this is disposed of on site however uncertain effects if this is disposed of elsewhere as it will depend upon the exact location.

The following key issues would need to be considered when assessing the potential development of storage and disposal facilities for low level radioactive waste at Harwell and Culham:

Key issues that should be considered at Harwell include:

- The close proximity to the North Wessex Downs AONB as well as potential local visual and landscape impacts;
- Potential for ground water and surface water contamination given the proximity of the site to the River Thames;
- Potential for land contamination; and
- Potential amenity and health impacts associated with management of intermediate legacy waste.

Key issues that should be considered at Culham include:

- Potential impacts on local site biodiversity (there are no designated sites close to or within the site)
- Potential impacts on the AONB and greenbelt designations;
- Potential impacts on surface and ground water given the proximity of the sites to the river Thames – this could be referred to in the supporting text for the policy.

5.4.17 Policy W10: Safeguarding

Policy W10 relates to the safeguarding of waste management sites against other forms of development. This policy is likely to have neutral effects upon most SA objectives as it specifically seeks to ensure that ensuring that safeguarded sites

are not lost to other development. It is however assessed as having a positive indirect effect on SA objective 11 on enabling Oxfordshire to be self-sufficient in its waste management. This is because policy W10 would ensure that there are available sites within Oxfordshire suitable for waste management uses which provide potential developers with local site alternatives which in turn would lead to facilities being developed within Oxfordshire close to the source of waste arising. This would also have potential for indirect positive impacts on SA objectives 5 and 7 on reducing greenhouse gas emissions and transport related impacts.

5.5 Common Core Policies for Minerals and Waste

5.5.1 Policy C1: Flooding

Policy C1 is likely to have a significant positive impact on SA objective 6 and a number of indirect positive effects on the SA objectives which relate to the protection of valued habitats, flora and fauna, soil and water quality, local communities and businesses – by preventing damage, disruption and distress caused by flood risk, which might arise if these risks were not appropriately mitigated when new minerals or waste development takes place.

5.5.2 Policy C2: Water Environment

Policy C2 has an indirect positive impact on many of the SA objectives, as maintaining water quality and quantity is an essential precursor to the proper functioning of ecosystems, landscapes, businesses and local communities.

The sustainability of the policy would be improved by replacing “no unacceptable adverse impact” with “no significant adverse impact”, in order to be consistent with the terminology in the Environmental Impact Assessment regulations (The Town and Country Planning (Environmental Impact Assessment) Regulations 2011). An “unacceptable adverse effect” has not been defined and this creates a level of ambiguity in the policy. Although the revised wording of the supporting text now describes a number of potential adverse effects, this could be improved.

5.5.3 Policy C3: Environmental and Amenity Protection

Policy C3 seeks to protect the environment, residential amenity and other sensitive receptors from unacceptable adverse impacts. The ‘environment’ and ‘other sensitive receptors’ can be construed to include those SEA elements covered by the SA objectives, including biodiversity, landscape character and historic and built heritage, air, water and people; but it would be helpful if the policy could be more explicit in defining the range of issues that would be considered within this definition. The supporting text appears to concentrate on impacts on local communities, but there are other references, for example to water resources, which create overlap with other core policies. In this respect it might be helpful to refer to specific common core policies such as C2, C4, C5, C6 and C8 in the supporting text and explain the interrelationship between these policies and this more generic policy. The sustainability of the policy would be improved by replacing the word “unacceptable” with “significant”, in order to be consistent with the terminology in the Environmental Impact Assessment regulations. An “unacceptable adverse effect” has not been defined and this creates a level of ambiguity in the policy. This has subsequently had an impact on the assessment as a level of uncertainty remains.

5.5.4 Policy C4: Agricultural land and soils

Policy C4 is likely to have a significant positive effect on SA objective 9 and an indirect positive effect on the SA objectives 1, 2 and 8, which relate to the impacts on biodiversity, flora and fauna, local landscape character and local communities. Effects on other SA objectives are expected to be neutral. It should be noted in the supporting text that suitable inert infill material is required to achieve high quality agricultural restoration and this may not always be available.

5.5.5 Policy C5: Biodiversity and Geodiversity

Policy C5 will have a significant positive effect on SA objective 9 and an indirect positive effect on the SA objectives 1, 2 and 8, which relate to the impacts on biodiversity, flora and fauna, local landscape character and local communities. Effects on other SA objectives are expected to be neutral. It should be noted in the supporting text that suitable inert infill material is required to achieve high quality agricultural restoration and this may not always be available.

5.5.6 Policy C6: Landscape

Policy C6 is expected to have a significant positive impact on SA objective 2 and an indirect positive impact on SA objective 1 relating to the protection of biodiversity and natural habitats.. It is suggested that the word “significant” is inserted prior to “adverse impacts” to ensure a consistent approach with the recommendations for previous policies. Impacts on other SA objectives are expected to be neutral.

5.5.7 Policy C7: Heritage assets and archaeology

Policy C7 is likely to have positive impact on SA objective 2. It also has indirect positive impacts on local communities (SA objective 8). There is no direct relationship between this policy and the other SA objectives and impacts on other SA objectives are expected to be neutral.

5.5.8 Policy C8: Transport

Policy C8 is expected to have a significant positive impact on SA objective 4, 5 7 and 8 which relate to air quality, greenhouse gas emissions, the local and strategic road network and local communities respectively. It is also expected to have indirect positive impacts on biodiversity (SA Objective 1), self sufficiency in waste management and sustainable minerals provision (SA objective 11) and economic growth (SA Objective 12). There is no direct relationship between this policy and the other SA objectives and impacts on other SA objectives are expected to be neutral.

5.5.9 Policy C9: Rights of Way

Enhancements to the public rights of way network are likely to have a significant positive effect on local communities (SA objective 8) and indirect positive impacts on the local road network by encouraging people to make local trips on foot or bicycle, reducing traffic conflicts on local roads (SA objective 7).

Public access to restored mineral workings should be carefully managed so as to not adversely impact on sensitive habitats and species resident in the restored area (particularly in Conservation Target Areas). A reference to this effect (or a cross reference to alert the reader to Policy C5) could be included in the supporting text to ensure no significant adverse effect in relation to SA objective 1.

5.6 Cumulative Effects

There is always a high degree of uncertainty associated with cumulative effects at a strategic planning level, as the principal locations identified for minerals working and waste development do not provide enough certainty as to the adverse effects that might be experienced at the operational level. Potential cumulative effects on specific receptors for example air; water and the transport network will become more apparent at the site selection stage, and will be assessed during the SA of the Sites Allocations DPD. At this stage more details will be available on allocated sites allowing for the detailed assessment of potential impacts on sensitive receptors.

The appraisal has identified the following potential adverse and beneficial cumulative (in-combination) effects of the policies operating together, based on the predicted performance of the MWCS policies against the SA objectives.

SA Objective	Cumulative effect
Adverse	
SA1 Biodiversity and natural habitats	Policies M3 and M5 could potentially have adverse cumulative effects relating to these SA objectives in the LWV, ECY and Caversham areas due to continued working in these areas and effects include ecological, visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion and impacts on the water environment. In Sutton Courtenay, cumulative effects would be felt in the short-medium term (to 2020) after which production is planned to cease in this area. Post 2020, Cholsey could experience similar adverse impacts. Such adverse impacts should be appropriately addressed and mitigated through the Site Allocations DPD process and application of the common core policies to individual applications. Appropriately, policy M3 will not lead to an overall increase of working activity in west Oxfordshire, or of the attendant cumulative impacts in this area where there has already been extensive working. Policy M5 only provides for new or extended planning permissions for extraction where a local need for the material has been demonstrated and provided that the quarrying is at a scale appropriate to the locality and will not harm the environment or local amenity. In the long-term, there is potential for cumulative adverse effects to soft sand extraction relating to these objectives, although these are not envisaged to be significant due to the small quantities of soft sand which will be produced.
SA2 - Landscape character and historic features	
SA3 - Ground and surface water quality	
SA4 Air quality	
SA6 Flood risk and climate change mitigation	
SA7 Transport	
SA8 Local Communities	
SA9 Soil quality	
SA10 Waste hierarchy	Policies W2 (waste imports) and W7 (landfill) both have a negative impact on moving waste up the waste hierarchy and could lead to negative

SA Objective	Cumulative effect
	cumulative impacts especially if residual non-hazardous landfilling does not reduce in line with the policies' expectation. The delivery of recycling, composting and treatment capacity in the short to medium term (both in Oxfordshire and in London and other areas that export waste to Oxfordshire) will be critical to avoid the potential negative cumulative impacts of policies W2 and W7.
Beneficial	
SA1 Biodiversity and natural habitats	Strategic Policies M7 and W6 and the Common Core Policies C1,C2,C3,C4,C5,C6 and C9 support SA objective 1. When implemented together, these policies have potential to lead to enhancement and conservation of Oxfordshire's biodiversity and protected species.
SA2 - Landscape character and historic features	Strategic Policies M4 and M7 in association with Common Core Policies C2,C3,C4,C5,C6,C7 and C9 have potential to reduce the overall potential for negative impacts on landscape character and historic features, and take advantage of opportunities to improve these elements through restoration proposals and implementation.
SA3 - Ground and surface water quality	Strategic Policies M2, M4, and M7 in association with Common Core Policies C1, C2 and C3 have potential to reduce the overall potential for negative impacts on ground and surface water quality when implemented together.
SA4 Air quality	Strategic Policies M4 together with Common Core Policies C3 and C8 have potential to reduce the overall potential for negative air quality impacts when implemented together.
SA5 Climate change causes	Policies W1, W5 together with policies C3, C4, C5, C7 and C8 have potential for a cumulative positive impact on reducing greenhouse gas emissions. Together, these policies can help in mitigating against climate change by reducing overall greenhouse gas emissions associated with waste management and minerals working and restoration schemes in Oxfordshire.
SA6 Flood risk and climate change mitigation	Strategic Policies M4 and M7 and Common Core Policies C1 - C5 work together to protect areas at risk from flooding. When implemented together, these policies assist to limit vulnerable development in areas at risk from flooding, and where development is allowed, adequate mitigation measures are in place and flood attenuation opportunities are implemented.
SA7 Transport	Strategic Policies M4, M6, W10 and Common Core Policy C8 will have a positive cumulative impact on

SA Objective	Cumulative effect
	ensuring the safe and efficient functioning of the road network and reducing the impacts of waste and minerals transportation.
SA8 Local Communities	Strategic Policy M7 and Common Core Policies C3, C8 and C9 together will seek to manage the effects of minerals working in a way that protects the amenity of local communities, safeguards human health and results in long term beneficial effects in terms of restoration proposals.
SA9 Soil quality	Policies M7, W6 and W7 and Common Core Policies C4, C5, C9 are likely to have a positive cumulative effect on restoring soil quality, through the regulation of new minerals working activity and proposals for restoration schemes and the re-use of previously derelict land and providing restoration through inert landfill.
SA10 Waste hierarchy	Policies M1, W3 and W5 together have the potential for positive cumulative effects upon moving waste up the waste hierarchy.
SA11 Self sufficiency	Policies W1, W3, W7, W10 and W11 together have the potential for positive cumulative impacts associated with achieving self-sufficiency of waste management for Oxfordshire.
SA12 Economic growth	Strategic policies W1, W3, W4, W5, W10; W11, M1, M2, M3, M4, M5 and M6 in combination with all of the Common Core Policies have the potential to positively contribute to local economic growth. Together, these policies have potential for cumulative beneficial effects on the local economy by creating the preconditions for a healthy functioning economy (addressing traffic congestion and ecosystem requirements, a healthy attractive place to live and work and provision of appropriate infrastructure) and maintenance/creation of business opportunities to sustain growth.

5.7 Uncertainties and risks

Sustainability Appraisal involves making predictions concerning environmental and sustainability conditions on the basis of often limited data.

The main uncertainty arising from the appraisal relates to the nature of impacts likely to arise at as a result of minerals working within the various 'principal locations' and waste management facilities with the 'broad areas'. This is denoted by the symbol (?) in the appraisal matrices. The strategic nature of the appraisal and the broad nature of the principal locations and broad areas make it difficult to predict with certainty the likely impacts of development in these areas. This report has defined the potential effects of development based on current available information. The eventual impacts will depend on the location of specific sites relative to sensitive receptors, the scale of proposed development, the nature and type of operations and proposed mitigation measures.

The preparation of the Site Allocations DPD provides an opportunity for the sustainability effects of sites to be considered in more detail through the site selection and allocation process and will assist in addressing the uncertain effects of the majority of the policies.

Site specific environmental effects of the MWCS should be assessed through Environmental Impact Assessment required as part of the planning consent regime (The Town and Country Planning (Environmental Impact Assessment) Regulations 2011), where this applies. In addition, environmental effects of waste management operations in particular their emissions will be assessed through applications for environmental permits required for their operation by the Environmental Permitting (England and Wales) Regulations 2010.

6 Monitoring

6.1 Introduction

In order to satisfy the requirements of the SEA Regulations, monitoring the effects of the MWCS and the environmental baseline are suggested. It is recommended that wherever possible, these are monitored as part of the MWCS monitoring as the majority of information required will be relevant to both the MWCS and the SA. Monitoring some of the identified indicators will also enable gaps in the existing information to be filled providing a better impact prediction basis for future appraisals and revisions of the strategy.

6.2 Effects Monitoring

The following table sets out the suggested monitoring framework for the potential significant effects identified in the appraisal of the policies.

Table 6.1 Suggested Monitoring for Potential Significant Effects

Policy	Effects to be monitored	Suggested Indicators to be monitored
M1	Contribution to the waste hierarchy (SA10) Protecting, improving and where necessary restoring land and soil quality(substitution of primary aggregates by secondary and recycled aggregates) (SA9) Reducing greenhouse gas emissions (SA5)	Number of permitted applications for secondary and recycled aggregates. Number of permitted applications for temporary recycling of secondary and recycled aggregates associated with new development sites.
M2 & M3	Enabling Oxfordshire to make a sustainable contribution to its sub regional apportionment (SA11)	Number of permitted mineral applications which contribute to meeting apportionment.
M4	Minimising transportation of aggregates upon the strategic and local road network (SA7) Supporting Oxfordshire's economic growth (SA12)	Proportion of aggregates transported by rail Number of sites with rail access Number of applications for new aggregate rail depots
M5	Maintaining and improving ground and surface water quality (SA3)	Number of applications granted permission contrary to advice of the Environment Agency in relation ground and surface water quality
M6	Enabling Oxfordshire to make a sustainable contribution to its sub regional apportionment (SA11)	Amount of economically viable construction aggregate mineral sterilised by non mineral development
M7	Protection and enhancement of Oxfordshire's biodiversity, landscape character and	Number of permitted mineral applications which include a restoration scheme which contributes

Policy	Effects to be monitored	Suggested Indicators to be monitored
	ground and surface water quality (SA1,2,3) Reducing vulnerability to flooding (SA6) Reducing negative impacts upon local communities (SA8) Protecting and improving and where necessary restore land and soil quality (SA9)	to the objectives of Oxfordshire Habitats Plans and Conservation Target Areas Number of permitted mineral applications which result in restoration of favourable/favourable recovering condition or buffering of designated areas through appropriate habitat creation. Number of permitted mineral applications with restoration schemes which will meet landscape designation objectives and enhance local amenity and /or improve access to the countryside. Number of permitted mineral applications which provide flood storage as part of their restoration scheme.
W1, W4	Enable Oxfordshire to be self sufficient in its waste management (SA11)	Capacity delivered through new applications for the management of MSW, C&I, CD&E waste 2015, 2020, 2025 and 2030
W3	Contribution to the waste hierarchy (SA10) Reducing greenhouse gas emissions (SA5)	% of waste composted, recycled and treated annually (MSW, C&I, CD&E) % of waste disposed to landfill annually (MSW, C&I, CD&E)
W5	Contribution to the waste hierarchy (SA10) Enable Oxfordshire to be self sufficient in its waste management (SA11)	Capacity delivered through new applications for the management of MSW, C&I, CD&E waste 2015, 2020, 2025 and 2030 % of waste composted, recycled and treated (MSW, C&I, CD&E) % of waste disposed to landfill (MSW, C&I, CD&E)
W6	Protecting, improving and where necessary restoring land and soil quality (SA9)	Number of permitted sites for waste management which are on previously developed land, derelict or underused land, or use existing agricultural buildings Number of permitted sites for waste management which are co-located with other waste facilities
W7	Enable Oxfordshire to be self sufficient in its waste management (SA11)	Number of permitted applications for inert waste landfilling for restoration purposes Existing and permitted landfill capacity relative to estimated requirements. Number of permitted application which would reduce non hazardous landfill

Policy	Effects to be monitored	Suggested Indicators to be monitored
		capacity
C1	Reducing vulnerability to flooding (SA6)	Number of minerals and waste applications granted permission contrary to advice of the Environment Agency in relation to flooding Number of mineral restoration schemes providing flood storage
C2	Protection and enhancement of Oxfordshire's landscape character and ground and surface water quality (SA2&3) Reducing negative impacts upon local communities (SA8)	Number of minerals and waste applications granted permission contrary to advice of the Environment Agency in relation to water quality or effects upon groundwater Number of minerals and waste applications granted permission contrary to advice from County landscape officer and/or Natural England in relation to landscape
C4	Protecting, improving and where necessary restoring land and soil quality (SA9)	Number of permitted minerals and waste applications which result in the loss of best and most versatile agricultural land (Grades 1,2,3a, 3b)
C5	Protection and enhancement of Oxfordshire's biodiversity, geodiversity and landscape character (SA1&SA2)	Number of permitted minerals applications which include a restoration scheme which contributes to the objectives of Oxfordshire Habitats Plans and Conservation Target Areas Number of permitted minerals applications which result in restoration of favourable/favourable recovering condition or buffering of designated areas through appropriate habitat creation. Number of permitted mineral applications with restoration schemes which will meet landscape designation objectives Number of permitted applications for minerals and waste development which are within designated sites for biodiversity, geodiversity or landscape.
C6	Protection and enhancement of Oxfordshire's landscape character (SA1&SA2)	Number of permitted applications for minerals and waste development which are within designated sites for landscape. Number of permitted mineral

Policy	Effects to be monitored	Suggested Indicators to be monitored
		applications with restoration schemes which will meet landscape designation objectives
C8	Improve and maintain air quality to levels which do not damage natural systems (SA4) Reducing greenhouse gas emissions (SA5) Minimising transportation of aggregates upon the strategic and local road network (SA7) Reducing negative impacts upon local communities (SA8)	Proportion of waste and aggregates transported by rail or water Number of permitted minerals and waste applications with HGV routeing agreements. Number of complaints relating to dust/odours from HGV traffic
C9	Reducing negative impacts upon local communities (SA8)	Number of permitted minerals and waste applications with measures to protect or enhance local amenity and /or improve access to the countryside.

Monitoring indicators for the effects of policies which are uncertain due to the unknown exact locations of sites will be able to be developed during the SA of the Site Allocations DPDs.

6.3 Baseline Indicator Monitoring

Monitoring selected baseline indicators can also help establish a causal link between implementation of the MWCS and the likely effects being monitored and help to determine uncertain effects. Changes in the direction of indicators can be measured against the existing baseline position as well as against other comparable data (e.g. regional/national trend) to establish whether similar effects are occurring elsewhere.

This is best achieved by establishing a common set of core indicators. Oxfordshire County Council has developed a set of core indicators to monitor the performance of the MWCS DPD. To avoid duplication of effort and facilitate a cost-effective and efficient way of monitoring both the MWCS and the SA indicators, it is recommended that the SA monitoring is incorporated into the existing performance monitoring for the MCS.

The following baseline indicators (Table 6.2) were identified during the Scoping stage and should be monitored as part of the MWCS where relevant.

Table 6.2 Baseline indicators

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
Population								
Population (2010)	644,100	8,523,100	62,262,000		7.2% growth between 2001 and 2010			Office for National Statistics 2010
Population density(persons/km²)	2.3/ha	4.2/ha	3.8/ha				Oxon is the least densely populated county in the SE. The MWDF needs to be aware of accessibility to amenities for a low density population.	http://www.sepho.org.uk/Download/Public/10171/1/Population%20Information%20Bulletin_1.pdf
Index of Multiple Deprivation	The county was ranked 137th out of 149 county areas in 2007						There are some areas of deprivation within the county, such as some wards in Oxford city and in Banbury	DCLG (2007) Indices of Deprivation County Council summaries
Population change (2001 – 2010)	7.2%	6.2%	5.6%		Growth rates above the national average.		Potential impact on demand for waste management facilities and aggregates.	Office for National Statistics, 2010
Life expectancy at birth for men and women	Males:78.8 Females: 82.4	Males:78.1 Female: 82.0	Males: 76.9 females: 81.1		Improved life expectancy		There are some significant differences between wards, and between Oxford and the rest of the county.	Oxfordshire Data Observatory
Biodiversity								

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
% of SSSIs in favourable condition (2012)	46.38	46.87	37.19	Govt's PSA target to have 95% SSSIs in favourable or recovering condition by 2010			99.34% area meeting Govt's PSA target.	Natural England, 2012 http://www.sssi.naturalengland.org.uk/Special/sssi/report.cfm?category=C,CF
Area of SSSIs in unfavourable recovering condition (2012)	52.96	50.7	59.46	Govt's PSA target to have 95% SSSIs in favourable or recovering condition by 2010			99.34% area meeting Govt's PSA target.	Natural England, 2012 http://www.sssi.naturalengland.org.uk/Special/sssi/report.cfm?category=C,CF
% change in number of farmland birds in Oxon	-13%	-21%		2006 farmland bird PSA 1966-2005			Used by government as an indicator of trends in biodiversity	TVERC
Extent of priority habitats (2012)	7 SACs, 4 NNRs, 11 LNRs							Oxfordshire Data Observatory
Built and historic environment								

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
% Grade I & Grade II* listed considered 'at risk' (2012)	15 buildings considered 'at risk'	196 buildings considered at risk		No buildings				English Heritage, 2012 http://risk.english-heritage.org.uk/register.aspx?rs=1&rt=1&pn=1&st=a&re=South+East&ctype=all&crit=
Water Quality & Resources								
Rivers of good biological quality	86.5% in S Oxon, 19% in Oxford	78%	70%	National target of 95% rivers to reach good standard				Environment Agency http://www.sustainable-development.gov.uk/regional/se/30.htm
Rivers of good chemical quality	90.1% good quality in S Oxon, 54.3% in Cherwell	55%	62%	National target of 95% rivers to reach good standard			River quality varies greatly between districts.	http://www.sustainable-development.gov.uk/regional/se/30.htm
Daily domestic water usage	158		154.14	TW's target consumption is 158l/head/day	Expected to increase		Thames Water expects population growth, which will lead to increased demand.	The Audit Commission
Climate Change								

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
Total CO2 emissions per capita in 2009	8.1	6.9	7.4		Higher than national or regional averages			DECC, 2011 http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/2009_laco2/2009_laco2.aspx
Properties at risk from flooding	5491 properties in Oxford	310,000	2 million				M & W development must not exacerbate flood risk in Oxon.	www.environment-agency.gov.uk
Air Quality								
Number of designated AQMAs	Six		223 local authorities have declared at least 1 AQMA		Increasing: 2006 there were 4		Each district carries out monitoring and is required to identify an AQMA if air quality falls below a certain level.	Oxfordshire County Council, 2012 http://www.oxfordshire.gov.uk/cms/content/air-quality
Transport								
Bus journeys undertaken in Oxfordshire	Increased by 3.7% between 2005/2006 and 2006/2007			DoT target 12% increase in bus journeys nationally			An increase in the number of people travelling by bus potentially reduces road congestion and air pollution from traffic.	Oxfordshire Data Observatory

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
Traffic on non-motorway roads	Between 1996 and 2006, traffic increased by 12,5%		Traffic levels increased by 1.3% between 2001 and 2002	Govt hopes to approach zero growth in traffic by 2010	Local trends are in line with national trends, showing a steady increase.			National statistics transport statistics bulletin, Oxon data Observatory
Minerals								
Sub-regional apportionment of sand and gravel	1.82mt per year	420mt 1996-2006					Could increase under sub-regional SEERA review of apportionment methodology	Policy M3 of the Regional Planning Guidance 9
Use of secondary and recycled aggregates					No local data-nationally increasing figures		Data gap: difficulty in obtaining data from operators	
Land bank. Regional apportionment sand and gravel					The land bank is currently 2.5 years for sand and gravel		MWDF needs to identify adequate number of sites to meet national guideline of 7 years landbank	
Sand and gravel sales	0.6 million tonnes 2010			Target for 2016 of 0.9 million tonnes per annum proposed in the South East Plan			Sales are slowly decreasing: MWDF needs to identify sites to meet sub-regional apportionment	Oxfordshire Mineral and Waste Annual Monitoring Report 2011

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
Sand and gravel reserves	1,114,000 tonnes per annum						Rate of supply from preferred option areas	Oxfordshire Minerals and Waste Development Framework: Flooding and Mineral development in Oxfordshire 2011
Waste								
Waste produced (2010/ 2011)	1.5 million tonnes							Based on performance recorded in a study by Capita Symonds for WRAP, Environment Agency and Oxfordshire County Council.
Amount of MSW landfilled (tonnes) (2010/ 2011)	139,992 tonnes			EU Landfill Directive target to reduce the amount of MSW sent to landfill by 50% by 2013 (based on 1995 levels). 2% of waste to be landfilled by 2015.			Amount of waste going to landfill needs to decrease to avoid fines under landfill tax and to meet 2% target by 2015.	Oxfordshire County Council, 2011
Recycled MSW (2010 / 2011)	122, 696 tonnes			Oxfordshire Waste Partnership Target to recycle or compost 45% of household waste by	Amount of waste recycled or composted is increasing.		In 2010 55% of household waste was recycled or composed, exceeding target.	Oxfordshire County Council, 2011

Indicator	Oxfordshire	South East Region	UK	Target	Local trend	Indicator Status	Commentary	Source
				2015.				
Recovered MSW (2010/ 2011)	32,481 tonnes							Oxfordshire County Council, 2011
Land and resources								
Loss of Grade I and Grade II agric land	1,328 ha Grade 1 (0.5%). 51,021 ha Grade II (19.6%)		Grade 1:2.7%, Grade II: 14.2%		Data gap		Not known	http://www.defra.gov.uk/rds/lgmt/docs/ALC-Stats071105.pdf
Average house price (December 2011)	£236,618	£206,552	£160,384 (England and Wales)		Decline by 0.1% from last year (Oxfordshire),		Affordability a problem for first time buyers.	Land Registry 2012, http://www.landregistry.gov.uk/
Number of new developments on brownfield sites	1999-2004: 52%		67%	UK target: 60% by 2008	Slowly increasing			Oxfordshire Data Observatory
Economy								
Percentage of population employed	80.9% 2010/2011	79.5% 2010/2011	76.2% 2010/2011		Oxfordshire increase 0.6% 2004-2010/2011 whilst UK down by 0.1% over the same time period.			www.nomisweb.co.uk

7 Next Steps

7.1 Consultation

A period of formal consultation for the MWCS Pre Submission DPD is now taking place and this SA Report is made available for consultation alongside the MWCS to facilitate more informed consultation responses and comments can be made on the SA Report. See www.oxfordshire.gov.uk

If consultation gives rise to significant changes to the MWCS that have not already been subject to SA, the Council will then be required to undertake an appraisal of these changes before the MWCS can be published for submission to the Secretary of State for examination.

APPENDIX A: SUSTAINABILITY APPRAISAL CONSULTATION RESPONSES

Comments on Sustainability Appraisal (incorporating Strategic Environmental Assessment) Scoping Report April/May 2009

Comments from SA Scoping Report consultation, May 2009	
The draft Oxfordshire Minerals and Waste Development Framework Sustainability Appraisal/Strategic Environmental Assessment Scoping Report (April 2009) was sent to the statutory consultees (Environment Agency, Natural England and English Heritage), to district councils in Oxfordshire, to neighbouring authorities and to a number of other interested stakeholders in April 2009. The consultation period lasted for 5 weeks, finishing on 22nd May 2009. Ten responses to the consultation were received, including from Natural England, the Environment Agency and English Heritage. These responses are summarised below.	

Consultee Responses	**Comments**
Natural England	
Page 11, Stage 2: Production. Point B 5.0 with regard to 'mitigating adverse effects', it should be made clear that this will follow consideration of 'avoidance, cancellation and reduction measures'	This has been made clear in the report.
Page 41-42 Land Use and Resources. Need to refer to 'best and most versatile agricultural land in the report as grades 1, 2 and 3a. Also need to change the BMV map (Fig 3.14), which at present shows all grades of agricultural land.	The reference to BMV land now makes clear this refers to Grades 1, 2 and 3a. The map at Fig 3.14 continues to show all grades, but has now been labelled correctly.
A reference should be made to soil as a multi-functional resource whose function is not only agricultural production but also water and carbon storage, nutrient filtration, aquifer recharge, flood control and as a habitat in its own right for soil biodiversity.	This reference has been included in the text in para 3.2.16
Page 49, Table 3.13: The SA Framework. SA objective 1 should include reference in the Appraisal Criteria / Sub – objectives as to whether the MWDF will conserve and enhance internationally, nationally and regionally important sites of nature conservation importance. Possible indicators for designated sites would be number of permitted applications which result in restoration of favourable / favourable recovering condition or buffering of designated areas through appropriate habitat creation.	This reference has been incorporated into Objective 1.

Consultee Responses	Comments
SA objective 2 should make reference to ' conserve and enhance Oxfordshire's AONBs and their settings', rather than 'protection' to be consistent with section 85 of the Countryside and Rights of Way Act (CROW) 2000 'in exercising or performing any functions in relation to, or so as to affect, land in an AONB, all public bodies have a duty to have regard to the statutory purpose of AONBs, which is to conserve and enhance their natural beauty' and also South East plan policy C3.	Objective 2 has been amended accordingly
Page 60, Appendix 2. The scoping report correctly refers to EC Council Directive 92/43/EEC, which is transposed into UK legislation as the Habitats Regulations. This is a separate process from Sustainability Appraisal, but Natural England would recommend that the two processes are considered in parallel, making use of the information which will be common to both. Natural England would be pleased to assist the County Council as required in the HRA process.	Noted
Page 62, Appendix 2. The reference to the RSPB 'Nature After Minerals' initiative highlights the potential in particular to deliver wet reedbed, potentially extending to 100% of the UK BAP target. However, the potential to deliver across all BAP targets relevant to Oxfordshire should be recognised in the Scoping Report. In particular Oxfordshire is nationally and internationally important for wet lowland meadow; this should therefore be considered as a key target in appropriate locations to support established sites. Details of relevant BAP targets can be obtained from Oxfordshire Nature Conservation Forum. In the 'Implications for Oxfordshire MWDF', reference should also be made to the sustainable use of soil resources, including 'best and most versatile agricultural land' – please see comments for pages 41-42 above.	These targets have been incorporated in Objective 1.
Page 65, Appendix 2 In the section relating to Oxfordshire BAP, the Scoping Report refers to compensation and mitigation measures if development impacts on designated sites. However, Natural England considers that it should be stated that the MWDF will need to include policies and proposals to avoid adverse effects on the integrity of designated sites, rather than refer to 'compensation measures'.	These changes have been made to Appendix 2.

Consultee Responses	Comments
Also, as you are aware, Section 28G of the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) places duties on local authorities to conserve and enhance SSSIs. Planning Policy Statement 9: Biodiversity and Geological Conservation further requires that:	Noted
• Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests.	Noted
• The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm.	Noted
Page 67, Appendix 2. In the section on AONB management plans, reference should also be made to the North Wessex Downs AONB management plan.	This reference has been incorporated into Appendix 2.
Appendix 3. Under 'land and resources', reference should be made to loss of grades 1, 2 and 3A agricultural land, being 'best and most versatile' grades, rather than just grades 1 and 2. Also, reference should be made to loss of all land and soil resources where a site after use is as a water body.	Appendix 3 has been amended accordingly.
Indicators should also be added for landscape impacts brought about by land use change, particularly where these may affect an area designated as AONB or its setting. Impacts on recreational uses e.g. changes in extent of footpaths / areas of recreational use should also be monitored.	Need to identify a suitable indicator to monitor AONB areas
English Heritage	
Table 3.1; fifth bullet point refers to protection and conservation of all aspects of the historic environment and protection of nationally and regionally important geological features. EH suggests that reference to geological features would be better placed with the natural environment (as per PPS 9 Biodiversity and Geological Conservation) EH welcomes reference to protection of the wider historic environment but notes the particular importance of international and nationally important historic features, as referred to in para 17 of PPS1.	These amendments have been made to table 3.1.

Consultee Responses	Comments
Suggests that the baseline indicators for heritage relates to *potential loss or destruction of listed buildings, scheduled monuments, registered parks and gardens and battlefields*, instead of *buildings at risk*.	These amendments have been made to the baseline indicators.
Section 3.2.8 provides a baseline with regard to the historic environment, although EH notes that this is somewhat brief. Suggests amending the reference to gardens and landscapes to 'designed' gardens and landscape. Also need to make reference to the registered battlefields and to locally important features that need to be taken into account. Need to clarify the section which says that Oxford contains more than twice the national average of grade 1* and II* listed buildings.	Section 3.2.8 has been amended accordingly. The reference to Oxford's listed buildings has been deleted as it cannot be verified.
Suggest that the Scoping Report refers to the many scheduled and non-scheduled archaeological sites along the Thames valley, which are currently being assessed by the Oxfordshire Aggregates Archaeological Resource assessment, a joint Oxfordshire County Council and English Heritage project.	This reference has been incorporated into para 3.2.8
Table 3.13 includes SA objective 2 to protect and enhance landscape character, local distinctiveness and historic and built heritage. The approved SE Plan includes reference to the value of landscape/townscape character assessment as a tool in plan preparation. It is unclear what evidence is being gathered with regard to impacts upon character and distinctiveness at a scale below Fig 3.8 and having regard to historic landscape character.	The OWLS study enables landscape to be assessed at the District level.
Appendix 1 should include the European Landscape Convention. English Heritage's Heritage count for 2008 is available on their website, which could update the 2007 data in the report.	The European Landscape Convention has been included in Appendix 1.
Environment Agency	
Suggests that the 'Thames Waterway Plan, 2006-2011' is added to the regional plans and plicies in Appendix 1. The plan addresses issues such as environment, biodiversity, tourism and recreation and has a map showing potential issues and improvements along the length of the Thames.	The Thames Waterway Plan, 2006-2011 has been included in Appendix 1.

Consultee Responses	Comments
Also suggests that the draft River Basin Management Plan for the Thames River Basin District should be added to list of regional plans in Appendix 1.	The draft River Basin Management Plan has been included in Appendix 1.
Not clear how SA Objective 8 relates to water. Suggests that the SA Objective 3 'to maintain and improve ground and surface water' should include 'will the MWDF affect groundwater quality'. Possible indicators could include	These amendments have been incorporated into SA Objective 3.
Number of permitted applications using SUDS incorporating pollution prevention measures	
Number of permitted applications affecting Source Protection Zones 2 and 3	
Number of permitted applications which assess the risk of contamination of groundwater	
Thames Water	
Suggests that a reference to the need to upgrade sewage works to improve effluent treatment and to provide for the sustainable disposal of sewage sludge needs should be included in the document.	This has been included.
Highways Agency	
The Highway's Agency interest in Oxfordshire relates to the A34 from Chilton to the M40, Jn 9, and the M40 Jn 6 to Jn 11 (the Strategic Road Network: SRN)These sections of road were subject to an assessment to inform the South East Plan examination. The assessment found that these sections of road are '*progressively unable to cope without flow and demand management measures*' and that by 2026 they will be '*unable to cope with demand*'.	Noted
The impacts on these roads of any new or expanded minerals and waste sites are minimised in line with the requirements of DfT Circular 02/2007 (Planning and the Strategic Road network)	Noted
The Highways Agency discourages the locating of sites immediately adjacent to the SRN because of slow moving HGVs and the generation of dust, odour, noise and lighting.	Noted

Consultee Responses	Comments
Stage 2: Collection of baseline information. Suggestion that the Minerals and Waste Core Strategy is supported by a transportation evidence base that assesses the impact of an increased Oxfordshire apportionment on the local and strategic road network to help inform the most sustainable locations for mineral extraction and possible mitigation measures that may be required should the evaluation demonstrate that residual trips will adversely impact on the SRN.	Noted
Stage 3: Identifying key sustainability issues. It is important that the SA/SEA identifies objectives that aim to minimise impact on the local and strategic road network.	This has been incorporated into Objective 7.
Stage 4: Developing the SA/SEA framework. Objective 5 addresses transportation issues through the requirement to reduce green house gases. The HA recommends that transport should be a stand alone objective and that the following points should be considered in generating objectives:	The bullet points listed have been incorporated into a new objective relating specifically to transport issues, objective 7.
➢ Travel plans with targets and sanctions	
➢ Use of rail/waterways where possible	
➢ HGV routing agreements	
➢ HGV generation at peak periods	
➢ Developer contributions for infrastructure improvements	
➢ Env factors including airborne particles, noise, odour and lighting	
West Oxfordshire District Council	
Notes that population figures in Table 3.2 should be updated. Population figures for the district are 100,797 in 2006, with projected population of 114, 773 in 2026. Also need to check the County figures for population in Fig 3.1.	Figures have been amended to reflect most up to date ONS-based data from Oxfordshire data observatory
Wiltshire Council – Minerals and Waste Policy Team	

Consultee Responses	Comments
Suggest re-phrase SA Objective 12 to include reference to collaborative working 'Will the MWDF promote dialogue between local authorities to ensure valuable mineral resources are not sterilised by non-minerals development?'	Objectives have been re-numbered; this has been incorporated into objective 13.
Suggests that SA Objective 8 makes reference to maintaining access to the countryside and the visual impacts that minerals and development can have on local amenity.	This has been incorporated into Objective 9.
Suggests that the MWDF SA framework should include a reference to making a sustainable contribution to meeting Oxfordshire's sub regional apportionment.	This has been incorporated into Objective 12.
The SA framework should include a mention of 'minimising the area of land-take per tonne of mineral (aggregate) produced.'	Incoporated into Objective 13.
SA Objective 11 was accidentally omitted from the compatibility of SA Objectives table.	The SA Objectives table has been updated to reflect the new numbering and Objective 11 has been included.
Berkshire, Buckinghamshire and Oxfordshire Wildlife Trusts	
Appendix 1 should include the Habitats Regulations (1994), which transposes the EU Habitats Directive into UK law. Also include the South East Biodiversity Strategy and the Oxfordshire BAP in Appendix 1.	Oxfordshire BAP already in appendix 1; the Habitats Regulations and SE Biodiversity Strategy have been added
Section 3.2.7 should make reference to the Conservation Target Areas and their aims. A reference to the NI 197 report on positive management of Local Wildlife Sites would also be relevant when it is available.	These references have been incorporated into section 3.2.7

Consultee Responses	Comments
Suggests that an indicator relating to impacts on designated sites or BAP Habitats should be included to reflect the objectives to protect and maintain Oxfordshire's biodiversity.	Incorporated into Objective 1.
Cotswolds Conservation Board	
Table 3.13: the SA Framework. Suggests replacing 'will the MWDF *protect* the Oxfordshire AONBs' with 'will the MWDF *conserve and enhance* the Oxfordshire AONBs' to better reflect guidance in PPS 7 and the SE Plan.	Amendment made to Table 3.13
Chilterns Conservation Board	
Page 24: Map incorrectly labels the North Wessex Downs and the Chilterns AONB	Map has now been amended to show all three Areas of Outstanding Natural Beauty
Page 59: the Chilterns AONB Management Plan is now adopted (October, 2008)	Appendix 1 has been amended to reflect this.

Comments on Sustainability Appraisal (incorporating Strategic Environmental Assessment) of the Minerals and Waste Preferred Strategies consultation September 2011

Consultee	Comment/issue raised	Response
Environment Agency	• Reference to groundwater resources and the need to protect groundwater quality should be identified as a Sustainability Issue. • It is surprising given the attention paid to flooding by the background papers that flood risk has not been highlighted as a sustainability issue. Please ensure that this is also added. • An appraisal criteria 'will the proposal promote the objectives of the River Basin Management Plan?' should be added to Objective number 1, the indicator could be 'Number of waterbodies achieving good ecological status/potential'. • The appraisal criteria sub-objective for flooding seems to read like an indicator. One criterion could be 'will the proposal seek to maintain or reduce flood risk?' the indicator then could be 'Number of proposals approved against the recommendation of Environment Agency advice'. • With respect to the assessment of flood risk against policy M3 we would suggest that a neutral impact is only likely if more clarification and the stronger flood policy wording noted above is bought out in the next stage of the core strategy. In particular, the strategy should have a clear position on mineral processing and restoration applicability in the functional floodplain. With respect to the Waste Sustainability Appraisal our comments above can also be used in addition to the following: • A clear definition of where incineration and EfW lies in the priority for residual waste in the county needs to be established. In line with our comments above on the waste core strategy, this will allow for a better assessment of Policy W5 on the waste hierarchy objective. • As stated above, some improvement to the flooding and groundwater policy C1 and C2 is	The SA report has addressed the first two bullet points by including these issues in section 3. The second two bullet points relate to the scoping of the SA and have been withdrawn by the EA following further discussions with OCC confirming that they were consulted on the scoping report in 2009. The assessment of policy M3 has been revised and policy C1 flooding has been amended.

Consultee	Comment/issue raised	Response
	necessary. This will help better inform the sustainability appraisal and is more likely to result in neutral impact. It should be clear that the development control policy acts as mitigation for any negative effects which might occur as well. For example, if a policy were to allocate a site within the floodplain there would, without mitigation, clearly be a negative impact on the overall flood risk objective.	Policy W5 has been reappraised.
142	The negative impacts of new works at Cholsey on the local community, on its economy, transport network, archaeology & heritage, ecology and environmental characteristics have been greatly underestimated during the formulation of the proposed strategy. As a result, the evidence on which the OCC Cabinet has made its decision to include Cholsey in the preferred approach is fundamentally flawed. The nature of the investigations carried out to date (and documented in the consultation documents) is insufficient to justify a decision to include new works in Cholsey in the preferred strategy. A number of shortcomings in the evidence base are highlighted below. • <u>Social impact on Cholsey, Wallingford and the surrounding area</u> – In excess of 10,000 people live within a mile of this site and many hundreds live adjacent to it. Discussions within the community during the short period to date since the beginning of the consultation period have shown that the likely levels of noise, disruption, dust and other negative impacts are not acceptable to the local community. The true extent of the negative effect of the proposals on the social fabric of our community has not been explored in the consultation documentation, or the decision-making process leading up to it. The underestimation of the negative impact of the Cholsey works on people and local communities in the consultation[31] is, at the very least, insulting and inflammatory and at worst, purposefully misleading (I refer to the '*Comments*' column on p65 of the SA/SEA document, against '*8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities*', namely: "*All but one of the proposed working areas are existing minerals working areas, the exception is Cholsey (sand and gravel). In this respect, while there will be no significant adverse effects of such workings on new communities (with the exception of the Cholsey area), those communities that are currently adversely affected by mineral workings are expected to continue to experience some effects for the long term, although once sites are fully worked out and restored, positive permanent effects are expected. The*	Policy M3 has been reappraised and the appraisal has considered these consultation comments where relevant.

[31] Oxfordshire Minerals and Waste Core Strategy - Sustainability Appraisal/Strategic Environmental Assessment - Minerals Preferred Strategy (August 2011)

Consultee	Comment/issue raised	Response
	degree and nature of impacts is dependent on mitigation measures put in place, proximity to sensitive receptors and the duration of working."). • Economic – the works and associated processing facilities and traffic into and out of the works will make Cholsey and the surrounding area a much less attractive place to live. A key attraction of Cholsey for many families (including those moving out of London, who bring with them wealth, investment and commitment to the local community) is the quality of the local environment. The proposal will greatly reduce the attractiveness of Cholsey for such families and will reduce house prices across the area. The consultation makes no estimate of the negative economic impact of the works on the local economy (eg amenity value, house prices etc) which would have served to produce a more balanced picture of the economic pros and cons of including Cholsey in the preferred approach. • Transport – the proposals have not considered the hugely negative impact of increased HGV movement on the local roads between Cholsey, Wallingford and Didcot. Estimates of HGV movement on the road network in the area and the impact on traffic flows and road safety have not been included in the consultation documentation. I am also very concerned that the proposals will preclude the development of the Wallingford to Cholsey cycle path, which would allow families to avoid cycling on Wallingford Road – a route which has had a number of cyclist deaths and injuries on it over the years. • Heritage and archaeological issues – the Cholsey site is immediately to the south of a complex archaeological area which has evidence of occupation from the Bronze and Iron Ages and the area around the listed building of Cox's Farm is also a known medieval settlement area. The potential of the site in terms of its archaeological value has not been explored or discussed in sufficient depth in the consultation documentation. Furthermore, the works will destroy two key attractions of our community – namely the Agatha Christie trail (which runs from her former home in Winterbrook to her burial site in St Marys Church) and the Cholsey and Wallingford Steam Railway (like many other residents of Cholsey, I have enjoyed travelling on the railway many times with my children and I have taken friends and family who live outside the area on this amenity also).	

Consultee	Comment/issue raised	Response
	• Ecological and environmental impact – it appears from the consultation documentation that insufficient work has been carried out to examine the ecological and environmental impacts of the works. The cursory examination of these impacts referred to in the consultation documentation (referencing the SA/SEA assessment) does not reference the fact that the site is currently a habitat for a number of bird and mammal species (including weasels, stoats, deer, hares faxes, possibly otters, buzzards, owls, red kites) and the works would lead to the complete destruction of this habitat. The associated loss of invertebrates, plants and trees (which warrant targeted surveys in their own right) would affect the biodiversity of the area, and have knock-on impacts for ecosystem services such as flood protection and carbon storage. Furthermore, it is not apparent from the documentation that sufficiently detailed/any modelling of the impact of the works on local air quality (and hence the health of the local population) has been carried out. Finally, I am gravely concerned about the legacy issues of these works. I understand that the site cannot be restored as a lake due to its proximity to the River Thames and that the site cannot be used for landfill. Further, the possibility of the site being used for the disposal of inert building waste is highly unlikely as this material is nowadays (quite rightly) recycled and re-used at source. The likely end state of the works – a depression that will seasonally fill with water, becoming marshy in Spring and Autumn and a dust bowl in Summer – is therefore completely unacceptable to me and to my family.	
OUTRAGE	Table *2.1 SA Framework (objectives)* in the SA claims to set out a framework of detailed objectives, sub-objectives, appraisal criteria and indicators by which the performance of the MWDF can be monitored and tested. This looks and sounds good. But the indicators for almost every objective are loaded. For example: *SA Objective Appraisal Criteria/Sub-objectives Possible Indicators* 2. Protect and enhance landscape character, local distinctiveness and historic and built heritage enhancement of RIGS or geological SSSIs. Will the MWDF conserve and enhance Oxfordshire's AONBs & their settings and take into account guidelines associated with specific landscape types? Number of permitted applications for Minerals and Waste development which include conditions for the protection or restoration of statutory or non-statutory landscape designations.	Monitoring of the MWDF will use the best available indicators.

Consultee	Comment/issue raised	Response
	With indicators of this kind, of which there are many, OCC could permit mineral extraction almost anywhere provided that the effect is to increase the number of planning conditions. But it is precisely the most difficult and controversial sites which require the most planning conditions. Nowhere does the table recognise that conditions are usually imposed to make the best of a bad job, nor does it acknowledge that every extraction site sacrifices an existing landscape and habitat. What might be good for a bittern is definitely bad for a lark, What pleases the RSPB may spoil the pleasure of residents and visitors. In any case, planning conditions have to be monitored and enforced. If OCC applies indicators of this kind, it will accumulate expensive commitments which it will be unable to meet.	
633 (WODC)	Although OCC's proposed reduction in aggregates targets when compared to the existing regional apportionment should be supported, there appears to be an in-built assumption that it should be 'business as usual' as far as West Oxfordshire is concerned. The spatial options tested (up to 2020 and 2020-2030) in the 2011 Sustainability Appraisal contain an identical supply of sharp sand and gravel from the West Oxfordshire preferred areas ie 0.5 mtpa and 0.18 mtpa from Lower Windrush Valley and Eynsham/Cassington/Yarnton respectively. The total West Oxfordshire supply will increase from 60% to 67% of overall County supply after 2020. The addition or removal of areas located elsewhere in Oxfordshire produce the different spatial options tested. These options do not sit comfortably with OCC objectives to minimise the distance minerals need to be transported. The option of reducing the amount of extraction in West Oxfordshire in the longer term does not appear to have been tested and as such is likely to be challenged with the risk that the preferred strategy is found unsound. The Sustainability Appraisal indicates that sites in the south of the County such as at Cholsey, Stadhampton and Clifton Hampden can produce more resource earlier in the plan period, closer to the main area of market demand and potentially allowing reduction of extraction in West Oxfordshire in the longer term, minimising the transport of aggregates and providing some relief to West Oxfordshire's communities as intended but not delivered by the strategy. OCC should be asked to reconsider the weight given to the sustainability impacts of the various options outside West Oxfordshire, in particular the economic benefits of infrastructure improvements to accommodate sand and gravel working in the longer term in locations where the transport of minerals can be minimised.	New options for the apportionment post 2020 for West Oxfordshire have been appraised and the results are discussed in Appendix B of this SA report and an addendum to the aggregate apportionment SA report has been published dated March 2012.

Consultee	Comment/issue raised	Response
548 (SODC) and 567 (VoWHDC)	The issue of the locally derived apportionment, as assessed in the SA/SEA of policy M2, is arguably slightly more complex than expressed, in that the level of provision of land in the plan for future mineral extraction in line with a level of apportionment does not drive future demand or actual levels of mineral extraction. Furthermore, policy M2 (along with national mineral planning policy) also states at any particular time Oxfordshire will maintain a 7 year landbank of planning permissions for sand and gravel, and a 10 year landbank for crushed rock. This is a significant point, because should the overall provision of land in Oxfordshire be insufficient to meet actual future levels of extraction and maintain 7 or 10 year landbanks, then towards the end of the plan period new, unallocated sites will need to be found to make up the shortfall. These sites may in fact have higher or different environmental or other impacts than sites which might be considered in advance and be included within this plan. Therefore the statement as currently expressed in the SA/SEA that 'the [expected] adverse environmental and social effects of the proposed apportionment level might be less adverse than those experienced under the delivery of the current policy [in the South East Plan]' may not necessarily hold true. Serious further consideration needs to be given in relation to ensuring policies M2 (and M3) provide an adequate mechanism for maintaining supply in accordance with plan objective 'iii'. It is likely that further information will need to be provided at the examination in public to support the level of the locally determined apportionment, and ensure that any issues are considered in time to allow their evaluation through the SA/SEA process. A slightly fuller evaluation of the implications of proposed policy M2 within the SA/SEA would potentially assist with improving the robustness of the plan's evidence base.	Appraisal of Policy M2 has been reviewed.
M341	URS Report - Aggregates Apportionment Options Pages 14 and 15 of this report raise certain issues in relation to the potential negative effects of working the Caversham site, which is sited on a major aquifer and of course close to the River Thames. This has not been addressed in any detail despite significant parts of the area lying within flood risk zone 3b area. The document quite correctly raises concerns as regards the local road network, and the corresponding inability to mitigate GHG emissions associated with road transportation. Again this point is not mentioned elsewhere in the document. There is also a strange comment regarding the potential for restoration benefits to the communities, which is not explained anywhere, and is very difficult to understand. It does however conclude by stating that 'working in this	An addendum to the aggregate apportionment options report has been prepared dated March 2012.

Consultee	Comment/issue raised	Response
	area has the potential for cumulative negative effects including on the water environment, visual and local landscape, noise and transport in the long term. This does not appear to have been taking into consideration at all in the selection of the Caversham site.	

APPENDIX B: SUMMARY OF OPTIONS CONSIDERED AND THE SUSTAINABILITY APPRAISAL OF OPTIONS AND PREFERRED POLICIES

Consideration of options

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
Policy M1: Provision for secondary and recycled aggregates	Policy M1: Provision for secondary and recycled aggregates	Two options were considered based on various methods outlined in the Atkins Local Assessment of Aggregates Supply[32] and the South East Plan (SEP)[33] apportionment. Option 2 (0.9mtpa) was chosen as the preferred option which reflected the Atkins study method 3 and Policy M2 in the South East Plan which has itself been the subject of sustainability appraisal. Local data on sources of secondary and recycled aggregates also show that this is an aspirational yet potentially deliverable target over the plan period. The SA report concluded that option 2 (0.9mtpa) would have a greater beneficial effect on promoting efficient use of natural resources.
Policy M2: Provision to be made for working aggregate minerals	Policy M2: Provision to be made for working aggregate minerals	The Atkins Local Assessment of Aggregates Supply[34] suggested a range of alternative levels of provision for sand and gravel and crushed rock. Three overall options were considered for sharp sand and gravel, soft sand and crushed rock The SA/SEA of the options (July 2011) found that option 1 for each aggregate type would have the least impact in terms of impact on road infrastructure and on requiring new areas of working and this has been chosen as the preferred option All options were based on continuing the existing level of production in West Oxfordshire. Options for the reduction of working in this area have now been considered in response to West Oxfordshire's response to the preferred strategy consultation in September 2011 and the SA of these options is reported in an Addendum to the Aggregates Apportionment SA Report and summarised below. The proposed submission policy proposes to maintain the level of working in West Oxfordshire.
Policy M3: Locations for working aggregate minerals	Policy M3: Locations for working aggregate minerals	Spatial options for sharp sand and gravel, soft sand and crushed rock were put forward in May 2010 and revised in September 2010 following consultation. Considering the outcome of the SA, the preferred approach option (September 2011) seeks to make the most efficient use of existing working areas without increasing the rate of working in these areas. It also seeks to locate mineral working close to planned development to reduce the impact of mineral working on transport infrastructure and communities. The SA of the strategy notes that continuing working in existing areas presents opportunities for coordination of large scale restoration projects but that there is potential for

[32] Local Assessment of Aggregates Supply Requirements Final Report January 2011 Prepared for Oxfordshire County Council by Atkins Ltd
[33] South East Plan – Regional Spatial Strategy for the South East of England May 2009
[34] Local Assessment of Aggregates Supply Requirements Final Report January 2011 Prepared for Oxfordshire County Council by Atkins Ltd

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
		negative effects on local communities.
Policy M4: Aggregates rail depots	Policy M4: Aggregates rail depots	No alternatives were put forward. The preferred policy takes lead from national policy to import aggregates by rail. Also there are no alternative locations for rail depots as they can only be located where road and rail coincide and none have been nominated.
Policy M5: Non-aggregate mineral working	Previously part of Policy M3	The proposed submission policy is in line with national policy and no alternatives have been put forward.
Policy M6: Mineral safeguarding	Policy M5: Mineral safeguarding	Options for safeguarding mineral resources were considered and the minerals industry was consulted on these options. The proposed submission policy draws upon the results of this consultation.
Policy M7: Restoration of mineral workings	Policy M6: Restoration of mineral workings	The preferred policy is in line with national policy and no alternatives have been put forward.
Policy W1: The amount of waste to be provided for	Policy W1: The amount of waste to be provided for	Options for where to source appropriate estimates for three different waste streams for the amount of waste to be provided for have been considered. For MSW four options were considered 1. Published forecasts in the Regional Spatial Strategy (the South East Plan - SEP); 2. Updated estimates using monitoring work from the South East Regional Assembly; 3. Published work undertaken by ERM for OCC (2008); 4. Updated estimates based on Oxfordshire Joint Municipal Waste Partnership's strategy. Option 4, was preferred as it better reflected local circumstances, was consistent with other work published locally and was easily updated using reliable locally derived data. For Commercial & Industrial (C&I) waste: three options were considered 1. Published forecasts in SEP; 2. Published work undertaken by ERM for OCC (2008); 3. Work based on a study by the Environment Agency (2001), taking account of recent trends in national surveys. Option 3 was preferrred as it was known that the basis for the South East Plan estimate (Option 1) had become outdated and the ERM study produced growth estimates that were too high (Option 2). For Construction Demolition and Excavation (CDE) waste two options were considered

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
		1. Work undertaken by ERM consultants for OCC; 2. Further work using data available from EA and studies by Capita Symonds for Defra of waste composition and end use. Option 2 was preferred because it refined the work by ERM. For the pre-submission consultation estimates have been updated but the same methodologies used.
Policy W2: Imports of residual non-hazardous waste	Policy W2: Waste imports	The policy addresses the fact that Oxfordshire is a significant importer of waste for disposal from London and elsewhere, but that this can be expected to decline as other areas become increasingly self-sufficient over the period of the plan (following the European Waste Directive). Options considered for future rates of disposal were to 1. Refuse to take further waste from London and elsewhere; 2. Take waste from London at rates set by SEP and waste from elsewhere at a locally derived rate; 3. Take waste from London and elsewhere at locally derived rates. Option 2 was preferred; option 1 would be difficult to implement (even if found sound) and option 3 would likely produce arbitrary results and would likely be found unsound. It is proposed this policy will continue to be based on option 2 in the proposed submission document, but more up to date estimates based on data in the more recent London Plan will be used: estimates of waste from elsewhere are also being revised from more up to date data now available. Oxfordshire is also the subject of pressure to take residual waste from elsewhere for treatment. The only option considered was to follow the approach taken by SEP for London imports (presumption against facilities designed to treat London's residual waste) as this was in line with the European Waste Framework Directive and the approach to self sufficiency in PPS10.
Policy W3: Waste management targets	Policy W3: Waste management targets	For the September 2011 consultation options considered were 1. use of targets in SEP or national policy; 2. use of more locally derived targets. For MSW: Reliable local information is available on which to base local targets for recycling, composting, residual waste treatment and waste to landfill, and these have been preferred. To be consistent with work on a review of the Oxfordshire Joint Municipal Waste Management Strategy, targets for the proposed

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
		submission document are being revised. For C&I waste: SEP targets were initially preferred for recycling, but a more ambitious landfill diversion target was adopted, consistent with the Council's approach to disposal as Waste Disposal Authority. For the proposed submission document a more ambitious recycling target is being proposed, in common with other Waste Planning Authorities and the higher recycling targets already being achieved for MSW. For CDE waste: SEP targets for recycling are used no better alternatives have been found and studies on waste composition have helped to show that the target is robust and that a more challenging target is likely to fail.
Policy W4: Provision of additional waste management capacity	Policy W4: Provision of additional waste management capacity	Estimating the scale of possible capacity gaps involves an assessment of the capacity already provided by existing facilities. From a number of possible methods the Waste Needs Assessment (WNA) confirmed the approach that would be taken to assessing facility (site) capacity. The capacity gap will also be influenced by whether or not to take account of facilities that are the subject of planning permission but have not yet been built (commitments). The WNA work (with the exception of the capacity to be provided by the Ardley EfW permission) did not take account of commitments. The September 2011 consultation took account of all commitments. It is proposed the proposed submission document will take a more selective approach, taking account of guidance in Planning Policy Statement 10 (PPS10) 10 practice guide which suggests commitments can be relevant provided a proper view is taken on the likelihood of take up – which may differ on a case by case basis, or taking account of wider trends e.g. economic factors (typically the down turn at present).
Policy W5: Strategy for provision of waste management facilities	Policy W5: Provision of additional waste management facilities	Various pieces of work at officer level looked at the approach to be taken to spatial options: some were considered by a Member level Working Group. This work was refined and finally included in the September 2011 public consultation document, where options for the provision of facilities for C&I recycling, C&I residual waste treatment and CDE recycling were put forward (based on the capacity gaps identified in W4). For MSW no options were put forward as new facilities are being provided in accordance with the Joint Municipal Waste Management Strategy and the Household Waste Recycling Centre Strategy. From this work a proposal for a new HWRC at Banbury was put forward, and for two waste transfer stations at Abingdon/Didcot/Wantage and Witney/Carterton. A re-assessment of waste needs for the proposed submission document has led to a conclusion that there is no requirement for further capacity for C&I waste treatment. Options were to confirm that no further provision should be made for this type of facility or allow favourable consideration of future proposals if a

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
		case of need could be made (the latter approach is preferred as it provides necessary flexibility). The imminent procurement by the County Council of a contract for the provision of new MSW waste transfer stations has illustrated that it is too soon to be prescriptive on the number and location of facilities to be provided. The only reasonable option is to provide the necessary flexibility in revised policy wording. Public comment has also identified a need for greater clarity in the definition of strategic locations, the role of the small towns in the strategy, the extent to which existing and committed facilities should influence strategy and the need to avoid stifling commercial freedom. This has lead to a conclusion that the strategy should be revised by - removing the small towns from the strategy; - amalgamating the large towns of Didcot, Abingdon, Oxford and Bicester to form a single core strategic area; - confirming the remaining large towns (Banbury, Witney/Carterton, Wantage/Grove) as the main focus for facilities serving those parts of the County.
Policy W6: Sites for waste management facilities	Policy W6: Sites for waste management facilities	The policy is based on SEP policy W17 (which itself takes a lead from PPS10), so no significant alternatives have put forward. Preferred strategy policy in September 2011 did not include 'suitably located sites in temporary waste use' amongst the list of types of favoured sites as this was considered to give rise to too much uncertainty and conflicted with the proposed approach to green field development. It is proposed this approach be retained in the proposed submission document, but adjustment to the policy is made to make clear that the favoured types of sites are not hierarchical. Other wording changes respond to public comment, including to the approach in Green Belt, but are not considered to be of major significance.
Policy W7: Landfill	Policy W7: Landfill	The September 2011 consultation identified a need for additional disposal capacity for inert waste. No options were put forward, provision being made through a permissive policy for disposal in quarries requiring restoration (it being judged impractical to commit to including proposals in the future Site Allocations DPD). It is proposed to refine the emphasis in the proposed submission document to confirm that disposal in quarries will be the priority route, with opportunity for disposal in other circumstances being more limited. The September 2011 consultation (based on work in the WNA) established no need for additional non-hazardous landfill, so no alternative to the preferred approach (make no additional site provision) was considered. The husbanding of existing resources takes its lead from SEP policy W13 and PPS10: no alternatives were considered.

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
Policy W8: Hazardous and non legacy radioactive waste	Policy W8: Hazardous waste	This policy covers the management of hazardous waste, including hazardous landfill. Because of the difficulty of assessing specific needs for facilities handling this type of waste at a County level, the Sept 2011 consultation advised that specific facility provision was not thought to be possible. The policy approach put forward has taken its lead from SEP (policy W15) that there will be a need for facilities to serve wider than County areas. It is proposed that the proposed submission document should make clear that the policy also applies to the very small amounts of radioactive wastes produced in some operational processes. With specific regard to landfill, the Sept 2011 consultation did consider options for the provision of hazardous waste landfill, concluding that no additional provision should be made. No comment to the contrary has been made. The policy adequately caters for any proposals that may come forward in future.
Policy W9: Legacy radioactive waste	Policy W9: Radioactive waste	For the proposed submission document it is proposed that the scope of the policy is refined to address legacy wastes only. Two types of waste are considered in this policy: 1. Intermediate Legacy Waste: 3 options considered in September 2011 consultation, with preference for option 2 (accommodate only waste arising in Oxfordshire) and setting a test for any waste that might need to be imported from facilities elsewhere (need to show clear benefit to Oxfordshire). In response to public comment, it is proposed that the proposed submission document modifies this approach to remove the test for any waste brought in from elsewhere – leaving this for detailed consideration in a planning application (this was not a specific option previously). 2. Low Level Waste: 4 options considered in September 2011 consultation, with preference for option 4 (disposal at a suitable site outside Oxfordshire) and setting a hierarchy of alternative options needed to be considered. It is proposed that the proposed submission document takes a different approach, setting out the circumstances in which disposal on-site (the most sustainable option according to SA/SEA) would be permitted. The policy now makes no differentiation as to whether off site disposal is preferable inside or outside Oxfordshire. In effect, the options have not changed but a different assessment has emerged.
Policy W10: Safeguarding	Policy W10: Safeguarding	This policy takes its lead from the requirement in SEP policy W17 to safeguard waste sites and no alternative approaches have been put forward. The September 2011 consultation explained the advantages of including confirmation of an approach to safeguarding and it is proposed that this remains in the proposed submission document.

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
C1: Flooding	C1: Flooding	Policy is in line with national policy (Planning Policy Statement 25 (PPS25)) and emerging National Planning Policy Framework (NPPF) policy; no alternative approaches put forward. Policy included because of requirement to undertake sequential testing of options for development locations and need to clarify some aspects of national policy on level of flood risk posed by mineral workings and mineral processing sites in particular. The policy has been slightly amended as a result of the preferred strategy consultation.
C2: Water Environment	C2: Water Environment	Policy addresses one of the matters listed in Planning Policy Statement 23 (PPS23) (Appendix A) for consideration in DPDs (possible adverse impacts on water quality and impact on possible discharge of effluent of leachates which may pose a threat to surface or underground water resources). Follows policy set by the main regulator (Environment Agency); no alternative approaches put forward..
C3: Environmental and amenity protection	C3: Environmental and amenity protection	Policy in line with national policy and emerging NPPF policy; no alternative approaches put forward.
C4: Agricultural land and soils	New policy	Policy proposed as a result of consultation on preferred minerals and waste strategies. Policy in line with national policy and emerging NPPF policy; no alternative approaches put forward.
C5: Biodiversity and geodiversity	C4: Biodiversity and geodiversity	No consideration of alternatives prior to consultation on preferred policy. Consultation responses suggested that policy should provide a clearer definition of the hierarchy of designated sites and the protection afforded to those sites and that restoration of some minerals sites may not be able to contribute to Biodiversity Action Plan targets. Policy revised accordingly and further SA work being undertaken.
C6: Landscape	C5: Landscape	No consideration of alternatives prior to consultation on preferred policy. Consultation responses suggested that protection should be afforded to AONBs in policy. Policy revised accordingly and further SA work being undertaken.
C7: Heritage assets and archaeology	C6: Heritage assets and archaeology	Policy in line with national policy and emerging NPPF policy; no alternative approaches put forward.
C8: Transport	C7: Transport	Policy takes its lead from national policy (in particular Planning Policy Statement 1 (PPS1) and Planning Policy Guidance 13 (PPG13)) and local transport policy (LTP3) to address particular implications of minerals and waste development; no alternative approaches put forward. Changes to policy for the proposed submission document respond to public comment but do not change direction of policy and did not give rise to consideration of alternatives.

Proposed submission Core Strategy policy	Preferred strategy policy reference	Options considered and reasons for selecting preferred option/rejecting alternatives
C9: Rights of Way	C8: Rights of Way	Policy is in line with national policy (Countryside and Rights of Way Act 2000 sets out Government aim to make better provision for walkers, cyclists, equestrians and people with mobility difficulties) and takes its lead from local Rights of Way Improvement Plan; no alternative approaches put forward. Proposed changes to policy for the proposed submission document respond to public comment but do not change direction of policy and do not give rise to consideration of alternatives.

Minerals Options

May 2010 SA report

Options Appraised	Summary of SA
Sharp sand and gravel	
1. The Concentration Strategy – This option is further broken into the following three options: • 1a) Concentrate working to the north west of Oxford, in the Lower Windrush Valley, Stanton Harcourt, Eynsham and Cassington areas; • 1b) Concentrate working to the south east of Oxford, in Radley, Sutton Courtenay, Culham, Dorchester, Warborough and Benson areas; or • 1c) A combination of options 1a and 1b, concentrating working in both.	**Option 1a)** - This option would lead to concentration of working in the north west and west of Oxford. This area already experiences mineral extraction and further working in this broad location would lead to negative cumulative effects with regard to amenity for the local communities. Other cumulative effects include landscape and visual impacts for example in the Lower Windrush Valley where the landscape has already been extensively modified by mineral extraction. Given that most of the sand and gravel currently worked in this area is transported by road and that the road network is already experiencing congestion a significant increase in working in this area would have negative cumulative effects on the road network (in particular the A40) leading to increased congestion, continued green house gas emissions and air and noise pollution associated with Heavy Goods Vehicle (HGV) movements. There are also important nature conservation designations in close proximity to area 1 The location of these sites close to potential mineral works would restrict the exact location of working within the broad area. Working in this area would therefore require mitigation measures to be in place to avoid adverse negative effects on the nature conservation sites including creating the creation of buffer zones and other measures. Some of the area covered by option 1a (e.g. the Lower Windrush Valley) lie within the Conservation Target Areas (CTAs) identified by the Oxfordshire Nature Conservation Forum . The main aim within CTAs is to restore biodiversity at a landscape-scale through maintenance, restoration and creation of BAP priority habitats. Further working in this area would therefore contribute positively to the planned restoration and habitat creation in this area at a large scale which combined with existing restoration plans would have significant beneficial cumulative effects for the local community as well as on nature conservation. However, such benefits would be in the long-term as mineral works are likely to take years before the restoration plans are implemented. Although the area is generally well located in terms of proximity to markets, some sites may not be close to the markets thereby increasing distances materials are moved. This further contributes to the negative effect of increasing GHG emissions where road transport is used as well as the negative effects associated with HGV movements including noise, air pollution and congestion. **Option 1b)** – Option 1b seeks to concentrate working in the south east of oxford. This option would lead to a concentration of impacts on communities living within or in close proximity to the identified resource areas. The broad location is in close proximity to most of the main areas of demand - Oxford, Didcot, Wantage, Grove as well as the centres of employment (apart from Bicester). Although it could lead to some sites not being as close to main

Options Appraised	Summary of SA
	areas of demand, the general location is judged to be well located for serving most of the demand areas. Restoration following working would lead to beneficial effects for biodiversity as well as creating recreational opportunities for the local communities. Working resource area 13 could have negative effects on archaeology as significant archaeological remains have been identified here. However, it is expected that mitigation measures would be required prior to planning permission being granted therefore reducing potential adverse impacts. The southern area of this option also lies close to the AONB which would present constraints to mineral working in this part. **Option 1c)** – This option divides the sand and gravel requirement equally between the resource areas in option 1a and 1c (with the exception of RAS 9). This division would lead to a distribution of impacts of mineral working on a small number of local communities in both areas as opposed to more communities in one area as options 1a and 1b would lead to. This has the benefit of relieving some communities especially in areas where communities have already experienced mineral working in the past. Compared to options 1a and b, this option performs better in terms of proximity to markets as it covers a wider area as opposed to the north west/west in option 1a or south east in option 1b. However, this option is also characterised by some of the effects and constrains identified for options 1a (cumulative effects on some communities, road network and nature conservation constraints) as well as those identified for option 1b (landscape and archaeology constraints). Ultimately, the significance of impact will depend on the exact location of sites within the broad areas and the mitigation measures put in place through the planning application process.
2. The dispersal Option – This option seeks to spread working areas across a number of areas to maximise the proximity of mineral supply to markets: Lower Windrush Valley, Stanton Harcourt, Eynsham, Cassington, Faringdon, Radley, Sutton Courtenay, Culham, Dorchester, Warborough, Benson, Wallingford, Cholsey and Caversham areas.	This option seeks to disperse mineral extraction close to the main areas of demand in a way that minimises the effects of mineral extraction in any one area of the County. Although it does not eliminate the negative effects associated with mineral extraction, distributing them would have positive effects on communities where extraction has previously taken place as well as minimising the overall negative effects felt by any single community. This option would however lead to more communities being affected by mineral working as more areas would be brought forward for extraction (although the effects are likely to be reduced compared to concentration based options). Distributing extraction also has the advantage of reducing distances aggregates are moved thereby minimising emissions and mitigating against climate change. Reducing the distances travelled would have the added benefit of minimising other negative impacts associated with HGV movements including impact on air quality and noise. Moving minerals for shorter distances would also lead to positive financial effects on industry through cost savings on transport. However, this option would also have a negative economic effect by requiring new investment in infrastructure on new sites as opposed to taking advantage of existing infrastructure. It would also lead to job losses although new jobs would be created elsewhere in the County. As with all options, the dispersal option offers opportunities for

Options Appraised	Summary of SA
	beneficial restoration although it does not offer the potential to contribute to large scale habitat creation as works would be spread in different parts of the County. Overall, although this option has some beneficial environmental effects (distributing effects and reducing distances travelled), it also has some draw backs in economic and restoration factors (social) and this needs to be balanced against the environmental benefits.
3. The Phased strategy option – This option seeks to allow short term extensions to existing sites in the Lower Windrush Valley, Eynsham, Cassington, Faringdon, Radley, Sutton Courtenay and Caversham areas as well as long term planning for one or more new strategic sand and gravel working areas in one or more of the following areas: • Clanfield – Bampton • Culham • Dorchester, Warborough, Benson • Wallingford - Cholsey	This option has a balanced effect on most of the SA objectives in that although it reduces mineral working in areas that have historically experienced extraction, it also introduces new areas of working and so transfers the impacts to other communities including some more remote areas and a stretch of the River Thames valley that has not been previously worked. The phasing approach adopts a long term approach which will allow time for the phasing and introduction of new areas and it also seeks to adopt a master planning approach. This has potential benefits in facilitating a co-ordinated restoration and after-use plan in current areas of working as well as ensuring that potential adverse effects identified in the proposed new areas of working are adequately addressed and mitigation measures put in place to minimise negative effects.
Soft sand	
Plan for 0.309 million tonnes per annum (5.562 million tonnes to 2026) of soft sand (based on the current sub-regional apportionment) from a single soft sand resource area in the south west of the County	When assessed against the SA objectives, although the option will have some negative effects especially with regard to impacts on amenity and the environment, if working is to be carried out based on the current levels of production then these effects (on the natural and built environment) are judged to be neutral as the baseline will remain the same. However, given that working has been going in this locality for a long time, future working in the same area will have negative cumulative effects on some of the local communities. To mitigate against such cumulative effects becoming adverse, it will be important to ensure future extensions are located away from sensitive receptors e.g settlements (Hatford and Tubney) as well as being located in close proximity to the strategic road network.

Options Appraised	Summary of SA
	This option has economic benefits as it takes advantage of existing infrastructure as well as providing certainty to industry and meeting local needs for soft sand. Overall, with adequate mitigation measures at the planning stage, this option has potential to continue meeting Oxfordshire's soft sand needs in a sustainable manner.
Crushed Rock	
Meeting the apportionment by allowing crushed rock extraction in strategic areas in the: • Witney-Burford area; and • Chipping Norton - Bicester area	When assessed against the SA objectives, this option is judged to have neutral effects on impacts against the natural and built environment (assuming future working was to be in line with current production levels and that any new working in the south west Bicester area would be small-scale). However, in the long term, there will be cumulative effects of continued working on the communities living near the identified areas. These may include cumulative effects on the landscape as well as on local amenity – air, noise, and dust and traffic impacts. Mitigation measures at the planning application stage can help ensure that such effects are adequately addressed before new permissions are granted. There are some economic advantages in retaining working in the identified areas including use of existing infrastructure and meeting Oxfordshire's crushed rock needs in line with regional policy.

September 2010 Revised Options SA report

Options Appraised	Summary of SA
Sharp sand and gravel	
Option 1: Concentration on Existing Working Areas This option seeks to concentrate sand and gravel working in areas where working is currently taking place or has taken place recently. This is a refinement of the previous option 1c (May 2010) and includes areas both to the west / north west and south / south east of Oxford. However, these are now limited to areas around	Seeking to concentrate extraction in areas where working is currently taking place or has taken place recently has the economic advantages of using existing infrastructure as well as labour force. It also presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to beneficial effects for the local communities (through recreation and leisure opportunities) as well as for wildlife. However, this option has potential to lead to cumulative negative effects on the local communities especially with regard to traffic and amenity issues. The long-term nature of mineral works means that communities within/close to the identified areas will continue to experience the effects of mineral working for the foreseeable future.

Options Appraised	Summary of SA
existing or recent sand and gravel working areas and include: • Lower Windrush Valley (LWV); • Eynsham/Cassington/Yarnton (ECY); • Radley; and • Sutton Courtenay.	
Option 2: Concentration on New Working Areas Many areas of existing working have experienced mineral extraction over a number of years, impacting on local communities and changing the local landscape. This option identifies new areas where working would be concentrated, to replace existing areas of working. In the short term, while the new areas are planned, some extensions to existing sites might be needed to maintain supply. The areas included in this option are: • Clanfield/Bampton; • Warborough/Shillingford/Benson (WBS); • Cholsey; • Sutton/Stanton Harcourt; and • Culham/Clifton Hampden/Dorchester (CCD).	Opening up new areas for working has the positive benefit of relieving communities that have experienced mineral working for long periods in the past therefore distributing the impacts of mineral working to other parts of the county. This option transfers impacts to other communities although these are judged to be less significant compared to option 1 due to the cumulative nature of option 1 effects. This option would require some extensions to some existing sites and so there would still be some cumulative effects in these areas although these would be for a shorter period, compared with the long-term nature of option 1 cumulative effects. Option 2 would lead to creation of new jobs in the identified areas but it would also require industry to re-locate or build new infrastructure and although this could lead to some negative economic effects in the short term, in the long term the economic benefits are judged to be positive.
Option 3: Dispersed working Working taking place within any of the areas of potential sand and gravel resource, so that it is a truly dispersed option. The areas included in this option are: • Finmere; • Clanfield/Bampton;	Dispersing extraction has both positive and negative effects. Positive effects include potentially reducing the distances materials are moved, creation of new jobs, distributing of impacts around the county and offering restoration opportunities that could benefit communities in the longer term. The negative effects include the fact that more communities would be affected by the effects of mineral working (including some cumulatively as in option 1). This option has potential not to deliver large-scale restoration projects as works would be distributed in different parts of the county. The need for investment in new areas may impact negatively on industry e.g. moving infrastructure etc, but this is likely to be a short-term effect.

Options Appraised	Summary of SA
• Lower Windrush Valley (LWV); • Eynsham/Cassington/Yarnton (ECY); • Faringdon; • Radley; • Sutton Courtenay; • Warborough/Shillingford/Benson (WBS); • Cholsey; • Caversham; • Culhum/Clifton Hampden/Dorchester (CCD); and • Sutton/Stanton Harcourt.	
Soft sand	
Plan for 0.309 million tonnes per annum (5.562 million tonnes to 2026) of soft sand (based on the current sub-regional apportionment) from soft sand resource areas in Duns Tew in the north of the county. and two small areas located close the A420 in the south west of the County.	Identifying two areas of working in the south of the county and one in the north of the county will help minimise traffic impacts as well as spread the effects of soft sand working more equitably. However, there will be some cumulative effects on communities living close to existing sites and careful consideration should be given when identifying sites and allowing further extraction so as to minimise the overall effects of continued working in these areas. The two areas in the south west of the county have different quality sands and this option allows for the working of the two types of sand. Continuing with the existing pattern provides certainty to industry and also takes advantage of existing infrastructure.
Crushed Rock	
Meeting the apportionment by allowing crushed rock extraction in the: South of Burford area; East of River Cherwell, North of Bicester; and East/south east of Faringdon	The revised crushed rock option would lead to a distribution of effects of crushed rock working in the county therefore potentially preventing adverse effects on a single locality. It also leads to a reduction in the area identified in the north of the county. This option takes advantage of existing infrastructure as well as continuing to provide local employment. This has positive economic benefits. In the long term, there is potential for negative cumulative effects on the communities living near the identified areas. Careful consideration should be given to the exact location of sites and works, relative to housing and other sensitive receptors to militate against potential negative effects.

Aggregates Apportionment Options
July 2011 SA Report

Options Appraised	Summary of SA
Sharp sand and gravel	
Option 1 is based on working 1.01mtpa in the existing areas of LWV, ECY, Caversham and Sutton Courtenay. The Sutton Courtenay area is expected to cease production around 2020.The Cholsey area would be brought in to production post 2020. Option 2 is based on working 1.24mtpa in the existing areas of LWV, ECY, Caversham and Sutton Courtenay and Cholsey. Post 2020, additional production would be required following the closure of Sutton Courtenay. This option proposes to either bring Clifton Hampden or Stadhampton in to production during this period. Option 3 is based on working 1.46mtpa in the existing areas of LWV, ECY, Caversham, Sutton Courtenay and Cholsey. To meet the higher apportionment level, working in either Clifton Hampden or	Generally, the greater the level of provision for sand and gravel working, the greater the short term negative impact on the environment, particularly on landscape, biodiversity, water environment and air quality. As the level of provision increases, more areas in south Oxfordshire are identified to meet the greater level of need. This will have a negative local impact on the local environment in these areas. Working three areas in the south of the county may have a cumulative impact on road safety, congestion and road maintenance if HGV vehicles from three sites are all using the road network in south Oxfordshire. However, there are potentially two positive effects on the environment; these are that at a county scale, minerals will be provided closer to markets in the south of the county, thus reducing the mineral miles travelled and the attendant environmental impacts, and secondly that although greater levels of provision are being met, this will not lead to an increase of working in west Oxfordshire, or of the attendant cumulative impacts in this area where there has already been extensive working. The social impact of the increase in the level of provision is generally to increase the number of local communities which are affected by sand and gravel working. This may lead to a negative impact on local amenity, road safety, noise, dust and visual impact of working for these communities. Again, increasing the level of provision for sand and gravel will have the effect of continuing working in west Oxfordshire, but increasing the impact on communities in south Oxfordshire. The economic impacts of increasing the levels of provision for sand and gravel would be to continue the supply of aggregates from west Oxfordshire, but to create new sources of supply in south Oxfordshire, nearer to planned development in the south of the county.

Options Appraised	Summary of SA
Stadhampton would be required before 2020 and both areas would be brought into production post 2020	
Soft sand	
For soft sand, three sub-regional apportionment levels have been identified (0.25mtpa, 0.31mtpa and 0.36mtpa). The Council has identified that the strategy for soft sand working will be to concentrate production in the three existing areas as follows: •South east of Faringdon •Tubney/Marcham/Hinton Waldrist •Duns Tew	The SA does not identify significant differences between the options as the overall difference in tonnage is not considered to be significant. However, generally, low levels of production are likely to be associated with fewer overall environmental impacts compared with higher production levels. Therefore the lowest apportionment option (0.25mtpa) is considered as likely to have lesser overall sustainability impacts compared to the higher options (0.31mtpa and 0.36mtpa).
Crushed rock	
For crushed rock, the various apportionment levels (0.63mtpa, 0.81mtpa and 1mtpa) would be met from working in the three existing areas as follows: •North of Bicester to the east of the River Cherwell •South of the A40 near Burford •South east of Faringdon	For the purposes of this appraisal, it has been assumed that a higher crushed rock production rate has potential for greater overall environmental and community effects compared to the lesser apportionment options (however, it should be noted that the overall difference is unlikely to be significant as the difference between the three options is not considered to be significant).
Secondary and Recycled Aggregates	

Options Appraised	Summary of SA
Two apportionment options for the provision of secondary and recycled aggregates of 0.67mtpa and 0.9mtpa.	Both options promote efficient use of natural resources with the higher option (0.9mtpa) judged to have a greater beneficial There was uncertainty when assessing potential impacts on SA objectives relating to the natural and built environment (nature conservation, historic environment, landscape, air quality, water, flood risk and soil) due to the fact that it is currently not known where sites for aggregates recycling will be located in the County. It is expected however that the potential impacts on sensitive receptors would be adequately assessed at the planning application stage when more details on the location of sites is available. Both options supported the SA objective on promoting efficient use of natural resources with the higher option (0.9mtpa) judged to have a greater beneficial impact due to the high level of provision that would be provided. The two options would also be supportive of the local economy. .

February 2012 SA Addendum Report

Context

During the September 2011 consultation period, concerns were raised by West Oxfordshire District Council that the SA had not considered the potential sustainability effects of *reducing* working in West Oxfordshire in the longer term (i.e. after 2020), and redistributing this supply so that it is sourced from alternative sites, elsewhere in the County. (The West Oxfordshire preferred areas are those sites from the Lower Windrush Valley (LWV) and Eynsham/Cassington/Yarnton (ECY)). The Council raised concerns that the options considered in the 2011 SA report do not satisfy the objective to minimise the distance that minerals need to be transported and that the option of reducing the levels of extraction in West Oxfordshire (and drawing on other sites elsewhere in the county as a consequence) should also be considered.

The 3 options considered in the 2011 report are based on adding new areas in South Oxfordshire (Cholsey, Clifton Hampden, Stadhampton) as the apportionment increases, but maintaining the level of working in West Oxfordshire. Because of the current permissions in West Oxfordshire, reducing the working in this area before 2020 is not a viable option; as there are extant permissions until this time.

However to address this consultee's concerns, an addendum report prepared in February 2012 has considered two additional options for meeting the preferred apportionment level post 2020, which consider the effect of reducing working in West Oxfordshire after 2020. These two options are both based on the assumption that pre-2020, the apportionment would be drawn from the same areas as Option 1 from the July 2011 report (on the basis that this option has since been chosen as the preferred apportionment level (1.01mtpa) in Policy M2). However post 2020, there are two possible spatial options for reducing the level of working in West Oxfordshire.

Options Appraised	Summary of SA
Option 1a based on working in the existing areas of LWV, ECY, Caversham and Sutton Courtenay. The Sutton Courtenay area is expected to cease production around 2020.The Cholsey area would be brought in to production post 2020 but working would continue at the same rate from the sites in west Oxfordshire. Option 1b would result in reducing working in the LWV (0.25 mtpa) and ECY (0.18 mpta), with the difference made up from sites from Cholsey, Clifton Hampden and Stadhampton. Option 1c would result in a reduced level of working in LWV (0.43mtpa), a cessation of working in ECY altogether (0.0mpta), with the difference made up from sites in Cholsey, Clifton Hampden and Stadhampton.	In the early part of the plan period, all options would include working in the existing areas of LWV, ECY, Caversham and Sutton Courtenay. All three options would introduce working in Cholsey and either Clifton Hampden or Stadhampton post 2020, following closure of works at Sutton Courtenay. Under option 1a, working in west Oxfordshire would continue at the same rates post 2020, while under option 1b, working in the LWV would halve, and under option 1c, even less working would occur in the west Oxfordshire area, with cessation of working in the ECY and a reduction of 0.07mtpa in the LWV. All three options have potential for adverse impacts on the environment as well as on the surrounding communities. However, option 1b includes working in five different areas, which is one more area than options 1a and 1c, which means it is likely to have on balance, more adverse sustainability impacts in the longer term across the county compared to options 1a and 1c. Under all three options two areas in south Oxfordshire would be identified to meet the required apportionment. This will have a negative local impact on the local environment and local communities in these areas, especially as all three of the potential areas are not currently subject to mineral working. There may also be negative cumulative impacts on road safety, congestion and road maintenance if HGV vehicles from the Cholsey, Stadhamption and Clifton Hampden sites were using the road network around the growth areas of Oxford, Dicot and Wantage and Grove. However this must be compared against the positive effects on local communities and the environment in the western part of the county, of rebalancing some of the supply towards the south. Minerals from the south Oxfordshire sites would offer supply solutions that would be closer to markets (and potential growth areas) in the south of the county, thus reducing the mineral miles travelled from west Oxfordshire sites and the attendant environmental impacts. Reducing working in west Oxfordshire would reduce the cumulative impacts in this area where the environment and local communities have been subjected to extensive working over a long period of time. The economic impacts of redistributing the provision for sand and gravel away from west Oxfordshire may have a localised negative impact on jobs generated by the sand and gravel industry in west Oxfordshire, shifting the positive impacts of these jobs and economic activity towards south Oxfordshire. However the construction of the substantial new infrastructure required to service sites in Cholsey, Stadhampton and Clifton Hampden provide an opportunity to generate significant new jobs and economic activity, and new sources of supply in south Oxfordshire, nearer to planned development in the south of the county which would have a positive economic impact.

Waste Spatial Options
August 2011 SA Report

Options Appraised	Summary of SA
Municipal Solid Waste (MSW)	
Recycling of MSW Provision of a new facility to serve Banbury	At present, the Council's Waste Needs Assessment indicates that there is a surplus of MSW recycling provision in the county. However, there is a need to make provision for a new recycling facility to serve Banbury to replace the existing temporary facility at Alkerton. Making provision to meet local need in Banbury will ensure that waste is not transported far for recycling as it is dealt with closer to its source of arising. This has a positive effect reducing greenhouse gas emissions associated with transporting waste by road as well as reducing the potential for other negative transport related impacts like congestion on the county's roads. Provision of recycling capacity also provides opportunities for further carbon savings as reprocessing of recycled material requires less energy than processing of raw materials. Potential impacts related to the built and natural environment (and on amenity) will need to be assessed in detail at the site selection stage so as to ensure that there are no negative effects on sensitive receptors.
Residual Waste Transfer Stations Two transfer stations to serve Ardley EfW incinerator: one in Abingdon/Didcot/Grove area and one in Witney/Carterton area	This option relates to the need to provide for bulking up and transfer stations of residual municipal waste from southern and western part of Oxfordshire for efficient transportation to the Ardley energy from waste facility to be built in 2015. Ardley is located in the north of the county. The Council has identified in its Waste Needs Assessment Report that the location of the plant in the north of the county may give rise to the need for up to two additional transfer stations to facilitate the effective delivery of waste to the plant. The proposed locations of the two residual transfer stations are south (Abingdon/Didcot/Wantage and Grove) and west (Witney/Carterton) areas of the county. Providing for the residual transfer stations in the identified areas would facilitate the efficient transportation of waste to Ardley. This is assessed as having positive impacts on the SA objectives related to transport and climate mitigation as the transfer stations are likely to lead to less waste movement across the county from the south and west to the north, thereby reducing potential negative transport impacts (congestion, noise, vibration and air pollution) as well as minimising greenhouse gases (GHGs) associated with waste transportation. Although the SA does not identify obvious reasons not to locate the proposed development within the identified broad areas, the potential impacts on the built and natural environment of the proposed facilities should be addressed at the site selection stage to ensure that development does not lead to adverse impacts on sensitive receptors including biodiversity, landscape, local amenity, the historic environment etc.

Options Appraised	Summary of SA
Commercial and Industrial (C&I) Waste	
Recycling of C&I Waste Option 1- Concentration of additional provision at or close to Oxford Option 2- Additional provision at or close to large towns – Northern and southern Option 3 – Additional provision at or close to large and smaller towns in northern, southern Oxfordshire	The Council estimates that there is a capacity gap of approximately 100,000 tonnes per annum (tpa) by 2030 for recycling C&I waste. This capacity is primarily needed to serve the large towns of Bicester, Abingdon and Didcot and their surrounding areas and the Council has identified 3 options for provision of this capacity. The appraisal findings for each of the options are provided below. **Option 1:** This option seeks to concentrate additional provision at or close to Oxford. The Council does not identify the need for additional capacity in this part of the county. While this approach would allow for shorter distances to be travelled for waste originating from Oxford and surrounding areas, waste from further north and south would need to be transported for longer distances resulting in potential negative transport impacts as well as leading to increases in green house gas emissions (GHGs). Other potential impacts on the built and natural environment and on amenity will be site specific and should be addressed in detail during the site selection process to ensure that further provision in this area does not lead to adverse effects on the environment and local communities. **Option 2:** Option 2 seeks to make additional provision at or close to the large towns in the north and south of the county. This option would lead to capacity being provided close to the sources of waste arising for the large towns in the north and south of county but with waste from the surrounding areas being transported to these facilities. This has potential for some negative transport impacts (especially on local roads) and lead to increase in GHG emissions. However, these are likely to be minor due to the short distances travelled and it is also assumed that the smaller surrounding areas are likely to produce relatively small quantities of C&I waste compared to the larger areas. To mitigate against potential adverse effects on the built and natural environment, the detailed assessment of environment and amenity issues including biodiversity, landscape, the historic environment, air, noise and water pollution should be considered when selecting sites and during the planning application process. **Option 3:** Option C provides for additional capacity to be made at or close to large and smaller towns in the north (Bicester) and south (Abingdon, Didcot, Faringdon, Henley and Thame). From a transport and climate mitigation perspective, this option offers scope to provide for well located facilities across the county that will lead to waste being managed as close as possible to where it arises, reducing impacts on the road network and minimising transport related GHG emissions. The potential impacts on the built and natural environment associated with Option 3 should be considered during site selection

Options Appraised	Summary of SA
	and planning application stages to mitigate against potential adverse effects.
Residual Treatment of C&I Waste Option 1- 1 large facility in the Abingdon/Didcot/Wantage and Grove area Option 2 – 2 smaller facilities in the Abingdon /Didcot/ Wantage and Grove and Witney area	The Council has identified an estimated gap in required provision for residual treatment of C&I waste of approximately 200,000 tpa by 2015. The existing consented sites are both located in northern Oxfordshire (Ardley and Finmere) and the council has identified that further provision is required in the south and western parts of the county and identified the following options. **Option 1**: Option 1 proposes provision of a single large facility in the Abingdon/Didcot/Wantage and Grove area. This option would lead to waste from the western part of the county being transported further for treatment and could therefore have some potential negative effects on the local road network (congestion, air pollution and noise from HGV traffic). It would also lead to increase in GHG emissions associated with road transportation of waste. However, due to its large scale, this option offers economy of scale making it more likely to be deliverable by the waste sector. This can have a positive effect on the local economy through bringing significant in-ward investment as well as providing job-opportunities. **Option 2:** This option proposes 2 smaller facilities in the Abingdon/Didcot/Wantage and Grove area; and in the Witney area. This would lead to waste being managed close to where it arises and supports SA objectives related to transport and climate mitigation. Although judged as having a positive economic impact due to potential for local job opportunities, this option may not be deliverable due to the small-scale nature of the proposed facilities. Facilities of this type are generally attractive to investors when they are of sufficiently large scale to be economical. Therefore this option is unlikely to be deliverable from an economic perspective. In taking either option forward, the potential impact on the built and natural environment as well as on amenity will need to be considered during site selection to ensure that development does not lead to adverse effects on the environment and community.
Construction, Demolition and Excavation (CDE) Waste	
Recycling of CDE waste Option 1- Concentration of additional permanent provision at or close to Bicester, Didcot	The Council estimates that approximately 500,000tpa a year by 2030 will be required for recycling of CD&E waste and that this is likely to be needed mostly in Bicester, Didcot, Wantage and Grove, but with some requirement also at Oxford, Banbury, Witney, Carterton, Abingdon and the smaller towns in southern Oxfordshire. The Council has also identified that half of the required additional capacity could be provided at temporary facilities at landfill and quarry sites across the county. Three options have been considered as follows.

Options Appraised	Summary of SA
and Wantage & Grove; and temporary facilities at landfill and quarry sites across Oxfordshire. Option 2- Dispersal of additional permanent provision at or close to Oxford and large and smaller towns in: Northern Oxfordshire Southern Oxfordshire and Western Oxfordshire and temporary facilities at landfill and quarry sites where opportunities arise across Oxfordshire Option 3 – Additional permanent provision only at or close to Oxford and towns large and smaller towns in: Northern Oxfordshire(Southern Oxfordshire and Western Oxfordshire	***Option 1***: Option A seeks to concentrate additional permanent provision at of closer to Bicester, Didcot and Wantage and Grove and temporary facilities at landfill quarry sites across Oxfordshire. This option does not make provision for other parts of the county that may require CDE recycling facilities. This would result in CDE waste from Oxford, Banbury, Witney etc having to be transported further for management although allowing for use of temporary facilities in landfill sites and quarries may reduce the distances travelled where such sites are closer to areas without adequate provision. This option therefore has some potential for negative transport and climate mitigation impacts. **Option 2** - This option seeks to provide for dispersed additional permanent CDE recycling capacity at or close to Oxford and large and smaller towns as well as make us of temporary facilities at landfill sites and quarry sites where opportunities arise across the county. This option would ensure that provision is made as close to the sources of waste arising as possible reducing travel distances and GHG emissions associated with transporting waste. Allowing for use of temporary facilities at landfills and quarries further enhances these benefits. **Option 3** – This option allows for additional permanent provision at or close to Oxford and large and smaller towns in the county. However, it does not allow for the use of temporary facilities at landfill and quarry sites. Although it makes provision for management of waste close to where it arises and is likely to have reduced transport impacts and GHG emissions, it fails to maximise these benefits by allowing some of the capacity to be met at temporary facilities where opportunities arise. All the options are supportive of SA objectives 10, 11 and 12. Further analysis of potential impacts on the built and natural environment should be undertaken at the site selection stage to mitigate against adverse impacts.
Landfill	
Provision of approximately 3million cubic metres of capacity for disposal of inert waste that cannot be recycled, with priority given to use of inert waste to restore minerals workings	The Council estimates that an additional 3 million cubic metres of capacity for disposal of inert waste that cannot be recycled will be required from around 2020. To meet this need, the Council proposes to make provision for this amount with priority given to use of inert waste to restore mineral workings. This option is assessed as having positive effects on land restoration (where inert waste is used to restore mineral works). It also supports county self sufficiency and can offer local job opportunities and therefore have positive economic benefits. The proposal however does not support SA objective 10 on moving waste up the hierarchy as landfill does not lead to more waste being recycled or recovered. However, it is

Options Appraised	Summary of SA
	acknowledged that adequate provision for landfill should still be provided as some waste that cannot be recycled/treated will require disposal. The potential transport and climate mitigation impacts of the proposed approach are difficult to assess without knowing the location of sites. This should be addressed during site selection to ensure that sites are located close to sources of arisings. Other potential impacts on the built and natural environment should also be assessed in detail during site selection to mitigate against adverse effects.
Hazardous waste	
Landfill Option 1-No additional provision: continue to rely on hazardous waste landfill facilities outside Oxfordshire, apart from disposal of non-reactive hazardous waste Option 2 – Existing landfill-change one of Oxfordshire's existing non-hazardous landfills to hazardous landfill	Oxfordshire is a net exporter of hazardous waste. The Council acknowledges that the county should be as self-sufficient as is reasonably possible in managing hazardous waste. However, due to the specialist nature of hazardous waste management facilities, they currently tend to serve large catchment areas than a single county. Oxfordshire estimates that additional capacity could be required for approximately 50,000 tpa of hazardous waste produced in the county. Two options have been proposed for meeting the required provision: **Option 1*:*** This option makes no additional provision and would seek to continue to rely on hazardous waste facilities outside Oxfordshire, apart from disposal of non-reactive hazardous waste in existing non-hazardous landfill sites in Oxfordshire where acceptable. When assessed against the SA objectives, no significant positive or negative impacts are identified as it is taken to be 'business as usual'. However, increases in the amount of hazardous waste requiring management outside the county could have some negative transport and climate mitigation impacts although this would be expected to be minor due to quantities of waste transported being relatively small. Option A does not support SA objective 11 on enabling Oxfordshire be self sufficient in its waste management although this is unlikely to be achievable given the specialist nature of hazardous waste management facilities. **Option 2-** This option proposes changing one of Oxfordshire's existing non-hazardous landfill sites to hazardous landfill. This would have a positive impact on SA objectives related to transport and climate mitigation as it would reduce the distance hazardous waste requiring disposal would be transported. It would also enable the county to move towards self-sufficiency in hazardous disposal capacity. To change the non-hazardous landfill site to hazardous, operators would be required to comply with strict Environment Agency landfilling criteria as well as planning criteria to ensure that such changes do not lead to adverse effects on the environment and the local amenity.

Options Appraised	Summary of SA
Intermediate Level Radioactive Waste Storage Option A- Storage at source of waste(Harwell and Culham) Option B- Treatment and long term storage at Harwell pending transfer to a national disposal facility Option C– Treatment and long term storage for waste from Oxon and storage for waste from Dorset pending removal to a national facility	Intermediate low level radioactive waste is produced at Harwell and smaller quantities at Culham. There is a requirement for treatment and storage of an estimated 10,000 cubic metres of intermediate level radioactive waste and three proposals have been considered for dealing with this waste: **Option A**: Option A seeks to make provision at source – treatment and long-term storage at Harwell (for Harwell waste only) and at Culham (for Culham waste only), pending removal to a national disposal facility. This option is considered sustainable in that it supports management of waste close to where it is produced reducing the need to transport waste further (although the distance between the two facilities is only approximately 7 miles). Key issues that would need to be considered at Harwell include: • Potential impact on local biodiversity including a SSSI 7 kms to the south east of the site • The close proximity to the North Wessex Downs AONB as well as potential local visual and landscape impacts • Potential impacts on Scheduled monuments identified close to the site (within 5kms) • Potential for ground water and surface water contamination • Potential for land contamination Potential amenity and health impacts associated with management of intermediate Key issues that should be considered at Culham include: Potential impacts on local site biodiversity (there are no designated sites close to or within the site) Potential impacts on the AONB Potential impacts on the Scheduled Monument site identified 1km east of the site Potential impacts on surface and ground water Potential amenity and health impacts **Option B** – This option provides for treatment and long-term storage of intermediate level nuclear waste (from Harwell and

Options Appraised	Summary of SA
	Culham) at Harwell, pending removal to a national disposal facility. Compared to option A, this option would lead to some waste from Culham being transported to Harwell. Although assessed as a negative impact against SA objectives on transport and climate change, this impact is likely to be minor due to the distance travelled (approximately 7miles) and the quantities of waste moved (expected to be small). The key sustainability issues identified above would still need to be addressed at the planning application stage to ensure that development of the proposed facility at Harwell does not lead to adverse environmental impacts. **Option C –** This option seeks to provide for the treatment and long-term storage of intermediate level nuclear waste from Oxfordshire (Harwell and Culham) and waste from Dorset (Winfrith) at Harwell, pending removal to a national disposal facility. This option like option B above would lead to radioactive waste being transported from Culham but also from Dorset which lies outside the County. It is not clear at this stage the quantities of waste from Winfrith that would require transportation to Harwell but due to the distance involved, this option is judged as having a potential negative impact on SA objectives 5 and 7. The key sustainability issues identified above for the Harwell site would still need to be addressed at the planning application stage to ensure that development of the proposed facility does not lead to adverse environmental impacts.
Low Level Radioactive Waste Management Option A- Storage Temporary storage (if required) and disposal in a bespoke facility at Harwell; and at Culham Option B- Temporary storage (if required) of waste at source of waste and disposal in a bespoke facility at Harwell. Option C – temporary storage (if required) of waste at source of waste disposal in a suitable off –site landfill in Oxfordshire.	It is estimated that a total of 100,000 cubic metres of low level radioactive waste mainly arising from demolition and clearance of buildings at Harwell and Culham will be required. The Council has considered four options for the storage and disposal of this waste as follows: **Option A –** Temporary storage and disposal in a bespoke facility at Harwell (for Harwell only), and at Culham (for waste from Culham). This option when assessed against the SA objective would lead to the least movement of materials and therefore performs well against SA objectives 5 and 7. The following key issues would need to be considered when assessing the potential development of such facilities at Harwell and Culham: Harwell: • Potential impact on local biodiversity including a SSSI 7 kms to the south east of the site • The close proximity to the North Wessex Downs AONB as well as potential local visual and landscape impacts • Potential impacts on Scheduled monuments identified close to the site (within 5kms) • Potential for ground water and surface water contamination

Options Appraised	Summary of SA
Option D – Temporary storage (if required0 of waste at source of waste and disposal in a suitable off-site landfill site outside Oxfordshire.	• Potential for land contamination Culham: • Potential impacts on local site biodiversity (there are no designated sites close to or within the site) • Potential impacts on the Greenbelt and AONB • Potential impacts on the Scheduled Monument site identified 1km east of the site • Potential impacts on surface and ground water • Potential amenity and health impacts **Option B**: Temporary storage of waste at source of waste and disposal of a bespoke facility at Harwell (waste from Harwell and Culham). This option would lead to some movement of materials from Culham. However, although assessed as a potential negative impact in terms of transport and climate mitigation, this impact is likely to be minor due to the distance travelled and the amount of waste requiring transportation being relatively small. The key environmental and amenity issues identified above (Option A) for Harwell should be addressed at the planning application stage to mitigate against potential adverse effects. **Option C** – Temporary storage of waste at source of waste and disposal in a suitable off-site landfill in Oxfordshire. This option would see waste stored at Harwell and Culham before being disposed off-site in a landfill in Oxfordshire. It would result in waste being transported from its source of arising for disposal elsewhere in the county. Depending on the location of the landfill site there is potential for increases in negative transport impacts as well as GHG emissions associated with waste transportation. Potential impacts on the built and natural environment as well as on amenity associated with such a disposal facility would need to be considered in detail at the site selection and planning application stages to ensure that such development does not lead to adverse impacts on the environment and local amenity as well as human health. **Option D**- Temporary storage of waste at source of waste and disposal in a suitable off-site landfill outside Oxfordshire. This option like option C above would see waste stored at Harwell and Culham before being disposed off site but to a landfill site outside of Oxfordshire. For the purposes of this assessment, it has been assumed that landfill sites out of county are likely to be further from the sources of waste arising than landfill sites within Oxfordshire. This is assessed as having potential for negative transport impacts and associated GHG emissions and it also does not support SA objective 11 on enabling county self-sufficiency. Potential impacts on the built and natural environment and amenity of such a facility should be considered in detail at the site selection and planning stages to ensure that proposals do not lead to adverse impacts on the environment (this responsibility would lie with the local authority where such a site would be located and is outside

Options Appraised	Summary of SA
	Oxfordshire County Council's remit but the Council will be consulting potentially affected Waste Planning Authorities).

Other Spatial Options Considered

Options Appraised	Summary of SA
Minerals safeguarding	
Sharp sand and gravel	
Main river valleys: Thames, Lower Windrush, Lower Evenlode and Lower Thame Option 1 – Safeguard all these resources – regarded to be of significant commercial interest Option 2 – Safeguard only areas where nominations for extensions to existing sites or new sites have been made, where the resource is proven Option 3 – SE Plan policy approach – Policy M5 existing mineral sites, proposed sites and areas of search should be safeguarded	Overall the effects of the three options are likely to be neutral with regards to the social and environmental SA objectives as safeguarding means there is no presumption that any areas will be extracted or environmentally acceptable for extraction. Safeguarding sharp sand and gravel in the main river valleys where reserves are regarded as strategically important is likely to help Oxfordshire meets it sub regional apportionment in the future with regards to the sharp sand and gravel required within the County for roads, house building etc. All three options are supporting the local minerals and construction industry by safeguarding sharp sand and gravel for unknown future requirements for economic growth. Option 1 provides more flexibility for the minerals industry for the future as this sharp sand and gravel resource is regarded as of strategic importance. Options 2 and 3 are likely to ensure non mineral development is not prevented unduly as these are sites have put forward by the mineral industry or are existing sites but do not provide flexibility for the minerals industry in the longer term.
Minor river valleys: Cherwell and Ock valleys and minor tributaries	Generally the effects of the two options are likely to be neutral with regards to the social and environmental SA objectives as safeguarding means there is no presumption that any areas will be extracted or environmentally

Options Appraised	Summary of SA
Option 1 – Safeguard the entire resource – variable, uncertain and often poor quality deposits Option 2 – Limit safeguarding to any economic resources that have been identified	acceptable for extraction. Safeguarding sharp sand and gravel in the minor river valleys where reserves are regarded as variable, uncertain and of poor quality is unlikely to help Oxfordshire meet its sub regional aggregates apportionment with regards to the sharp sand and gravel required within the County for roads and house building or support Oxfordshire's economic growth. Option 1 would include safeguarding areas which may not be economically viable which may in turn prevent or hamper non minerals development unduly. Option 2 would safeguard economically viable resources but as they are expected to be of poor quality this is likely to have neutral effects with regards to support Oxfordshire's economic growth.
Glaciofluvial sand and gravel Option 1 – Safeguard the entire resource Option 2 – Limit safeguarding to resources proven by industry	The effects of the two options are likely to be neutral with regards to the social and environmental SA objectives as safeguarding means there is no presumption that any areas will be extracted or environmentally acceptable for extraction. Safeguarding glaciofluvial sand and gravel will ensure high quality reserves are not sterilised but currently these are not of any economic interest so this could have positive effects in the longer term if other areas prove more difficult to extract from therefore helping Oxfordshire to meet its self sustaining with regards to the sharp sand and gravel required within the County for roads and house building. Both options are supporting the local minerals and construction industry by safeguarding glaciofluvial sand and gravel resources considered to be of high quality and potentially required in the longer term. Safeguarding all the resource in option 1 is unlikely to prevent or hamper non mineral development in the county unduly as some of the resource area is within the AONB where non mineral development would be unlikely(north east of the County is where the resource is unconstrained by the AONB) and the deposit is of limited spatial extent. Option 2 is likely to support Oxfordshire's mineral industry particularly in the short term as these are areas currently of interest to the minerals industry and would be safeguarding proven high quality resources.
Soft sand	
Option 1 – Safeguard all resources Option 2 – Limit safeguarding to potential extensions to existing soft sand quarries, permitted reserves, and other locations where resources are proven or where the industry has indicated there are likely to be	The effects of the two options are likely to be neutral with regards to the social and environmental SA objectives as safeguarding means there is no presumption that any areas will be extracted or environmentally acceptable for extraction. Safeguarding soft sand is likely to help Oxfordshire to be self sustaining with regards to meeting the need for construction sand required within the County for house building.

Options Appraised	Summary of SA
workable resources.	Both options are supporting the local minerals and construction industry by safeguarding soft sand resources. Compared with option 2, option 1 may prevent or hamper non mineral development unduly as some of the reserves are located east of Oxford. Option 2 identifies areas and sites of economic potential as identified by the industry.
Crushed rock	
Limestone Aggregate Option 1 – Safeguard all of the limestone resource Option 2 – Limit safeguarding to existing limestone quarries and permitted reserves, and new locations outside the Cotswolds AONB where there are proven resources	The effects of the two options are likely to be neutral with regards to the social and environmental SA objectives as safeguarding means there is no presumption that any areas will be extracted or environmentally acceptable for extraction. Safeguarding limestone is likely to help Oxfordshire to be self sustaining with regards to its crushed rock requirements for construction and therefore would support Oxfordshire's economic growth. Option 1 would include safeguarding areas which may not be economically viable however given its spatial extent within parts of the AONB it is unlikely to prevent or hamper non minerals development unduly. Option 2 would safeguard existing quarries permitted reserves and new locations outside the AONB which are proven which would support the minerals industry and Oxfordshire's economy. However there is some uncertainty as it could potentially restrict the minerals industry as some economically viable resources may be located in the AONB.
Ironstone aggregate Option 1 – Safeguard all of the ironstone resource Option 2 – Limit safeguarding to existing ironstone quarries, permitted reserves, and areas subject to Reviews of Minerals Permissions	Overall the effects of the two options are likely to be neutral with regards to the social and environmental SA objectives as safeguarding means there is no presumption that any areas will be extracted or environmentally acceptable for extraction. Safeguarding ironstone is likely to help Oxfordshire meet its sub regional apportionment with regards to its crushed rock requirements and therefore would support Oxfordshire's economic growth. Option 1 would include safeguarding areas which are economically viable given its location and the permitted reserves unworked, safeguarding other areas with no interest from the mineral industry may prevent or hamper non minerals development unduly. Option 2 would safeguard existing quarries and permitted reserves and areas subject to ROMPs where industry has proven resources. This would support economic growth.
Building stone: Limestone and ironstone	
Option 1 – Safeguard all known building stone resources Option 2 – No safeguarding because of the poor data on the resource	Effects of both options are expected to be neutral. For option 1 this is because safeguarding means there is no presumption that any areas will be extracted or environmentally acceptable for extraction. There are likely to be positive effects of option 1 upon SA objective 2 as it is known that the limestone and ironstone resource used for building stone has been used for local house building (cottages at Chipping Norton) in the past and therefore the distinctiveness of the stone to potentially be used in this area in the future would be protected. Effects for option 2 are expected to be neutral as building stone resources mainly occur in the Cotswolds AONB or

Options Appraised	Summary of SA
	other countryside locations which are unlikely to be at risk of sterilisation.
Other minerals	
Chalk Option 1 – no mineral safeguarding area	Overall the effects of this option are likely to be neutral for the majority of the SA objectives. Chalk in the County has previously been used in cement however chalk is no longer worked although there are permitted reserves at a quarry near Ewelme. It is understood that there is no further interest in working chalk from operators or landowners. Given its extent in the south of County not safeguarding chalk is likely to ensure non mineral development is not prevented or hampered unduly when there is no economic interest in working the mineral.
Clay Option 1 – no mineral safeguarding area	In general the effects of this option are likely to be neutral for the majority of the SA objectives. Clay in the County has previously provided material for brick making however no brickworks exist and clay is now only worked in Oxfordshire for material used in engineering of landfill sites. Brickmaking is understood to be no longer economically viable and new landfilling capacity is to be limited given the need to divert waste from landfill. Not safeguarding clay is likely to ensure non mineral development is not prevented or hampered unduly.
Coal and Coal Bed Methane Option 1 – no mineral safeguarding area	Overall the effects of this option are likely to be neutral for the majority of the SA objectives. A large area of the county is covered by the Oxfordshire-Berkshire coalfield. No coal has been mined and the seams are of no economic interest. Seams also have low coal bed methane gas content. Not safeguarding coal and coal bed methane is likely to ensure non mineral development is not prevented or hampered unduly therefore supporting Oxfordshire's economic growth.
Waste import disposal options	
Option 1: Refuse to take further waste from London and elsewhere; Option 2:Take waste from London and elsewhere at locally derived rates.	Both options could have potentially positive effects upon the environmental and social SA objectives as result of reducing or preventing waste imports for disposal and therefore the level of operations and their associated impacts at existing sites and the need for new sites to manage imported waste. However there is the potential for adverse effects upon SA objectives relating to biodiversity and landscape in particular in the medium to long term as a result of slowing down restoration proposals for existing landfill sites. Both options are likely to assist Oxfordshire be self sufficient (SA objective 11) with respect to their disposal needs for the future by husbanding landfill capacity within the County. This is likely to be significantly positive for option 1. Option 1 is likely to have significant adverse effects upon SA objective 12 as it could prevent cross boundary markets for waste disposal and the economic performance of the waste industry in Oxfordshire. Option 2 would still allow waste imports and therefore it is likely to support Oxfordshire's waste industry.

Options Appraised	Summary of SA
	Waste importation leads to waste travelling from outside Oxfordshire including London and further afield for disposal in Oxfordshire therefore producing greenhouse gas emissions as a result of transportation of waste. Reducing the amount of waste imported for disposal from current levels (option 2) or restricting it altogether (option 1) may reduce the greenhouse gases produced by landfills in Oxfordshire however it could send waste further from its source generating more greenhouse gases through transportation than it currently does. The effects are therefore uncertain upon SA objective 5.

MWCS Preferred Policies

September 2011 SA reports

Policies Appraised	Summary of SA
Minerals Strategy Policies	Policy M1 and M2 seek to make a sustainable contribution to Oxfordshire's sub-regional minerals apportionment based on a local assessment of supply (Atkins, January 2011). The target for recycled and secondary aggregates is recognised as ambitious as rates of utilisation are already high and secondary and recycled aggregates are not currently substituted for primary aggregates in structural uses, only in lower specification construction uses like car parks. However the target is consistent with the South East Plan (Policy M2 – 0.9 million tonnes per year). The adverse effects which might arise from a particular volume of mineral working in the County are difficult to predict based on the apportionment figure alone, as it is the spatial implications, i.e. the location and distribution of mineral working sites which make up the apportionment which will determine the effects. For this reason, the nature of any adverse impacts of Policy M1 and M2 will depend to some extent on the location of sites allocated through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications, including the proximity of such facilities in relation to sensitive receptors. However it can be expected that the adverse environmental and social effects of the proposed apportionment levels in Policy M2 might be less adverse than those experienced under the delivery of the current policy - Policy M3 of the South East Plan, which requires a higher level of provision or the Secretary of State's proposed changes to Policy M3, which would require an even higher level of supply. Restoration schemes for those secondary/recycling sites which are no longer required will be required to address biodiversity, landscape,

Policies Appraised	Summary of SA
	water and soil restoration objectives. A cross reference to Policy M6: Restoration of Mineral Workings in the supporting text to this policy is therefore recommended. Policy M3 sets out the spatial strategy for mineral working. It is recognised that whilst concentrating extraction predominantly in areas where working is currently taking place or has taken place recently has economic advantages and presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to beneficial effects for local communities, landscapes and wildlife; the long-term nature of mineral works means that communities and environments within/close to the identified areas will continue to experience the cumulative adverse effects of mineral working for the foreseeable future. Measures to mitigate against negative effects should be required at site selection and planning application stages. Appropriately, the policy will not lead to an overall increase of working activity in West Oxfordshire, or in any one particular area, and so no significant additional adverse cumulative effects are expected on top of those already experienced, which is particularly important in areas where there has already been extensive working. It should also be noted that mineral working and after-use in the flood plain can offer opportunities to increase flood water storage capacity and reduce the risk of flooding elsewhere, which will be important in the longer term, given the predicted effects of climate change. The sustainability of Policy M6: Restoration of mineral workings could be improved in relation to SA Objective 6 by reference to this opportunity.
Waste Strategy Policies	Strategic policies W1 (amount of waste to be provided for), W3 (waste management targets), W4 (additional waste management capacity) all seek to ensure that sufficient capacity is delivered to manage the amount of waste arising in Oxfordshire. These policies are in line with sustainability and can enable self sufficiency. They are also in keeping with the waste hierarchy. Policy W2 provides for disposal of a declining amount of waste from London and elsewhere at existing landfill sites in Oxfordshire. This policy is not in line with the waste hierarchy and the principle of managing waste close to where it arises. However, the policy seeks to reduce these negative impacts by restricting disposal to a reducing amount over time. Delivery of recycling and treatment capacity in London and elsewhere will be critical in the short to medium term to ensure this policy does not lead to detrimental impacts in the long-term. Policy W5 outlines the provision for different types of waste management facilities in Oxfordshire. The policy responds to the Council's Waste Needs Assessments and makes provision in line with the identified needs. The proposals aim at locating facilities as close as possible to sources of waste arising and this is the case for MSW residual waste transfer stations, C&I recycling and C&D recycling. For C&I residual treatment facilities some potential negative transport impacts are identified due to the need to move materials from the west of the county to the single large facility proposed in the south. Mitigation measures against the identified impacts will need to be

Policies Appraised	Summary of SA
	considered during Site Selection and at the planning application stages. Policy W6 provides guidance on sites for waste management facilities. The criteria adopted can help deliver sites that make best use of available land resources. Proposals for small scale sites in the AONB will need to ensure that such proposals are in keeping with the designation's objectives. Proposals to locate facilities to serve Oxford's needs within the Green Belt will need to be balanced between the need to manage waste close to where it arises and the potential negative impacts on the local landscape. Ways to minimise potential negative effects should be considered during Site Selection and at the planning application stage. Policy W7 provides for inert landfill for restoration of land. This can have beneficial impacts in restoring land quality. The policy restricts permitting of landfill for non-inert waste which will help divert this waste stream from landfill. Overall, although landfill is considered to be the option of last resort, it currently has a role to play in the management of waste. However, this role is expected to diminish as new recycling and treatment facilities are delivered and landfill is restricted to residual non-hazardous and for restoration purposes. Oxfordshire is a net exporter of hazardous waste and Policy W8 and its supporting text acknowledge that due to the specialist nature of hazardous waste management facilities (they currently tend to serve large catchment areas than a single county) exporting of some hazardous waste for management elsewhere will continue to form part of the strategy for managing hazardous waste arising in Oxfordshire. Exporting hazardous waste for management elsewhere was assessed as likely to have negative transport impacts. These impacts were judged be minor due to the relatively small quantities of waste involved. The policy supports self-sufficiency as is reasonably possible and it has the potential to increase the amount of hazardous waste managed in-county. Policy W9 relates to the management of radioactive waste (intermediate and low level radioactive waste). For intermediate level radioactive waste, the policy proposes storage at Harwell for waste arising from both Harwell and Culham. Some potential negative transport impacts are identified although these are judged to be minor due to the short distance travelled and the small quantities of waste expected to be moved. For low level radioactive waste, Policy W9 proposes temporary storage at both Harwell and Culham, allowing for final disposal at existing landfills or a bespoke facility at Harwell if no other means of disposal is available. Storage at source of arising would lead to minimal movement of materials between the sites and therefore no potential negative transport impacts have been identified. The potential impacts of the final disposal route will depend on the preferred option and will need to be considered in detail at the planning application stage when the potential disposal sites are identified. The SA identifies some environmental issues to be considered at the planning application stage for both Harwell and Culham sites to mitigate against potential adverse impacts.

Policies Appraised	Summary of SA
	Policy W10 on safeguarding seeks to ensure that sites are not lost to other developments. This policy supports self sufficiency by providing local site alternatives to potential developers within the county indirectly leading to waste being managed close to where it arises and mitigating against potential negative transport impacts. Overall, the strategic waste planning policies are considered to be supportive of sustainable development principles subject to the identified mitigation measures.
Common Core Policies	All of the Common Core Policies (C1 – C8) were found to be broadly in line with the SA objectives. The sustainability of Policy C1: Flooding in relation to SA objective 6 could be improved by reference to the future predicted impacts of climate change and the incorporation of adaptation measures to account for this, including any likely increased flood risk. The sustainability of Policy C2: Water Environment in relation to SA Objective 8 could be improved by explicitly referring to the recreational values of maintaining water quality/quantity, as the River Thames for example, is a very important recreational resource for the county. Policy C3: Environmental and Amenity Protection could be more explicit in defining what constitutes the 'environment' or a 'sensitive receptor' in order to give more guidance to developers. It would also be helpful to provide some guidance as to what might constitute an "unacceptable adverse impact". In addition, the potential impacts on human health, not just residential amenity should be considered (to comply with the SEA Directive requirements to consider effects on human health as captured by SA objective 8), and it might also be appropriate to consider local businesses as sensitive receptors, particularly where such businesses are dependent on a high quality environment and good amenity (e.g. tourism sector). A cross reference in the supporting text to the Common Core Policies which deal with distinct elements of the 'environment' would be helpful in relation to Policy C3: Environmental and Amenity Protection – for example to highlight linkages to Policy C2 for ground and surface water, Policy C4 for Biodiversity and Geodiversity, Policy C5 for Landscape and Policy C6 for the Historic Environment and Archaeology. Public access to restored mineral workings should be carefully managed however, so as to not adversely impact on habitats and species resident in the restored area. A reference to this effect should be included in the supporting text to Policy C8: Rights of Way to improve sustainability in relation to SA objective 1.

APPENDIX C: COMPATABILITY OF OBJECTIVES

The following table provides an explanation of the symbols used in the compatibility appraisal of the proposed Minerals Strategy objectives and Waste Strategy objectives with the Sustainability Appraisal Objectives. The objectives for the Minerals Strategy and Waste Strategy are detailed in Section 2 of the main report.

Symbol	Compatibility
+	Objectives compatible
0	Objectives not related
-	Objectives incompatible
?	The objective relationship is unknown or is dependent on implementation

SA Objectives / Proposed Minerals Strategy Objectives	SA1. Biodiversity and Geodiversity	SA2. Landscape and Historic built heritage	SA3. Ground and Surface water quality	SA4. Air Quality	SA5. Green house gas emissions	SA6.Flooding and Climate change adaptation	SA7. Transport	SA8. Human Health and Local Amenity	SA9. Land and Soil Quality	SA10. Waste Hierarchy	SA11. Waste and minerals management	SA12. Economic Growth
OBJECTIVE i	?	?	?	?	?	?	?	?	?	?	+	+
OBJECTIVE ii	?	+	?	?	+	0	+	?	?	0	+	+
OBJECTIVE iii	0	0	0	0	0	0	+	0	0	0	+	+
OBJECTIVE iv	+	+	+	+	+	+	+	+	+	+	+	+
OBJECTIVE v	?	?	+	+	+	+	+	+	?	0	0	+

SA Objectives / **Proposed Minerals Strategy Objectives**	**SA1. Biodiversity and Geodiversity**	**SA2. Landscape and Historic built heritage**	**SA3. Ground and Surface water quality**	**SA4. Air Quality**	**SA5. Green house gas emissions**	**SA6.Flooding and Climate change adaptation**	**SA7. Transport**	**SA8. Human Health and Local Amenity**	**SA9. Land and Soil Quality**	**SA10. Waste Hierarchy**	**SA11. Waste and minerals management**	**SA12. Economic Growth**
OBJECTIVE vi	?	?	?	+	+	+	+	+	?	0	?	?
OBJECTIVE vii	+	+	+	+	+	+	0	+	+	0	0	+
OBJECTIVE viii	+	+	+	+	+	+	0	+	+	0	0	0
OBJECTIVE ix	?	?	?	?	?	?	?	?	?	0	+	+
OBJECTIVE x	?	?	?	+	+	+	+	+	0	+	+	+

Overall, the proposed objectives were found to be compatible with the SA objectives. No incompatibility was found between the SA objectives and the Minerals LDF objectives. The Minerals LDF objectives seek to manage Oxfordshire's mineral planning needs in a way that protects the valued natural environment (objectives iv, vi, vii and viii), contributes to economic growth (objectives I, iii, iv, and ix) as well as ensuring communities are provided with adequate facilities to meet anticipated needs (ix and x) in a manner that protects their health and safety (objectives vi, vii, viii). Objective vi supports reducing the need to transport minerals significant distances by road and this is further supported by Objective x. Together these objectives have the potential to reduce the negative impacts associated with HGV movements in specific areas of the County including: addressing the serious congestion on the County's roads, lowering the high level of greenhouse gas emissions per capita (currently above both UK and South East averages), reducing air and noise pollution and other local amenity impacts experienced by local communities in mineral working areas.

SA Objectives / **Proposed Waste Strategy Objectives**	**SA1. Biodiversity and Geodiversity**	**SA2. Landscape and Historic built heritage**	**SA3. Ground and Surface water quality**	**SA4. Air Quality**	**SA5. Green house gas emissions**	**SA6.Flooding and Climate change adaptation**	**SA7. Transport**	**SA8. Human Health and Local Amenity**	**SA9. Land and Soil Quality**	**SA10. Waste Hierarchy**	**SA11. Waste and minerals management**	**SA12. Economic Growth**
OBJECTIVE i	?	?	?	+	+	?	+	?	?	?	+	+
OBJECTIVE ii	?	?	?	?	+	?	?	?	?	+	+	+
OBJECTIVE iii	+	+	+	+	+	+	+	+	+	0	+	+
OBJECTIVE iv	?	?	?	?	+	?	+	?	?	0	+	+
OBJECTIVE v	?	?	?	-/?	-	?	-	?	?	0	0	+
OBJECTIVE vi	+	+	+	+	0	+	0	+	+	0	0	0
OBJECTIVE vii	0	0	0	0	+	0	0	0	0	+	0	0
OBJECTIVE viii	+/?	+/?	+/?	+/?	+/?	+/?	0	+/?	+	0	0	0

Overall, the proposed waste strategy objectives are generally compatible with the SA objectives, with the exception of waste strategy objective v which seeks to continue to import waste from London into Oxfordshire. This waste strategy objective is considered to be incompatible with objective SA5 reducing greenhouse gas emissions and objective SA7 minimising the impacts of waste transportation especially where waste could be transported by road from London and elsewhere. Waste strategy objective v does however limit the waste to residual waste stating this would be following recycling and treatment

SA Objectives / Proposed Waste Strategy Objectives	SA1. Biodiversity and Geodiversity	SA2. Landscape and Historic built heritage	SA3. Ground and Surface water quality	SA4. Air Quality	SA5. Green house gas emissions	SA6.Flooding and Climate change adaptation	SA7. Transport	SA8. Human Health and Local Amenity	SA9. Land and Soil Quality	SA10. Waste Hierarchy	SA11. Waste and minerals management	SA12. Economic Growth
elsewhere and aims to accept a reduced quantity of this waste in the longer term. Waste strategy objective vi is compatible with SA objectives relating to protection of the built and natural environment as well as amenity. Waste strategy objectives i,ii, iii, iv are considered to be compatible with objective SA5 relating to the reduction in greenhouse gas. These objectives are also compatible with SA11 as they support provision of waste management facilities.												

APPENDIX D: SUSTAINABILITY APPRAISAL MATRICES: PRE SUBMISSION POLICIES

The Sustainability Appraisal has been documented using a standard matrix to record the likely effects of policies upon each SA objective. The matrix comments include discussion of the timing, likelihood and permanence of effects.

The following table provides an explanation to the symbols used in the appraisal.

Symbol	Likely effect on the SA Objective
++	The option is likely to have a significant positive effect
+	The option is likely to have a positive effect which is not significant
0	No significant effect / no clear link
?	Uncertain or insufficient information on which to determine effect
-	The option is likely to have a negative effect which is not significant
- -	The option is likely to have a significant negative effect.
+/-	The option is likely to have some positive and some negative effects

Minerals Strategy Vision

In the period to 2030, the supply of aggregate materials to meet the development needs of Oxfordshire and help sustain its world class economy, and to make an appropriate contribution to wider needs, will be met by:

- **an increased use of secondary and recycled aggregate materials;**
- **the continued import of materials such as hard crushed rock that are not available locally; and**
- **the balance of provision from locally produced sand and gravel, soft sand, limeston and ironstone; and**

Mineral working will be located and managed to minimise:

- **the distance that aggregates are transported by road;**
- **the use of unsuitable roads through settlements; and**
- **other harmful impacts of mineral extraction and transportation on Oxfordshire's environment and communities.**

The restoration of mineral workings will enhance the quality of Oxfordshire's natural environment and the quality of life for Oxfordshire residents by:

- **contributing to the creation of habitats and protection of biodiversity, particularly in relation to the Conservation Target Areas ; and**
- **providing access to the countryside and opportunities for recreation.**
- **Seeking to reduce the risk of flooding and providing flood storage capacity**

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	++	The vision recognises the importance of the ecological values present in the county and explicitly recognises the purpose/objectives of the Conservation Target Areas which are identified in the sub-criteria of this SA objective.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+	The restoration aims in Part C of the vision may indirectly address this SA objective.
3. To maintain and improve ground and surface water quality	+	The restoration aims in Part C of the vision may indirectly address this SA objective.
4. To improve and maintain air quality to levels which do not damage natural systems	++	Part B of the vision positively addresses this SA objective.
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+/-	The aim to reduce transportation of aggregates by road and increased use of secondary and recycled aggregates address this SA objective, although the vision relies on some imported primary materials which will still require transportation into the county (and thus greenhouse gas emissions) as they are not available locally. The revised vision seeks to reduce the risk of flooding and provide flood storage capacity and thus directly and positively addresses this objective.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	++	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	++	Part B of the vision aims to manage mineral working so as to reduce transportation of aggregates by road and to minimise the use of unsuitable roads through settlements – this is positive in relation to this SA objective.

Sustainability Appraisal objectives	Likely effect	Comments
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	++	The vision aims to enhance quality of life for Oxfordshire's residents through restoration, improved access to the countryside, opportunities for recreation and minimisation of impacts on settlement roads through transportation of minerals.
9. To protect, improve and where necessary restore land and soil quality	+	The restoration of mineral workings and creation of habitats should have a secondary but positive impact on land and soil quality and thus this SA objective.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	+	The increased use of secondary and recycled aggregates in place of primary mineral extraction will assist to move the management of this waste material up the waste hierarchy and is thus positively consistent with this SA objective.
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	++	The vision aims to meet the development needs of Oxfordshire (and the wider area) through a sustainable and balanced approach including some local provision, increased use of secondary or recycled aggregate materials and the continued import of those materials necessary, but not available locally, e.g. hard crushed rock.
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	The vision identifies that supply will meet the development needs and help to sustain its world class economy. It doesn't address reduction of disparities, but this is difficult to achieve due to the fact that minerals are worked where they are won.
Summary **The vision addresses all of the sustainability objectives, including SA Objective 6 on flood risk and climate mitigation and adaptation (which was raised as an issue at the preferred options stage). The proposed vision as worded has a positive or very positive fit in relation to all of the identified sustainability objectives. It is noted that there will be some unavoidable negative impacts from importation of material which is not available locally.**		

Minerals Strategy Policies

Policy M1: Provision for Secondary and Recycled Aggregates

The production and supply of secondary and recycled aggregates, in place of land won aggregates, will be encouraged.

Provision will be made for facilities to enable the supply of at least 0.9 million tonnes of secondary and recycled aggregates a year, comprising:

- **Permanent facilities; and**
- **Temporary facilities at aggregate quarries and inert waste landfill sites.**

Provision will be primarily through recycling of construction, demolition and excavation waste but also through recycling of road planings and rail ballast and recovery of ash from combustion processes.

Sustainability Appraisal objectives	Likely Effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	?	Use of secondary and recycled aggregates to replace land won aggregates should have a positive impact on protection of Oxfordshire's geodiversity over the longer term and potentially a long term positive effect in relation to protecting/maintaining biodiversity and habitats in those areas where primary minerals would otherwise be won. The facilities for processing of such aggregates tend to be located in existing quarries/landfills, and so are unlikely to compromise any new areas. However the production of secondary/recycled aggregates is recognised as having environmental effects broadly similar to those caused by processing of primary aggregates so in the short and at least temporary term, adverse effects on natural habitats and species could be experienced unless appropriately mitigated. The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/ recycled aggregates, including the location of such facilities in relation to sensitive receptors. The potential for cumulative adverse effects as a result of locating these facilities at active mineral workings should be considered when allocating sites or when applications come forward. The adverse effects arising from mobile units which serve individual developments are likely to be of a much more temporary and local nature than those facilities holding long term consents.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	?	Use of secondary and recycled aggregates to replace land won aggregates have potential for long term minor positive impacts on protection of Oxfordshire's landscape character and historic/built heritage in that facilities for processing of such aggregates tend to be located in existing quarries/landfills, and so would not

Sustainability Appraisal objectives	Likely Effect	Comments
		compromise any new areas. The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/ recycled aggregates, including the location of such facilities in relation to landscape and historic assets and potential for cumulative adverse effects as a result of locating these facilities at active mineral workings.. The adverse effects arising from mobile units which serve individual developments are likely to be of a much more temporary and local nature than those facilities holding long term consents. Restoration schemes for those sites which are no longer required should assist with reinstatement of an appropriate landscape or protection of geodiversity consistent with Policy M7.
3. To maintain and improve ground and surface water quality	?	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/ recycled aggregates, including the location of such facilities in relation to sensitive receptors. The potential for cumulative adverse effects as a result of locating these facilities at active mineral workings should be considered when allocating sites or when applications come forward. The adverse effects arising from mobile units which serve individual developments are likely to be of a much more temporary and local nature than those facilities holding long term consents.
4. To improve and maintain air quality to levels which do not damage natural systems	?	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/ recycled aggregates, including the location of such facilities in relation to sensitive receptors. The potential for cumulative adverse effects as a result of locating these facilities at active mineral workings should be considered when allocating sites or when applications come forward. The adverse effects arising from mobile units which serve individual developments are likely to be of a much more temporary and local nature than those facilities holding long term consents. Mobile units also provide a means to reduce the distance that aggregates are transported, which could have a positive impact on air quality in relation to transport related emissions.

Sustainability Appraisal objectives	Likely Effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	++/?	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/ recycled aggregates, including the location of such facilities in relation to the markets that they serve. Temporary mobile units have the advantage of locating close to the source/end point, reducing transportation distances and subsequently reducing greenhouse gas emissions.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	?	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/ recycled aggregates and in particular the planned location of such facilities – i.e. whether they are located in areas of flood risk.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	?	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/recycled aggregates and in particular the planned location of such facilities in relation to the markets/end use sites. Where these facilities exist in close proximity to active mineral workings there are likely to be negative temporary but sustained cumulative effects without appropriate mitigation. Many of the active temporary and permanent secondary and recycle aggregates facilities are located at existing quarries and landfill sites so effects on the local road network are likely to be similar as for primary aggregates, depending on the volumes of material moved and potential for backfilling. Temporary mobile units have the advantage of locating close to the source/end point, reducing transportation distances and subsequently impacts on the strategic road network.

Sustainability Appraisal objectives	Likely Effect	Comments
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	?	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/recycled aggregates and in particular the planned location of such facilities in relation to local communities. Many of the active temporary and permanent secondary and recycled aggregates facilities are located at existing quarries and landfill sites so adverse effects on the local communities are likely to be similar to the winning of primary aggregates, depending on the volumes of material moved and potential for backfilling. Temporary mobile units have the advantage of locating close to the source/end point, reducing transportation distances and subsequently impacts on local communities.
9. To protect, improve and where necessary restore land and soil quality	++	The nature of any adverse impacts will depend to some extent on the allocation of sites for secondary and recycled aggregates through the Sites Allocations DPD and the application of the Common Core Policies to any individual applications for production of secondary/recycled aggregates. The promotion of secondary and recycled aggregates to replace land won aggregates should have a significant positive impact on protection of high grade agricultural land and soil quality, as it minimises land take – sites are usually operated from existing quarries/landfills and could reduce disturbance to land from the extraction of land won aggregates.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	++	The policy encourages use of secondary and recycled aggregates which might otherwise be disposed of to landfill, so is likely to have a significant positive effect in relation to this SA objective.
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	+	The policy makes a sustainable contribution to Oxfordshire's sub-regional minerals apportionment based on a local assessment of supply and is consistent with the South East Plan target (Policy M2 – 0.9 million tonnes per year). The anticipated production varies from 400,000 to 550,000 with a level of uncertainty yet to be verified. Further capacity and production are anticipated from mobile plant (approx 25%) but this target is ambitious as rates of utilisation are already high and secondary and recycled aggregates are not currently substituted for primary aggregates in structural uses, only in lower specification construction uses like car parks.

Sustainability Appraisal objectives	Likely Effect	Comments
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	The apportionment will support Oxfordshire's economic growth over the long term and in particular growth of the local economy. Recycling facilities tend to be located at existing quarries and landfills, thus continuing to support local jobs and businesses. A reliance on imported material would not support local business.

Summary and Mitigation Measures

Policy M1 seeks to make a sustainable contribution to Oxfordshire's sub-regional minerals apportionment for secondary and recycled aggregates based on a local assessment of supply[35] and consistent with the South East Plan target (Policy M2 – 0.9 million tonnes per year). The anticipated production varies from 400,000 to 550,000 with a level of uncertainty yet to be verified[36]. Further capacity and production are anticipated from mobile plant (approx 25%[37]) but this target is recognised as ambitious as rates of utilisation are already high and secondary and recycled aggregates are not currently substituted for primary aggregates in structural uses, only in lower specification construction uses like car parks.

Production of secondary/recycled aggregates is recognised as having environmental effects broadly similar to those caused by processing of primary aggregates. The nature of any adverse impacts will depend to some extent on the exact location of sites for secondary and recycled aggregates allocated through the Sites Allocations DPD. If these facilities exist in close proximity to active mineral workings there could be negative cumulative effects upon nearby receptors from increased traffic bringing material to sites and effects such as noise and dust which would need to be considered at site allocation and planning application stages. The adverse effects arising from the operation of temporary mobile units associated with individual developments are likely to be temporary and of a local nature than facilities which hold long term consents. Production of secondary/recycled aggregates is recognised as having environmental effects broadly similar to those caused by processing of primary aggregates. The nature of any adverse impacts will depend to some extent on the exact location of sites for secondary and recycled aggregates allocated through the Sites Allocations DPD. If these facilities exist in close proximity to active mineral workings there could be negative cumulative effects upon nearby receptors from increased traffic bringing material to sites and effects such as noise and dust which would need to be considered at site allocation and planning application stages. The adverse effects arising from the operation of temporary mobile units associated with individual developments are likely to be temporary and of a local nature than facilities which hold long term consents. The application of the Common Core Policies to any individual applications should assist in mitigating any significant adverse effects.

Restoration schemes for those secondary/recycling sites which are no longer needed in the longer term are likely to address biodiversity, landscape, water and soil restoration objectives.

The apportionment will support Oxfordshire's economic growth over the long term and in particular growth of the local economy, as recycling facilities tend to be located at existing quarries and landfills, thus continuing to support local jobs and businesses.

[35] Local Assessment of Aggregates Supply Requirements Final Report January 2011 Prepared for Oxfordshire County Council by Atkins Ltd
[36] Ibid
[37] Ibid

Policy M2: Provision to be made for working aggregate minerals

Permission will be granted for mineral working to enable landbanks of reserves with planning permission to be maintained of at least 7 years for soft sand and sharp sand and gravel and 10 years for crushed rock, based on the following rates of extraction:

- **Sharp sand and gravel – 1.01 million tonnes a year;**
- **Soft sand 0.25 – million tonnes a year; and**
- **Crushed rock – 0.63 million tonnes a year.**

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+/?	Effects cannot be judged on the apportionment figure alone, these depend on the location and distribution of mineral working sites which make up the apportionment – as appraised in Policy M3. However it can be expected that the long term environmental effects of such an apportionment level might be less adverse than under the current policy - Policy M3 of the South East Plan, which requires a higher level of provision or the Secretary of State's proposed changes to Policy M3, which require an even higher level of supply.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/?	As above
3. To maintain and improve ground and surface water quality	+/?	As above
4. To improve and maintain air quality to levels which do not damage natural systems	+/?	As above
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+/?	As above
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	+/?	As above

Sustainability Appraisal objectives	Likely effect	Comments
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+/?	As above
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	+/?	Effects cannot be judged on the apportionment figure alone, these depend on the location and distribution of mineral working sites which make up the apportionment – as appraised in Policy M3. However it can be expected that the long term environmental and local amenity effects of such an apportionment level might be less adverse than under the current policy - Policy M3 of the South East Plan, which requires a higher level of provision or the Secretary of State's proposed changes to Policy M3, which require an even higher level of supply.
9. To protect, improve and where necessary restore land and soil quality	+/?	As above
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	++	The policy makes a sustainable contribution to Oxfordshire's sub-regional minerals apportionment based on a local assessment of supply prepared by Atkins (January 2011) which suggests that the Secretary of State's proposed changes to policy M3 are too high.

Sustainability Appraisal objectives	Likely effect	Comments
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	The policy makes provision for aggregate supply to support the expected economic growth, based on an assessment of future aggregate demand by consultants Atkins (January 2011).

Summary and Mitigation Measures

The adverse effects which might arise from a particular volume of mineral working in the County are difficult to predict based on the apportionment figure alone, as it is the spatial implications, i.e. the location and distribution of mineral working sites which make up the apportionment which will determine the effects. The proposed spatial distribution of this apportionment is appraised through Policy M3. However it can be expected that the adverse environmental and social effects of the proposed apportionment level might be less adverse than those experienced under the delivery of the current policy - Policy M3 of the South East Plan, which requires a higher level of provision or the Secretary of State's proposed changes to Policy M3, which would require an even higher level of supply. The policy makes provision for aggregate supply to support the expected economic growth, based on a local assessment of future aggregate demand by consultants Atkins (January 2011[38]). It is however recognised that effects in the longer term are more uncertain i.e sites chosen to deliver the strategy may not come forward and other sites which may or may not be more constrained might then be needed. This uncertainty would be addressed through policy monitoring and the implementation of the common core policies when planning applications come forward.

[38] Local Assessment of Aggregates Supply Requirements Final Report January 2011 Prepared for Oxfordshire County Council by Atkins Ltd

Policy M3: Locations for working aggregate minerals

The principal locations for sharp sand and gravel working, as indicated in figure 7, will be at:

i. existing areas of working at:
- **Lower Windrush Valley;**
- **Eynsham / Cassington / Yarnton;**
- **Sutton Courtenay; and**
- **Caversham;**

through extensions to existing quarries or new quarries to replace exhausted quarries; and

ii. a new area of working at Cholsey, to replace Sutton Courtenay when reserves there become exhausted;

Within the Lower Windrush Valley and Eynsham / Cassington / Yarnton areas further working will only be permitted if it would not lead to an increase in the overall level of mineral extraction or mineral lorry traffic above past levels within these areas combined.

Within the Eynsham / Cassington / Yarnton area further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Oxford Meadows Special Area of Conservation; and land to the east and north east of the River Evenlode will not be identified as specific sites for mineral working in a site allocations development plan document.

The principal locations for soft sand working, as indicated in figure 7, will be:
- **East and south east of Faringdon;**
- **North and south of the A420 to the west of Abingdon; and**
- **Duns Tew.**

Within the area north and south of the A420 to the west of Abingdon further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Cothill Fen Special Area of Conservation.

The principal locations for crushed rock working, as indicated in figure 7, will be:
- **North of Bicester to the east of the River Cherwell;**
- **South of the A40 near Burford; and**
- **East and south east of Faringdon.**

Additional working of ironstone for aggregate use will only be permitted in exchange for revocation, without compensation, of an existing permission containing workable resources.

Preference will be given to extensions to existing soft sand and crushed rock quarries. New quarries will only be permitted if sufficient provision cannot be made through extensions.

Planning permission will not be granted for working aggregate minerals outside the locations identified in this policy unless the required provision cannot be met from within these areas.

Further working of minerals for aggregate use will not be permitted within Areas of Outstanding Natural Beauty.

Sustainability Appraisal objectives	Likely effect	Comments

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+/-	**Sharp sand and gravel:** Although the proposed areas for sharp sand and gravel extraction are generally well located in terms of not being in close proximity to important nature conservation sites, some areas within Eynsham/Cassington/Yarnton and the Lower Windrush Valley (LWV) are close to important nature conservation designations (SSSIs, SAC). These designations could constrain working in some sites within these areas and a precautionary approach has therefore been identified in relation to sites in the ECY area within the revised policy. Potential impacts on hydrology of the Cothill Fen SAC, are identified by the revised policy and reflect the findings of the HRA/AA. Where there is potential for adverse effects due to proximity to nature conservation sites, mitigation measures should be put in place to protect these areas. There are extensive Conservation Target Areas within the Lower Windrush Valley [39]. There are also Conservation Target Areas in EYC (Oxford Meadows) Cholsey (Thames Wallingford to Goring) and Sutton Courtenay (link Thames Radley to Abingdon with Thames Clifton to Shillingford). The main aim within CTAs is to restore biodiversity at a landscape-scale through maintenance, restoration and creation of BAP priority habitats. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term (as it is likely to take years before the restoration plans are implemented and working is identified in the LWV and ECY to continue throughout the plan period). During the period of active working adverse effects are more likely. **Soft sand:** The HRA screening report recommended that proposals for further soft sand working in the area north and south of the A420 would only be permitted if it could be demonstrated that they would not have an effect on water levels at Cothill Fen SAC. An operator proposing to work any sites in this area is therefore appropriately required to demonstrate no likely significant effects on Cothill Fen SAC through the revised policy. There are SSSIs close to all the identified areas for soft sand extraction. The Tubney/Marcham/Hinton Waldrist area is also close to Cothill Fen SAC. The presence of SSSIs will affect the extent of the area that can be worked. Mitigation measures will be required where working is close to designated areas to ensure there are no

[39] http://www.oncf.org.uk/biodiversity/cta.html

Sustainability Appraisal objectives	Likely effect	Comments
		adverse effects on them. Soft sand quarries are not as extensive as sand and gravel quarries but they still offer opportunities to enhance or link CTAs such as the West Oxfordshire Heights CTA, which is in the vicinity of some soft sand quarries south of Faringdon and the Oxford Heights West CTA which encompasses the area west of Oxford around the soft sand quarries at Tubney and Upwood Park. Because soft sand is normally worked 'dry', ie above the water table, there is opportunity for restoration to be to dry land and to incorporate some of the target habitats listed in the BAP, although this may be dependent on the availability of inert fill to raise ground levels[40]. Restoration of other sites outside CTAs also has the potential to result in creation of new habitats which would have a long term positive effect on this SA objective. **Crushed rock:** The area north of Bicester (Ardley) is constrained by the presence of SSSIs. Proximity to these sites may affect the extent of areas that can be worked and mitigation measures may be required to ensure there are no adverse effects on them. Restoration has potential to create opportunities for biodiversity which would have a long term positive effect on this SA objective.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/-	The revised policy states that further working of minerals for aggregate use will not be permitted within Areas of Outstanding Natural Beauty, which is appropriate and positive in relation to this objective. **Sharp sand and gravel:** There are no national landscape designations in any of the areas proposed for sharp and gravel extraction, although the Cholsey preferred area is located close to the AONB. The extent of actual areas available for working in Cholsey may be constrained by the proximity of this designated area. Working in the identified areas has potential for negative effects on local landscape character and measures to mitigate against negative effects on the already extensively modified landscapes in the LWV and ECY in particular, should be required at site selection and planning application stages. There is potential for negative impacts in LWV and Sutton Courtenay due to the presence of Scheduled Ancient Monuments and significant archaeological constraints in the LWV. Mineral working can lead to damage to archaeological features and so sites should be well sited away from these and where they are in close proximity, mitigation measures

[40] Minerals and Waste Core Strategy Background Paper No. 3 - Quarry Restoration in Oxfordshire

Sustainability Appraisal objectives	Likely effect	Comments
		against adverse effects should be in place (where applicable) before extraction of materials. Cholsey is unconstrained by historic designations although the archaeological recommendation is that further investigation should take place when extraction is proposed in this area[41]. **Soft Sand:** None of the identified sites for soft sand extract lie within the AONB. However, mineral working has potential for adverse effects on local landscape character, and mitigation measures should be in place. There are Scheduled Ancient Monuments close to the Tubney/Marcham/Hinton Waldrist area for soft sand extraction. Working in this area would need to take account of the presence of the monuments and protect them accordingly. **Crushed rock:** Two potential nominated sites for crushed rock are within the AONB, however these sites have existing planning permissions. There are Scheduled Ancient Monuments within the area north of Bicester. Mitigation measures against adverse effects on these monuments as well as on local landscape character may be required prior to extraction of materials to avoid adverse effects.
3. To maintain and improve ground and surface water quality	+/-	**Sharp sand and gravel:** There is potential for adverse effects on surface and ground water as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. There is potential for negative impacts on ground water in LWV, Eynsham/Cassington/Yarnton (ECY) and Caversham from sharp sand and gravel extraction due to the presence of underlying aquifers. There is also potential for negative impacts on the surface water quality of rivers Windrush (LWV), River Evenlode (ECY) and River Thames (Caversham, Sutton Courtenay - up to 2020 and Cholsey post 2020) from sharp sand and gravel extraction in these areas. The policy now states that within the Eynsham / Cassington / Yarnton area further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Oxford Meadows Special Area of Conservation; and land to the east and north east of the River Evenlode will not be identified as specific sites for mineral working in a site allocations development plan document. This is likely to have a positive impact on this objective in this area, particularly in relation to the River Evenlode.

[41] See the Minerals Preferred Strategy Annex 2: Preliminary Site Assessment

Sustainability Appraisal objectives	Likely effect	Comments
		There is potential for cumulative negative effects on ground water flow as a result of concentration of mineral workings within one area and in particular in the LWV and Cassington area. **Soft sand:** Most soft sand working takes place above the water table and therefore minimal adverse impacts on ground water flows are expected. **Crushed rock:** Impacts on ground water would need to be tested at the planning application stage.
4. To improve and maintain air quality to levels which do not damage natural systems	-	There is potential for air pollution associated with HGV movements in all the identified areas for working over the lifetime of the working permissions and into the restoration period. However as rate of production should not exceed the current permitted rates, there should be no additional short term adverse impacts in those areas which are existing working areas. **Sharp sand and gravel:** As resources at Sutton Courtenay are exhausted and working moves to Cholsey, it is expected that adverse effects will shift as well. Sand and gravel extraction in the Cholsey area will provide a continued local source of aggregates in the south of the county, which is well located to meet the likely need from planned development at Didcot and Wantage & Grove and reduce distances travelled to these markets. **Soft sand:** Working in the south west areas identified is unlikely to lead to significant increases in HGV traffic; as these areas are based around existing working areas, and preference would be on extensions to existing quarries to make the most efficient use of plant and infrastructure. **Crushed rock:** As the identified areas for crushed rock are based around existing limestone working areas, if working continues at the current level, it is expected that there would be no increase in adverse effects on air quality; as traffic levels would be the same as current and preference would be on extensions to existing quarries, to make the most efficient use of plant and infrastructure.

Sustainability Appraisal objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	-	Greenhouse gas emissions are expected in all the areas due to transportation of materials by road. However the strategy should not lead to significant increases in greenhouse gas emissions as the increase in HGV vehicles is not expected to be high and the emphasis is predominantly on extensions rather than new sites, at least in the short term. Sand and gravel extraction in the Cholsey area will provide a continued local source of aggregates in the south of the county, which is well located to meet the likely need from planned development at Didcot and Wantage & Grove and reduce distances travelled to these markets (and thus greenhouse gas emissions associated with road transport).
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	**Sharp sand and gravel:** Some parts of the proposed production area for sharp sand and gravel lie within high flood risk zones (LWV, ECY, Caversham and Sutton Courtenay). The Environment Agency (EA) requires that development should be avoided in the floodplain where possible and requires the sequential and (where appropriate), the exception tests to be applied (as required through Planning Policy Statement 25 (PPS25)). The requirement to apply these tests is now explicitly included in Common Core Policy C1: Flooding. Sand and gravel extraction is considered to be compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. **Soft sand:** Most soft sand working areas lie outside flood risk zones 2 and 3. Where there is potential for flooding (e.g. a small area in Hatfrod/Shellingford lies within flood risk zone 3), mitigation measures including the sequential test will be required before site allocation of supporting infrastructure. The requirement to apply these tests is now explicitly included in Policy C1: Flooding. **Crushed rock:** None of the proposed areas lie within areas of high flood risk.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	-	Continued and concentrated working in the existing areas is likely to result in cumulative effects in terms of congestion, road maintenance and safety. However, mitigation measures at the planning application stage can help reduce such impacts where new planning permissions are sought. It is also envisaged that there will be no significant increase in working in any one particular area (with the exception of Cholsey) and so no significant adverse cumulative effects are expected in any of these areas. Local impacts should be addressed through the site allocations process as well as through the application of the common core policies in the Core Strategy at the planning permission stage.

Sustainability Appraisal objectives	Likely effect	Comments
		Sharp sand and gravel: There is potential for adverse, temporary but long term impacts on the road network associated with sharp sand and gravel working on the A40 (LWV, ECY), A 44 (ECY), A4155/B478 (Caversham) and B4016/A4130 (Sutton Courtenay – up to 2020). Post 2020, there is potential for negative transport impacts along the A4130 and A4074 associated with working in Cholsey and on the local road network between Cholsey, Wallingford and Didcot. **Soft sand:** It is not envisaged that soft sand working in any of the identified areas would lead to significant increases in HGV traffic. However, there is potential for some adverse impacts from increased traffic on the local roads including on the B4030/A260 (Duns Tew) and on the A420, A417, and B4508 (south east Faringdon and the Tubney/Marcham/Honton Walrdist area). Further assessment on access and suitability of roads to accommodate more HGV traffic is recommended at the site selection stage. **Crushed rock:** If working continues at the current level (identified areas are existing limestone working areas), transport impacts will remain as current. However, increased working in any one particular area has potential for negative cumulative effects on the road network and communities near the area. Careful consideration should be given to access and road capacities when considering sites for further working.
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	?/-	All but one of the proposed working areas are existing minerals working areas, the exception is Cholsey (sand and gravel). In this respect, while there will be no significant adverse effects of such workings on new communities (with the exception of the Cholsey area), those communities that are currently adversely affected by mineral workings are expected to continue to experience adverse effects for the plan period and longer term. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may even be positive permanent effects as a result of restoration initiatives. The degree and nature of impacts is dependent on mitigation measures put in place through new planning permissions, proximity to sensitive receptors and the duration of working. There is potential for negative adverse effects on local communities in the Cholsey area as a result of dust, noise, disruption, adverse visual effects and traffic congestion as well as adverse effects on community recreational assets such as the Cholsey and Wallingford Steam Railway and Agatha Christie trail and potential development of the Wallingford to Cholsey cycle path. Again, the extent of these adverse effects will depend on the mitigation measures put in

Sustainability Appraisal objectives	Likely effect	Comments
		place, proximity of workings to sensitive receptors and the duration of working – all of which will be addressed at the site specific level. Local impacts should be addressed through the site allocations process as well as through the application of the common core policies in the Core Strategy at the planning permission stage.
9. To protect, improve and where necessary restore land and soil quality	+	LWV and ECY offer opportunities for landscape wide restoration schemes. There are extensive Conservation Target Areas within the Lower Windrush Valley and there is extensive scope for restoration on a landscape scale, which would also contribute to national Biodiversity Action Plan targets. There are also Conservation Target Areas in EYC (Oxford Meadows) Cholsey (Thames Wallingford to Goring) and Sutton Courtenay (link Thames Radley to Abingdon with Thames Clifton to Shillingford). Other areas have potential for beneficial restoration impacts depending on the preferred land uses. Restoration of sites is likely to lead to improved land and soil quality which would have an indirect positive effect on this objective.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	++	The policy makes a sustainable contribution to Oxfordshire's sub-regional minerals apportionment by allocating sites in existing minerals working areas predominantly, which can take advantage of existing infrastructure and employment, and which are located in reasonable proximity to the markets. To safeguard these communities from additional cumulative impacts the policy does not permit an increase in the overall level of extraction or mineral lorry traffic above past levels within these areas combined. The new working area of Cholsey is well located in terms of serving the growth areas of Didcot, Wantage and Grove and Oxford.
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	**Sharp sand and gravel:** All the areas for sharp sand and gravel extraction are well located in terms of proximity to the markets and provide potential for investment and job creation which supports the local economy and has a long term positive impact on this SA objective. Significant investment in infrastructure in the Cholsey area will be needed to support working in this area, this should lead to local job creation and support to the local economy in this area. The Cholsey area is well located to the growth areas of Didcot, Wantage and Grove and Oxford. **Soft sand:**

Sustainability Appraisal objectives	Likely effect	Comments
		Working in the identified areas for soft sand extraction provides some positive economic benefits and allows for use of existing infrastructure and networks. This policy also allows the current pattern of extraction of two different quality sands to be continued which has a positive economic benefit.

Summary and Mitigation Measures

Sharp sand and gravel:
Seeking to concentrate extraction predominantly in areas where working is currently taking place or has taken place recently has the economic advantages of using existing infrastructure as well as a skilled local labour force. It also presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to a degree of beneficial effects for the local communities (through recreation and leisure opportunities) as well as for local wildlife. However, there is still potential for ongoing cumulative negative effects throughout the plan period on the local communities especially with regard to traffic and amenity issues, unless these adverse effects are appropriately considered at the site allocation stage and through the common core policies in the MWCS when new planning permissions are sought.

The exception to this strategy is Cholsey, where significant new infrastructure will be required, and significant adverse effects are likely to be experienced by the local communities and environment post 2020, as a result of commencing work in this previously unworked area. This will need to be considered at the site allocation and planning application stage however it is recognised that the common core policies are expected to minimise the likelihood of significant adverse effects.

Potential adverse effects on nature conservation objectives and in particular designated European Sites are appropriately flagged by the revised policy. The policy now signals that land to the east and north east of the River Evenlode will not be identified as specific sites for mineral working in the Site Allocations development plan document. Within the area north and south of the A420 to the west of Abingdon the policy states that further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Cothill Fen Special Area of Conservation. The potential impacts on the hydrology of the Cothill Fen SACs from sites in this area will thus still need to be addressed at the individual application stage. Common core policies C2 and C5 would also assist in minimising the likelihood of significant adverse effects. The need to mitigate against negative effects on local landscape character, including in particular effects on the already extensively modified landscapes in the LWV and ECY and the sensitive landscapes in Cholsey, which is surrounded by areas in the AONB, should be addressed at site selection and planning application stages and common core policy C6 would assist in ensuring there are no significant adverse effects.

Soft sand:
Identifying two areas of working in the south of the county and one in the north of the county will help minimise traffic impacts as well as spread the effects of soft sand working more equitably. However, there will be some cumulative effects on communities living close to existing sites and careful consideration should be given when identifying specific sites and permitting further extraction, so as to minimise the overall effects of continued working in these areas. The common core policies are expected to ensure there are no significant adverse effects.

The two areas in the south west of the county have different quality sands and the

Sustainability Appraisal objectives	Likely effect	Comments
		policy appropriately allows for the working of the two types of sand. Continuing with the existing pattern provides certainty to industry and also takes advantage of existing infrastructure. Potential adverse effects on nature conservation objectives and in particular designated European Sites will need to be addressed at the Site Allocation and/or individual planning application stage and the common core policy C5 aims to achieve this. Crushed rock: The policy in relation to crushed rock would lead to a distribution of effects of crushed rock working in the county therefore potentially preventing adverse effects on a single locality. This policy takes advantage of existing infrastructure as well as continuing to provide local employment. This has positive economic benefits. In the long term, there is potential for adverse cumulative effects on the communities living near the identified areas. Careful consideration should be given to the exact location of sites and works, relative to housing and other sensitive receptors to mitigate against potential additional adverse effects to those already experienced. Where there is potential for adverse effects due to proximity to nature conservation sites, mitigation measures should be put in place to protect these areas at the site allocation and planning application stages. <u>Cumulative effects:</u> Sharp sand and gravel: Due to continued working in LWV, ECY and Caversham there is potential for adverse cumulative effects on the environment and on the local communities from sharp sand and gravel working throughout the plan period. These include ecological, visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion, greenhouse gas emissions and impacts on the water environment. In Sutton Courtenay, cumulative effects would be felt in the short-medium term (to 2020) after which production is planned to cease in this area. Post 2020, it is expected that the environment and local communities around Cholsey will experience similar adverse impacts. Such adverse impacts should be appropriately addressed and mitigated through the Site Allocations DPD process and individual applications. Appropriately, the policy will not lead to an overall increase of working activity in west Oxfordshire, or of the attendant cumulative impacts in this area where there has already been extensive working. Soft sand: In the long-term, there is potential for cumulative adverse effects on the environment and local communities due to soft sand extraction, although these are not envisaged to be significant due to the small quantities of soft sand which will be produced. Crushed rock: Continued working in the existing areas has potential for adverse cumulative effects over time on the local communities including on landscape and local amenity – noise, air, dust and traffic impacts. Mitigation measures at the planning application stage can help reduce such impacts. It is also envisaged that there will be no significant increase in working in any one particular area and so no significant additional adverse cumulative effects are expected on top of those already experienced.

Policy M4: Aggregates rail depots

Existing and permitted rail depots will be safeguarded for importing aggregates at:

- **Banbury (Hennef Way);**
- **Kidlington;**
- **Sutton Courtenay (Appleford Sidings); and**
- **Shipton on Cherwell Quarry.**

Where proposals for development would result in the loss of a rail depot site, a suitable alternative site should be provided.

The development of further aggregates rail depots will be encouraged at suitable locations outside the Green Belt.

Development which would prejudice the operation or establishment of existing or permitted aggregates rail depots identified in or subsequently permitted under this policy will not be permitted. Development sensitive to disturbance that could be adversely impacted by the operation of a rail depot will not be permitted in proximity to an existing or permitted rail depot.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	0	This policy safeguards the movement of imported aggregates via rail transport and encourages further development of rail infrastructure outside the green belt. This may have more positive long term impacts on biodiversity than transportation by road.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	This policy safeguards the movement of imported aggregates via rail transport and encourages further development of rail infrastructure. This may have more positive long term impacts on local landscape character than transportation by road.
3. To maintain and improve ground and surface water quality	+	This policy safeguards the movement of imported aggregates via rail transport and encourages further development of rail infrastructure. This approach should have a minor positive impact on surface water quality as a result of reduced pollution from runoff from roads arising from transportation of aggregates.
4. To improve and maintain air quality to levels which do not damage natural systems	+	This policy safeguards the movement of imported aggregates via rail transport and encourages further development of rail infrastructure. Bulk transportation by rail is likely to have positive long term impacts on air quality than transportation by road as it is likely to reduce road transport emissions.

Sustainability Appraisal objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+	This policy safeguards the movement of imported aggregates via rail transport and encourages further development of rail infrastructure. Bulk transportation by rail is likely to have positive long term impacts upon the reduction of greenhouse gas emissions than transportation by road.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	This policy may have a positive impact on this objective. Transport of imported aggregates by rail is less likely to be disrupted than transport by roads, which may be more vulnerable to flooding.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	++	This policy will have a positive impact on this objective as it will reduce the volume of aggregates travelling on the local and strategic road network.
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	+	This policy is likely to have a positive impact on this objective as it could reduce the volume of aggregates travelling on the local and strategic road network – reducing congestion and amenity impacts on local communities over the long term.
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	

Sustainability Appraisal objectives	Likely effect	Comments
12. To support Oxfordshire's economic growth and reduce disparities across the county.	++	This policy safeguards the necessary infrastructure to ensure that Oxfordshire can sustainably support its predicted economic growth over the long term.
Summary and Mitigation Measures **Policy M4 seeks to safeguard the necessary infrastructure and encourages new infrastructure to transport imported aggregates by rail, reducing the long term cumulative adverse impacts on the environment ,local communities and local road network experienced by long distance transport of aggregates by road. Bulk transportation by rail is likely to have positive long term impacts upon the reduction of greenhouse gas emissions compared with transportation by road. Safeguarding and encouraging this type of infrastructure also supports sustainable growth of the Oxfordshire economy.**		

Policy M5: Non-aggregate mineral working

Permission will be granted for extensions to existing quarries and new quarries for extraction of building stone where a local need for the material has been demonstrated and provided that the quarrying is at a scale appropriate to the locality and will not harm the environment or local amenity.

The working of clay will be permitted only from areas where sand and gravel is being worked in the following locations:

- **Lower Windrush Valley;**
- **Eynsham / Cassington / Yarnton; and**
- **Sutton Courtenay;**

unless it can be demonstrated that there is a local need for clay which either cannot be met from these areas or can be met from elsewhere with less overall environmental impact.

Applications to work chalk, fullers earth, oil, gas, coal or any other minerals not currently worked in Oxfordshire will be considered in the light of national and development plan policies.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+/-	Although the proposed areas for sharp sand and gravel extraction (and thus for the working of clay) are generally well located in terms of not being in close proximity to important nature conservation sites, some areas within Eynsham/Cassington/ Yarnton and the Lower Windrush Valley (LWV) are close to important nature conservation designations (SSSIs,

Sustainability Appraisal objectives	Likely effect	Comments
		SAC). These designations could constrain working in some sites within these areas and a precautionary approach has therefore been identified in relation to sites in the ECY area within the revised policy M3. However this precautionary approach has not been subsequently identified in this new policy and the appropriateness of a similar clause is therefore raised to improve the sustainability of this new policy. Where there is potential for adverse effects due to proximity to nature conservation sites, mitigation measures should be put in place to protect these areas. There are extensive Conservation Target Areas within the Lower Windrush Valley [42]. There are also Conservation Target Areas in EYC (Oxford Meadows) and Sutton Courtenay (link Thames Radley to Abingdon with Thames Clifton to Shillingford). The main aim within CTAs is to restore biodiversity at a landscape-scale through maintenance, restoration and creation of BAP priority habitats. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term, as it is likely to take years before restoration plans are implemented and continued working is identified in these areas (with the exception of Sutton Courtenay) throughout the plan period. Therefore adverse effects are more likely during the period of active working.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/-	There are no national landscape designations in the LWV, ECY or Sutton Courtenay areas. However working in the identified areas has potential for negative effects on local landscape character and working in yet to be identified areas would also be expected to have negative effects on local landscape character, particularly in the short to medium term. Measures to mitigate against negative effects on local landscape character (and the already extensively modified landscapes in the LWV and ECY in particular) should be required at site selection and planning application stages. There is potential for negative impacts in LWV and Sutton Courtenay due to the presence of Scheduled Ancient Monuments and significant archaeological constraints in the LWV. Mineral working can lead to damage to archaeological features and so sites should be well sited away from these and where they are in close proximity, mitigation measures against adverse effects should be in place (where applicable) before extraction of materials.

[42] http://www.oncf.org.uk/biodiversity/cta.html

Sustainability Appraisal objectives	Likely effect	Comments
		Two quarries which produce building stone and which have planning permission to extract building stone include Castle Barn quarry, Sarsden and Rollright. Both sites are directly in or adjacent to the AONB.
3. To maintain and improve ground and surface water quality	--	There is potential for adverse effects on surface and ground water as a result of working for clay, especially as clay is usually located below sand and gravel. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. There is potential for negative impacts on ground water in LWV and Eynsham/Cassington/Yarnton (ECY) from clay extraction due to the presence of underlying aquifers. There is also potential for negative impacts on the surface water quality of rivers Windrush (LWV), River Evenlode (ECY) and River Thames (Sutton Courtenay). Policy M3 now states that within the Eynsham / Cassington / Yarnton area further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Oxford Meadows Special Area of Conservation; and land to the east and north east of the River Evenlode will not be identified as specific sites for mineral working in a site allocations development plan document. It is considered that this new policy should make a similar reference, given the likely extraction of clay workings from this area. There is potential for cumulative negative effects on ground water flows as a result of concentration of mineral workings within one area and in particular in the LWV area.
4. To improve and maintain air quality to levels which do not damage natural systems	-	There is potential for air pollution associated with HGV movements in all the identified areas for working over the lifetime of the working permissions and into the restoration period, especially as the identified areas for working of clay are already being worked for sharp sand and gravel. However adverse effects should be mitigated to some extent by the fact that quarrying will only be approved if it is at a scale “appropriate to the locality and will not harm the environment or local amenity”.
5. To reduce greenhouse gas emissions to reduce the cause of climate change	-	Greenhouse gas emissions are expected in all the areas due to transportation of materials by road. However the strategy should not lead to significant increases in greenhouse gas emissions as the increase in HGV vehicles is not expected to be high and the emphasis is predominantly on existing areas rather than new areas.

Sustainability Appraisal objectives	Likely effect	Comments
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	Some parts of all of the proposed production areas for clay lie within high flood risk zones (LWV, ECY and Sutton Courtenay). The Environment Agency (EA) requires that development should be avoided in the floodplain where possible and the sequential and (where appropriate), the exception tests are required through Planning Policy Statement 25 (PPS25). The requirement to apply these tests is now explicitly included in Common Core Policy C1: Flooding. Clay is generally located below sand and gravel reserves and extraction is considered to be compatible development. However supporting infrastructure could be at risk from flooding and should be located away from the high risk areas.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	-	Clay extraction in the areas which have been identified for sand and gravel extraction is likely to contribute to continued adverse cumulative effects on the transport network in these areas. However, mitigation measures at the planning application stage can help reduce such impacts where new permissions are sought. Adverse effects should be mitigated to some extent by the fact that new permissions will only be approved if it is at a scale "appropriate to the locality and will not harm the environment or local amenity".
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	?/-	All of the proposed working areas are existing minerals working areas. In this respect there will be no significant adverse effects of such workings on new communities unless new sites come forward which are outside these areas and which are approved on the basis that local need that cannot be met from existing areas and there would be a lesser environmental impact. However communities that are currently adversely affected by mineral workings are expected to continue to experience adverse effects for the duration of the plan period and longer, especially as these areas are already being worked out for sharp sand and gravel. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may even be positive permanent effects as a result of restoration initiatives. The degree and nature of impacts is dependent on mitigation measures put in place when new permissions are approved, proximity to sensitive receptors and the duration of working.
9. To protect, improve and where necessary restore land and soil quality	+	LWV and ECY offer opportunities for landscape wide restoration schemes following the cessation of working these areas. There are extensive Conservation Target Areas within the Lower Windrush Valley and there is extensive scope for restoration on a landscape scale, which would also contribute to national Biodiversity Action Plan targets.

Sustainability Appraisal objectives	Likely effect	Comments
		There are also CTAs in Sutton Courtenay and ECY. Restoration of sites is likely to lead to improved land and soil quality and thus an indirect positive effect on this objective but this would be experienced in the longer term.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0/-	Large quantities of waste stone can be generated in the extraction of building stone, particularly in the initial phases of extraction. Waste stone can potentially have a use as aggregate; the use or disposal of it is an issue which needs to be considered on a case by case basis at the planning application stage. This issue should be identified in the supporting text to this policy.
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	++	The policy makes a sustainable contribution to Oxfordshire's sub-regional minerals apportionment by identifying the appropriateness of clay extraction taking place in existing minerals working areas predominantly, which can take advantage of existing infrastructure, and which are located in reasonable proximity to the markets. To safeguard local communities (which are likely to already be subject to adverse impacts from sharp sand and gravel extraction) from additional cumulative impacts the policy allows for new or extended permissions for extraction only where a local need for the material has been demonstrated and provided that the quarrying is at a scale appropriate to the locality and will not harm the environment or local amenity.
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	All the identified areas for clay extraction are well located in terms of proximity to the markets. All of the areas are existing mineral working areas. These areas benefit from access to a skilled local labour force, existing infrastructure and investment from the minerals industry, which supports the local economy.

Summary and Mitigation Measures

Seeking to concentrate clay extraction in areas where sharp sand and gravel working is currently taking place or has taken place recently has the economic advantages of using existing infrastructure as well as a skilled local labour force. It also presents opportunities for co-ordinated large-scale restoration projects which would in the longer term lead to a degree of beneficial effects for the local communities (through recreation and leisure opportunities) as well as for biodiversity. However, there is still potential for ongoing cumulative negative effects throughout the plan period on the local communities especially with regard to traffic and amenity issues as a result of the concentration of working clay alongside sharp sand and gravel, unless these adverse effects are appropriately mitigated when new planning permissions are sought.

Potential adverse effects on nature conservation objectives and in particular designated European Sites are appropriately flagged by the revised Policy M3. Policy M3 signals that land to the east and north east of the River Evenlode will not be identified as specific sites for sharp sand and gravel working in the Site Allocations

Sustainability Appraisal objectives	Likely effect	Comments
development plan document. Within the area north and south of the A420 to the west of Abingdon the policy states that further working will only be permitted if it can be demonstrated that it would not lead to changes in water levels in the Cothill Fen Special Area of Conservation. This policy addition should be included in this new policy with respect to the extraction of clay, given that it is likely to come from similar areas, if not the same quarries. The need to mitigate against potential negative effects on landscape character, including in particular effects on the already extensively modified landscapes in the LWV and ECY should be required at site selection and planning application stages. Large quantities of waste stone can be generated in the extraction of building stone, particularly in the initial phases of extraction. Waste stone can potentially have a use as aggregate; the use or disposal of it is an issue which needs to be considered on a case by case basis at the planning application stage. This issue should be identified in the supporting text to this policy. Cumulative effects: Due to continued working in LWV, ECY and Sutton Courtenay (to 2020) there is potential for long-term adverse cumulative effects on the environment and on the local communities in these areas from the combination of clay extraction alongside sharp sand and gravel working. These adverse effects include ecological, visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion, greenhouse gas emissions and impacts on the water environment. Given this, it is appropriate that policy will only provide for new or extended planning permissions for extraction where a local need for the material has been demonstrated and provided that the quarrying is at a scale appropriate to the locality and will not harm the environment or local amenity.		

Policy M6: Mineral safeguarding
Mineral resources will be safeguarded for the future and development which would prevent or otherwise hinder the possible future working of minerals will not be permitted unless it can be shown that: • The need for the development outweighs the economic and sustainability considerations relating to the mineral resource; or • The mineral will be extracted prior to the development taking place. Mineral Safeguarding Areas will be defined, and identified in detailed maps in a site allocations document, and will include the following mineral resources: • Sand and gravel in the main river valleys and in other areas where there is a proven resource; • Soft sand, limestone and ironstone in existing areas of working, including the areas proposed for working in policy M3; • Fuller's earth.

Sustainability Appraisal objectives	Likely effect	Comments

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	0	The policy is safeguarding mineral for the future and preventing sterilisation not permitting extraction in these areas therefore effects are likely to be neutral.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	As above
3. To maintain and improve ground and surface water quality	0	As above
4. To improve and maintain air quality to levels which do not damage natural systems	0	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+/?	Safeguarding mineral for the future will help Oxfordshire to be self sustaining with regards to aggregate and other minerals required within the County for roads, house building etc. This is likely to indirectly help to reduce the need to import minerals from elsewhere and could potentially help to reduce greenhouse gas emissions from transportation.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	The policy is safeguarding mineral for the future and preventing sterilisation not permitting extraction in these areas therefore effects are likely to be neutral.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	

Sustainability Appraisal objectives	Likely effect	Comments
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	0	The policy is safeguarding mineral for the future and preventing sterilisation not permitting extraction in these areas therefore effects are likely to be neutral.
9. To protect, improve and where necessary restore land and soil quality	0	The policy is safeguarding mineral for the future and preventing sterilisation not permitting extraction in these areas therefore effects are likely to be neutral.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	++	The proposed policy recognises that minerals must not be sterilised by non-mineral development and that mineral deposits are finite and scarce resources that must be safeguarded for the long term, including unknown future requirements. The policy is safeguarding sand and gravel and crushed rock aggregate and therefore it will help to protect the delivery of any sub regional minerals apportionment required in the future.
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	The proposed policy recognises that minerals must not be sterilised by non-mineral development and that mineral deposits are finite and scarce resources that must be safeguarded for the long term, including unknown future requirements for an increasing population and economic growth. This supports the minerals and construction industry. Safeguarding proven resources of sand and gravel will also ensure non mineral development is not prevented unduly however does reduce the flexibility for the minerals industry to explore unproven areas.

Sustainability Appraisal objectives	Likely effect	Comments
Summary and Mitigation Measures **The proposed policy recognises that in-situ mineral resources must not be sterilised by non-mineral development and that mineral deposits are finite and scarce resources that must be safeguarded for the long term, including unknown future requirements for an increasing population and economic growth. Significant positive effects are therefore likely with regards to SA objective 11 and 12. Safeguarding proven resources is likely to ensure non mineral development is not prevented unduly and support Oxfordshire's economic growth.** **As the policy is safeguarding mineral for the future and preventing sterilisation not permitting extraction in these areas effects upon SA objectives relating to the environment are likely to be neutral.**		

Policy M7: Restoration of mineral workings

Minerals workings should be restored to a high quality in a timely and phased manner to an after-use appropriate to the location and the capacity of the transport network and which is sympathetic to the character of the surrounding landscape and the amenity of local communities. Restoration and afteruse should accord with any restoration strategy for the area concerned in a site allocations development plan document.

Planning permission will not be granted for mineral working unless satisfactory proposals have been made for the restoration, aftercare and after-use of the site, including the means of securing them in the long term. Where appropriate, operators and landowners will be expected to make provision for the management of restored mineral workings for an extended period, beyond any aftercare period required by condition, including making appropriate financial contributions.

Where mineral working is proposed on best and most versatile agricultural land, the restoration should be back to agricultural land if this is practicable.

Within the floodplain restoration of mineral workings should where possible include provision for increased flood storage capacity to reduce the risk of flooding elsewhere.

Where restoration could assist or achieve priority habitat or species targets and/or Biodiversity Action Plan targets, the relevant biodiversity after-use should be incorporated within the restoration scheme.

Where restoration could protect and/or improve geodiversity and improve educational opportunities this should be incorporated into the proposed restoration scheme, such as by providing for important geological faces to be left exposed and enabling access to the faces.

Where a mineral working site has the potential to provide for local amenity uses, including appropriate sport and recreational uses, these uses should be incorporated into the restoration scheme

Sustainability Appraisal objectives	Likely effect	Comments

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	++	The requirement for prompt and phased restoration of mineral working sites which achieves the creation of priority habitats or BAP targets or which protects geodiversity and improves educational opportunities has a very positive, and long term impact on biodiversity/geodiversity, although it is recognised that in the short term positive effects will be minor as restoration schemes take time to establish. Extended management responsibility is important.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	++	The requirement for prompt and phased restoration of mineral working sites which is sympathetic to the character of the surrounding landscape has a very positive, long term impact on landscape character, although it is recognised that in the short term positive effects will be minor as restoration schemes take time to establish. Extended management responsibility is important.
3. To maintain and improve ground and surface water quality	++	The requirement for prompt and phased restoration of mineral working sites should have a very positive long term impact on ground and surface water quality, although it is recognised that in the short term positive effects will be minor as restoration schemes take time to establish. Extended management responsibility is important.
4. To improve and maintain air quality to levels which do not damage natural systems	+	The requirement for prompt and phased restoration of mineral working sites should have a positive long term impact on improving air quality.
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	++	The requirement for prompt and phased restoration of mineral working sites has a long term positive impact on flood risk. The policy recognises that mineral working in the flood plain can offer opportunities to increase flood water storage capacity and reduce the risk of flooding elsewhere.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	

Sustainability Appraisal objectives	Likely effect	Comments
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	++	The requirement for prompt and phased restoration to be to an after-use appropriate to the location, transport network capacity and amenity of local communities has a positive long term impact on this objective as it addresses possible amenity impacts on local communities arising from the after-use. It also provides for new local amenity uses, such as sport and recreational uses.
9. To protect, improve and where necessary restore land and soil quality	++	The requirement for prompt and phased restoration of agricultural land where working is proposed on such land has long term positive impacts on restoring soil quality.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	Over the long term, restoration will help to ensure a high quality environment with improved sport and recreational opportunities for local communities, which should indirectly, support economic growth through potential business opportunities, and reduce disparities in access to such facilities for rural communities.

Summary and Mitigation Measures

The requirement for prompt and phased restoration to an after-use appropriate to the location, transport network capacity and amenity of local communities will have a positive long term impact on many of the SA objectives as it provides an opportunity to create or restore habitats and biodiversity, restore landscape character, improve water and soil quality; and address possible amenity impacts on local communities arising from the after-use of minerals sites. It also provides opportunities to develop new local amenity facilities, such as sport and recreational uses which can provide new business opportunities and reduce disparities in access to such facilities for rural communities. Long term management is important however, to maintain long term benefits, and this is appropriately recognised by the policy.

Waste Strategy Vision

Vision

By 2030 there will have been a transformation in the way Oxfordshire manages its waste, with:

- **increased re-use, recycling and composting of waste;**
- **treatment (so far as is practicable) of all residual waste that cannot be recycled or composted; and**
- **only the minimum amount of waste that is necessary being disposed of at landfill sites.**

The county will remain largely self-sufficient in dealing with the waste it generates. An economically and environmentally efficient network of clean, well-designed recycling, composting and other waste treatment facilities will have been developed to recover material and energy from the county's waste and support its thriving economy.

Waste management facilities will be distributed across the county, with larger-scale and specialist facilities being located at or close to large towns, particularly the growth areas, and close to main transport links, and with smaller-scale facilities serving more local areas. This network will have helped to build more sustainable communities that increasingly take responsibility for their own waste and keep to a minimum the distance waste needs to be moved within the county.

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	+/?	The vision seeks to distribute waste management facilities across the county with larger scale facilities at or close to towns and smaller scale facilities in more local areas and it expects facilities to be well designed. The vision could potentially protect biodiversity, landscape and historic character and ground water and surface water quality through good design and the avoidance of designated areas as Oxfordshire's Areas of Outstanding Natural Beauty are located predominantly outside the larger towns. However this is uncertain as it will depend upon the exact locations of these facilities.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/?	
3. To maintain and improve ground and surface water quality	+/?	
4. To improve and maintain air quality to levels which do not damage natural systems	+	The distribution of waste management facilities close to sources of arising has potential for positive air quality impacts through reduced air pollution as well as reducing greenhouse gas emissions (greenhouse gases) associated with waste transportation. In addition, only sending the minimum amounts of waste to be disposed of at landfill sites is likely to reduce emissions of the greenhouse gas methane generated by this type of waste management.
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+	
6. To mitigate Oxfordshire's	+/?	The vision seeks to achieve an environmentally efficient and well designed network of waste

SA Objectives	Likely effect	Comments
vulnerability to flooding, taking account of climate change		management facilities locating them close to sources of waste and major transport links . It is therefore likely that mitigating flood risk and potential adverse impacts of transporting waste, and upon local amenity and land/soil quality) will be achieved but this depends upon the exact locations of these facilities.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+/?	
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	+/?	
9. To protect, improve and where necessary restore land and soil quality	+/?	
10. To contribute towards moving up the waste hierarchy in Oxfordshire	++	The vision seeks to increase the amount of waste that is reused, recycled, composted and treated and only dispose the minimum amount of waste to landfill.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	++	The vision supports the county's aim to be largely self-sufficient in dealing with the waste it generates.
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	The vision seeks to recover material and energy from waste management therefore supporting Oxfordshire's thriving economy.

Summary and Mitigation Measures

The Council's vision for waste planning is likely to have positive effects upon the key sustainability issues underlying the SA objectives.

In particular, the vision is expected to have significant positive effects upon SA objective 10 on contributing towards moving the management of waste up the waste hierarchy as well as objective 11 on enabling Oxfordshire to be self-sufficient in waste management. By ensuring that facilities are well distributed across the county and close to main sources of waste arisings and main transport links, the vision supports SA objectives 4, 5 and 7 on air quality, climate mitigation and transport respectively. The vision also supports SA objectives relating to protection of the built and natural environment (and amenity) as it seeks to ensure that waste is managed in an environmentally efficient network of clean, well designed facilities.

Waste Strategy Policies

Policy W1: The amount of waste to be provided for:

Provision will be made to enable Oxfordshire to be net self-sufficient in the management of municipal waste, commercial and industrial waste and construction, demolition and excavation waste.

Provision should be made for waste facilities sufficient to manage the following amounts of waste over the period to 2030:

- **Municipal Solid Waste – 370,000 tonnes per annum;**
- **Commercial and Industrial Waste – 640,000 tonnes per annum;**
- **Construction Demolition and Excavation Waste – 1,300,000 tonnes per annum.**

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	?	Effects will be dependent upon the location of waste management facilities and mitigation measures associated with their development and operation. The common core policies are expected to assist in ensuring the mitigation of significant adverse effects.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	?	As above
3. To maintain and improve ground and surface water quality	?	As above
4. To improve and maintain air quality to levels which do not damage natural systems	?	As above
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+	Making local provision would have positive impacts on reducing distance travelled and therefore reducing greenhouse gas emissions associated with waste transportation
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	?	Effects will be dependent upon the location of waste management facilities and mitigation measures associated with their development and operation. The common core policies are expected to assist in ensuring the mitigation of significant adverse effects.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+	Making local provision would have positive impacts on reducing the overall distances waste travels for management potentially reducing the impact of transportation of waste
8. To minimise the negative impacts of	?	Effects will be dependent upon the location of

SA Objectives	Likely effect	Comments
waste management facilities and mineral extraction on people and local communities		waste management facilities and mitigation measures associated with their development and operation. The common core policies are expected to assist in ensuring the mitigation of significant adverse effects.
9. To protect, improve and where necessary restore land and soil quality	?	As above
10. To contribute towards moving up the waste hierarchy in Oxfordshire	?	This policy is concerned with the amount of waste to be managed. The waste management methods proposed elsewhere in the MWCS will determine if the proposals will contribute towards moving waste up the waste hierarchy.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	++	Policy W1 directly supports self-sufficiency
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	Making local provision would have a positive impact through new facilities providing local jobs. This would only provide a limited number of jobs and is therefore not considered significant.

Summary and Mitigation Measures

Policy W1 outlines the amount of waste to be provided for in Oxfordshire to enable the county to be net self-sufficient in the management of MSW, C&I and CD&E waste. When assessed against the SA objectives, policy WI supports SA objectives relating to reducing carbon emissions and minimising the transport impacts of transporting waste as making local provision would reduce the distances travelled for waste management. This policy directly supports SA objective 11 on self-sufficiency as it seeks to enable Oxfordshire to be self-sufficient in the management of its waste. It is also supportive of local economic growth as development of new facilities to deliver the required capacity would create new job opportunities in Oxfordshire. Uncertainty regarding effects upon other objectives will depend upon where provision will be located however it is noted that other policies in the plan in particular the common core policies are likely to provide appropriate mitigation for significant adverse effects.

Policy W2: Imports of residual non-hazardous waste

Provision will be made for disposal of a declining amount of residual non-hazardous waste from London and elsewhere outside Oxfordshire at existing landfill sites. New facilities which provide substantially for the treatment of residual non-hazardous waste from outside Oxfordshire will not be permitted unless there is no prospect of a site nearer to the source of waste being identified or there are clear benefits to Oxfordshire.

SA Objectives	Likely effect	Comments

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	+/?	This policy is proposing to import declining amounts of waste for disposal in Oxfordshire's existing landfill sites located in the north, south and west of the county. The policy restricts substantial amounts of waste from outside Oxfordshire being treated in Oxfordshire by not permitting development unless facilities are the nearest required facility for the source of waste and that there are clear benefits to the County. This has potentially indirect positive effects upon the protection of biodiversity from the impacts of new development. The supporting text defines the clear benefits to Oxfordshire as meeting a need for the County however this could be improved by also referring to no significant adverse environmental effects of managing waste from elsewhere.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/?	As above
3. To maintain and improve ground and surface water quality	+/?	As above
4. To improve and maintain air quality to levels which do not damage natural systems	+/?	As above
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+/-	Waste importation leads to waste travelling from from outside Oxfordshire including London and further afield for disposal in Oxfordshire therefore producing greenhouse gas emissions as a result of transportation of waste. However, it is expected that much of this waste will be transported by rail as is currently the case. The policy is also making provision for a declining amount of waste from London and elsewhere for disposal to Oxfordshire's landfills so in the longer term this could have a potential positive effect on the levels of greenhouse gas emissions generated by landfills in the County by reducing the current level of landfilling of waste from elsewhere.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	+/?	The policy allows for declining amounts of waste from London and elsewhere to be disposed of at existing landfill sites. It also restricts substantial amounts of waste from elsewhere being treated in Oxfordshire by not permitting development unless facilities are the nearest required facility for the source of waste and that there are clear

SA Objectives	Likely effect	Comments
		benefits to the County. This has potentially positive effects by reducing the impacts of new development. The supporting text defines the clear benefits to Oxfordshire as meeting a need for the County however this could be improved by also referring to no significant adverse environmental effects of managing waste from elsewhere.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+	Waste importation could mean waste travelling from far for disposal in Oxfordshire leading to some impacts on the road transport network. However, this would be a declining amount of waste and much of this waste is likely to be transported by rail as is currently the case
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	+	The policy allows for declining amounts of waste from London and elsewhere to be disposed of at existing landfill sites. It also restricts substantial amounts of waste from elsewhere being treated in Oxfordshire by not permitting development unless facilities are the nearest required facility for the source of waste and that there are clear benefits to the County. This has potentially positive effects by reducing the impacts of new development. The supporting text defines the clear benefits to Oxfordshire as meeting a need for the County however this could be improved by also referring to no significant adverse environmental effects of managing waste from elsewhere.
9. To protect, improve and where necessary restore land and soil quality	+	As above
10. To contribute towards moving up the waste hierarchy in Oxfordshire	-	Landfilling is the option of last resort and it does not contribute towards moving waste up the hierarchy. However, it is recognised that it plays an important role in meeting waste management needs and the policy is proposing to accept declining amounts for disposal.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	+	This policy is likely to assist Oxfordshire be self sufficient with respect to their disposal needs for the future by husbanding landfill capacity within the County as the policy is proposing to accept a declining amount of waste for disposal.
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	Likely to have positive effects as the policy is still allowing cross boundary waste management where this is economically sound.
Summary and Mitigation Measures **Policy W2 provides for disposal of a declining amount of waste from London and**		

SA Objectives	Likely effect	Comments
elsewhere at existing landfill sites in Oxfordshire. It does not provide for treatment facilities for waste from outside Oxfordshire unless there would be clear benefits within the county which are referred to in the supporting text as also helping to meet a waste management need for the County. When assessed against the SA objectives, this policy could have potential positive effects as this is reducing the current rate of disposal and restricting new development where clear benefits cannot be proven. Although clear benefits are explained in the supporting text this could also be improved by requiring proposals which manage waste from elsewhere to demonstrate that they would not have significant adverse environmental effects. The policy is not promoting waste to be moved up the waste hierarchy and is therefore in conflict with SA objective 10.However, it is recognised that it plays an important role in meeting waste management needs and the policy is proposing to accept declining amounts for disposal therefore assisting Oxfordshire to be self sufficient (objective 11).		

Policy W3: Waste Management Targets

Provision will be made for waste to be managed in accordance with the following targets, to provide for the maximum diversion of waste from landfill.

Waste Management / Waste Type	Target Year				
	2010	2015	2020	2025	2030
Municipal waste:					
Composting & food waste treatment	28%	31%	33%	35%	35%
Dry Recycling	24%	31%	32%	35%	35%
Treatment of residual waste	0%	30%	30%	25%	25%
Landfill	48%	8%	5%	5%	5%
Total	100%	100%	100%	100%	100%
Commercial & industrial waste:					
Recycling and composting & food waste treatment	50%	60%	65%	70%	70%
Treatment of residual waste	0%	15%	25%	25%	25%
Landfill	50%	25%	10%	5%	5%
Total	100%	100%	100%	100%	100%
Construction, demolition & excavation waste:					
Recycling	50%	50%	60%	60%	60%
Landfill/Restoration	50%	50%	40%	40%	40%
Total	100%	100%	100%	100%	100%

SA Objectives	Likely Effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	?	Effects will be is dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. The Oxfordshire Waste Needs Assessment (May 2011) indicates that there is likely to be surplus capacity in the short term for composting of MSW and C&I waste and recycling for C&I. Therefore in terms of timing, it is likely there would be neutral effects of meeting these targets during the short term. There is however a need for residual treatment capacity for C&I waste in the short and long term and for CDE capacity in the short and long term. No new landfill capacity is required to meet the targets for each waste stream.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	?	
3. To maintain and improve ground and surface water quality	?	
4. To improve and maintain air quality to levels which do not damage natural systems	?	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	++	The strategy seeks to minimise disposal of waste to landfill. This has positive impacts on reducing the greenhouse gas emission methane associated with landfilling biodegradable waste. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO2[43].
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	?	Effects will be is dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	?	As above
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	?	As above
9. To protect, improve and where necessary restore land and soil quality	?	As above
10. To contribute towards moving up the waste hierarchy in	++	The policy sets targets for the management of waste by recycling, composting, treatment and landfilling The policy sets high targets for

[43] Comparative Assessment of Greenhouse Gas Emissions from Waste Management Services February 2010 (Updated from November 2009) Zero Waste Scotland

SA Objectives	Likely Effect	Comments
Oxfordshire		recycling and composting and low targets for final disposal via landfill thereby ensuring waste is moved up the waste hierarchy as high as possible. Significant positive effects are therefore likely especially in the long term.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	+	The targets support SA objective 11 on enabling Oxfordshire to be self-sufficient in waste management
12. To support Oxfordshire's economic growth and reduce disparities across the county	+/?	Encouraging the recycling and treatment of waste is likely to support Oxfordshire's economy as this is likely to create new markets for waste products and provide new job opportunities at new waste facilities. It is uncertain whether this would be significant.

Summary and Mitigation Measures

Policy W3 sets waste management target to provide for maximum diversion of waste from landfill. This policy supports SA objective 5 as diverting waste from landfill (especially bio-degradable waste would reduce the amount of methane associated with landfilling of such waste). It also supports the management of waste in line with the waste hierarchy as it sets provision for additional recycling, composting and recovery capacity and enables Oxfordshire to become self-sufficient in its waste management. There are likely to be positive effects upon SA objective 12 on supporting the local economy as facilities required to meet the set targets enhance the local economy and offer potential to create local jobs both direct and indirectly.

Policy W4: Provision of additional waste management capacity

Provision for additional waste management capacity will be made in accordance with the following guideline figures.

Oxfordshire: additional waste capacity required (tonnes per annum)

Waste Type / Management Type	2010	2015	2020	2025	2030
Composting:					
Municipal / Commercial & Industrial	–	–	–	–	–
Recycling:					
Municipal / Commercial & Industrial	–	*	*	190,000**	210,000
Construction, Demolition & Excavation	–	–	80,000	390,000	500,000
Residual Treatment:					
Commercial & Industrial	–	170,000	40,000	–	10,000

All figures rounded to nearest 10,000 tonnes
Figures based on estimates of waste arising +10% contingency

- **Zero requirement assumes that facilities with permission but not yet built will be delivered; if permitted facilities are not built, there may be a requirement for additional recycling capacity in these years.**

**** The requirement for additional capacity begins soon after 2020.**

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	?	Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W5 and W6 as well as the common core policies are expected to address this uncertainty. In the short term and medium term effects may be neutral as provision is not required for some waste streams.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	?	As above
3. To maintain and improve ground and surface water quality	?	As above
4. To improve and maintain air quality to levels which do not damage natural systems	?	As above
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+	Provision is being made for waste management facilities which divert waste from landfill which will help to reduce the greenhouse gas methane generated by this type of management
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	?	As for SA1
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	?	As above
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	?	As above
9. To protect, improve and where necessary restore land and soil quality	?	As above
10. To contribute towards moving up the waste hierarchy in Oxfordshire	+	Policy W4 will ensure there is sufficient capacity including recycling, composting and treatment which will contribute towards moving up the waste hierarchy.

SA Objectives	Likely effect	Comments
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	++	Policy W4 is making provision in accordance with Oxfordshire's needs therefore enabling Oxfordshire to be self-sufficient in its waste management
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	Indirectly new waste management facilities required to deliver this provision are likely to provide local job opportunities and therefore support the local economy
Summary and Mitigation Measures **Policy W4 seeks to make provision for additional waste management capacity and sets out guideline figures. Effects upon the majority of SA objectives are dependent upon where this provision is located as its focus is ensuring that there is sufficient capacity to deal with Oxfordshire's waste arisings to 2030. This would be addressed by policies W5, W6 and the common core policies and effects are more likely in the medium to long term when provision is required. Positive effects are likely on the SA objective relating to moving waste up the waste hierarchy (by making provision for composting, recycling and treatment facilities) and the SA objective on enabling Oxfordshire to be self-sufficient in managing its waste as it seeks to deliver Oxfordshire's waste needs. The proposed capacity is also assessed as having an indirect positive effect on the local economy through new waste management facilities required to deliver the provision which are likely to create new job opportunities.**		

Policy W5: Strategy for the provision of waste management facilities

Strategic facilities will be located in a broad area around Bicester, Oxford, Abingdon and Didcot as identified in the key diagram (figure 7). Facilities to serve more local needs will be located where they are well related to the other main sources of waste (Witney/Carterton, Wantage/Grove and Banbury). Only small scale facilities, in keeping with their surroundings, will be located elsewhere in Oxfordshire.

Facilities for reuse, recycling and composting of waste and for food waste treatment will generally be encouraged in order to move the management of Oxfordshire's waste further up the waste management hierarchy. Provision will in particular be made for:

- **A household waste recycling centre to serve Banbury;**
- **Municipal waste transfer stations to serve the south and west of the county;**
- **Recycling plants for commercial and industrial waste and for construction, demolition and excavation waste (to produce recycled aggregates and soils).**

Additional plants for treatment of residual municipal and/or commercial and industrial waste arising in Oxfordshire will only be permitted if it can be demonstrated that there is a need for additional treatment capacity to divert residual waste away from landfill that cannot reasonably be met by existing capacity within the county.

Waste sites will be expected to meet the criteria in policy W6 and the Core Policies.

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	?/0	Likely effects will depend upon the exact location and type of facilities and this needs to be considered as part of site selection. The broad area for strategic facilities appears to be located outside internationally designated areas for biodiversity. The policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	?/0	Likely effects will depend upon the exact location and type of facilities and need to be considered as part of site selection. The broad area for strategic facilities appears to be located outside the AONB although is partially within the greenbelt. The policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects.
3. To maintain and improve ground and surface water quality	?/0	Likely effects will depend upon the exact location and type of facilities and need to be considered as part of site selection. The policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects.
4. To improve and maintain air quality to levels which do not damage natural systems	?/0	As above

SA Objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	+	Provision of facilities close to waste arisings is likely to reduce greenhouse gas emissions associated with waste transportation.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	?/0	Likely effects will depend upon the exact location and type of facilities and need to be considered as part of site selection. The policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+/?	Likely effects will depend upon the exact location and type of facilities and need to be considered as part of site selection. However provision of facilities close to waste arisings of the County's future growth areas is likely to minimise adverse effects associated with waste transportation.
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	?/0	Likely effects will depend upon the exact location and type of facilities and need to be considered as part of site selection. The policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects.
9. To protect, improve and where necessary restore land and soil quality	?/0/+	As above However potential for positive effects as a result of CDE recycling as this could potentially reduce the need for land won aggregates and soils.
10. To contribute towards moving up the waste hierarchy in Oxfordshire	++	This policy encourages the development of reuse, recycling and composting facilities in management of waste further up the waste hierarachy.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	++	Provision for waste management facilities, both strategic and local, needed to manage Oxfordshire's waste are being encouraged through this policy which is enabling self sufficiency for the County.
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	Provision for waste management facilities, both strategic and local, needed to manage Oxfordshire's waste are being encouraged through this policy and this new development will help to support Oxfordshire's economic growth through job creation during both construction and operation.
Summary and Mitigation Measures **Policy W5 outlines the provision of different types of waste management facilities in Oxfordshire and their broad locations. This policy encourages the development of reuse, recycling, composting and food waste treatment facilities in areas of the County where this is needed. Strategic facilities are to be located in broad areas around Oxford and key towns in the north and the south of the County and facilities to meet local**		

SA Objectives	Likely effect	Comments
		needs are to be located where they are well related to other main sources of waste. The policy is therefore likely to have significant positive effects upon SA objectives 10 and 11 – moving waste up the hierarchy and enabling Oxfordshire to be self sufficient. It is recognised that there will be differing effects according to the exact location and type of facilities. This needs to be considered as part of future site selection and it is noted that the policy refers to the criteria in policy W6 and the core policies which are expected to mitigate significant adverse environmental effects. The following sections discuss the likely effects of the different waste management types for the different waste streams which the policy specifically covers. *Residual waste transfer stations* *Municipal Solid Waste (MSW)* Policy W5 recognises the need to provide for bulking up and transfer stations of residual MSW waste from southern and western parts of Oxfordshire for efficient transportation to the Ardley energy from waste facility to be built in 2015. Ardley is located in the north of the county. The Council has identified in its Waste Needs Assessment Report that the location of the plant in the north of the county may give rise to the need for up to two additional transfer stations to facilitate the effective delivery of waste to the plant. The proposed locations of the two residual transfer stations are south (Abingdon/Didcot/Wantage and Grove) and west (Witney/Carterton) areas of the county. Providing for the residual transfer stations in the identified areas would facilitate the efficient transportation of waste to Ardley. This is assessed as having positive impacts on the SA objectives related to transport and climate mitigation as the transfer stations are likely to lead to less waste movement across the county from the south and west to the north, thereby reducing potential negative transport impacts (congestion, noise, vibration and air pollution) as well as minimising greenhouse gases associated with waste transportation. At a strategic level, the SA has not identified specific constraints for not locating the required residual waste transfer stations in the proposed broad areas. However, the potential impacts on the built and natural environment and local amenity of the proposed facilities should be addressed in detail at the site selection stage and planning application stage to ensure that development does not lead to significant adverse impacts on sensitive receptors. *Recycling* *MSW* At present, the Council's Waste Needs Assessment indicates that there is a surplus of MSW recycling provision in the county. However, there is a need to make provision for a new recycling facility to serve Banbury to replace the existing temporary facility at Alkerton. Making provision to meet local need in Banbury will ensure that waste is not transported far for recycling as it is dealt with closer to its source of arising. This has a positive effect on minimising greenhouse gas emissions associated with transporting waste by road as well as reducing the potential for other negative transport related impacts like congestion on the county's roads. Provision of recycling capacity also provides opportunities for further carbon savings as reprocessing of recycled material requires less energy than processing of raw materials. Overall, this policy is assessed as being in line with sustainability principles. *Commercial and Industrial (C&I) and Construction Demolition and Excavation (CD&E) Waste* The Council estimates that there is a capacity gap of approximately 200,000 tpa by 2030 for recycling C&I waste and approximately 500,000tpa a year by 2030 will be required for recycling of CD&E waste. The policy will make provision for recycling plants to manage these types of waste The locations of strategic facilities would be in the broad areas around Bicester, Oxford, Abingdon and Didcot and facilities to serve more local needs would be where

SA Objectives	Likely effect	Comments
		they are well located to sources of waste such the key towns to the west and north. Policy W5 is therefore likely to provide for facilities across the county that will lead to waste being managed as closely as possible to where it arises. This is likely to reduce impacts on the road network and minimising transport related greenhouse gas emissions. For CD&E waste there could also be positive effects upon protecting and restoring land and soil as the recycling provision is to produce aggregates and soils and therefore may help to reduce the need for land won aggregates or soils. Potential effects upon the built and natural environment are uncertain due to the exact location of specific sites not being known. The effects upon local amenity and the built and natural environment associated with the provision of C&I and CD&E recycling facilities in the proposed broad areas and where applicable in locations serving local needs should be considered during site selection and planning application stages to mitigate against potential adverse effects. This should include consideration of the potential for landscape and visual, noise, odour (in relation to C&I recycling facilities handling biodegradable waste), biodiversity, air quality, flood risk and water quality impacts. It is recognised that the common core policies are expected to provide mitigation for significant adverse effects. *Residual Treatment* Additional residual treatment capacity for MSW and C&I waste has not been identified as being required by current evidence and therefore residual treatment facilities are only to be permitted if there is a need to divert waste from landfill that cannot be reasonably met by existing capacity within the County. The effects of this policy approach upon the SA objectives are likely to be neutral in the short term as there is unlikely to be a demonstrable need. Long term effects are uncertain and will depend upon the exact locations of proposals brought forward. At the planning application stage there should be consideration of the potential for landscape and visual, noise, odour (in relation to facilities handling biodegradable waste), biodiversity, air quality, flood risk, and water quality impacts from the proposal. It is recognised that the common core policies are expected to provide mitigation for significant adverse effects.
		Policy W6: Sites for waste management Priority will be given to siting waste management facilities on land that: • is already in permanent waste management or industrial use; or • is previously developed, derelict or underused; or • involves existing agricultural buildings and their curtilages; or • is at a waste water treatment works. Waste management facilities will not be permitted on green field land unless there is an over-riding need that cannot reasonably be met elsewhere. At mineral working and landfill sites, waste management facilities will be permitted provided that the development is related to and will be removed on completion of the mineral working or landfill operation. Within the Green Belt, waste management facilities may be permitted provided that very special circumstances are demonstrated. Proposals for such facilities will need to demonstrate that they are required to serve a recognised need arising in Oxford and that there is no reasonable prospect of an alternative site becoming available outside the Green Belt. Controls may be imposed to ensure that such facilities serve a waste management need arising in Oxford. Within Areas of Outstanding Natural Beauty, only small-scale waste management facilities to meet local waste needs will normally be permitted.

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	+/?	Locating development at existing waste, industrial sites, previously developed land, derelict sites will reduce use of greenfield land which is likely to have a positive effect on biodiversity. This is because sites designated for their biodiversity importance are generally undeveloped and therefore the policy would reduce disturbance. However previously developed land and derelict land as well as existing agricultural buildings can be habitats for protected species and therefore effects will be dependent upon the implementation of the common core policies.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/?	Redevelopment of previously developed sites and derelict land can help to enhance the local landscape. Restricting small scale development to the AONB could have some positive and negative impacts on the landscape. This will be dependent upon landscape mitigation and therefore the implementation of common core policy C6 will assist in mitigating any potential negative effects.
3. To maintain and improve ground and surface water quality	?	Effects will be dependent upon development locations.
4. To improve and maintain air quality to levels which do not damage natural systems	?	As above
5. To reduce greenhouse gas emissions to reduce the cause of climate change	?	As above
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	?	As above
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+	Only allowing small scale facilities in the AONB and Greenbelt to serve local needs would reduce the need to transport some of the waste arising from such localities.
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	?	Effects will be dependent upon development locations.
9. To protect, improve	++	Use of previously developed land and derelict

SA Objectives	Likely effect	Comments
and where necessary restore land and soil quality		land can lead to the restoration of land especially where land may have been previously contaminated.
10. To contribute towards moving up the waste hierarchy in Oxfordshire	0	
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	Allowing waste development to be located at existing waste management sites is likely to assist in the co location of waste operations and therefore could assist in achieving economies of scale.

Summary and Mitigation Measures

Policy W6 provides guidance on sites for waste management facilities. It prioritises land that is already in permanent waste management or industrial use, is previously developed, derelict or underused, involves existing agricultural buildings and their curtilages and at waste water treatment works.

This policy also allows small scale development within AONB to serve local needs and may allow facilities in the Green Belt to serve the needs of Oxford.

This policy has the potential for indirect positive impacts on protection of nature conservation by prioritising the use of previously developed land, existing waste and industrial sites, derelict sites, existing agricultural buildings and waste water treatment works thereby reducing development of green field land which is likely to host local biodiversity. However previously developed land and derelict land as well as existing agricultural buildings can be habitats for protected species. The likely effects will be dependent upon the implementation of the policy in conjunction with the common core policies which are expected to mitigate significant adverse effects.

Use of derelict buildings and development of previously developed sites can also help improve the local landscape. Proposals for small scale facilities in the AONB and proposals in the Green Belt which meet very special circumstances may have negative effects upon the landscape however the likely effects will be dependent upon the implementation of the policy in conjunction with the common core policies which are expected to mitigate significant adverse effects. The supporting text to Policy W6 also states that proposals in AONB would need to be in keeping with the objectives of the designation. This would help mitigate potential adverse impacts. Allowing small scale facilities in the AONB and facilities to serve Oxford in the Green Belt can help reduce the distances waste is transported from these localities therefore reducing impacts upon the local transport network and greenhouse gas emissions associated with transporting waste. Use of previously developed land and derelict land especially where sites may have been previously contaminated can help to restore land quality and therefore policy W6 supports SA objective 9.

Policy W7: Landfill

Priority will be given to the use of inert (construction, demolition and excavation) waste which cannot be recycled as infill material at active or unrestored quarries

where such material is required in order to achieve satisfactory restoration for appropriate afteruse. Permission will not be granted for disposal of inert waste elsewhere unless there would be overall environmental benefit.

Permission will not be granted for new landfill sites for non-hazardous waste. Existing non-hazardous landfill capacity will be husbanded for the disposal of residual non-hazardous waste. Permission will be granted to extend the life of existing non-hazardous landfill sites where this is necessary to meet the need for disposal of residual non-hazardous waste or to enable completion and restoration of the landfill.

Landfill sites should be restored in accordance with policy M6 for restoration of mineral workings.

SA Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	+/?	New non hazardous landfill sites would be restricted as a result of this policy which may therefore lead to the protection of Oxfordshire's biodiversity. The likely effects of extending the life of existing landfill sites are neutral as these would not increase in size. Using inert waste for restoration will depend upon the exact location of active or unrestored quarries required to be restored and potential adverse negative effects would be mitigated by .
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/-	This policy would assist in the restoration of active or unrestored quarries which will enhance local landscape character and where these are located in the AONB enable appropriate restoration. Extending the life of existing non hazardous landfill sites may reduce the level of restoration at these sites and therefore the enhancement of local landscapes as a result in the short – medium term. None of the sites are located within the AONB therefore likely effects are not considered to be significant.
3. To maintain and improve ground and surface water quality	0	No new landfill sites are being proposed and inert material for infilling is unlikely to negatively effect ground and surface water quality as it will generate leachate.
4. To improve and maintain air quality to levels which do not damage natural systems	?	Effects will be dependent upon the exact location of inert landfilling and the mitigation measures associated with the operation as this may give rise to dust which could damage natural systems. The common core policies could assist in mitigation of these potential adverse effects.
5. To reduce greenhouse gas emissions to reduce the cause of climate change	?/0	Likely effects will depend on the exact location of sites required to be filled with inert waste relative to sources of waste arising and therefore the transportation of waste. It is recognised that restricting new non hazardous landfill sites in accordance with Oxfordshire's need is likely to give rise to neutral effects.
6. To mitigate Oxfordshire's	0	Likely effects will depend on the exact location of sites required to be filled with inert waste.

SA Objectives	Likely effect	Comments
vulnerability to flooding, taking account of climate change		
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	Likely effects will depend on the exact location of sites required to be filled with inert waste relative to sources of waste arising
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	+/-/?	This policy restricts new non hazardous landfill sites therefore potentially protecting local communities from the negative effects of new sites for this type of waste management. However it does support extending the life of landfill sites where there is a need to and this may therefore continue existing impacts in the short to medium term in existing landfill locations. Likely effects of inert landfilling will depend upon the exact location of these sites.
9. To protect, improve and where necessary restore land and soil quality	+/-	Provision for additional landfill capacity for inert waste where used to restore sites has a positive effect on SA objective 9. However extending the life of the non hazardous landfills may prolong the life of the existing landfills and delay restoration in the short – medium term.
10. To contribute towards moving up the waste hierarchy in Oxfordshire	-	The policy is restricting new landfill sites but is allowing the landfilling of inert waste which cannot be recycled. Landfilling is the option of last resort and it does not contribute towards moving waste up the hierarchy. However, it is recognised that it should be adequately provided for.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	++	Making local provision for inert landfilling and husbanding non hazardous landfill will allow for county self-sufficiency with respect to the disposal of waste via landfill.
12. To support Oxfordshire's economic growth and reduce disparities across the county	+	Making local provision for inert landfilling has the potential to create local job-opportunities.
Summary and Mitigation Measures **The Council estimates that an additional 1.5 million cubic metres of capacity for disposal of inert waste that cannot be recycled will be required from around 2026. To meet this need, the Council proposes to make provision for this amount with priority given to use of inert waste to restore mineral workings. Permission will not be granted for new landfill sites for non-hazardous waste and existing non hazardous landfills may be extended in terms of their life. This is likely to prolong any negative**		

SA Objectives	Likely effect	Comments
effects upon areas affected by existing landfill sites already experienced however reduce the potential for adverse effects upon other areas of the county as a result of new sites . **Policy W7 does not support SA objective 10 on moving waste up the hierarchy as landfill does not lead to more waste being recycled or recovered. However, it is recognised that although seen as the option of last resort, landfill must be adequately planned for as it still has a role to play in waste management and permission will only be granted for inert landfilling where material cannot be recycled,** **Providing for inert landfill especially for restoration purposes is assessed as having positive effects on improving land quality (SA objective 9) and also landscape (SA objective 2) however the potential for existing non hazardous landfill sites to extend in life may have negative effects in the restoration of sites in the short to medium term. Policy W7 also supports county self-sufficiency (SA objective 11).** **The potential transport and climate mitigation impacts of the proposed approach are difficult to assess without knowing the location of sites required to be inert landfilled. This should be addressed during site selection to ensure that sites are located close to sources of arisings. The common core policies are likely to address any other potential adverse impacts on the built and natural environment.**		

Policy W8: Hazardous and non legacy radioactive waste

Permission will be granted for facilities for the management of hazardous waste where they are designed to meet a requirement for the management of waste produced in Oxfordshire. Facilities that also provide capacity for hazardous waste from a wider area should demonstrate that they will meet a need for waste management that is not adequately provided for elsewhere.

Sustainability Appraisal Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	0	Effects will depend upon the exact locations of these facilities. Proposals for hazardous landfilling would need to be assessed against strict Environmental agency landfilling criteria as well as planning criteria to ensure no adverse environmental impacts and the common core policies are expected to ensure the mitigation of significant adverse effects.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	
3. To maintain and improve ground and surface water quality	0	
4. To improve and maintain air quality to levels which do not damage natural systems	0	

Sustainability Appraisal Objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	?	Policy W8 supports applications for the management of hazardous waste produced in Oxfordshire but these facilities may also provide for this type of waste from elsewhere where a need can be met which is not currently met elsewhere. The policy would allow Oxfordshire to be more self sufficient with regards to hazardous waste however it is unknown where other waste may be travelling from and if current exports of hazardous waste may continue.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	Effects will depend upon the exact locations of these facilities. Proposals for hazardous landfilling would need to be assessed against strict Environmental agency landfilling criteria as well as planning criteria to ensure no adverse environmental impacts and the common core policies are expected to ensure the mitigation of significant adverse effects.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	?	Policy W8 supports applications for the management of hazardous waste produced in Oxfordshire but these facilities may also provide for this type of waste from elsewhere where a need can be met which is not currently met elsewhere. The policy would allow Oxfordshire to be more self sufficient with regards to hazardous waste however it is unknown where other waste may be travelling from and if current exports of hazardous waste may continue.
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	0	Effects will depend upon the exact locations of these facilities. Proposals for hazardous landfilling would need to be assessed against strict Environmental agency landfilling criteria as well as planning criteria to ensure no adverse environmental impacts and the common core policies are expected to ensure the mitigation of significant adverse effects.
9. To protect, improve and where necessary restore land and soil quality	0	As above
10. To contribute towards moving up the waste hierarchy in Oxfordshire	0/?	Impact is dependent on the management route applied to the hazardous waste (treatment or disposal).
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	0	Policy W8 supports self-sufficiency and encourages facilities that are designed to deal with waste arising in Oxfordshire. However, for hazardous waste this is not always possible due to the specialist nature of hazardous waste management facilities and their associated costs. Effects are therefore likely to be neutral.

Sustainability Appraisal Objectives	Likely effect	Comments
12. To support Oxfordshire's economic growth and reduce disparities across the county	0	

Summary and Mitigation Measures

Oxfordshire is a net exporter of hazardous waste. The Council acknowledges that the county should be as self-sufficient as is reasonably possible in managing hazardous waste and non legacy radioactive waste. However, due to the specialist nature of these types of waste management facilities, they currently tend to serve large catchment areas than a single county. Oxfordshire estimates that additional capacity could be required for approximately 50,000tpa of hazardous waste produced in the county. Policy W8 does not provide for additional hazardous waste management capacity in Oxfordshire but supports applications designed to meet Oxfordshire's hazardous waste management needs and those that are required to meet a need for waste management that is not adequately provided for elsewhere.

The likely effects upon many of the SA objectives are uncertain as they depend upon the exact location and type of management proposed however it is expected that applications for these types of facilities would be assessed against the Environmental Agency's hazardous waste management regulations/criteria and the common core policies are expected to ensure the mitigation of significant adverse effects if applications come forward in Oxfordshire.

Policy W9: Legacy radioactive waste

Provision will be made for:

- **Storage of Oxfordshire's intermediate level legacy radioactive waste at Harwell Oxford Campus, pending its disposal at a planned national disposal facility elsewhere;**
- **Temporary storage (if required) of low level legacy radioactive waste at Harwell Oxford campus and Culham Science Centre pending its disposal.**

Permission will be granted for the disposal of low level legacy radioactive waste at bespoke facilities at Harwell Oxford Campus or Culham Science Centre only if it can be demonstrated that no other suitable disposal facility is available elsewhere.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire	
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	0	0	There are no specific designated sites within the Harwell site; however there is a SSSI 7km to the south east of the site. There are no designated nature conservation sites within the Culham site or close to the site. The likely effects will depend upon the proposals which come forward however they would need to be made in accordance with policy W6 and the common core policies which are expected to provide mitigation for any significant adverse effects biodiversity.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	0	The Harwell site borders the North Wessex Downs AONB. There are also 17 Scheduled Monuments within 5kms of the site. The Culham site is 2.5 km from the North Wessex Downs AONB and is in the Greenbelt. There is a Scheduled Monument site 1km east of the site. The likely effects will depend upon the proposals which come forward however they would need to be made in accordance with policy W6 and the common core policies which are expected to provide mitigation for any significant adverse effects on landscape and historic assets.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
3. To maintain and improve ground and surface water quality	0	0	The River Thames is close to both the Harwell and Culham sites. For both sites, the ecological quality of the river (near the sites) is considered poor and the chemical status good. Ground water contamination is present at Harwell and remediation work continues. The likely effects will depend upon the proposals which come forward however they would need to be made in accordance with the common core policies which are expected to provide mitigation for any significant adverse effects. Development proposals should demonstrate that development would not lead to a deterioration of the surface water and ground water quality.
4. To improve and maintain air quality to levels which do not damage natural systems	?	?	Development at the Harwell and/or Culham sites should ensure that air quality levels which do not damage natural systems are maintained however this will depend upon the proposals which come forward and is therefore uncertain.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	-	?	For intermediate level waste, Policy W9 would lead to radioactive waste being transported from Culham although the impact on greenhouse gas emissions is judged to be minor due to the short distance travelled and small quantities of waste involved. For low level waste – Policy W9 would lead to waste being stored on site temporarily but would require disposal either in a bespoke facility at Harwell or Cuilham or outside Oxfordshire at a landfill site which can accept this type of waste. A site in neighbouring Northamptonshire has been identified that could possibly accept this waste however this would need to be extended in terms of its life as it is due to close in 2013. At this stage is therefore uncertain where this waste would be disposed of.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	0	Both sites are not within high flood risk areas.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	-	+/?	For intermediate level waste, Policy W9 would lead to radioactive waste being transported from Culham although the impact is judged to be minor due to the short distance travelled and small quantities of waste involved. For low level waste – Policy W9 would lead to waste being stored and disposed of where it arises or potentially disposing of it elsewhere. Likely effects of storage would be positive but are uncertain with regards to disposal.
8. To minimise the negative impacts of waste management facilities and mineral extraction on local amenity	0	0/?	Both sites are associated with some radioactive discharges to the environment and these are monitored to ensure they do not exceed permitted limits. Development of storage facilities would be required to demonstrate that these discharge limits would not be exceeded. By storing waste on site this would reduce the negative impacts of waste transportation however it is uncertain with regards to final disposal of low level waste. Proposals at both sites would need to be made in accordance with the common core policies which are expected to provide mitigation for any significant adverse effects.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
9. To protect, improve and where necessary restore land and soil quality	?	?	There is a degree of land contamination at Harwell. Development on this site should demonstrate that it would not lead to adverse impacts on land quality. There is no contaminated land identified at Culham. However, development proposals would be required to demonstrate that they would not lead to contamination of land.
10. To contribute towards moving up the waste hierarchy in Oxfordshire	0	0	Policy W9 relates to storage of radioactive waste and final disposal appropriate to this type of waste. It has a neutral effect upon contributing to moving waste up the waste hierarchy.
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	+	+/?	Policy W9 would allow Oxfordshire to be self-sufficient in meeting its radioactive waste storage needs. However it is uncertain whether the disposal for low level waste would be outside Oxfordshire. It is recognised that disposal of this type of waste for economic reasons will be at the regional/national level.
12. To support Oxfordshire's economic growth and reduce disparities across the county	0	0	

Summary and Mitigation Measures

Policy W9 relates to the management of radioactive waste (intermediate and low level radioactive legacy waste) generated by the two nuclear research facilities in the County at Harwell and Culham.

Intermediate level radioactive waste is produced at Harwell and smaller quantities at Culham. There is a requirement for storage of an estimated 10,000 cubic metres of intermediate level radioactive waste from Harwell and a smaller amount from Culham.

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
	Policy W9 proposes storage of this waste at Harwell (from Harwell and Culham), pending removal to a national disposal facility. This would lead to some waste from Culham being transported to Harwell. Although assessed as a negative impact against SA objectives on transport and climate change, this impact is likely to be minor due to the distance travelled (approximately 7miles) and the quantities of waste moved (expected to be small). **In addition, any proposals would have to be made in accordance with policy W6 and the common core policies. The SA has identified the following sustainability issues that will need to be considered when dealing with applications for such a facility at Harwell:** **•The close proximity to the North Wessex Downs AONB as well as potential local visual and landscape impacts;** **•Potential for ground water and surface water contamination given the proximity of the site to the River Thames;** **•Potential for land contamination; and** **•Potential amenity and health impacts associated with management of intermediate legacy waste.** **It is estimated that 100,000 cubic metres of low level radioactive waste capacity for waste mainly arising from demolition and clearance of buildings at Harwell and a smaller amount at Culham will be required. Policy W9 proposed temporary storage of this type of waste at both Harwell and Culham and potential disposal at these sites or elsewhere. When assessed against the SA objective policy W9 would lead to the least movement of low level radioactive waste as material will be stored where it is generated and therefore the policy performs well against SA objective 7. There is however uncertainty with regards to the potentially disposal of low level waste with positive effects likely for objective 7 if this is disposed of on site however uncertain effects if this is disposed of elsewhere as it will depend upon the exact location.** **The following key issues would need to be considered when assessing the potential development of storage and disposal facilities for low level radioactive waste at Harwell and Culham:** **Key issues that should be considered at Harwell include:** **•The close proximity to the North Wessex Downs AONB as well as potential local visual and landscape impacts;** **•Potential for ground water and surface water contamination given the proximity of the site to the River Thames;** **• Potential for land contamination; and** **• Potential amenity and health impacts associated with management of intermediate legacy waste.** **Key issues that should be considered at Culham include:** **• Potential impacts on local site biodiversity (there are no designated sites close to or within the site)**		

Sustainability Appraisal Objectives	Policy approach and likely effects		Comments
	Intermediate level- long term storage at Harwell pending transfer to a national disposal facility after 2030	**Low level - Temporary storage at Harwell and Culham pending disposal at a bespoke facility at Harwell or Culham or other facilities outside Oxfordshire**	
• Potential impacts on the AONB and greenbelt designations; **• Potential impacts on surface and ground water given the proximity of the sites to the river Thames – this could be referred to in the supporting text for the policy.**			

Policy W10: Safeguarding

Existing and proposed permanent waste management sites will be safeguarded for waste management use. Proposals for other development that would prevent or prejudice the use of safeguarded site for waste management will not normally be permitted unless either provision for new waste management capacity is made at a suitable alternative location or it can be demonstrated that the site is no longer needed or suitable for waste management use.

Sustainability Appraisal Objectives	Likely effect	Comments
1. To protect, maintain and enhance Oxfordshire's biodiversity and geodiversity including natural habitats and protected species	0	
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	
3. To maintain and improve ground and surface water quality	0	
4. To improve and maintain air quality to levels which do not damage natural systems	0	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0/+	Safeguarded sites can help to ensure that there are suitable sites within Oxfordshire for waste management allowing for waste to be managed within the county and therefore reducing the distances waste is transported for management.

Sustainability Appraisal Objectives	Likely effect	Comments
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0/+	Safeguarded sites can help to ensure that there are suitable sites within Oxfordshire for waste management allowing for waste to be managed within the county and therefore reducing the distances waste is transported for management.
8. To minimise the negative impacts of waste management facilities and mineral extraction on people and local communities	0	
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire	0	
11. To enable Oxfordshire to be self-sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment.	+	Safeguarding sites can indirectly contribute to self-sufficiency by making sure there are available suitable sites for waste management development within the county.
12. To support Oxfordshire's economic growth and reduce disparities across the county	0	

Summary and Mitigation Measures

Policy W10 relates to the safeguarding of waste management sites against other forms of development. This policy does not impact on most SA objectives as it specifically seeks to ensure that ensuring that safeguarded sites are not lost to other development. It is however assessed as having a positive indirect effect on SA objective 11 on enabling Oxfordshire to be self-sufficient in its waste management. This is because policy W10 would ensure that there are available sites within Oxfordshire suitable for waste management uses which provide potential developers with local site alternatives which in turn would lead to facilities being developed within Oxfordshire close to the source of waste arising. This would also have potential for indirect positive impacts on SA objectives 5 and 7 on reducing greenhouse gas emissions and transport related impacts.

Common Core Policies

Policy C1: Flooding

Minerals and waste development will, wherever possible, take place in areas that are not at risk of flooding. Where development takes place in an area of identified flood risk this should only be where alternative locations in areas of lower flood risk have been explored and discounted (using the Sequential Test and the Exceptions Test as necessary) and where a flood risk assessment is able to demonstrate that the risk of flooding from all sources is not increased, including:

- **any impediment to the flow of floodwater;**
- **the displacement of floodwater and increased risk of flooding elsewhere;**
- **any reduction in existing floodwater storage capacity;**
- **an adverse effect on the functioning of existing flood defence structures.**

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+	Waste developments are unlikely to be located in the floodplain. However it is important that any new development will not increase flood risk elsewhere. This may have an indirect positive impact on protecting natural habitats and sensitive flora and fauna. Ensuring that minerals development will not increase flood risk elsewhere, by maintaining the effective functioning of flood defences and floodwater storage capacity will have indirect short and long term positive impact on ensuring that natural habitats and sensitive flora and fauna downstream from minerals working areas will not be adversely affected by floodwaters. Any restoration of minerals working sites which incorporates floodwater storage could have an indirect long term beneficial impact in terms of reducing existing flood risk and may create additional habitat.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	
3. To maintain and improve ground and surface water quality	+	Ensuring that waste or minerals development does not increase flood risk will indirectly assist to maintain the quality of water bodies which might otherwise be adversely effected by increased volumes and rates of flow or run-off.

Sustainability Appraisal objectives	Likely effect	Comments
4. To improve and maintain air quality to levels which do not damage natural systems	0	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	++	This policy directly addresses this SA objective and would have a significant positive impact on this objective.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	+	This policy will have an indirect positive long term effect on local communities in terms of preventing any additional risk to peoples health and assets from flooding as a result of waste or minerals development. It also assists to maintain existing flows and levels of rivers, including those rivers which may be used by local communities for recreational purposes.
9. To protect, improve and where necessary restore land and soil quality	?	This policy may have an indirect positive effect on protection of existing soil quality to the extent that it ensures that minerals or waste development does not increase flood risk which might otherwise impact on valued agricultural land or result in soil contamination/pollution from runoff.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	

Sustainability Appraisal objectives	Likely effect	Comments
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	+	The policy provides the appropriate flexibility for Oxfordshire to make a sustainable contribution to its sub-regional minerals apportionment - to the extent that the policy recognises that mineral extraction is a compatible land use that is acceptable in areas of flood risk, provided any flood risk impacts are not increased,
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	The policy is likely to have a minor indirect positive effect on the economy as the prevention of flood risk supports economic growth by maintaining business continuity.
Summary and Mitigation Measures **Policy C1 will have a significant positive impact on SA objective 6 and a number of indirect positive effects on the SA objectives which relate to the protection of valued habitats, flora and fauna, soil and water quality, local communities and businesses – by preventing damage, disruption and distress caused by flood risk, which might arise if these risks were not appropriately mitigated when new minerals or waste development takes place.**		

Policy C2: Water Environment

Minerals and waste development will need to demonstrate that there would be no unacceptable adverse impact on or risk to:

- **the quantity or quality of surface or groundwater resources;**
- **the quantity or quality of water obtained through abstraction unless acceptable alternative provision can be made;**
- **the flow of groundwater at or in the vicinity of the site.**

Proposals for minerals and waste development should ensure the protection of the River Thames and other watercourses and canals of significant landscape, nature conservation or amenity value.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+/?	This policy has a positive impact on natural habitats to the extent that it requires no "unacceptable" adverse impact on or risk to habitats or wildlife through changes to the quantity or quality of surface or groundwater resources. This policy would be improved by substituting "unacceptable" for "significant" to be consistent with the terminology in the EIA regulations. An "unacceptable adverse effect" has not been defined and this creates a level of ambiguity in the policy.

Sustainability Appraisal objectives	Likely effect	Comments
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	++	Protection of the quantity/quality of watercourses and canals of significant landscape significance through the implementation of this policy should have a positive effect on landscape character.
3. To maintain and improve ground and surface water quality	+/?	The policy directly and positively addresses ground and surface water quality. However the policy would be improved by substituting "unacceptable" for "significant" to be consistent with the terminology in the EIA regulations. An "unacceptable adverse effect" has not been defined and this creates a level of ambiguity in the policy.
4. To improve and maintain air quality to levels which do not damage natural systems	0	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	+	Ground or surface water flows can have an impact on flood risk, so addressing adverse impacts or risks to ground or surface water flows has an in-direct positive impact in relation to this objective.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	++/?	Mineral workings may cause dewatering and therefore impact on the availability of groundwater to serve the water supply needs of local communities – this risk is positively addressed through this policy. The policy also recognises the amenity values of maintaining water quality. The amended policy now captures the value of maintaining water quantity and quality for other human activities (such as recreational use). The Thames River for example, is a very important recreational resource. The ambiguity in the policy wording regarding what is an "unacceptable adverse impact" on human activities however should be addressed, as identified above.

Sustainability Appraisal objectives	Likely effect	Comments
9. To protect, improve and where necessary restore land and soil quality	+	Maintenance of ground and surface water quality will have an indirect positive impact on protecting the productivity of agricultural land and preventing soil contamination/pollution.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	To the extent that the economy relies on the abstraction of water from surface and groundwater to function and grow, it is important to protect these resources, which the policy sets out to do.

Summary and Mitigation Measures

Policy C2 has an indirect positive impact on many of the SA objectives, as maintaining water quality and quantity is an essential precursor to the proper functioning of ecosystems, landscapes, businesses and local communities.

The sustainability of the policy would be improved by replacing the word "unacceptable" with "significant", in order to be consistent with the terminology in the EIA regulations. An "unacceptable adverse effect" has not been defined and this creates a level of ambiguity in the policy. Although the revised wording of the supporting text now describes a number of potential adverse effects, this could be improved. This ambiguity has had an impact on the assessment. As a level of uncertainty remains this has been reflected in the rating of + rather than ++ for several objectives (SA objectives 1, 3, 8).

Policy C3: Environmental and Amenity Protection

Proposals for minerals and waste development should demonstrate that they will not have an unacceptable adverse impact on the environment, residential amenity and other sensitive receptors.

Sustainability Appraisal objectives	Likely effect	Comments

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+/?	The policy seeks to protect the environment from "unacceptable" adverse impacts. An "unacceptable adverse effect" has not been defined and this creates a level of ambiguity in the policy. This policy would be improved by substituting "unacceptable" for "significant" to be consistent with the terminology in the EIA regulations. Notwithstanding this, the 'environment' encompasses biodiversity and geodiversity and so there is likely to be an in-direct positive impact on this objective as a result of the implementation of this policy. Biodiversity and geodiversity is specifically addressed by Policy C5. It would be useful to provide a reference in the supporting text to Policy C5 to explain how these policies would be applied together.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+/?	The policy seeks to protect the environment and other sensitive receptors from unacceptable adverse impacts. The 'environment' and 'other sensitive receptors' includes local landscape character and historic and built heritage and so there is likely t be an indirect positive impact on this objective as a result of the implementation of this policy. As stated above, an "unacceptable adverse effect" has not been defined and this creates a level of ambiguity in the policy. This policy would be improved by substituting "unacceptable" for "significant" to be consistent with the terminology in the EIA regulations. It is appreciated that landscape character is covered by Policy C6 and the historic environment and archaeology by Policy C7. It would be useful to provide a reference in the supporting text to Policy C6 and C7 to explain how these various policies would be applied together.
3. To maintain and improve ground and surface water quality	+/?	The policy seeks to protect the environment and other sensitive receptors from unacceptable adverse impacts. As above, the same comments apply in relation to the ambiguity of the wording "unacceptable". The 'environment' and 'other sensitive receptors' includes ground and surface water as identified by the revised supporting text. However ground and surface water quality is also covered by Policy C2. It would be useful to provide a reference in the supporting text to Policy C2 to explain how these policies would be applied together.

Sustainability Appraisal objectives	Likely effect	Comments
4. To improve and maintain air quality to levels which do not damage natural systems	+/?	The policy seeks to protect the environment and other sensitive receptors from unacceptable adverse impacts. The 'environment' and 'other sensitive receptors' can include air quality. As above, the same comments apply in relation to the ambiguity of the wording "unacceptable".
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	+/?	The revised policy directly aims to address the negative impacts of minerals and waste development on local communities through addressing potential impacts on residential amenity (this is defined in the revised supporting text as "health and general amenity"). The ambiguity in the policy reduces the effectiveness of this policy (as above, it is also suggested that "unacceptable" is replaced by "significant").
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	

Sustainability Appraisal objectives	Likely effect	Comments
12. To support Oxfordshire's economic growth and reduce disparities across the county.	0	

Summary and Mitigation Measures

Policy C3 seeks to protect the environment, residential amenity and other sensitive receptors from unacceptable adverse impacts. The 'environment' and 'other sensitive receptors' can be construed to include those SEA elements covered by the SA objectives, including biodiversity, landscape character and historic and built heritage, air, water and people; but it would be helpful if the policy could be more explicit in defining the range of issues that would be considered within this definition. The supporting text appears to concentrate on impacts on local communities, but there are other references, for example to water resources, which create overlap with other core policies. In this respect it might be helpful to refer to specific common core policies such as C2, C4, C5, C6 and C8 in the supporting text and explain the interrelationship between these policies and this more generic policy. The sustainability of the policy would be improved by replacing the word "unacceptable" with "significant", in order to be consistent with the terminology in the EIA regulations. An "unacceptable adverse effect" has not been defined and this creates a level of ambiguity in the policy. This has subsequently had an impact on the assessment as a level of uncertainty remains. This is reflected in the rating of + rather than ++ for the majority of the SA objectives.

Policy C4: Agricultural land and soils

Proposals for minerals and waste development should demonstrate that they take into account the presence of any best and most versatile agricultural land.

Best and most versatile agricultural land should only be used where it can be shown that there is a need for the development which cannot reasonably be met using lower grade land, taking into account other relevant considerations.

Development proposals should make provision for the management and use of soils in order to maintain soil quality , including making a positive contribution to the long term conservation of soils in any restoration.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+	Protection of best and most versatile land and maintenance of soil quality should have an indirect positive impact on this objective, by ensuring that such soils can support regeneration of flora in the future.

Sustainability Appraisal objectives	Likely effect	Comments
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+	Protection of soil quality to enable the reinstatement of typical local land uses following minerals working, where these represent the local landscape character, will have a positive in-direct impact on this objective in the long term.
3. To maintain and improve ground and surface water quality	0	
4. To improve and maintain air quality to levels which do not damage natural systems	0	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	+	Protection of soil quality to enable future restoration of local amenity in the future would have a positive indirect effect on this objective in the longer term.
9. To protect, improve and where necessary restore land and soil quality	++	This policy will have a positive impact on this SA objective. It should be noted that suitable inert infill material is required to achieve high quality agricultural restoration and this may not always be available. However along the Thames valley and its tributaries, where much of the sand and gravel resource in the county is located, there are extensive areas where land quality is mostly Grade 2 or 3a, and therefore of a lower quality. There is only a small area of Grade 1 agricultural land near Dorchester.

Sustainability Appraisal objectives	Likely effect	Comments
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	0	
Summary and Mitigation Measures **Policy C4 is likely to have a significant positive effect upon SA objective 9 and an indirect positive effect on the SA objectives 1, 2 and 8, which relate to biodiversity, flora and fauna, local landscape character and local communities. Impacts on other SA objectives are expected to be neutral, It should be noted in the supporting text that suitable inert infill material is required to achieve high quality agricultural restoration and this may not always be available.**		

Policy C5: Biodiversity and Geodiversity

Minerals and waste development should not take place where it would be likely to have a significant adverse effect on a Site of Special Scientific Interest, either individually or in combination with other development.

Minerals and waste development should not damage or destroy irreplaceable habitats or biodiversity, including ancient woodland and species rich grassland.

Where proposals for minerals and waste development would affect a site designated for its national or local importance for nature conservation, the development proposals should include appropriate measures to protect, conserve and enhance the nature conservation interest of the site.

Nationally and locally important geological features and sites should be protected from harmful development and retained in situ unless there are exceptional reasons justifying their removal, in which event their presence should be appropriately recorded.

Proposals for mineral working and landfill should demonstrate that the development will make an appropriate contribution to the maintenance and enhancement of local habitats, biodiversity and geodiversity. Where mineral working or landfill is located in or close to a Conservation Target Area, developers will be expected to make an appropriate contribution to the achievement of Biodiversity Action Plan (BAP) targets through the maintenance and enhancement of the Conservation Target Area and relevant BAP priority habitats.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	++	This policy directly addresses potential impacts on biodiversity/ geodiversity values at the national and local level and its implementation should have a very positive long term impact on the attainment of this SA objective.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	++	The policy will have a positive long term impact on protecting landscape character and local distinctiveness, as local habitats and their biodiversity and geological features are a major component of the local landscape character.
3. To maintain and improve ground and surface water quality	+	Conservation and restoration of natural habitats will have an indirect positive impact on this objective as water bodies are an important component of natural habitats.
4. To improve and maintain air quality to levels which do not damage natural systems	0	

Sustainability Appraisal objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	+	Conservation and restoration of natural habitats will have an indirect positive effect on this objective as natural habitats can assist to reduce flood risk by regulating run-off and water flows.
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	0	
9. To protect, improve and where necessary restore land and soil quality	+	Conservation and enhancement of natural habitats will have an indirect positive effect on this objective by indirectly protecting the land and soil quality within these habitats.
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	0	

Sustainability Appraisal objectives	Likely effect	Comments
Summary and Mitigation Measures **Policy C5 is likely to have a significant positive effect on the SA objectives relating to biodiversity, geodiversity and landscape character and local distinctiveness (SA objectives 1 and 2); and indirect positive effects on water quality, flood risk and land and soil quality. Impacts on other SA objectives are expected to be neutral.**		

Policy C6: Landscape

Proposals for minerals and waste development should demonstrate that they will not have a significant adverse impact on the landscape and scenic beauty of Areas of Outstanding Natural Beauty including their settings.

Proposals for minerals and waste development should take account of relevant landscape character assessments and include measures to mitigate adverse impacts on landscape, including through siting, design and landscaping, and where possible should contribute to the enhancement of landscape character.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+	The protection and enhancement of landscape character will have an indirect positive impact on this objective by indirectly assisting to protect natural habitats and geological features, as these habitats and geological features are a major component of the local landscape character.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	++	This policy directly addresses the landscape character (and to some extent local distinctiveness) element of this SA objective and its implementation should have a significant positive impact on the attainment of this objective. However the policy is not as strongly worded as the SA objective –it refers to "respecting" "conserve" and "taking into account" rather than "protect". Suggest the inclusion of the word "significant" prior to "adverse impacts" to ensure a consistent approach with the recommendations for previous policies.
3. To maintain and improve ground and surface water quality	0	
4. To improve and maintain air quality to levels which do not damage natural systems	0	

Sustainability Appraisal objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	0/+	This policy should indirectly have a positive impact on local communities by protecting and where possible enhancing local landscape character (and thus local amenity) through the sensitive siting, design and landscaping of new minerals and waste development.
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	0	

Sustainability Appraisal objectives	Likely effect	Comments
Summary and Mitigation Measures **Policy C6 is likely to have a significant positive impact on SA objective 2 and an indirect positive impact on SA objective 1 relating to the protection of biodiversity and natural habitats.. It is suggested that the word "significant" is inserted prior to "adverse impacts" to ensure a consistent approach with the recommendations for previous policies. Impacts on other SA objectives are expected to be neutral.**		

Policy C7: Heritage assets and archaeology

Proposals for minerals and waste development should demonstrate that they will not cause loss or harm to designated heritage assets and the setting of those assets, including Blenheim Palace, scheduled monuments, listed buildings, conservation areas, historic battlefields, and registered parks and gardens, or to archaeological assets which are demonstrably of equivalent significance to a scheduled monument.

Minerals and waste development may be permitted on a site of local archaeological interest if proposals demonstrate that suitable archaeological evaluation, recording of assets and publication of findings is carried out, proportionate to the nature and level of the asset's significance.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	0	
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	+	This policy addresses the historic/built heritage/local distinctiveness element of this SA objective and will have a positive impact on the attainment of this objective with regards to protection rather than enhancement.
3. To maintain and improve ground and surface water quality	0	
4. To improve and maintain air quality to levels which do not damage natural systems	0	

Sustainability Appraisal objectives	Likely effect	Comments
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	0	
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	+	Insofar as the protection of historic features and built heritage and their settings also provides for the enhancement of local amenity and access to the countryside, the policy has an indirect positive impact on this SA objective.
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	0	

Sustainability Appraisal objectives	Likely effect	Comments
Summary and Mitigation Measures **Policy C7 has a positive impact on SA objective 2 as it will protect the County's historic assets. It also has indirect positive impacts on local communities (SA objective 8). There is no direct relationship between this policy and the other SA objectives and impacts on other SA objectives are expected to be neutral,**		

Policy C8: Transport

Minerals and waste development will be expected to make provision for adequate and convenient access to and along advisory lorry routes in a way that maintains and if possible leads to improvements in:

- **the safety of all road users including pedestrians;**
- **the efficiency and quality of the road network;**
- **residential and environmental amenity.**

Where improvements to the transport network are required to achieve this, developers will be expected to provide the improvements or make an appropriate financial contribution.

Where practicable minerals and waste developments should be located, designed and operated to enable the transport of minerals and/or waste by rail, water, pipeline or conveyor.

Where minerals and/or waste will be transported by road:

a)mineral workings should as far as practicable be in locations that minimise the road distance to locations of demand for the mineral, using roads suitable for lorries, taking into account the distribution of potentially workable mineral resources; and

b)waste management and recycled aggregate facilities should as far as practicable be in locations that minimise the road distance from the main source(s) of waste, using roads suitable for lorries, taking into account that some facilities are not economic or practical below a certain size and may need to serve a wider than local area.

Sustainability Appraisal objectives	Likely effect	Comments
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	+/?	Transportation that maintains or improves environmental amenity may have an indirect but localised positive impact due to the fact that some species are sensitive to the dust, vibration and noise of HGV traffic and reduction of these impacts will be positive. However the installation of alternative infrastructure for transportation (water based, pipeline, and conveyor) also has the potential to adversely impact on biodiversity where such infrastructure is proposed.

Sustainability Appraisal objectives	Likely effect	Comments
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	
3. To maintain and improve ground and surface water quality	0/?	This policy may have an indirect positive effect on this SA objective by addressing the adverse impacts on water quality which can arise from contaminated dust on roads from the transportation of minerals causing pollution through runoff.
4. To improve and maintain air quality to levels which do not damage natural systems	++	Ensuring that waste and minerals development does not impact on the efficiency and quality of the road network should have a significant positive effect on this SA objective by reducing congestion, and subsequent impacts on air quality. Reducing the number of road miles travelled to reach markets should also have a positive impact on improving air quality, as would a shift to other modes of transport.
5. To reduce greenhouse gas emissions to reduce the cause of climate change	++	Reducing the number of road miles travelled to reach markets should have a significant positive impact on reducing greenhouse gas emissions as would a shift to other modes of transport. Improving the efficiency and quality of the road network should have a positive impact on ghg emissions by reducing congestion, and thus the higher levels of emissions associated with slow moving traffic.
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	++	This policy directly addresses this SA objective and will have a significant positive impact on the attainment of this objective.
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	++	This policy will have a significant positive impact on minimising impacts on local communities as it seeks to address the transportation impacts of minerals and waste development on residential amenity and road safety.

Sustainability Appraisal objectives	Likely effect	Comments
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	+	The policy aims to provide the necessary and appropriate transport infrastructure to ensure that minerals are sustainably transported to their markets, thus assisting to meet Oxfordshire's sub-regional apportionment and self sufficiency in waste management.
12. To support Oxfordshire's economic growth and reduce disparities across the county.	+	The policy will indirectly assist to support Oxfordshire's economic growth by providing the necessary and appropriate infrastructure to ensure that waste and minerals are transported efficiently to the relevant markets/management facilities. It should also assist to address congestion which has an impact on business efficiency

Summary and Mitigation Measures

Policy C8 is expected to have a significant positive impact on SA objective 4, 5 7 and 8 which relate to air quality, greenhouse gas emissions, the local and strategic road network and local communities respectively. It is also expected to have indirect positive impacts on biodiversity (SA Objective 1), self sufficiency in waste management and sustainable minerals provision (SA objective 11) and economic growth (SA Objective 12). There is no direct relationship between this policy and the other SA objectives and impacts on other SA objectives are expected to be neutral,

Policy C9: Rights of Way

The integrity of the rights of way network should be maintained and if possible retained in situ in safe and useable condition. Diversions should be safe, attractive and convenient and, if temporary, should be reinstated as soon as possible. If permanent diversions are required, these should seek to enhance and improve the public rights of way network.

Improvements and enhancements to the rights of way network will generally be encouraged and public access sought to restored mineral workings, especially if this can be linked to wider provision of green infrastructure. Where appropriate, operators and landowners will be expected to make provision for this as part of the restoration scheme, including making appropriate financial contributions.

Sustainability Appraisal objectives	**Likely effect**	**Comments**
1. To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species	?	Public access to restored mineral workings should be carefully managed so as to not adversely impact on habitats and species resident within the restored area (particularly in Conservation Target Areas) and this issue should be addressed in the supporting text.
2. Protect and enhance landscape character, local distinctiveness and historic and built heritage	0	
3. To maintain and improve ground and surface water quality	0	
4. To improve and maintain air quality to levels which do not damage natural systems	0	
5. To reduce greenhouse gas emissions to reduce the cause of climate change	0	
6. To mitigate Oxfordshire's vulnerability to flooding, taking account of climate change	0	
7. To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	+	Enhancements to the public rights of way network could have an indirect positive effect on this objective by encouraging people to make local trips on foot or bicycle where such improvements are provided, reducing traffic conflicts on local roads.
8. To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	++	The policy provides opportunities for long term enhancement of local amenity and improved access to the countryside and is therefore positive in relation to this SA objective.

Sustainability Appraisal objectives	**Likely effect**	**Comments**
9. To protect, improve and where necessary restore land and soil quality	0	
10. To contribute towards moving up the waste hierarchy in Oxfordshire.	0	
11. To enable Oxfordshire to be self sufficient in its waste management and to make a sustainable contribution to its sub-regional minerals apportionment	0	
12. To support Oxfordshire's economic growth and reduce disparities across the county.	0	

Summary and Mitigation Measures

Enhancements to the public rights of way network should have a significant positive effect on local communities (SA objective 8) and indirect positive impacts on the local road network by encouraging people to make local trips on foot or bicycle, reducing traffic conflicts on local roads (SA objective 7).

Public access to restored mineral workings should be carefully managed so as to not adversely impact on sensitive habitats and species resident in the restored area (particularly in Conservation Target Areas). A reference to this effect (or a cross reference to alert the reader to Policy C5) could be included in the supporting text to ensure no significant adverse effect in relation to SA objective 1.