

CLIENT PROJECT REPORT CPR2366

Oxfordshire Minerals and Waste Local Plan: Part 1 - Core Strategy incorporating Proposed Main Modifications

Sustainability Appraisal Report Update

Appendix D: Post-Examination Hearings Assessments of Minerals and Waste Spatial Strategy Alternatives

February 2017

Contents

This Annex reproduces the two reports that were prepared by Land Use Consultants (LUC) to report on the findings of the Sustainability Appraisal for Minerals Strategy Alternatives and Waste Strategy Alternatives. The documents are 'free-standing' reports and therefore any cross-references within the reports are to sections with the LUC document and not the wider SA Report Update prepared by TRL Ltd.

NB: see Appendix G for the evidence base documents referenced in the footnotes to Appendix D1 as 'OCC (2016)' .

APPENDIX D.1

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Sustainability Appraisal for minerals strategy alternatives for the Oxfordshire Minerals and Waste Local Plan Part 1

Prepared by LUC

January 2017

Project Title: Sustainability Appraisal of alternatives to the Oxfordshire Minerals and Waste Local Plan Part 1: Core Strategy

Client: Oxfordshire County Council

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Sustainability Appraisal for minerals strategy alternatives for the Oxfordshire Minerals and Waste Local Plan Part 1

Prepared by LUC in association with Sub Consultants

January 2017

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Tables

1 Introduction

1.1 Oxfordshire County Council (the Council) is currently in the process of preparing Part 1 of their new Minerals and Waste Local Plan, the Core Strategy. This was submitted to the Secretary of State for independent examination in December 2015. Following his Interim Report (October 2016) the Inspector required the Council to consider reasonable alternatives with regards to certain policies.

1.2 This appendix provides information on the alternatives that are being considered during the post-Examination process to undertake the further Strategic Environmental Assessment / Sustainability Appraisal (referred to hereafter as 'SA') required and finalise the Main Modifications that Oxfordshire County Council will be proposing to publish for consultation.

1.3 This appendix presents the SA assessment results of those policies with reasonable alternative options. This work will inform the Council's selection and rejection of these options.

2 Methodology

2.1 The methodology used to undertake the assessment of reasonable alternatives (options) will be consistent with the approach undertaken for the Submission Core Strategy. This is summarised below.

2.2 In order to be able to easily compare the effects of each option against each of the SA objectives, assessments have been combined into a single table rather than having separate tables for each option. Using this helps ensure that all alternatives will be assessed at the same level of detail and allows easier comparison.

2.3 Each policy option was assessed against each of the 12 SA objectives, and a judgement was made with regards to the likely effect that the option would have on that objective. These judgements were recorded as a colour coded symbol, as shown in **Table 2.1** below. **Table 2.2** to **Table 2.5** explain the terminology and symbology used with regards to the assessment of duration, reversibility, scale and permanence of effects, as presented in **Chapter 3**.

Table 2.1 Key to symbols and colour coding used in the SA of the Core Strategy

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 predicted effects / 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 (mixed effect)

Table 2.2 Duration of effects identified

Duration	Approximate timing of effect
Short Term	0-5 years
Medium Term	5 years to end of Plan period in 2031
Long Term	After life of plan (post 2031)

Table 2.3 Reversibility of effects identified

Symbol	Meaning	Comment
R	Reversible effect	Environmental effect that can be reversed, for example an incident of water pollution can be cleaned up over time.
I	Irreversible	Environmental effect that cannot be reversed such as the loss of a historic feature or the loss of agricultural soil due to

Symbol	Meaning	Comment
	effect	permanent development.

Table 2.4 Scale of effects identified

Symbol	Meaning	Comment
L	Local	Within Oxfordshire Local Authority areas
R	Regional	Oxfordshire and surrounding counties
N	National	UK or a wider global impact

Table 2.5 Permanence of effects identified

Symbol	Meaning	Comment
P	Permanent	Effect even after mineral and waste activities have ceased
T	Temporary	Effect during mineral and waste activities

2.4 **Table 2.6** below summarises the SA objectives against which the options are assessed. The full SA framework is detailed in **Appendix A**: SA Framework. The table also includes a 'reference term', which is a short title for each SA Objective to be used in the assessment tables in **Chapter 3**.

Table 2.6 SA Objectives

SA Objective		Reference Term
1	To protect, maintain, and enhance Oxfordshire's biodiversity and geological diversity including natural habitats, flora and fauna and protected species	Biodiversity & geodiversity
2a	To protect and enhance landscape character and local distinctiveness	Landscape
2b	To conserve and enhance the historic environment, heritage assets and their settings	Historic environment
3	To maintain and improve ground and surface water quality	Water quality
4	To improve and maintain air quality to levels which do not damage natural systems	Air quality
5	To reduce greenhouse gas emissions to reduce the cause of climate change	Greenhouse gas emissions
6	To reduce the risk of flooding	Flood risk
7	To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	Transport effects
8	To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	Population and health
9	To protect, improve and where necessary restore land and soil quality	Soils
10	To contribute towards moving up the waste hierarchy in Oxfordshire	Waste hierarchy
11	To enable Oxfordshire to be self-sufficient in its waste management and to provide for its local need for aggregates as set	Self-sufficiency

SA Objective		Reference Term
	out in the LAA	
12	To support Oxfordshire's economic growth and reduce disparities across the County	Economic growth

3 Assessment results

3.1 This chapter details the results of the assessment of reasonable alternatives for the sharp sand and gravel element of the minerals spatial strategy. At this stage of plan-making additional reasonable alternatives have only been identified against Policy M3, Principal locations for working aggregate minerals.

3.2 Firstly, there is the option of whether or not to include the Bampton/Clanfield area as a Strategic Resource Area (SRA) for sharp sand and gravel. This has resulted in Options 1 and 2 below. The second set of options relates to the distribution of sharp sand and gravel provision and is discussed in more detail later in this chapter.

Locations for minerals working (SRAs) for sharp sand and gravel

Option 1 – Submission version

3.3 This option involves retaining the sharp sand and gravel strategic resource areas (SRAs) as presented in the Submission Core Strategy (policy M3). These are as follows:

- The Thames, Lower Windrush and Lower Evenlode Valleys area from Standlake to Yarnton (SRA 6);
- The Thames and Lower Thame Valleys area from Oxford to Cholsey (SRA 5);
- The Thames Valley area from Caversham to Shiplake (SRA 4).

Option 2 – include Bampton/Clanfield

3.4 This option would retain all of the SRAs for sharp sand and gravel as per Option 1, plus an additional SRA in the Bampton/Clanfield area. As there is no mapped area for a Bampton/Clanfield SRA, for the purposes of this assessment the Mineral Safeguarding Area associated with Bampton/Clanfield has been used a proxy for a potential SRA.

3.5 The weighted average area that would need to be worked to provide a million tonnes of mineral resources is less for Bampton/Clanfield than for all other SRAs[1]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as other SRAs. Nevertheless, the weighted average area that would need to be worked varies within, as well as between, SRAs, and would therefore depend on the exact location of mineral workings.

3.6 The weighted average journey length from nominated sharp sand and gravel sites within Bampton/Clanfield to main markets is greater than for all other SRAs, ranging from an additional 8.6 million tonne miles (to Banbury and Bicester) to an additional 17.7 million tonne miles (to Didcot)[2]. As a result, the weighted average journey length from nominated sand and gravel sites within Option 2 is greater than Option 1, ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot). Option 2 is likely to lead to greater distances between source and market, therefore requiring more extensive lorry journeys, although this depends on the exact locations of minerals workings.

[1] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[2] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

Table 3.1 Assessment of reasonable alternatives to Policy M3: locations for minerals working (SRAs) for sharp sand and gravel

SA Objective		Assessment of effect						
		Duration			Reversibility	Scale	Permanence	Evidence and Reference
		Short term	Medium term	Long term				
1	Biodiversity & geodiversity	+/-	+/-	+/-	I	L	P	**Option 1: Submission version** Some of the Strategic Resource Areas (SRAs) contain areas designated as SSSIs and in addition there are SACs and SSSIs that are in close proximity to SRAs. However criteria within policies M4, M10 and Core Policy C7 will ensure that these designated sites are not adversely affected by mineral extraction. In particular Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC. The Habitats Regulations Assessment screening report has concluded a finding of no likely significant effect on these sites. There are also Conservation Target Areas associated with SRAs. The main aim within CTAs is to restore biodiversity at a landscape-scale through maintenance, restoration and creation of BAP priority habitats. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term as it is likely to take years before the restoration plans are implemented. During the period of active working adverse effects are more likely.

		+/-	+/-	+/-	I	L	P	**Option 2: include Bampton/Clanfield** Some of the SRAs include areas designated as SSSIs or are within SSSI Impact Risk Zones for minerals workings. However, criteria within policies M4, M10 and C7 will ensure that these sites are not adversely affected by mineral extraction. In particular, Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[3]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as Option 1, which could help minimise biodiversity impacts, although this remains uncertain as this depends on the exact location of workings. There are also Conservation Target Areas associated with SRAs. The main aim within CTAs is to restore biodiversity at a landscape-scale through maintenance, restoration and creation of BAP priority habitats. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term as it is likely to take years before the restoration plans are implemented. During the period of active working adverse effects are more likely.
		Summary for topic						Both Options 1 and 2 identify SRAs that contain nationally designated wildlife sites, although other policies include criteria to safeguard these. Option 2 is less likely to lead to minerals workings near sensitive receptors, as the weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[4], although this remains uncertain as this depends on the exact location of workings.. This difference is not considered to be of a magnitude to alter the scores in the 'Duration' column. Both options have potential to enhance biodiversity in the long term through restoration projects.

[3] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[4] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

2a	Landscape	-/?	-/?	-/?	I	L	P	**Option 1: Submission version** SRAs 4 and 5 are in close proximity to the North Wessex Downs AONB and/or the Chilterns AONB. Mineral working in these areas could give rise to adverse effects on the setting of the AONBs in the short to medium term. Working in all the SRAs has the potential for negative effects on local landscape character, however criteria within policies M4, and Core Policy C8 will ensure that any adverse effects are minimised. In the longer term, restoration may return the landscape to its previous condition. However, this is likely to be in the very long-term, as it is likely to take years before the restoration plans are implemented. During the period of active working adverse effects are more likely.
		-/?	-/?	-/?	I	L	P	**Option 2: include Bampton/Clanfield** SRAs 4 and 5 are in close proximity to the North Wessex Downs AONB and the Chilterns AONB. A small part of the Bampton/Clanfield area is adjacent to the Cotswolds AONB. Mineral working in these areas could give rise to adverse effects on the setting of the AONBs in the short to medium term, although this depends on the specific locations of minerals workings. As there are currently no workings in the Bampton/Clanfield area, this option may open up a new area of the county to risk of landscape impacts from minerals extraction. Workings in all the SRAs has the potential for negative effects on local landscape character, however criteria within policies M4, and Core Policy C8 will ensure that any adverse effects are minimised. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[5]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as Option 1, which could help minimise landscape impacts, although this remains uncertain as this depends on the exact location of workings.. In the longer term, restoration may return the landscape to its previous condition. However, this is likely to be in the very long-term, as it is likely to take years before the restoration plans are implemented. During the period of active working adverse effects are more likely.

[5] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		Summary for topic						Options 1 and 2 both have potential to negatively impact protected landscapes, particularly AONBs. Option 2 has the potential to impact the setting of the Cotswolds AONB (in addition to the North Wessex Downs and Chilterns AONBs) due to the location of the Bampton/Clanfield area, although only workings in the western part of the area are at risk of affecting the setting of the AONB. Option 2 is less likely to lead to minerals workings near sensitive receptors, as the weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[6], although this remains uncertain as this depends on the exact location of workings. This difference is not considered to be of a magnitude to alter the scores in the 'Duration' column.
2b	Historic environment	**-/?**	**-/?**	**-/?**	**I**	**L**	**P**	**Option 1: Submission version** The SRAs contain or are in close proximity to a range of heritage assets, including Scheduled Ancient Monuments, Registered Parks & Gardens and Listed Buildings. English Heritage, now Historic England, have highlighted that there are also significant archaeological constraints, particularly in parts of the Lower Windrush Valley, part of the Thames, Lower Windrush and Evenlode Valleys strategic resource area (SRA 6)[7,8] and parts of the Thames and Lower Thame Valleys strategic resource area[9] (SRA5). Minerals extraction in these areas could result in adverse effects to the heritage assets, however SRAs are intended as broad locations where extraction would be appropriate and there are numerous site options that are not in proximity to such heritage assets. Criteria within policies M4, and Core Policy C9 will ensure that any adverse effects are minimised.

[6] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[7] English Heritage (2012) Letter to Lois Partridge at Oxfordshire County Council, dated 17 January 2012
[8] Mullin, Booth, Hardy, Scott, Hayden, Hind and Spandl (2011) The Oxfordshire Aggregates and Archaeology Assessment
[9] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.35*

		-/?	-/?	-/?	I	L	P	**Option 2: include Bampton/Clanfield** Some of the SRAs contain heritage assets, such as Scheduled Ancient Monuments, Registered Parks & Gardens and Listed Buildings, and/or are in close proximity to these. English Heritage, now Historic England, have highlighted that there are also significant archaeological constraints, particularly in parts of the Lower Windrush Valley, part of the Thames, Lower Windrush and Evenlode Valleys strategic resource area (SRA 6)[10,11] and parts of the Thames and Lower Thame Valleys strategic resource area[12] (SRA5). Minerals extraction in these areas could result in adverse effects to the heritage assets, however SRAs are intended as broad locations where extraction would be appropriate and there are numerous site options that are not in proximity to such heritage assets. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[13]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as Option 1, which could help minimise impacts on the historic environment, although this remains uncertain as this depends on the exact location of workings. Criteria within policies M4, and Core Policy C9 will ensure that any adverse effects are minimised.
		Summary for topic						Options 1 and 2 may both lead to minerals working in proximity to heritage assets, however there are numerous potential site options within SRAs that are not in proximity to such heritage assets. Option 2 is less likely to lead to minerals workings near sensitive receptors, as the weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[14], although this remains uncertain as this depends on the exact location of workings.. This difference is not considered to be of a magnitude to alter the scores in the 'Duration' column. Criteria within policies M4, and Core Policy C9 will ensure that any adverse effects are minimised.

[10] English Heritage (2012) Letter to Lois Partridge at Oxfordshire County Council, dated 17 January 2012

[11] Mullin, Booth, Hardy, Scott, Hayden, Hind and Spandl (2011) The Oxfordshire Aggregates and Archaeology Assessment

[12] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.35*

[13] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

[14] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

3	Water quality	-/?	-/?	-/?	I	L	P	**Option 1: Submission version** There is potential for adverse effects on surface and ground water in the SRAs as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. There is potential for cumulative negative effects on ground water flow as a result of concentration of mineral workings within one area. Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC as 'it must be demonstrated that there will be no change in water levels' at these sites.
		-/?	-/?	-/?	I	L	P	**Option 2: include Bampton/Clanfield** There is potential for adverse effects on surface and ground water in the SRAs as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. There is potential for cumulative negative effects on ground water flow as a result of concentration of mineral workings within one area. Working in the Bampton/Clanfield area would open up a new part of the county to risks to water quality. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[15]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as Option 1, which could help minimise water quality impacts, although this remains uncertain as this depends on the exact location of workings. Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC as 'it must be demonstrated that there will be no change in water levels' at these sites.
		Summary for topic						Both Options 1 and 2 may lead to modification of surface water flows and groundwater seepages. Option 2 is less likely to lead to minerals workings near sensitive receptors, as the weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[16], although this remains uncertain as this depends on the exact location of workings. This difference is not considered to be of a magnitude to alter the scores in the 'Duration' column. Policy M4 is expected to ensure that water levels at Oxford Meadows SAC are not subject to change as a result of mineral workings.

[15] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[16] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

4	Air quality	-	-	-	R	L	P	**Option 1: Submission version** The SRAs identified in this option include all areas in the County where sharp sand and gravel minerals are currently worked, except the relatively small workings at Finmere and Faringdon. There is potential for air pollution associated with HGV movements over the lifetime of the working permissions and into the restoration period. This includes the possibility of increased traffic within the City of Oxford Air Quality Management Area (AQMA), although these effects would result regardless of the location of minerals extraction. Policy C5 should help to mitigate any local adverse effects.
		-	-	-	R	L	P	**Option 2: include Bampton/Clanfield** There is potential for air pollution associated with HGV movements over the lifetime of the working permissions and into the restoration period. Notable increases in air pollution are more likely to arise from this option as HGVs are likely to have to travel further to transport aggregates to market. The weighted average journey length from nominated sharp sand and gravel sites within the SRAs to main markets is generally greater for Option 2,ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot)[17], although this depends on the exact location of mineral workings. Option 2 is likely to lead to greater distances between source and market, therefore requiring more extensive lorry journeys and increased associated impacts on air quality. Policy C5 should help to mitigate any adverse effects.
		Summary for topic						Option 1 is expected to perform better than Option 2, as the weighted average distance to market is likely to be greater for Option 2, ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot)[18], due to the inclusion of the Bampton/Clanfield area, although this depends on the exact location of mineral workings.
5	Greenhouse gas emissions	+	+	+	R	N	P	**Option 1: Submission version** Greenhouse gas emissions associated with extraction, processing and HGV movements would result wherever minerals are extracted. The distribution of SRAs across the County in relation to locations of demand will help to reduce the transportation distances for minerals and so minor positive effects are predicted for this objective.

[17] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[18] *Ibid*

		-	-	-	R	N	P	**Option 2: include Bampton/Clanfield** Greenhouse gas emissions associated with extraction, processing and HGV movements would result wherever minerals are extracted. Minerals extraction in the Bampton/Clanfield area is likely to lead to greater greenhouse gas emissions. The weighted average journey length from nominated sharp sand and gravel sites within the SRAs to main markets is generally longer for Option 2,ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot)[19], although this depends on the exact location of mineral workings therefore requiring more extensive lorry journeys and associated increases in greenhouse gas emissions.
		Summary for topic						Greenhouse gas emissions associated with extraction, processing and HGV movements would result regardless of the location of minerals extraction. However, the weighted average distance to market is likely to be greater for Option 2, ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot)[20], due to the inclusion of the Bampton/Clanfield area, although this depends on the exact location of mineral workings. Option 1 is likely to minimise greenhouse gas emissions as the distribution of SRAs across the County in relation to locations of demand will help to reduce the transportation distances for minerals.
6	Flood risk	**0**	**0**	**+**	**I**	**L**	**P**	**Option 1: Submission version** Some parts of the SRAs for sharp sand and gravel lie within high flood risk zones (e.g. SRAs 4, 5 and 6 along the Thames Valley). Paragraph 100 of the NPPF requires that development should be avoided in areas of high flood risk where possible and requires the sequential and (where appropriate), the exception tests to be applied. The requirement to apply these tests is explicitly included in common core Policy C3: Flooding. Sand and gravel extraction is considered to be water compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. Extraction of minerals in these areas could offer opportunities to increase flood storage capacity through restoration, thereby reducing the risk of flooding in these areas in the long term (i.e. after the operational phase of a site has ended).

[19] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[20] *Ibid*

		0	**0**	**+**	**I**	**L**	**P**	**Option 2: include Bampton/Clanfield** Some parts of the SRAs for sharp sand and gravel lie within Flood Zones 2 and 3, which are at medium to high risk of flooding (e.g. SRAs 4, 5 and 6 along the Thames Valley and the Bampton/Clanfield area experiences flooding from the Thames and its tributaries). Development should be avoided in the floodplain where possible and requires the sequential and (where appropriate), the exception tests to be applied. The requirement to apply these tests is explicitly included in common core Policy C3: Flooding. Sand and gravel extraction is considered to be compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. Extraction of minerals in these areas could offer opportunities to increase flood storage capacity through restoration, thereby reducing the risk of flooding in these areas in the long term (i.e. after the operational phase of a site has ended).
		Summary for topic						Options 1 and 2 both have potential to lead to sharp sand and gravel extraction in areas of medium to high flood risk. This is water compatible development and may lead to increased flood storage capacity in the long term. This could take place as part of the restoration of the site, after the operational phase has ended, thus positive effects are only expected in the long term.
7	Transport effects	**-**	**-**	**-**	**R**	**L**	**P**	**Option 1: Submission version** Continued and concentrated working in the existing areas is likely to result in cumulative effects in terms of congestion, road maintenance and safety. However, mitigation measures at the planning application stage can help reduce such effects where new planning permissions are sought. Core Policies C5 and C10 require proposals to demonstrate that they will not have unacceptable effects on traffic and that they will maintain and/or improve road safety and the efficiency of the road network, which are expected to help mitigate any effects. It is an objective of the Core Strategy to minimise the transport impact of mineral development by minimising the distance that minerals need to be transported by road, from quarry to market, which would help to minimise negative effects in Oxfordshire and the wider area. Any impact is likely to be greatest in the northern part of the County, particularly in West Oxfordshire District Council area, where sharp sand and gravel resources and production are most concentrated. This may contribute to an increase in traffic on the A40. Local effects should be addressed through the application of the core policies, particularly Policies C5 and C10, in the allocation of sites and at the planning application stage.

		-	-	-	R	L	P	**Option 2: include Bampton/Clanfield** Continued and concentrated working in the existing areas is likely to result in cumulative effects in terms of congestion, road maintenance and safety. Local effects should be addressed through the allocation of sites and at the planning application stage. Core Policies C5 and C10 require proposals to demonstrate that they will not have unacceptable effects on traffic and that they will maintain and/or improve road safety and the efficiency of the road network, which are expected to help mitigate any effects. The weighted average journey length from nominated sharp sand and gravel sites within the SRAs to main markets is generally longer for Option 2, ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot)[21], therefore requiring more extensive lorry journeys, although this depends on the exact location of mineral workings.
		Summary for topic						Options 1 and 2 are both likely to have negative implications for transport, as continued and concentrated working in the existing areas is likely to result in cumulative effects in terms of congestion, road maintenance and safety. The impacts of Option 2 are expected to be greater as this option is likely to lead to an increase in length of lorry journeys to market, ranging from an additional 2.7 million tonne miles (to Banbury and Bicester) to an additional 5.6 million tonne miles (to Didcot)[22], due to the inclusion of the Bampton/Clanfield area, although this depends on the exact location of mineral workings. The SA 'score' against short, medium and long term effects is the same for both options as, although Option 2 is expected to have greater effects, this is not expected to be sufficient to lead to a significant negative effect on transport.

[21] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[22] *Ibid*

8	Population and health	**-/?**	**-/?**	**+/?**	**I**	**L**	**P**	**<u>Option 1: Submission version</u>** The SRAs are associated with the existing sharp sand and gravel working areas (except Finmere and Faringdon) and therefore the great majority of those communities that are currently adversely affected by sharp sand and gravel mineral workings are expected to continue to experience adverse effects for the plan period and longer term. Increased workings in these areas, or extending existing workings, could lead to intensified and longer-term effects on these communities. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may be positive permanent effects as a result of restoration initiatives. The degree and nature of effects will be dependent on mitigation measures put in place through new planning permissions, proximity to sensitive receptors and the duration of working. Core policies, particularly Policy C5, are expected to help mitigate any adverse effects. There may also be future extraction in those parts of the SRAs where local communities are not currently affected by minerals operations. There is potential for negative adverse effects on local communities near to any new minerals workings as a result of dust, noise, disruption, adverse visual effects and traffic congestion. Alternatively, distributing such effects over a greater number of communities could reduce the intensity and timescale of negative effects on communities already experiencing impacts from minerals workings. 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. Negative effects should be addressed through the application of the core policies (particularly Policy C5), in the allocation of sites and at the planning application stage.

		-/?	-/?	+/?	I	L	P	**Option 2: include Bampton/Clanfield** The SRAs (except Bampton/Clanfield) are associated with the existing sharp sand and gravel working areas (except Finmere and Faringdon) and therefore the great majority of those communities that are currently adversely affected by sharp sand and gravel mineral workings are expected to continue to experience adverse effects for the plan period and longer term. Increased workings in these areas, or extending existing workings, could lead to intensified and longer-term effects on these communities. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may be positive permanent effects as a result of restoration initiatives. The degree and nature of effects will be dependent on mitigation measures put in place through new planning permissions, proximity to sensitive receptors and the duration of working. Core policies, particularly Policy C5, are expected to help mitigate these effects. This option is more likely to lead to future extraction in those parts of the SRAs where local communities are not currently affected by minerals operations, particularly at Bampton/Clanfield as there are currently no workings in this area. There is potential for negative adverse effects on local communities near to any new minerals workings 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. Effects should be addressed through the application of the core policies (particularly Policy C5), in the allocation of sites and at the planning application stage.
		Summary for topic						Options 1 and 2 are both expected to have negative effects in the short term. Communities that currently experience adverse effects due to minerals workings may continue to do so and additional communities may also be affected. Additional communities are more likely to be affected as a result of Option 2, as there are currently no minerals workings in the Bampton/Clanfield area, although this may help reduce the intensity and timescale of effects on communities currently experiencing adverse effects from minerals workings. The SA 'score' against short, medium and long term effects is the same for both options, as any differences are not expected to be sufficient to lead to a significant negative effect on population and health. Restoration of sites may have positive implications for local communities in the long term.

9	Soils	-	-	-/?	I	L	P	**Option 1: Submission version** Minerals extraction is likely to lead to loss of best and most versatile agricultural land, as there is a large area of Grade 2 agricultural land within SRA 6 and there are extensive areas of Grade 2 and Grade 3a agricultural land along the Thames valley and its tributaries, where most of the sand and gravel resource is located[23] (i.e. SRAs 4 and 5). This would be lost to minerals extraction. Agricultural land may be replaced through restoration in the long term. However, the Core Strategy notes that, because of a general shortage of inert waste material for infilling, sand and gravel workings in river valleys (i.e. all SRAs for sand and gravel) are often restored to wetlands. The Core Strategy states that when suitable material is available, consideration should be given to filling below original levels to improve flood storage capacity[24]. Given these factors, it is considered that agricultural land is likely to be permanently lost at these sites.
		-	-	-/?	I	L	P	**Option 2: include Bampton/Clanfield** Minerals extraction is likely to lead to loss of best and most versatile agricultural land, as there is a large area of Grade 2 agricultural land within SRA 6 and Bampton/Clanfield, and there are extensive areas of Grade 2 and Grade 3a agricultural land along the Thames valley and its tributaries, where most of the sand and gravel resource is located[25] (i.e. SRAs 4 and 5). This would be lost to minerals extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[26]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as Option 1, which could help minimise impacts on soils, although this remains uncertain as this depends on the exact location of workings. Agricultural land may be replaced through restoration in the long term. However, the Core Strategy notes that, because of a general shortage of inert waste material for infilling, sand and gravel workings in river valleys (i.e. all SRAs for sand and gravel) are often restored to wetlands. The Core Strategy states that when suitable material is available, consideration should be given to filling below original levels to improve flood storage capacity[27]. Given these factors, it is considered that agricultural land is likely to be permanently lost at these sites.

[23] Oxfordshire County Council (2016) Topic Paper: Restoration of Mineral Workings
[24] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.81*
[25] Oxfordshire County Council (2016) Topic Paper: Restoration of Mineral Workings
[26] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[27] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.81*

		Summary for topic						Options 1 and 2 are likely to lead to the loss of best and most versatile agricultural land, Grade 2 agricultural land is present in all sharp sand and gravel SRAs. Option 2 is less likely to lead to minerals workings near sensitive receptors, as the weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[28], although this remains uncertain as this depends on the exact location of workings. This difference is not considered to be of a magnitude to alter the scores in the 'Duration' column. While SRAs constitute broad areas where minerals extraction may be appropriate, of which the entire area will not be worked, the areas of Grade 2 agricultural land are extensive and therefore it is likely that some workings will coincide with this.
10	Waste hierarchy	**0**	**0**	**0**				**Option 1: Submission version** No predicted effects.
		0	**0**	**0**				**Option 2: include Bampton/Clanfield** No predicted effects.
		Summary for topic						Both Options 1 and 2 are not expected to have any effects with regards to this objective.
11	Self-sufficiency	**+**	**++**	**++**	**R**	**L**	**P**	**Option 1: Submission version** This option 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 (LAA). The choice of potential extraction sites will be less without the inclusion of Bampton/Clanfield as an SRA, but it is understood that there will still be a wide choice of potential extraction sites and that this will not prevent provision of aggregate at levels identified in the LAA.
		+	**++**	**++**	**R**	**L**	**P**	**Option 2: include Bampton/Clanfield** This option 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.
		Summary for topic						Options 1 and 2 are likely to have similar effects with regards to self-sufficiency, as both will contribute to supply of minerals within Oxfordshire and enable the requirement identified in the most recent Local Aggregates Assessment (LAA) to be met.

[28] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

12	Economic growth	+	+	+	R	L	P	**Option 1: Submission version** The SRAs for sharp sand and gravel extraction are well located in terms of proximity to the markets and provide potential for investment and job creation which supports the local economy and has a long term positive effect on this SA objective.
		+/?	+/?	+/?	R	L	P	**Option 2: include Bampton/Clanfield** The SRAs for sharp sand and gravel extraction are well located in terms of proximity to the markets, with the exception of the Bampton/Clanfield area. This may make the Bampton/Clanfield area less attractive for potential investment, although there are a number of nominated mineral extraction sites within this area. The economic implications of the increased distance to market from Bampton/Clanfield remain uncertain. Any expanded and new minerals extraction provides potential for job creation which supports the local economy and has a long term positive effect on this SA objective.
		Summary for topic						Options 1 and 2 are both likely to contribute to the local economy in terms of investment and employment. The economic implications of the increased distance to market from Bampton/Clanfield remain uncertain.

Recommendation of preferred option	The negative effects of Option 2 (as compared with Option 1) relate to the inclusion of the Bampton/Clanfield area as an SRA. The weighted average distance from minerals workings to market is greater for Option 2, than for Option 1. As such, Option 2 would lead to increased emissions of air pollution and greenhouse gases associated with HGV transportation (SA Objectives 4 and 5), although this depends on the exact location of mineral workings. Option 2 would also be likely to lead to greater effects on transport, including increased congestion, or congestion over a wider area, and increased requirements for road maintenance (SA Objective 7). For this objective, the SA 'score' against short, medium and long term effects is the same for both options as, although Option 2 is expected to have slightly greater effects, it is not expected to lead to a significant negative effect on transport. Greater weighted average distance to market may result in lower economic benefits from Option 2, as it may appear a less attractive option for investment and bring smaller financial benefits, although distances depend on the exact location of mineral workings (SA objective 12). With regards to SA Objectives 1, 2a, 2b, 3 and 9, Option 2 performs slightly better. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs in this option would be less than for Option 1[29]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel as Option 1, which could help minimise impacts, although this remains uncertain as this depends on the exact location of workings. Both options perform similarly with regards to SA Objectives 6 and 10, as these are not affected by size of the area to be worked or distance to market. While Option 1 would result in a more limited range of SRAs, which would restrict the choice of potential site allocations, it is considered to be a more sustainable option overall due to having a smaller average distance between source and market, leading to associated decreases in air pollution and greenhouse gas emissions.

[29] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

Distribution of minerals provision

3.7 This set of alternatives relates to the relative distribution of additional provision for sharp sand and gravel between northern Oxfordshire (West Oxfordshire and Cherwell Districts) and southern Oxfordshire (Vale of the White Horse and South Oxfordshire Districts). Oxford City is split 50:50 between northern and southern Oxfordshire. The reasonable alternatives are presented as Options 1 to 4 below.

3.8 The total requirement for sharp sand and gravel in the plan period is 18.27 mt. The current permitted reserves available for working during the plan period total 11.85 mt. Taking into account sales in 2014 and 2015 of 1.41 mt, this leaves a remaining requirement of approximately 5 mt to be provided within the plan period[30]. It is for this shortfall that the Core Strategy needs to make provision and therefore the options presented below relate to this figure.

3.9 Currently, approximately 45% of sharp sand and gravel production capacity in Oxfordshire is in southern Oxfordshire of the county and 55% is in northern Oxfordshire. Approximately 35%of permitted reserves of sharp sand and gravel in Oxfordshire are in southern Oxfordshire of the county and 65% of permitted reserves of sharp sand and gravel are in northern Oxfordshire[31]. Option 2 would continue this distribution.

3.10 The Evidence Base for Spatial Strategy Alternatives for Delivery Requirement for Sharp Sand and Gravel[32] indicates that there is almost a 50:50 split between northern and southern Oxfordshire in terms of growth in population, housing, employment and provision of land for economic development. These figures indicate a nearly equal split in demand for aggregate materials between northern Oxfordshire and southern Oxfordshire. As minerals provision is currently higher in northern Oxfordshire, allocating 75% additional minerals provision over the plan period to southern Oxfordshire and the remaining 25% to northern Oxfordshire (i.e. Option 3) would result in an overall 50:50 split of production capacity between northern and southern Oxfordshire over than plan period.

3.11 Options 1 and 4, to allocate 100% of the additional sharp sand and gravel requirement to northern Oxfordshire and 100% to southern Oxfordshire respectively, were proposed in representations on the Proposed Submission Core Strategy.

3.12 It has been assumed that areas to be worked will be within the sand and gravel SRAs in each area. Note that for the purposes of this assessment, northern Oxfordshire is assumed to include the SRA presented in Policy M3 of the Submission Core Strategy (i.e. including SRA6 and excluding Bampton/Clanfield).

3.13 The weighted average area required to produce a million tonnes of sand and gravel resources at nominated sites in northern Oxfordshire is 19.96 ha, which is less than that for nominated sites in southern Oxfordshire, which would require a weighted average area of 22.51ha to extract a million tonnes[33]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel in northern Oxfordshire. Effects will also depend on the exact location of minerals workings, as mineral thickness, and consequently the area required to extract a million tonnes of mineral resources, varies within SRAs.

3.14 The weighted average journey length from nominated sharp sand and gravel sites to main markets varies both within and between nominated sites in northern and southern Oxfordshire. The greatest weighted average journey lengths are between nominated sites in northern Oxfordshire and Didcot, in southern Oxfordshire, (an additional 10.4 million tonne miles) and between nominated sites in southern Oxfordshire and Banbury and Bicester, in northern Oxfordshire, (an additional 8.2 million tonne miles). Limiting additional minerals extraction to either northern or southern Oxfordshire alone (Options 1 and 4 respectively) is expected to result

[30] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[31] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[32] Oxfordshire County Council (2016) Evidence Base for Spatial Strategy Alternatives for Delivery Requirement for Sharp Sand and Gravel
[33] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

either in minerals being transported long distances to markets in the southern parts of the county (for Option 1) or the northern parts of the county (Option 2), or an increased likelihood that sharp sand and gravel users near the southern or northern borders of Oxfordshire may choose to source minerals from outside the county.

Option 1 – 0% Southern 100% Northern

3.15 Additional requirement: 0% southern Oxon, 100% northern Oxon (as proposed in representations).

Option 2 – 35% Southern, 65% Northern

3.16 Additional Requirement: 35% southern Oxon, 65% northern Oxon (current situation).

Option 3 – 75% Southern, 25% Northern

3.17 Additional Requirement: 75% southern Oxon, 25% northern Oxon (split required to achieve an approximate 50:50 split of production capacity to reflect the estimated 50:50 split in future demand between the northern and southern parts of the County). The percentage in the south is greater than that in the west as the existing permitted reserves are greater in the west (including a permission at Gill Mill which will continue right through the plan period and beyond).

Option 4 – 100% Southern, 0% Northern

3.18 Additional requirement: 100% southern Oxon, 0% northern Oxon (as proposed in representations).

Table 3.2 Assessment of reasonable alternatives to Policy M3: distribution of minerals provision

SA Objective		Assessment of effect						
		Duration			Reversibility	Scale	Permanence	Evidence and Reference
		Short term	Medium term	Long term				
1	Biodiversity & geodiversity	+/-	+/-	+/-	I	L	P	**Option 1: 0% Southern, 100% Northern** The sharp sand and gravel SRA in northern Oxfordshire (SRA 6) includes areas designated as SSSIs and that are within SSSI Impact Risk Zones for minerals workings. Criteria within policies M4, M10 and C7 are expected to ensure that these sites are not adversely affected by mineral extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[34]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could help minimise biodiversity and geodiversity impacts, although this remains uncertain as this depends on the exact location of workings. There are also Conservation Target Areas associated with the SRA. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term as it is likely to take some years before the restoration plans are completed. During the period of active working adverse effects are more likely.

[34] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		+/-	+/-	+/-	I	L	P	**Option 2: 35% Southern, 65% Northern** SRA6 in northern Oxfordshire includes areas designated as SSSIs and, along with SRA5 in southern Oxfordshire, includes areas within SSSI Impact Risk Zones for minerals workings. Criteria within policies M4, M10 and C7 are expected to ensure that these sites are not adversely affected by mineral extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[35]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 3 and 4, which could help minimise biodiversity and geodiversity impacts, although this remains uncertain as this depends on the exact location of workings. There are also Conservation Target Areas associated with SRAs. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term as it is likely to take some years before the restoration plans are completed. During the period of active working adverse effects are more likely.

[35] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		+/-	+/-	+/-	I	L	P	**Option 3: 75% Southern, 25% Northern** SRA6 in northern Oxfordshire includes areas designated as SSSIs and, along with SRA5 in southern Oxfordshire, includes areas within SSSI Impact Risk Zones for minerals workings. Criteria within policies M4, M10 and C7 are expected to ensure that these sites are not adversely affected by mineral extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[36]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 1 and 2, which could increase the scale and likelihood of biodiversity and geodiversity impacts, although this remains uncertain as this depends on the exact location of workings. There are also Conservation Target Areas associated with SRAs. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term as it is likely to take years before the restoration plans are completed. During the period of active working adverse effects are more likely.

[36] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		+/-	+/-	+/-	I	L	P	**Option 4: 100% Southern, 0% Northern** SRA5 in southern Oxfordshire includes areas within SSSI Impact Risk Zones for minerals workings. Criteria within policies M4, M10 and C7 are expected to ensure that these sites are not adversely affected by mineral extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[37]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could increase the scale and likelihood of biodiversity and geodiversity impacts, although this remains uncertain as this depends on the exact location of workings. There are also Conservation Target Areas associated with SRAs. When working ceases in these areas there is potential for restoration schemes to contribute positively to the planned restoration and habitat creation at a large-scale, which would have significant beneficial cumulative effects for biodiversity. However, these benefits would not be felt until the very long-term as it is likely to take years before the restoration plans are completed. During the period of active working adverse effects are more likely.
		Summary for topic						All options perform similarly with regards to biodiversity and geodiversity. Effects on biodiversity and geodiversity are likely to be site-specific. Potential negative impacts on sites designated for biodiversity interests are likely to be minimised by Criteria within policies M4, M10 and C7. Option 1 performs slightly better than the other options, as it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than southern Oxfordshire[38], although this depends on the exact location of minerals workings. All options may lead to positive effects, such as net biodiversity gain, through restoration of sites.

[37] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[38] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

2a	Landscape	-/?	-/?	-/?	I	L	P	**Option 1: 0% Southern, 100% Northern** Effects of minerals workings in SRA6 would depend on the size and location of the workings. Workings in SRA6 in northern Oxfordshire could lead to negative effects on local landscape character, however criteria within policy M4, along with Core Policy C8 will ensure that any adverse effects are minimised. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[39]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could help minimise landscape impacts, although this remains uncertain as this depends on the exact location of workings. In the longer term, restoration may return the landscape to its previous condition. However, this is likely to be in the very long-term, as it is likely to take some years before the restoration plans are completed. During the period of active working adverse effects are more likely.
		-/?	-/?	-/?	I	L	P	**Option 2: 35% Southern, 65% Northern** SRAs 4 and 5 in southern Oxfordshire are in close proximity to the North Wessex Downs and the Chilterns AONBs. The nature and extent of negative effects from workings would depend on the size and location of the workings. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[40]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 3 and 4, which could help minimise landscape impacts, although this remains uncertain as this depends on the exact location of workings. Working in either of these SRAs has the potential for negative effects on local landscape character, however criteria within policy M4, along with Core Policy C8 will ensure that any adverse effects are minimised. In the longer term, restoration may return the landscape to its previous condition. However, this is likely to be in the very long-term, as it is likely to take some years before the restoration plans are completed. During the period of active working adverse effects are more likely.

[39] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[40] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-/?	-/?	-/?	I	L	P	**Option 3: 75% Southern, 25% Northern** SRAs 4 and 5 in southern Oxfordshire are in close proximity to AONBs. The nature and extent of negative effects from workings would depend on size and location of the workings. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[41]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 1 and 2, which could increase the scale and likelihood of landscape impacts, although this remains uncertain as this depends on the exact location of workings. Working in all the SRAs has the potential for negative effects on local landscape character, however criteria within policy M4, along with Core Policy C8 will ensure that any adverse effects are minimised. In the longer term, restoration may return the landscape to its previous condition. However, this is likely to be in the very long-term, as it is likely to take some years before the restoration plans are completed. During the period of active working adverse effects are more likely.
		-	-	-/?	I	L	P	**Option 4: 100% Southern, 0% Northern** SRAs 4 and 5 in southern Oxfordshire are in close proximity to the North Wessex Downs and Chilterns AONBs. In particular, workings at SRA 5 are likely to affect the settings of both AONBs and workings at SRA4 could affect the setting of the Chilterns AONB. The nature and extent of negative effects from workings would depend on size and location of the workings. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[42]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could increase the scale and likelihood of landscape impacts, although this remains uncertain as this depends on the exact location of workings. Working in all the SRAs has the potential for negative effects on local landscape character, however criteria within policy M4, along with Core Policy C8 will ensure that any adverse effects are minimised. In the longer term, restoration may return the landscape to its previous condition. However, this is likely to be in the very long-term, as it is likely to take some years before the restoration plans are completed. During the period of active working adverse effects are more likely.

[41] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[42] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		Summary for topic						Options 2, 3 and 4 have potential to negatively affect AONBs, as SRAs 4 and 5 in southern Oxfordshire are in close proximity to the North Wessex Downs and Chilterns AONBs. Option 4 is most likely to result in negative effects in this regard, as minerals workings are more likely to be concentrated near an AONB under these options, although this is not likely to be of such a magnitude to change the scoring in the 'Duration' column. All options have potential to negatively impact local landscape character, however criteria within policy M4, along with Core Policy C8 will ensure that any adverse effects are minimised. Option 1 performs slightly better than the other options, as it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than southern Oxfordshire[43], although this depends on the exact location of workings.
2b	Historic environment	**-/?**	**-/?**	**-/?**	**I**	**L**	**P**	**Option 1: 0% Southern, 100% Northern** The SRA in northern Oxfordshire (SRA 6) contains heritage assets, such as Scheduled Ancient Monuments, conservation areas and Listed Buildings, and a small part of the SRA is in close proximity to the World Heritage Site and registered park and gardens at Blenheim Palace. English Heritage, now Historic England, have highlighted that there are also significant archaeological constraints, particularly in parts of the Lower Windrush Valley, part of the Thames, Lower Windrush and Evenlode Valleys strategic resource area (SRA 6)[44,45]. The Core Strategy states that the Council will work with English Heritage to ensure that important archaeology is given appropriate protection, but as SRA6 is the only sand and gravel SRA in northern Oxfordshire, there is a strong possibility that this option would lead to minerals workings in or near the Lower Windrush Valley. This could lead to damage or loss of archaeological features in this area, although the location and extent of such effects is dependent on the site and size of minerals workings. Criteria within policy M4, along with Core Policy C9, are likely to ensure that any adverse effects are minimised and any residual effects are not significant. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[46]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could help minimise impacts on the historic environment, although this remains uncertain as this depends on the exact location of workings.

[43] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[44] English Heritage (2012) Letter to Lois Partridge at Oxfordshire County Council, dated 17 January 2012
[45] Mullin, Booth, Hardy, Scott, Hayden, Hind and Spandl (2011) The Oxfordshire Aggregates and Archaeology Assessment
[46] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-/?	-/?	-/?	I	L	P	**Option 2: 35% Southern, 65% Northern** SRA6, in northern Oxfordshire, and SRAs 4 and 5, in southern Oxfordshire, contain heritage assets, such as Scheduled Ancient Monuments, Registered Parks & Gardens, conservation areas and Listed Buildings, and/or are in close proximity to these. There are also significant archaeological constraints in parts of the Lower Windrush Valley part of the Thames, Lower Windrush and Evenlode Valleys strategic resource area (SRA 6)[47,48] and parts of the Thames and Lower Thame Valleys strategic resource area[49] (SRA5). The Core Strategy states that the Council will work with English Heritage to ensure that important archaeology is given appropriate protection. In addition, this option would lead to a greater choice of sites for minerals workings than Options 1 and 4, as all SRAs (4, 5 and 6) would be considered for sharp sand and gravel workings. This greater choice could help to avoid minerals workings in sensitive areas in both northern and southern Oxfordshire. The location and extent of negative effects on heritage assets is dependent on the site and size of minerals workings, however criteria within policy M4 and Core Policy C9 will ensure that any adverse effects are minimised. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[50]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 3 and 4, which could help minimise impacts on the historic environment, although this remains uncertain as this depends on the exact location of workings.

[47] English Heritage (2012) Letter to Lois Partridge at Oxfordshire County Council, dated 17 January 2012

[48] Mullin, Booth, Hardy, Scott, Hayden, Hind and Spandl (2011) The Oxfordshire Aggregates and Archaeology Assessment

[49] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.35*

[50] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-/?	-/?	-/?	I	L	P	**Option 3: 75% Southern, 25% Northern** SRA6, in northern Oxfordshire, and SRAs 4 and 5, in southern Oxfordshire, contain heritage assets, such as Scheduled Ancient Monuments, Registered Parks & Gardens, conservation areas and Listed Buildings, and/or are in close proximity to these. There are also significant archaeological constraints in parts of the Lower Windrush Valley, part of the Thames, Lower Windrush and Evenlode Valleys strategic resource area (SRA 6)[51,52] and parts of the Thames and Lower Thame Valleys strategic resource area[53] (SRA5). The Core Strategy states that the Council will work with English Heritage to ensure that important archaeology is given appropriate protection. In addition, this option would lead to a greater choice of sites for minerals workings than Options 1 and 4, as all SRAs (4, 5 and 6) would be considered for sharp sand and gravel workings. This greater choice could help to avoid minerals workings in sensitive areas in both northern and southern Oxfordshire. The location and extent of negative effects on heritage assets is dependent on the site and size of minerals workings; however criteria within policy M4 and Core Policy C9 will ensure that any adverse effects are minimised. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[54]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 1 and 2, which could increase the scale and likelihood of impacts on the historic environment, although this remains uncertain as this depends on the exact location of workings.

[51] English Heritage (2012) Letter to Lois Partridge at Oxfordshire County Council, dated 17 January 2012

[52] Mullin, Booth, Hardy, Scott, Hayden, Hind and Spandl (2011) The Oxfordshire Aggregates and Archaeology Assessment

[53] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.35*

[54] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-/?	-/?	-/?	I	L	P	**Option 4: 100% Southern, 0% Northern** SRAs 4 and 5 contain heritage assets, such as Scheduled Ancient Monuments, Registered Parks & Gardens, conservation areas and Listed Buildings, and/or are in close proximity to these. There are also significant archaeological constraints in parts of the Thames and Lower Thame Valleys strategic resource area[55] (SRA5). The Core Strategy states that the Council will work with English Heritage to ensure that important archaeology is given appropriate protection. The location and extent of negative effects on heritage assets is dependent on the site and size of minerals workings; however criteria within policy M4 and Core Policy C9 will ensure that any adverse effects are minimised. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[56]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could increase the scale and likelihood of impacts on the historic environment, although this remains uncertain as this depends on the exact location of workings.
		Summary for topic						All options have potential to negatively affect heritage assets, but the nature of effects depends on the location and size of mineral workings. Option 1 may be most likely to have negative effects on the historic environment, as a significant part of this SRA consists of the Lower Windrush Valley, part of the Thames, Lower Windrush and Evenlode Valleys strategic resource area (SRA 6), (parts of which are a sensitive archaeological area) and it is the only SRA for sharp sand and gravel in northern Oxfordshire. SRA5, in southern Oxfordshire, includes parts of the Thames and Lower Thame Valleys, parts of which are also sensitive archaeological areas. Options 2 and 3 may be least likely to have negative effects, as they offer a wider range of site options, which may allow allocation of sites that avoid sensitive areas. Option 1 performs slightly better than the other options, as it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than southern Oxfordshire[57], although this depends on the exact location of workings. These differences are not considered to be of such a magnitude to change the scoring in the 'Duration' column.

[55] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.35*
[56] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[57] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

3	Water quality	-/?	-/?	-/?	I	L	P	**Option 1: 0% Southern, 100% Northern** There is potential for adverse effects on surface and ground water in the SRA in northern Oxfordshire as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. There is potential for cumulative negative effects on ground water flow as a result of concentration of mineral workings within SRA6. Policy C4 may help mitigate any adverse effects, as it states that proposals would need to demonstrate there will be no unacceptable risk to quantity and quality of water resources. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[58]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could help minimise impacts on water quality, although this remains uncertain as this depends on the exact location of workings. Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC as 'it must be demonstrated that there will be no change in water levels at these sites.
		-/?	-/?	-/?	I	L	P	**Option 2: 35% Southern, 65% Northern** There is potential for adverse effects on surface and ground water in the SRAs in northern and southern Oxfordshire as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. Policy C4 may help mitigate any adverse effects, as it states that proposals would need to demonstrate there will be no unacceptable risk to quantity and quality of water resources. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[59]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 3 and 4, which could help minimise impacts on water quality, although this remains uncertain as this depends on the exact location of workings. Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC as 'it must be demonstrated that there will be no change in water levels at these sites'.

[58] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[59] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-/?	**-/?**	**-/?**	**I**	**L**	**P**	**Option 3: 75% Southern, 25% Northern** There is potential for adverse effects on surface and ground water in the SRAs in northern and southern Oxfordshire as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. Policy C4 may help mitigate any adverse effects, as it states that proposals would need to demonstrate there will be no unacceptable risk to quantity and quality of water resources. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[60]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 1 and 2, which could increase the scale and likelihood of water quality impacts, although this remains uncertain as this depends on the exact location of workings. Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC as 'it must be demonstrated that there will be no change in water levels at these sites'.
		-/?	**-/?**	**-/?**	**I**	**L**	**P**	**Option 4: 100% Southern, 0% Northern** There is potential for adverse effects on surface and ground water in the SRAs in southern Oxfordshire as a result of mineral workings. Effects may include the modification of surface flows to watercourses or existing ponds, and alteration of groundwater seepages, flushes or spring flows. There is potential for cumulative negative effects on ground water flow as a result of concentration of mineral workings within southern Oxfordshire (SRA4 & SRA5). Policy C4 may help mitigate any adverse effects, as it states that proposals would need to demonstrate there will be no unacceptable risk to quantity and quality of water resources. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[61]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could increase the scale and likelihood of water quality impacts, although this remains uncertain as this depends on the exact location of workings. Policy M4 includes requirements to protect the integrity of the Oxford Meadows SAC as 'it must be demonstrated that there will be no change in water levels at these sites'.

[60] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[61] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		Summary for topic						All options have potential to alter surface water flows and groundwater seepages, although Policy C4 is expected to help minimise this. Option 1 performs slightly better than the other options, as it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than southern Oxfordshire[62], although this depends on the exact location of workings. Options 1 and 4 may have cumulative negative effects on ground water flow as a result of concentration of mineral workings within one part of Oxfordshire, although this is not likely to be of such a magnitude to change the scoring in the 'Duration' column.
4	Air quality	**-**	**-**	**-**	**R**	**L**	**P**	**Option 1: 0% Southern, 100% Northern** There is potential for air pollution associated with HGV movements in the identified area for working in northern Oxfordshire over the lifetime of the working permissions and into the restoration period. This option is likely to lead to increased air pollution as HGVs would have to travel further to transport sharp sand and gravel to market areas in the south of Oxfordshire[63]. For example, the weighted average distance from nominated sites in northern Oxfordshire to Didcot in southern Oxfordshire is 23.8 million tonne miles, whereas from nominated sites in northern Oxfordshire to Oxford is only 9.1 million tonne miles, although distances depend on the exact location of mineral workings. Policy C5 should help to mitigate any local adverse effects.
		-	**-**	**-**	**R**	**L**	**P**	**Option 2: 35% Southern, 65% Northern** There is potential for air pollution associated with HGV movements in the identified areas for working in northern and southern Oxfordshire over the lifetime of the working permissions and into the restoration period. This option may contribute to emissions from transport by retaining the pattern of greater extraction in the west, despite the fact there is a 50:50 split in demand for sand and gravel between the northern and southern areas of Oxfordshire. Policy C5 should help to mitigate any local adverse effects.
		+/?	**+/?**	**+/?**	**R**	**L**	**P**	**Option 3: 75% Southern, 25% Northern** This option would lead to sharp sand and gravel provision in closer proximity to main markets, which would reduce the length and time of journeys made by HGVs[64]. This is expected to minimise emissions of air pollutants associated with HGV movements and could improve local air quality.

[62] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[63] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[64] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-	-	-	R	L	P	**Option 4: 100% Southern, 0% Northern** There is potential for air pollution associated with HGV movements in the identified areas for working in southern Oxfordshire over the lifetime of the working permissions and into the restoration period. This option may lead to increased air pollution as HGVs would have to travel further to transport aggregates to market areas in the north of Oxfordshire[65]. For example, the weighted average distance from nominated sites in southern Oxfordshire to Banbury, in northern Oxfordshire, is 38.7 million tonne miles, whereas from nominated sites in southern Oxfordshire to Abingdon, in southern Oxfordshire, is only 9 million tonne miles, although distances depend on the exact location of mineral workings. Policy C5 should help to mitigate any local adverse effects.
		Summary for topic						All options may contribute to traffic within the City of Oxford AQMA. Options 1, 2 and 4 are likely to result in increased HGV movements and associated emissions. Options 1 and 4 are both likely to increase the weighted average journey for sharp sand and gravel from aggregate source to market[66], although this depends on the exact location of mineral workings, whereas Option 2 is unlikely to change this and Option 3 is likely to decrease this. As such, Option 3 is expected minimise effects on air quality, whereas Options 1 and 4 may lead to decreases in air quality.
5	Greenhouse gas emissions	-	-	-	R	N	P	**Option 1: 0% Southern, 100% Northern** Greenhouse gas emissions associated with extraction, processing and HGV movements would result regardless of the location of minerals extraction. This option may lead to increased greenhouse gas emissions as HGVs would have to travel further to transport sharp sand and gravel to market areas in the south of Oxfordshire[67]. For example, the weighted average distance from nominated sites in northern Oxfordshire to Didcot, in southern Oxfordshire, is 23.8 million tonne miles, whereas from nominated sites in northern Oxfordshire to Oxford is only 9.1 million tonne miles, although distances depend on the exact location of mineral workings.

[65] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[66] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[67] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-	-	-	R	N	P	**Option 2: 35% Southern, 65% Northern** Greenhouse gas emissions associated with extraction, processing and HGV movements would result regardless of the location of minerals extraction. Nevertheless, this option may contribute to emissions from transport by retaining the pattern of greater extraction in the west, despite the fact there is a 50:50 split in demand for sand and gravel between the northern and southern areas of Oxfordshire.
		+/?	+/?	+/?	R	N	P	**Option 3: 75% Southern, 25% Northern** Greenhouse gas emissions associated with extraction, processing and HGV movements would result regardless of the location of minerals extraction. This option would lead to aggregate provision in closer proximity to main markets, which would reduce the length and time of journeys made by HGVs[68], leading to minimisation of emissions associated with vehicular transport.
		-	-	-	R	N	P	**Option 4: 100% Southern, 0% Northern** Greenhouse gas emissions associated with extraction, processing and HGV movements would result regardless of the location of minerals extraction. This option may lead to increased greenhouse gas emissions as HGVs would have to travel further to transport sharp sand and gravel to market areas in the north of Oxfordshire. For example, the weighted average distance from nominated sites in southern Oxfordshire to Banbury, in northern Oxfordshire, is 38.7 million tonne miles, whereas from nominated sites in southern Oxfordshire to Abingdon, in southern Oxfordshire, is only 9 million tonne miles, although distances depend on the exact location of mineral workings.
		Summary for topic						Options 1 and 4 are both likely to increase the weighted average journey from aggregate source to market, although this depends on the exact location of mineral workings, whereas Option 2 is unlikely to change this and Option 3 is likely to decrease this[69]. As such, Option 3 is expected to minimise greenhouse gas emissions, whereas Options 1 and 4 may maximise these.

[68] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[69] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

6	Flood risk	**0**	**0**	**+**	**I**	**L**	**P**	**<u>Option 1: 0% Southern, 100% Northern</u>** Some parts of the SRA for sharp sand and gravel in northern Oxfordshire (SRA6) lie within Flood Zones 2 and 3, which are at medium to high risk of flooding. Development should be avoided in the floodplain (Flood Zone 3) where possible and requires the sequential and (where appropriate), the exception tests to be applied. The requirement to apply these tests is explicitly included in Core Policy C3: Flooding. Sand and gravel extraction is considered to be water compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. Extraction of minerals in these areas could offer opportunities to increase flood storage capacity in the longer term, through restoration, thereby reducing the risk of flooding in these areas.
		0	**0**	**+**	**I**	**L**	**P**	**<u>Option 2: 35% Southern, 65% Northern</u>** Some parts of the SRAs for sharp sand and gravel in both northern and southern Oxfordshire lie within Flood Zones 2 and 3, which are at medium to high risk of flooding (i.e. SRAs 4, 5 and 6 along the Thames Valley). Development should be avoided in the floodplain where possible and requires the sequential and (where appropriate), the exception tests to be applied. The requirement to apply these tests is explicitly included in core Policy C3: Flooding. Sand and gravel extraction is considered to be water compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. Extraction of minerals in these areas could offer opportunities to increase flood storage capacity in the longer term through restoration, thereby reducing the risk of flooding in these areas.

		0	**0**	**+**	**I**	**L**	**P**	**Option 3: 75% Southern, 25% Northern** Some parts of the SRAs for sharp sand and gravel in both northern and southern Oxfordshire lie within Flood Zones 2 and 3, which are at medium to high risk of flooding (i.e. SRAs 4, 5 and 6 along the Thames Valley). Development should be avoided in the floodplain where possible and requires the sequential and (where appropriate), the exception tests to be applied. The requirement to apply these tests is explicitly included in core Policy C3: Flooding. Sand and gravel extraction is considered to be water compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. Extraction of minerals in these areas could offer opportunities to increase flood storage capacity in the longer term through restoration, thereby reducing the risk of flooding in these areas.
		0	**0**	**+**	**I**	**L**	**P**	**Option 4: 100% Southern, 0% Northern** Some parts of the SRAs for sharp sand and gravel in southern Oxfordshire (SRA5 and SRA4) lie within Flood Zones 2 and 3, which are at medium to high risk of flooding. Development should be avoided in the floodplain (Flood Zone 3) where possible and requires the sequential and (where appropriate), the exception tests to be applied. The requirement to apply these tests is explicitly included in Core Policy C3: Flooding. Sand and gravel extraction is considered to be water compatible development but the sequential test is still applied to the assessment of these areas as flooding may cause damage, disruption and loss of earnings to this type of development. For example, supporting infrastructure would be at risk from flooding and should be located away from the high risk areas. Extraction of minerals in these areas could offer opportunities to increase flood storage capacity in the longer term through restoration, thereby reducing the risk of flooding in these areas.
		Summary for topic						All options include SRAs with areas in Flood Zones 2 and 3, which are at medium to high risk of flooding. Sharp sand and gravel extraction is considered a water compatible development and mineral workings have potential to increase flood storage in the longer term, primarily through use as flood storage after restoration.

7	Transport effects	-	-	-	R	L	P	**Option 1: 0% Southern, 100% Northern** Increased working in any one particular area (i.e. SRA6) has potential for negative cumulative effects on the road network and communities near the area, particularly in terms of congestion, road maintenance and safety. Careful consideration should be given to access and road capacities when considering sites for further working. Local effects should be addressed through the application of the core policies in the allocation of sites and at the planning application stage. Concentrating development in northern Oxfordshire is likely to increase the average distance that aggregates must be transported to market[70] (due to the need to transport aggregates to southern Oxfordshire). For example, the weighted average distance from nominated sites in northern Oxfordshire to Didcot is 23.8 million tonne miles, whereas from nominated sites in northern Oxfordshire to Oxford is only 9.1 million tonne miles, although distances depend on the exact location of mineral workings. This could lead to increases in congestion over a wider part of the road network.
		-	-	-	R	L	P	**Option 2: 35% Southern, 65% Northern** Continued and concentrated working in the existing sand and gravel SRAs is likely to result in cumulative effects in terms of congestion, road maintenance and safety. Local effects should be addressed through the application of the core policies in the allocation of sites and at the planning application stage.
		+	+	+	R	L	P	**Option 3: 75% Southern, 25% Northern** Continued working in the existing sand and gravel SRAs is likely to result in cumulative effects in terms of congestion, road maintenance and safety. Local effects should be addressed through the application of the core policies in the allocation of sites and at the planning application stage. This policy recognises that future demand for sharp sand and gravel resources is likely to be split 50:50 between northern and southern Oxfordshire (see **paragraph 3.10** of this appendix). Allocating 75% of the additional requirement of sharp sand and gravel to southern Oxfordshire and the remaining 25% to northern Oxfordshire would result in an equal split of overall sharp sand and gravel provision between northern and southern Oxfordshire. In matching distribution of sharp sand and gravel workings with the distribution of demand, this option is likely to minimise the distance HGVs need to travel to market. This is likely to minimise any impacts on traffic, including congestion and road maintenance and could bring these below current levels.

[70] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		-	-	-	R	L	P	**Option 4: 100% Southern, 0% Northern** Increased working in any one part of the county (i.e. in SRA4 & SRA5) has potential for negative cumulative effects on the road network and communities near the area, particularly in terms of congestion, road maintenance and safety. Careful consideration should be given to access and road capacities when considering sites for further working. Local effects should be addressed through the application of the core policies in the allocation of sites and at the planning application stage. Concentrating development in southern Oxfordshire is likely to increase the average distance that sharp sand and gravel is transported to market (due to the need to transport aggregates to the north of Oxfordshire). For example, the weighted average distance from nominated sites in southern Oxfordshire to Banbury is 38.7 million tonne miles, whereas from nominated sites in southern Oxfordshire to Abingdon is only 9 million tonne miles, although distances depend on the exact location of mineral workings. This could lead to increases in congestion over a wider part of the road network.
		Summary for topic						Option 3 performs best, as aligning locations of minerals supply and areas of demand will minimise the distance HGVs travel between source and market. Options 1 and 4 are likely to have the greatest negative effect on transport, as both these options will require HGVs to travel further to serve markets in the southern and northern parts of the county respectively. The SA 'score' against short, medium and long term effects is the same for Option 1, 2 and 4 as, although Options 1 and 4 are expected to have slightly greater effects, these are not expected to lead to a significant negative effects on transport.
8	Population and health	-	-	+/ ?	I	L	P	**Option 1: 0% Southern, 100% Northern** Whilst the SRA is associated with the existing sharp sand and gravel working areas (except Finmere and Faringdon), minerals workings are likely to expand and become more concentrated if sites in northern Oxfordshire are required to fulfil the entire sharp sand and gravel requirement. This may intensify existing adverse effects and also increase the likelihood that communities that are not currently affected by minerals operations may start to be affected by these. Potential negative adverse effects on local communities could arise 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 core policies in the allocation of sites and at the planning application stage. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may be positive permanent effects as a result of restoration initiatives.

		-/?	-/?	+/?	I	L	P	**Option 2: 35% Southern, 65% Northern** The SRAs are associated with the existing sharp sand and gravel working areas (except Finmere and Faringdon) and therefore those communities that are currently adversely affected by mineral workings are expected to continue to experience adverse effects for the plan period and longer term. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may be positive permanent effects as a result of restoration initiatives. The degree and nature of effects will be dependent on mitigation measures put in place through new planning permissions, proximity to sensitive receptors and the duration of working. There may also be future extraction in areas where local communities are not currently affected by minerals operations. There is potential for negative adverse effects on local communities near to any new minerals 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 core policies in the allocation of sites and at the planning application stage.
		-/?	-/?	+/?	I	L	P	**Option 3: 75% Southern, 25% Northern** The SRAs are associated with the existing sharp sand and gravel working areas (except Finmere and Faringdon) and therefore those communities that are currently adversely affected by mineral workings are expected to continue to experience adverse effects for the plan period and longer term. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may be positive permanent effects as a result of restoration initiatives. The degree and nature of effects will be dependent on mitigation measures put in place through new planning permissions, proximity to sensitive receptors and the duration of working. There may also be future extraction in areas where local communities are not currently affected by minerals operations. There is potential for negative adverse effects on local communities near to any new minerals 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 core policies in the allocation of sites and at the planning application stage.

		-	-	+/ ?	I	L	P	**Option 4: 100% Southern, 0% Northern** Whilst the SRAs are associated with the existing sharp sand and gravel working areas (except Finmere and Faringdon), minerals workings are likely to expand and become more concentrated if sites in southern Oxfordshire are required to fulfil the entire sharp sand and gravel requirement. This may intensify existing adverse effects and also increase the likelihood that communities that are not currently affected by minerals operations may start to be affected by these. Potential negative adverse effects on local communities could arise 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 core policies in the allocation of sites and at the planning application stage. Once sites are fully worked out and restored, these adverse effects should be reduced, and over time there may be positive permanent effects as a result of restoration initiatives.
		Summary for topic						All options perform similarly with regards to population and health. Options 2 and 3 may have a lesser impact, as negative effects are expected to be distributed over a larger area. Options 1 and 4 are more likely to increase the proportion of minerals workings in their respective SRAs, which could lead to greater effects on local communities.

9	Soils	**-/?**	**-/?**	**-/?**	**I**	**L**	**P**	**<u>Option 1: 0% Southern, 100% Northern</u>** Minerals extraction is likely to lead to loss of best and most versatile agricultural land, as there is a large area of Grade 2 agricultural land within SRA 6, which could be lost to minerals extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[71]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could help minimise impacts on soils, although this remains uncertain as this depends on the exact location of workings. Agricultural land may be replaced through restoration in the long term. However, the Core Strategy notes that, because of a general shortage of inter waste material for infilling, sand and gravel workings in river valleys (i.e. all SRAs for sand and gravel) are often restored to wetlands. The Core Strategy states that when suitable material is available, consideration should be given to filling below original levels to improve flood storage capacity[72]. Given these factors, it is considered that agricultural land is likely to be permanently lost at these sites.
		-/?	**-/?**	**-/?**	**I**	**L**	**P**	**<u>Option 2: 35% Southern, 65% Northern</u>** Minerals extraction is likely to lead to loss of best and most versatile agricultural land, as there are areas of Grade 2 agricultural land within all SRAs, which could be lost to minerals extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[73]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 3 and 4, which could help minimise impacts on soils, although this remains uncertain as this depends on the exact location of workings. Agricultural land may be replaced through restoration in the long term. However, the Core Strategy notes that, because of a general shortage of inter waste material for infilling, sand and gravel workings in river valleys (i.e. all SRAs for sand and gravel) are often restored to wetlands. The Core Strategy states that when suitable material is available, consideration should be given to filling below original levels to improve flood storage capacity[74]. Given these factors, it is considered that agricultural land is likely to be permanently lost at these sites.

[71] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[72] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.81*
[73] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[74] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.81*

		-/?	-/?	-/?	I	L	P	**Option 3: 75% Southern, 25% Northern** Minerals extraction is likely to lead to loss of best and most versatile agricultural land, as there are areas of Grade 2 agricultural land within all SRAs, which could be lost to minerals extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[75]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than Options 1 and 2, which could increase the scale and likelihood of soil impacts, although this remains uncertain as this depends on the exact location of workings. Agricultural land may be replaced through restoration in the long term. However, the Core Strategy notes that, because of a general shortage of inter waste material for infilling, sand and gravel workings in river valleys (i.e. all SRAs for sand and gravel) are often restored to wetlands. The Core Strategy states that when suitable material is available, consideration should be given to filling below original levels to improve flood storage capacity[76]. Given these factors, it is considered that agricultural land is likely to be permanently lost at these sites.

[75] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

[76] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.81*

		-/?	**-/?**	**-/?**	**I**	**L**	**P**	**Option 4: 100% Southern, 0% Northern** Minerals extraction is likely to lead to loss of best and most versatile agricultural land, as there are areas of Grade 2 agricultural land within both SRAs 4 and 5, which could be lost to minerals extraction. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be greater in southern Oxfordshire, than northern[77]. As such, it is likely that a larger area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than all other options, which could increase the scale and likelihood of soil impacts, although this remains uncertain as this depends on the exact location of workings. Agricultural land may be replaced through restoration in the long term. However, the Core Strategy notes that, because of a general shortage of inter waste material for infilling, sand and gravel workings in river valleys (i.e. all SRAs for sand and gravel) are often restored to wetlands. The Core Strategy states that when suitable material is available, consideration should be given to filling below original levels to improve flood storage capacity[78]. Given these factors, it is considered that agricultural land is likely to be permanently lost at these sites.
		Summary for topic						All options perform similarly with regards to soils, as all have potential to lead to loss of best and most versatile agricultural land. Option 1 performs slightly better than the other options, as SRAs in northern Oxfordshire, as it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel than southern Oxfordshire[79], although this depends on the exact location of workings.
10	Waste hierarchy	**0**	**0**	**0**				**Option 1: 0% Southern, 100% Northern** No effect predicted.
		0	**0**	**0**				**Option 2: 35% Southern, 65% Northern** No effect predicted.
		0	**0**	**0**				**Option 3: 75% Southern, 25% Northern** No effect predicted.

[77] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[78] Oxfordshire County Council (2015) Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy, Proposed Submission Document: *paragraph 4.81*
[79] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		0	**0**	**0**				**Option 4: 100% Southern, 0% Northern** No effect predicted.
		Summary for topic						It is not anticipated that any of the options will have impacts on the waste hierarchy.
11	Self-sufficiency	**-/?**	**-/?**	**-/?**	**R**	**L**	**P**	**Option 1: 0% Southern, 100% Northern** The SRA in northern Oxfordshire is a considerable distance from certain market areas in southern Oxfordshire, for example the weighted average distance from all site nominations in northern Oxfordshire to Didcot, in southern Oxfordshire, is 23.8 million tonne miles, but only 9.1 to Oxford[80], although distances depend on the exact location of mineral workings. This may encourage sharp sand and gravel users in the south part of southern Oxfordshire to source minerals from outside the county.
		?	**?**	**?**				**Option 2: 35% Southern, 65% Northern** The SRAs for sharp sand and gravel extraction in both northern and southern Oxfordshire are relatively well located in terms of proximity to the markets. However, this distribution would continue the existing pattern of greater levels of minerals provision in northern Oxfordshire. Future demand for sharp sand and gravel resources is likely to be split 50:50 between northern and southern Oxfordshire (see **paragraph 3.10** of this appendix). The SRA in northern Oxfordshire is a considerable distance from certain market areas in southern Oxfordshire. For example the weighted average distance from all site nominations in northern Oxfordshire to Didcot, in southern Oxfordshire, is 23.8 million tonne miles[81], although distances depend on the exact location of mineral workings. This option may encourage sharp sand and gravel users in the south part of southern Oxfordshire to source minerals from outside the county.

[80] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[81] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		+	+	+	R	L	P	**Option 3: 75% Southern, 25% Northern** This policy recognises that future demand for sharp sand and gravel resources is likely to be split 50:50 between northern and southern Oxfordshire (see **paragraph 3.10** of this appendix). Allocating 75% of the additional requirement of sharp sand and gravel to southern Oxfordshire and the remaining 25% to northern Oxfordshire would result in an equal split of overall sharp sand and gravel provision between northern and southern Oxfordshire. This option may help to maximise self-sufficiency by making provision for sharp sand and gravel workings close to locations of demand for this mineral.
		-/?	-/?	-/?	R	L	P	**Option 4: 100% Southern, 0% Northern** The SRAs in southern Oxfordshire are a considerable distance from certain market areas, for example the sand and gravel deposits in the Thames Valley – Caversham to Shiplake SRA (SRA4) are over 55 million tonne miles from the Banbury market. This may encourage sharp sand and gravel users in the north of Oxfordshire to source minerals from outside the county. The implications of the increased distance to market remain uncertain.
		Summary for topic						It is understood that all options will be able to provide for the sharp sand and gravel supply levels identified in the LAA. Option 3 is most likely to promote self-sufficiency, as it will enable working of sharp sand and gravel close to markets in Oxfordshire for this resource. Options 1 and 4 are identified as potentially having negative effects on self-sufficiency, as greater distances from workings to markets may make imports of aggregates from outside Oxfordshire more attractive than sourcing from within the county. This may also be true for Option 2, although this is uncertain as some sharp sand and gravel provision will be retained in both northern and southern Oxfordshire.
12	Economic growth	+/-/?	+/-/?	+/-/?	R	L	P	**Option 1: 0% Southern, 100% Northern** Any expanded and new minerals extraction provides potential for job creation which supports the local economy and has a long term positive effect on this SA objective. The SRA in northern Oxfordshire is a considerable distance from market areas in southern Oxfordshire, for example the weighted average distance from all site nominations in northern Oxfordshire to Didcot in southern Oxfordshire is 23.8 million tonne miles, but only 9.1 to Oxford [82], although distances depend on the exact location of mineral workings. This may make this area less attractive for investment in the aggregate industry or it may encourage sharp sand and gravel users in the south part of southern Oxfordshire to source minerals from outside the county.

[82] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

		+/?	+/?	+/?				**Option 2: 35% Southern, 65% Northern** The SRAs for sharp sand and gravel extraction in both northern and southern Oxfordshire are relatively well located in terms of proximity to the markets and provide potential for investment. Any expanded and new minerals extraction provides potential for job creation which supports the local economy and has a long term positive effect on this SA objective. However, this distribution would continue the existing pattern of greater levels of minerals provision in northern Oxfordshire, whereas future demand for sharp sand and gravel resources is likely to be split 50:50 between northern and southern Oxfordshire (see **paragraph 3.10** of this appendix). This could lead to sharp sand and gravel users in the south part of southern Oxfordshire to source minerals from outside the county
		+	+	+	R	L	P	**Option 3: 75% Southern, 25% Northern** The SRAs for sharp sand and gravel extraction in both northern and southern Oxfordshire are well located in terms of proximity to the markets and provide potential for investment. Any expanded and new minerals extraction provides potential for job creation which supports the local economy and has a long term positive effect on this SA objective.
		+/-/?	+/-/?	+/-/?	R	L	P	**Option 4: 100% Southern, 0% Northern** Any expanded and new minerals extraction provides potential for job creation which supports the local economy and has a long term positive effect on this SA objective. The SRAs in southern Oxfordshire are a considerable distance from certain market areas, for example the sand and gravel deposits near Shiplake (SRA4) are a distance from the Banbury market. This may make these areas less attractive for investment in the aggregate industry or it may encourage sharp sand and gravel users in the north part of northern Oxfordshire to source minerals from outside the county. The economic implications of the increased distance to market remain uncertain.
		Summary for topic						All options will lead to new and/or expanded minerals extraction, which provides potential for job creation and supports the local economy. With regards to economic growth, Options 1 and 4 present potential negative effects as some SRAs would be a considerable distance from the relevant market, which may encourage sourcing of minerals from outside the county. This may also be true for Option 2, although this is uncertain as some sharp sand and gravel provision will be retained in both northern and southern Oxfordshire.

Recommendation of preferred option	All options perform similarly with regards to SA Objectives 1, 6, 9 and 10. This is largely due to the fact that these options relate to broad areas that include a range of features for which minerals workings may have a positive or a negative effect (or mixed effects). Uncertainty generally arises from the fact that the Core Strategy does not identify specific sites for mineral aggregate workings, only broad areas (SRAs) within which sites will subsequently be allocated. Options 1 and 4 are generally expected to have more negative effects, due to the results of concentrating minerals workings in one part of the county. Sensitive receptors, including archaeological assets, water resources and local communities (SA Objectives 2b, 3 and 8), are more likely to be affected as there would be less choice for alternative sites where impacts are likely to arise and less opportunity to dilute negative effects over a larger area. The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less in northern Oxfordshire, than southern[83]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel, which could help minimise impacts, although this remains uncertain as this depends on the exact location of workings. Restricting sharp sand and gravel workings to either northern or southern Oxfordshire is likely to result in a greater weighted average distance to market, as both Options 1 and 4 would involve excavating minerals for markets on the other side of the county (whereas Option 3 would enable minerals to be worked closer to where the demand lies), although exact distances between source and market depend on the locations of mineral workings. This is expected to result in increased emissions of air pollution and greenhouse gases from HGV transport, as well as negative impacts on transport (SA Objectives 4, 5 and 7). Some market areas (particularly those that are the furthest from sharp sand and gravel workings) may start to source more aggregate from outside the county, rather than from within Oxfordshire. This could result in negative impacts for SA Objective 11, self-sufficiency and lower economic gains within Oxfordshire (SA Objective 12). The implications of Option 2 are less certain in this regard, as it could result in allocations in all SRAs, which are relatively well-located in terms of markets, but would result in greater provision of sharp sand and gravel in northern Oxfordshire, when demand is predicted to be equal between northern and southern Oxfordshire[84]. Option 3 performs best against SA Objectives 4, 5, 7, 11 and 12. This option recognises that future demand for sharp sand and gravel resources is likely to be split 50:50 between northern and southern Oxfordshire (see **paragraph 3.10** of this appendix). Allocating 75% of the additional requirement of sharp sand and gravel to southern Oxfordshire and the remaining 25% to northern Oxfordshire would result in an equal split of overall sharp sand and gravel provision between northern and southern Oxfordshire. In co-ordinating locations of minerals working with demand, this option is expected to minimise distance to market[85], which is likely to reduce emissions of greenhouse gases and air pollutants and transport effects associated with HGV movements. This option may also encourage self-sufficiency and effective economic investment.

[83] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]
[84] Oxfordshire County Council (2016) Evidence Base for Spatial Strategy Alternatives for Delivery Requirement for Sharp Sand and Gravel
[85] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

4 Summary

4.1 This appendix has considered the likely significant effects of two sets of reasonable alternatives with regards to Policy M3 of the Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy.

Inclusion of Bampton/Clanfield

4.2 This SA recommends that the Bampton/Clanfield area is not included as an SRA for sharp sand and gravel in the Core Strategy. Whilst the inclusion of this area would lead to a greater choice of sites for minerals workings, it is likely to lead to negative effects associated with an increased weighted average distance to market. This would lead to increased emissions of air pollution and greenhouse gases associated with HGVs driving a longer distance to market (SA Objectives 4 and 5). The greater distance to market will also have negative implications for transport considerations, as this may increase congestion over a wider area and lead to an increased highway maintenance requirement (SA Objective 7). Economic implications of a greater distance to market remain uncertain (SA Objective 12). Whilst this may make the Bampton/Clanfield area a less attractive area for investment, there are a number of site nominations for minerals workings in the area. In not including Bampton Clanfield, minerals are more likely to be worked closer to the relevant market areas, therefore minimising negative effects associated with transporting minerals longer distances.

4.3 The weighted average area that would need to be worked to provide a million tonnes of mineral resources in all SRAs would be less within Bampton/Clanfield than all other SRAs[86]. As such, it is likely that a smaller area of land would need to be worked in order to yield the same tonnage of sharp sand and gravel, which could help minimise impacts, although this remains uncertain as this depends on the exact location of workings. Nevertheless, this varies within and between SRAs, therefore a degree of uncertainty remains in relation to this.

Distribution options

4.4 This SA recommends a distribution of 75% of new sharp sand and gravel provision in southern Oxfordshire and 25% in northern Oxfordshire (Option 3). This is the distribution required to achieve an equal distribution of supply between northern and southern Oxfordshire, in line with the distribution of expected demand for aggregates between the northern and southern parts of the county. This option is considered to be the most sustainable as it minimises weighted average distance to market, whilst allowing a greater choice of locations for minerals workings. Option 3 performs best against SA Objectives 4, 5, 7, 11 and 12. In co-ordinating locations of sharp sand and gravel working with aggregates demand, this option is expected to minimise transport distance to market, which is likely to reduce emissions of greenhouse gases and air pollutants and transport effects associated with HGVs. This option may also encourage self-sufficiency and effective economic investment.

4.5 Issues associated with a greater weighted average distance between source and market are described in the 'Inclusion of Bampton/Clanfield' section above. These would be exacerbated by Options 1 and 4 (100% additional provision from northern and 100% additional provision from southern Oxfordshire respectively), as concentrating minerals workings on one half of the County would increase distances to markets in the other half of the County.

4.6 Options 1 and 4 tend to have more negative effects, due to the results of concentrating minerals workings in one half of the county. Sensitive receptors, including archaeological assets and water resources (SA Objectives 2b and 3), are more likely to be affected as there would be less choice for alternative sites where impacts are likely to arise and less opportunity to dilute negative

[86] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

effects over a larger area. Likewise, effects on local communities are more likely to be concentrated in certain areas, particularly in the case of Option 1, where there is only one SRA for sharp sand and gravel (i.e. SRA6) (SA Objective 8). Option 1 performs slightly better against SA Objectives 1, 2a, 2b, 3 and 9, as it would concentrate new sand and gravel extraction in northern Oxfordshire, where the weighted average area that would need to be worked to provide a million tonnes of mineral resources is less[87]. As such, this is likely to lessen any impacts associated with land take, including the likelihood of workings being in proximity to sensitive features, although this depends on the exact location of mineral workings.

[87] OCC (2016) Weighted averages for distance to markets and weighted average of area per mt resource [Spreadsheet]

Appendix A: SA Framework

SA Objective			
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 Local Geology Sites?	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 Local Geology Sites or geological SSSIs.
2a	To protect and enhance landscape character and local distinctiveness	Will the Plan conserve and enhance Oxfordshire's AONBs & their settings and take into account guidelines associated with specific landscape types? Will the Plan respect, maintain and strengthen local character and distinctiveness?	Minerals and waste development where the anticipated residual landscape impact is neutral or positive. 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.

SA Objective			
2b	To conserve and enhance the historic environment, heritage assets and their settings	Will the Plan protect, conserve and/or enhance heritage assets and the historic/prehistoric environment of Oxfordshire? Will the Plan contribute to the better management of heritage assets? Will the Plan improve the quality of the historic environment? Will the Plan provide for increased access to and enjoyment of the historic environment? Will the Plan alter the hydrological conditions of water dependent heritage assets, including paleoenvironmental deposits? Will the Plan provide for increased understanding and interpretation of the historic environment? Will the Plan secure a supply of local building and roofing materials?	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. Area of highly sensitive historic landscape characterisation type(s) which have been altered and their character eroded.
3	To maintain and improve ground and surface water quality	Will the Plan affect groundwater quality? Will the Plan affect 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	Will the Plan lead to increased traffic congestion in built up areas? Will Plan lead to increased dust and/or odours?	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	Will the Plan lead to a decrease in production of greenhouse gases such as CO2 and	Proportion of waste and aggregates transported by rail or water.

SA Objective			
	climate change	methane?	Quantity of biodegradable wastes diverted from landfill.
6	To reduce the risk of flooding	Will the proposal seek to maintain or reduce flood risk?	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	Will the Plan reduce distances travelled by road? Are sites in the Plan well located in relation to surrounding settlements for waste, or markets for minerals? Will the waste facilities or mineral operation serve local needs? Does the Plan facilitate HGV routeing agreements and developer contributions for infrastructure improvements?	Distances travelled by road from new applications to settlements (waste) or markets (minerals). 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	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?	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	Will the Plan affect high grade agricultural land?	Area of high grade agricultural land lost to minerals and waste development.

SA Objective			
	quality	Will the Plan lead to soil pollution or contamination?	Incidences of land contamination related to minerals and waste development.
10	To contribute towards moving up the waste hierarchy in Oxfordshire	Will the Plan increase the amount of waste re-used, recycled or recovered?	Amounts of waste recycled and recovered.
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	Will the Plan reduce the need for waste to be transported outside Oxfordshire for treatment or disposal? Will the Plan reduce the need for Oxfordshire to import aggregates?	Number of permitted applications for waste management to meet targets to achieve net waste self-sufficiency. Number of permitted applications which contribute to meeting minerals supply requirement.
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?	Number of direct jobs created in the waste/mineral sector per year. Number of new mineral and waste permissions.

APPENDIX D.2

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Sustainability Appraisal for waste strategy alternatives for the Oxfordshire Minerals and Waste Local Plan Part 1

Prepared by LUC

January 2017

Project Title: Sustainability Appraisal of alternatives to the Oxfordshire Minerals and Waste Local Plan Part 1: Core Strategy

Client: Oxfordshire County Council

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0.1	28/11/16	First Draft for client comment	Sarah Smith	Jon Grantham	Jon Grantham
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Sustainability Appraisal for waste strategy alternatives for the Oxfordshire Minerals and Waste Local Plan Part 1

January 2017

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Contents

Tables

1 Introduction

1.1 Oxfordshire County Council (the Council) is currently preparing Part 1 of their new Minerals and Waste Local Plan, the Core Strategy. This was submitted to the Secretary of State for independent examination in December 2015. Following his Interim Report (October 2016) the Inspector required the Council to consider reasonable alternatives with regards to certain policies.

1.2 This appendix provides information on the alternatives that are being considered during the post-Examination process to undertake the further Strategic Environmental Assessment / Sustainability Appraisal (referred to hereafter as 'SA') required and finalise the Main Modifications that Oxfordshire County Council will be proposing to publish for consultation.

1.3 This appendix presents the SA assessment results of those policies with reasonable alternative options. This work will inform the Council's selection and rejection of these options.

2 Methodology

2.1 The methodology used to undertake the assessment of reasonable alternatives (options) will be consistent with the approach undertaken for the Submission Core Strategy. This is summarised below.

2.2 In order to be able to easily compare the effects of each option against each of the SA objectives, assessments have been combined into a single table rather than having separate tables for each option. Using this helps ensure that all alternatives will be assessed at the same level of detail and allows easier comparison.

2.3 Each policy option was assessed against each of the 12 SA objectives, and a judgement was made with regards to the likely effect that the option would have on that objective. These judgements were recorded as a colour coded symbol, as shown in **Table 2.1** below. **Table 2.2** to **Table 2.5** explain the terminology and symbology used with regards to the assessment of duration, reversibility, scale and permanence of effects, as presented in **Chapter 3**.

Table 2.1 Key to symbols and colour coding used in the SA of the Core Strategy

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 predicted effects / 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 (mixed effect)

Table 2.2 Duration of effects identified

Duration	Approximate timing of effect
Short Term	0-5 years
Medium Term	5 years to end of Plan period in 2031
Long Term	After life of plan (post 2031)

Table 2.3 Reversibility of effects identified

Symbol	Meaning	Comment
R	Reversible effect	Environmental effect that can be reversed, for example an incident of water pollution can be cleaned up over time.
I	Irreversible effect	Environmental effect that cannot be reversed such as the loss of a historic feature or the loss of agricultural soil due to permanent development.

Table 2.4 Scale of effects identified

Symbol	Meaning	Comment
L	Local	Within Oxfordshire Local Authority areas
R	Regional	Oxfordshire and surrounding counties
N	National	UK or a wider global impact

Table 2.5 Permanence of effects identified

Symbol	Meaning	Comment
P	Permanent	Effect even after mineral and waste activities have ceased
T	Temporary	Effect during mineral and waste activities

2.4 **Table 2.6** below summarises the SA objectives against which the options are assessed. The full SA framework is detailed in **Appendix 1**. The table also includes a 'reference term', which is a short title for each SA Objective to be used in the assessment tables in **Chapter 3**.

Table 2.6 SA Objectives

SA Objective		Reference Term
1	To protect, maintain, and enhance Oxfordshire's biodiversity and geological diversity including natural habitats, flora and fauna and protected species	Biodiversity & geodiversity
2a	To protect and enhance landscape character and local distinctiveness	Landscape
2b	To conserve and enhance the historic environment, heritage assets and their settings	Historic environment
3	To maintain and improve ground and surface water quality	Water quality
4	To improve and maintain air quality to levels which do not damage natural systems	Air quality
5	To reduce greenhouse gas emissions to reduce the cause of climate change	Greenhouse gas emissions
6	To reduce the risk of flooding	Flood risk
7	To minimise the impact of transportation of aggregates and waste products on the local and strategic road network	Transport effects
8	To minimise negative impacts of waste management facilities and mineral extraction on people and local communities	Population and health
9	To protect, improve and where necessary restore land and soil quality	Soils
10	To contribute towards moving up the waste hierarchy in Oxfordshire	Waste hierarchy
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	Self-sufficiency
12	To support Oxfordshire's economic growth and reduce disparities across the County	Economic growth

3 Assessment results

3.1 This chapter details the results of the assessment of reasonable alternatives. Reasonable alternatives were identified with regards to Policies W2, W3, W4 and W11.

Policy W2: Oxfordshire waste management targets - C&I targets

Option 1: Retain Submission C&I targets

3.2 Commercial and industrial (C&I) dry recycling targets to be retained as per the Submission Core Strategy. These are as follows:

Year	2016	2021	2026	2031
C&I dry recycling target	55%	60%	65%	65%

Option 2: Increase C&I targets at a slower rate

3.3 Commercial and industrial dry recycling targets to increase at a slower rate as put forward by BPP Consulting in February 2014, as put forward in representations. These are as follows:

Year	2016	2021	2026	2031
C&I recycling target	55%	60%	60%	65%

3.4 The above options relate to targets for recycling waste, rather than actual levels that must be achieved. However, for the purpose of this assessment, it has been assumed that these targets will be achieved. It has also been assumed that, of C&I waste that is not recycled, a substantial proportion of this will be sent to landfill, although a proportion will be sent to alternative waste treatment, such as energy from waste, which is still lower down the waste hierarchy than recycling.

Table 3.1 Assessment of reasonable alternatives to Policy W2 - C&I targets

SA Objective		Assessment of effect						
		Duration			Reversibility	Scale	Permanence	Evidence and Reference
		Short term	Medium term	Long term				
1	Biodiversity & geodiversity	+/?	+/?	+/?	I	L	P	**Option 1: Retain Submission C&I targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option is likely achieve this sooner and therefore lead to a slightly greater reduction in land-take, than Option 2, although this is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Provision of new recycling facilities may have effects on biodiversity and geodiversity, but effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/?	+/?	+/?	I	L	P	**Option 2: Increase C&I targets at a slower rate** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option is likely to take longer to achieve this and therefore lead to a greater overall land-take, than Option 1, due to a greater amount of waste being sent to landfill for an additional five years in comparison. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Provision of new recycling facilities may have effects on biodiversity and geodiversity, but effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.

		Summary for topic							Both options perform similarly with regards to biodiversity and geodiversity, as effects will largely depend on the locations of waste management facilities and their associated mitigation measures. Option 1 is expected to lead to greater reduction of land-take, as reaching the 65% target earlier will reduce the amount of waste sent to landfill for an extra five years in comparison to Option 2. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Both options are expected to lead to provision of new waste facilities, which may have biodiversity and geodiversity impacts depending on their location and any relevant mitigation measures. Whilst Option 1 is likely to deliver such facilities earlier, both options reach the same recycling target by 2031 and therefore long-term effects of new facilities would be the same for both options.
2a	Landscape	**+/?**	**+/?**	**+/?**	**I**	**L**	**P**		**Option 1: Retain Submission C&I targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option is likely achieve this sooner and therefore lead to a slightly greater reduction in land-take, than Option 2, although this is unlikely to be of such a scale to alter the scoring in the 'Duration' column. The provision of new waste facilities may have impacts on landscape character, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/?	**+/?**	**+/?**	**I**	**L**	**P**		**Option 2: Increase C&I targets at a slower rate** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option is likely to take longer to achieve this and therefore lead to a greater overall land-take, than Option 1, due to a greater amount of waste being sent to landfill for an additional five years in comparison. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. The provision of new waste facilities may have impacts on landscape character, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic							Both options are expected to divert waste from landfill and therefore reduce the amount of land-take required for landfill and reduce associated landscape impacts. Option 1 will lead to an overall greater reduction in land-take, as the 65% target will be reached five years earlier. Both options are expected to lead to provision of new waste facilities, which may have landscape impacts depending on their location and any relevant mitigation measures. Whilst Option 1 is likely to deliver such facilities earlier, both options reach the same recycling target by 2031 and therefore long-term effects of new facilities would be the same for both options.

2b	Historic environment	+/?	+/?	+/?	I	L	P	**Option 1: Retain Submission C&I targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste. This is expected to reduce the likelihood of landfill sites within or next to areas of sensitive historic environment. This option is likely achieve this sooner and therefore lead to a slightly greater reduction in land-take, than Option 2, although this is unlikely to be of such a scale to alter the scoring in the 'Duration' column. The provision of new waste facilities may have impacts on the historic environment although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/?	+/?	+/?	I	L	P	**Option 2: Increase C&I targets at a slower rate** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste. This is expected to reduce the likelihood of landfill sites within or next to areas of sensitive historic environment. This option is likely to take longer to achieve this and therefore lead to a greater overall land-take, than Option 1, due to a greater amount of waste being sent to landfill for an additional five years in comparison. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. The provision of new waste facilities may have impacts on the historic environment, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options are expected to divert waste from landfill and therefore reduce the amount of land-take required for landfill and reduce associated impacts on the historic features and their settings. Option 1 will lead to an overall greater reduction in land-take, as the 65% target will be reached five years earlier. Both options are expected to lead to provision of new waste facilities, which may have landscape impacts depending on their location and any relevant mitigation measures. Whilst Option 1 is likely to deliver such facilities earlier, both options reach the same recycling target by 2031 and therefore long-term effects of new facilities would be the same for both options.
3	Water quality	?	+/?	+/?	I	L	P	**Option 1: Retain Submission C&I targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. However, a reduction in landfill could have a positive effect in the medium and long term by reducing the risk of groundwater pollution. Option 1 is expected to achieve this sooner, as it will lead to a reduced amount of waste sent to landfill for an extra five years in comparison to Option 2 and therefore a greater reduction in waste sent to landfill overall. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

		?	+/?	+/?	I	L	P	**Option 2: Increase C&I targets at a slower rate** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. However, a reduction in landfill could have a positive effect in the medium and long term by reducing the risk of groundwater pollution. This option is expected to take longer to achieve this, as it will lead to a greater amount of waste being sent to landfill for an additional five years in comparison to Option 1. Therefore, overall, a greater amount of waste will be sent to landfill compared to Option 1. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		Summary for topic						Both options perform similarly with regards to water quality. Effects are largely dependent on location of waste management facilities, although both options may have positive effects in the medium to long term by reducing the risk of groundwater pollution from landfill. Option 1 is expected to achieve this sooner as it would achieve the 65% recycling rate in a shorter timeframe. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
4	Air quality	?	?	?				**Option 1: Retain Submission C&I targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		?	?	?				**Option 2: Increase C&I targets at a slower rate** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options perform similarly with regards to air quality, as effects will largely depend on the locations of waste management facilities and any mitigation measures to be implemented.
5	Greenhouse gas emissions	+	++	++	R	N	P	**Option 1: Retain Submission C&I targets** The strategy seeks to minimise disposal of waste to landfill. This has positive effects on reducing the emission of the greenhouse gas methane associated with landfilling biodegradable waste. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO_2[1]. This option is expected to reduce methane emissions slightly more than Option 2, as it will result in less waste being sent to landfill overall, because more waste will be recycled between 2026 and 2031. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

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

		+	++	++	R	N	P	**Option 2: Increase C&I targets at a slower rate** The strategy seeks to minimise disposal of waste to landfill. This has positive effects on reducing the emission of the greenhouse gas methane associated with landfilling biodegradable waste. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO_2[2]. This option is expected to result in slightly higher methane emissions than Option 1, as it will result in more waste being sent to landfill overall, because less waste will be recycled between 2026 and 2031. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		Summary for topic						Both options perform similarly with regards to greenhouse gas emissions as both will reduce the amount of waste sent to landfill, which can result in emissions of methane gas. Option 1 performs slightly better than Option 2 as reaching the 65% target earlier will reduce the amount of waste sent to landfill for an extra five years in comparison to Option 2. Therefore, overall, a greater amount of waste will be sent to landfill compared to Option 1. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
6	Flood risk	?	?	?				**Option 1: Retain Submission C&I targets** Effects will be is dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		?	?	?				**Option 2: Increase C&I targets at a slower rate** Effects will be is dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options perform similarly with regards to flood risk, as effects will largely depend on the locations of waste management facilities and any mitigation measures to be implemented.
7	Transport effects	?	?	?				**Option 1: Retain Submission C&I targets** Effects will be dependent on the locations of the different facilities and the distance that waste needs to be transported to be managed.
		?	?	?				**Option 2: Increase C&I targets at a slower rate** Effects will be dependent on the locations of the different facilities and the distance that waste needs to be transported to be managed.
		Summary for topic						Uncertain effects were identified against both options, as effects will depend on the locations of different waste facilities.

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

8	Population and health	+/?	+/?	+/?				**Option 1: Retain Submission C&I targets** The targets aim to significantly reduce the proportions of waste going to landfill. As less landfill would be required, it is likely that fewer communities would be affected by negative effects associated with proximity to landfill sites, including noise, odour and pests, than otherwise. Communities already affected by landfill sites may be so for less time than otherwise, as reduced demand for landfill space may lead to sites being restored sooner. Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/?	+/?	+/?				**Option 2: Increase C&I targets at a slower rate** The targets aim to significantly reduce the proportions of waste going to landfill. As less landfill would be required, it is likely that fewer communities would be affected by negative effects associated with proximity to landfill sites, including noise, odour and pests, than otherwise. Communities already affected by landfill sites may be so for less time than otherwise, as reduced demand for landfill space may lead to sites being restored sooner. This option is likely to take longer to achieve this and therefore lead to a greater overall land-take, than Option 1, due to a greater amount of waste being sent to landfill for an additional five years in comparison. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options may reduce negative effects from landfill (noise, odour etc.) on local communities, by reducing the amount of landfill required. Option 1 will achieve this sooner and lead to an overall greater reduction in land-take, as the 65% target will be reached five years earlier.
9	Soils	+	+	+	I	L	P	**Option 1: Retain Submission C&I targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option is likely achieve this sooner and therefore lead to a slightly greater reduction in land-take, than Option 2, although this is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		+	+	+	I	L	P	**Option 2: Increase C&I targets at a slower rate** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option is likely to take longer to achieve this and therefore lead to a greater overall land-take, than Option 1, due to a greater amount of waste being sent to landfill for an additional five years in comparison. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

		Summary for topic						Both options perform similarly with regards soils, as both will reduce the land-take needed to manage waste. Option 1 is expected to lead to greater reduction of land-take, as reaching the 65% target earlier will reduce the amount of waste sent to landfill for an extra five years in comparison to Option 2. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
10	Waste hierarchy	**+**	**++**	**++**	**R**	**L**	**P**	**Option 1: Retain Submission C&I targets** The targets aim to significantly reduce the proportions of waste going to landfill by increasing recycling targets. This is expected to contribute to ensuring waste is moved up the waste hierarchy as high as possible. This option is likely to perform better by encouraging waste to move up the waste hierarchy sooner than Option 2, thus resulting in less waste being sent to landfill overall. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		+	**++**	**++**	**R**	**L**	**P**	**Option 2: Increase C&I targets at a slower rate** The targets aim to significantly reduce the proportions of waste going to landfill by increasing recycling targets. This is expected to contribute to ensuring waste is moved up the waste hierarchy as high as possible. This option is likely to perform worse than Option 1 as the rate of increase in proportion of waste recycled would be slower. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		Summary for topic						Both options perform similarly with regards to waste hierarchy, as both aim to increase the proportion of waste recycled. Option 1 is expected to perform better than Option 2, as it encourages waste to move up the waste hierarchy sooner than Option 2. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
11	Self-sufficiency	**0**	**0**	**0**				**Option 1: Retain Submission C&I targets** No effect (Oxfordshire is net self-sufficient in waste management).
		0	**0**	**0**				**Option 2: Increase C&I targets at a slower rate** No effect (Oxfordshire is net self-sufficient in waste management).
		Summary for topic						No effect (Oxfordshire is net self-sufficient in waste management).
12	Economic growth	**+**	**+**	**+**	**R**	**L**	**P**	**Option 1: Retain Submission C&I targets** Encouraging the recycling of waste is likely to support Oxfordshire's economy as this is likely to create new markets for waste products and provide new job opportunities at new waste facilities.

		+	+	+	R	L	P	**Option 2: Increase C&I targets at a slower rate** Encouraging the recycling of waste is likely to support Oxfordshire's economy as this is likely to create new markets for waste products and provide new job opportunities at new waste facilities.
		Summary for topic						Both options perform similarly with regards to economic growth, as both are likely to create new markets for waste products and new job opportunities.
Recommendation of preferred option		Options 1 and 2 perform similarly against all SA objectives. This is due to the fact that under both scenarios, the C&I dry recycling target is set to reach 65% by 2031. Option 1 aims to achieve this sooner and therefore will result in more waste diverted from landfill overall than Option 2. As such, Option 1 is considered the most sustainable option. In achieving the 65% target five years earlier than Option 2, less waste will be sent to landfill for an additional five years under Option 1. As such, the overall amount of waste sent to landfill in Option 1 will be less than for Option 2. As a result, Option 1 requires slightly less land-lake for landfill than Option 2, although both ultimately reduce land-take required for waste disposal. However, such differences are unlikely to be of a large enough scale to alter the scoring in the 'Duration' column. Positive effects are generally related to reducing land-take for waste management. Where land-take is greater, there is a higher possibility of landfill being located in or near to a designated or notable feature (e.g. a site designated for nature conservation or an AONB). Many effects depend on the location of any future waste recycling facilities, which has resulted in uncertainty against a number of objectives. Both options could have a long term positive effect with regards to SA Objective 3 (water quality) by reducing risk of groundwater contamination from landfill. Other positive effects relate to SA Objectives 10 and 12, as both options will ensure waste moves up the waste hierarchy and both are likely to lead to new markets and new job opportunities associated with waste facilities.							

Policy W2: Oxfordshire waste management targets - CDE targets

Option 1: Retain Submission CDE targets

3.6 Construction, Demolition and Excavation (CDE) dry recycling targets to be retained as per the Submission Core Strategy. These are as follows:

Year	2016	2021	2026	2031
CDE dry recycling target	55%	60%	60%	60%

Option 2: Increase CDE targets

3.7 Construction, Demolition and Excavation (CDE) dry recycling targets to be increased as agreed between the Council and objectors and put forward by the Council at the Examination Hearing as a suggested proposed modification. These are as follows:

Year	2016	2021	2026	2031
CDE recycling target	55%	60%	65%	70%

3.8 The above options relate to targets for recycling waste, rather than actual levels that must be achieved. However, for the purpose of this assessment, it has been assumed that these targets will be achieved. It has also been assumed that, of any CDE waste that is not recycled, a substantial proportion of this will be sent to landfill, although a proportion will be managed by (non-landfill) permanent deposit to land, which is still lower down the waste hierarchy than recycling.

Table 3.2 Assessment of reasonable alternatives to Policy W2 – CDE target

SA Objective		Assessment of effect						
		Duration			Reversibility	Scale	Permanence	Evidence and Reference
		Short term	Medium term	Long term				
1	Biodiversity & geodiversity	+/?	+/?	+/?	I	L	P	**Option 1: Retain Submission CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. Provision of new recycling facilities may have effects on biodiversity and geodiversity, but effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/?	+/?	+/?	I	L	P	**Option 2: Increase CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. In reaching higher levels of recycling, this option would reduce land-take more than Option 1, further minimising effects on biodiversity and geodiversity. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Provision of new recycling facilities may have effects on biodiversity and geodiversity, but effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options perform similarly with regards to biodiversity and geodiversity, as effects will largely depend on the locations of waste management facilities and their associated mitigation measures. Option 2 is expected to lead to greater reduction of land-take, as reaching higher recycling targets will reduce the amount of waste sent to landfill. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Both options are expected to lead to provision of new waste facilities, which may have biodiversity and geodiversity impacts depending on their location and any relevant mitigation measures. Option 2 is likely to deliver more and/or larger facilities for recycling, therefore implications of new facilities may be of a greater magnitude than Option 1.

2a	Landscape	+/?	+/?	+/?	I	L	P	**Option 1: Retain Submission CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. The provision of new waste facilities may have impacts on landscape character, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/?	+/?	+/?	I	L	P	**Option 2: Increase CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. In reaching higher levels of recycling, this option would reduce land-take more than Option 1, further minimising effects on landscape. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. The provision of new waste facilities may have impacts on landscape character, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options are expected to divert waste from landfill and therefore reduce the amount of land-take required for landfill and reduce associated landscape impacts. Option 2 is expected to lead to greater reduction of land-take, as reaching higher recycling targets will reduce the amount of waste sent to landfill. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Both options are expected to lead to provision of new waste facilities, which may have landscape impacts depending on their location and any relevant mitigation measures. Option 2 is likely to deliver more and/or larger facilities for recycling, therefore implications of new facilities may be of a greater magnitude than Option 1.
2b	Historic environment	+/?	+/?	+/?	I	L	P	**Option 1: Retain Submission CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste. This is expected to reduce the likelihood of landfill sites within or next to areas of sensitive historic environment. The provision of new waste facilities may have impacts on the historic environment, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.

		+/?	+/?	+/?	I	L	P	**Option 2: Increase CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste. This is expected to reduce the likelihood of landfill sites within or next to areas of sensitive historic environment. In reaching higher levels of recycling, this option would reduce land-take more than Option 1, further minimising effects on landscape. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. The provision of new waste facilities may have impacts on the historic environment, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options are expected to divert waste from landfill and therefore reduce the amount of land-take required for landfill and reduce associated impacts on the historic features and their settings. Option 2 is expected to lead to greater reduction of land-take, as reaching higher recycling targets will reduce the amount of waste sent to landfill. Both options are expected to lead to provision of new waste facilities, which may have landscape impacts depending on their location and any relevant mitigation measures. Whilst Option 1 is likely to deliver such facilities earlier, both options reach the same recycling target by 2031 and therefore long-term effects of new facilities would be the same for both options.
3	Water quality	?	+/?	+/?	I	L	P	**Option 1: Retain Submission CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. However, a reduction in landfill could have a positive effect in the medium and long term by reducing the risk of groundwater pollution.
		?	+/?	+/?	I	L	P	**Option 2: Increase CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. However, a reduction in landfill could have a positive effect in the medium and long term by reducing the risk of groundwater pollution. In reaching higher levels of recycling, this option would reduce the amount of waste sent to landfill more than Option 1, further minimising effects on water quality. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		Summary for topic						Both options perform similarly with regards to water quality. Effects are largely dependent on location of waste management facilities, although both options may have positive effects in the medium to long term by reducing the risk of groundwater pollution from landfill. Option 2 is expected to lead to greater reduction of waste sent to landfill, further minimising the risk of groundwater pollution. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

4	Air quality	?	?	?				**Option 1: Retain Submission CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		?	?	?				**Option 2: Increase CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options perform similarly with regards to air quality, as effects will largely depend on the locations of waste management facilities and any mitigation measures to be implemented.
5	Greenhouse gas emissions	?	?	?				**Option 1: Retain Submission CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and the distance between these facilities and locations of waste arisings.
		?	?	?				**Option 2: Increase CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and the distance between these facilities and locations of waste arisings.
		Summary for topic						Both options perform similarly with regards to greenhouse gas emissions as effects will be dependent upon the location of waste management facilities required to meet these targets and the distance between these facilities and locations of waste arisings.
6	Flood risk	?	?	?				**Option 1: Retain Submission CDE targets** Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		?	?	?				**Option 2: Increase CDE targets** Effects will be is dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options perform similarly with regards to flood risk, as effects will largely depend on the locations of waste management facilities and any mitigation measures to be implemented.
7	Transport effects	?	?	?				**Option 1: Retain Submission CDE targets** Effects will be dependent on the locations of the different facilities and the distance that waste needs to be transported to be managed.
		?	?	?				**Option 2: Increase CDE targets** Effects will be dependent on the locations of the different facilities and the distance that waste needs to be transported to be managed.

		Summary for topic						Uncertain effects were identified against both options, as effects will depend on the locations of different waste facilities.
8	Population and health	**+/ ?**	**+/ ?**	**+/ ?**	**R**	**L**	**P**	**Option 1: Retain Submission CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill. As less landfill would be required, it is likely that fewer communities would be affected by negative effects associated with proximity to landfill sites, including noise, odour and pests, than otherwise. Communities already affected by landfill sites may be so for less time than otherwise, as reduce demand for landfill space may lead to sites being restored sooner. Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		+/ ?	**+/ ?**	**+/ ?**	**R**	**L**	**P**	**Option 2: Increase CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill. As less landfill would be required, it is likely that fewer communities would be affected by negative effects associated with proximity to landfill sites, including noise, odour and pests, than otherwise. Communities already affected by landfill sites may be so for less time than otherwise, as reduced demand for landfill space may lead to sites being restored sooner. Option 2 is expected to lead to greater reduction of waste sent to landfill, therefore minimising negative effects associated with landfill to a greater degree than Option 1. This difference is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation.
		Summary for topic						Both options may reduce negative effects from landfill (noise, odour etc.) on local communities, by reducing the amount of landfill required. Option 2 is expected to lead to greater reduction of waste sent to landfill, therefore minimising negative effects associated with landfill to a greater degree than Option 1. This difference is unlikely to be of such a scale to alter the scoring in the 'Duration' column. Both options are expected to require provision of new recycling facilities, but the effects of these would depend on the location of such facilities and any associated mitigation measures.
9	Soils	**+**	**+**	**+**	**I**	**L**	**P**	**Option 1: Retain Submission CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective.
		+	**+**	**+**	**I**	**L**	**P**	**Option 2: Increase CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill, which will reduce the land-take needed to manage waste, which will have positive implications for this objective. This option aims to divert a higher proportion of waste sent to landfill and therefore further reduce associate land-take, in comparison with Option 1. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

		Summary for topic							Both options perform similarly with regards soils, as both will reduce the land-take needed to manage waste. Option 2 performs better than Option 1 as it aims to divert a higher proportion of waste away from landfill, resulting in lower levels of land-take. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
10	Waste hierarchy	**+**	**++**	**++**	**R**	**L**	**P**		**Option 1: Retain Submission CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill by increasing recycling targets. This is expected to contribute to ensuring waste is moved up the waste hierarchy.
		+	**++**	**++**	**R**	**L**	**P**		**Option 2: Increase CDE targets** The targets aim to significantly reduce the proportions of waste going to landfill by increasing recycling targets. This is expected to contribute to ensuring waste is moved up the waste hierarchy as high as possible. This option is likely to perform better than Option 1, as it will lead to a greater proportion of waste being moved up the waste hierarchy. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		Summary for topic							Both options perform similarly with regards to waste hierarchy, as both aim to increase the proportion of waste recycled. Option 2 is expected to perform better than Option 1, as it encourages a higher proportion of waste to move up the waste hierarchy. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
11	Self-sufficiency	**0**	**0**	**0**					**Option 1: Retain Submission CDE targets** No effect (Oxfordshire is net self-sufficient in waste management).
		0	**0**	**0**					**Option 2: Increase CDE targets** No effect (Oxfordshire is net self-sufficient in waste management).
		Summary for topic							No effect (Oxfordshire is net self-sufficient in waste management).
12	Economic growth	**+**	**+**	**+**	**R**	**L**	**P**		**Option 1: Retain Submission CDE targets** Encouraging the recycling of waste is likely to support Oxfordshire's economy as this is likely to create new markets for waste products and provide new job opportunities at new waste facilities.
		+	**+**	**+**	**R**	**L**	**P**		**Option 2: Increase CDE targets** Encouraging the recycling of waste is likely to support Oxfordshire's economy as this is likely to create new markets for waste products and provide new job opportunities at new waste facilities.
		Summary for topic							Both options perform similarly with regards to economic growth, as both are likely to create new markets for waste products and new job opportunities.

Recommendation of preferred option	Options 1 and 2 perform similarly against all SA objectives. This is due to the fact that under both scenarios, the CDE dry recycling target would increase. Option 2 is considered to be more sustainable than Option 1, as it involves higher recycling targets, which are likely to lead to a lower proportion of waste being sent to landfill, resulting in less land-take, a lower risk of groundwater pollution and lower levels of greenhouse gas emissions, although both options reduce overall proportions of waste sent to landfill. However, such differences are unlikely to be of a large enough scale to alter the scoring in the 'Duration' column. Positive effects are generally related to reducing land-take for waste management. Where land-take is greater, there is a higher possibility of landfill being located in or near to a designated or notable feature (e.g. a site designated for nature conservation or an AONB). Many effects depend on the location of any future waste facilities, which has resulted in uncertainty against a number of objectives. Both options could have a long term positive effect with regards to SA Objective 3 (water quality) by reducing risk of groundwater contamination from landfill. Other positive effects relate to SA Objectives 10 and 12, as both options will ensure waste moves up the waste hierarchy and both are likely to lead to new markets and new job opportunities associated with waste facilities.

Policy W3: Provision for waste management capacity

Option 1: Additional capacity requirement considered a cap for provision made

3.9 Any additional capacity requirement for composting/food waste treatment and non-hazardous waste recycling (for MSW and C&I wastes) and inert waste recycling (for CDE waste) is to be considered as a cap for the amount of provision to be made.

Option 2: Additional capacity requirement considered to be minimum provision which can be exceeded if appropriate

3.10 Any additional capacity requirement for composting/food waste treatment and non-hazardous waste recycling (for MSW and C&I wastes) and inert waste recycling (for CDE waste) is to be considered a minimum amount of provision to be made which can be exceeded if suitable sites are available, with no cap on provision and no requirement for need to be demonstrated.

3.11 For the purpose of this assessment it has been assumed that any waste not subject to composting/food waste treatment and non-hazardous waste recycling (for MSW and C&I wastes) and inert waste recycling (for CDE waste) will go to:

a) Landfill within or outside Oxfordshire; or
b) residual waste treatment within or outside Oxfordshire (MSW and C&I wastes only); or
c) permanent deposit to land within or outside Oxfordshire (CDE waste only); or
d) composting/food waste treatment or non-hazardous waste recycling outside Oxfordshire (MSW and C&I wastes only); or
e) inert waste recycling outside Oxfordshire (CDE waste only).

3.12 In the case of a), b) and c), these are waste management routes that are lower down the waste hierarchy than recycling and composting/food waste treatment. In the case of d) and e), these would generally result in waste being transported longer distances to management facilities.

3.13 Both options are expected to meet the forecast demand for composting/food waste and recycling in Oxfordshire. Should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill and/or residual waste treatment (within or outside Oxfordshire), or to recycling or composting/food waste treatment facilities outside Oxfordshire. Option 2 may allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although it could result in over-capacity for waste management which may attract waste from other areas to be imported into the county. This has resulted in an element of uncertainty for many of the assessments for both options.

Table 3.3 Assessment of reasonable alternatives to Policy W3

SA Objective		Assessment of effect						
		Duration			Reversibility	Scale	Permanence	Evidence and Reference
		Short term	Medium term	Long term				
1	Biodiversity & geodiversity	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty. In addition, should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill, leading to an increase in land-take for landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire, was managed.
		+/ ?	+/ ?	+/ ?	I	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty. This option could perform better than Option 1, as it would allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed.
		Summary for topic						The effects of both options on biodiversity and geodiversity remain uncertain, as these depend on the locations of facilities for processing such waste. Option 2 could perform better than Option 1 as it would allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. Option 2 could lead to greater cumulative effects as it allows the provision of a greater number of waste facilities, although this remains uncertain.

2a	Landscape	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** The provision of new waste facilities may have impacts on landscape character, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. In addition, should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill, leading to an increase in land-take for landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire, was managed.
		+/ ?	+/ ?	+/ ?	I	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** The provision of new waste facilities may have impacts on landscape character, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. This option has the opportunity to provide a greater number of waste facilities, which could lead to greater cumulative impacts on landscape, although this remains uncertain. This option could perform better than Option 1, as it would allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed.
		Summary for topic						Uncertain effects are associated with both options, as the impacts of new waste facilities would be dependent on their location and associated mitigation measures. Option 2 could perform better than Option 1 as it would allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. Option 2 could lead to greater cumulative effects as it allows the provision of a greater number of waste facilities, although this remains uncertain.
2b	Historic environment	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** The provision of new waste facilities may have impacts on the historic environment, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. In addition, should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill, leading to an increase in land-take for landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire, was managed.

		+/?	+/?	+/?	I	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** The provision of new waste facilities may have impacts on the historic environment, although effects will be dependent upon the location of waste management facilities required to meet these targets and mitigation measures associated with their development and operation. This option has the opportunity to provide a greater number of waste facilities, which could lead to greater cumulative impacts on the historic environment, although this remains uncertain. This option could perform better than Option 1, as it would allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed.
		Summary for topic						Uncertain effects are associated with both options, as the impacts of new waste facilities would be dependent on their location and associated mitigation measures. Option 2 could perform better than Option 1 as it would allow more waste to be diverted from landfill, therefore lowering land-take associated with landfill sites, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. Option 2 could lead to greater cumulative effects as it allows the provision of a greater number of waste facilities, although this remains uncertain.
3	Water quality	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** Implications of provision of waste facilities are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty. In addition, should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill, leading to an increase in land-take for landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire, was managed.
		?	+/?	+/?	I	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** This option could perform better than Option 1, as it would allow more waste to be diverted from landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. A reduction in landfill could have a positive effect in the medium and long term by reducing the risk of groundwater pollution. Implications of provision of waste facilities are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.

		Summary for topic						Uncertain effects are recorded against both options, as effects will depend on the locations for where waste facilities would be located. Option 2 could perform better than Option 1 as it would allow more waste to be diverted from landfill, which could reduce the risk of groundwater pollution from landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed.
4	Air quality	**?**	**?**	**?**				**Option 1: Additional capacity requirement considered a cap for provision made** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		?	**?**	**?**				**Option 2: Additional capacity requirement considered to be minimum provision** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		Summary for topic						Both options are assessed as having uncertain effects with regards to air quality, as effects depend on the locations for where waste facilities would be located.
5	Greenhouse gas emissions	**+/ ?**	**+/ ?**	**+/ ?**	**R**	**N**	**P**	**Option 1: Additional capacity requirement considered a cap for provision made** This option is expected to result in more waste being diverted from landfill than currently, which, in the case of Municipal Solid Waste (MSW) and C&I waste, will help to reduce the levels of methane generated by this type of waste management. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO_2[3]. Should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill and/or residual waste treatment (within or outside Oxfordshire), or to recycling or composting/food waste treatment facilities outside Oxfordshire. As such, there is some uncertainty with regards to the implications of this option with regards to SA Objective 5.

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

		+/ ?	+/ ?	+/ ?	R	N	P	**Option 2: Additional capacity requirement considered to be minimum provision** This option is expected to result in more waste being diverted from landfill than currently, which, in the case of MSW and C&I waste, will help to reduce the levels of methane generated by this type of waste management. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO_2[4]. This option may perform better than Option 1, as it would allow for greater composting/food waste treatment, non-hazardous waste recycling and inert waste recycling, therefore allowing more waste to be diverted from landfill and lower associated methane gas production, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column. This option could result in over-capacity for waste management, which may attract waste from other areas to be imported into the county. This could lead to increased greenhouse gas emissions from vehicles travelling from outside the county to access waste facilities in Oxfordshire, resulting in some uncertainty against this objective.
		Summary for topic						Both options may lead to a reduction in greenhouse gas emissions in the form of methane from landfill (other than from CDE waste, which does not include biodegradable material). Option 2 may perform slightly better than Option 1 as it would have the potential to divert a greater amount of waste from landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. However, this is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
6	Flood risk	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		?	?	?				**Option 2: Additional capacity requirement considered to be minimum provision** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		Summary for topic						Uncertain effects have been identified against both options, as effects are dependent upon exact locations for where provision of new facilities is to be located.

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

7	Transport effects	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty. In addition, should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill and/or residual waste treatment (within or outside Oxfordshire), or to recycling or composting/food waste treatment facilities outside Oxfordshire.
		+/?	+/?	+/?	I	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty. In the short term and medium term effects may be neutral as additional provision is not required for some waste streams. In allowing greater capacity for waste treatment this option allows for greater provision of facilities. This may result in waste facilities being closer to sources of waste than in Option 1, which would lead to an associated reduction in transportation distances to waste facilities. This option could result in over-capacity for waste management, which may attract waste from other areas to be imported into the county, leading to an associated increase in traffic in the county, resulting in some uncertainty against this objective.
		Summary for topic						The effects of both options on transport will be dependent upon exact locations for where this provision is to be located. Option 2 could perform better than Option 1, as it could lead to a greater number of waste facilities. This could result in reduced transportation distance from the source of waste to its treatment.
8	Population and health	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		?	?	?				**Option 2: Additional capacity requirement considered to be minimum provision** Effects are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		Summary for topic						Uncertain effects have been identified against both options, as effects are dependent upon exact locations for where provision of new facilities is to be located.

9	Soils	?	?	?				**Option 1: Additional capacity requirement considered a cap for provision made** Implications of provision of waste facilities are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty. In addition, should demand exceed that forecast, Option 1 may result in a greater amount of waste being sent to landfill, leading to an increase in land-take for landfill, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire, was managed.
		+/ ?	+/ ?	+/ ?	I	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** This option could perform better than Option 1, as it would allow more waste to be diverted from landfill, which could conserve more soil resources, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. Implications of provision of waste facilities are uncertain as they will be dependent upon exact locations for where this provision is to be located. The implementation of Policies W4 and W5 as well as the common core policies are expected to address this uncertainty.
		Summary for topic						Option 2 could perform better than Option 1, as it would allow more waste to be diverted from landfill, which could conserve more soil resources, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. Uncertainty is recorded against both options, as implications of provision of new waste facilities will be dependent upon exact locations for where this provision is to be located.
10	Waste hierarchy	+	+	+	R	L	P	**Option 1: Additional capacity requirement considered a cap for provision made** Policy W3 encourages the provision of new facilities for re-use, recycling and composting of waste and for treatment of food waste which will contribute towards moving up the waste hierarchy.
		+	+	+	R	L	P	**Option 2: Additional capacity requirement considered to be minimum provision** Policy W3 encourages the provision of new facilities for re-use, recycling and composting of waste and for treatment of food waste which will contribute towards moving up the waste hierarchy. This option may perform better than Option 1, as it allows for the provision of greater recycling capacity, which could lead to a greater amount of waste moving up the hierarchy. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		Summary for topic						Both options are likely to have positive effects with regards to the waste hierarchy, as they require additional capacity for waste recycling. Option 2 may perform slightly better than Option 1 as it would allow for greater provision for composting, recycling and food waste treatment facilities. This difference is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

11	Self-sufficiency	++	++	++	R	L	P	**<u>Option 1: Additional capacity requirement considered a cap for provision made</u>** Policy W3 makes provision in accordance with Oxfordshire's assessed needs therefore enabling the County to be net self-sufficient in its waste management. In the event that waste production increases more than forecast, capping additional waste capacity may restrict the ability of Oxfordshire to recycle an equivalent amount of waste to what it produces, in line with recycling targets.
		++	++	++	R	L	P	**<u>Option 2: Additional capacity requirement considered to be minimum provision</u>** Policy W3 makes provision in accordance with Oxfordshire's assessed needs therefore enabling the County to be net self-sufficient in its waste management. This option is more likely to enable Oxfordshire to be self-sufficient in waste management as it allows flexibility to accommodate for any unforeseen increase in demand. This effect is unlikely to be of such a scale to alter the scoring in the 'Duration' column, as both options will allow the county to meet its recycling targets.
		<u>Summary for topic</u>						Both options are likely to perform positively with regards to self-sufficiency, as both will make sufficient provision of recycling facilities to meet the county's target. Option 2 is likely to have a greater contribution to self-sufficiency as it allows for flexibility to provide additional capacity if recycling rates exceed the Council's targets. As both options will have significant positive effects, it is not possible to express this difference in the scores in the 'Duration' column.
12	Economic growth	+	+	+	R	L	P	**<u>Option 1</u>: Additional capacity requirement considered a cap for provision made** Indirectly new waste management facilities to deliver the required capacity should provide local job opportunities and therefore support the local economy.
		+	+	+	R	L	P	**<u>Option 2</u>: Additional capacity requirement considered to be minimum provision** Indirectly new waste management facilities to deliver the required capacity should provide local job opportunities and therefore support the local economy. This option could lead to greater job opportunities than Option 1 as it may lead to provision of more facilities.
		<u>Summary for topic</u>						Both options are assessed as having positive effects with regards to economic growth, as they would lead to the creation of new job opportunities. Option 2 may lead to provision of more facilities and therefore more job opportunities, although this is unlikely to be of such a scale to alter the scoring in the 'Duration' column.

Recommendation of preferred option	Both options generally have similar effects with regards to most SA Objectives. Option 2 may reduce the amount of land-take for landfill in comparison to Option 1, which could lead to positive effects on biodiversity, landscape and the historic environment, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. Many potential effects of both Options 1 and 2 are dependent on the locations at which new facilities are provided. In potentially allowing for waste facility capacity over the county's targets, Option 2 may have more scope to achieve self-sufficiency and economic gains. As such, Option 2 is considered the more sustainable option.

Policy W4: Locations for facilities to manage the principal waste streams

3.14 The full options that have been assessed are presented in **Appendix 2** of this document. Below is a summary of each of the options.

Option 1: Retain Submission Policy W4

3.15 Policy as included in the Submission Core Strategy.

Option 2: Suitable alternatives accessible via Oxfordshire lorry route network

3.16 Some elements of the supporting text from the Submission Core Strategy to now be included in the policy. This includes clarifying that locations beyond the zones identified for the named towns may be appropriate for waste facilities where there is access to the Oxfordshire lorry route network. This option also specifies that areas for waste facilities exclude the Oxford Meadows, Cothill Fen, Little Wittenham and Hackpen Hill Special Areas of Conservation and a 200 metre dust impact buffer zone adjacent to these SACs, as well as specifying that the AONBs are not generally suitable for locating waste management facilities.

Option 3: Banbury as suitable alternative

3.17 This alternative builds on Option 2 by 'reclassifying' Banbury as a suitable area for strategic waste management facilities. The supporting text would be updated to expand the zone around Oxford from 10km to 15km.

Option 4: Smaller towns as suitable alternatives

3.18 This alternative builds on Option 3 by adding smaller towns as possible locations for non-strategic waste management facilities in part b).

Option 5: Further dispersal

This alternative is a dispersal strategy which combines a) and b) in Option 4 to locate both strategic and non-strategic waste management facilities at all of the specified locations.

Table 3.4 Assessment of reasonable alternatives to Policy W4

SA Objective		Assessment of effect						
		Duration						
		Short term	Medium term	Long term	Reversibility	Scale	Permanence	Evidence and Reference
1	Biodiversity & geodiversity	?	?	?				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		+/?	+/?	+/?	I	L	P	**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. This option states in the policy that waste facilities around Oxford, Abingdon, Didcot and Wantage and Grove will avoid nearby Special Areas of Conservation (SACs) (Oxford Meadows, Cothill Fen, Little Wittenham and Hackpen Hill SACs) and provide a 200m dust impact buffer zone adjacent to these. This provides some limited protection to these sites. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects. In particular, Policy C7 states that development likely to adversely affect sites of sites of international nature conservation importance, including SACs, will not be permitted.
		+/?	+/?	+/?	I	L	P	**Option 3: Banbury as suitable alternative** As above for Option 2.
		+/?	+/?	+/?	I	L	P	**Option 4: Smaller towns as suitable alternatives** As above for Option 2.
		+/?	+/?	+/?	I	L	P	**Option 5: Further dispersal** As above for Option 2.
		Summary for topic						Options 2, 3, 4 and 5 perform better than Option 1 as they state in the policy that SACs, along with a 200m buffer zone, will be avoided. Whilst Policy C7 states that international nature designations, such as SACs will be protected, this is reinforced by Options 2, 3, 4 and 5.

2a	Landscape	?	?	?				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. The policy restricts the scale of facilities in the more remote rural areas which should help to protect local landscapes. The policy refers to the criteria in Policy W5 and Core Policies which are expected to help mitigate adverse environmental effects.
		+/-/?	+/-/?	+/-/?	I	L	P	**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** In allowing waste facilities to be provided further from the settlements named in the policies, where access to the lorry network is available, this option could open up more rural areas to the possibility of development of waste facilities. Development of facilities in more rural areas may have a greater landscape impact than developing facilities in the proximity of existing built up areas. However, effects are uncertain as they will depend upon the exact location and type of facilities. The policy restricts the scale of facilities in the more remote rural areas which should help to protect local landscapes. This option states in the policy that waste management facilities should not be located within Areas of Outstanding Natural Beauty (AONBs) except where it can be demonstrated that the 'major development test' is met, which is expected to help retain the natural beauty of these areas. The policy refers to the criteria in Policy W5 and Core Policies which are expected to help mitigate adverse environmental effects.
		+/-/?	+/-/?	+/-/?	I	L	P	**Option 3: Banbury as suitable alternative** As above for Option 2.
		+/-/?	+/-/?	+/-/?	I	L	P	**Option 4: Smaller towns as suitable alternatives** As above for Option 2.
		+/-/?	+/-/?	+/-/?	I	L	P	**Option 5: Further dispersal** In allowing waste facilities to be provided further from the settlements named in the policies, and in allowing strategic waste facilities in proximity to smaller towns, this option could open up more rural areas to the possibility of development of waste facilities. Development of facilities in more rural areas may have a greater landscape impact than developing facilities in the proximity of existing built up areas. However, effects are uncertain as they will depend upon the exact location and type of facilities. The policy restricts the scale of facilities in the more remote rural areas which should help to protect local landscapes. This option states in the policy that waste management facilities should not be located within Areas of Outstanding Natural Beauty (AONBs) except where it can be demonstrated that the 'major development test' is met, which is expected to help retain the natural beauty of these areas. The policy refers to the criteria in Policy W5 and Core Policies which are expected to help mitigate adverse environmental effects.

		Summary for topic						Options 2, 3, 4 and 5 perform better than Option 1 as they state in the policy that waste facilities should generally not be located in AONBs. Whilst Policy C8 states that landscape character and AONBs will be preserved, this is reinforced by Options 2, 3, 4 and 5. Options 2, 3, 4 and 5 may lead to development of waste facilities in more rural areas, which could have greater landscape impacts. This is particularly the case for Option 5, which allows strategic waste facilities in proximity to smaller towns.
2b	Historic environment	**?**	**?**	**?**				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 3: Banbury as suitable alternative** As above for Option 2.
		?	**?**	**?**				**Option 4: Smaller towns as suitable alternatives** As above for Option 2.
		?	**?**	**?**				**Option 5: Further dispersal** As above for Option 2.
		Summary for topic						All options are assessed as having uncertain effects with regards to the historic environment, as effects will depend on the location and type of new facilities.
3	Water quality	**?**	**?**	**?**				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 3: Banbury as suitable alternative** As above for Option 2.
		?	**?**	**?**				**Option 4: Smaller towns as suitable alternatives** As above for Option 2.

		?	?	?				**Option 5: Further dispersal** As above for Option 2.
		Summary for topic						All options are assessed as having uncertain effects with regards to water quality, as effects will depend on the location and type of new facilities.
4	Air quality	?	?	?				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	?	?				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	?	?				**Option 3: Banbury as suitable alternative** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	?	?				**Option 4: Smaller towns as suitable alternatives** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	?	?				**Option 5: Further dispersal** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		Summary for topic						All options are assessed as having uncertain effects with regards to air quality, as effects will depend on the location and type of new facilities.
5	Greenhouse gas emissions	+	+	+	R	N	P	**Option 1: Retain Submission Policy W4** Provision of facilities close to waste arisings is likely to reduce greenhouse gas emissions associated with waste transportation.
		+/?	+/?	+/?	R	N	P	**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Provision of facilities close to waste arisings is likely to reduce greenhouse gas emissions associated with waste transportation. In this option the policy states that locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route. This could result in facilities further from the main areas of waste arisings, leading to longer transport distances and more associated greenhouse gas emissions, although this depends on the exact location of facilities, particularly in relation to the areas they serve.

		+/?	++/?	++/?	R	N	P	**Option 3: Banbury as suitable alternative** Provision of facilities close to waste arisings is likely to reduce greenhouse gas emissions associated with waste transportation. In this option the policy states that locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route. This could result in facilities further from the main areas of waste arisings, leading to longer transport distances and more associated greenhouse gas emissions, although this depends on the exact location of facilities, particularly in relation to the areas they serve. However, this option also identifies Banbury as an area for location of a strategic waste management facility. This is likely to lead to a better distribution of strategic waste facilities across the county, leading to a reduction in transportation distance from arisings, particularly for waste from Banbury itself. In addition, increasing the zone within which waste facilities could be located for Oxford city from 10km to 15km could allow greater flexibility for facilities to be sited to serve Oxfordshire, the main source of waste arisings in the county.
		+/?	++/?	++/?	R	N	P	**Option 4: Smaller towns as suitable alternatives** As above for Option 3. In addition, this option also enables development of waste facilities near smaller towns, which is likely to lead to a better distribution of waste facilities across the county, leading to a reduction in transportation distance from arisings. This is unlikely to be of such a scale to alter the scoring in the 'Duration' column.
		?	?	?				**Option 5: Further dispersal** This option could lead to provision of strategic and non-strategic waste facilities in or close to larger and smaller towns. Greater dispersal of waste facilities could contribute to reducing transport distances between waste arisings and waste management facilities, thus reducing greenhouse gas emissions associated with HGVs. In addition, increasing the zone within which waste facilities could be located for Oxford city from 10km to 15km could allow greater flexibility for facilities to be sited to serve Oxfordshire, the main source of waste arisings in the county. However, this option could also result in strategic waste facilities being located in areas where waste arisings are relatively small, requiring longer transport distances from large towns to facilities with appropriate capacity, where a higher proportion of waste arisings are likely to occur. This could lead to increases in greenhouse gas emissions.

		Summary for topic						All options, except Option 5, are likely to have positive effects with regards to greenhouse gas emissions, as all will lead to provision of waste management facilities near larger towns, where most waste arisings will occur. This will minimise the distance waste needs to be transported. Option 2 has an element of uncertainty as it allows provision of waste management facilities further from arisings. Whilst this is also true of Options 3 and 4, these options would lead to reductions in transportation from arisings to waste facilities by providing a wider distribution of waste facilities across the county. Whilst Option 5 would lead to a wider distribution of waste facilities across the county, it could result in facilities with appropriate capacity being located further from large towns where waste arisings are greater. This could lead to increased transport distances from waste arisings to management facilities and an associated increase in greenhouse gas emissions.
6	Flood risk	**?**	**?**	**?**				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 3: Banbury as suitable alternative** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 4: Smaller towns as suitable alternatives** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		?	**?**	**?**				**Option 5: Further dispersal** Effects will depend upon the exact location and type of facilities. The policy refers to the criteria in Policy W5 and Core Policies which are expected to mitigate adverse environmental effects.
		Summary for topic						All options are assessed as having uncertain effects with regards to flood risk, as effects will depend on the location and type of new facilities.
7	Transport effects	**+/?**	**+/?**	**+/?**	**R**	**L**	**P**	**Option 1: Retain Submission Policy W4** Provision of facilities close to waste arisings is likely to minimise adverse effects associated with waste transportation. However, effects will depend upon the exact location and type of facilities.

		+/?	+/?	+/?	R	L	P	**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Provision of facilities close to waste arisings is likely to minimise adverse effects associated with waste transportation. In this option the policy states that locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route. This could result in facilities further from the main areas of waste arisings, leading to longer transport distances, although this depends on the exact location of facilities, particularly in relation to the areas they serve.
		+/?	++/?	++/?	R	L	P	**Option 3: Banbury as suitable alternative** Provision of facilities close to waste arisings is likely to minimise adverse effects associated with waste transportation. In this option the policy states that locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route. This could result in facilities further from the main areas of waste arisings, leading to longer transport distances, although this depends on the exact location of facilities, particularly in relation to the areas they serve. However, this option also identifies Banbury as an area for location of a strategic waste management facility. This is likely to lead to a better distribution of strategic waste facilities across the county, leading to a reduction in transportation distance from arisings, particularly for waste from Banbury itself. In addition, increasing the zone within which waste facilities could be located for Oxford city from 10km to 15km could allow greater flexibility for facilities to be sited to serve Oxfordshire, the main source of waste arisings in the county.
		+/?	++/?	++/?	R	L	P	**Option 4: Smaller towns as suitable alternatives** Provision of facilities close to waste arisings is likely to minimise adverse effects associated with waste transportation. In this option the policy states that locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route. This could result in facilities further from the main areas of waste arisings, leading to longer transport distances, although this depends on the exact location of facilities, particularly in relation to the areas they serve. However, this option also identifies Banbury as an area for location of a strategic waste management facility and small towns as locations for non-strategic waste facilities. This is likely to lead to a better distribution of waste facilities across the county, leading to a reduction in transportation distance from arisings, particularly for waste from Banbury. In addition, increasing the zone within which waste facilities could be located for Oxford city from 10km to 15km could allow greater flexibility for facilities to be sited to serve Oxfordshire, the main source of waste arisings in the county.

		?	?	?				**Option 5: Further dispersal** This option could lead to provision of strategic and non-strategic waste facilities in or close to larger and smaller towns. Greater dispersal of waste facilities could contribute to reducing transport distances between waste arisings and waste management facilities. In addition, increasing the zone within which waste facilities could be located for Oxford city from 10km to 15km could allow greater flexibility for facilities to be sited to serve Oxfordshire, the main source of waste arisings in the county. However, this option could also result in strategic waste facilities being located in areas where waste arisings are relatively small, requiring longer transport distances from large towns to facilities with appropriate capacity, where a higher proportion of waste arisings are likely to occur.
		Summary for topic						All options, except Option 5, are likely to have positive effects with regards to transport, as all will lead to provision of waste management facilities near larger towns, where most waste arisings will occur. This will minimise the distance waste needs to be transported. Options 2, 3 and 4 allow provision of waste management facilities further from arisings, but transport effects for all options are partially dependent on the exact location of provision of waste facilities. Options 3 and 4 are expected to lead to a better distribution of waste facilities across the county, leading to reductions in transportation from arisings to waste facilities. Whilst Option 5 would lead to a wider distribution of waste facilities across the county, it could result in facilities with appropriate capacity being located further from large towns where waste arisings are greater. This could lead to increased transport distances from waste arisings to management facilities and an associated increase in greenhouse gas emissions.
8	Population and health	?	?	?				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. If sites are located near to residential areas they may have a negative impact on local populations. However, Core Policies are expected to help mitigate adverse environmental/health effects.
		?	?	?				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. If sites are located near to residential areas they may have a negative impact on local populations. However, Core Policies are expected to help mitigate adverse environmental/health effects.
		?	?	?				**Option 3: Banbury as suitable alternative** Effects will depend upon the exact location and type of facilities. If sites are located near to residential areas they may have a negative impact on local populations. However, Core Policies are expected to help mitigate adverse environmental/health effects.

		?	?	?				**Option 4: Smaller towns as suitable alternatives** If sites are located near to residential areas they may have a negative impact on local populations. This could be a particular issue if waste facilities are allocated in or near smaller towns where no waste facilities currently exist, as such communities would be newly exposed to impacts such as noise and odour. However, this could also be the case for all other options, as effects will depend upon the exact location and type of facilities. Core Policies are expected to help mitigate adverse environmental/health effects.
		?	?	?				**Option 5: Further dispersal** If sites are located near to residential areas they may have a negative impact on local populations. This could be a particular issue if waste facilities are allocated in or near smaller towns where no waste facilities currently exist, as such communities would be newly exposed to impacts such as noise and odour. Whilst this could also be the case for all other options, this option is more likely to lead to strategic waste facilities in more rural areas. Core Policies are expected to help mitigate adverse environmental/health effects.
		Summary for topic						All options are assessed as having uncertain effects with regards to population and health, as effects will depend on the location and type of new facilities.
9	Soils	?	?	?				**Option 1: Retain Submission Policy W4** Effects will depend upon the exact location and type of facilities. Core Policies may help minimise adverse effects on soils.
		?	?	?				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** Effects will depend upon the exact location and type of facilities. Core Policies may help minimise adverse effects on soils.
		?	?	?				**Option 3: Banbury as suitable alternative** Effects will depend upon the exact location and type of facilities. Core Policies may help minimise adverse effects on soils.
		?	?	?				**Option 4: Smaller towns as suitable alternatives** Effects will depend upon the exact location and type of facilities. Core Policies may help minimise adverse effects on soils.
		?	?	?				**Option 5: Further dispersal** Effects will depend upon the exact location and type of facilities. Core Policies may help minimise adverse effects on soils.
		Summary for topic						All options are assessed as having uncertain effects with regards to soils, as effects will depend on the location and type of new facilities.

10	Waste hierarchy	**0**	**0**	**0**				**Option 1: Retain Submission Policy W4** No effects predicted.
		0	**0**	**0**				**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** No effects predicted.
		0	**0**	**0**				**Option 3: Banbury as suitable alternative** No effects predicted.
		0	**0**	**0**				**Option 4: Smaller towns as suitable alternatives** No effects predicted.
		0	**0**	**0**				**Option 5: Further dispersal** No effects predicted.
		Summary for topic						No effects predicted.
11	Self-sufficiency	**+/-**	**+/-**	**+/-**	**R**	**L**	**P**	**Option 1: Retain Submission Policy W4** In locating waste management facilities relatively close to the primary markets, waste is less likely to be transported to suitable facilities in other areas. However, limited facilities in the north and west of the county could result in waste in these areas being exported to other areas.
		+/-	**+/-**	**+/-**	**R**	**L**	**P**	**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** In locating waste management facilities relatively close to the primary markets, waste is less likely to be transported to suitable facilities in other areas. However, limited facilities in the north and west of the county could result in waste in these areas being exported to other areas, although the chances of this may be reduced by allowing waste management facilities to be located further from these markets if they have access to the lorry route network.
		+/-	**+/-**	**+/-**	**R**	**L**	**P**	**Option 3: Banbury as suitable alternative** This option may lead to waste management facilities being better located in terms of main markets, particularly by identifying Banbury as a suitable area for a strategic waste management facility. However, locating waste facilities close to the boundary of the county at Banbury may make this a convenient location for waste from outside the county to be transported in. This could increase Oxfordshire's importation of waste.

		+/-	+/-	+/-	R	L	P	**Option 4: Smaller towns as suitable alternatives** This option may lead to waste management facilities being better located in terms of main markets, particularly by identifying Banbury as a suitable area for a strategic waste management facility. However, locating waste facilities close to the boundary of the county at Banbury and smaller towns, such as Henley-on-Thames and Thame, may make this a convenient location for waste from outside the county to be transported in. This could increase Oxfordshire's importation of waste.
		-/?	-/?	-/?	R	L	P	**Option 5: Further dispersal** Locating waste facilities close to the boundary of the county at Banbury and smaller towns, such as Henley-on-Thames and Thame, may make this a convenient location for waste from outside the county to be transported in. This could increase Oxfordshire's importation of waste. This option would not necessarily result in waste management facilities being well located in relation to areas of waste arisings, as it would allow a greater distribution of strategic and non-strategic waste facilities across the county.
		Summary for topic						Mixed effects are recorded against Options 1 and 2, as these options would generally lead to provision of waste facilities in proximity to the main areas of waste arisings, but may lead to export of waste in the west and north of the county. Mixed effects are also recorded against Options 3 and 4, as they will lead to a wider distribution of waste facilities, which could more efficiently serve more markets but may encourage importing of waste to facilities close to the county boundaries. Option 5 may lead to importation of waste, but may also lead to facilities less well located with regards to main waste arisings.
12	Economic growth	0	0	0				**Option 1: Retain Submission Policy W4** No effects predicted.
		+	+	+	I	L	P	**Option 2: Suitable alternatives accessible via Oxfordshire lorry route network** In allowing waste facilities to be developed further from the towns named in the policy, where there is access to the lorry route network, may contribute to reducing economic disparities across the county by contributing to the rural economy.
		+	+	+	I	L	P	**Option 3: Banbury as suitable alternative** In allowing waste facilities to be developed further from the towns named in the policy, where there is access to the lorry route network, may contribute to reducing economic disparities across the county by contributing to the rural economy.
		+	+	+	I	L	P	**Option 4: Smaller towns as suitable alternatives** In allowing waste facilities to be developed further from the towns named in the policy, where there is access to the lorry route network, and providing the opportunity for non-strategic waste facilities in or near smaller towns, this option may contribute to reducing economic disparities across the county by contributing to the rural economy.

		+	+	+	I	L	P	**Option 5: Further dispersal** In allowing waste facilities to be developed further from the towns named in the policy, where there is access to the lorry route network, and in allowing greater dispersal of waste facilities, this policy may contribute to reducing economic disparities across the county by contributing to the rural economy.
		Summary for topic						Options 2, 3, 4 and 5 are assessed as having positive effects as they may contribute to reducing economic disparity across the county by boosting the economy in rural areas.
Recommendation of preferred option		Options 3 and 4 appear to be the most sustainable, as they are expected to lead to a wider distribution of waste facilities across the county, whilst providing larger facilities in areas where waste arisings are likely to be greatest. This would minimise transportation distances from waste arisings to waste management facilities, leading to associated positive effects with regards to greenhouse gases and transport. This is especially true with regards to identifying Banbury as a location for a strategic waste management facility, as this is a large town with expected growth and is therefore expected to produce a lot of waste. Banbury is in the north of the county and will serve an area a considerable distance from the other areas identified for strategic waste facilities. Option 4 would also allow non-strategic waste facilities to be located around smaller towns, which will add to increasing the distribution of waste facilities, but this difference is unlikely to be of such a scale to alter the scoring in the 'Duration' column for SA Objectives 5 and 7. Uncertainty has been assessed against all options for a number of objectives, as many effects will depend on the exact location and type of facilities. Option 5 would lead to a greater dispersal of waste facilities across the county, which may lead to strategic waste facilities being located a considerable distance from the main areas of waste arisings.						

Policy W11: Safeguarding waste management sites

Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the Plan period

3.19 The Submitted Core Strategy approach to not allow for temporary waste management sites to be safeguarded where the planning permission expires before the end of the plan period.

Option 2: Safeguard all permitted waste sites.

3.20 The suggested modification approach is to safeguard all permitted waste management sites for the duration of their planning permission, whether or not the permission allows the use to continue to the end of the plan period.

Table 3.5 Assessment of reasonable alternatives to Policy W11

SA Objective		Assessment of effect						
		Duration			Reversibility	Scale	Permanence	Evidence and Reference
		Short term	Medium term	Long term				
1	Biodiversity & geodiversity	**0**	**0**	**0**				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	**0**	**0**				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
2a	Landscape	**0**	**0**	**0**				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	**0**	**0**				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
2b	Historic environment	**0**	**0**	**0**				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	**0**	**0**				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.

3	Water quality	**0**	**0**	**0**				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	**0**	**0**				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
4	Air quality	**0**	**0**	**0**				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	**0**	**0**				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
5	Greenhouse gas emissions	**+/ ?**	**+/ ?**	**+/ ?**	**R**	**N**	**T**	**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** Safeguarded sites can help to ensure that there are suitable sites within Oxfordshire for waste management allowing for waste to be managed within the County and therefore reducing the distances waste is transported for management. Safeguarded sites do not include landfill and as such safeguarding may allow for more waste to be diverted from landfill, which would help to reduce the levels of methane generated by this type of waste management. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO_2[5]. It is expected that capacity will be available to meet the county's waste management targets, but less flexibility with regards to safeguarded sites and potential additional capacity may limit Oxfordshire in reaching its full waste management potential. As such it is uncertain whether there will be a need to export some waste and how this option will affect greenhouse gas emissions associated with vehicular transport.

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

		+	+	+/?	R	N	T	**Option 2: Safeguard all permitted waste sites** Safeguarding temporary sites would allow safeguarding of greater waste management capacity, which could help to ensure that there are suitable sites within Oxfordshire for waste management allowing for waste to be managed within the County and therefore minimising greenhouse gases associated with vehicular transport. This would reduce the distances waste is transported for management as waste transported elsewhere would be minimised. Safeguarded sites do not include landfill and as such safeguarding may allow for more waste to be diverted from landfill, which would help to reduce the levels of methane generated by this type of waste management. Relative to carbon dioxide, methane is 21 times more potent as a greenhouse gas than CO_2[6]. These impacts could be of a greater magnitude with regards to Option 2 in the medium term, as more sites would be safeguarded. However, as planning permissions expire, this opportunity may reduce towards the end of the plan period.
		Summary for topic						Option 2 performs better in the short- to medium-term, as it may allow greater waste management capacity in Oxfordshire. Longer term effects remain uncertain as planning permissions on temporary sites expire. Uncertain effects were recorded against Option 1 as it is uncertain whether more limited flexibility and potentially lower capacity for future waste management sites will affect the amount of waste being transported out of the county.
6	Flood risk	**0**	**0**	**0**				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	**0**	**0**				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
7	Transport effects	**+/?**	**+/?**	**+/?**	**R**	**L**	**T**	**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** Safeguarded sites can help to ensure that there are suitable sites within Oxfordshire for waste management allowing for waste to be managed within the County and therefore reducing the distances waste is transported for management. It is expected that capacity will be available to meet the county's waste management targets, but less flexibility with regards to safeguarded sites and potential additional capacity may limit Oxfordshire in reaching its full waste management potential. As such it is uncertain whether there will be a continued need to transport some waste out of the county.

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

		+	+	+/?	R	L	T	**Option 2: Safeguard all permitted waste sites** Safeguarding all permitted temporary waste sites would allow safeguarding of greater waste management capacity, which could help to ensure that there are suitable sites within Oxfordshire for waste management allowing for waste to be managed within the County. This would reduce the distances waste is transported for management as waste transported elsewhere would be minimised. However, as planning permissions expire, this opportunity may reduce towards the end of the plan period.
		Summary for topic						Option 2 performs better in the short- to medium-term, as it may allow greater waste management capacity in Oxfordshire. Longer term effects remain uncertain as planning permissions on temporary sites expire. Uncertain effects were recorded against Option 1 as it is uncertain whether more limited flexibility and potentially lower capacity for future waste management sites will affect the amount of waste being transported out of the county.
8	Population and health	0	0	0				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	0	0				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
9	Soils	0	0	0				**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** No effects predicted.
		0	0	0				**Option 2: Safeguard all permitted waste sites** No effects predicted.
		Summary for topic						No effects predicted.
10	Waste hierarchy	+/?	+/?	+/?	R	L	T	**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** Safeguarded sites do not include landfill and as such safeguarding may allow greater capacity for facilities further up the waste hierarchy and divert more waste from landfill.
		+/?	+/?	+/?	R	L	T	**Option 2: Safeguard all permitted waste sites** Safeguarded sites do not include landfill and as such safeguarding may allow greater capacity for facilities further up the waste hierarchy and divert more waste from landfill.

		Summary for topic						Effects will be the same under both options as they both may allow greater capacity for facilities further up the waste hierarchy and divert more waste from landfill.
11	Self-sufficiency	**+/?**	**+/?**	**+/?**	**R**	**L**	**T**	**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** Safeguarding sites can indirectly contribute to self-sufficiency by making sure there are suitable sites available for waste management within the County. It is expected that capacity will be available to meet the county's waste management targets, but less flexibility with regards to safeguarded sites and potential additional capacity may limit Oxfordshire in reaching its full waste management potential. As such it is uncertain whether there would be a need to export some waste out of the county.
		+	**+**	**+**	**R**	**L**	**T**	**Option 2: Safeguard all permitted waste sites** Safeguarding all permitted waste sites would allow safeguarding of greater waste management capacity, which could help to ensure that there are sufficient suitable sites within Oxfordshire for waste management allowing for waste to be managed within the County. As planning permissions expire, this opportunity may reduce towards the end of the plan period. Nevertheless in safeguarding greater capacity than Option 1, this option would allow more flexibility to address increased demand for waste management. This option could result in over-capacity for waste management, which may attract waste from other areas to be imported into the county.
		Summary for topic						Option 2 performs better in the short- to medium-term, as it may allow greater waste management capacity in Oxfordshire. Longer term effects remain uncertain as planning permissions on these temporary sites expire. Uncertain effects were recorded against Option 1 as it is uncertain whether more limited flexibility and potentially lower capacity for future waste management sites will affect the amount of waste being transported out of the county.
12	Economic growth	**+**	**+**	**+**	**R**	**L**	**P**	**Option 1: Do not safeguard temporary waste sites where planning permission expires before the end of the plan period.** Safeguarding waste sites will help to retain local jobs associated with the waste industry and support the local economy.
		+	**+**	**+/?**	**R**	**L**	**T**	**Option 2: Safeguard all permitted waste sites** Safeguarding temporary waste sites may help to retain local jobs associated with the waste industry and support the local economy. As planning permissions expire, this opportunity may reduce towards the end of the plan period. This option could result in over-capacity for waste management, which may attract waste from other areas to be imported into the county.

		Summary for topic	Option 2 performs better in the short- to medium-term, as it may allow greater waste management capacity in Oxfordshire. Longer term effects remain uncertain as planning permissions on these temporary sites expire.
Recommendation of preferred option		Option 2 appears to be the most sustainable option, although its beneficial effects are likely to be most apparent in the short- to medium-term. Positive effects associated with Option 2 relate to the fact that it will temporarily allow greater waste capacity in Oxfordshire, which may reduce the need to export waste outside the county. Option 1 is generally assessed as having more uncertain effects, as it is uncertain whether more limited flexibility and potentially lower capacity for future waste management sites will affect the amount of waste being transported out of the county.	

4 Summary

4.1 This appendix has considered the likely significant effects of four sets of reasonable alternatives with regards to Policies W2, W3, W4 and W11 of the Oxfordshire Minerals and Waste Local Plan Part 1 – Core Strategy.

Policy W2 – C&I waste

4.2 Options 1 and 2 perform similarly against all SA objectives. This is due to the fact that under both scenarios, the C&I dry recycling target is set to reach 65% by 2031. Option 1 aims to achieve this sooner than Option 2.

4.3 In achieving the 65% target five years earlier than Option 2, less waste will be sent to landfill for a longer time under Option 1. As such, the overall amount of waste sent to landfill in Option 1 will be less than under Option 2, thus Option 1 would require less land-lake for landfill than Option 2.

4.4 In reducing land-take for waste management, both options are likely to have positive effects with regards to SA Objectives 1 (biodiversity and geodiversity), 2a (landscape), 2b (historic environment) and 9 (soils). Along with SA Objectives 4 (air quality), 6 (flood risk) and 7 (transport effects), effects of both options remain uncertain, as many effects depend on the location of any future waste facilities. However, provision of new waste management facilities could lead to negative effects with regards to these SA Objectives, through land-take and provision of industrial development in areas where this may not currently be the case. Such effects are dependent on the location of new facilities and any mitigation measures implemented in their development and design.

4.5 Both options may help minimise groundwater pollution and greenhouse gas emissions from landfill sites (SA Objectives 3 and 5). Both options will also help waste move up the waste hierarchy by aiming to divert more waste from landfill (SA Objective 10). Increasing levels of recycling could lead to a reduced demand for landfill, resulting in fewer communities being affected by landfill sites (SA Objective 8). By reaching the 65% target sooner, and therefore reducing waste sent to landfill overall, Option 1 would perform better with regards to these factors, but this is not expected to be by such an extent to be able to distinguish between a minor effect (- or +) and a significant effect (-- or ++).

Policy W2 – CDE waste

4.6 Options 1 and 2 perform similarly against all SA objectives. This is due to the fact that under both scenarios, the CDE dry recycling target would increase. Option 2 is considered to be more sustainable than Option 1, as it involves higher recycling targets, which are likely to lead to a lower proportion of waste being sent to landfill, resulting in a greater reduction in the land-take required for waste management.

4.7 In reducing land-take for waste management, both options are likely to have positive effects with regards to SA Objectives 1 (biodiversity and geodiversity), 2a (landscape), 2b (historic environment) and 9 (soils). Along with SA Objectives 4 (air quality), 5 (greenhouse gas emissions), 6 (flood risk) and 7 (transport effects), effects of both options remain uncertain, as many effects depend on the location of any future waste facilities. However, provision of new waste management facilities could lead to negative effects with regards to these SA Objectives, through land-take and provision of industrial development in areas where this may not currently be the case. Such effects are dependent on the location of new facilities and any mitigation measures implemented in their development and design. Both options may help minimise groundwater pollution (SA Objective 3) and help waste move up the waste hierarchy by aiming to divert more waste from landfill (SA Objective 10). Increasing levels of recycling could lead to a reduced demand for landfill, resulting in fewer communities being affected by landfill sites (SA Objective 8). By having higher recycling targets and therefore diverting more waste away from

landfill, Option 2 would perform better with regards to these factors, but this is not expected to be by such an extent to be able to distinguish between a minor effect (- or +) and a significant effect (-- or ++).

Policy W3

4.8 Options 1 and 2 generally have similar effects with regards to most SA Objectives, although Option 2 is expected to have more positive effects in comparison to Option 1 as it allows greater flexibility should demand exceed forecasted figures.

4.9 Option 2 may reduce the amount of land-take for landfill in comparison to Option 1, although this would depend on how any additional waste, for which recycling or composting/food waste treatment capacity was not provided in Oxfordshire under Option 1, was managed. A reduction in land take for landfill could lead to positive effects on biodiversity, landscape and the historic environment.

4.10 In further reducing land-take for landfill, Option 2 is more likely to have positive effects with regards to SA Objectives 1 (biodiversity and geodiversity), 2a (landscape), 2b (historic environment) and 9 (soils). . Option 2 is also expected to perform better against SA Objective 3 (water quality) and SA Objective 7 (transport). Uncertain remains against many objectives for both Options 1 and 2, as effects are largely dependent on the locations at which new facilities are provided.

4.11 In potentially allowing for more waste facility capacity over the county's targets, Option 2 may have more scope to achieve self-sufficiency and economic gains (SA Objectives 11 and 12).

Policy W4

4.12 Options 3 and 4 generally perform better in terms of sustainability than Options 1, 2 and 3. This is because Options 3 and 4 allow development of a strategic waste facility at Banbury and non-strategic waste facilities at smaller towns, in addition to the locations for waste facilities identified in Options 1 and 2. This would lead to a wider distribution of waste facilities across Oxfordshire, which would reduce the transportation distance between locations of waste arisings and waste management facilities and a reduction in greenhouse gas emissions associated with such transportation (SA Objectives 5 and 7). Option 4 would also allow non-strategic waste facilities to be located around smaller towns, which will further add to increasing the distribution of waste facilities. Whilst Option 5 would lead to a greater dispersal of waste facilities across the county, this may lead to strategic waste facilities being located a considerable distance from the main areas of waste arisings, which could lead to increased transport distances from arisings to management facilities and associated greenhouse gas emissions.

4.13 Uncertainty has been recorded against all options with regards to SA Objectives 1, 2a, 2b, 3, 4, 6, 8 and 9, as effects on these objectives are largely dependent on the exact locations of future waste management facilities. Options 2, 3, 4 and 5 state in the policy that development will not take place within SACs and will not take place within AONBs, unless the 'major development test' is met, which could result in greater sustainability implications with regards to SA Objectives 1 (biodiversity and geodiversity) and 2a (landscape). Options 2, 3, 4 and 5 may open up more rural areas to the possibility of strategic waste facilities by allowing provision of these where there is access to the lorry route network. This could lead to negative impacts with regards to biodiversity and landscape, as more rural areas are more likely to be sensitive to such impacts. Alternatively, this could contribute to the rural economy and reduce economic disparities across the county by providing employment and investment in more rural areas (SA Objective 12).

4.14 Options 2, 3, 4 and 5 could lead to more dispersed development locations for waste facilities, which could allow facilities to be located nearer to waste arisings. Options 3, 4 and 5 could lead to development of waste facilities nearer the boundary of Oxfordshire. This could attract in waste from other local authorities, thereby reducing self-sufficiency (SA Objective 11).

Policy W11

4.15 Both options are assessed as having neutral effects against all objectives except SA Objectives 5, 7, 10, 11 and 12. This is mainly because this is a non-spatial policy, which does not allocate any

particular locations for development, as it relates to safeguarding sites, rather than allocating them.

4.16 Option 2 performs slightly better than Option 1 in the short- to medium-term, as it may allow greater capacity for waste management and therefore greater flexibility to accommodate demand greater than that forecast. Option 2 may allow more waste to be managed within the county, which could reduce transportation of waste to other authority areas, thus reducing transport distances and associated greenhouse gas emissions. This could also allow a greater level of self-sufficiency in the county.

Appendix 1: SA Framework

SA Objective			
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 Local Geology Sites?	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 Local Geology Sites or geological SSSIs.
2a	To protect and enhance landscape character and local distinctiveness	Will the Plan conserve and enhance Oxfordshire's AONBs & their settings and take into account guidelines associated with specific landscape types? Will the Plan respect, maintain and strengthen local character and distinctiveness?	Minerals and waste development where the anticipated residual landscape impact is neutral or positive. 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.
b	To conserve and enhance the historic environment, heritage	Will the Plan protect, conserve and/or enhance heritage assets and the historic/prehistoric environment of	Number/percentage of planning applications where archaeological investigations were required prior to approval.

	assets and their settings	Oxfordshire? Will the Plan contribute to the better management of heritage assets? Will the Plan improve the quality of the historic environment? Will the Plan provide for increased access to and enjoyment of the historic environment? Will the Plan alter the hydrological conditions of water dependent heritage assets, including paleoenvironmental deposits? Will the Plan provide for increased understanding and interpretation of the historic environment? Will the Plan secure a supply of local building and roofing materials?	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. Area of highly sensitive historic landscape characterisation type(s) which have been altered and their character eroded.
3	To maintain and improve ground and surface water quality	Will the Plan affect groundwater quality? Will the Plan affect 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	Will the Plan lead to increased traffic congestion in built up areas? Will Plan lead to increased dust and/or odours?	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	Will the Plan lead to a decrease in production of greenhouse gases such as CO2 and methane?	Proportion of waste and aggregates transported by rail or water. Quantity of biodegradable wastes diverted from landfill.
6	To reduce the risk of flooding	Will the proposal seek to maintain or reduce flood risk?	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	Will the Plan reduce distances travelled by road? Are sites in the Plan well located in relation to surrounding settlements for waste, or markets for minerals? Will the waste facilities or mineral operation serve local needs? Does the Plan facilitate HGV routeing agreements and developer contributions for infrastructure improvements?	Distances travelled by road from new applications to settlements (waste) or markets (minerals). 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	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?	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	Will the Plan affect high grade agricultural land? Will the Plan lead to soil pollution or contamination?	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	Will the Plan increase the amount of waste re-used, recycled or recovered?	Amounts of waste recycled and recovered.

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	Will the Plan reduce the need for waste to be transported outside Oxfordshire for treatment or disposal? Will the Plan reduce the need for Oxfordshire to import aggregates?	Number of permitted applications for waste management to meet targets to achieve net waste self-sufficiency. Number of permitted applications which contribute to meeting minerals supply requirement.
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?	Number of direct jobs created in the waste/mineral sector per year. Number of new mineral and waste permissions.

Appendix 2: Reasonable alternatives for Policy W4

In determining the most appropriate locational strategy for waste, five alternatives have been identified for assessment. Details of these are provided below, along with information on how the supporting text and Waste Key Diagram would be updated to support any changes to the policy. Underlined and strikethrough text have been used to show changes to the Submission Core Strategy policy.

NB: the amended text incorporated in the potential policy alternatives is indicative wording to show how the spatial strategy alternatives could be incorporated in a modified policy W4 that might be included in proposed Main Modifications – it should not be seen as the final proposed wording.

ALTERNATIVE 1

Policy as included in the Submission Core Strategy.

Policy W4: Locations for facilities to manage the principal waste streams

Facilities (other than landfill) to manage the principal waste streams should be located as follows:

a) Strategic waste management facilities should normally be located in or close to Bicester, Oxford, Abingdon and Didcot, as indicated on the Key Waste Diagram.

b) Non-strategic waste management facilities should normally be located in or close to Bicester, Oxford, Abingdon and Didcot and the other large towns (Banbury, Witney and Wantage & Grove), as indicated on the Key Waste Diagram.

c) Elsewhere in Oxfordshire, and particularly in more remote rural areas, facilities should only be small scale, in keeping with their surroundings.

Specific sites for waste management facilities (other than landfill) to meet the requirements set out in Policy W3 will be allocated in accordance with this locational strategy in the Minerals and Waste Local Plan: Part 2 – Site Allocations Document. The suitability of any new sites for allocation in the Site Allocations Document will be assessed against the criteria in policies W5 and C1 – ~~C11~~ C12.

Assume no change to the supporting text or to the Key Diagram, except and to cross refer to proposed new policy C12 on Green Belt.

NB: Reference to the core policies at the end of policy W4 has been changed from 'C1 – C11' (as in the Submitted Plan) to 'C1 – C12' to reflect the Council's intention to propose a modification to include a new policy (C12) on Green Belt (to replace the reference to Green Belt in policy W5), as suggested in Document M9/1b.

ALTERNATIVE 2

This alternative does not add any new 'overall Plan' requirements, but brings into policy elements that were previously covered in supporting text. This alternative builds on the suggested modification in Document M9/1.

Policy W4: Locations for facilities to manage the principal waste streams

Facilities (other than landfill) to manage the principal waste streams should be located as follows:

a) Strategic waste management facilities should normally be located in or close to Bicester, Oxford, Abingdon and Didcot, as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in accordance with Policy C10.

b) Non-strategic waste management facilities should normally be located in or close to Bicester, Oxford, Abingdon and Didcot and the other large towns (Banbury, Witney and Wantage & Grove), as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in

accordance with Policy C10.

c) Elsewhere in Oxfordshire, and particularly in more remote rural areas, facilities should only be small scale, in keeping with their surroundings.

The locations for strategic and/or non-strategic waste facilities around Oxford, Abingdon, Didcot and Wantage and Grove exclude the Oxford Meadows, Cothill Fen, Little Wittenham and Hackpen Hill Special Areas of Conservation and a 200 metre dust impact buffer zone adjacent to these SACs.

As indicated on the Waste Key Diagram, strategic and non-strategic waste management facilities (that comprise major development) should not be located within Areas of Outstanding Natural Beauty except where it can be demonstrated that the 'major development test' in the NPPF (paragraph 116), and as reflected in policy C8, is met.

Specific sites for waste management facilities (other than landfill) to meet the requirements set out in Policy W3 will be allocated in accordance with this locational strategy in the Minerals and Waste Local Plan: Part 2 – Site Allocations Document. The suitability of any new sites for allocation in the Site Allocations Document will be assessed against the ~~criteria in~~ requirements of policies W5 and C1 – ~~C11~~ C12.

Supporting text update

Change the supporting text, in particular paragraphs 5.33 and 5.34, to reflect the fact that lorry route, AONB and SAC related requirements are now included in policy text and to cross refer to proposed new policy C12 on Green Belt.

ALTERNATIVE 3

This alternative builds on Alternative 2 by 'reclassifying' Banbury and expanding the zone around Oxford from 10km to 15km.

Policy W4: Locations for facilities to manage the principal waste streams

Facilities (other than landfill) to manage the principal waste streams should be located as follows:

a) Strategic waste management facilities should normally be located in or close to Banbury, Bicester, Oxford, Abingdon and Didcot, as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in accordance with Policy C10.

b) Non-strategic waste management facilities should normally be located in or close to Banbury, Bicester, Oxford, Abingdon and Didcot, and the other large towns (~~Banbury,~~ Witney and Wantage & Grove), as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in accordance with Policy C10.

c) Elsewhere in Oxfordshire, and particularly in more remote rural areas, facilities should only be small scale, in keeping with their surroundings.

The locations for strategic and/or non-strategic waste facilities around Oxford, Abingdon, Didcot and Wantage and Grove exclude the Oxford Meadows, Cothill Fen, Little Wittenham and Hackpen Hill Special Areas of Conservation and a 200 metre dust impact buffer zone adjacent to these SACs.

As indicated on the Waste Key Diagram, strategic and non-strategic waste management facilities (that comprise major development) should not be located within Areas of Outstanding Natural Beauty except where it can be demonstrated that the 'major development test' in the NPPF (paragraph 116), and as reflected in policy C8, is met.

Specific sites for waste management facilities (other than landfill) to meet the requirements set out in Policy W3 will be allocated in accordance with this locational strategy in the Minerals and Waste Local Plan: Part 2 – Site Allocations Document. The suitability of any new sites for

allocation in the Site Allocations Document will be assessed against the ~~criteria in~~ requirements of policies W5 and C1 – ~~C11~~ C12.

Supporting text update

Change the supporting text, in particular paragraphs 5.33 and 5.34, to reflect this alternative, including to reflect the fact that lorry route, AONB and SAC related requirements are now included in policy text and to cross refer to proposed new policy C12 on Green Belt.

In addition, increase the zone around Oxford for strategic and non-strategic waste management facilities to 15km from Oxford City Centre (this is approximately equivalent to including a zone of 12km from the built up area of Oxford as proposed in a representation). This further extends the zone proposed in Document M9/1 which was for 12km from Oxford City centre, this itself being an extension on the 10km in the Submitted Plan.

NB: Representations have also suggested using a 20km zone from the built up area of Oxford for strategic waste management facilities and a 15km zone from the built up area of Oxford for non-strategic facilities. These distances are considered to be too large, for example, the zone of 20km from the built-up area covers all the other large towns in Oxfordshire with the exception of Banbury. They are therefore not considered to be reasonable alternatives.

Key Diagram Update

Amend the Key Diagram to increase the zone around Oxford from 10km to 15km (from City centre); and show Banbury as a location for strategic waste management facilities.

ALTERNATIVE 4

This alternative builds on Alternative 3 by 'reclassifying' Banbury and expanding the zone around Oxford from 10km to 15km (as in Alternative 3), and adding small towns with 2km zones to b).

Policy W4: Locations for facilities to manage the principal waste streams

Facilities (other than landfill) to manage the principal waste streams should be located as follows:

a) Strategic waste management facilities should normally be located in or close to Banbury, Bicester, Oxford, Abingdon and Didcot, as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in accordance with Policy C10.

b) Non-strategic waste management facilities should normally be located in or close to Banbury Bicester, Oxford, Abingdon and Didcot, the other large towns (~~Banbury,~~ Witney and Wantage & Grove) and the small towns (Carterton, Chipping Norton, Faringdon, Henley-on-Thames, Thame and Wallingford), as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in accordance with Policy C10.

c) Elsewhere in Oxfordshire, and particularly in more remote rural areas, facilities should only be small scale, in keeping with their surroundings.

The locations for strategic and/or non-strategic waste facilities around Oxford, Abingdon, Didcot and Wantage and Grove exclude the Oxford Meadows, Cothill Fen, Little Wittenham and Hackpen Hill Special Areas of Conservation and a 200 metre dust impact buffer zone adjacent to these SACs.

As indicated on the Waste Key Diagram, strategic and non-strategic waste management facilities (that comprise major development) should not be located within Areas of Outstanding Natural Beauty except where it can be demonstrated that the 'major development test' in the NPPF (paragraph 116), and as reflected in policy C8, is met.

Specific sites for waste management facilities (other than landfill) to meet the requirements set out in Policy W3 will be allocated in accordance with this locational strategy in the Minerals and

Waste Local Plan: Part 2 – Site Allocations Document. The suitability of any new sites for allocation in the Site Allocations Document will be assessed against the ~~criteria in~~ requirements of policies W5 and C1 – ~~C11~~ C12.

Supporting text update

Change the supporting text, in particular paragraphs 5.33 and 5.34, to reflect this alternative, including to refer to the inclusion of the small towns (with 2km zones from the centres of the towns) as locations for non-strategic waste management facilities, to reflect the fact that lorry route, AONB and SAC related requirements are now included in policy text and to cross refer to proposed new policy C12 on Green Belt.

In addition, increase the zone around Oxford for strategic and non-strategic waste management facilities to 15km from Oxford City Centre (this is approximately equivalent to including a zone of 12km from the built up area of Oxford as proposed in a representation). This further extends the zone proposed in Document M9/1 which was for 12km from Oxford City centre, this itself being an extension on the 10km in the Submitted Plan.

NB: Representations have also suggested using a 20km zone from the built up area of Oxford for strategic waste management facilities and a 15km zone from the built up area of Oxford for non-strategic facilities. These distances are considered to be too large, for example, the zone of 20km from the built-up area covers all the other large towns in Oxfordshire with the exception of Banbury. They are therefore not considered to be reasonable alternatives.

Key Diagram Update

Amend the Key Diagram to increase the zone around Oxford from 10km to 15km (from City centre); show Banbury as a location for strategic waste facilities; and add 2km zones from the centres of the small towns of Carterton, Chipping Norton, Faringdon, Henley-on-Thames, Thame and Wallingford as locations for non-strategic waste facilities.

ALTERNATIVE 5

This alternative is a dispersal strategy which combines a) and b) in Alternative 2 to locate both strategic and non-strategic waste management facilities at all of the specified locations, including within an expanded 15km zone around Oxford and at the small towns with 2km zones.

Policy W4: Locations for facilities to manage the principal waste streams

Facilities (other than landfill) to manage the principal waste streams should be located as follows:

a) Strategic waste and non-strategic management facilities should normally be located in or close to Banbury, Bicester, Oxford, Abingdon, Didcot, Witney, Wantage & Grove, Carterton, Chipping Norton, Faringdon, Henley-on-Thames, Thame and Wallingford, as indicated on the Key Waste Diagram. Locations further from these towns may be appropriate where there is access to the Oxfordshire lorry route network in accordance with Policy C10.

b) Elsewhere in Oxfordshire, and particularly in more remote rural areas, facilities should only be small scale, in keeping with their surroundings.

The locations for strategic and/or non-strategic waste facilities around Oxford, Abingdon, Didcot and Wantage and Grove exclude the Oxford Meadows, Cothill Fen, Little Wittenham and Hackpen Hill Special Areas of Conservation and a 200 metre dust impact buffer zone adjacent to these SACs.

As indicated on the Waste Key Diagram, strategic and non-strategic waste management facilities (that comprise major development) should not be located within Areas of Outstanding Natural Beauty except where it can be demonstrated that the 'major development test' in the NPPF (paragraph 116), and as reflected in policy C8, is met.

Specific sites for waste management facilities (other than landfill) to meet the requirements set

out in Policy W3 will be allocated in accordance with this locational strategy in the Minerals and Waste Local Plan: Part 2 – Site Allocations Document. The suitability of any new sites for allocation in the Site Allocations Document will be assessed against the ~~criteria in~~ requirements of policies W5 and C1 – ~~C11~~ C12.

Supporting text update

Change the supporting text, in particular paragraphs 5.33 and 5.34, to reflect this alternative, including to reflect the lack of distinction between locations for strategic and non-strategic waste management facilities (including the small towns, with 2km zones from the centres of the towns), to reflect the fact that lorry route, AONB and SAC related requirements are now included in policy text and to cross refer to proposed new policy C12 on Green Belt.

In addition, increase the zone around Oxford for strategic and non-strategic waste management facilities to 15km from Oxford City Centre (this is approximately equivalent to including a zone of 12km from the built up area of Oxford as proposed in a representation). This further extends the zone proposed in Document M9/1 which was for 12km from Oxford City centre, this itself being an extension on the 10km in the Submitted Plan.

NB: Representations have also suggested using a 20km zone from the built up area of Oxford for strategic waste management facilities and a 15km zone from the built up area of Oxford for non-strategic facilities. These distances are considered to be too large, for example, the zone of 20km from the built-up area covers all the other large towns in Oxfordshire with the exception of Banbury. They are therefore not considered to be reasonable alternatives.

Key Diagram Update

Amend the Key Diagram to remove the distinction between locations for strategic and non-strategic facilities; increase the zone around Oxford from 10km to 15km (from City centre); and add 2km zones from the centres of the small towns of Carterton, Chipping Norton, Faringdon, Henley-on-Thames, Thame and Wallingford as locations for strategic and non-strategic waste facilities.