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CLIENT PROJECT REPORT CPR1777

Oxfordshire Minerals and Waste Local Plan: Core Strategy

Sustainability Appraisal of the Consultation Draft

February 2014

Disclaimer

Prepared for: Oxfordshire County Council, Minerals and Waste Policy Team

Authors: K Millard and C Harmer

Quality approved: R Gardner

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1 Introduction

1.1 Background to Sustainability Appraisal/Strategic Environmental Assessment

Oxfordshire County Council is currently reviewing its planning policies for mineral working and waste management and a new Oxfordshire Minerals and Waste Local Plan (MWLP) is being produced. The Local Plan must be subject to both Sustainability Appraisal and Strategic Environmental Assessment under the Planning and Compulsory Purchase Act (2004) and The Environmental Assessment of Plans and Programmes Regulations (2004) which implement European Directive 2001/42/EC, known as the Strategic Environmental Assessment (SEA) Directive.

Both the SA and the SEA processes help planning authorities to fulfil the objective of contributing to the achievement of sustainable development in preparing their plans through a structured assessment of the objectives and Local Plans against key sustainability issues.

Although the requirement to carry out both an SA and SEA is mandatory, it is possible to satisfy the requirements of both pieces of legislation through a single appraisal process. Government guidance for undertaking SEA and for SA of Development Plan Documents in particular details how the SA and SEA should be integrated into one process. The final output of the process is a combined Sustainability Appraisal and SEA Environmental Report which meets the regulatory requirements for SA and SEA and which will be published alongside the plan. For simplicity this report is referred to as the SA Report.

During the development of the minerals and waste planning documents the SA/SEA process has been undertaken both internally by OCC officers, and externally by appointed consultants. Between 2010 and 2012 the SA/SEA was undertaken by the consultants URS (formerly Scott Wilson). From November 2013 onwards the SA/SEA has been undertaken by TRL Ltd – the authors of this report. The SA/SEA work undertaken by URS was subject to both review and approval by OCC officers and to wide consultation. Where appropriate it will therefore be integrated within this SA Report as it provides the basis for the SA/SEA work that has been undertaken from late 2013 onwards.

1.2 Purpose of this SA Report

This report documents the findings of the SA that has been undertaken on the Consultation Draft of the Local Plan.

The SEA Regulations require the Sustainability Report to clearly document findings of all stages of the SEA/SA process. The Report should show that the SEA Directive has been complied with and all components that meet these requirements should be easily identifiable. The reporting requirements and corresponding chapters contained in this report are shown below:

Chapter / Appendix	SEA Directive Requirement (abridged)
Chapter 2 Appendix A (Scoping Report)	Outline of contents, main objectives of the plan, and relationship with other relevant plans and programmes.

Chapters 3 and 4 Appendix A (Scoping Report)	Environment, social and economic baseline and likely evolution of the current state without implementation of the plan/ programme; any existing environmental, social and economic problems which are relevant to the plan or programme Documenting environmental characteristics of areas likely to be significantly affected.
Chapter 3 Appendix A (Scoping Report)	Environmental protection objectives set out in national and regional policies, its relevance to the plan/ programme and the way these objectives are considered in the SA process.
Chapters 5 and 6 Appendix D	The likely significant effects of the plan on the environment, including on issues such as biodiversity, water, soil, population, human health, material assets, cultural heritage, landscape and the inter-relationship between the above. This should consider secondary, cumulative and synergistic effects as well as taking into account the temporal nature and severity of predicted effects.
Chapters 6 and 7	Mitigation measures to offset any identified significant effect.
Chapters 5 and 6	Outline of reasons (through SA) for selecting alternatives (Initial Options) and documentation of difficulties encountered in the assessment.
Chapter 8	Description of monitoring arrangements proposed.
Non-Technical Summary document	Non-technical summary of information under all the above headings.
Appendix B and C	Consultation – results of the consultation of the previous SA Report for the Local Plan (Core Strategy).

1.3 Sustainability Appraisal (SA)

Sustainability Appraisals (SAs) are a process of evaluating the social, environmental, and economic implications of emerging strategies, policies and plans. This process is intended to make certain that plans and their goals[1] and policies are in accordance with the underlying principles of sustainable development. SA seeks to ensure that the five principles and four agreed priorities for sustainable development are addressed[2]:

Principles:

1. Living within environmental limits;
2. Ensuring a strong healthy and just society;
3. Achieving a sustainable economy;
4. Promoting good governance; and
5. Using sound science responsibly.

[1] Note that the term "objective" is used throughout this document in reference to SA/SEA objectives to be consistent with the vocabulary outlining these processes, despite the fact that they are not truly objectives.

[2] As set out in "Securing the Future: Delivering a UK sustainable development strategy", DEFRA 2005.

Priorities:

- Sustainable consumption and production;
- Climate change and energy;
- Natural resource protection and environmental enhancement; and
- Sustainable communities.

1.4 Strategic Environmental Assessment (SEA)

European Union Directive 2001/42/EC requires a formal Strategic Environmental Assessment (SEA) of all plans and programmes which are likely to have significant effects on the environment. It aims: "…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, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment" (Article 1).

The Directive defines environmental assessment as a procedure comprising:

- The preparation of an Environmental Report on the likely significant effects of the draft plan or programme;
- Carrying out consultation on the draft plan or programme and the accompanying Environmental Report;
- Taking into account the Environmental Report and the results of consultation in decision making; and
- Providing information when the plan or programme is adopted showing how the results of the environmental assessment have been taken into account.

SEA is required to be undertaken alongside the preparation of the plan to which it relates to allow strategic alternatives to be formally incorporated into it at the earliest opportunity. This process, in conjunction with the requirements of the SA, should ensure that the environmental, social, and economic implications are fully integrated into emerging policies and strategies.

1.5 Methodology

The key stages of the SA/SEA process are broadly presented in Table 1-1.

Table 1-1: Stages in the SA/SEA and Oxfordshire MWLP

Oxfordshire MWLP	SA/SEA Stages	Dates
Begin document preparation	Stage A: Setting the context, establishing the baseline and deciding on the scope. A1: Identify other relevant policies, plans and document programmes, and sustainability objectives. A2: Collecting baseline information. A3: Identifying sustainability issues and problems.	Consultation on the SA Scoping Report. August 2005. Consultation on the revised SA Scoping Report. April/May 2009. SA Scoping Report revised. May 2011. Consultation on the revised SA Scoping Report. December 2013/January 2014.

	A4: Developing the SA framework. A5: Consulting on the scope of the SA (**Scoping Report**).	
Preparation of Issues and Options (I&O) paper and consultation **Preparation of preferred options, including consultation on possible preferred option**	Stage B: Developing and refining options and assessing of effects. B1: Testing the DPD objectives against the SA framework. B2: Developing the DPD options. B3: Predicting the effects of the DPD. B4: Evaluating the effects of the DPD. B5: Considering ways of mitigating adverse effects preferred and maximising beneficial effects. B6: Proposing measures to monitor the significant effects of implementing the DPDs.	Consultation on Minerals and Waste Core Strategy (Issues and Options) and Interim SA Report. June 2006. Consultation on the Minerals and Waste Core Strategy (Preferred Options). February 2007. Preparation and then consultation on the SA of the Minerals and Waste Core Strategy (Preferred Options). February 2007. Preparation of the SA of the Minerals Spatial Strategy Options. May 2010. Preparation of the SA of the Revised Minerals Spatial Strategy Options. September 2010. Preparation of the SA of the Aggregates Apportionment Options. July 2011. Preparation and then consultation on the SA of the Minerals Preferred Strategy. August - October 2011. Consultation on the Minerals Planning Strategy Consultation Draft. September/October 2011. Preparation and then consultation on the SA of the Draft Waste Planning Strategy. September - October 2011. Consultation on the Waste Planning Strategy Consultation Draft. September/October 2011. Preparation of the SA of the Aggregates Apportionment Options – Addendum Report. March 2012.
Public consultation on Preferred options	Stage C: Preparing the Sustainability Appraisal Report. C1: Preparing the **SA Report**.	Preparation of the SA Report of the Proposed Submission Core Strategy. March 2012. Preparation of the SA Report of the Consultation Draft Local Plan. January – February 2014. **This report.** Preparation of the SA Report of the Pre Submission Local Plan. Indicative timing: later in 2014.
	Stage D: Consulting on the preferred options of the DPD and SA Report. D1: Public participation on the preferred options of the DPD and the SA Report. D2 (i) Appraising significant changes. D2 (ii) Appraising significant changes resulting from representations.	Consultation on the Proposed Submission Core Strategy and accompanying SA Report. May – July 2012. Consultation on the Consultation Draft Local Plan and accompanying SA Report. February – April 2014. **This consultation.** Consultation on the Pre Submission

	D3: Making decisions and providing Information.	Local Plan and accompanying SA Report. Indicative timing: later in 2014.
Submission of DPD to Secretary of State	Stage E: Monitoring the significant effects of implementing the DPD. E1: Finalising aims and methods for monitoring. E2: Responding to adverse effects. Preparing the **SEA Statement**.[1]	Submission SA Report. Indicative timing: 2015. SA Statement (on adoption). Indicative timing: end of 2015

[1] The SEA Statement is required by the SEA Regulations.

1.6 Consultation

The SEA Directive requires consultation of documents at various stages of the SA process, as indicated in Table 1-1. To date consultation has been undertaken at several stages as outlined below.

The first round of consultation was undertaken at the end of the scoping stage in August 2005. The aim of the scoping consultation was to ensure that all the relevant issues were identified and discussed at an early stage of the process so that they could be addressed during the SA and plan making.

In June 2006, consultation was undertaken on the Minerals and Waste Core Strategy Issues and Options, and the accompanying Interim SA Report. This was then followed in 2007, by consultation on the Minerals and Waste Core Strategy (Preferred Options), and the accompanying SA.

A further round of Scoping occurred in 2009, with a revised Scoping Report being consulted upon in April 2009. Details of the consultation, along with a summary of the comments received and how they have been addressed are included in Appendix A of the SA of the Pre Submission Minerals and Waste Core Strategy. A further revised version of the Scoping Report was consulted upon in December 2013/January 2014. The list of those who responded to the consultation, along with a summary of the comments received and how they have been addressed is included in Appendix B.

During September and October 2011, consultation was carried out on the SA Reports of the Minerals and Waste Preferred Strategies. Details of the consultation, along with a summary of the comments received and how they have been addressed are included in Appendix A of the SA of the Pre Submission Minerals and Waste Core Strategy.

In May 2012, consultation was carried out on the SA Report of the Minerals and Waste Proposed Submission Document. The list of those who responded to this consultation, along with a summary of the comments received and how they have been addressed are included on Appendix C.

1.7 Geographic and Temporal Scope

The spatial scope for the assessment is largely local (Oxfordshire County Council); however the assessment takes into account potential regional impacts (such as on Gloucestershire, Berkshire, Swindon Borough, and Wiltshire) and national impacts, wherever appropriate. For example, the effect on CO2 emissions is likely to have both local and national implications as any reduction will contribute to national targets, whereas effects on surface water quality may be most relevant to the regional water

bodies as well as local water bodies, depending on presence of any such water features and on their existing quality. Effects on transport will also affect neighbouring authorities.

The SA/SEA examines plans across three temporal scales:

- Short term effects: effects expected in the next 1-5 years;
- Medium term effects: effects expected in the next 5-10 years; and
- Long term effects: effects expected in the next 15+ years (including after the life of the plan).

1.8 Habitats Regulations Assessment

The Habitats Directive requires that planning authorities assess the likely effects of their plans, either alone or in combination with other plans and projects, on sites which have been designated as being of European importance for the habitat or species they support. In Oxfordshire there are seven sites designated as Special Areas of Conservation (SAC). A Habitats Regulations Assessment screening report, prepared by the Council (to support the subsequently withdrawn Core Strategy), identifies the seven sites and the conservation objectives that apply to each and provides an assessment of the likely impacts on them.

The screening report suggested that there could potentially be an impact of mineral extraction near Oxford Meadows SAC and Cothill Fen SAC. Further work was commissioned to provide a hydrogeological assessment of mineral working in the Eynsham / Cassington / Yarnton sharp sand and gravel area and the soft sand area north and south of the A420, west of Abingdon (part of the Corallian Ridge between Oxford and Faringdon). The consultants' report forms an addendum to the screening report. The report concluded that, with certain safeguards, mineral extraction could take place if required in these areas without being likely to have an effect on the SACs.

The County Council considers that this Habitats Regulations Assessment screening report and addendum is adequate to support the consultation draft plan. The screening report will be reviewed in the light of relevant responses to the consultation in consultation with Natural England and, if necessary, a revised screening report will be prepared to support the pre-submission draft of the plan.

2 Minerals and Waste Local Plan – Core Strategy

2.1 Context

The Oxfordshire Minerals and Waste Local Plan (2006) was adopted by the County Council in July 1996. It contains detailed policies for the supply of minerals, the provision of waste management facilities and for the control of minerals and waste developments. Under the Planning and Compulsory Purchase Act 2004 many of the policies of this Plan have been 'saved' and currently form part of the development plan for Oxfordshire pending their replacement by policies in the new Minerals and Waste Plan.

The Minerals and Waste Local Plan – Core Strategy (MWLP) will provide the planning strategies and policies for the development that will be needed for the supply of minerals and management of waste in Oxfordshire over the period to 2030. It will set out policies to guide minerals and waste development over the plan period and common core policies which address development management issues relevant to both minerals and waste.

The Council has been preparing its revised Minerals and Waste Plan since 2006. Consultation on Issues and Options and Preferred Options was conducted during 2006 and 2007. Work was then 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 September 2010. A draft minerals planning strategy then consulted upon in September/October 2011, which also underwent SA. Previous to this, work was undertaken on aggregate apportionment options, with an SA being carried in July 2011. An addendum to this SA was later produced in March 2012.

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 in 2010/2011. A draft waste planning strategy was then consulted upon in September/October 2011, which also underwent SA.

In 2012, the Minerals and Waste Core Strategy Proposed Submission Document was prepared. This was consulted upon in May 2012, along with the accompanying SA Report. In October 2012, the County Council submitted an Oxfordshire Minerals and Waste Core Strategy to the Secretary of State for examination. This was intended to replace the 2006 Local Plan and had been the subject of widespread stakeholder engagement and public consultation. The Inspector appointed to carry out the independent examination of the Core Strategy raised issues over the adequacy of the evidence base in relation to the recently published National Planning Policy Framework (NPPF) and its compliance with the new duty to co-operate. In view of this, the examination was suspended in February 2013 and in July 2013 the County Council resolved to withdraw that plan and to prepare a revised Oxfordshire Minerals and Waste Local Plan.

Currently, Oxfordshire is revising its Minerals and Waste Local Plan (Core Strategy). The plan will provide the planning strategies and policies for the development that will be needed for the supply of minerals and management of waste in Oxfordshire over the period to 2030. It will set out policies to guide minerals and waste development over the

plan period and common core policies which address development management issues relevant to both minerals and waste. A Consultation Draft Minerals and Waste Local Plan: Core Strategy has now been prepared and this SA Report accompanies this document.

2.2 Vision and objectives for minerals and waste

The plan's vision and objectives (for minerals and waste) provide the basis for the development of the strategy, policies and proposals for minerals supply and waste management in Oxfordshire. Oxfordshire County Council has developed separate visions and objectives for the minerals and waste strategies which make up the MWLP. The objectives have been revised to take account of recent changes in national policy and comments made on the previously published plan.

2.2.1 Minerals planning Vision and Objectives

The proposed Vision for minerals planning in Oxfordshire in 2030 is that:

a) There will be a sufficient supply of aggregate materials available to meet the development needs of the county with a world class economy, and make an appropriate contribution to wider needs, provided from the following sources (in order of priority):
   - Secondary and recycled aggregate materials;
   - Locally produced sand and gravel, soft sand, limestone and ironstone; and
   - Import of materials such as hard crushed rock that are not available locally.

b) Mineral workings and supply facilities will be located and managed to minimise:
   - The distance that aggregates need to be transported by road from source to market;
   - The use of unsuitable roads, particularly through settlements; and
   - Other harmful impacts of mineral extraction, processing and transportation on Oxfordshire's communities and environment.

c) Restored mineral workings will enhance the quality of Oxfordshire's natural environment and the quality of life for Oxfordshire residents by:
   - Creating new habitats and protecting biodiversity;
   - Providing opportunity for access to the countryside and recreation activity; and
   - Helping to reduce the risk of flooding and adding to flood storage capacity.

The Vision is supported by a set of 11 Objectives which are to:

i. Facilitate the efficient use of Oxfordshire's mineral resources by encouraging the maximum practical recovery of aggregate from secondary and recycled materials for use in place of primary aggregates.

ii. Make provision for a steady and adequate supply of sand and gravel, soft sand and crushed rock over the plan period to meet the planned economic growth and social needs of Oxfordshire.

iii. Make an appropriate contribution to meeting wider needs for aggregate minerals, having regard to the strategic importance of Oxfordshire's mineral resources, particularly sand and gravel.

iv. Enable a continued local supply of limestone and ironstone for building and walling stone for the maintenance, repair and construction of locally distinctive buildings and structures, and of clay to meet local needs for engineering and restoration material.

v. 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 has regard to existing and planned infrastructure.

vi. Minimise the flood risk associated with minerals development and contribute to climate change mitigation and adaptation, including through restoration schemes which provide additional flood storage capacity in the floodplain where possible.

vii. Minimise the transport impact of mineral development on local communities, the environment and climate change by minimising the distance minerals need to be transported by road and encouraging where possible the movement of aggregates by conveyor, pipeline, rail and on Oxfordshire's waterways.

viii. Protect Oxfordshire's communities and natural and historic environments (including important landscapes and ecological, geological and archaeological and other heritage assets) from the harmful impacts of mineral development (including traffic).

ix. Ensure the high quality restoration and aftercare of mineral extraction sites at the earliest opportunity to ensure the establishment of long term and stable after uses that provide benefit to Oxfordshire's natural environment, local communities and local economy.

x. Safeguard important known resources of sand and gravel, soft sand, crushed rock and Fuller's Earth to ensure that those resources are not needlessly sterilised and remain potentially available for future use and are considered in future development decisions.

xi. Safeguard important facilities for the production of secondary and recycled aggregate, railhead sites for the bulk movement of aggregate into Oxfordshire by rail and facilities for the manufacture of coated materials, concrete and concrete products.

2.2.2 Waste planning Vision and Objectives

The proposed Vision for waste planning in Oxfordshire in 2030 is that:

a) There will have been a transformation in the way that waste is managed in Oxfordshire, 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 Vision is supported by a set of 11 Objectives which are to:

i. Make provision for waste management capacity that allows Oxfordshire to be net self-sufficient in meeting its own needs for household waste, commercial and industrial waste and construction, demolition and excavation waste.

ii. Make an appropriate contribution towards provision needed for the management of hazardous and radioactive wastes produced in Oxfordshire and wider needs, recognising that the more specialist facilities required for these waste types often require provision at a sub-national or national level.

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

iv. Seek to 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; and
- enable communities to take responsibility for their own waste.

v. Provide for a broad distribution of waste management facilities to meet local needs across Oxfordshire and make more specific provision for larger facilities that are not practical below a certain size and that are needed to serve the whole or more substantial parts of the county or a wider area.

vi. Seek to ensure that waste management facilities where possible provide benefits to the communities they serve, including employment and the potential for recovery and local use of energy (heat and power) from waste, and are recognised as an integral part of community infrastructure.

vii. Make provision for waste that cannot be recycled or treated (residual waste) and that will need to be disposed of in landfill.

viii. Provide for an appropriate contribution to meeting the need for disposal of residual waste from other areas which do not have sufficient disposal capacity to be made through Oxfordshire's existing landfill sites.

ix. Seek to avoid the permanent loss of green field land when making provision for sites for waste management facilities.

x. Protect Oxfordshire's communities and natural and historic environments (including important landscapes and ecological, geological and archaeological and other heritage assets) from the harmful impacts of waste management development (including traffic).

xi. Secure the satisfactory restoration of temporary waste management sites, including landfills, where the facility is no longer required or acceptable in that location.

3 Environmental and sustainability planning context

3.1 Introduction

This section summarises the findings from the SA scoping stage. The scoping process seeks to ensure that the Sustainability Appraisal encompasses the key sustainability issues relevant to the county in the context of the development plan system. This section provides the environmental and sustainability context by:

- Examining the relationship of the Minerals and Waste Local Plan (Core Strategy) with other policies, plans and programmes, to identify all relevant environmental protection objectives and to identify potential conflicts to be addressed within the plan-making process; and
- Assembling baseline data on the current and future state of the county for the environment and sustainability topics which may be affected by the Local Plan (Core Strategy).

In August 2005, the first version of the Scoping Report was consulted upon. This was then subsequently updated in 2006. In April/May 2009, a revised version of the Scoping Report was consulted upon. The responses received, along with actions taken in response were reported in Appendix A of the Sustainability Appraisal Report on the Pre Submission Core Strategy (March 2012).

This Scoping Report was the subsequently revised again in May 2011. Most recently, in December 2013/January 2014, the Scoping Report was again revised and re-consulted. This was updated following the comments received from consultees and a copy is included in Appendix A of this SA Report. The list of those who responded to this consultation, along with a summary of the comments received and how they have been addressed are included in Appendix B.

3.2 Review of policies, plans and programmes

The SEA process requires authorities to review the requirements of policies, plans and programmes (PPPs) relevant to the content of the Plan to outline:

- The relationship of the Local Plan (Core Strategy) with other relevant plans and programmes; and
- The environmental protection objectives- established at international, community or Member State level- relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.

To fulfil this requirement, a review of the relevant plans, policies and programmes (henceforth referred as PPP review) has been carried out to identify environmental objectives which may provide constraints or synergies with the plan being formulated. The PPP review has selectively considered guidance at international, national regional, county and local level policies. It has not attempted to provide a detailed review but rather has focussed on strategic environmental, social or economic policies and objectives relevant to the appraisal of the Plan and particular specific environmental protection objectives established at international and national levels. This satisfies the SEA Directive which requires that reference must be made to environmental objectives.

The most recent PPP review can be found in the 2014 Scoping Report, included as Appendix A of this SA Report. A summary of the PPP review is presented below.

3.2.1 Summary of Review of other Plans and Programmes

Together, plans can be constraints (i.e. set formal limitations, policy contexts, requirements) or can be sources of useful background information as part of evidence gathering. These act together in a hierarchy where a sequence of precedence is established in a nesting, or tiering of plans. A review of other relevant policy documents is required to establish environmental, economic and social objectives that they contain, and it allows opportunities and synergies to be identified, as well as potential conflicts between aims, objectives or detailed policies. This review also highlighted sustainability drivers relevant to the Local Plan.

The Local Plan (Core Strategy) has a direct or indirect relationship with number of national, regional and local policies, plans and programmes and is likely to support or interact with these policies.

A full list of plans and programmes which were initially considered is included in Appendix 1 of the Scoping Report. Many of these plans exist in a hierarchy; from international and European plans, national policies and guidance, through to local policies and plans. This review has sought to avoid duplication by only reviewing the most up to date or relevant plan and to distil the environmental objectives that are most relevant to the Plan. The analysis of the relevant plans is provided in Appendix 2 of the Scoping Report.

The key messages from PPP review are as follows:

- The need to ensure that average distances travelled and traffic congestion are not exacerbated by minerals and waste HGVs, and that these vehicles do not worsen air quality in identified 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 and locally designated conservation sites, including SACs, SSSIs, NNRs, Local Wildlife Sites as well as BAP Priority Species and Habitats and nationally and locally 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 protect the functional floodplain from mineral working and 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, 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 District and City Councils' plans, and to contribute to markets identified outside the county.

- The need to maintain a land bank of permitted reserves for aggregate minerals in line with national policy.
- Waste management policies should support sustainable waste management measures to encourage a reduction in the amount of waste arisings going to landfill in Oxfordshire.
- Soils should be used in a sustainable manner and should take account of best and most versatile agricultural land.
- The production and use of secondary and recycled aggregates reduces the amount of land won aggregates that need to be extracted.
- Restoration of mineral workings should not increase the risk of bird strike.
- The need to provide waste management facilities to allow the county to be net self-sufficient in the treatment and/or disposal of its waste arisings and to contribute towards meeting the need for facilities to manage residual waste from London and elsewhere 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.

The policy framework is dynamic, and as a result new plans may emerge during the Local Plan preparation process. Those that are relevant will be added to the list in Appendix 2 of the Scoping Report and any relevant message added to the list above and published as part of the SA.

3.3 Baseline data

A key step in the SA process is establishing the current state of the environment and its likely evolution in the future without implementation of any plan. This process assists in the identification of sustainability and environmental issues/opportunities in the County. It is also important to consider the implications of the Local Plan (Core Strategy) in its wider context. Baseline data is required to establish the present state of the County and its surrounding area and will be used subsequently for comparative purposes when monitoring and evaluating the Local Plan.

A practical approach is generally taken to data collection bearing in mind data availability and trend analysis, following which the actual data and gaps in information to consider in the future are reported at the scoping stage. This reporting also takes into account uncertainties in the data.

Baseline data collection is a continuous process that informs SA production. The Scoping Report produced in April 2009, has been updated in May 2011 and December 2013 based on new information having become available and consultation comments received.

The most recent Scoping Report, issued for consultation in December 2013, and subsequently updated following consultation comments, reported baseline information under environmental, social and economic themes. The data was organised under the following headings: Population; Human Health; Biodiversity and Geodiversity; the Built and Historic Environment; Landscape; Water Quality and Resources; Climate Change; Air Quality; Transport; Minerals; Waste; Land Use; Soils and Resources; and Economy.

The baseline data provides an evidence base for identifying sustainability issues in Oxfordshire, as well as a mechanism for identifying alternative ways of dealing with them. The information helped the development of the SA Framework, and will provide a basis for predicting and monitoring the effects of the Plan. In order to assess how the Local Plan (Core Strategy) will contribute to sustainable development, it is essential to understand the present economic, environmental and social baseline of the County, and to predict how they may progress without implementation of the Plan. Prediction of future trends can be highly uncertain but key trends identified from the available baseline data, and therefore potential sustainability issues were identified and discussed in the Scoping Report. Key issues and opportunities are discussed in Chapter 4. The latest version of the Scoping Report is provided as Appendix A of this SA Report.

3.4 Evolution of the baseline without the plan

The SEA regulations require that information is provided on "...the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan". It is recognised that the future baseline or the 'business as usual' scenario is difficult to describe, as trend data is often not available. However where possible the trends in the future baseline have been described for each of the SA/SEA topic areas in the baseline review (see the Scoping Report in Appendix A).

In forecasting the 'business as usual' scenario it is necessary to determine what this means and what assumptions the scenario has been based on. Within this SA the business as usual scenario has been taken to mean a continuation of the current Minerals and Waste Plan.

4 Environmental and sustainability issues and SA/SEA framework

4.1 Identifying environmental and sustainability issues

The review of plans and programmes affecting the county, and the collation of the baseline data informed the identification of a series of environmental problems or issues that could be addressed by, or affect the strategies and measures developed in the Local Plan (Core Strategy). Such issues, problems and opportunities have been identified through:

- Review of relevant policies and plans;
- Review of the baseline data;
- Officer knowledge of the county; and
- Responses to the various Scoping Report consultations.

The sustainability issues were identified during the scoping in 2009, and have since been revised in light of updated baseline data (in 2011 and 2013). Table 4-1 resents the key sustainability issues and opportunities for Oxfordshire.

Table 4-1: Key sustainability issues and opportunities in Oxfordshire

Key sustainability issues and opportunities in Oxfordshire
Population growth will lead to increased waste production and demand for waste management facilities and for aggregates for construction, across the whole county.
Economic growth in Oxfordshire, which has slowed down behind neighbouring sub-regions in recent years, should be encouraged. Minerals and waste development could support economic growth through the provision of opportunities for unskilled labour.
Tourism represents an important part of Oxfordshire's economy. Minerals and waste development could detract from initiatives to encourage people to visit the whole county, not just Oxford. However, post mineral restoration could create opportunities for rural development and recreational facilities.
Climate change poses a threat to parts of the county through flooding. Minerals and waste development could meet this challenge not only by managing the positive and negative aspects of development in the floodplain, but also by encouraging working practices that minimise greenhouse gas emissions.
Increased traffic generation on both motorways and major roads in the county leads to congestion and contributes towards a reduction in air quality. Minerals and waste development should balance reducing air pollution by employing the 'proximity principle' with ensuring that minerals and waste transport minimises environmental impacts by using suitable roads.
Nine Air Quality Management Areas have been identified in Oxfordshire, where levels of NO^2 from traffic exceed recommended government levels. Minerals and waste developments need to manage their transport routes in order to reduce the negative impact on air quality, and to avoid exacerbating pollution levels in existing AQMAs.
Oxfordshire has low rainfall levels and the Thames Water area is one of the most water stressed in the country. Population growth will increase demand for water. The review of abstraction licences by the Environment Agency may result in smaller numbers of licences being permitted. Thames Water has proposed that it build a new reservoir in Oxfordshire to meet rising demand; this may result in increased demand for aggregate for a temporary period.
Minerals and waste development could negatively impact on the biodiversity value of certain areas. Restoration of minerals sites may be constrained by the designation of airfield safeguarding zones

across much of Oxfordshire, which reduce the risk of bird strike to aircraft. It may also be constrained by a lack of available inert fill to restore sites to uses such as reed bed or wet woodland.
Mineral and waste development offers opportunities to improve access to rural areas, create recreational facilities, and contribute towards habitat creation in the county and biodiversity gains.
Oxfordshire is a county which has a rich historic built environment. Minerals and waste development could result in the loss or destruction of some of the historic assets of the county such as Scheduled Ancient Monuments, geological SSSIs or Local Geology Sites.
Oxfordshire has plentiful reserves of sand and gravel, having approximately one third of the unconstrained gravel resource in the South East region. Identifying sites for mineral extraction should take into account the cumulative effect of extensive mineral working on local communities and the transport infrastructure.
The extraction of plentiful reserves of sand and gravel in the county must be balanced against the potential loss of best and most versatile agricultural land which could result from extraction.
Water quality in Oxfordshire's rivers could be improved. Minerals and waste development could contribute to the pollution of water courses and groundwater.
Significant provision needs to be made for secondary and recycled waste management facilities to continue to increase the amount of secondary and recycled waste which can be managed in the County.

4.2 Environmental and sustainability objectives

Current guidance on SA/SEA of land use and spatial plans advocates the use of objectives in the appraisal process. This section provides an outline of the objectives, criteria and indicators, organised under a SA Framework that was developed during the Scoping Stage and used in subsequent stages to appraise the Local Plan. It has been updated as a result of consultation comments received, most recently in January 2014, but not to the extent that it would alter any of the previous findings of the SA. This framework includes broad sustainability objectives, criteria explaining the broader objective in a more localised manner and indicators.

The purpose of the framework for the SA/SEA, set out in Table 4-2, is to provide a way in which the effects of the plan can be described, analysed, and compared. This process involves considering the content of the Local Plan (Core Strategy) against identified SA/SEA objectives.

A more detailed framework which links the objectives and criteria to potential indicators to use in monitoring is presented in the Scoping Report in Appendix A. The indicators that are selected for monitoring will be finalised later in the SA/SEA process and agreed upon adoption of the Local Plan (Core Strategy).

Table 4-2: SA Framework

SA Objective		Appraisal Criteria/Sub-objectives
1	To protect, maintain, and enhance Oxfordshire's biodiversity and geological diversity including natural habitats, flora and fauna and protected species	Will the Plan protect, maintain and enhance UK BAP Priority Habitats? Will the Plan conserve and enhance internationally, nationally and regionally important sites of nature conservation importance? Will the Plan protect, maintain and enhance UK BAP Priority Species? Will the Plan contribute to the aims of the Conservation Target Areas? Will the Plan protect and conserve geological SSSIs and RIGs?
2	Protect and enhance landscape character, local distinctiveness, conserve and enhance the historic environment, heritage assets and their settings	Will the Plan conserve and enhance Oxfordshire's AONBs & their settings and take into account guidelines associated with specific landscape types? Will the Plan protect and enhance the historic and prehistoric environment of Oxfordshire and provide for the increased access and enjoyment of the historic environment?
3	To maintain and improve ground and surface water quality	Will the Plan affect groundwater quality? Will the Plan affect surface water quality?
4	To improve and maintain air quality to levels which do not damage natural systems	Will the Plan lead to increased traffic congestion in built up areas? Will Plan lead to increased dust and/or odours?
5	To reduce greenhouse gas emissions to reduce the cause of climate change	Will the Plan lead to a decrease in production of greenhouse gases such as CO_2 and methane?
6	To reduce the risk of flooding	Will the proposal seek to maintain or reduce flood risk?
7	To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	Will the Plan reduce distances travelled by road? Are sites in the Plan 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 Plan 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 Plan have impacts which could have a harmful effect on human health? Will the Plan result in loss of amenity through visual impact, noise, dust or vibration for local communities? Will the Plan 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 Plan affect high grade agricultural land? Will the Plan lead to soil pollution or contamination?
10	To contribute towards moving up the waste hierarchy in Oxfordshire	Will the Plan policies reduce the amount of waste produced?
11	To enable Oxfordshire to be self-sufficient in its waste management and to provide for its local need for aggregates as set out in the LAA	
12	To support Oxfordshire's economic growth and reduce disparities across the county	Will the Plan encourage the provision of more locally based skills and facilities? Will the Plan generate new jobs for the county? Will the Plan support and encourage the growth of small and medium size business?

4.3 Compatibility of the SA/SEA objectives

A compatibility assessment of the SA/SEA objectives was undertaken at the scoping stage in order to identify whether there were any incompatibilities or tensions between certain objectives. Where potential incompatibilities have been identified these have been taken in to account when undertaking the assessment process and appropriate mitigation measures or alternative approaches in the Local Plan considered. Details of the compatibility analysis can be found in the Scoping Report (included as Appendix A of this SA Report).

4.4 Inter-relationships between SA/SEA objectives

During the SA/SEA assessment the SA/SEA objectives should not be considered in isolation as many inter-relationships exist that need to be taken into account. Some of these relationships are clear cut and easy to understand, for example reduced greenhouse gas emissions and improved air quality which would both result from transport modal shift to sustainable travel modes. Others however can be less obvious, but are equally important and need to be understood when assessing the Local Plan (Core Strategy). For example there are inter-relationships between climate change adaptation measures and improvement in human health, from improved safety associated with reducing the risk of properties flooding, through to reduced levels of stress and improved well-being resulting from improvements to energy efficiencies of homes.

Close inter-relationships exist between environmental topics such as air quality, water quality, soil and biodiversity, with improvements or degradation to one often resulting in a similar effect on the other related media/topics. For example increased air pollution can have adverse effects on soil, water quality, and biodiversity through acidification. These effects can then cause issues relating to landscape degradation.

5 Development of the Local Plan (Core Strategy)

5.1 Introduction

In order to be considered 'sound' a Local Plan needs to be justified, effective and consistent with national policy. The proper consideration of options is key to developing a justifiable plan; the National Planning Policy Framework emphasises that Local Plans must be the most appropriate strategy when considered against the reasonable alternatives.

During the development of the Minerals and Waste Local Plan (Core Strategy) a wide range of options has been considered for delivering the plan objectives across the full range of planning issues within the scope of the Local Plan (Core Strategy).

The first stage of this process was the consultation on the Issues and Options in June 2006, with several subsequent rounds of plan preparation and consultation having followed. All of the options considered throughout the development of the Local Plan (Core Strategy) have been subject to sustainability appraisal. See Table 1-1 for an outline of the various reports that have been produced to date.

The following sections provide a summary of the various options considered (in chronological order), how and when they were appraised along with information on where these assessments can be accessed.

In addition, Appendix B of the Pre Submission SA Report (March 2012) provides a summary of the options considered throughout the plan development to date, with reasons being provided for selecting the preferred options/rejecting alternative options. It also provides a summary of the appraisal undertaken on the minerals spatial options (2010), the aggregates apportionment options (2011 and 2012), the waste spatial options (2011), other spatial options considered, and the minerals and waste preferred policies (2011). That SA Report can be accessed via the Oxfordshire County Council website at:

http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy

5.2 Minerals and Waste Core Strategy Issues and Options (2005 - 2006)

Draft issues for the minerals and waste core strategy, and various options for addressing these were initially identified by Council Officers. The County Council identified 16 issues (Table 5-1) that the Core Strategy should address, with a total of 95 options for how to address these. The options were subject to SA in August 2005, with the findings documented in an Interim Sustainability Appraisal Report. The appraisal process was undertaken through a workshop involving council officers and representatives of technical bodies and interest groups.

Table 5-1: Issues and Options considered in the SA – June 2006

Issue 1: How should the Oxfordshire sand and gravel apportionment of 1.82 million tonnes per annum to 2016 be provided for?
a. Make provision for the full plan period through area and/or site identification
b. Make site and/or area provision to 2016 only backed up by criteria policies
Issue 2: How should the Oxfordshire sand and gravel apportionment of 1.82 million tonnes per annum be sub-divided between soft sand and sharp sand and gravel?
a. Continue the existing Minerals and Waste Local Plan split of 10% soft sand and 90% sharp sand and gravel
b. Use current average production split of 17% soft sand and 83% sharp sand and gravel
c. Use some other split
Issue 3: Where should new sand and gravel workings be located?
a. Continue to concentrate new workings in existing strategic areas of working (currently 65% of sharp sand and gravel production is from the two strategic areas in West Oxfordshire, i.e. the Eynsham-Cassington-Yarnton and the Lower Windrush Valley areas)
b. Promote new strategic working area(s) in the southern part of the county, to spread production more evenly in relation to the main demand areas in Oxfordshire
c. Promote a more dispersed pattern of smaller scale working areas
Issue 4: How should the Oxfordshire crushed rock apportionment of 1.O million tonnes per year to 2016 be provided?
a. Locate new permissions limestone workings in the Witney – Burford area
b. Locate new permissions limestone workings in the Oxford – Bicester area
c. Make increased provision for working of ironstone from the north of the county and reduced provision for limestone working
Issue 5: Should there be new quarries or extensions to current quarries?
a. Prefer extensions to existing quarries for additional sand and gravel/limestone & ironstone provision
b. Prefer new quarries for additional sand and gravel/limestone & ironstone provision
Issue 6: What scope is there for increasing supply of recycled and secondary aggregates to replace primary aggregates and how can the plan promote increased supply?
a. Make provision for aggregates recycling facilities sufficient to meet regional and/or local targets for supply and use of recycled aggregates
b. Make over provision for aggregates recycling facilities to ensure supply can be maximised
Issue 7: How should provision be made for the new waste management facilities that will be needed?
a. Identify broad locations for waste management facilities
b. Identify site specific allocations for waste management facilities
c. Set locational criteria against which planning applications would be considered
Issue 8: How should provision be made for the new waste management facilities that will be needed?
a. Identify locations for specific types of facility
b. Identify locations for more general types of facility, to allow flexibility for evolving waste management practice and technology
c. Rule out particular types of facility as unacceptable on planning grounds at particular locations or countywide
Issue 9: What scale of new waste management sites should provision be made for?
a. Identify a small number of strategic sites for large-scale waste treatment facilities or integrated

groups of facilities ('resource parks') b. Identify a larger number of more local sites for small-scale waste treatment facilities
Issue 10: Where should new waste management facilities be located?
a. Locate waste treatment facilities in or close to the urban centres where most waste is produced b. Locate waste treatment facilities in more rural locations where sites may be more readily available
Issue 11: At what type of site should waste treatment facilities be located?
a. Locate waste treatment facilities on industrial sites b. Locate waste treatment facilities at existing waste management sites c. Locate waste treatment facilities on brownfield sites in the countryside d. Locate waste treatment facilities on greenfield sites

The issues and options that were appraised were slightly different from those that appeared in the Minerals and Waste Core Strategy Issues and Options Consultation Paper. Some of the wording was modified to enable the assessment to be more readily carried out, and some similar issues were combined to make more effective use of people's time in the appraisal workshop (the method used to undertake the assessment). Nevertheless, the fundamental meaning of the issues and options was not changed. In the case of some of the issues, meaningful appraisal was not considered possible and so was not carried out (for example, it was not considered possible to assess Issue 2: Option c, which was 'to use some other split').

No significant effects were identified for any of the minerals or waste options considered. Various recommendations were made for consideration at the next steps as outlined in the following box.

Box 1: Recommendations from the Interim SA (written by OCC)

Minerals

The appraisal of how Oxfordshire should meet its sand and gravel apportionment suggests that there would be more certainty and greater control if site allocations were specified in the MWDF, although it was highlighted that the areas selected must be acceptable to the industry. Just having criteria based policies could lead to development in less sustainable locations as they will not be subject to SA/SEA.

The appraisal recommends that Oxfordshire's apportionment should be subdivided between soft sand and sharp sand and gravel with a higher percentage of soft sand provision than in the existing Minerals and Waste Local Plan. The reasons for this are mainly to do with increased market demand for soft sand and the need for the MWDF to make provision to meet this, thereby avoiding ad-hoc development.

The appraisal suggests a slightly broader spread of sand and gravel working than at present. It is argued this would help reduce the transport impacts associated with production and location of market areas. This strategy would also reduce the cumulative impact of developments. However, it was highlighted that this would be dependent on the existence of workable deposits and the economics of developing such sites.

The appraisal also suggests that a slightly broader spread of workings for meeting the crushed rock apportionment would be preferred. However, this will again be dependent on availability of

sites and economics.

Concerning the issue of whether new quarries or extensions to current quarries are preferred, the appraisal suggests each site should be assessed on its own merits. It was highlighted that extensions would not need new infrastructure but would add to cumulative impact locally. The economics of the size of extension or of new sites would also be a factor.

The appraisal indicated that there are no negatives in providing either sufficient capacity or over-provision of capacity for recycling of aggregates. However, over-provision seemed to be more positive in developing a sustainable strategy bearing in mind the lack of accurate data

Waste

The appraisal suggests that identification of site specific allocations in the MWDF would be the more sustainable option. However, the other two approaches – identification of broad areas and criteria based policies – would allow flexibility in the MWDF. Therefore a combination of the three options (criteria, identification of broad areas and actual site selection) may be the most appropriate sustainable strategy.

The appraisal was not clear on which was the overall best strategy on how to provide new waste management facilities. Flexibility of sites (not restricting types of technologies on a site) was favoured by the workshop but, as with the previous issue, the best solution may be a combination of the approaches (some sites to be specific for certain technologies and others for a more general range of technologies).

When the appraisal assessed the merits of scale of sites (a few large sites or more numerous small sites) for waste management facilities, the recommendation was for a few large sites which could accommodate strategic and/or integrated management facilities. However, this option is heavily dependent on the transport effects being sustainable.

The appraisal recommends locating waste facilities in or close to urban areas. The disadvantages of this (conflict with potential housing sites, noise and air pollution) are assessed to be relatively minor in relation to the benefits (less distance to travel, potential for combined heat and power and higher likelihood of development on brownfield land).

The appraisal did not recommend which type of site would be best suited to locating a waste treatment facility. It showed that the suitability of sites depends on factors such as the type of technology, size of facility, size of site and the density of surrounding human population. Each site must be assessed on its own merits. It was highlighted that for all options the impact upon the flood plain must be assessed.

Within the SA of the Minerals and Waste Core Strategy Preferred Options (February 2007) the recommendations from the issues and options appraisal were summarised (Section 6.2, February 2007), and the reasons for rejecting all of the other options considered were identified (Appendix 2, February 2007).

The Minerals and Waste Core Strategy (Issues and Options) Consultation document, along with the Interim SA Report, are available via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

5.3 Minerals and Waste Core Strategy Preferred Options (February 2007)

Following consultation on the Issues and Options, and taking into account the outcomes of the Issues and Options SA, draft Preferred Options were identified. These were discussed by the Minerals and Waste Stakeholder Forum and at a County Council Minerals and Waste Working Group (in September 2006). An amended set of Preferred Options was then published for consultation in February 2007.

The Core Strategy Preferred Options consultation document set out the County Council's preferred options for addressing each of the key issues that had previously been identified. For each issue the document set out: background to the issue; the options that were set out (or the questions posed); the response to the consultation on the issues and options; the results from the interim sustainability appraisal; the preferred option(s) (addressing the reason for selecting the preferred option(s)); and proposals for the sort of policies that should be included to deliver the preferred option(s).

The Preferred Options were subject to SA in February 2007, with the findings documented in a Sustainability Appraisal Report. Appendix 3 of the 2007 SA Report contained detailed comments made by the appraisal group on the Preferred Options.

The Preferred Options that were assessed were slightly different from those that appeared in the Core Strategy Preferred Options Consultation Paper. Some of the wording was modified to enable the assessment to be more readily carried out, and some similar issues were combined to make more effective use of people's time in the appraisal workshop (the method used to undertake the assessment). Nevertheless, the fundamental meaning of the issues and options was not changed. In the case of some of the issues, meaningful appraisal was not considered possible for some of the SA objectives and so was not carried out (for example where issues were considered to be related to implementation).

The following table provides details of the preferred options assessed and the significant effects identified.

Table 5-2: Preferred options considered in the SA and the significant effects identified – February 2007 (written by OCC)

Preferred option 3b: The County Council's preferred option is to identify extensions to existing quarries in the short term (approx. 5 years) followed by the identification of new quarries for the longer term (approx. 5 years plus).
Significant positive effects were identified for the SA objectives related to minerals supply and resource consumption as the option should ensure market demands are met and promotes supply from within the County so as to reduce imports and ensure net self-sufficiency.
Preferred option 3c: The County Council's preferred option is to identify sites for mineral working for the period to 2019 supported by criteria policy for the period beyond.
Significant positive effects were identified for the SA objectives related to minerals supply and resource consumption as the option should ensure that demands are met in the long term and reduce the need for imports.
Preferred option 4: The County Council's preferred option is to plan for a split of 17% soft sand and 83% sharp sand which is in line with current production (5 year average).
Significant negative effects were identified for the SA objective related to transport, due to an increase in traffic movements in soft sand areas, although it was considered that there would be no overall strategic increase.

Significant positive effects were identified for the SA objectives related to minerals supply and resource consumption as the option should ensure market demands for soft sand are met and reduce the need for soft sand imports.
Preferred option 5: The County Council's preferred option for sand and gravel is to continue identifying new workings in the existing West Oxfordshire working areas and to identify new working area(s) in the southern part of Oxfordshire, subject to the results of further work on site assessment.
Significant positive effects were identified for the SA objectives related to minerals supply, resource consumption, and economic growth as the option should ensure market demands for aggregates are met, reduce the need for imports and help support economic growth.
Preferred option 6: The County Council's preferred option for crushed rock is for workings to be located mainly in the Witney – Burford and Oxford – Bicester areas.
Significant positive effects were identified for the SA objectives related to minerals supply and resource consumption as the option should ensure that demands are met and reduce the need for imports.
Preferred option 7a: The County Council's preferred option is to identify permanent facilities for aggregate recycling where possible supported by temporary facilities at minerals and waste sites.
Significant positive effects were identified for the SA objectives related to minerals supply and resource consumption as the option should reduce pressure on minerals workings and reduce the need to extraction of virgin materials. Significant positive effects were also identified for waste treatment, as the option should ensure capacity to meet Oxfordshire's requirement to produce secondary and recycled aggregates.
Preferred option 7b: The County Council's preferred option is to maximise the provision for aggregates recycling through a positive policy approach.
Significant positive effects were identified for the SA objectives related to minerals supply and resource consumption as the option should reduce pressure on minerals workings and reduce the need to extraction of virgin materials. Significant positive effects were also identified for waste treatment, as the option should ensure capacity to meet Oxfordshire's requirement to produce secondary and recycled aggregates.
Preferred option 8a/b: The County Council's preferred option is to take the following sequential approach to locating aggregate recycling facilities: urban areas; close to urban areas; rural areas; and within this to take the following sequential approach to site identification: previously developed land; temporary minerals and waste sites; greenfield sites. This includes locations in the Green Belt, which will be considered against national and regional policy.
Significant positive effects were identified for the SA objectives related to minerals supply, resource consumption, waste reduction and waste treatment. By ensuring that facilities are available to make maximum provision for recycled aggregates the option will reduce the pressure on mineral workings and reduce dependence of virgin materials. The option also makes maximum provision for reducing the amount of aggregate sent to landfill.
Preferred option 9(i): The County Council's preferred option is for a continued local supply of aggregates at levels in line with regional policy plus imports to meet demands that cannot be met from this local supply.
Significant negative effects were identified for the SA objective related to transport, due to increases in traffic locally and county-wide. Significant positive effects were identified for the SA objectives related to decent homes, minerals supply and resource consumption, as option ensures that local market demands for aggregates are met and should reduce imports.
Preferred option 9(ii): The County Council's preferred option is to include a policy option for new rail aggregate depots and, where possible, identify sites for rail aggregate depots.
Significant negative effects were identified for the SA objective related to resource consumption, as material used may not be locally produced.
Preferred option 10: The County Council's preferred option is for a locational Policy based on Structure Plan policy M2: In identifying appropriate locations, the County Council will take account

of the distribution of sand and gravel resources; the existing pattern of supply and distribution of workings; proximity to main market areas; accessibility to the main transport routes; risk of birdstrike; restoration and after use potential; and development plan policies, in particular which seek to safeguard: • important archaeological remains, historic buildings and areas; • areas and sites of nature conservation importance, especially SACs and SSSIs; • features of landscape importance, especially AONBs; • best and most versatile agricultural land; • the water environment; • land uses which are sensitive to nuisance; and • the safety and convenience of all road users, including pedestrians and cyclists.
Significant positive effects were identified with regards to the SA objective related to the countryside and historic environment, as the option seeks to safeguard features of landscape importance, important archaeological remains and historic buildings and areas.
Preferred option 11: The County Council's preferred option is for progressive working and restoration of mineral sites within reasonable timescales to acceptable uses that are appropriate to the location whilst maximising appropriate opportunities for restoration to agricultural land, habitat creation, recreation and public access.
Significant positive effects were identified for the SA objectives related to efficient use of land, biodiversity, open space, countryside and historic environment, and culture and leisure. This was because the option ensures opportunities for biodiversity enhancement, public access to the countryside, landscape and the historic environment, including previously restricted land, and for increasing culture and leisure activities.
Preferred option 12: The County Council's preferred option is to specify buffer zones around mineral workings and to require such other mitigation measures as may be necessary at the planning application stage, on a case by case basis, to provide protection for local residents and others against unacceptable loss of amenity.
No significant effects identified.
Preferred option 13: The preferred option for the County Council is to safeguard all mineral resources of potential economic importance for possible future use, including sand and gravel, limestone, ironstone and fuller's earth.
Significant positive effects were identified for the SA objectives related to decent homes, minerals supply and resource consumption. The option should ensure a long-term constant supply of aggregates for building materials. It should protect all economically viable mineral resources for future use to meet current growth and should ensure the opportunity to use resources for future development.
Preferred option 14a: The County Council's preferred option is to identify specific sites in the Waste Sites Document, particularly for strategic facilities; but also to indicate broad areas where facilities will be needed to serve local communities or where specific sites are not identifiable. This will be supported with locational criteria policies.
Significant positive effects were identified for the waste reduction and waste treatment SA objectives. Site allocation and broad areas should ensure opportunities for increased waste treatment before disposal, helping to achieve sustainable waste management.
Preferred option 14b: The County Council's preferred option is to identify locations that are generally suitable for a range of facilities, to provide flexibility and allow for evolving waste management technology; but where there are sound planning reasons for doing so sites will be restricted to specified types of facility.
Significant positive effects were identified for the resource consumption, waste reduction and waste treatment SA objectives. The option should ensure maximum provision for recycling of waste materials, encourages reduction to landfill, promotes minimum capacity to meet national and regional recycling/recovery targets and allows for technological advances by allowing improving resource efficiency, sorting waste, and resource recovery.
Preferred option 14c: The County Council's preferred option is to provide for a mix of sites for both large and small scale facilities. For large-scale facilities, specific sites should be identified in the

Waste Sites Document, but this is likely to be more difficult for smaller-scale facilities and there will have to be a greater reliance on locational criteria polices for these types of sites.
Significant positive effects were identified for the accessibility objective, as the option aims to make maximum provision for facilities. Significant positive effects were also identified for the waste reduction and waste treatment SA objectives. The option makes maximum provision to ensure the opportunity for increases in waste treatment before disposal and will help achieve sustainable waste management. It also encourages a reduction to landfill and promotes minimum capacity to meet national and regional recycling/recovery targets.
Preferred option 15a: The County Council's preferred option is to locate waste treatment facilities within or close to the main urban areas, subject to availability of suitable land. In recognition of the difficulty of finding sites for waste facilities, a sequential policy approach for site locations is likely to be needed.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment. The option promotes opportunities to maximise waste treatment before disposal, helping to achieve sustainable management of waste.
Preferred option 15b/c: The County Council's preferred option is to take the following sequential approach to locating waste facilities: urban areas; close to urban areas; rural areas; and within this to take the following sequential approach to site identification: previously developed land; temporary waste sites; Greenfield sites. This includes locations in the Green Belt, which will be considered against national and regional policy.
Significant positive effects were identified related to efficient use of land as the option encourages development on brown field land. The option also promotes opportunities to maximise waste treatment before disposal, helping to achieve sustainable management of waste. As a result significant positive effects were also identified for the SA objectives related to waste reduction and waste treatment.
Preferred option 16(i): The County Council's preferred option is to ensure there is no restriction to the movement of waste management up the waste hierarchy and that there is adequate provision of a range of waste management facilities, including local communities having access to suitable facilities. This includes positive policies to encourage the provision of new facilities higher up the hierarchy.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment, as the option strongly encourages movement of waste up the hierarchy to achieve sustainable waste management and encourage increases in treatment capacity.
Preferred option 16(ii): The County Council's preferred option is to limit landfill provision in line with national and regional policy and landfill targets while also recognising there will be a continued need for some landfill.
No significant effects identified.
Preferred option 16(iii): The County Council's preferred option is to make provision for at least the minimum capacity required to meet national and regional policy targets for recycling and recovery; and to provide a positive policy framework to enable advantage to be taken of any appropriate opportunities that may arise to increase capacity.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment, as the option encourages reduction to landfill and promotes at minimum capacity to meet national and regional recycling/recovery targets.
Preferred option 16(iv): The County Council's preferred option is to plan to at least meet the national/regional targets for recycling and diversion from landfill through positive policies and identification of sites, but this will need to be kept under review. The regional targets should be used as a guide to the level of provision that is required as a minimum.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment, as the option encourages reduction to landfill and promotes at minimum capacity to meet national and regional recycling/recovery targets.
Preferred option 17(i & ii): The County Council's preferred option is to provide for net self-sufficiency plus Oxfordshire's share of waste from London as set in regional policy.
Significant positive effects were identified for the SA objectives related to waste treatment, as the

option should ensure Oxfordshire is self-sufficient in waste treatment.
Preferred option 17(iii): The County Council's preferred option is to provide for net self-sufficiency plus Oxfordshire's share of waste from London as set in regional policy. Imported waste should normally be limited to residues from treatment processes that require disposal by landfill, but import of waste for treatment at facilities in Oxfordshire could be appropriate where this would be a sustainable option or there would be overall benefits.
Significant positive effects were identified for the SA objectives related to waste treatment, as the option should ensure Oxfordshire is self-sufficient in waste treatment.
Preferred option 17(iv): The County Council's preferred option is to plan for the capacity requirements in regional policy, unless local information and circumstances indicate otherwise. This should be monitored and kept under review as new information become available.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment, as the option encourages reduction to landfill and promotes at minimum capacity to meet national and regional recycling/recovery targets.
Preferred option 17(v): The County Council's preferred option is to plan for the capacity requirements in regional policy, unless local information and circumstances indicate otherwise. This should be monitored and kept under review as new information become available.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment, as the option encourages reduction to landfill and promotes at minimum capacity to meet national and regional recycling/recovery targets.
Preferred option 18: The County Council's preferred option is for a locational policy based on principles similar to those included in Structure Plan Preferred option M2: In identifying appropriate locations, the County Council will take account of the distribution of the existing pattern of waste management facilities; proximity to main sources of waste and destinations of outputs from waste treatment processes; accessibility to the main transport routes; risk of birdstrike (for landfill); restoration and afteruse potential (for landfill); and development plan policies, in particular which seek to safeguard: • important archaeological remains, historic buildings and areas; • areas and sites of nature conservation importance, especially SACs and SSSIs; • features of landscape importance, especially AONBs; • best and most versatile agricultural land; • the water environment; • land uses which are sensitive to nuisance; and • the safety and convenience of all road users, including pedestrians and cyclists.
Significant positive effects were identified with regards to the SA objective related to the countryside and historic environment, as the option seeks to safeguard features of landscape importance, important archaeological remains and historic buildings and areas.
Preferred option 19(i & ii): The County Council's preferred option is to make provision for landfill in line with national and regional policy targets; over time this will increasingly limit landfill to waste that has been subject to treatment while also recognising the continued need for some landfill capacity.
Significant positive effects were identified for the SA objectives related to waste reduction and waste treatment, as the option encourages reduction to landfill and promotes at minimum capacity to meet national and regional recycling/recovery targets.
Preferred option 19(iii): The County Council's preferred option is to give priority to use of inert waste for restoration of mineral workings. No provision should be made for other types of inert waste landfill site and proposals for new landfill should include a stiff test of need for use of inert waste other than for restoring mineral workings.
Significant positive effects were identified with regards to the SA objective related to the countryside and historic environment, as the option should help to restore and enhance Oxfordshire's countryside and historic environment after mineral working.
Preferred option 19(iv): The County Council's preferred option is generally to safeguard existing landfill void for future use.

Significant positive effects were identified for the SA objective related to waste treatment, as the option promotes the safeguarding of landfill capacity for continued disposal of waste in line with regional Preferred option.
Preferred option 20: The County Council's preferred option is require such mitigation measures as may be necessary at the planning application stage, on a case by case basis, to provide protection for local residents and others against unacceptable loss of amenity.
No assessment was undertaken, as the cases are considered individually and it is therefore an implementation issue.

The Minerals and Waste Core Strategy (Preferred Options) Consultation document, along with the accompanying SA Report, are available via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

5.4 Minerals Spatial Strategy Options (May 2010)

In 2010, the Council identified draft spatial strategy options for the location of future areas for the extraction of sharp sand and gravel, soft sand, and crushed rock.

Based on the sub-regional apportionment for sand and gravel, the Council calculated that Oxfordshire needed to plan for 1.82 million tonnes per annum (mtpa) over the plan period. This was split between soft sand and sharp sand and gravel based on the historical production figures (over the last three years).

Based on the above split, the Council identified that it needed to plan for 21.511 million tonnes of sharp sand and gravel (net requirement) to meet the need to 2026. In order to deliver this net requirement the Council drafted three spatial strategy options. The possible options were to concentrate working; disperse it; or to phase development.

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

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.

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; or
- Wallingford – Cholsey.

For soft sand and crushed rock the options were as follows:

- Soft sand: meet demand from one resource area in the south west of County
- Crushed rock: strategic areas in the Witney-Burford and Chipping Norton-Bicester areas. Also to include continued supply of some crushed rock from the south west of the County in conjunction with the soft sand workings and identification of small resource area south west of Bicester.

A Sustainability Appraisal of the emerging options was undertaken by consultants Scott Wilson (now URS). The options were assessed against the SA framework that had been developed in the revised Scoping Report 2009. A summary of the assessment is provided in the box below. In terms of significant effects the following were identified for Sharp sand and gravel – the concentration strategy:

- In relation to the transport SA objective, option 1a was predicted to have a significant adverse effect. A significant increase in working within areas covered by Option 1a would lead to adverse effects and cumulative impacts on the road network in the area as it is already currently experiencing congestion.
- In relation to the land and soil quality SA objective, option 1a was predicted to have a significant positive effect. This is because restoration would contribute to the creation of large areas for wildlife conservation and improved recreational activities.
- In relation to the 'contributing to minerals provision', 'promoting efficient use of natural resources', and 'economic growth' SA objectives for each of three options potential significant positive effects were identified.

For the sharp sand and gravel dispersal and phasing options, and the options for soft sand and crushed rock, significant positive effects were predicted in relation to the SA objectives for 'contributing to minerals provision', 'promoting efficient use of natural resources', and 'economic growth'.

The full findings of the SA can be found in the Minerals Spatial Strategy SA Report which is available via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

Box 2: Summary of Options SA (written by Scott-Wilson (now URS), 2010)

Sharp sand and gravel – the concentration strategy

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 greenhouse 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 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.

Sharp sand and gravel – the dispersal option

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 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.

Sharp sand and gravel – the phasing option

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.

This approach also provides certainty to industry and allows the time necessary for the development of new infrastructure in the new areas of work. New and improved infrastructure however requires further investment which is likely to have a negative financial effect on industry. The long lead times however can help mitigate against adverse financial implications by allowing companies time to wind down and set up new operations.

Some of the new areas are not well located with regard to proximity to the strategic road network and this would also require significant improvements to provide adequate access. As above, the long-term planning approach would help to deliver such infrastructure.

The extension of current works will lead to cumulative effects in already affected areas throughout the plan period. Although this is taken to be 'short-term' it is recommended that detailed assessment of existing sites (and nominations for extensions) is undertaken to assess which areas are best suited to sustainably support further working as some areas may be close to reaching or may have reached their 'environmental' capacity for example in terms of the road network, impact on amenity etc. Assessment on 'environmental' capacity should be required at the planning application stage.

Some areas e.g. RAS 4 are not well located in relation to potential markets and development here will lead to increase in distances travelled which in turn leads to increased GHG emissions and other negative effects associated with road based transport including noise, air pollution and congestion. Significant archaeological effects have also been identified in RAS13 and mitigation measures would be required to minimise potential adverse effects in this area. To off-set some of the negative effects of road transportation, opportunities to use the River Thames to move materials in RAS 4 should be maximised wherever possible.

Overall, the option has both beneficial and some negative effects. However, the negative effects can be mitigated against (apart from the issue relating to the proximity of RAS 4 to markets) through the planning process.

Soft sand

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.

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

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.

5.5 Minerals Spatial Strategy Revised Options (September 2010)

Following consultation on the Minerals Spatial Strategy Options with key stakeholders in July 2010, refinements were made resulting in the development of revised options in September 2010. They key changes (as reported by Scott Wilson in the September 2010 SA Report) were as follows:

- The extent of the areas in each of the options has been reduced through an assessment of the realistically workable geological resource, using data from the BGS geological mapping of sand and gravel and Mineral Assessment Reports.
- Sites which are designated for their national environmental or landscape importance have been removed from the options, such as Special Areas of Conservation (SACs), Areas of Outstanding Natural Beauty (AONBs) and National Nature Reserves (NNRs). Smaller sites such as Sites of Special Scientific Interest (SSSIs) and Scheduled Ancient Monuments (SAMs) which fall within these option areas will be given policy protection in the Core Strategy.
- The phased approach for sand and gravel has been changed to address the need for mineral working only during the plan period; and it focuses more on moving to new areas of working than on continuation of working in existing areas (albeit this would still be likely to be needed in the short term).
- Both the concentration on existing working areas approach and the new areas of working approach for sand and gravel are concentration strategy options; and are not related to the location of demand. (Location of demand will be a factor to be used in assessing the options rather than in defining them.)
- Possible new areas of working are not included in the same option as concentration on existing working areas, to provide greater distinction between options.
- The dispersed working approach for sand and gravel seeks to disperse working across all available resource and is not related to the location of demand.

The revised options were as follows:

Sharp sand and gravel

Following the revocation of the South East Plan the Council were guided to work with the aggregates apportionment in the March 2010 Proposed Changed to South East Policy M3, which set a sand and gravel figure of 2.1 mtpa for Oxfordshire. The Council opposed the figure, believing it to be unreasonably and unrealistically high, intending to gather information and evidence, and develop a methodology to produce a locally derived assessment of the quantity of sand and gravel that should be supplied. As an interim approach they adopted a flexible approach with regard to the amount of sand and gravel

it needed to plan for, to meet demand to 2026, using a range between 1.1 and 1.6 mtpa.

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 and includes areas both to the west / north-west and south / south-east of Oxford. However, these are now limited to areas around 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;
- Cholsey;
- Sutton/Stanton Harcourt; and
- Culham/Clifton Hampden/Dorchester (CCD).

Option 3: Dispersed Working

The initial draft dispersal option sought to disperse working related to markets, to reduce mineral miles. This option has been amended to provide for working to take 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;
- Lower Windrush Valley (LWV);
- Eynsham/Cassington/Yarnton (ECY);
- Faringdon;
- Radley;
- Sutton Courtenay;
- Warborough/Shillingford/Benson;
- Cholsey;
- Caversham;

- Culham/Clifton Hampden/Dorchester (CCD); and
- Sutton/Stanton Harcourt.

Soft sand

The soft sand option has been revised to now include an area of resource at Duns Tew in the north of the county. The area in the south west of the county has been reduced to two smaller areas located close the A420.

Crushed rock

The revised option is made up of three areas based around existing limestone working areas. The option also includes reducing the area of search identified near Ardley quarry in the north of the County. The areas included in the option are:

- South of Burford area;
- East of River Cherwell, North of Bicester; and
- East/south east of Faringdon.

A Sustainability Appraisal of the revised options was undertaken by consultants Scott Wilson (now URS), using the established SA Framework. The full findings of the SA can be found in the Minerals Spatial Strategy SA Report which is available via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

Significant positive effects were identified as follows:

- In relation to the transport SA objective for each of the sharp sand and gravel options, due to the potential for alternatives to road (rail and river);
- In relation to the land and soil quality SA objective for Option 1 for sharp sand and gravel, as restoration would contribute to the creation of large areas for wildlife conservation and improved recreational activities; and
- In relation to the 'contributing to minerals provision', 'promoting efficient use of natural resources', and 'economic growth' SA objectives for each of the sharp sand and gravel options, as well as the options for soft sand, and crushed rock.

Significant negative effects were identified for one of the SA objectives, related to local amenity, as Options 1 and 3 for sharp sand and gravel may result in cumulative effects on local communities living close to the proposed areas, where extraction is already taking place, or has taken place in the past. The SA notes that careful consideration of access and routing, as well as impacts on the local communities (congestion, noise and air) would be required at the site selection and planning application stages to facilitate mitigation of adverse effects where applicable.

A summary of the SA findings is provided below.

Box 3: Summary of the Revised Options SA (written by Scott Wilson (now URS))

Sharp sand and gravel – option 1

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.

Sharp sand and gravel – option 2

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.

Sharp sand and gravel – option 3

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.

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 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

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.

5.6 Aggregates Apportionment Options (July 2011)

In order to inform the preparation of emerging policies on minerals supply, OCC commissioned consultants (Atkins) to produce a robust local assessment of the quantities of sand and gravel and crushed rock that need to be supplied from local quarries over the period to 2030. The assessment was also to consider the potential supply of secondary and recycled materials.

Four methods of predicting future aggregates demand in Oxfordshire were adopted by the consultants, and these together with the associated sub-regional apportionments are shown in Table 5-3 below. This table also includes the Council's recommended

apportionment (based on the average outcomes of methods 2 and 4) and the SE Plan apportionment.

Table 5-3: Sub regional apportionment levels considered

Sub regional apportionments	Sand and gravel	Crushed rock	Secondary and recycled aggregates
Atkins method 1: 2003 sub-regional apportionment methodology on regional total of 11.12 mtpa	1.53	n/a	n/a
Atkins method 2: median past sales with smoothing	1.29	0.62	0.64
Atkins method 3: housing proxy for demand	1.58	0.81	0.88
Atkins method 4: population proxy for demand	1.23	0.64	0.69
OCC preferred/recommended (Cabinet Feb 2011)	1.26	0.63	0.67
SE Plan (May 2009)	1.82	1.0	0.9

URS (formerly Scott Wilson) undertook an SA of the six apportionment levels. As some of the levels were similar, some were grouped together to form single appraisal options. The following options were considered:

Sand and gravel

- Option 1 - apportionment levels 1.23mtpa, 1.26mtpa and 1.29mtpa (average 1.26mtpa)
- Option 2 - apportionment levels 1.53mtpa and 1.58mtpa (average 1.55 mtpa)
- Option 3 - apportionment level 1.82mtpa

The sharp sand and gravel figures were further sub-divided between sharp sand and gravel and soft sand on the basis of recent past production (80% sharp sand and 20% soft sand) as follows:

Sharp Sand:

- Option 1 - 1.01mtpa (80% of 1.26mtpa)
- Option 2 - 1.24mtpa (80% of 1.55mtpa)
- Option 3- 1.46mtpa (80% of 1.82mtpa)

Soft Sand:

- Option 1 - 0.25 mtpa (20% of 1.26mtpa)
- Option 2 - 0.31mtpa (20% of 1.55mtpa)
- Option 3- 0.36mtpa (20% of 1.82mtpa)

Crushed rock

- Option 1 - apportionment levels 0.62mtpa, 0.63mtpa and 0.64mtpa (average of 0.63mtpa)

- Option 2 - apportionment level 0.81mtpa
- Option 3 - apportionment level 1mtpa

Secondary and recycled aggregates

- Option 1 - apportionment levels 0.64mtpa, 0.67mtpa, 0.69mtpa (average 0.67mtpa)
- Option 2 - apportionment level 0.88mtpa and 0.9mtpa (average 0.9mtpa)

In order to undertake a comprehensive SA, the spatial implications of the various options were considered. These enabled the SA to broadly identify the potential impacts of working aggregates in the identified areas. Full details of the assessment methodology and its findings can be found in the SA of the Aggregates Apportionment Options which is available via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

Looking firstly at sharp sand and gravel, a summary of the assessment findings, for the broad areas identified for potential extraction and then for the apportionment options, is provided in the following boxes. None of the effects identified were considered to be significant.

Box 4: Summary of the SA of broad areas for sharp sand and gravel (written by Scott Wilson (now URS))

Lower Windrush Valley (LWV)

- *Potential for negative impacts on nature conservation and heritage designations (depending on the location of sites)*
- *Potential impacts on River Windrush*
- *Potential risk of flooding*
- *Transport impacts (air and noise pollution)*
- *Greenhouse house gas (GHG) emissions*
- *Positive economic and restoration impacts*
- *Overall negative cumulative impacts on amenity in the long term (visual, landscape, traffic, noise and air quality)*

Eynsham/Cassington/Yarnton (ECY)

- *Potential negative impacts on SSSI, SAC and River Evenlode/River Thames depending on the location of sites*
- *Transport impacts on the A40 and A44*
- *GHG emissions*
- *Positive economic and restoration impacts*
- *Overall negative cumulative effects on environment and local communities in the long term (visual and landscape, ground water, traffic)*

Caversham

- *Potential impacts on ground water and River Thames*
- *Transport impacts on the B478 and A4155 (congestion, air and noise pollution)*
- *GHG emissions*
- *Economic and restoration benefits*

- *Potential for negative cumulative effects (visual and landscape, water, transport, air quality and noise)*

Sutton Courtenay

- *Potential impacts on scheduled ancient monuments and River Thames depending on location of sites*
- *Economic and restoration benefits*
- *Transport impacts on the B4016*
- *GHG emissions*
- *Potential negative cumulative effects (visual, landscape and transport) in the short-medium term (to 2020)*

Cholsey

- *Potential impacts on the River Thames*
- *Well located close to markets*
- *Significant investment in infrastructure required*
- *Potential transport impacts on the A4130 and A4074*
- *Potential negative amenity effects on local communities*
- *Potential restoration benefits in the longer term depending on proposed future land uses*

Clifton Hampden

- *Well located close to markets*
- *Significant investment in infrastructure required*
- *Potential transport impacts on the A415 and A4074*
- *Potential negative amenity effects on local communities (traffic, visual, air quality and noise) depending on location of sites*
- *Potential restoration benefits in the longer term depending on proposed future land uses*

Stadhampton

- *Well located close to markets*
- *Significant investment in infrastructure required*
- *Potential transport impacts on the A4074*
- *Potential negative amenity effects on local communities*
- *Potential restoration benefits in the longer term depending on proposed future land uses*

Box 5: Summary of SA of apportionment options for sharp sand and gravel (written by Scott Wilson (now URS))

Sharp sand and gravel option 1

Nature conservation – Potential negative impacts within LWV and ECY due to presence of nationally important designations (SSSI, SAC).

Landscape character – Potential for local visual and landscape impacts in all areas depending on the location of sites.

Historic and built heritage – Potential for negative impacts in LWV and Sutton Courtenay due to presence of Scheduled Monuments.

Ground and surface water – Potential impacts on ground water in LWV, ECY and Caversham. Potential impacts on Rivers Windrush (LWV), River Evenlode (ECY) and River Thames (Caversham, Sutton Courtenay - up to 2020 and Cholsey post 2020).

Air quality – Potential for air pollution associated with HGV movements in all the areas.

Greenhouse gases – GHG emissions in all the areas due to transportation of materials by road.

Floodrisk – Some parts of the proposed production area lie within high flood risk zones (LWV, ECY, Caversham and Sutton Courtenay). However, sand and gravel extraction is considered to be compatible development. Supporting infrastructure would however be at risk from flooding and should be located away from the high risk areas.

Transport - Potential for negative transport impacts 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.

Restoration – 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 as landscape scale, to contribute to national Biodiversity Action Plan targets. Other areas have potential for beneficial restoration impacts depending on the preferred land uses. Oxfordshire County Council encourages restoration to nature conservation and where land suitable for agriculture, it may be appropriate to restore to farmland.

Local Economy – All the areas are well located close to the markets and providing investment and job opportunities which support the local economy.

Cumulative effects – Due to continued working in LWV, ECY, Caversham there is potential for long-term cumulative effects on the environment and on the local communities. These include visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion, GHG 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.

Sharp sand and gravel option 2

Option 2 is similar to option 1 in - terms of potential impacts relating to LWV, ECY, Caversham and Sutton Courtenay (therefore option 1 impacts above apply). However, this option includes introducing working in Cholsey before 2020 and introduction of either Clifton Hampden or Stadhampton post 2020. This would have the additional potential impacts as follows:

- *Potential negative impacts on A4130 /A4074 (Cholsey- pre-2020 to 2030) and/or A415/A4074 (Clifton Hampden - 2020-2030) and/or A4074 (Stadhampton – 2020-2030).*
- *Significant investment in infrastructure in the Cholsey and/or Clifton Hampden/ Stadhampton which could lead to local job creation and support to the local economy.*
- *Potential negative amenity effects for communities around Cholsey and/or Clifton Hampden/Stadhampton depending on the location of sites.*

Sharp sand and gravel option 3

Option 3 is similar to options 1 and 2 in terms of potential impacts relating to LWV, ECY, Caversham and Sutton Courtenay (therefore the sustainability impacts identified for option 1 for these areas apply to option 3). However, this option includes introducing working in Cholsey before 2020 and either Clifton Hampden or Stadhampton before 2020 and continuing working in both Clifton Hampden and Stadhampton post 2020). This would have the following SA impacts:

- *Potential negative impacts on A4130/A4074 (Cholsey – pre 2020 -2030) and/or A415/A4074 (Clifton Hampden -pre 2020 -2030) and/or A329/A4074 (Stadhampton pre 2020 -2030).*
- *Significant investment in infrastructure in the Cholsey, Clifton Hampden and Stadhampton which could lead to local job creation and support to the local economy.*
- *Potential negative amenity effects for communities around Cholsey and/or Clifton Hampden/Stadhampton depending on the location of sites.*

Overall, the SA found that all of the options for sharp sand and gravel have potential for some impacts on the environment, as well as on the surrounding communities. However, option 3 includes working in more areas and early on in the plan period which means it is likely to have more sustainability impacts in the short/medium and longer term as identified above compared to options 1 and 2.

In terms of the assessment for the soft sand options, the Council identified that the strategy for working soft sand would be to concentrate production in three existing areas: South east of Faringdon, Tubney/Marcham/Hinton Waldrist, and Duns Tew. As for each of the three apportionment levels considered, production would be met in the above identified areas, the sustainability appraisal focused on identifying the key potential impacts associated with working in each area and providing an overall commentary on how the options performed in sustainability terms. The key issues identified for the broad areas proposed are outlined in the box below. No significant effects were identified.

Box 6: Summary of the SA of broad areas for soft sand (written by Scott Wilson (now URS))

Nature conservation – there are SSSIs close to all the identified areas. The Tubney/Marcham/Hinton Waldrist area is also close to Cothill Fen SAC.

Historic designations - There are Scheduled Monuments close to the Tubney/Marcham/Hinton Waldrist area.

Landscape - None of the identified sites is within AONB, however, there is potential for local visual and landscape impacts depending on the location of sensitive receptors

Transport - 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 negative 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/Hinton Waldrist area).

Local economy - Working in the identified area provides some positive economic benefits and allows for use of existing infrastructure and networks.

Cumulative effects - In the long-term, there is potential for cumulative negative effects on the environment and local communities although these are not envisaged to be significant due to the quantities of soft sand produced.

The issues identified were considered relevant for each of the three apportionment levels. The SA did not identify significant differences between the options, as the overall difference in tonnage was not considered to be significant. However it was noted that, generally, low levels of production are likely to be associated with fewer overall environmental impacts compared with higher production levels, although higher production levels may reduce the need to import aggregates by road and the attendant environmental impacts. Therefore the lowest apportionment option (0.25 mtpa) was considered as likely to have lesser overall sustainability impacts, compared to the higher options (0.31 mtpa and 0.36 mtpa).

For crushed rock, the various apportionment levels would be met from working in the three existing areas of north of Bicester to the east of the River Cherwell, south of the A40 near Burford and south east of Faringdon. Similar to the soft sand assessment, the SA of the crushed rock apportionment options focused on identifying the key potential impacts associated with working in each area and providing an overall commentary on how the options would be likely to perform. The key issues identified for the broad areas proposed are outlined in the box below. No significant effects were identified.

Box 7: Summary of the SA of broad areas for crushed rock (written by Scott Wilson (now URS))

Nature conservation – The area north of Bicester (Ardley) and the areas east of Faringdon are constrained by the presence of SSSIs

Historic designations – There are scheduled ancient monuments within the area north of Bicester and close to the area east of Faringdon.

Landscape – There are no strategic landscape designations in any of the areas. However, there is potential for local landscape and visual impacts depending on the location of sites relative to sensitive receptors.

Transport – Increased working in any of the areas could have some local traffic impacts.

Cumulative effects - Continued working in the existing areas will result in cumulative effects over time on the local communities including on landscape and local amenity – noise, air, and dust and traffic impacts. However, these are not expected to be significant due to the proposed levels of working.

The identified issues were considered relevant to the three apportionment levels. For the purposes of the appraisal, it was assumed that a higher production rate has potential for greater overall negative 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) and that increasing the level of provision may have positive economic effects and may reduce the need to import some crushed rock into Oxfordshire.

Finally, looking at the apportionment for secondary and recycled aggregates the location of facilities to meet this is not yet known. The principle of the strategy for secondary and recycled aggregates provision is to make provision for permanent sites and for temporary facilities at aggregate quarries and inert waste landfill sites.

It was therefore not considered possible for the SA to take in to account the spatial implications of the apportionment options. The approach adopted for appraising the secondary and recycled aggregates was therefore to test them against the SA objectives and provide a commentary on the overall sustainability impacts associated with making provision based on the two options. A summary of the findings for secondary and recycled aggregates is provided in the following box.

Box 8: Summary of the SA of secondary and recycled aggregates (written by Scott Wilson (now URS))

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 (0.9 mtpa) 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.

5.7 Waste Spatial Strategy Options (August 2011)

As part of its development of the waste strategy, the Council prepared spatial strategy options for all of the key waste streams. A Sustainability Appraisal of the options was undertaken by consultants URS (formerly Scott Wilson), using the established SA Framework. The options assessed are detailed in Table 5-4.

Full details of the assessment methodology and the findings of the assessment can be found in the SA of the Waste Spatial Strategy Options which is available via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

Table 5-4: Waste Spatial Strategy Options (August 2011)

Recycling of MSW
Option: Provision of a new facility to serve Banbury, to replace the existing temporary facility at Alkerton.
Residual Waste Transfer Stations
Option: Two transfer stations to serve Ardley EfW incinerator: one in Abingdon/Didcot/Grove area; and one in Witney/Carterton area.
Recycling of Commercial and Industrial (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.
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.
Recycling of Construction, Demolition and Excavation Waste (CDE)
Option 1: Concentration of additional permanent provision at or close to Bicester, Didcot 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.
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.
Hazardous Waste – Landfill
Option 1: Additional provision: continue to rely on hazardous waste landfill facilities outside Oxfordshire, apart from disposal of nonreactive hazardous waste.
Option 2: Existing landfill- change one of Oxfordshire's existing non-hazardous landfills to hazardous landfill.
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
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.
Option D: Temporary storage (if required) of waste at source of waste and disposal in a suitable off-site landfill site outside Oxfordshire.

The SA identified significant adverse effects for the following options:

- For 'Low Level Radioactive Waste Management' Option D in relation to SA objective SA5 'greenhouse gas emissions' and SA7 'transport' as the assessment assumed that the landfill site outside of the County would be situated further from the sources of waste arisings when compared to in-county sites.

Significant positive effects were identified for the following options:

- For 'Recycling of MSW' related to SA11 'waste hierarchy', as the option makes additional provision for recycling; and
- For 'Residual Treatment of C&I waste', Option 1 in relation to SA12 'economic growth' as the option provides for economies of scale that would attract investment by the private sector.

5.8 Minerals Planning Strategy (September 2011)

In September 2011, OCC consulted on its Draft Minerals Planning Strategy. This strategy contained the Council's vision and objectives for minerals planning to the period 2030, along with a set strategic policies, and common policies (covering both minerals and waste development). All of the elements within the planning strategy were assessed against the objectives within the SA Framework. Table 5-5 shows the draft policies that were assessed in the appraisal. The SA Report, with details of the assessment, can be accessed via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

Table 5-5: Draft Minerals and Common Policies (September 2011)

Minerals
M1: Provision for secondary and recycled aggregates
M2: Provision to be made for mineral working
M3: Strategy for the location of mineral working
M4: Aggregates rail depots
M5: Mineral safeguarding
M6: Restoration of mineral workings

Common Policies
C1: Flooding
C2: Water environment
C3: Environmental and amenity protection
C4: Biodiversity and geodiversity
C5: Landscape
C6: Historic environment and archaeology
C7: Transport
C8: Rights of Way

Significant positive effects were identified for the following minerals policies:

- Policy M1 in relation to the SA objectives related to ghg emissions, land and soil quality, and waste hierarchy. The promotion of secondary and recycled aggregates to replace land won aggregates should minimise land take, thereby protecting high grade agricultural land and soil quality. In addition, temporary mobile units have the advantage of locating close to the source/end point, reducing transportation distances and subsequently reducing greenhouse gas emissions. Finally, encouraging use of secondary and recycled aggregates which might otherwise be disposed of to landfill will help the County move up the waste hierarchy.
- Policies M2 and M3 in relation to the SA objective related contributing to minerals needs, as these policies should help to ensure this is achieved by allowing for provision for mineral working to be made for aggregates.
- Policy M4 in relation to the SA objectives on air quality, ghg emissions, transport and economic growth, as the policy should help to reduce the volume of aggregates travelling on the local and strategic road network and safeguard the necessary infrastructure to ensure that Oxfordshire can sustainably support its predicted economic growth.
- Policy M5 in relation to the SA objective related contributing to minerals needs and economic growth as this policy should ensure minerals are safeguarded for future use.
- Policy M6 in relation to the SA objectives related to biodiversity/geodiversity, landscape and the historic environment, water quality, transport, people and local communities, and land and soil quality. The requirement for prompt and phased restoration of mineral working sites for example could help to create new habitats, improve landscape character, have a positive effect on water quality, offer flood storage capacity, help to restore soil quality, provide new recreational facilities, all of which will have a positive effect on local communities. The requirement for restoration to be to an after-use appropriate to the capacity of the transport network could have a positive impact on minimising transportation impacts.

Significant positive effects were also identified for the following common policies: C1, C2, C4, C5, C6, C7 and C8, generally against their directly related SA objective (e.g. Policy C4: Biodiversity and geodiversity against SA1 'biodiversity). No significant adverse effects were identified.

5.9 Waste Planning Strategy (September 2011)

In September 2011, OCC consulted on its Draft Waste Planning Strategy. This strategy contained the Council's vision and objectives for waste planning to the period 2030, along with a set strategic policies, and common policies (covering both minerals and waste development). All of the elements within the planning strategy were assessed against the objectives within the SA Framework. Table 5-6 shows the draft policies that were assessed in the appraisal. The SA Report, with details of the assessment, can be accessed via the Oxfordshire County Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

Table 5-6: Draft Waste and Common Policies (September 2011)

Waste
W1: The amount of waste to be provided for
W2: Waste imports
W3: Waste management targets
W4: Provision of additional waste management capacity
W5: Provision of additional waste management facilities
W6: Sites for waste management facilities
W7: Landfill
W8: Hazardous waste
W9: Radioactive waste
W10: Safeguarding
Common Policies
C1: Flooding
C2: Water environment
C3: Environmental and amenity protection
C4: Biodiversity and geodiversity
C5: Landscape
C6: Historic environment and archaeology
C7: Transport
C8: Rights of Way

Significant positive effects were identified for the following waste policies: W1 against SA11 'waste and minerals management' as the policy directly supports this objective, and W3 against SA10 'waste hierarchy' as the policy seeks to make provision for additional recycling, composting and recovery of resources and minimise disposal. Significant positive effects were also identified for the following common policies: C1, C2, C4, C5, C6, C7 and C8, generally against their directly related SA objective. No significant adverse effects were identified.

5.10 Aggregates Apportionment Options Addendum (March 2012)

Following on from the Aggregates Apportionment Options considered in July 2011, two further options for sharp sand and gravel were assessed in March 2012. These options arose as a result of consultation responses received on the July 2011 report and consider the effect of reducing working in West Oxfordshire after 2020.

These two options were 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 were two possible spatial options for reducing the level of working in West Oxfordshire. Option 1b would result in reducing working in the LWV (0.25 mtpa) and ECY (0.18 mtpa), 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. Further details of the options can be found in the Addendum SA Report which can be accessed via the Council website at: http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy.

The following boxes provide a summary of assessment. The first provides a summary of the assessment for the broad areas identified for potential extraction, the second for the two apportionment options (plus option 1a, which has a number of minor amendments compared to the version reported in Box 5) and the third a comparison between three options (1a, 1b and 1c).

In terms of significant effects, the assessment note that Option 1b is likely to have more significant adverse effects on local communities than options 1a or 1c, as it includes working in five different areas, compared to four for the other options, and therefore would affect more local communities. Options 1b and 1c which see the shifting of the sand and gravel industry to south Oxfordshire provide an opportunity to generate significant new jobs and economic activity due to the construction of the substantial new infrastructure that would be required to service sites in Cholsey, Stadhampton and Clifton Hampden.

Box 9: Summary of the SA of broad areas for sharp sand and gravel (written by Scott Wilson (now URS))

Lower Windrush Valley (LWV)

- *Potential for negative impacts on nature conservation and heritage designations (depending on the location of sites)*
- *Potential impacts on River Windrush*
- *Potential risk of flooding*
- *Transport impacts (air and noise pollution)*
- *Greenhouse gas (GHG) emissions*
- *Positive economic and restoration impacts*
- *Overall negative cumulative impacts on amenity in the long term (visual, landscape, traffic, noise and air quality)*

Eynsham/Cassington/Yarnton (ECY)

- *Potential negative impacts on SSSI, SAC and River Evenlode/River Thames depending on the location of sites*
- *Transport impacts on the A40 and A44*
- *GHG emissions*
- *Positive economic and restoration impacts*
- *Overall negative cumulative effects on environment and local communities in the long term*

(visual and landscape, ground water, traffic)

Caversham

- *Potential impacts on ground water and River Thames*
- *Transport impacts on the B478 and A4155 (congestion, air and noise pollution)*
- *GHG emissions*
- *Economic and restoration benefits arising from proposed after uses*
- *Potential for negative cumulative effects (visual and landscape, water, transport, air quality and noise)*

Sutton Courtenay

- *Potential impacts on scheduled ancient monuments and River Thames depending on location of sites*
- *Economic and restoration benefits*
- *Transport impacts on the B4016*
- *GHG emissions*
- *Potential negative cumulative effects (visual, landscape and transport) in the short-medium term (to 2020)*

Cholsey

- *Potential impacts on the River Thames*
- *Well located close to markets*
- *Significant investment in infrastructure required*
- *Potential transport impacts on the A4130 and A4074*
- *Potential negative amenity effects on local communities and recreational assets*
- *Potential restoration benefits in the longer term depending on proposed future land uses*

Clifton Hampden

- *Well located close to markets*
- *Significant investment in infrastructure required*
- *Potential transport impacts on the A415 and A4074*
- *Potential negative amenity effects on local communities (traffic, visual, air quality and noise) depending on location of sites*
- *Potential restoration benefits in the longer term depending on proposed future land uses*

Stadhampton

- *Well located close to markets*
- *Significant investment in infrastructure required*
- *Potential transport impacts on the A4074*
- *Potential negative amenity effects on local communities*
- *Potential restoration benefits in the longer term depending on proposed future land uses*

Box 10: Summary of SA of apportionment options 1a, 1b and 1c for sharp sand and gravel (written by URS)

Sharp Sand and Gravel Apportionment Option 1a

Nature conservation – Potential negative impacts within LWV and ECY due to presence of

nationally important designations (SSSI, SAC).

Landscape character – Potential for local visual and landscape impacts in all areas depending on the location of sites. These impacts may reduce post 2020 in the Sutton Courtenay area in the longer term, as a result of cessation/reduced working in this area, depending on the location of the sites which cease operation, and the implementation of appropriate restoration schemes.

Historic and built heritage – Potential for negative impacts in LWV and Sutton Courtenay due to presence of Scheduled Monuments and archaeological remains in the LWV.

Ground and surface water – Potential impacts on ground water in LWV, ECY and Caversham. Potential impacts on Rivers Windrush (LWV), River Evenlode (ECY) and River Thames (Caversham, Sutton Courtenay - up to 2020 and Cholsey post 2020).

Air quality – Potential for air pollution associated with HGV movements in all the areas.

Greenhouse gases – GHG emissions in all the areas due to transportation of materials by road.

Flood risk - All of the areas identified have some parts of the proposed production areas within high flood risk zones. However, sand and gravel extraction is considered to be compatible development. Supporting infrastructure would however be at risk from flooding and should be located away from the high risk areas.

Transport - Potential for negative transport impacts 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.

Restoration – 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 as landscape scale, to contribute to national Biodiversity Action Plan targets. Other areas have potential for beneficial restoration impacts depending on the preferred land uses. Oxfordshire County Council encourages restoration to nature conservation and where land suitable for agriculture, it may be appropriate to restore to farmland.

Local Communities - There is potential for continued negative amenity effects on communities in LWV, ECY, and Caversham throughout the plan period. There may be additional negative amenity effects on local communities near Cholsey and Clifton Hampden or Stadhampton post 2020. In Sutton Courtenay, negative effects on local communities would be felt in the short-medium term (to 2020) after which production is planned to cease in this area although there may still be some negative amenity effects in the long term, until restoration schemes are established.

Local Economy – All the areas are well located close to the markets and providing investment and job opportunities which support the local economy. Significant investment in infrastructure would be needed in the Cholsey area, this could lead to local job creation and support to the local economy in this area.

Cumulative effects – Due to continued working in LWV, ECY, Caversham there is potential for long-term cumulative effects on the environment and on the local communities. These include visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion, GHG 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.

Sharp Sand and Gravel Apportionment Option 1b

Nature conservation – Potential negative impacts within LWV and ECY due to presence of nationally important designations (SSSI, SAC). These impacts may reduce post 2020 in the LWV as a result of reduced working in this area, depending on the location of the sites which cease operation and the implementation of appropriate restoration schemes.

Landscape character – potential for local visual and landscape impacts in all areas (when working commences/continues) depending on the location of sites. Sites in Cholsey are near to the AONB. These impacts may reduce post 2020 in the LWV and Sutton Courtenay areas in the longer term, as a result of cessation/reduced working in these areas, depending on the location of the sites which cease operation, and the implementation of appropriate restoration schemes.

Historic and built heritage – Potential for negative impacts in LWV, Sutton Courtenay and Stadhampton (if site SG09 comes into operation) due to the presence of Scheduled Monuments and the archaeological assessments for site SG-09 (Stadhampton) and in the LWV.

Ground and surface water – Potential impacts on ground water in LWV, ECY and Caversham. Potential impacts on Rivers Windrush (LWV), River Evenlode (ECY) and River Thames (Caversham, Sutton Courtenay - up to 2020 and Clifton Hampden or Stadhampton post 2020) and tributary to River Thames (Cholsey). Potential adverse impacts on ground water in LWV and the River Windrush would be expected to lessen with the reduction in working in this area post 2020, and on groundwater and the River Thames with cessation of working of Sutton Courtenay. This is particularly positive in relation to the LWV, as low flow in the River Windrush has been identified as an issue by the Environment Agency.

Air quality – Potential for air pollution associated with HGV movements in all the areas.

Greenhouse gases – GHG emissions in all the areas due to transportation of materials by road.

Flood risk – All of the areas identified have some parts of the proposed production areas within high flood risk zones. However, sand and gravel extraction is considered to be compatible development. Supporting infrastructure would however be at risk from flooding and should be located away from the high risk areas.

Transport - Potential for negative transport impacts on the A40 (LWV, ECY), A44 (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 A415/A4074 (Clifton Hampden) or A329/A4074 (Stadhampton). Negative transport impacts on the A40 should reduce to some extent post 2020 with the reduction of working of sites in the LWV.

Restoration – 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 as landscape scale, to contribute to national Biodiversity Action Plan targets. There are also Conservation Target Areas in ECY (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. Oxfordshire County Council encourages restoration to nature conservation and where land suitable for agriculture, it may be appropriate to restore to farmland.

Local Communities - There is potential for negative amenity effects on communities near Cholsey and Clifton Hampden or Stadhampton post 2020. Negative impacts on local communities in the LWV should reduce to some extent post 2020 as a result of the halving of production in this area post 2020 although there may still be some negative amenity effects until restoration schemes are established. In Sutton Courtenay, negative effects on local communities would be felt in the short-medium term (to 2020) after which production is planned to cease in this area although again, there may still be some negative amenity effects in the long term until restoration schemes are established.

Local Economy – All the areas are well located close to the markets and provide investment and job opportunities which support the local economy. Significant investment in infrastructure in the Cholsey and Clifton Hampden or Stadhampton areas could lead to local job creation and support to the local economy in these areas. The Clifton Hampden and Cholsey areas would support growth in Dicot (Cholsey is also well located to the growth area of Wantage and Grove), Stadhampton could serve Oxford and Didcot to while the west Oxfordshire sites support growth in Oxford.

Cumulative effects – Due to continued working in LWV, ECY, Caversham there is potential for long-term cumulative effects on the environment and on the local communities in these areas, although these may reduce to some extent in the LWV as a result of the halving of production in this area post 2020. However cumulative adverse effects may start to be felt in South Oxfordshire post 2020 as a result of working commencing in Clifton Hampden or Stadhampton and Cholsey. Adverse cumulative impacts include visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion, GHG 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.

Sharp Sand and Gravel Apportionment Option 1c

Nature conservation – Potential negative impacts within LWV and ECY due to presence of nationally important designations (SSSI, SAC). These impacts may reduce post 2020 in the ECY as a result of cessation of working in this area, and reduce slightly in the LWV as a result of reduced working in this area, depending on the location of the sites which cease operation and the implementation of appropriate restoration schemes.

Landscape character – potential for local visual and landscape impacts in all areas (when working commences/continues) depending on the location of sites. Sites in Cholsey are near to the AONB. These impacts may reduce post 2020 in the ECY, LWV and Sutton Courtenay areas in the longer term, as a result of cessation/reduced working in these areas, depending on the location of the sites which cease operation, and the implementation of appropriate restoration schemes.

Historic and built heritage – Potential for negative impacts in LWV, Sutton Courtenay and Stadhampton (if site SG09 comes into operation) due to the presence of Scheduled Monuments, the archaeological assessment for site SG-09 (Stadhampton) and archaeological remains in the LWV.

Ground and surface water – Potential impacts on ground water in LWV, ECY and Caversham. Potential impacts on Rivers Windrush (LWV), River Evenlode (ECY) and River Thames (Caversham, Sutton Courtenay - up to 2020 and Clifton Hampden or Stadhampton post 2020) and tributary to River Thames (Cholsey). Potential adverse impacts on ground water in LWV and the River Windrush would be expected to lessen with the reduction in working in this area post 2020, and on groundwater and the River Thames with cessation of working of Sutton Courtenay. This is particularly positive in relation to the LWV, as low flow in the River Windrush has been identified as an issue by the Environment Agency.

Air quality – Potential for air pollution associated with HGV movements in all the areas.

Greenhouse gases – GHG emissions in all the areas due to transportation of materials by road.

Flood risk – All of the areas identified have some parts of the proposed production areas within high flood risk zones. However, sand and gravel extraction is considered to be compatible development. Supporting infrastructure would however be at risk from flooding and should be located away from the high risk areas.

Transport - Potential for negative transport impacts on the A40 (LWV, ECY), A44 (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 A415/A4074 (Clifton Hampden) or A329/A4074 (Stadhampton). Negative transport impacts on the A40 should reduce to some extent post 2020 with the reduction of working of sites in the LWV.

Restoration – 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 as landscape scale, to contribute to national Biodiversity Action Plan targets. There are also Conservation Target Areas in ECY (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. Oxfordshire County Council encourages restoration to nature conservation and where land suitable for agriculture, it may be appropriate to restore to farmland.

Local Communities – There is potential for negative amenity effects on communities near Cholsey and Clifton Hampden or Stadhampton post 2020. Negative impacts on local communities in the LWV should reduce to some extent post 2020 as a result of the lowering of production in this area post 2020. Negative impacts on local communities in the ECY should cease post 2020, as a result of the cessation of working in this area, although there may still be some negative amenity effects until restoration schemes are established. In Sutton Courtenay, negative effects on local communities would be felt in the short-medium term (to 2020) after which production is planned to cease in this area although again, there may still be some negative amenity effects in the long term until restoration schemes are established.

Local Economy – All the areas are well located close to the markets and provide investment and job opportunities which support the local economy. Significant investment in infrastructure in the Cholsey and Clifton Hampden or Stadhampton areas could lead to local job creation and support to the local economy in these areas. The Clifton Hampden and Cholsey areas would support growth in Dicot (Cholsey is also well located to the growth area of Wantage and Grove), Stadhampton could serve Oxford and Didcot to while the west Oxfordshire sites support growth in Oxford.

Cumulative effects – Due to continued working in LWV, ECY and Caversham there is potential for long-term cumulative effects on the environment and on the local communities in these areas, although these may reduce to some extent in the LWV as a result of the halving of production in this area post 2020. However cumulative adverse effects may start to be felt in South Oxfordshire post 2020 as a result of working commencing in Clifton Hampden or Stadhampton and Cholsey. Adverse cumulative impacts include visual and local landscape impacts, air and noise pollution

from HGV movements, traffic congestion, GHG 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.

Box 11: Comparison of apportionment options 1a, 1b and 1c (written by URS)

Nature conservation - The three areas in south Oxfordshire are largely unconstrained by strategic nature conservations, so a shift towards working these areas would reduce negative impacts on strategic nature conservations in west Oxfordshire (so options 1b and 1c would have less negative impacts than option 1a in this respect). There are extensive Conservation Target Areas within the Lower Windrush Valley so a reduction of working in these areas and the commencement of restoration programmes under options 1b and 1c could also assist to reduce negative impacts post 2020, by bringing forward this restoration earlier than option 1a.

Landscape character – None of the potential sites in these areas are directly in or adjacent to the AONB, although sites in Cholsey are near to the AONB. However there are potential for local visual and landscape character impacts in all areas (when working commences/continues) depending on the location of sites, so all options have potential adverse effects. 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 on local landscape character in the longer term across the county, compared to options 1a and 1c.

Historic and built heritage – There are scheduled ancient monuments and significant archaeological remains in the LWV and scheduled ancient monuments in the Sutton Courtney area. Reduction of working in the LWV under options 1b and 1c would therefore be likely to have less significant adverse effects with respect to this SA objective than option 1a.

Ground and surface water - Option 1b would have the least negative impacts on this SA objective in terms of reducing impacts on flow in the River Windrush, which is identified as an issue by the Environment Agency.

Air quality – There is potential for air pollution associated with HGV movements in all the areas and all three options. 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, greater adverse impacts on air quality across the county in the longer term compared to options 1a and 1c.

Greenhouse gases – GHG emissions in all the areas due to transportation of materials by road and thus all options will have an adverse impact.

Flood risk - All of the areas identified have some parts of the proposed production areas within high flood risk zones. However, sand and gravel extraction is considered to be compatible development. Supporting infrastructure would however be at risk from flooding and should be located away from the high risk areas. 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 terms of flood risk (as more local areas will be affected across the county) in the longer term compared to options 1a and 1c.

Transport - There may be negative cumulative impacts on road safety, congestion and road maintenance under all three options. A reduction of working in the LWV and ECY under options 1b and 1c would reduce congestion on the A40, which would have a positive impact. However if HGV vehicles from the Cholsey, Stadhampton and Clifton Hampden sites were using the road network around the growth areas of Oxford, Dicot and Wantage and Grove negative impacts may be concentrated in south Oxfordshire.

Restoration - Much of the sand and gravel resource in Oxfordshire is located along the Thames, Lower Evenlode and Lower Windrush river valleys, where Conservation Target Areas (CTA) have been identified. There are CTAs in all of the identified mineral working areas, with the exception of Clifton Hampden and Stadhampton. This presents an opportunity for sand and gravel quarry restoration to contribute to linking and developing the habitats in these conservation target areas. In this respect, options 1b and 1c offer the most beneficial impacts in terms of bringing this restoration work forward, post 2020.

Local Communities - 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 communities in these areas, especially as all three of the potential areas are not currently subject to mineral working. The social impact of increasing the number of sites is generally to increase the number of

local communities across the county which are affected by sand and gravel working. This is likely to lead to a negative impact on local amenity, road safety, noise, dust and visual impact of working for these communities. Option 1b is therefore likely to have more significant adverse effects on local communities than options 1a or 1c. Each of the options will have a slightly different distribution of impacts in terms of the communities that are affected. Options 1b and 1c would see a reduction in working in west Oxfordshire, reducing the cumulative impacts in this area where communities have been subjected to extensive working over a long period of time.

Local Economy - The economic impacts of redistributing the provision for sand and gravel away from west Oxfordshire (options 1b and 1c) 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. New sources of supply in south Oxfordshire, nearer to planned development in the south of the county would have a positive economic impact.

Cumulative effects - Due to continued working in LWV, ECY and Caversham there is potential for long-term cumulative effects on the environment and local communities in these areas up to 2020 and beyond under option 1a. However under options 1b and 1c negative cumulative impacts in west Oxfordshire would be expected to reduce post 2020, but may start to be felt in South Oxfordshire, as a result of working commencing in Clifton Hampden or Stadhampton and Cholsey. Adverse cumulative impacts include visual and local landscape impacts, air and noise pollution from HGV movements, traffic congestion, GHG emissions and impacts on the water environment. In all three options, cumulative effects would be felt in the short-medium term (to 2020) in Sutton Courtenay, after which production is planned to cease in this area.

5.11 Minerals and Waste Core Strategy Proposed Submission Document (May 2012)

In May 2012, OCC consulted on its Minerals and Waste Core Strategy Proposed Submission Document. This strategy contained the Council's vision and objectives for minerals and waste planning to the period 2030, along with a set of strategic policies for minerals and waste, and common policies (covering both minerals and waste development) (Table 5-7).

Table 5-7 Proposed Submission Policies (May 2012)

Minerals
M1: Provision for secondary and recycled aggregates
M2: Provision to be made for working aggregate minerals
M3: Locations for working aggregate minerals
M4: Aggregates rail depots
M5: Non-aggregate mineral working
M6: Safeguarding mineral resources
M7:Restoration of mineral workings
Waste
W1: The amount of waste to be provided for
W2: Import of non-hazardous waste
W3: Waste management targets
W4: Provision of additional waste management capacity
W5: Provision of additional waste management facilities
W6: Sites for waste management facilities
W7: Landfill
W8: Hazardous and radioactive waste
W9: Management of radioactive waste at Harwell and Culham

W10: Safeguarding waste management sites
Common Policies
C1: Flooding C2: Water environment C3: Environmental and amenity protection C4:Agricultural land and soils C5: Biodiversity and geodiversity C6: Landscape C7: Historic environment and archaeology C8: Transport C9: Rights of Way

All of the elements within the document were assessed (by consultants URS) against the objectives within the SA Framework. The appraisal generally found that the policies supported the majority of the SA objectives, although there was some uncertainty identified, for example due to the unknown location of sites for waste management. Significant positive effects were identified for the following policies:

- Policy M1 in relation to the SA objectives related to ghg emissions (SA5), land and soil quality (SA9), and waste hierarchy SA10). The promotion of secondary and recycled aggregates to replace land won aggregates should minimise land take, thereby protecting high grade agricultural land and soil quality. In addition, temporary mobile units have the advantage of locating close to the source/end point, reducing transportation distances and subsequently reducing greenhouse gas emissions. Finally, encouraging use of secondary and recycled aggregates which might otherwise be disposed of to landfill will help the County move up the waste hierarchy.
- Policies M2, M3 and M5 in relation to the SA objective related contributing to minerals needs (SA11), as these policies should help to ensure this is achieved by allowing for provision for mineral working to be made for aggregates and non-aggregates.
- Policy M4 in relation to the SA objectives on transport (SA7) and economic growth (SA12), as the policy should help to reduce the volume of aggregates travelling on the local and strategic road network and safeguard the necessary infrastructure to ensure that Oxfordshire can sustainably support its predicted economic growth.
- Policy M6 in relation to the SA objective related contributing to minerals needs (SA11) as this policy should ensure minerals are safeguarded for future use.
- Policy M7 in relation to the SA objectives related to biodiversity/geodiversity (SA1), landscape and the historic environment (SA2), water quality (SA3), flooding (SA6), people and local communities (SA8), and land and soil quality (SA9). The requirement for prompt and phased restoration of mineral working sites for example could help to create new habitats, improve landscape character, have a positive effect on water quality, offer flood storage capacity, help to restore soil quality, provide new recreational facilities, all of which will have a positive effect on local communities.

- Policies W1 and W4 in relation to the SA objective related to enabling Oxfordshire to be self-sufficient in its waste management (SA11), as these policies directly support this objective by allowing for the necessary provision to achieve this aim.
- Policy W3 in relation to the SA objectives for ghg emissions (SA5) and waste hierarchy (SA10), due to the policy aim to reduce waste to landfill (resulting in less methane gas) and setting high targets for recycling and composting (moving the County up the waste hierarchy).
- Policy W5 in relation to the SA objectives related to enabling Oxfordshire to move up the waste hierarchy (SA10) and be self-sufficient in its waste management (SA11). This policy encourages the development of reuse, recycling, composting and other waste management facilities that will help to support these objectives.
- Policy W6 in relation to the objective on land and soil quality (SA9), as by encouraging the use of previously developed land and derelict land this can lead to the restoration of land especially, where land may have been previously contaminated.
- Policy W7 in relation to the objective related to enabling Oxfordshire to be self-sufficient in its waste management (SA11(as making local provision for inert landfilling and husbanding non-hazardous landfill will allow for self-sufficiency with respect to the disposal of waste via landfill.

A significant negative effect was identified for Policy M5 against SA3 'ground and surface water quality' as clay is usually located below sand and gravel and therefore could result in the modification of surface flows to watercourses and alteration of groundwater seepages, flushes or spring flows, particularly where there is the presence of underlying aquifers such as in the LWV and ECY areas.

The common policies were found to be broadly in line with the SA objectives, with significant positive effects being identified for C1, C2, C4, C5, C6, C8 and C9, generally for their related SA objectives.

The SA Report with full details of the assessment can be accessed via the Oxfordshire County Council website at:
http://www.oxfordshire.gov.uk/cms/content/minerals-and-waste-core-strategy

6 Assessment of the Consultation Draft Local Plan (Core Strategy)

6.1 Introduction

A Draft Local Plan (Core Strategy) has now been prepared taking into consideration all the iterations to the emerging options and the consultation comments received on the previously submitted Pre Submission Core Strategy and this has now been appraised.

The appraisal approach utilises the SA/SEA Framework Objectives that were developed for the revised Sustainability Appraisal Scoping Report 2013. This SA Framework has been updated as a result of consultation comments received on the Scoping Report.

The Sustainability Appraisal has been documented using a standard matrix to record the likely effects of policies upon each SA objective. Comments in the matrices include discussions of the timing, likelihood and permanence of effects. Where appropriate the assessment also identified cumulative/synergistic effects, cross-boundary effects and interrelationships between the SA objectives. All of the SA Objectives have been afforded the same value in this assessment, with no weighting of objectives being used.

The following table provides an explanation to the symbols used for the scoring criteria in the appraisal. The criteria and assessment matrices used for undertaking the assessment are consistent with those used for previous rounds of sustainability appraisal on the minerals and waste planning documents, undertaken by the consultants URS. Where the assessments have remained unchanged from the last round of assessment (SA Report, March 2012) the URS text has been retained, or in some case slightly modified.

Significance Assessment	Description
++	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 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

Based on the methodology described above, all Local Plan policies were assessed and the results presented as detailed assessment matrices in Appendix D.

6.2 Summary of the assessment

The sections that follow summarise the results of the assessments for each Local Plan element, followed by a summary of the assessment by SA objective (including any cumulative, synergistic and secondary effects). In addition, cross boundary effects are discussed in Section 6.4.

6.2.1 Minerals Planning Strategy

6.2.1.1 Vision and Objectives

A compatibility assessment (Table 6-1) has been undertaken of the proposed Minerals Planning Strategy Vision and Objectives with the Sustainability Appraisal Objectives. The following table provides an explanation of the symbols used in the compatibility assessment.

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

The vision for minerals planning in Oxfordshire in 2013 is as follows:

a) There will be a sufficient supply of aggregate materials available to meet the development needs of the county with a world class economy, and make an appropriate contribution to wider needs, provided from the following sources (in order of priority):
   - Secondary and recycled aggregate materials;
   - Locally produced sand and gravel, soft sand, limestone and ironstone; and
   - Import of materials such as hard crushed rock that are not available locally.

b) Mineral workings and supply facilities will be located and managed to minimise:
   - The distance that aggregates need to be transported by road from source to market;
   - The use of unsuitable roads, particularly through settlements; and
   - Other harmful impacts of mineral extraction, processing and transportation on Oxfordshire's communities and environment.

c) Restored mineral workings will enhance the quality of Oxfordshire's natural environment and the quality of life for Oxfordshire residents by:
   - Creating new habitats and protecting biodiversity;
   - Providing opportunity for access to the countryside and recreation activity; and
   - Helping to reduce the risk of flooding and adding to flood storage capacity.

The following objectives are proposed:

ii. Facilitate the efficient use of Oxfordshire's mineral resources by encouraging the maximum practical recovery of aggregate from secondary and recycled materials for use in place of primary aggregates.

iii. Make provision for a steady and adequate supply of sand and gravel, soft sand and crushed rock over the plan period to meet the planned economic growth and social needs of Oxfordshire.

iv. Make an appropriate contribution to meeting wider needs for aggregate minerals, having regard to the strategic importance of Oxfordshire's mineral resources, particularly sand and gravel.

v. Enable a continued local supply of limestone and ironstone for building and walling stone for the maintenance, repair and construction of locally distinctive buildings and structures, and of clay to meet local needs for engineering and restoration material.

vi. 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 has regard to existing and planned infrastructure.

vii. Minimise the flood risk associated with minerals development and contribute to climate change mitigation and adaptation, including through restoration schemes which provide additional flood storage capacity in the floodplain where possible.

viii. Minimise the transport impact of mineral development on local communities, the environment and climate change by minimising the distance minerals need to be transported by road and encouraging where possible the movement of aggregates by conveyor, pipeline, rail and on Oxfordshire's waterways.

ix. Protect Oxfordshire's communities and natural and historic environments (including important landscapes and ecological, geological and archaeological and other heritage assets) from the harmful impacts of mineral development (including traffic).

x. Ensure the high quality restoration and aftercare of mineral extraction sites at the earliest opportunity to ensure the establishment of long term and stable after uses that provide benefit to Oxfordshire's natural environment, local communities and local economy.

xi. Safeguard important known resources of sand and gravel, soft sand, crushed rock and Fuller's Earth to ensure that those resources are not needlessly sterilised and remain potentially available for future use and are considered in future development decisions.

xii. Safeguard important facilities for the production of secondary and recycled aggregate, railhead sites for the bulk movement of aggregate into Oxfordshire by rail and facilities for the manufacture of coated materials, concrete and concrete products.

Overall, the proposed vision and objectives were found to be compatible with the SA objectives. The Minerals Planning Vision was found to be compatible with all of the SA objectives. For example, restored minerals workings that will enhance the quality of Oxfordshire's natural environment and the quality of life for Oxfordshire's residents is compatible with SA objectives SA1 (biodiversity and geodiversity), SA2 (landscape and historic environment, and SA8 (people and local communities). Locating and managing minerals workings to minimise the distance that aggregates need to travel and other harmful impacts on the environment is compatible with SA objectives SA3 (water quality), SA4 (air quality), SA5 (greenhouse gas emissions), SA7 (transport), and SA9 (land and soil quality). Ensuring that there will be sufficient supply of aggregate materials is compatible with SA objectives SA11 (waste and minerals management) and SA12 (economic growth).

The minerals planning objectives seek to manage Oxfordshire's mineral planning needs in a way that protects the valued natural environment (Objectives vi, vii and viii),

contributes to economic growth (Objectives i, ii, iii, iv, and v), as well as ensuring communities are provided with adequate facilities to meet anticipated needs (Objectives x and xi). This has resulted in compatibilities with many of the SA objectives, although some uncertain relationships have been identified.

The relationship between Objectives ii and iii, which allow for the provision of aggregates, and the environmental and social SA objectives, is uncertain, as much of the effect will be dependent on the location of the workings and the mitigation measures put in place to reduce any adverse effects. The same also goes for Objective iv which provides for non-aggregate minerals, although for this plan objective more compatibilities have been identified, as the objective should for example allow for the provision of limestone and ironstone for maintaining and restoring locally distinctive buildings and structures, which is compatible with SA2 (landscape and historic environment).

Uncertain compatibility has been noted for Objectives vii and xi with SA objectives SA1 (biodiversity and geodiversity), SA2 (landscape and historic environment), SA3 (water quality), SA6 (flooding) and SA9 (land and soil quality) as any new transport infrastructure could adversely affect these objectives, although the effects will be dependent on location.

Table 6-1 Compatibility assessment between the SA objectives and the Minerals Planning vision and objectives

SA Objectives (abridged) / Minerals Planning Strategy vision and objectives	SA1 Biodiversity and geodiversity	SA2 Landscape and historic environment	SA3 Ground and surface water quality	SA4 Air quality	SA5 Greenhouse gas emissions	SA6 Flooding	SA7 Transport	SA8 People and local communities	SA9 Land and soil quality	SA10 Waste hierarchy	SA11 Waste and minerals management	SA12 Economic growth
Vision	+	+	+	+	+	+	+	+	+	+	+	+
Objective i	0	0	0	0	+	0	?	?	+	+	+	+
Objective ii	?	?	?	?	?	?	?	?	?	0	+	+
Objective iii	?	?	?	?	?	?	?	?	?	0	+	+
Objective iv	?	+	?	?	+	0	+	?	?	0	+	+
Objective v	0	0	0	0	0	0	+	0	0	0	+	+
Objective vi	+	+	+	0	0	+	+	+	+	0	?	+
Objective vii	?	?	?	+	+	?	+	+	?	0	?	?
Objective viii	+	+	+	+	+	+	+	+	+	0	0	+
Objective ix	+	+	+	+	+	+	0	+	+	0	0	+
Objective x	0	0	0	0	+	0	0	0	0	0	+	+
Objective xi	?	?	?	+	+	?	+	+	?	+	+	+

6.2.1.2 Policy M1: Recycled and Secondary Aggregate

Policy M1 seeks to maximise the contribution to aggregate supply from recycled and secondary aggregates. 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 effects will depend to some extent on the exact location of sites for secondary and recycled aggregates. 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 the planning application stage.

The adverse effects arising from the operation of temporary mobile units associated with individual developments are likely to be temporary and of a more local nature than from those 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.

The policy 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.

6.2.1.3 Policy M2: Provision for working aggregate minerals

The adverse effects which might arise from a particular volume of mineral working in the County are difficult to predict based on the figures within the LAA alone, as it is the spatial implications, i.e. the location and distribution of mineral working sites which will determine the effects. The proposed spatial distribution of this is appraised through Policy M3. There is also uncertainty as to whether sites in the landbank will be brought forward for extraction. Uncertain effects have therefore been identified. As a result uncertain effects have been identified for many of the SA objectives.

The policy makes provision to enable the supply of aggregate minerals from land-won sources within Oxfordshire to meet the requirement identified in the most recent Local Aggregate Assessment. Significant positive effects have therefore been identified for SA11.

Basing the provision on the requirements in the most recent LAA, as opposed to a fixed amount for the plan period, provides the flexibility for extraction to be increased if demand exists, thereby supporting economic growth objectives, whilst balancing provision for sharp sand and gravel between the resource areas in western Oxfordshire and southern Oxfordshire should help to ensure that construction materials are available locally to the county's main growth areas..

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.

6.2.1.4 Policy M3: Locations for working aggregate minerals

<u>Sharp sand and gravel</u>

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.

There is also potential for negative adverse effects on local communities near to any new minerals workings in the Thames Valley as a result of dust, noise, disruption, adverse visual effects and traffic congestion. The extent of these adverse effects will depend on the mitigation measures put in place, proximity of workings to sensitive receptors and

the duration of working – all of which will be addressed at the site specific level. Local effects should be addressed through the application of the common core policies in the Core Strategy at the planning permission stage.

Various issues have been identified with regards nature conservation sites, for example with some areas within Eynsham/Cassington/Yarnton and the Lower Windrush Valley (LWV) being close to important nature conservation designations (SSSIs, SAC) and in addition the Thames Valley Area of Search (parcel near Kennington) is adjacent to a SSSI. Potential adverse effects on nature conservation objectives and in particular designated European Sites will need to be addressed at the individual planning application stage and the common core Policy C7 aims to achieve this.

Consideration will also need to be given to landscape and the historic environment, as various constraints have also been identified with regards to AONBs (Thames Valley), Scheduled Ancient Monuments and other archaeology (in the LWV and Thames Valley).

Soft sand

Identifying areas of working in the south and north of the county will help minimise traffic effects 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 individual planning application stage and the common core 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 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 planning application stage.

6.2.1.5 Policy M4: Working on aggregate minerals

By allowing for minerals working as long as certain criteria are met this policy should help to provide for its local aggregates needs and support economic growth in the county. Balancing provision for sharp sand and gravel between the resource areas in

western Oxfordshire and southern Oxfordshire should help to ensure that construction material are available locally to the county's main growth areas.

The requirements of the common core policies should help to minimise any adverse effects on the environment and local communities. As a result positive effects have been identified with for objectives SA1 (biodiversity), SA2 (landscape and historic environment), SA3 (water quality), SA4 (air quality), SA5 (greenhouse gas emissions), SA6 (flooding), SA7 (transport), SA8 (people and local communities) and SA9 (land and soil quality).

Specific parts of the policy should which ensure the protection of certain habitats, such as requiring that working within the Eynsham / Cassington / Yarnton area of search will only be allowed if it has been demonstrated that there will be no change in water levels in the Oxford Meadows Special Area of Conservation and the proposal does not involve the working of land to the north or north east of the River Evenlode. Also, in relation to the Corallian Ridge area of search, working will only be allowed if it has been demonstrated that there will be no change in water levels in the Cothill Fen Special Area of Conservation. The policy also does not allow for minerals workings in AONBs.

6.2.1.6 Policy M5: Aggregate rail depots

Policy M5 seeks to safeguard the necessary infrastructure and enables new aggregate rail depots to be developed in suitable locations, reducing the long term cumulative adverse effects on the environment, local communities and local road network experienced by long distance transport of aggregates by road. Significant positive effects have therefore been identified for objective SA7.

Bulk transportation by rail is likely to have positive long term effects on 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.

6.2.1.7 Policy M6: 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 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 Policy M4. Policy M4 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. 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 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 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 the planning application stage. Consideration also needs to be given to archaeological interests in the LWV and Thames Valley.

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.

6.2.1.8 Policy M7: Safeguarding mineral resources

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. Safeguarding proven resources is likely to ensure non mineral development is not prevented unduly. This policy should also 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.

6.2.1.9 Policy M8: Restoration of mineral workings

The requirement for timely and phased restoration, to a high standard, to an after-use appropriate to the location and aiming to provide for a net gain in biodiversity should have a positive or significant positive long term effect 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 effects 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 Policy C7 requires that long-term management arrangements be put in place for restored sites. Although it is noted that the supporting text states that in larger workings restoration can commence before working has ended, it is recommended that the policy wording is strengthened at the next planning stage to encourage restoration to start as early as possible on all minerals sites.

To further enhance the contribution that restoration can make to improve the local environment, it is recommended that reference be made in policy to encourage restoration schemes to link in to the green infrastructure strategies that are in place at a local authority level.

6.2.2 Waste Planning Strategy

6.2.2.1 Vision and Objectives

A compatibility assessment (Table 6-2) has been undertaken of the proposed Waste Planning Strategy Vision and Objectives with the Sustainability Appraisal Objectives. See the table provides in section 6.2.1.1 for an explanation of the symbols used in the compatibility assessment.

The vision for waste planning in Oxfordshire in 2013 is as follows:

a) There will have been a transformation in the way that waste is managed in Oxfordshire, 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 following objectives are proposed:

i. Make provision for waste management capacity that allows Oxfordshire to be net self-sufficient in meeting its own needs for household waste, commercial and industrial waste and construction, demolition and excavation waste.

ii. Make an appropriate contribution towards provision needed for the management of hazardous and radioactive wastes produced in Oxfordshire and wider needs, recognising that the more specialist facilities required for these waste types often require provision at a sub-national or national level.

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

iv. Seek to 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; and
   - enable communities to take responsibility for their own waste.

v. Provide for a broad distribution of waste management facilities to meet local needs across Oxfordshire and make more specific provision for larger facilities

that are not practical below a certain size and that are needed to serve the whole or more substantial parts of the county or a wider area.

vi. Seek to ensure that waste management facilities where possible provide benefits to the communities they serve, including employment and the potential for recovery and local use of energy (heat and power) from waste, and are recognised as an integral part of community infrastructure.

vii. Make provision for waste that cannot be recycled or treated (residual waste) and that will need to be disposed of in landfill.

viii. Provide for an appropriate contribution to meeting the need for disposal of residual waste from other areas which do not have sufficient disposal capacity to be made through Oxfordshire's existing landfill sites.

ix. Seek to avoid the permanent loss of green field land when making provision for sites for waste management facilities.

x. Protect Oxfordshire's communities and natural and historic environments (including important landscapes and ecological, geological and archaeological and other heritage assets) from the harmful impacts of waste management development (including traffic).

xi. Secure the satisfactory restoration of temporary waste management sites, including landfills, where the facility is no longer required or acceptable in that location.

Overall, the proposed vision and objectives were found to be either compatible or having an uncertain relationship with the SA objectives. One incompatibility was found between objective vii making provision for landfill and SA 10 (waste hierarchy), although it is noted that it is not possible to recycle and treat all waste and other objectives seek to limit waste to landfill.

The Waste Planning Vision was found to be compatible with objectives SA4 (air quality), and SA5 (greenhouse gas emissions) due the distribution of waste management facilities close to sources of waste arisings. The vision is also compatible with objectives SA10 (waste hierarchy), SA11 (waste and minerals management) and SA12 (economic growth). Uncertain relationships have been identified with the other environmental objectives as the need for waste management facilities could have an effect on these objectives depending on the location of the facilities. Similar uncertain relationships have also been identified with Objectives i, ii, iii, v, vi and vii which support the provision of waste management facilities.

The relationship between Objectives ix and x and the SA objectives have been identified as compatible or neutral. Avoiding loss of greenfield land and protecting Oxfordshire's communities and natural/historic environments is compatible with the environmental and social objectives.

Table 6-2: Compatibility assessment between the SA objectives and the Waste Planning vision and objectives

SA Objectives (abridged) / Waste Planning Strategy vision and objectives	SA1 Biodiversity and geodiversity	SA2 Landscape and historic environment	SA3 Ground and surface water quality	SA4 Air quality	SA5 Greenhouse gas emissions	SA6 Flooding	SA7 Transport	SA8 People and local communities	SA9 Land and soil quality	SA10 Waste hierarchy	SA11 Waste and minerals management	SA12 Economic growth
Vision	?	?	?	+	+	?	?	?	?	+	+	+
Objective i	?	?	?	?	+	?	+	?	?	+	+	+
Objective ii	?	?	?	?	?	?	?	?	?	0	+	0
Objective iii	?	+	+	?	+	?	?	?	?	+	+	+
Objective iv	+	+	+	+	+	+	+	+	+	0	+	+
Objective v	?	?	?	?	+	?	?	?	?	0	+	+
Objective vi	0	0	0	0	+	0	0	+	0	0	0	+
Objective vii	?	?	0	?	?	?	?	?	?	-	+	+
Objective viii	?	?	?	?	?	?	?	?	?	0	0	+
Objective ix	+	+	+	+	0	+	0	+	+	0	0	0
Objective x	+	+	+	+	+	+	+	+	+	0	0	+
Objective xi	0	0	0	0	0	0	0	+	+	0	0	0

6.2.2.2 Policy W1: Management of Oxfordshire waste

When assessed against the SA objectives, Policy W1 supports the SA objectives relating to reducing carbon emissions and minimising the transport effects of transporting waste as making local provision for waste management facilities should reduce the distances travelled. 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 and therefore significant positive effects have been identified. 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 environmental 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 to minimise and adverse effects.

6.2.2.3 *Policy W2: Management of waste from other areas*

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.

Ensuring that any facilities providing for the re-use, recycling, composting, or food waste treatment of waste from outside Oxfordshire should demonstrate that they will make a reasonable contribution to the capacity required to manage Oxfordshire's waste should have a positive effect moving up the waste 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 therefore assisting Oxfordshire to be self-sufficient (objective SA11).

6.2.2.4 *Policy W3: Diversion of waste from landfill*

Policy W3 sets waste management targets to provide for maximum diversion of waste from landfill. This policy supports SA5 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. It also requires that all proposals for the management of all types of waste should demonstrate that the waste cannot reasonably be managed through a process that is higher up the waste hierarchy than that proposed. There are likely to be positive effects upon SA12 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.

6.2.2.5 *Policy W4: Waste management capacity requirements*

Policy W4 seeks to make provision for additional waste management capacity.

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 issue is addressed by Policies W5, W6 and the common core policies and the effects are more likely in the medium to long term when further capacity may be required.

Positive effects are likely on SA10 relating to moving waste up the waste hierarchy (by encouraging new facilities for re-use, recycling and composting of waste and for treatment of food waste) and the SA objective on enabling Oxfordshire to be self-sufficient in managing its waste as it seeks to deliver Oxfordshire's waste needs (SA11). The proposed capacity is also assessed as having an indirect positive effect on the local

economy through the provision of new waste management facilities which are likely to create new job opportunities.

6.2.2.6 Policy W5: Locations for waste management facilities

Policy W5 outlines the provision of different types of waste management facilities in Oxfordshire and their broad locations. It is recognised that there will be differing effects according to the exact location and type of facilities. It is noted that the policy refers to the criteria in Policy W6 and Policies C1 – C11 which are expected to help mitigate adverse environmental effects.

6.2.2.7 Policy W6: Siting of waste management facilities

Policy W6 provides guidance on the siting of 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, active minerals workings, and at waste water treatment works.

This policy also may allow facilities in the Green Belt to serve the needs of Oxford.

This policy has the potential for indirect positive effects on protection of nature conservation by prioritising the use of land that is already in waste management or industrial use, is previously developed, derelict, or underused, is at an active mineral site, involves existing agricultural buildings or is at a 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 help mitigate adverse effects.

Use of derelict buildings and development of previously developed sites can also help improve the local landscape. 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 help mitigate adverse effects. The supporting text notes that small scale waste management facilities, for local needs, should not be precluded from within AONBs, where the development would not compromise the objectives of the designation. It also notes that proposals for waste development within or in close proximity to AONBs will need to be considered against Policy C8, this should help to mitigate any adverse effects on landscape.

Allowing facilities in the Green Belt to serve Oxford could help to reduce the distances waste is transported from these localities therefore reducing effects 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 significant positive effects have been identified for SA9.

6.2.2.8 Policy W7: Landfill

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 on areas affected by existing landfill sites 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 quality (SA objective 2), however the potential for existing non-hazardous landfill sites to extend in life may have negative effects on the restoration of sites in the short to medium term. Policy W7 also supports county self-sufficiency in terms of waste (SA objective 11).

The potential transport and climate mitigation effects of the proposed approach are difficult to assess without knowing the location of sites required to be inert landfilled, although restricting new non-hazardous landfill sites in accordance with Oxfordshire's need is likely to be positive in relation to greenhouse gas emissions, as no additional methane should be emitted. This should be addressed during the planning stage to ensure that sites are located close to sources of arisings. The common core policies should help to address any potential adverse effects on the built and natural environment.

6.2.2.9 Policy W8: Hazardous 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. However, due to the specialist nature of these types of waste management facilities, they currently tend to serve larger 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.

6.2.2.10 Policy W9: Management of 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, with smaller quantities being produced 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 the effect on greenhouse gas emissions is likely to be neutral due to the distance travelled (approximately 7 miles) and the quantities of waste to be 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 effects;
- 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 effects associated with management of intermediate hazardous 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 proposes temporary storage of this type of waste at both Harwell and Culham and potential disposal at these sites or elsewhere. The policy performs well against SA objective SA7 as material will be stored where it is generated and not transported.

The following key issues 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 effects;
- 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 effects associated with management of low level legacy waste.

Key issues that should be considered at Culham include:

- Potential effects on local site biodiversity (there are no designated sites close to or within the site);
- Potential effects on the AONB and greenbelt designations;
- Potential effects 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.

6.2.2.11 Policy W10: Waste water and sewage sludge

New facilities could have an adverse effect on the SA objectives on biodiversity (SA 1) and landscape (SA 2) however the effects will be dependent on the location of the facilities. The common core policies however should help to mitigate any adverse effects.

Providing new facilities for waste water and sewage sludge could help to maintain and improve ground and surface water quality and soil quality by reducing the likelihood of sewers flooding during extreme weather events and contaminating water sources. This could also have positive effects on communities by reducing risks to health and wellbeing that may result.

New additional capacity for waste water could reduce the risk of flooding, particularly sewer flooding thereby having a positive effect on SA6.

A lack of waste water treatment capacity can act as a block or brake to development. Allowing additional capacity to enable planned development to be taken forward should support economic growth by allowing new developments to go ahead. Positive effects have therefore been identified for SA12.

6.2.2.12 Policy W11: Safeguarding waste management sites

Policy W11 relates to the safeguarding of waste management sites against other forms of development. This policy does not affect 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 SA11 on enabling Oxfordshire to be self-sufficient in its waste management. This is because the policy 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. The policy would also have potential for indirect positive effects on objectives SA5 and SA7 on reducing greenhouse gas emissions and transport related effects.

6.2.3 Common Core Policies for Minerals and Waste

6.2.3.1 Policy C1: Sustainable Development

Taking a more positive approach has the potential to lead to approvals for minerals and waste development that may have been rejected on the grounds of sustainability constraints, with associated adverse effects (albeit non-significant effects) on a number of environmental objectives, including those on biodiversity, landscape , water quality, air quality, flooding and soils. Uncertain effects have therefore been identified for these objectives. Taking a more proactive approach could also result in adverse effects on local communities, and similarly uncertain effects have been identified for this objective.

Positive effects have been identified in relation to the objectives SA11 and SA12 as the policy could allow for the development of waste management facilities and minerals workings that should result in a positive effect on the local economy, and enable Oxfordshire to be self-sufficient in terms of its waste management and contributing to minerals LAA provisions.

6.2.3.2 Policy C2: Climate Change

Significant positive effects have been identified with regards to SA5 as a result of the requirement to adopt a low carbon approach and consider measures to minimise greenhouse gas emissions. It could be that by requiring developments to take a low carbon approach and consider measures to minimise greenhouse gas emissions, the miles driven to transport aggregates and waste products on the road network will be reduced, thereby having a positive effect on SA4 (air quality), SA7 (transportation), SA8 (people and local communities) and SA9 (land and soil quality), however the effects are considered to be uncertain.

By ensuring that minerals and waste developments take account of climate change over the life of development, including in restoration proposals, this could have a positive effect on biodiversity and landscape. For example, by providing habitats that will allow species to adapt to climate change, or by ensuring that any habitats created as part of restoration proposals can cope with or adapt to the changing climate – i.e. to ensure the success of the restoration proposal in the long-term.

This policy addresses SA6 by requiring proposals for minerals or waste development, including restoration proposals, to take into account of climate change for the lifetime of the development and to provide flexibility for future adaptation to the impacts of climate change. It is assumed that this in part refers to the need to mitigate flooding.

Positive effects have been identified for objectives SA11 and SA12 as ensuring that minerals and waste developments take account of climate change over the life of development should help to ensure that they can continue to contribute towards enabling Oxfordshire to be self-sufficient in its waste management and towards Oxfordshire's locally agreed figure and can continue to contribute to Oxfordshire's economic growth.

6.2.3.3 Policy C3: Flooding

Policy C3 should have a significant positive effects on SA6 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.

6.2.3.4 Policy C4: Water environment

Policy C4 has an indirect positive effect 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. Significant positive effects have been identified for objectives SA3 (water) and SA8 (community).

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.

6.2.3.5 *Policy C5: Environmental and amenity protection*

Policy C5 seeks to protect the environment, residential amenity and other sensitive receptors from unacceptable adverse effects. 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. The policy specifically mentions noise, dust, visual intrusion, light pollution, traffic, air quality, odour, vermin, birds, litter, vibration, tip and quarry-slope stability, differential settlement of quarry backfill and subsidence, as well as any cumulative effect from development. Significant positive effects have been identified with regards to SA8 (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.

6.2.3.6 *Policy C6: Agricultural land and soils*

Policy C6 is likely to have a significant positive effect upon SA objective 9 and an indirect positive effect on the objectives SA1, SA2 and SA8, which relate to 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.

6.2.3.7 *Policy C7: Biodiversity and Geodiversity*

Policy C7 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. The requirement for long term management arrangements to be clearly set out should help to maintain the positive effects in the longer term. Effects on the other SA objectives are expected to be neutral.

6.2.3.8 *Policy C8: Landscape*

Policy C8 is likely to have a significant positive effect on SA objective 2 'landscape' and an indirect positive effect on objective SA1 relating to the protection of biodiversity and natural habitats. Positive effects have also been identified with regards to objective SA8 'local communities'. Effects on other SA objectives are expected to be neutral.

6.2.3.9 *Policy C9: Historic environment and archaeology*

Policy C9 has a positive effect on SA objective 2 as it should protect the County's heritage assets. It also has indirect positive effects on local communities (SA objective 8). There is no direct relationship between this policy and the other SA objectives and effects on other SA objectives are expected to be neutral.

6.2.3.10 *Policy C10: Transport*

Policy C10 is expected to have a significant positive effect on objectives SA4, SA5, SA7 and SA8 which relate to air quality, greenhouse gas emissions, the local and strategic

road network and local communities respectively. Indirect positive effects have been identified for objectives SA3 (water quality) and SA9 (land and soil quality) by addressing the adverse effects on soils which can arise from the transportation of minerals causing pollution through runoff. It is also expected to have indirect positive effects on self-sufficiency in waste management and sustainable minerals provision (SA11) and economic growth (SA12).

Uncertain effects have been identified with regards to objectives SA1 (biodiversity) and SA2 (landscape and historic environment) as the installation of alternative infrastructure could have adverse effects although they will be dependent on the location. There is no direct relationship between this policy and the other SA objectives and effects on other SA objectives are therefore expected to be neutral.

6.2.3.11 Policy C11: Rights of way

Enhancements to the public rights of way network should have a significant positive effect on local communities (SA8) and indirect positive effects on the local road network by encouraging people to make local trips on foot or bicycle, reducing traffic conflicts on local roads (SA7).

The supporting text notes that public access to restored mineral workings should be carefully managed so as to not adversely affect sensitive habitats and species resident in the restored area (particularly in Conservation Target Areas) and therefore effects on SA1 are considered to be neutral.

6.3 Cumulative effects

Cumulative effects are those effects which, though they may be small in relation to one policy, may combine across a whole plan (or in association with other plans) to produce an overall effect which is more significant. Also considered in this section are synergistic effects, which are those effects where the combined effect is greater than the sum of the individual effects, and secondary (or indirect) effects which are those that are not a direct result of the plan, but occur away from the original effect or as a result of a complex pathway.

In relation to the implementation of the Core Strategy policies, cumulative effects have been examined by SA Objectives (or groups of SA Objectives) as a way of identifying the effects on the receptors that are associated with each of the sustainability topics.

6.3.1 SA1: Biodiversity

Whilst the operation of minerals and waste facilities has the potential to result in some adverse cumulative effects on local biodiversity in the short-medium term, the measures in the common core policies along with the restrictions placed by Policy M4 and the restoration requirements of Policy M8 provide the potential for cumulative positive effects in the long-term. There is potential for positive synergistic effects on biodiversity and water management if restoration schemes in close proximity to one another are implemented.

6.3.2 SA2: Landscape and historic environment

Whilst the operation of minerals and waste facilities has the potential to result in some adverse cumulative effects on local landscapes in the short-medium term, the measures

in the common core policies along with the requirements of Policies W6 (Siting of waste facilities) and Policy M4 (Working of aggregate minerals) should help to avoid and mitigate these effects. The aim of the waste strategy to minimise waste arisings along with reducing the amount of waste sent to landfill will contribute towards the protection of local landscapes.

6.3.3 SA3: Water quality

Minerals extraction has the potential to cause adverse effects on surface and ground water resources. Core Policies C3 and C4 will however help to reduce the potential for adverse water quality effects. In the long-term the restoration of mineral sites could have positive implications for local water quality.

6.3.4 SA4: Air quality

The transportation of minerals and waste by road will inevitably lead to emissions of pollutants from HGVs. However, the distribution of extraction sites and waste facilities across the county will help to avoid any one particular area being overly-exposed to such emissions. There will also be air quality issues associated with the minerals and waste operations (non-transport emissions related) such as dust created by extraction and vehicle traffic. Core Policies C5 and C10 will help to reduce the potential for adverse air quality effects.

6.3.5 SA5: Greenhouse gas emissions

Minerals extraction and waste management operations inevitably lead to greenhouse gas emissions (ghg) emissions. The strategic and core policies in the plan should help to limit increases in emissions by distributing aggregate extraction across the county so it can serve local markets; providing a similar approach for waste facilities by locating facilities close to waste arisings; encouraging the use of rail for minerals transportation; reducing the amount of waste going to landfill; and adopting a low carbon approach for new development.

6.3.6 SA6: Flood risk

Minerals extraction operations have the potential to increase local flood risk. This risk should be avoided through the requirements of Core Policy C3. In addition Policy M8 considers the issue of increasing flood storage capacity within restoration schemes. The overall effect on flood risk of implementing the Core Strategy could therefore be positive.

6.3.7 SA7: Transport

The transport of minerals and waste by road will inevitably result in adverse effects on local air quality, local communities, and on a global scale increased ghg emissions. The Core Strategy aims to reduce these effects through distribution of extraction sites and waste facilities across the county in order to reduce 'distance travelled'; encouraging a shift from rail and other non-road transport for minerals; and requiring lorry routes to be used. Core Policy C10 is specifically aimed at reducing the harmful impacts of transport on the communities in the county and neighbouring areas.

6.3.8 SA8: Local communities

Communities in close proximity to minerals and waste operations, as well as those living on transportation routes are likely to be adversely affected by operations, such as through dust, odour and noise. The distribution of mineral sites and waste facilities across the county should help to prevent any one particular community or group of communities from being disproportionately over-exposed to these adverse effects. The common core policies seek to mitigate any adverse effects, whilst in the medium-long term Policy M8 could provide amenity benefits and countryside access as part of restoration schemes. The reduction of the amount of waste being sent to landfill will also result in benefits to local amenity.

6.3.9 SA9: Soil and land-use

The Core Strategy aims to limit the amount of greenfield land required for new minerals and waste operations by encouraging the use of secondary and recycled aggregate, thereby reducing the need for primary extraction on greenfield sites, and the siting of new waste facilities on previously developed land. Common Policy C6 provides specific requirements to reduce adverse effects on soils.

6.3.10 SA10: Waste hierarchy and SA11: Self-sufficiency

Key objectives of the Core Strategy are for Oxfordshire to move its waste up the hierarchy and for the county to be as self-sufficient as is possible for waste management and minerals supply. The strategic policies in Core Strategy will help to achieve those objectives.

6.3.11 SA12: Economic growth

The policies within the Core Strategy combine to provide the potential to contribute positively towards Oxfordshire's economic growth. The supply of minerals is a key factor in supporting economic growth, particularly in relation to the provision of new housing and employment developments that are being planned across the county.

6.4 Cross boundary effects

Where mineral extraction activities in Oxfordshire are based close to the borders of other local authorities (counties and boroughs), for example the sand and gravel sites in Caversham close to Reading Borough, there are likely to be effects felt in these neighbouring areas. In cases of very close proximity, it is possible that all the direct effects forecast for the plan area (air quality, noise, water quality etc.) could also be experienced in the neighbouring authority. Where there is a greater distance involved, effects could still be encountered, for example increased traffic associated with minerals haulage, and changes in hydrology.

6.5 Inter-relationships

The SEA topics cannot be considered in isolation from one another, as there are a variety of inter-relationships that exist. Air quality is a topic which cuts across most of the other SEA topics, with proven links between air quality and human health (respiratory problems). It can also have indirect effects on biodiversity, soil and water quality, and

the condition of heritage assets, whilst there is a more direct link between traffic emission causing poor air quality and the emissions of CO_2.

Minerals and waste operations may show inter-related effects on criteria such as biodiversity, air quality, greenhouse gas emissions, landscape and townscape depending on where they are located, how the development takes shape/is designed, the processes involved and how it is accessed.

Positive effects can also occur from inter-relationships, for example, protecting landscape quality and/or soil, may lead to habitats and species being indirectly protected.

6.6 Difficulties encountered in undertaking the assessment

Although a range of local and regional information and studies were available to inform the assessment process, due to the nature of some of the policies some effects were recorded as uncertain.

The main uncertainty relates to the nature of impacts likely to arise at as a result of minerals working within the various 'locations' identified. The strategic nature of the appraisal and the broad nature of the locations 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 currently available information. The eventual impacts will depend for example 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.

Site specific environmental effects of the Local Plan should be considered at the planning application stage.

7 Recommendations

7.1 Background

A key role of the SA/SEA is to provide recommendations as to how the sustainability performance of a plan can be improved. The Local Plan (Core Strategy) includes a range of policies that seek to prevent and where possible enhance the environment and overall sustainability of development. The SA/SEA has built on this by identifying a range of recommendations as to how the Local Plan (Core Strategy) can maximise its performance against the range of sustainability topics. Some of these recommendations seek to mitigate potential adverse effects, whilst others look to build on some of the opportunities that are provided by the County's natural environment.

7.2 Recommendations

The following tables provide details of recommendations to improve the Plan that have been identified through the SA process.

Table 7-1 outlines recommendations made on an initial version of the Consultation Draft Local Plan in December 2013 and the actions taken in response. Policy amendments are shown in underlined text. Table 7-2 outlines the recommendations made during the assessment of the Consultation Draft Local Plan in January 2014. These recommendations will be taken into account by the Council during the next stages of the planning process. It should be noted that some of these recommendations were made by the previous SA consultants during the assessment of the Pre Submission Local Plan.

Table 7-1: Recommendations made on the initial consultation draft (December 2013)

Policy	Recommendation	Action taken by OCC
M8: Restoration of mineral workings	Add a bullet on bird-strike	**Revised policy:** Minerals workings shall be restored to a high standard and in a timely and phased manner to an after-use that is appropriate to the location and aims to provide for a net gain in biodiversity, taking into account: • the characteristics of the site prior to mineral working; • the character of the surrounding landscape; • the amenity of local communities including opportunities to provide for local amenity uses; • the capacity of the local transport network; • flood risk and opportunities for increased flood storage capacity; • bird strike risk and aviation safety; • the conservation and enhancement of biodiversity appropriate to the local area; and • opportunities to protect and/or improve geodiversity. 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 where necessary the means of securing them in the longer term.

C5: General environmental and amenity protection	Expand so it is clear to what effects the policy is referring. For example noise, dust, odour, lighting, vibration etc.	**Revised policy:** Proposals for minerals and waste development shall demonstrate that they will not have an unacceptable adverse impact on the environment, residential amenity and other sensitive receptors, <u>including from noise, dust, visual intrusion, light pollution, traffic, air quality, odour, vermin, birds, litter, vibration, tip and quarry-slope stability, differential settlement of quarry backfill, subsidence and the cumulative impact of development.</u>

C7: Biodiversity and Geodiversity	Add reference to internationally protected sites.	**Revised policy:**
		Minerals and waste development should conserve and, where possible, enhance biodiversity.
		<u>Sites and species of international nature conservation importance (e.g. Special Areas of Conservation and European Protected Species) will be given the highest level of protection.</u>
		Development shall ensure that:
		• there is no adverse effect on a Site of Special Scientific Interest, either individually or in combination with other development;
		• irreplaceable habitats, including ancient woodland and aged or veteran tress are not lost or harmed;
		• no damage is caused to sites locally designated for the purposes of nature conservation and/or geological interest, including;
		  ○ Local Nature Reserves;
		  ○ Local Wildlife Sites;
		  ○ Local Geology Sites;
		  ○ Sites of Local Importance for Nature Conservation.
		Development shall avoid harm to protected, priority or notable species and habitats.
		All proposals for mineral working and landfill shall demonstrate how the development will make an appropriate contribution to the maintenance and enhancement of local habitats, biodiversity or geodiversity (including fossil remains and trace fossils), contributing to the objectives of the Conservation Target Areas wherever possible. Satisfactory long-term management arrangements for restored sites shall be clearly set out and included in proposals. These include a commitment to ecological monitoring and remediation (should habitat creation and/or mitigation prove unsuccessful).

Table 7-2: Recommendations made in the assessment of the Consultation Draft Local Plan (January 2014)

Policy	SA Objective	Recommendations
M3: Locations for working aggregate minerals	(7) To minimise the impact of transportation of aggregates and waste products on the local and strategic road network.	Further assessment on access and suitability of roads to accommodate increased HGV traffic is recommended at the site selection stage.
M6: Non-aggregate mineral working	(3) To maintain and improve ground and surface water quality.	This policy should follow a similar approach to Policy M4 by including wording relating to the prevention of adverse effects on the Oxford Meadows

		SAC and the Cothill Fen SAC from the extraction of non-aggregate minerals.
M8: Restoration of mineral workings	General recommendation	Although it is noted that the supporting text states that in larger workings restoration can commence before working has ended, it is recommended that the policy wording is strengthened at the next planning stage to encourage restoration to start as early as possible on all minerals sites. To further enhance the contribution that restoration can make to improve the local environment, it is recommended that reference be made in policy to encourage restoration schemes to link in to the green infrastructure strategies that are in place at a local authority level.
C4: Water environment	(1) To protect, maintain, and enhance Oxfordshire's biodiversity and geodiversity including natural habitats, flora and fauna and protected species.	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.
	(3) To maintain and improve ground and surface water quality.	
	(8) To minimise negative impacts of waste management facilities and mineral extraction on people and local communities.	
C5: Environmental and amenity protection	(2) Protect and enhance landscape character, local distinctiveness, conserve and enhance the historic environment, heritage assets and their settings.	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.
	(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.	
	(8) To minimise 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.	

7.3 SA/SEA influence on the development of the Local Plan (Core Strategy)

To date the SA/SEA had had a range of influences on the development of the Local Plan (Core Strategy). Close liaison between the planning officers and SA/SEA consultants has meant that the SA/SEA has provided input at many stages during the development of the Local Plan (Core Strategy).

When the Local Plan (Core Strategy) is adopted it will be accompanied by an SEA Adoption Statement which will need to describe how the Core Strategy has been influenced by the SA/SEA. Influences to date include the following:

- Production of the SA/SEA Scoping Report (and its various revised versions) identified issues that the Core Strategy will need to help address. The information within the Scoping Report will also contribute to the Local Plan evidence base;
- Assessment of the Spatial Strategy Options for Minerals and Waste and providing recommendations for additions and changes;
- Assessment of the Aggregates Apportionment Options and providing recommendations for additions and changes;
- Assessment of the Minerals and Waste Preferred Strategies and providing recommendations for additions and changes;
- Assessment of the Pre Submission Local Plan and providing recommendations for additions and changes; and
- Assessment of the Consultation Draft Local Plan (Core Strategy) and providing recommendations for additions and changes.

8 Monitoring

8.1 Introduction

The SEA Directive requires that the significant environmental effects of implementing a plan are monitored so that appropriate remedial actions can be taken if required.

The monitoring put in place needs to fulfil the following requirements:

- To monitor the significant effects of the plan;
- To monitor any unforeseen effects of the plan;
- To ensure that action can be taken to reduce / offset the significant effects of the plan; and
- To provide baseline data for the next SEA and to provide a picture of how the environment / sustainability criteria of the area are evolving.

The monitoring measures recommended in this report should be considered draft as this is based on assessment of the Consultation Draft Local Plan (Core Strategy), which may be altered after the public consultation or the baseline position may change at the time of adoption of this framework. Additionally the framework should be flexible to adapt to any changes in monitoring methods.

8.2 Approach to monitoring

The SEA Directive (Article 10 (1)) allows for existing monitoring arrangements to be used if appropriate. Monitoring may cover several plans or programmes as long as sufficient information about environmental effects is provided for the individual plans or programmes.

Monitoring measures need not always relate to quantitative indicators, but could include, for example, monitoring to ensure that any Environmental Impact Assessments of major projects incorporate the recommendations made in the SEA.

A range of potential monitoring indicators are described below in Table 8-1 based on the indicators identified in the SA Framework. Indicators identified for monitoring the Local Plan (Core Strategy) will also be considered for inclusion in the monitoring framework where appropriate.

The monitoring measures are likely to require alteration as the Local Plan develops. Any such alterations will be documented in the SEA Statement which will be prepared to accompany the adoption of the Local Plan (Core Strategy).

8.3 Monitoring requirements

The monitoring requirements typically associated with the SA/SEA process are recognised as placing heavy demands on authorities with SA/SEA responsibilities. For this reason, it is proposed that the monitoring framework will focus on those aspects of the environment that are likely to be significantly impacted upon, or where the impact is uncertain.

The assessment identified no significant adverse effects. Significant positive effects were identified against the following objectives which will need to be monitored:

- 'Biodiversity and geodiversity' in relation to M8: Restoration of minerals workings, C7: Biodiversity and geodiversity.
- 'Landscape and the historic environment' in relation to M8: Restoration of minerals workings, C7: Biodiversity and geodiversity, C8: Landscape.
- 'Ground and surface water quality' in relation to M8: Restoration of minerals workings, C4: Water environment.
- 'Air quality' in relation to C10: Transport.
- 'Greenhouse gas emissions' in relation to W3: Diversion of waste from landfill, C2: Climate change, C10: Transport.
- 'Flooding' in relation to M6: Non-aggregate mineral working, C3: Flooding.
- 'Transport' in relation to M5: Aggregate rail depots, C10: Transport.
- 'People and local communities' in relation to M8: Restoration of minerals workings, C4: Water environment, C5: Environmental and amenity protection, C10: Transport, C11: Rights of way.
- 'Land and soil quality' in relation to M1: Recycled and secondary aggregate, W6: Siting of waste management facilities, C6: Agricultural land and soils.
- 'Waste hierarchy' in relation to M1: Recycled and secondary aggregate, M3: Locations for working aggregate minerals, W3: Diversion of waste from landfill.
- 'Waste and minerals management' in relation to M2: Provision for working aggregate minerals, M7: Safeguarding minerals resources, W1: Management of Oxfordshire waste, W4: Waste management capacity requirements, W7: Landfill.
- 'Economic growth' in relation to M5: Aggregate rail depots.

Potential monitoring indicators for each of the SA objectives based on those included in the SA Framework in the Scoping Report and the Minerals and Waste Annual Monitoring Report 2013 are provided in Table 8-1.

Table 8-1: Potential monitoring indicators

SA Objective		Potential Indicators
1	To protect, maintain, and enhance Oxfordshire's biodiversity and geological diversity including natural habitats, flora and fauna and protected species	Number/percentage of permitted applications for minerals and waste development which include a restoration scheme which contributes to the objectives of Oxfordshire Habitats Plans for the creation of calcareous grasslands, lowland acid grassland and reedbeds. Number/percentage of planning applications which have an impact on designated sites or BAP habitats. Number/percentage of permitted applications which result in restoration of favourable recovering condition or buffering of designated areas through appropriate habitat creation. Number/percentage of permitted applications for minerals and waste development which include a restoration scheme which contributes to the objectives of Oxfordshire Species Plans. Contribution of the Local Plan policies to Conservation Target Areas for restoration of minerals and waste management sites. Number/percentage of permitted applications which include conditions for the protection or enhancement of RIGS or

		geological SSSIs.
2	Protect and enhance landscape character, local distinctiveness, conserve and enhance the historic environment, heritage assets and their settings	Number/percentage of permitted applications for Minerals and Waste development which include conditions for the protection or restoration of statutory or non-statutory landscape designations. Number/percentage of planning applications where archaeological investigations were required prior to approval. Number/percentage of applications where archaeological mitigation strategies were developed and implemented. Number/percentage of permitted applications for Minerals and Waste development which include conditions for the protection or enhancement of the historic and prehistoric environment in Oxfordshire.
3	To maintain and improve ground and surface water quality	Number of permitted applications affecting source protection zones 2 and 3. Number of permitted applications which assess the risk of contamination of groundwater. Number of sites within 50m of a watercourse. Number of permitted applications requiring abstraction licences.
4	To improve and maintain air quality to levels which do not damage natural systems	Number of permitted applications with routeing agreements which avoid AQMAs. Survey of trip generation to civic amenity sites. Number of complaints relating to dust/odours.
5	To reduce greenhouse gas emissions to reduce the cause of climate change	Proportion of waste and aggregates transported by rail or water. Quantity of biodegradable wastes landfilled.
6	To reduce the risk of flooding	Number of permitted sites for minerals and waste development within the flood plain (flood zone 3a). Number of sites that are permitted within flood risk zone as identified by the NPPF and Technical Guidance to NPPF. Number of proposals approved against the recommendation of EA advice. Number of mineral restoration schemes identified for flood attenuation.
7	To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	Distances travelled by road from new applications to settlements (waste) or markets. Number of sites with rail/water access. Number of sites with suitable access to appropriate roads. Average distances travelled to waste recycling sites.
8	To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	Number of permitted applications for mineral or waste development within 250m of sensitive receptors (settlements). Number of sites for mineral or waste development within 250m of sensitive receptors (settlements). Number of noise complaints relating to minerals and waste processing and transportation. Number of permitted applications with restoration conditions which enhance local amenity and /or improve access to the countryside.
9	To protect, improve and where necessary restore land and soil quality	Area of high grade agricultural land lost to minerals and waste development. Incidences of land contamination related to minerals and waste development.

10	To contribute towards moving up the waste hierarchy in Oxfordshire	Permissions granted for secondary and recycled aggregates supply. Capacity of secondary and recycled aggregates supply facilities. Actual or estimated annual percentages of municipal, commercial & industrial and construction, demolition & excavation wastes composted, recycled, treated and landfilled. Existing and permitted was management capacity for composting, recycling and residual treatment of municipal, commercial & industrial and construction, demolition & excavation wastes relative to actual or estimated amounts of wastes to be managed.
11	To enable Oxfordshire to be self-sufficient in its waste management and to provide for its local need for aggregates as set out in the LAA	Number of permitted applications for waste management to meet targets to achieve net waste self-sufficiency. Number of permitted applications which contribute to meeting LAA provision.
12	To support Oxfordshire's economic growth and reduce disparities across the county	Number of direct jobs created in the waste/mineral sector per year. Number of new mineral and waste permissions. Number of minerals sites with rail access. Number of applications for new rail aggregate depots. Number of permitted aggregates rail depots in Oxfordshire.

A draft monitoring framework will be proposed in the Sustainability Report to accompany the Publication Core Strategy. The final monitoring plan will be published in the SA/SEA Statement, alongside the adopted Local Plan (Core Strategy). The SA monitoring will be published as part of the Annual Minerals and Waste Monitoring Report which will be the responsibility of Oxfordshire County Council.

9 Next steps

9.1 Consultation on the SA Report

The SEA Regulations set specific requirements for consultation with the Statutory Environmental Bodies, the public and other interested parties (these could include NGO's, and community groups for example). This SA Report will be published for consultation alongside the Consultation Draft Local Plan (Core Strategy) and will be made available to all interested parties so that they can provide a response to the contents of the Consultation Draft Local Plan (Core Strategy) and the accompanying SA Report.

Copies of the SA documents can be found on the Council's website: https://www.oxfordshire.gov.uk/cms/public-site/minerals-and-waste-policy.

Comments on the SA report should be sent in writing to:

By email: mineralsandwasteplanconsultation@oxfordshire.gov.uk

By post: Minerals and Waste Draft Plan Consultation
Environment & Economy – Planning Regulation
Oxfordshire County Council
Speedwell House
Speedwell Street
Oxford
OX1 1NE

The closing date for responses is **Monday 7th April 2014**.

All comments received will be publicly available. When the consultation period has finished, the comments received will be considered during the next stage of the SA/SEA process.

9.2 Pre Submission, Submission and Examination

Following the end of the consultation, all comments will be considered during the next stage of the SA process which will be undertaken alongside the preparation of the Pre Submission Plan. A revised SA Report will be produced at this stage, allowing for a further opportunity for representations.

Following consultation on the Pre Submission Plan, the SA will need to assess any changes that are proposed to be made to the Local Plan (Core Strategy) as it is finalised prior to Submission. If major changes are required this would require an additional round of consultation.

At the Submission Stage, the Pre Submission SA Report will be updated, most likely through the production of an SA Report Addendum, and will be submitted alongside the Core Strategy and other supporting documentation for an independent examination to be undertaken by a planning inspector. If the examination inspector requires changes to be made to the plan, a sustainability appraisal of these changes will be undertaken if they will affect the findings detailed in the SA Report.

9.3 SA/SEA Adoption Statement

When the Local Plan (Core Strategy) is adopted it will be accompanied by a SA/SEA Statement.

In line with the SEA Regulations, the SA/SEA Statement will provide the following information:

- How environmental considerations have been integrated into the plan;
- How the SA Report has been taken into account;
- How opinions expressed in relation to the consultations on the plan/ programme and SA Report have been taken into account;
- The reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and
- The measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.

9.4 Post Adoption

Following the adoption of the Local Plan (Core Strategy) there will be a need to undertake SA/SEA monitoring of the significant effects identified. It is envisaged that this monitoring will take place alongside the monitoring of the Local Plan and be published as part of the Annual Monitoring Report for Minerals and Waste which will be the responsibility of Oxfordshire County Council.