Annex F: SA/SEA incorporating SFRA and HRA

Minerals and Waste Joint Plan

Draft Sustainability Appraisal Report

October 2016

North Yorkshire County Council, City of York Council and the North York Moors National Park

Minerals and Waste Joint Plan

Sustainability Appraisal Report / Environmental Report

Draft Version to accompany the Publication Draft Plan

October 2016

Contents

1. Background

1.1 Introduction

North Yorkshire County Council, City of York Council and the North York Moors National Park National Park Authority are planning authorities that have a responsibility to take decisions on planning applications relating to minerals and waste development within their boundaries. To be able to take these decisions, it is important that they have an appropriate range of policies in place so that stakeholders in the planning process, such as local residents, developers and councillors can judge the merits or otherwise of planning applications.

The three planning authorities have come together to produce a Minerals and Waste Joint Local Plan. This plan includes policies about where minerals and waste development should take place and how it should be carried out. The plan also identifies a number of specific locations for future development, called site allocations.

The plan includes polices that deal with a number of different types of development. For example, the geology of the Plan Area means that several different types of mineral can be extracted, from aggregate minerals like sand and gravel, to different types of building stone and energy minerals such as coal bed methane and shale gas. There are also important waste management needs that are planned for in the Joint Plan, including facilities that for transferring, processing and recycling or disposal of waste. These types of development can have a wide range of positive and negative effects on the environment and people. The challenge for the plan is to deliver development that is sustainable.

Sustainable development is development that meets the needs of the present generation without compromising the ability of future generation to meet their own needs[1]. The UK Government has stated that sustainable development has economic, social and environmental dimensions. In order to help ensure that plans such as the Joint Plan set out policies that deliver sustainable development the National Planning Policy Framework requires that *"A sustainability appraisal which meets the requirements of the European Directive on strategic environmental assessment should be an integral part of the plan preparation process, and should consider all the likely significant effects on the environment, economic and social factors"*[2].

This report sets out the findings of the sustainability appraisal on the Joint Plan. While the detailed assessment findings are set out in this report and its appendices, we have also

[1] This definition paraphrases the definition first proposed by the World Commission on Environment and Development in a 1987 report called 'Our Common Future' chaired by Gro Harlem Brundtland: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987. Our Common Future [URL: http://www.un-documents.net/our-common-future.pdf]

[2] Department of Communities and Local Government, 2012. National Planning Policy Framework [URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf]

produced a Non-Technical Summary of the sustainability appraisal that sets out the key findings.

1.2 The Minerals and Waste Joint Local Plan

> Annex I of the SEA Directive states that an Environmental Report must provide: *"an outline of the contents, main objectives of the plan or programme……"*

The Minerals and Waste Joint Plan will cover the period 2016 to 31 December 2030. The geographical scope of the Plan is the three minerals and waste planning authority areas of North Yorkshire, the City of York and the North York Moors National Park as shown in Figure 1 below.

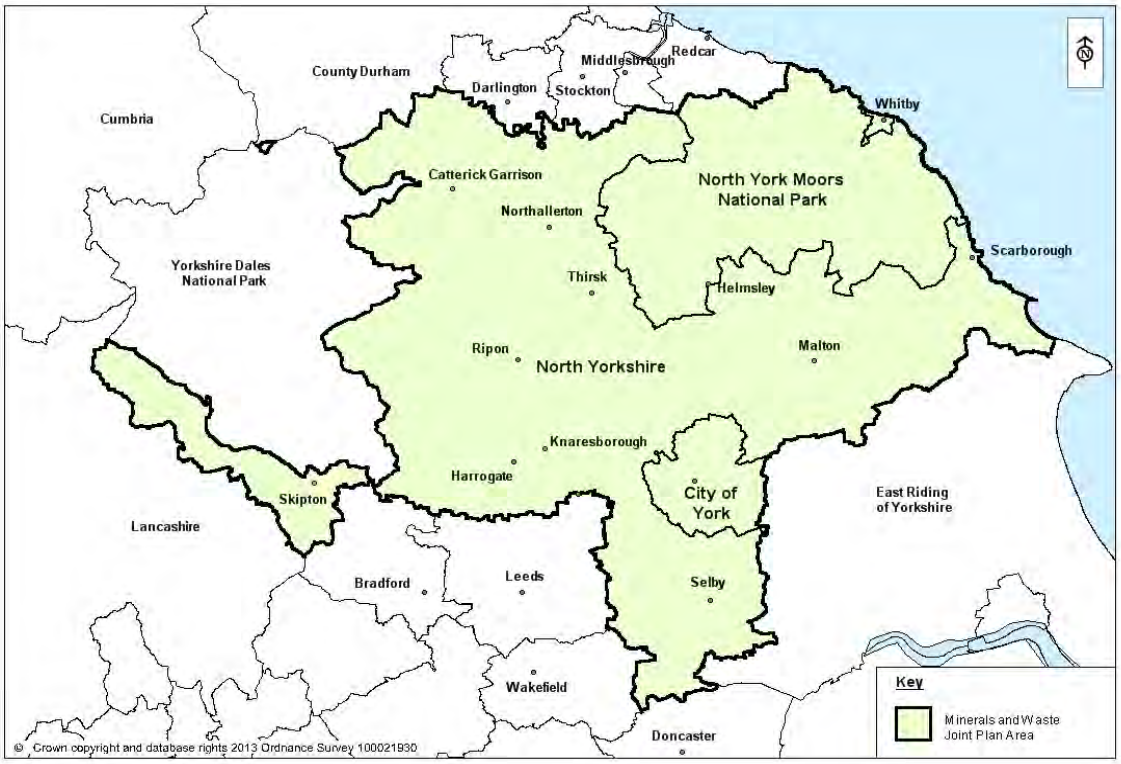


Figure 1: The Joint Plan area.

Unitary authorities, National Park Authorities and County Councils are minerals and waste planning authorities. This means that North Yorkshire County Council, the North York Moors National Park and the City of York all have a responsibility to prepare Development Plans setting out policies for development and use of land in their area[3] relating to minerals and waste. Planning authorities can prepare plans which relate just to their own area, or they can work jointly with other planning authorities to prepare plans.

[3] The North York Moors National Park and the City of York also have responsibilities for other types of development, including housing and employment and also prepare Local Plans that relate to this other development.

In the case of the Joint Plan North Yorkshire County Council, The North York Moors National Park Authority and City of York Council have teamed up to produce the Plan.

According to the Joint Plan *"The role of the Development Plan is to guide future development of the area. It forms the starting point for decision making on planning applications. Proposed development that accords with an up-to-date plan should be approved and proposed development that conflicts should be refused, unless other material considerations indicate otherwise".*

The Joint Plan includes a description of the context to the plan as well as a description of key issues and challenges to address through the Plan. It then goes on to consider the vision and objectives of the Plan, and sets out policies for minerals, 'provision of waste management capacity and infrastructure', 'minerals and waste transport and other infrastructure', 'minerals and waste safeguarding' and 'development management'. It also allocates a number of sites for both minerals and waste development and sets out a number of areas of search for minerals.

4 interconnected priorities underpin the vision and objectives of the Joint Plan:

- Delivering sustainable waste management
- Achieving the efficient use of minerals resources
- Optimising the spatial distribution of minerals and waste development
- Protecting and enhancing the environment, supporting communities and businesses and mitigating and adapting to climate change.

While we have not reproduced the vision and objectives of the Plan here, we have reproduced the vision and in section 5 of this report alongside its assessment.

The objectives of the Joint Plan are as follows:

Objective 1 - Encouraging the management of waste further up the hierarchy

Objective 2 - Making adequate provision for the waste management capacity needed to manage waste arising within the sub-region and safeguarding important waste management infrastructure

Objective 3 - Safeguarding important minerals resources and minerals infrastructure for the future

Objective 4 - Prioritising the long-term conservation of minerals through facilitating provision of sustainable alternatives to primary minerals extraction, including increasing the re-use and recycling of minerals and the use of secondary aggregates

Objective 5 - Planning for the steady and adequate supply of the minerals needed to contribute to local and wider economic growth, built development, quality of life, local distinctiveness and energy requirements, within the principles of sustainable development

Objective 6 - Identifying suitable locations for the extraction and recycling of minerals, the production of secondary aggregate, key minerals supply and transport infrastructure and the management of waste

Objective 7 - Seeking a good match between locations for waste management infrastructure and the places where waste arises, and between locations for mineral working and minerals supply infrastructure and the places where minerals and mineral products are used, in order to minimise the overall need for transport

Objective 8 - Promoting the use of alternatives to road transport and ensuring that new development is served by suitable transport networks

Objective 9 - Protecting and where appropriate enhancing the natural and historic environment, landscapes and tranquil areas of the Joint Plan area

Objective 10 - Protecting local communities, businesses and visitors from the impacts of minerals and waste development, including transport

Objective 11 - Encouraging the sustainable design and operation of minerals and waste development activity, including using opportunities arising from minerals and waste development and reclamation activity to mitigate and adapt to climate change

Objective 12 - Delivering benefits for biodiversity, geo-diversity, recreation and public access and other green infrastructure through reclamation of minerals workings.

As discussed earlier in this section, the plan also contains a number of polices (including strategic and development management policies) and specific sites and areas of search. Descriptions of those policies, sites and areas are contained within section 6 of this sustainability appraisal report.

1.3 Sustainability Appraisal

In order to ensure that new plans contribute towards sustainable development, a sustainability Appraisal must be undertaken. This requirement is set out in section 19(5) of the Planning and Compulsory Purchase Act, 2004 which, in relation to local development documents, states:

"The local planning authority must…:

(a) carry out an appraisal of the sustainability of the proposals in each document;
(b) *prepare a report of the findings of the appraisal".*

This Act has, over time been amended, including by Section 180(5) of the Planning Act 2008 which updates to ensure that 'development plan documents (DPDs)' are subject to a Sustainability Appraisal.

Part 6 (a) of the Town and Country Planning (Local Planning) (England) Regulations 2012 establishes that *'a sustainability appraisal report of the local plan' should form one of the 'proposed susbmission documents' for the Local Plan, while Section 26 states that 'as soon as reasonably practicable after the local planning authority adopt a local plan they must (a) make available in accordance with regulation 35….(iii) the sustainability appraisal report"*.

Sustainability Appraisal is also referred to in national planning policy, with paragraph 165 of the National Planning Policy Framework stating *"A sustainability appraisal which meets the requirements of the European Directive on strategic environmental assessment should be an integral part of the plan preparation process, and should consider all the*

likely significant effects on the environment, economic and social factors"[4]. Section 2.1 of this report sets out the requirements of the Strategic Environmental Assessment (SEA) Directive in detail.

Sustainability appraisal (including aspects pertinent to the SEA Directive) has been carried out on the vision, objectives, policies, sites and areas of the Joint Plan. This reports sets out the findings of the sustainability appraisal.

1.4 The Sustainability Appraisal Report

Due to the large number of policies and sites in the Joint Plan this sustainability report has been laid out as follows:

Chapter 2 sets out the methodology we have followed to carry out the sustainability appraisal, including how we have predicted the likely significant effects of policies and sites.

Chapter 3 summarises the key findings of our review of the strategic context of the plan and examines the likely evolution of baseline environmental, social and economic data for the plan. The full baseline has been published in a separate updated scoping report.

Chapter 4 shows how we have developed a 'sustainability appraisal framework' in order to appraise the effects of the Joint Plan. The full sustainability appraisal framework is at appendix 1.

Chapter 5 shows how we have sought to review reasonable alternatives to meet the requirements the SEA Directive.

Chapter 6 summarises the appraisal findings for policies, sites and areas of search. Appendix 2 shows the full policy assessments, while appendix 2 (separated into geographical area sub chapters) includes the full site and area assessments.

Chapter 7 sets out the limitations of the assessment process as well as the uncertainties encountered.

Chapter 8 includes the proposed indicators by which we will monitor the plan.

Chapters 9 and 10 conclude the report and set out how anyone can comment on the sustainability appraisal.

[4] Department of Communities and Local Government, 2012.

2. Sustainability Appraisal Methodology

2.1 Sustainability Appraisal and the SEA Directive

As discussed in section 1.3 sustainability appraisal is required under English law for Local Plans. However, a core feature of sustainability appraisal is that it incorporates the features of Strategic Environmental Assessment, as defined by the SEA Directive.

The SEA Directive (Directive 2001/42/EC) is transposed into UK law by Statutory Instrument number 1633 on Environmental Protection, called 'the Environmental Assessment of Plans and Programmes Regulations 2004'. This sets out the requirements for undertaking an SEA. These Regulations show how the Directive should be undertaken in England, setting out the types of plans and programmes which must undertake SEA as well as how an SEA should be prepared including consultation procedures and the information that should be provided in an environmental report and upon adoption of the Plan.

According to the Regulations, the environmental report should be prepared consistently with sections 12(2) and 12(3) of the Regulations. These state:

"(2) The report shall identify, describe and evaluate the likely significant effects on the environment of:

(a) Implementing the plan or programme; and
(b) Reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme

(3) The report shall include such of the information referred to in Schedule 2 to these Regulations as may reasonably be required, taking account of:

(a) Current knowledge and methods of assessment;
(b) The contents and level of detail of the plan or programme;
(c) The stage of the plan or programme in the decision making process; and
(d) The extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment".

Of particular relevance to the assessment of the Joint Plan is section 12 (3c). This assessment has assessed a plan that sets the policy framework for future planning applications. As such, the environmental effects of individual planning applications cannot be predicted until those applications have been submitted and examined, nor should they, as

information should be provided by the applicant when he or she submits a planning application, that may include an Environmental Impact Assessment. Rather, this assessment has focussed on 'high level' effects of implementing the policies, predicting broadly how the sustainability baseline will change as a result of the operation of policies. It predicts if broadly, as a result of the policies if the environmental, social or economic objectives may be closer to being achieved, or if the situation in relation to those objectives may worsen. It does not predict exactly where and when effects will occur.

Schedule 2 of the Regulations lists information that an Environmental Report may contain depending on the relevance of the plan. Table 1 shows the requirements of Schedule 2 and where that information has been provided in this report.

Information for Environmental Reports	**Where to locate this information**
1. An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	Covered in chapter 1 and chapter 5
2.The relevant aspects of the current state of the environment[5] and the likely evolution thereof without implementation of the plan or programme.	Covered in chapter 3 and separate updated scoping report.
3.The environmental[6] characteristics of areas likely to be significantly affected.	Covered in chapter 3 and separate updated scoping report
4. Any existing environmental problems[7] which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive.	Covered in chapter 3
The environmental protection objectives[8], established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Covered in chapter 3
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as— (a) biodiversity; (b) population; (c) human health; (d) fauna; (e) flora; (f) soil; (g) water; (h) air; (i) climatic factors; (j) material assets; (k) cultural heritage, including architectural and archaeological heritage;	Covered in chapter 6

[5] In our sustainability appraisal we have also considered the current state of social and economic factors and their likely evolution.

[6] We have also considered social and economic characteristics

[7] We have also considered social and economic problems

[8] We have also considered social and economic objectives

(l) landscape; and (m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l)[9].	
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment[10] of implementing the plan or programme.	Covered in chapter 6
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Covered in chapter 5 and earlier issues and options report
A description of the measures envisaged concerning monitoring in accordance with regulation 17[11].	Covered in chapter 8
A non-technical summary of the information provided under paragraphs 1 to 9.	Covered in a separate report

Table 1: Information to be included in an environmental report[12].

In addition to the requirements of an Environmental Report under the SEA Regulations, a sustainability appraisal should consider social and economic factors. While the legislation does not give an indication of what should be contained within a Sustainability Appraisal Report, the NPPF states that the SA should *'meet the requirements of the European Directive on strategic environmental assessment'* and '*consider all the likely significant effects on the environment, economic and social factors'*[13].

Some additional process related guidance relevant to SA is presented in the Government's Planning Practice Guidance. This establishes that SA should undergo a scoping stage that *"must identify the scope and level of detail of the information to be included in the sustainability appraisal report. It should set out the context, objectives and approach of the assessment; and identify relevant environmental, economic and social issues and objectives"*[14].

We have undertaken and consulted on a scoping stage which has informed how this report has been produced, including how we should take account of social and economic factors. The footnotes in Table 1 above show where social and economic factors are reported alongside the requirements of an Environmental Report.

2.2 Key Tasks in the SA Process and how they have been Undertaken

Although the guidance on what should be reported in a Sustainability Appraisal Report is very limited, the requirements of the SEA Regulations are helpful in allowing authors to infer the requirements of such reports from the requirements of an Environmental Report. In addition, a combination of guidance on SEA and process guidance on sustainability appraisal shows what steps should be undertaken through when conducting a sustainability appraisal.

[9] Our SA Framework also predicts likely significant effects on social and economic objectives
[10] We also consider measures to prevent, reduce and offset social and economic adverse effects
[11] Monitoring also applies to social and economic factors
[12] The Stationery Office, 2004. The Environmental Assessment of Plans and Programmes Regulations, 2004.
[13] Department of Communities and Local Government, 2012.
[14] Department for Communities and Local Government, 2016. Strategic Environmental Assessment and Sustainability Appraisal.

According to the National Planning Practice Guidance website a number of steps in the SA process are recommended, as shown in Table 2 below.

Appraisal Stage / Step	**At what stage of plan preparation should this step be undertaken**	**How the Joint Plan SA approached this step**
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	Evidence gathering and engagement.	Tasks A1 to A5 were undertaken in the SA scoping report The outcomes of Tasks A1 to A4 are also summarised in this report in chapters 3 and 4.
A1 Identify other relevant policies, plans and programmes, and sustainability objectives		
A2 Collect baseline information		
A3 Identify issues and problems		
A4 Develop the sustainability appraisal framework		
A5 Consult the consultation bodies on the scope of the sustainability appraisal report		
Stage B: Developing and refining alternatives and assessing effects	Consult on Local Plan in preparation (regulation 18 of the Town and Country Planning (Local Planning) (England) Regulations 2012)	-
B1. Test the Local Plan objectives against the sustainability appraisal framework		Task B1 was first undertaken in the SA update report published at Issues and Options stage and updated in the Preferred Options SA Update Report. A further update has been provided in this report in chapter 5.
B2. Develop the Local Plan options including reasonable alternatives[15]		Task B2 was undertaken in the SA update report published at Issues and Options. Further assessment of additional alternative Options was presented in a further SA Update Report and published alongside the assessment of preferred options.
B3. Evaluate the likely effects of the Local Plan and alternatives		

[15] At the time of our original scoping report, guidance on stage B included 6 steps, including what was then step B3 'Predict and appraise the significant effects of the options, including alternatives'. In this assessment we consider that appraising the effects of the options, including alternatives is now part of stage B2, while evaluating these effects to consider their overall significance is part of stage B3. In practice the two steps have been undertaken together as a continuum of assessment, and revisited as a preliminary step towards developing mitigation (stage B4).

		Task B3 was undertaken together with stage B2 (using an SA Framework) in the SA update report published at Issues and Options. Further assessment of additional alternative options generated through consultation were presented in a further SA Update Report and published alongside the assessment of preferred options. Assessments of preferred options were presented in an SA update report at preferred options. A summary of this process has been documented in chapter 5 of this report and a further high level assessment of alternatives has also been carried out.
B4. Consider ways of mitigating adverse effects and maximising beneficial effects		Mitigation measures were proposed in the SA Update Report at Preferred Options and are further developed in section 6.8 of this report.
B5. Propose measures to monitor the significant of implementing the Local Plan		Some initial proposed monitoring measures were presented in the SA Update Report at Preferred Options stage, and are more fully developed in chapter 8 of this report.
Stage C: Prepare the sustainability appraisal report	Prepare the publication version of the Local Plan.	This report has been prepared to meet the requirements of SEA Regulations in relation to producing and Environmental Report and national policy as it relates to sustainability appraisal (see section 2.1 above).
Stage D: Seek representations on the sustainability appraisal report from consultation bodies and the public	Seek representations on the publication local plan (regulation 19) from consultation bodies and the public	This stage has commenced with the publication of this report.
	Submit draft Local Plan and supporting documents for independent examination.	Step yet to be carried out. A finalised version of this report will be submitted for independent examination.
	Outcome of examination (consider implications for SA / SEA compliance).	Step yet to be carried out.
	Local Plan adopted.	Step yet to be carried out.
Stage E: Post adoption reporting and	Monitoring.	-

monitoring		
E1. Prepare and publish post-adoption statement		Step yet to be carried out.
E2. Monitor significant effects of implementing the Local Plan		Step yet to be carried out.
E3. Respond to adverse effects		Step yet to be carried out.

Table 2: Steps identified for SA by the National Planning Practice Guidance and how they have been approached in this assessment

2.3 The Sites and Areas Assessment Process

As well as the policies for minerals and waste development, the Joint Plan also includes a number of minerals and waste site allocations as well as a series of 'areas of search' for minerals.

While policies in the Joint Plan generally have a broad application, site allocations are far more specific. This allows more specific comments to be made in relation to those sites, and there is also the potential to predict and evaluate sustainability effects with greater locational accuracy.

While the Plans Team needed a mechanism to identify which of the submitted sites to take forward, the SA needed to predict the sustainability effects of the Plan, including its site allocations. To this end a specific Site Identification and Assessment Methodology was developed which helped inform site allocations in an integrated way. This was consulted on in [date] and the final version of the methodology broadly followed four steps:

Step 1: Identification and initial screening of potentially suitable Sites and Areas;
Step 2: Identification and mapping of key constraints;
Step 3: Initial sustainability appraisal of Sites;
Step 4: Panel review of initial SA findings and feedback to Sustainability Appraisal Report

While the assessment was carried out as a separate process, Steps 3 and 4 allowed the process of identifying and assessing sites to taper in to the wider SA process.

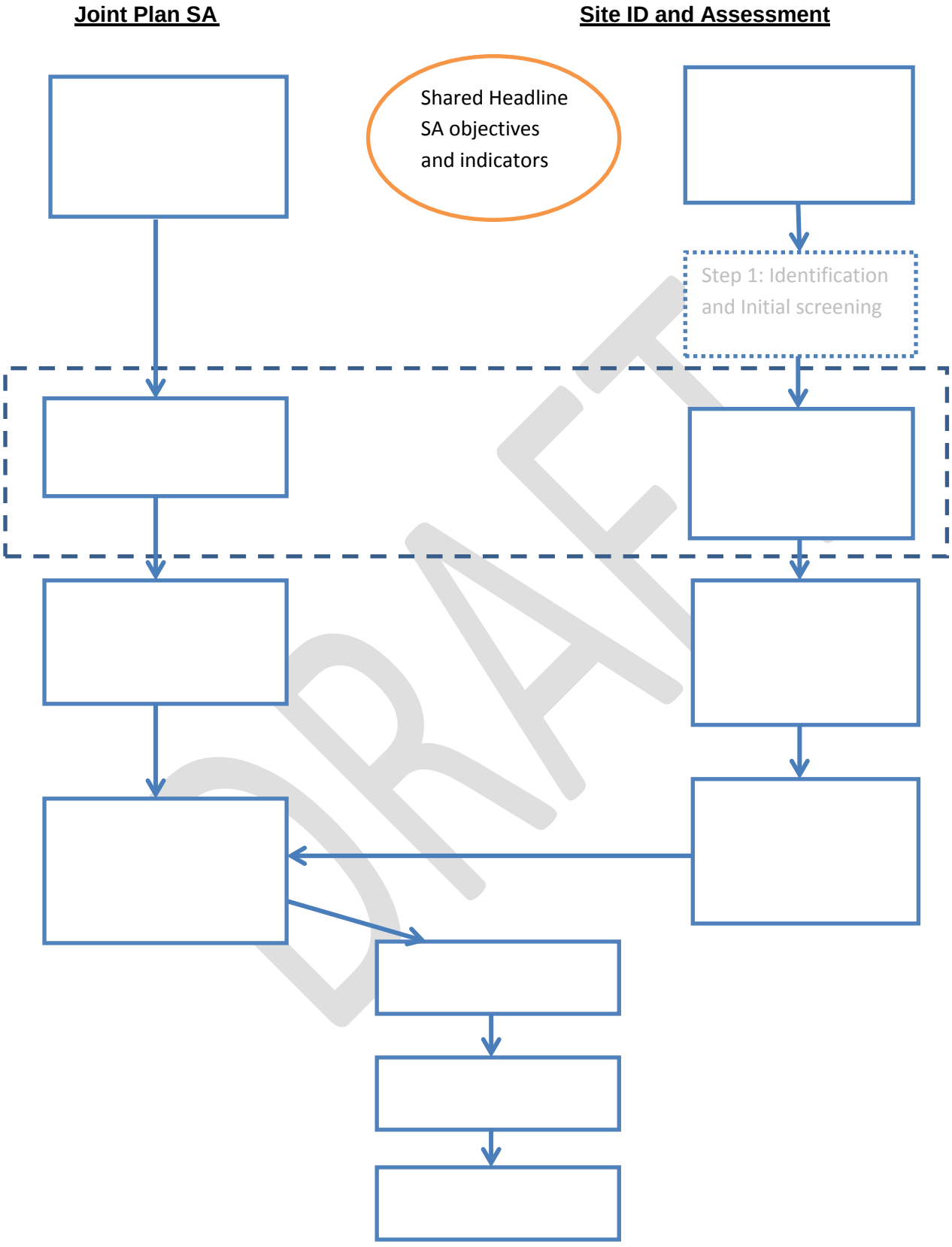
It should be noted that the assessment of sites needed to vary slightly from the wider SA process in a number of ways to reflect the location specific nature of sites. In particular:

- While the same baseline data was used to predict environmental effects as the wider SA, a number of more specific datasets were also gathered to add site specific constraints and opportunities detail to the appraisal of sites. Appendix 4 of the Site Identification and Assessment Methodology explains the additional baseline data used, and the full list of mapped datasets used in the report is also detailed Chapter 3 of this report.
- While the policy assessment considered policy alternative options as alternatives, sites could not be considered in this way as sites were generated from a call for sites (rather than the plan identifying sites form the 'top down'). Alternatives were instead taken to be the full list of submitted sites, only some of which were taken forward on the basis of their overall sustainability and contribution to the Joint Plan;

- The SA Framework used for assessment corresponded to the SA Framework used for policies in that it used the same headline objectives. However, to enable location specific assessment to be undertaken a series of ‘key questions to ask of each site’ replaced the more strategic sub objectives used in the wider SA framework. The Site specific SA Framework used is included in Appendix 3 of this report.

Figure 1, below, shows how the SA and Site Assessment processes relate to one another.

Figure 1: The SA and Site Assessment Processes and how they Link



As well as considering sites, the Site Identification and Assessment Methodology also outlines how areas of search would be considered. In broad terms the methodology for assessing areas of search was the same as the assessment process for sites. However, due to the larger scale of areas of search, the wider policy SA Framework was used rather than the site specific SA Framework. Further detail of the assessment approach is contained in a separate topic paper.

As with areas of search, a variation on the methodology was used for infrastructure sites. This involved undertaking steps 2 to 4 of the site assessment methodology, but utilising an infrastructure specific screening table at step 1. Details of this approach can be seen in the Site Assessment Methodology.

2.4 Supporting Assessments

A number of further more detailed assessment processes have informed the findings of the sustainability appraisal. These include Habitats Regulations Assessment, Strategic Flood Risk Assessment and Rural Proofing. Health Impact Assessment and consideration of the Water Framework Directive were also embedded within the SA process.

2.4.1 Habitats Regulations Assessment

Alongside this SA a screening exercise for 'appropriate assessment' has be undertaken in line with the requirements of the EU Habitats Directive, as transposed by the Conservation of Habitats and Species Regulations, 2010 (the Habitats Regulations). This legislation requires that appropriate assessment needs to be undertaken for any plan or project which:

- Either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated as part of the Natura 2000[16] network;
- Is not directly connected with the management of the site for nature conservation.

Whilst Sustainability Appraisal and Habitats Regulations Assessment (HRA) are two separate processes and should be reported upon separately there are a number of linkages between the two processes. These include:

- Evidence gathering for HRA has fed into the evidence that informs SA;
- Mitigation and alternatives proposed by HRA has helped shape the mitigation measures proposed by the SA and vice versa.
- The SA has ensured that wider interest features of Natura 2000 sites that are not within the scope of HRA (such as setting, or the interest features of overlapping designations (e.g. SSSI)) were also considered.

Initial work on the scope of the Habitats Regulations Assessment and screening of the options took place during the issues and options stage of the Joint Plan, while a further update of the screening process took place alongside the Preferred Options consultation. Following the identification of a number of uncertain effects a final draft Habitats Regulations Assessment report has been produced. Its findings are reflected in the SA assessment findings pertaining to biodiversity.

[16] A network of European nature conservation sites that is made up of terrestrial and marine Special Areas of Conservation and Special Protection Areas. For the purposes of the assessment Ramsar sites will also be considered.

2.4.2 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) has also been produced to inform the SA process. The role of SFRA is defined within the National Planning Policy Framework (NPPF). This requires that a 'sequential approach' to allocating sites according to flood risk is taken[17].

SFRA is an assessment of the risk posed by flooding from a range of sources in a defined geographical area. It provides the necessary information to undertake a sequential approach to the location of development in relation to flooding. All minerals and waste sites must satisfy the Sequential Test in relation to flooding. This requires that new developments are steered towards areas with the lowest probability of flooding, with Flood Zone 1 being considered ahead of Flood Zone 2, and Flood Zone 3 where sites in Flood Zone 2 are not available. Depending on the vulnerability of development to flooding it may also be necessary to apply the 'Exception Test'[18] to justify the locating of a site in a certain Flood Zone.

The SFRA approach we have used to inform the sustainability appraisal has been designed to ensure existing Strategic Flood Risk Assessment carried out by district councils within the North Yorkshire area[19], along with existing SFRAs for the other planning authorities within the Joint Plan (i.e. The North East Yorkshire Strategic Flood Risk Assessment which covers the area of a number of planning authorities including the North York Moors National Park, and the City of York Strategic Flood Risk Assessment) have primacy. In order to create a level assessment national datasets from the Environment Agency's Flood Map and other national maps were added to the historic flood risk information held by North Yorkshire as a Lead Local Flood Authority to bring the assessment up to date, while gaps in the mapping of functional floodplain were filled in, and data on climate change added.

The sites in the Joint Plan have all been subject to the Sequential Test utilising information provided through the SFRA. This data has also been used to update the SA (which includes and objective on flooding) to help assess sites.

2.4.3 Rural Proofing

The Government's Gov.uk website states that: Rural proofing is integral to the policy making cycle. It requires us to make sure that the needs and interests of rural people, communities and businesses in England are properly considered'[20]. In the sustainability appraisal we carried out a rural proofing exercise on the SA Framework which identified that it would consider the needs of rural interests. In this way we were able to demonstrate that rural proofing was integrated into the overall assessment. The results of this exercise are shown in the SA scoping report.

[17] See paragraph 100 of the NPPF (DCLG, 2012. National Planning Policy Framework [URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf]

[18] The Exception Test is a 3 part test that sets out to demonstrate wider sustainability benefits of development, consideration of previously developed land and the safety of development.

[19] Some districts have their own SFRA in place, notably Selby, while others have joined up to produce SFRAs covering the north west and north east of the Plan area. At the time of writing authorities previously covered by the north west SFRA (Harrogate, Craven) as well as Hambleton, have commissioned new SFRAs.

[20]

2.4.5 Ecosystem Services

Ecosystem services are defined by DEFRA as: *'services provided by the natural environment that benefit people. Some of the ecosystem services are well known including food, fibre and fuel provision and the cultural services that provide benefits to people through recreation and cultural appreciation of nature. Other services of nature are not so well known. These include the regulation of the climate, purification of air and water, flood protection, soil formation and nutrient cycling'*[21].

In a similar manner to the way we approached rural proofing, checks on the compatibility of the Sustainability Appraisal Framework with the final ecosystem services considered to be being delivered in the Joint Plan area were undertaken. This helped to show that the SA objectives were broadly suitable to the job of enhancing ecosystem services delivery in the plan area. The results of this exercise are shown in the SA scoping report.

2.4.6 Water Framework Directive

The European Water Framework Directive (2000/60/EC) (WFD) became part of UK law in December 2003 as part of The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. The purpose of the WFD is for the achievement of good chemical status (GCS) and good ecological status (GES) in all natural water bodies (NWBs), and for good ecological potential (GEP) to be reached in all artificial water bodies (AWBs) and heavily modified water bodies (HMWBs). All water bodies must reach GES or GEP by 2015.

The WFD requires that environmental objectives are set for all surface and ground water bodies in EU member states. In order to help achieve these objectives, the Environment Agency has identified 11 River Basin Districts across England and Wales so that the water environment can be managed appropriately. The area covered by the Joint Plan lies within the River Basin District (RBD) of the Humber River (which covers the majority of the county) and partially within the North West River Basin District and the Northumbria River Basin District.

The River Basin Management Plans (RBMPs) define 'status objectives' for each water body and outline a series of mitigation measures so that each RBD may reach the required status in all of its water bodies. The ecological status of a given water body is based on its biological quality elements. However, in order to achieve the overall aims of the WFD, each water body must also pass a chemical status assessment, which relates to concentrations of identified priority or dangerous substances.

The Directive requires that any activities must not lead to a water body failing to meet its specific WFD status objectives, or prevent conditions from improving. Activities, such as those associated with minerals or waste planning, may positively or negatively affect the achievement of a water body's status objectives.

In this Sustainability Appraisal we have ensured that WFD is taken into account by incorporating the key objectives of River Basin Management Plans into our baseline review

[21] Defra, 2007. An Introductory Guide to Valuing Ecosystem Services. Defra, London

and including an objective relevant to water quality in our SA Framework, with a sub objective related to meeting Water Framework Directive status objectives.

2.4.7 Health Impact Assessment

Health is a core component of sustainable development. The United Nations agreed a series of sustainable development goals for 2030 in September 2015. At the heart of these goals is a commitment to '*ensure healthy lives and promote well-being for all at all ages"*[22].

Even before this goal was established, health was seen as a core requirement of strategic environmental assessment[23] and thus sustainability appraisal. For instance, the Annex 1 of the SEA Directive lists topics which can be considered in an environmental report, including human health.

Several agencies have issued guidance on how health should be considered in strategic environmental assessment and sustainability appraisal, and the extent to which the appraisal process can integrate the assessment processes and procedures that are used as part of health impact assessments. According to the Association of Public Health Observatories (APHO), now part of Public Health England: *"proper coverage of human health in SEA means a separate Health Impact Assessment is not necessary"*[24].

At each stage of the SA Process undertaken to date health issues have been considered, as illustrated by Table 3 below.

Sustainability Appraisal Stages to Date	**How Health was considered**
Scoping Stage	-Establishment of the relationship of the Joint Plan to other relevant health plans and programmes; -Collection of baseline health information; -Identification of key population and human health issues in the Joint Plan Area; -Establishment of sustainability appraisal objectives and sub objectives, including a health and wellbeing objective as well as a range of environmental quality objectives that support health and wellbeing
Issues and Options Update Report	Assessment of the draft vision, objectives and policy options of the Joint Plan against the SA objectives, including the health and wellbeing objective.
Preferred Options Update Report	Further assessment of the draft vision, objectives and preferred policies and sites in the Joint Plan against the SA objectives, including the health and wellbeing objective.

Table 3: How Health has been Considered at Key Stages of the SA Process

[22] United Nations General Assembly, 2015. Resolution adopted by the General Assembly on 25 September 2015: Transforming our world: the 2030 Agenda for Sustainable Development [URL: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E]

[23] See footnote 1 for an explanation of how Strategic Environmental Assessment has been integrated into the Joint Plan's Sustainability Appraisal

[24] Public Health England, undated. Application of SEA [URL: http://www.apho.org.uk/resource/view.aspx?RID=74634]

This SA report draws together the assessment work that has been carried out in relation to health through our SA Framework. We have also produced a specific health topic paper to show the health related findings of the assessment for those with a specific interest in this topic.

2.4.8 Historic Impact Assessment

Following guidance from Historic England several sites were subject to further assessment of the contribution that they currently make to the significance of designated historic assets, as well as their predicted contribution once developed. The findings of this assessment are contained within a Historic Impact Assessment document.

2.5 Predicting Significant Effects

A key requirement of SA is to predict the significant effects of the options. This involves:

- *'Identifying the changes to the environmental (social and economic) baseline which are predicted to arise from the plan or programme, including alternatives.....'*

- *'Describing these changes in terms of their magnitude, their geographical scale, the time period over which they will occur, whether they are permanent or temporary, positive or negative, probable or improbable, frequent or rare, and whether or not there are secondary, cumulative and/or synergistic effects'*[25]*.*

In order to undertake this task the SA objectives have been presented alongside each set of policy options in matrices. Each option will be considered in terms of its potential effects on each of the SA objective (including SA sub objectives) and indicators.

The significance of these impacts has then been considered across three different timescales: the short term (0-5 years from plan adoption), medium term (6 – 15 years from plan adoption) and long term (16 – 30 years from plan adoption). Where impacts are considered to begin to occur beyond 30 years from plan adoption, or significantly increase in significance beyond 30 years, these are recorded as long term significant impacts. The type of effect, including whether it is permanent, temporary, direct or indirect is also be recorded.

The box below gives more detail on how significance will be considered consistently with the SEA Directive.

It is important to note that the impact score given for each objective is a summary of direct and indirect, permanent, temporary and secondary, cumulative and synergistic impacts. In the context of the Joint Plan, permanent effects are those that are considered to be long term or permanent. Permanent effects that occur in the short or medium term are considered to endure into the long term. A commentary in the matrix provides the explanation.

[25] ODPM, 2006. A Practical Guide to the Strategic Environmental Assessment Directive' ODPM, London. Text in parentheses is the author's own adaptation to reflect the broader scope of Sustainability Appraisal.

While helpful in a broad sense they say little about the point at which an impact of a plan becomes significant. However, previous guidance in the 'Plan Making Manual' points out that "
"ultimately, the significance of an effect is a matter of judgment and should require no more than a clear and reasonable justification" (DCLG, undated. Plan Making Manual). Nonetheless, wherever possible we make reference to published guidelines on significance to help make judgements.

The matrices for assessments record the findings by using a scoring system. The scores used are as follows:

Score	Significance
++	The option is predicted to have higher positive effects on the baseline and the achievement of the SA objective.
m+	The option is predicted to have moderate positive effects on the baseline and the achievement of the SA objective.
+	The option is predicted to have minor / low level positive effects on the baseline and the achievement of the SA objective.
0	The option will have no (or an insignificant) effect

	on the baseline and the achievement of the SA objective.
-	The option is predicted to have minor / low level negative effects on the baseline and the achievement of the SA objective.
m-	The option is predicted to have moderate level negative effects on the baseline and the achievement of the SA objective.
--	The option is predicted to have higher negative effects and the achievement of the SA objective.
?	The impact of the objective on the baseline / SA objective is uncertain.

It should be noted that, due to the strategic nature of sustainability appraisal, often we are unable to indicate the exact magnitude of effects, so reported scores are necessarily broad. We have, however, recognised that in contrast to earlier reports, there is a need to introduce an intermediate category of effects to capture those which are neither higher or lower level. Such effects will be captured by out moderate effects category, reported as m- or m+.

The assessors have used a number of tools to help predict, appraise and evaluate effects as explained in table 4 below.

Assessment Tool	**How it has been used**
Literature Review	Numerous sources of information were utilised when the appraisal predicted the effects of the plan and made an evaluation of the significance of those effects. These included published research studies, websites, conference proceedings, environmental statements, articles in journals and government or government agency reports. We also looked at guidance documents where significant thresholds were documented.
Professional Judgement	The assessors involved in the different stages of the assessment have all been at least graduates of environmental degrees with experience in the sustainability field. Additional expertise was sought from specialists working within the Joint Plan local authorities in disciplines ranging from traffic assessment to environmental health.
Empirical studies	As detailed in section 2.4 several discreet assessment studies have been undertaken to support the sustainability appraisal, such as strategic flood risk assessment and historic impact assessment.
Geographical Information Systems (GIS) and modelled data	GIS are databases that are displayed on a map. Wherever possible we have utilised mapped data to predict the spatial extent of effects, and used GIS maps extensively in the assessment of sites. GIS has also allowed us to identify the pathways for effects using a 'source-pathway' receptor approach. Many of the GIS files we have used display modelled data, such as modelled flood risk extents. We have also used modelled data on issues such as climate change effects and population and market projections to consider how the

	baseline in relation to these areas will change over time.

Table 4: Use of Assessment Tools in this Assessment

Involving professionals in the assessments can, in as assessment based largely on professional judgement, lead to a variance in the level of significance ascribed to different predicted effects. In addition, throughout the assessment process consultees have highlighted new information to us that wasn't available to earlier assessors. In this sustainability appraisal report we have endeavoured to undertake consistency checking between the assessments, including the strategic alternatives, to help ensure a more balanced assessment.

In all cases we have assessed policies and sites only on the basis of the information provided. That means that we have not assumed that mitigation will be put in place to deal with significant effects if this has not already been stated. As the plan has evolved, many recommendation made by consultees and the sustainability appraisal have been incorporated into the draft plan. This means that more information has been made available to assessors, including on mitigation that might be incorporated into a policy or site, or mitigation that has been provided through other policies, such as the development management policies. The draft final assessments in this draft sustainability appraisal report reflect this more certain position[26] and recognise that effects identified by the assessment may already be mitigated by the text of the plan. However, if no relevant mitigation is written into the plan at this stage, further recommendations for mitigation will be made.

In some assessments we have made assumptions about unstated issues to enable a realistic assessment. Where we have done this we have stated the assumptions made in the relevant assessment pro forma.

2.6 Secondary, Cumulative and Synergistic Effects

It is important to note that the impact score given for each objective is a summary of direct and indirect, permanent, temporary and secondary, cumulative and synergistic impacts.

[26] Readers should recognise that in earlier stages of plan preparation, less information on how the plan might mitigate for or avoid effects was available, or the format of other policies may have been less certain, so earlier assessments reflect this less certain position.

The mechanisms by which secondary, cumulative and synergistic effects will occur are further detailed at the bottom of each appraisal pro forma. This information, taken together with the other types of effects noted in the assessment, is used to evaluate the effects of options and allows recommendations for mitigation to be advanced.

3. The Strategic Context and Baseline

3.1 Review of Plan Strategy and Objectives

The relative objectives of the SA compared to the SEA topics are shown below:

SEA Topic	SA Objective
Biodiversity	Objective 1
Population*	Objective 17
Human Health	Objective 15
Fauna	Objectives 1
Flora	Objective 1
Soil	Objective 5
Water	Objectives 2 & 16
Air	Objectives 3 & 4
Climatic Factors	Objectives 3, 6 & 7
Material Assets*	Objectives 8 & 9
Cultural heritage including architectural and archaeological heritage	Objective 10
Landscape	Objective 11

* These terms are not clearly defined in the SEA Directive / Regulations

3.1.1 Plans, Policies, Programmes, Strategies and Initiatives Review

In order to correctly inform and guide the scope of the Minerals and Waste Joint Plan it is necessary to consider all plans, policies, programmes, strategies and initiatives (PPPSIs) relevant to the SA. The following section considers all pertinent PPPSIs with consideration for all possible levels of authority - international and European, national, regional and local. The intention of such a comprehensive undertaking of PPPSIs is to ensure all established economic, social and environmental protection objectives are considered in the preparation of the Joint Plan.

3.1.2 Undertaking the PPPSI Review

To fulfil SEA Directive requirements it is necessary to review all PPPIs associated with the Joint Plan. Annex 1 of the SEA Directive requires information on:

"*environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation*".

The extensive array of plans and programmes are presented in the tables in the SA Scoping Report and the list of PPPSIs forms part of the baseline to this Sustainability Appraisal

3.1.3 Summary of the PPPSI

The overriding theme of the PPPSI is that of sustainable development and the need to protect the environment relative to creating a suitable balance of economic growth and development. Their relevance to the SA process is described further below.

International and European

These largely focus upon sites of international importance such as Special Areas of Conservation (SACs) and programmes that are only likely to be effective if they are implemented at international level such as climate change agreements. In the context of this SA it is therefore most relevant towards the allocation of sites and the broad approach in the setting of objectives (such as Sustainability Objective 6 to reduce the causes of climate change.

National

The greatest number of PPPSI are those set at a national basis with a number of authors, including government departments (e.g. Defra and DfT), the SA statutory consultees (the Environment Agency, Natural England and Historic England) and other interested parties (e.g. the Town and Country Planning Association and the British Geological Survey). It is noteworthy that a number of Government publications are enacting various international and European policies especially in the fields of air quality, biodiversity and waste.

Particular mention focus upon the National Planning Policy Framework (NPPF) ought to be made in so far that it is the overriding government policy for allocating land use policies for assessing planning applications. All local plans that set a development context will be tested in the examination phase against the NPPF and it takes precedent over any plan published before it. The overriding objective of the NPPF is sustainable development. Sustainable it defines as "ensuring that better lives for ourselves don't mean worse lives for future generations" whilst it defines development simply as "growth" and the objectives and the assessment have been undertaken with these two principles as the key considerations.

Regional and Sub-Regional

Fewer regional and sub-regional policies have been published in recent years mainly due to the focus of planning policy towards the national and local level. However, considerable useful information exists from that was published before this shift and also from bodies which are not beholden to the same restrictions such as the Environment Agency which publishes Catchment Management Plans which are by definition greater than local in nature.

Local

Local PPPSI documents are those published at a County, Unitary, Borough and National Park level. They focus on how planning and policy decisions are made at the local level, according with relevant guidance from overarching national and international legislation and policy. For example the UNESCO World Heritage Convention of 1972 produced the framework for the protection of historical assets of international importance, but it is at a local

level that the site specific Fountains Abbey & Studley Royal World Heritage Site Management Plan (National Trust & English Heritage, 2014) was produced.

3.2 The Baseline Review and likely evolution of the baseline without the Joint Plan

Baseline environmental, social and economic information has been collected to establish the current state of the area and any sustainability trends over time. This section provides a summary of the key information identified in the baseline review, the full baseline review is provided in the updated SA Scoping Report.

The topics addressed in the baseline have been identified against the relevant Strategic Environmental Assessment (SEA) topics, as listed in the SEA Directive. Additional topics have been added which relate to the economic and social topic areas, along with cross-cutting areas, which are relevant to SA in addition to the environmental topics.

Biodiversity, Flora and Fauna

Protected Sites

A significant proportion of the land in the Joint Plan Area is protected for its ecological value by international, national and local designations.

Sites that are designated or identified as important at an international level within the Joint Plan Area include:

- Special Areas of Conservation (SAC) – these are sites protected for important habitats and species. Within the Joint Plan Area there is SACs cover 124,177.51ha of land.
- Special Protection Areas (SPA) – these are sites that safeguard the habitats of migratory birds and certain particularly threatened birds. Within the Joint Plan Area there is 105,368.92ha of land covered by SPAs.
- Ramsar Site – there is one Ramsar site within the Joint Plan Area, the Lower Derwent Valley, protected as an internationally important wetland site.
- Important Bird Areas – areas identified as being globally important for conservation of bird populations. All of NYMNP is identified as an IBA, with other smaller areas within the Joint Plan Area.

Sites that are designated or identified as important at an national level within the Joint Plan Area include:

- Sites of Special Scientific Interest (SSSI) – these are some of the country's best wildlife and geological sites. In the Joint Plan Area there 110,140ha of land designated as SSSI. Of the SSSI in the Joint Plan Area, 53% is in favourable condition and 39% is in unfavourable condition.
- North York Moors National Park – the whole of the NYMNP is protected for its importance to wildlife.
- National Nature Reserves (NNR) – these protect some of the most important habitats, species and geology. There are five NNRs within the Joint Plan Area covering 829ha.

- Local Nature Reserves (LNR) – these are areas with wildlife and geological features that are of interest locally.

Predicted Future Trends

- The overall condition of the protected site network is predicted to improve in the short and medium term as targets for SSSI condition are met. Similarly, the target of no net loss of priority habitat by 2020 is likely to mean that declines for priority habitats will halt over the short and medium term (assuming the target is successfully met). However, there is uncertainty over the short and medium term contribution of agri-environmet schemes due to uncertainty over the outcome of Common Agricultural Policy reform, which may impact on populations of farmland species in particular. In addition, some habitats are continuing to show near term declines in the ecosystem services they deliver, such as freshwater habitats role in supplying wild species diversity, and uplands' role in climate and hazard regulation.
- Biodiversity faces some key threats which will become more significant in the longer term, including continued urbanising and development of land (including the extraction of minerals that will take place without a plan in place). The effects of climate change and invasive species / plant diseases will also become increasingly evident in the longer term. For instance, because of changes in species ranges and the fragmented nature of the current protected sites network, smaller protected sites may no longer be fit for purpose, while coastal squeeze from sea level rise may affect protected coastal areas. This would have a negative effect on biodiversity. However, other species may spread northwards meaning that some previously uncommon species may become more widespread. The cumulative effect of future forces for change is predicted to be negative.

Landscapes

The European Landscape Convention[27] describes landscape as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/ or human factors'. The landscape of the Joint Plan Area is rich and varied, it includes upland areas in the North York Moors, rolling chalk lands such as the Wolds and flatter lower landscapes such as the Vale of York and Humberhead Levels.

A large proportion of the Joint Plan Area is protected for its landscape value:

- The North York Moors National Park
- Areas of Outstanding Natural Beauty (AONBs) – there are two AONBs wholly within the Joint Plan Area; Nidderdale AONB and Howardian Hills AONB, with a partial area of the Forest of Bowland AONB also with the boundary.
- Heritage Coasts – the majority of the North Yorkshire and Cleveland Heritage Coast and part of the Flamborough Head Heritage Coast are within the Joint Plan Area.

The Joint Plan Area is covered by 15 Natural England National Character Areas (NCAs). A study by Natural England[28] assessed the current condition of the landscapes within the NCAs: the study found that the North Yorks Moors and Cleveland Hills NCA, Yorkshire Wolds NCA and Bowland Fells NCAs condition are enhancing. The Tees Lowlands, Vale of

[27] Council of Europe, 2000.
[28] State of the Natural Environment in Yorkshire and the Humber (Natural England, 2008).

Mowbray and Vale of York are classed as neglected and the rest of the NCAs within the Joint Plan Area are either maintained or diverging.

The southern part of the Joint Plan Area falls within the Green Belt designated around Leeds and an area of Green Belt is also in the process of being designated around the City of York. Green Belt is designated to maintain the open spaces around towns and cities, providing spaces for agriculture and leisure opportunities as well as maintaining open landscapes.

Predicted Future Landscape Trends

- Some landscapes within the Joint Plan Area are enhancing and some are neglected. These trends are likely to continue without intervention in these areas. Major changes to the landscape are likely to only be evident in the longer term.
- In the absence of a Plan for minerals and waste development it is possible that the quality of the landscape would decline due to the nature of these types of development.

Water and Soil

The Joint Plan Area includes areas of significant floodplains, long stretches of river catchments and river systems as well as a number of Nitrate Vulnerable Zones, Abstraction Zones, and Water Protection Zones.

There are 10 catchment areas within the JPA as follows;

- Aire and Calder
- Derwent (Humber)
- Esk and Coast
- Hull and East Riding
- Swale, Ure, Nidd and Upper Ouse
- Tees
- Wharfe and Lower Ouse
- Don and Rother
- Lune
- Ribble

The waterbodies within these catchments are predominantly of ‘moderate’ standard as defined by the Water Framework Directive with the requirement for ‘good’ status to be achieved by 2021. The predominant reasons for failing to achieve this are:

- **Agriculture**, particularly on the Esk and Coast, Swale, Ure, Nidd and Upper Ouse, Wharfe and Lower Ouse and Tees
- **Industry and sewage**, particularly on the Esk and Coast, Swale, Ure, Nidd and Upper Ouse, Aire and Calder and Tees
- **Water industry storm discharges**, particularly on the Aire and Calder, Swale, Ure, Nidd and Upper Ouse; and
- **Physical modifications** such as flood protection, particularly on the Tees and Derwent.

Surface water and groundwater flooding is a significant risk in some areas of the JPA although there are flood defence measures in place in a number of locations to manage this risk.

A variety of soils are present in the JPA, supporting many types of land including farmland, grasslands and habitats such as wet pastures. Although the majority of agricultural soil is regarded not to be 'high quality', there are concerns associated with soils in the JPA which are vulnerable to erosion and contamination.

Within the JPA there are is a considerable area of land for which the soil is categorised as Grade 3b or higher and there are areas of high quality farmland in the Vale of York and Selby area. However, there are also areas of poor quality soils unsurprisingly in the higher areas of the JPA.

Predicted Future Trends

- Flooding is already a significant issue within North Yorkshire. However, because of climate change, flooding from rivers, the sea, and surface water is predicted to become a significantly greater risk in the medium and long term. However, policy interventions such as Catchment Flood Management Plans may moderate this to a degree.
- Climate change, together with other factors such as population growth and development and farming demands, is expected to have negative effects on water availability: a situation which is expected to get worse over time, most significantly in the longer term.
- Soils are also vulnerable resources, and erosion, loss of soil carbon, and reduction in soil biodiversity are all issues that may become worse in the long term as development and increasingly climate change (e.g. drought and flooding) increasingly impact upon soils

Air

There are eight Air Quality Management Areas (AQMAs) in the JPA with seven declared due to nitrogen dioxide levels attributable to traffic and the remaining one AQMA in Scarborough for PM10 and sulphur dioxide attributable to the burning of solid fuel for heating.

The effects of air pollution upon ecologically sensitive sites is known to be an issue at a number of designated sites across the JPA including a number of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Predicted Future Trends

- It is possible that contributions would be made towards improving air quality over the medium to longer term through advances in technology and efforts focussed on improving air quality in particular areas, particularly when factoring in other likely trends such as reductions in greenhouse gas emissions.
- Conversely, increased activity associated with increases in population (through for example more development and transportation requirements) may have a detrimental effect on air quality in the longer term.

- Minerals and waste developments may have localised effects over which there would be less control without minerals and waste planning policies in place (although recognising the role of other organisations in controlling air quality).

Climatic Factors

Emissions of carbon dioxide have been falling across the JPA since 2009 with total emissions in North Yorkshire in 2014 at 5,019kt, a reduction from 5,638kt in 2009.

Due to widespread agricultural practice in the JPA emissions of methane and nitrous oxide totalled 314kt of CO_2 equivalent, compared to 396kt of CO_2 emissions. The report suggests that levels of CO_2 are likely to continue to fall although this is not significant in the context of climate change.

Predicted Future Trends

- The evidence suggests that temperatures will rise by around 3^{o}C in the summer and 3.3^{o}C in the winter by the 2080s, and rainfall will decrease by around 23% in summer whilst increasing by about 15% in the winter. The effects of this on the Joint Plan area are likely to include increased flooding, drought, changes to agricultural production and changes to habitats and species. In the short to medium term effects may be less pronounced.
- It is likely that emissions of CO_2 will continue to fall, although this may have a negligible effect on overall changes to the climate.
- Minerals and waste developments can be particularly energy intensive and are likely to contribute to the causes of climate change over which there would be less control without minerals and waste planning policies in place.

Cultural Heritage and Historic Environment

Within the JPA there is a wealth of built and cultural heritage sites and buildings including castles, abbeys and parks including areas which are statutorily protected due to their architectural or historical significance. Within the Plan Area there are:

- Over 12,000 listed buildings, or which 40 are on Historic England's 'at risk register'
- 308 conservation areas of which 7 are on Historic England's 'at risk register'
- 1,614 Scheduled Ancient Monuments of which 297 are on Historic England's 'at risk register'
- 29 Registered Parks and Gardens of which 5 are on Historic England's 'at risk register'
- 2 Registered Battlefields
- 1 Protected Wreck Site off the coast of Filey Bay
- Approximately 45,000 undesignated assets identified on the Historic Environment Record.

In addition, the City of York is designated as an Area of Archaeological Importance, one of only five declared nationally.

Predicted Future Trends

- In the short term there is unlikely to be significant changes to the historic and cultural environment. Over the medium to longer term, the number of designations may increase in various locations across the plan area in line with ongoing assessment;
- The future without a plan would be reliant on the NPPF for ensuring the historic environment is conserved and enhanced to a satisfactory degree as well as other relevant legislation relating to designated historic assets (Areas of Archaeological Importance Act, 1979; Planning (Listed Buildings and Conservation Areas) Act, 1990). This would provide a level of protection for all designated and non-designated sites important to the historic environment.

Additional Environmental Issues

Additional environmental matters within the JPA are as follows:

- Minerals Restoration; there is potential within the JPA for minerals sites to be restored for agricultural or ecological purposes or used for waste disposal when extraction operations have ceased;
- Tranquillity; there are a number of 'most tranquil' areas, as defined by the Campaign for the Protection of Rural England within the JPA, although there are also areas defined as 'least tranquil' in the urban and transport corridor areas.
- Geologically Important Sites; there are 2,747ha of land allocated as a geologically important SSSI within the JPA.
- Marine and Coastal Environment; there is one designated and one proposed Marine Conservation Zone (MCZ) on the coastline of the JPA. The Runswick Bay MCZ was designated in 2016 and the Proposed Castle Ground MCZ was propoased in 2013 and is presently on hold.

Predicted Future Trends

- Future trends in relation to minerals restoration are very much dependent upon having policies in place to guide this and therefore it is considered that without minerals and waste planning policies enhancements would be less likely to take place. In the short to medium term it is considered that positive effects will continue as the restoration phase of current planning permissions is reached. In the longer term trends are uncertain as these depend upon the policies of the Joint Plan.
- It is unlikely that tranquillity would improve over the Joint Plan area when considering factors such as increasing population and likely future development rates, although targeted efforts in particular areas may result in localised improvements. Changes are likely to be incremental and therefore in the short to medium term may not be particularly pronounced but may become greater in the longer term. Minerals and waste developments may have localised effects on tranquillity over which there would be less control without minerals and waste planning policies in place.
- It is possible that geological sites identified as declining may continue to do so, although targeted efforts to enhance particular sites may lead to improvements over the Plan area through the short, medium and long term. Minerals and waste developments may have localised effects on geological sites over which there would be less control without minerals and waste planning policies in place.
- Coastal erosion is likely to continue to take place, particularly considering the predicted effects of climate change, and effects are likely to increase over time.

Important marine environments may become better protected in the medium term through the potential designation of Marine Conservation Zones. These trends are not largely dependent upon the Minerals and Waste Joint Plan.

Economy, Employment, Education and Deprivation

There are approximately 420,900 economically active people in North Yorkshire and 10,300 are currently unemployed (March 2016) although in line with national trends the unemployment level has been falling since 2009.

In 2015 in Yorkshire and Humber, and Redcar and Cleveland, unemployment rates were higher than the average across Great Britain and whilst average weekly earnings are similar across each area within the JPA, all fall below the national average in England.

Employment in the minerals sector in the JPA has remained constant in recent years. However, planning applications for mineral and waste sites have gradually declined between 2010 and 2015. . Minerals under extraction in the JPA include: coal, potash, peat, and gypsum. In North Yorkshire there are 62 'After Mineral' extraction sites. These sites previously supported the extraction of a variety of minerals (e.g clay, sandstone, and chalk) prior to being considered for restoration. Mineral extraction is directly attributed to the geology of the area. North Yorkshire predominantly comprises of sedimentary rocks including the western-dominating Carboniferous Limestone which overlies the Upper Carboniferous Millstone Grit. Millstone Grit is also exposed in the west of the county, which gives rise to the uplands of the Yorkshire Dales and the North Pennines. North-east Yorkshire is dominated by the Hambleton Hills and the North York Moors where mudstone and sandstones are present. In the Joint Plan Area the aggregates mined are limestone, chalk and crushed rock. There are two broad forms of aggregate in the Joint Plan Area - sand and gravel and crushed rock. There are no operational aggregates quarries in the City of York area. Crushed rock mainly supplies markets in the Plan Area and the rest of the Yorkshire and Humber with smaller proportions going to the north east and North West. Much of the sand and gravel produced stays within the Plan Area, although over a third goes to the north east region.

Educational attainment in North Yorkshire and the City of York have consistently achieved a higher rate of students being awarded 5+ A-C GCSE's in comparison to the national average of England, whereas Yorkshire and the Humber has consistently fallen below the same average.

Deprivation levels in the Plan Area are closer to the least deprived areas, with the exception of Scarborough, although given their rural nature, the difficulty of access to services is a significant issue.

Predicted Future Trends

- If the UK economic recovery is sustained, employment levels are expected to improve in the short term, though the historic pattern of boom and bust in the economy means that there are considerable doubts over whether this will be sustained in the longer term.
- Secondary education GCSE pass levels are likely to continue to be ahead of the England average into the long term, though the gains of recent years may be difficult to emulate due to the higher baseline level (which is already high). Meanwhile, the

percentage of those attaining higher qualifications, which declined slightly in recent years, is likely to grow again as the longer scale national trend (2003 to 2011) shows significant growth in numbers. However, in the medium to long term too much depends on trends in the economy;

- While most of the Plan Area is relatively prosperous, pockets of deprivation continue to exist. Whether these places continue to suffer deprivation depends on factors such as state of the economy, wage levels and other factors such as housing costs. Nationally, the longer scale trend in relative poverty after housing costs has declined only slightly since the mid-1990s, so it is expected that in the short to long term deprivation, at least in terms of relative poverty, may well endure.

Population and Human Health

There are total of 340,146 households in North Yorkshire and the City of York, an increase of 8.2% since 2001 which is slightly above the national average of 7.9% in the same period. The average persons per household across the plan area is approximately 2.3. Most districts and the City of York receive a net inflow of new residents, though there is a net outflow in Craven. The population of the JPA due to increase by 9% by 2033 in North Yorkshire and 14% in the City of York from 2010 levels.

Across the JPA there is a smaller percentage of 0-14 and 15-29 year olds relative to the English average, although the 45-59, 60-74 and the 75+ categories are all higher in the JPA compared to the English average.

Average house prices in the JPA are higher in the City of York than the English average but lower in North Yorkshire although local variations exist such as in the North Yorkshire National Park where house prices are significantly above the English average.

Life expectancy is increasing in all Districts of North Yorkshire, but there are significant geographical variations in both male and female life expectancy within the Plan Area. Recent figures (2012-2014) show that Scarborough is the only district with lower male and female life expectancy than England as a whole.

Predicted Future Trends

- It is likely that there will be a continuation of current trends in the short to medium term in relation to population and households. Population and household growth is projected to grow across the Joint Plan area although this is identified to be unevenly spread. Longer term effects on growth are likely to be influenced by social trends as well as strategic planning and house building rates, which vary within each authority both in terms of quantums and timescales for delivery. This may also effect settlement patterns and the locations people live and may have an impact on the urban/rural household split.
- Peoples' health in the Joint Plan Area is also likely to continue, in line with the existing trends over the short, medium and long-term of the Joint Plan. It is anticipated that life expectancy will continue to increase and that the general health of the population remains generally good. External influences on health in the medium to long term will be in line with improving / access to medical treatment as well as continuing implementation of safety schemes (such as road safety). The NPPF (Section 8: Promoting Healthy Communities) would also be a default position

for ensuring consideration for health and safety should plans or applications be taken forward.

Recreation and Leisure

North Yorkshire County Council manages the longest public rights of way network in England (over 10,000km) and the Yorkshire Dales and North York Moors National Park Authorities managing approximately another 4,000km of routes. The North York Moors National Park has 2,300km of right of way as well as 65,000 hectares of open access land which includes some of the finest landscapes and countryside in Britain, although in additional to the countryside, heritage assets are important tourist destinations in the JPA.

Predicted Future Trends

- The Joint Plan Area has good access to a variety of recreation and leisure opportunities that attracts people from within and outside of the Joint Plan Area, which is likely to sustain for the duration of the plan.
- The opportunities offered in relation to the natural and historic environment, such as the rights of way access and availability of historic places and buildings, is extensive and unlikely to change from its current form in the short, medium or long term.
- External influences on recreational and leisure in the medium to long-term would be as a result of strategic planning at local authority level in line with the NPPF. Any plans or programmes would need to consider their relationship and influence on recreation and leisure, as per national planning policy, prior to their development to ensure that these are retained or sufficiently provided for the benefit of the population.

Communities

Accessibility to important facilities and services varies significantly across the JPA. Some rural parts of the JPA are considered to be within the worst 10% of areas nationally in terms of access to GPs, primary schools, post offices and convenience stores although Incidences of crime are lower across the JPA compared to the regional and national average.

Predicted future trends

- It is likely that the current variation in accessibility to services between rural and more urban areas will continue in the short term, however there is more uncertainty regarding medium term and long term trends. It is likely that rural areas will continue to have poorer access to services such as post offices, schools and GP surgeries however it is possible that improved access to broadband and an increase in services available online, will contribute to re-addressing the balance between accessibility in rural and urban areas in relation to certain services (e.g. online grocery shopping). These trends are largely not dependent upon the Minerals and Waste Joint Plan.
- It is likely that access to broadband and communications will continue to improve in the short term, medium term and long term led by technological advances and a shift to online businesses/services. These trends are largely not dependent upon the Minerals and Waste Joint Plan.
- It is reasonable to assume that crime will continue to remain relatively low in the short term (compared to national and regional averages), however levels of crime in the

medium term and long term are more uncertain as these will be determined by a number of external influences including the economy, governance and the law enforcement system. These trends are largely not dependent upon the Minerals and Waste Joint Plan.

Material Assets and Resources

In 2014/15 a total of 300,704 tonnes of household waste were produced in North Yorkshire and 89,876 in the City of York. Of this, approximately 48% is reused, recycled or composted with the majority of the remaining waste being landfilled.

Data for the generation of commercial and Industrial wastes and construction and demolition waste is unreliable, although it is believed that landfill is the predominant method of waste disposal in the JPA. There are 20 active landfill sites in the JPA although the waste that they have been receiving has been falling in recent years. Agricultural waste is predominantly managed on the farm that it is produced.

A number of mineral resources are extracted in the JPA including sand and gravel, crushed rock, silica sand, brick clay, coal, potash and salt, building stone and oil and gas. Landbanks in the JPA for sand and gravel and crushed rock are in excess of the 7 and 10 year requirements that are stipulated in the NPPF.

Energy use in North Yorkshire and City of York was 11,559GWh in 2011 and 11,186GWh in 2014. Of this, 7,561 / 7,192GWh of gas was consumed and 3,998 / 3,974GWh of electricity was consumed, split between domestic and commercial use in 2011 / 2014. Average domestic energy consumption per consumer in the JPA shows that domestic gas consumption per consumer is slightly higher than the regional and national average for most of the plan area with the exception of the more urban areas where it is slightly lower. Electricity consumption is generally higher than the national and regional average across most of the plan area with the exception of the City of York and Redcar and Cleveland which are the most urban areas. Average commercial use per consumer is generally lower than the national average.

Predicted Future Trends

- In relation to waste, the following likely future trends have been identified:
    - Arisings of Local Authority Municipal Solid Waste are expected to increase over the period to 2040;
    - Commercial and Industrial waste arisings are predicted to remain relatively constant over the next decade;
    - Construction, Demolition and Excavation waste arisings are linked to development and therefore should there be an economic recovery it is likely that arisings would increase;
    - There would be an increase in hazardous waste arisings in the medium and longer term should the Allerton Waste Recovery Park be developed;
    - It is possible that arisings of Low Level Non-Nuclear Radioactive Waste will decrease;
    - There is likely to be a decrease in the amount of waste going to landfill, particularly should the Allerton Waste Recovery Park be developed.

- In relation to minerals supply, the Plan will have a significant influence over this although it is reasonable to assume that provision would be likely to come forward without the Plan albeit in a less co-ordinated way and with impacts on other areas of sustainability more likely. These effects would become more pronounced over time.
- It is reasonable to assume that energy use within the Plan area will continue to decline whilst the amount of installed renewable energy capacity will continue to increase throughout the short, medium and long term. These trends are largely not dependent on the Minerals and Waste Joint Plan.

Transport

The A1 (M) is the main road route, crossing the centre of the county in a north-south direction. There are a number of A-roads linking the main settlements within the Plan Area and linking the Plan Area with towns and cities beyond its boundaries. York is a major hub in the rail network with the main East Coast rail line passing through the city and proceeding northwards. The Joint Plan Area has good strategic transport links and these existing links are unlikely to change from their current form in the short term, medium term and long term although it is likely that new and improved transport links, such as HS2, will also be established in the medium and long terms.

Transport usage for commuting in the JPA is dominated by driving with over 30% of those in the City of York and nearly 40% in North Yorkshire commuting to work as the sole individual in a car. Approximately 10% across both areas however walk to work.

Predicted future trends

- The Joint Plan Area currently has good strategic transport links and these existing links are unlikely to change from their current form in the short term, medium term and long term. It is likely that new/improved transport links will also be established in the medium and long term for example, the HS2 high speed rail network.
- Minerals and waste developments generally involve transportation of large quantities of mineral/waste products via either road or rail and may contribute to an increase in HGV vehicle miles in the short term as the Plan Area continues to recover from the recent economic downturn. Should economic growth continue in the medium and long term, it is likely that transport usage, particularly HGV use will also continue to increase. Minerals and waste developments are likely to have localised or in some cases wider effects on transport usage and infrastructure, over which there would be less control without minerals and waste planning policies in place.

3.4 Key Sustainability Issues

The SA Objectives are derived from a review and consideration of the main environmental pressures and issues that are present within the Joint Plan Area and are designed to guide the appraisal towards the likely significant effects associated with the Plan's implementation.

The Scoping Report identifies in each environmental topic area the key messages from the collation of the baseline information and these are presented below.

Biodiversity, Flora and Fauna

- Large number of nationally designated wildlife sites and significant areas of internationally designated wildlife sites.

- Outside of these areas there are large numbers and a wide distribution of locally important Sites of Importance for Nature Conservation and UK BAP priority habitats.
- Much of the farmland is covered by some form of agri-environment scheme.
- Despite this many habitats in this area are fragmented and isolated.
- Outside of the National Park, woodland is generally found in small fragments.
- Invasive species are an increasing threat to native wildlife.
- Key ecosystem services include regulating water flow, food provision and cultural services such as the provision of a sense of history.

Landscapes

- Variations in geology, soils, topography and historical factors have helped create a range of distinctive and valued landscapes.
- A large proportion of the Joint Plan Area is protected for its landscape value by the NYMNP, AONBs and heritage coasts.
- Green belts limit development in parts of the southern Joint Plan Area.
- While the county of North Yorkshire as a whole is largely tranquil, outside of the national parks and AONBs tranquillity levels often fall due to transport corridors or when near to settlements.

Water and Soil

- Long stretches of river catchments can be found within the Plan Area, all of which ultimately drain to the Humber Estuary, with the exception of the Esk and Tees.
- Significant floodplains form around large parts of these rivers, becoming more significant as they travel east.
- River Basin Management Plans set demanding targets for water quality across many water bodies; there are still significant numbers of water bodies at poor or bad status.
- Important groundwater resources are protected by Groundwater Source Protection Zones.
- Flooding is already a problem in lower lying areas. However, climate change is likely to increase the risk of surface water and river flooding.
- Much of the Plan Area is made up of high quality farmland, though there are significant areas of poorer soils particularly in uplands.
- Parts of the Plan Area are subject to issues such as soil erosion and compaction.
- Areas of high soil carbon exist in the North York Moors.

Air

- Air quality is mainly an issue for a few very local urban areas, however some important upland habitats are being affected by deposition of air pollutants

Climatic Factors

- Harrogate has the highest total emissions of CO_2, followed by York and Selby, though across the Plan Area total emissions are falling.
- Per capita emissions are falling, but remain highest in the more rural parts of the Plan Area.
- Climate change is likely to have a range impacts on the Plan area including increased flooding, damage to infrastructure and effects on food production.

Cultural Heritage and Historic Environment

- The Plan Area is rich in historic assets;
- Large number of Listed Buildings, which as well as needing to be protected also require minerals for their upkeep;
- The Joint Plan will need to consider the settings of these assets as well as the protection of the assets themselves;
- Whilst most designated assets in the area are not 'at risk' more than a third of the designated historic assets identified as being 'at risk' in the region are in the Plan Area.

Additional Environmental Issues

- While the county of North Yorkshire as a whole is one of the most tranquil in England, outside of the national parks and AONBs tranquillity levels often fall due to transport corridors or when near to settlements
- The Plan Area has a wealth of geological interest
- Coastal erosion is affecting much of the coastline, in some places significantly
- Minerals development offers opportunities to create new environments such as habitats or recreational land

Economy, Employment, Education and Deprivation

- Since the economic downturn unemployment has fallen across the county;
- In Yorkshire as a whole more than 1 in 10 people feel that they are underemployed;
- The minerals sector is a significant employer directly supporting approximately 2,000 jobs;
- Business appears to be 'holding up' following the down turn with only modest falls in active enterprises across the Plan Area (and growth in the number of active enterprises in City of York) although this data is limited to data up to 2011;
- Wage levels in the Plan Area are lower than England as a whole;
- Fuel prices are falling nationally, which could have positive impacts on businesses and rural communities in such a large economic area;
- Outdoor recreation brings income to many rural areas, though less money is spent outdoors by North Yorkshire people than the rates for England as a whole. Heritage assets are also popular tourist destinations;
- The Plan Area has generally better than average educational attainment levels;
- The Plan Area is generally one of the least deprived areas in the country, though Scarborough and some parts of City of York rank significantly higher on the indices of deprivation than the rest of the Plan Area.

Population and Human Health

- There are many sparsely populated parishes and most settlements are relatively small. However City of York is a significant city with a population of over 206,900 in the heart of the Plan Area;
- All districts within the Plan Area have population estimates of over 50,000. The largest settlements outside of the City of York are, Harrogate and Scarborough, each with population estimate of 157,000 and 107,900 respectively. Most people, however, live outside of rural settlements;
- Population of the Plan Area as a whole is increasing and is expected to continue to rise, but at a lower rate than the region as a whole;

- North Yorkshire as a whole has a higher proportion of older people than the regional and nationally averages. However a younger population profile can be found in the City of York. In the future older people will form a larger proportion of the population;
- Most districts and the City of York receive a net inflow of new residents, though there is a net outflow in Craven; Harrogate and Richmondshire receive the most new residents;
- Life expectancy is increasing in all Districts in North Yorkshire, but there are significant geographical variations in both male and female life expectancy within the County; recent figures (2012-2014) show that Scarborough is the only district with lower male and female life expectancy than England as a whole;

Recreation and Leisure

- The Plan Area provides many opportunities for recreation and leisure including the North York Moors National Park and an extensive network of rights of way;
- The natural environment and heritage assets are key attractions.

Communities

- Access to services is generally poor in the rural parts of the Plan area whilst the urban areas have a wide range of services and facilities;
- The most remote parts of the Plan area have little or poor access to broadband and mobile phone coverage;
- Crime and the perception of crime are not widespread issues.

Material Assets and Resources

- The Plan Area has economically important areas of minerals, including aggregates such as crushed rock, sand and gravel and silica sand; energy minerals such as deep mined coal; and non-aggregate building stone;
- Most deposits of waste in North Yorkshire are dealt with in landfill sites, while the waste deposits managed via recycling and treatment are below regional and national rates;
- The percentage of household waste recycled, reused and composted has risen in recent years, with North Yorkshire as a whole recycling more than the national average; though more waste is not recycled than is.
- There is significant variation between district levels of recycling: within the Plan Area the highest household rates of re-use / recycling composting are in Ryedale, the lowest rates are in Richmondshire.
- Energy consumption is generally higher than average

Transport

- The most significant transport corridors run north to south and include the A1, A19 and East Coast mainline.
- There are no airports in the area. However three airports lie within close range of the County, and there are major seaports nearby on the Tees and Humber

3.4 Data Sources and Gaps

The baseline information has drawn upon a variety and number of sources that collate information at local, regional and national levels and where possible the scoping report makes reference to the data or refers the reader to the source via a footnote.

Data limitations related to collection timings

However, it is noteworthy that it has not been possible to fully coordinate the date of the sources to produce a complete picture of the baseline environment in 2015. A suitable example of this is that information on population and households is only collated every ten years as part of the census programme and as such only information that was collated in 2011 is available.

Data limitations related to lack of information

The purpose of SA is to provide "*an opportunity to consider ways by which the plan can contribute to improvements in environmental, social and economic conditions, as well as a means of identifying and mitigating any potential adverse effects that the plan might otherwise have*." To that end it is a higher level appraisal than undertaken in the preparation of a planning application for a particular site and it therefore will not consider all of the information that may be available later in the consenting programme for a site. A good example of this is that the potential for protected species is noted, but no species specific surveys are undertaken specifically as part of this assessment.

A further key data gap is the lack of data feeding in to this appraisal on the lifecycle impacts of the resources employed in pursuing minerals and waste development if a site is progressed to the development stage. Often items such as building materials, use of vehicles and land restoration processes can exhibit good or bad 'end of pipe' sustainability effects, however this may mask sustainability effects incurred when bringing products used to market or disposing of them at the end of their life.

Often these effects can occur at considerable (transnational) distance from the place where products or services are utilised. Life cycle assessment (LCA) is often used to investigate and evaluate these 'embedded' sustainability effects but undertaking LCA can involve significant, lengthy and sometimes costly investigative work.

While relevant published life cycle assessment data may be reviewed where relevant to the appraisal of certain development options, it is not the intention of this SA to commission new LCA

4. The Joint Plan Sustainability Appraisal Framework

4.1 Developing the Sustainability Objectives

The development of the SA Framework, containing a series of sustainability objectives, was the main output of the scoping stage of the sustainability appraisal. It is this framework (and a variant of it) which is used to guide the assessment of each policy option and each site allocation presented in the Minerals and Waste Joint Plan. The sustainability appraisal objectives contained in the SA Framework help to show how the plan will tackle the sustainability issues that have been identified during scoping and summarised in chapter 3 of this assessment. The role of sustainability issues in defining sustainability objectives were explored in the Department of Communities and Local Government's 'Plan Making Manual' (now unavailable):

'Identifying sustainability issues is key to reaching an informed view on the sustainability of the plan. Sustainability appraisal objectives, which can be derived from these issues, may be used to check and refine the plan. In particular, they can be used as a basis for testing and comparing the effects of alternative options considered in the plan. They build on the concept of SEA objectives, which are not mandatory but are a widely used tool in SEA for comparing alternatives'[29]

Section 3.4 of this report includes the key sustainability issues, derived from baseline data gathering, for the whole plan area as well as distinct parts of it. This section of the report shows the SA objectives derived from the review of sustainability issues that will be used in the Sustainability Appraisal. It also discusses the SA Framework that has been applied during the assessment of options and sites.

The SA objectives are intended to be separate from the Minerals and Waste Joint Plan's objectives. However, the two may influence each other and overlaps may occur. The SA objectives should promote an integrated approach to sustainability, bringing together all relevant social, economic and environmental factors. The SEA topics identified in Annex I (f) of the SEA Directive are one of the key determinants when considering which SA objectives should be used for environmental criteria.

Table 5 sets out the Sustainability Appraisal objectives that are used in this SA of the Minerals and Waste Joint Plan. It also includes the sub objectives for each SA objective. These sub objectives allow the broad headline objectives to be further and more specifically defined. The third column includes a summary of the justification for each objective.

[29] Department for Communities and Local Government, undated, DCLG Plan Making Manual

Proposed sustainability objective	Proposed sub objectives	Key issues and justification for the objective
Environment		
1. Protect and enhance biodiversity and geodiversity and improve habitat connectivity	- Protect and enhance designated nature conservation sites and protected species; - Contribute to the suitable protection of trees, woodlands and forests; - Avoid damage to designated geological assets and create new areas of geodiversity value; - Seek to contribute to national targets for biodiversity, including for national and local priority species and habitats; - Seek to contribute to local targets for geodiversity; - Preserve the integrity of habitat networks and increase the connectivity between habitats; - Maximise the potential for the creation of new habitats; - Minimise the spread of invasive species; - Provide opportunities for people to access the natural environment; - Protect and manage ancient woodland; - Appropriately manage and enhance PAWS.	The Plan Area has a large number of internationally, nationally and locally designated ecological sites and national and regionally important geological sites. These sites need to be protected, and where possible enhanced and protected from the effects of climate change. Additionally, there is important biodiversity outside of these areas which needs to be protected, such as internationally protected species and ancient woodland. Often these habitats are fragmented and isolated, and invasive species can be a problem. Nonetheless, many habitats are delivering important ecosystem services. The Plan Area should help deliver the national biodiversity targets outlined in the Natural Environment White Paper and National Biodiversity Strategy, as well as district BAPs. Planning Authorities also have a series of obligations in relation to protected sites and species under international and national legislation. Minerals and waste development has the potential to have a detrimental impact on biodiversity and designated sites through, for example, land take and associated habitat loss/fragmentation; and changes in pattern of human activity and associated disturbance or damage. Nevertheless, it is also recognised that minerals and waste sites can incorporate opportunities for biodiversity and can in some cases be restored after use to include features of benefit to biodiversity.
2. Enhance or maintain water quality and improve efficiency of water use	- Ensure that Water Framework Directive status objectives for surface and groundwater are not compromised by maintaining or improving upon ecological and chemical status; - Prevent unsustainable levels of ground and surface water abstraction; - Avoid wasting water.	Human activity, including minerals and waste development can put the county's water resource under pressure, and in some places Catchment Abstraction Management Plans limit the further licensing of water abstraction. Processes such as minerals and waste processing can make significant demands on water demand, while at the same time waste water must be managed appropriately to prevent damage to water quality. Local Planning Authorities have a public duty placed on them to have regard to

		River Basin Management Plans, which represent the principal mechanism for achieving the European Water Framework Directive. In terms of water quality, the picture is mixed across the major catchments of the Plan Area, with the percentage of rivers at poor biological status ranging from 12 per cent in the Swale, Ure, Nidd and Upper Ouse catchment to 44 per cent in the Derwent. However the demanding status objectives of the Water Framework Directive should see all of the water bodies in the plan area reach good or high status in 2027. There are also a number of designated nature conservation sites, such as the River Derwent SAC, that are sensitive to changes in water quality.
3. Reduce transport miles and associated emissions from transport and encourage the use of sustainable modes of transportation	- Encourage more sustainable transport modes; - Reduce the impact of transporting minerals by road on local communities; - Reduce vehicle emissions due to mineral and waste movements; - Encourage proximity between minerals and waste sites and markets; - Safeguard or deliver valuable infrastructure that may contribute to modal shift; - Promote active travel and sustainable commuting; - Improve congestion.	Transporting waste and minerals by road has a number of impacts on the environment and local communities. In particular, it can have a detrimental impact on amenity through noise and vibration, air quality, greenhouse gas emissions and highway safety. The Plan Area currently has four Air Quality Management Areas and one close to being declared. In some areas there is a lack of public transport, while other areas such as York have good public transport and cycling networks. Circulatory disease rates are generally lower than the region-wide rate, however, Scarborough is significantly above the region-wide rate. Active travel can play a key role in reducing risk of cardiovascular disease, and minerals and waste facilities may be able to encourage their employees to engage in more active travel through their design. There is therefore a need for a modal shift to more sustainable transport modes where possible, and a need to promote proximity to markets.
4. Protect and improve air quality	- Reduce all emissions to air from new development; - Reduce the causes and levels of air pollution in Air Quality Management Areas and seek to avoid new designations; - To minimise dust and odour; - Support cleaner technology for minerals and waste development; - Avoid locating development in areas of existing poor air quality where it could result in negative impacts on the health of	On the whole air quality in the Plan Area is good. There are however a number of urban areas that may have problems with pollution because of car emissions and there are 4 Air Quality Management Areas (AQMA) in the Plan Area, at the Inner Ring Road, (York), Butcher Corner (Malton), Bond End (Knaresborough) and Skellgate (Ripon). A fourth area, the A661 Woodlands Junction in Harrogate, remains close to being declared as an AQMA. As a response to poor air quality in the city centre, York is aiming to become a 'low emission city'. An increase in emissions in relation to the transportation and management of waste, as well as the potential for odours, may impact on air quality. This will be

	future occupants/users; - Seek to avoid adding to pollutant deposition at sensitive habitats.	particularly important where receptors such as human or sensitive ecological communities exist. For instance, several European designated habitats exceed their 'critical loads' for nitrogen and sulphur deposition. Upland habitats, such as those found in the North York Moors are particularly vulnerable. European legislation such as the Air Quality Framework Directive regulates air quality.
5. Use soil and land efficiently and safeguard or enhance their quality	- Reduce the permanent loss of best and most versatile agricultural land; - Conserve and enhance soil resources and quality; - Promote good land management practices on restored land; - Reduce the amount of derelict, contaminated, degraded and vacant/underused land; - Recover nutrient value from biodegradable wastes (e.g. compost, biodigestate); - Minimise land taken up by minerals and waste development; - Seek to utilise brownfield land for waste development where possible.	Much of the land in the Plan Area comprises land with an Agricultural Land Classification of Grades 1, 2 or 3. However, soils in the upland areas such as the North York Moors are not of high agricultural quality. Nonetheless, throughout the Plan Area agriculture is an important sector of the economy. Minerals facilities in particular have less flexibility over their location, which may lead to loss of fertile soils. However, restoration may offer opportunities to restore soils. Contaminated land sites can be found in the plan area, such as in York, which would require remediation if developed.
6. Reduce the causes of climate change	- Reduce emissions of greenhouse gases; - Reduce CO_2 from minerals and waste development through use of energy efficient and low and zero carbon design and adoption of efficient plant and processes; - Maximise the generation and use of renewable energy in appropriate locations; - Prevent the loss of embodied energy by promoting the use of recycled, recyclable and secondary resources; - Promote carbon storage through	Per capita CO_2 emissions where industry and commerce, domestic and transport services are combined show marked variation across the plan area, with York having the lowest 'tonnes per capita' (5.6 in 2010) and Selby having more than double the amount (12.7). Increasing levels of minerals and waste development, and associated traffic needs, have the potential to increase greenhouse gas emissions. Similarly, certain waste management techniques generate greenhouse gas emissions such as methane and carbon dioxide. However, moving waste up the waste hierarchy is an important part of the Government's Carbon Plan. Minerals extraction and processing is an energy intensive process, so it is considered better to utilise secondary resources where possible in order to offset future extraction levels.

	appropriate land management; - Adhere to the principles of the energy hierarchy[30].	Ensuring energy is recovered from residual waste where it is not possible to manage it higher up the waste hierarchy, as well as using energy more efficiently, and generating it from renewable sources will have a significant role in tackling climate change and will also increase energy security.
7. Respond and adapt to the effects of climate change	- Plan and implement adaptation measures for the likely effects of climate change; - Ensure 'sustainable adaptation' is planned for[31]; - Ensure that minerals and waste developments are not susceptible to effects of climate change - Ensure that minerals and waste developments do not hinder adaptation to climate change - Will the site contribute to food security in a changing climate?	Climate change is expected to have a significant impact on the Plan Area. The predicted effects on the County include hotter summers, more frequent drought conditions and increased incidences of extreme weather events, such as storms and short-duration, high-intensity rainfall, which will have serious implications for flash flooding. Recent climate change risk assessments have highlighted that agricultural land in North Yorkshire is particularly vulnerable to climate change. It will therefore be imperative to ensure that both the built and natural environment is adapted to the consequences of climate change. It is also important to look after key resources, such as high quality land, as climate change effects will be experienced cumulatively with other threats to our economy (such as the loss of natural capital to development). While adapting to climate change can protect a development from climate change, it can have unforeseen consequences if it prevents adaptation elsewhere or exacerbates climate change by utilising energy intensive processes. Adaptation therefore needs to be 'sustainable adaptation'.
8. Minimise the use of resources and encourage their re-use and safeguarding	- Safeguard and use minerals resources wisely; - Encourage the re-use of primary materials; - Promote the efficient use of resources throughout the lifecycle of a development, including construction, operation and	Large volumes of minerals are extracted from the plan area each year, with 1.7 million tonnes of sand and gravel and 1.9 million tonnes of crushed rock sold from the plan area in 2011, and even higher rates extracted prior to the economic downturn. Such resources are ultimately finite, so it accords with sustainability to seek to encourage re-use and recycling of minerals where possible. The built infrastructure that accompanies minerals and waste development also

[30] The energy hierarchy is analogous to the waste hierarchy in that it shows a sequence of preferred approaches to obtaining energy. Broadly this can be shown as three steps, in order of preference: 'Reduce' the amount of energy required in the first place (for instance through good design); 'Re-use' waste energy such as heat (e.g. through combined heat and power technology); and 'recycling' (which means the provision of energy that has some processing applied – e.g. renewable energy to meet demand or the extracting of energy from waste). CABE (2011), Thinking Differently – The Energy Hierarchy.

[31] Sustainable Adaptation has been defined by Natural England. According to Natural England 'It is important that any adaptation action is sustainable. This means that any response by society should not actually add to climate change, cause detrimental impacts or limit the ability or other parts of the natural environment society or business to carry out adaptation elsewhere" (Natural England, undated. Sustainable Adaptation [URL: http://www.naturalengland.org.uk/ourwork/climateandenergy/climatechange/adaptation/sustainable.aspx].

	decommissioning of minerals and waste infrastructure.	consumes materials in the form of construction materials and water and energy during their operating life. Many types of development also have the potential to sterilise minerals resources. Therefore it is important that key resources are safeguarded.
9. Minimise waste generation and prioritise management of waste as high up the waste hierarchy as practicable	- Use less materials in design and processing; - Re-use materials where possible; - Encourage recycling; - Recover residual resources (e.g. through anaerobic digestion or energy recovery); - Support 'recycling on the go'[32].	The Waste Framework Directive ensures that the Waste Hierarchy must be embedded in national policy. PPS10 requires the Local Plan to adopt the Waste Hierarchy. Managing waste high up the waste hierarchy reduces pressure on primary resources thereby sustaining them for longer term use. This 'lifecycle thinking' extends to almost all products which are destined to become waste at the end of their life. By seeking to reuse or recycle these products, or prevent their use in the first place, the environmental impact of disposal is avoided for longer periods of time. The Government's Waste Review promotes lifecycle thinking in relation to waste management. Household waste re-used, recycled and composted has grown in recent years and is above 45 per cent in both North Yorkshire and York. However the majority of waste collected by local authorities in the Plan Area still ends up in landfill, and only small quantities of residual waste are recovered as heat and power.
10. Conserve or enhance the historic environment and its setting, cultural heritage and character	- Protect and enhance those elements, including setting, which contribute to the significance of: ➢ World Heritage Sites; ➢ Scheduled Monuments; ➢ Archaeological Features; ➢ Listed buildings; ➢ Historic parks and gardens; ➢ Historic battlefields; ➢ Conservation Areas; ➢ Landmark monuments. - Provide appropriate protection for archaeological features in areas of potential development; - Protect the wider historic environment	The Plan Area contains a wealth of historic assets including 1 World Heritage Site, 5 historic battlefields, over 14,000 Listed Buildings,1,605 Scheduled Monuments, around 45,000 records in the Plan area's Historic Environment Records, 40 Registered Parks and Gardens and 327 Conservation Areas. English Heritage's Heritage at Risk Register highlights that a number of historic assets in the Plan Area are endangered due to neglect, decay or pressure from development. Specifically, two registered battlefields, 360 Scheduled monuments, 47 listed buildings, three Conservation Areas and five registered parks and gardens are included on this register. Some areas are richer in historic assets than others. For instance a third of Scheduled Monuments in Yorkshire and Humber are in the North York Moors National Park. Minerals and waste development and ancillary works, such as the construction of roads, screening/soil bunds, processing and storage areas, has the potential to

[32] 'Recycling on the go' is promoted by the Government's Waste Policy Review. It represents recycling on the street and in public places.

	from the potential impacts of proposed development and the cumulative impacts; - Improve access to, and enjoyment of, the historic environment where appropriate; - Preserve and enhance local culture.	have a detrimental impact on buildings and sites of cultural, architectural and archaeological heritage. In particular, the long-term setting and character of historic monument, archaeological landscapes or listed buildings can be affected by minerals or waste sites located in close proximity to heritage assets.
11. Protect and enhance the quality and character of landscapes and townscapes	- Conserve and enhance the natural beauty and cultural heritage of the North York Moors National Park; - Conserve and enhance the setting of designated landscapes, including those outside of the Plan area; - Protect and enhance the natural beauty of Areas of Outstanding Natural Beauty; - Protect and enhance local landscape/townscape character and quality, local distinctiveness and sense of place; - Protect the setting of important townscapes; - Protect the purposes and 'positive use'[33] of the Green Belt; - Protect coastal landscape and seascape character; - Protect and improve tranquillity levels and reduce sources of intrusion, such as light pollution; - Co-locate waste facilities with complementary industrial facilities where possible to reduce dispersed visual intrusion; - Preserve, enhance and complement architectural character and complexity.	The Plan Area contains 1 National Park, 2 AONBs are wholly contained in the Plan Area (a further 2 include small parts within the Plan Area). There are also 2 stretches of Heritage Coast within the plan area and North Yorkshire is considered amongst the most tranquil places in England. There are 327 conservation areas within the Plan Area, and the City of York contains a particular concentration of Listed Buildings - around 2,000 grade I and II* and II. Minerals and waste development has the potential to have a significant impact on the physical character of a local area. For instance, townscapes can be affected by the presence of large urban facilities, while rural character may be affected by waste development that is industrial in form, or minerals development that changes topography either during operational or restoration phases.
Economic		
12. Achieve	- Increase the level and range of	The ratio of active enterprises per 10,000 people gives an indication of economic

[33] The National Planning Policy Framework defined 5 purposes to the Green Belt and also recommends that local planning authorities should 'plan positively to enhance the beneficial use of the Green Belt'.

sustainable economic growth and create and support jobs	employment opportunities, particularly in deprived areas; - Encourage stable economic growth through provision of an adequate, sustainable and steady supply of minerals; - Promote conditions which enable sustainable local economic activity and regeneration and encourage creativity and innovation; - Capture value from waste streams by creating saleable products from them; - Promote a low carbon economy; - Support existing employment drivers and create new ones.	activity. In North Yorkshire the ratio has declined slightly between 2009 and 11, while in York it has risen slightly, though both areas perform better than the region, and some districts perform better than other districts. However, in accordance with national and regional trends, the proportion of the county's population who are claiming Jobseekers Allowance has risen and then stayed at relatively high levels by recent historical standards since 2009. Despite these relatively good figures, the economic downturn means that it is important that measures are taken to promote growth. Underemployment is an issue too. In Yorkshire as a whole more than 1 in 10 people feel they are underemployed. Levels of deprivation are generally low (although Scarborough is ranked 83rd in the most deprived areas, and parts of York feature in top 20% of most deprived communities). However, gross weekly earnings in the Plan Area remain below the national average. In some areas, for instance the National Park, there is a high reliance on seasonal and low paid jobs. New opportunities in the low carbon economy, as promoted by Coalition Government policy (e.g. the Local Growth White Paper), exist where materials can be prepared for re-use or recycled.
13. Maintain and enhance the viability and vitality of local communities	- Provide opportunities to boost tourism; - Promote job creation, training and volunteer opportunities through sustainable site restoration; - Contribute to sustainable and affordable housing through the provision of locally sourced and recycled construction materials.	The plan area contains a wealth of vibrant communities. However, it is understood that many smaller communities have been affected by loss of facilities such as pubs, general stores and post offices, or services such as public transport. The economic downturn has also taken its toll on some small businesses. In larger settlements too there are challenges. York has so far weathered the economic downturn relatively well, though there have been shop closures and the loss of some key businesses. Elsewhere there are some communities that perform less well. Many communities in the plan area are attractive to visitors and generate visits from local, national and even international visitors. This can help sustain a range of businesses. It will be important for development generated by the JMWP to complement rather than conflict with tourism.
Social		
14. Provide opportunities to enable recreation,	- Provide opportunities to enable the enjoyment and understanding of the special qualities of the National Park;	Parts of the Plan Area provide a location for a range of recreational activities. For instance, the North York Moors National Park is a key destination for walkers, cyclists, and participants in a range of other sports and pastimes ranging from

leisure and learning	- Promote recreation in the countryside and AONBs, consistent with the wider social, economic and environmental facets; - Provide opportunities for lifelong learning; - Contribute to networks of multifunctional green infrastructure.	gliding to landscape painting. Other recreational resources include the AONBs, the coast, sports facilities and the rights of way network, particularly national and regional trails, parks and historic parks and gardens and historic properties. While it is difficult to determine exactly why people choose to engage in such activities in these places, many (though not all) forms of recreation tend to take place in attractive environments. Many attractive environments rely on the support of volunteers who may gain valuable skills from helping manage recreational assets. Minerals development can, through restoration, form a basis for new recreational activity, for instance by linking in to wider networks of green infrastructure.
15. Protect and improve the wellbeing, health and safety of local communities	- Minimise the impact of nuisances associated with minerals and waste development, such as noise pollution and severance; - Reduce traffic accidents; - Reduce health inequalities; - Promote healthy living, offer opportunities for more healthy lifestyles and improve life expectancy; - Improve levels of wellbeing; - Increase access to the public rights of way network and the wider countryside; - Ensure the safety and security of local people and visitors; - Ensure that pollution does not pose unacceptable risks to health.	Life expectancies in North Yorkshire are longer than both national and regional averages. In addition, levels of obesity and average mortality rates for cancer and circulatory diseases are generally below regional averages. The one exception is within the borough of Scarborough, which has sub-average figures for both male life expectancy and coronary heart disease. The relatively high levels of deprivation experienced in the borough compound this. Minerals and waste development has the potential to have a detrimental impact on health through, for example, impacting on air quality and may impact on wellbeing through effects on visual amenity or from noise. Safety may also be affected by increased traffic or unsecurely fenced sites. There is, however an opportunity for minerals and waste development sites to increase health and wellbeing if they are restored to attractive environments where active recreation can take place.
16. Minimise flood risk and reduce the impact of flooding	- Ensure that the location and design of new development has regard to the potential risk, causes and consequences of flooding; - Promote opportunities for sustainable flood alleviation; - Reduce the number of people and properties at risk of flooding.	While some minerals development is 'water compatible' according to the NPPF, other minerals development falls into the 'less vulnerable' to flood risk category, and some hazardous waste facilities are considered 'highly vulnerable'. The NPPF promotes a sequential approach to location, where development should be guided to the locations at lowest risk of flooding. Significant parts of the Plan Area, particularly along the river corridors and in the south, fall within the functional floodplain. In addition surface water flooding and groundwater flooding may present a risk to development. Historic records of flooding exist over wide areas, including in York. Catchment Flood Management Plans highlight opportunities for managing flood risk. The use of Sustainable Drainage Systems (SUDs) as alternative drainage solutions

		can help reduce flooding. There may also be opportunities to use certain types of former minerals development as flood storage.
17. Address the needs of a changing population in a sustainable and inclusive manner	- Support the development of resource efficient housing; - Support shortened supply chains for building materials; - Enable the community to contribute to and have influence in decision making - Improve public access to facilities enabling sustainable waste management - Support community led waste management schemes - Reduce social exclusion	The population of the plan area is changing. Increasing population and longer lifespans will increase demand for housing. However, housing affordability is an issue, with affordable housing being in short supply in many areas. A growth in housing numbers will increase demand for construction products. Through re-using and recycling construction wastes the JMWP can make a contribution to resource efficient and affordable housing. New and existing households, an ageing population and the higher cost of travel may increase demand for easier to access community waste facilities and services. Inclusion in decision making is a core part of the 'guiding principles of sustainable development', which include 'promoting good governance'.

Table 5: The SA Objectives and their Justification

The Sustainability Appraisal Scoping Report was consulted on from 17th May 2013 to 28th June 2013 and revised in line with the consultation responses received (consultation comments can be viewed in a Consultation Outcomes Report), including responses from the three statutory consultees to sustainability appraisal (Natural England, the Environment Agency, and Historic England.

4.2 The Sustainability Appraisal Framework

The SA Objectives and sub objectives shown in table X above are also contained in a sustainability appraisal framework that includes additional indicators. These indicators were considered when the sustainability effects of options are investigated.

As the sustainability appraisal of options was carried out the Sustainability Framework was used to inform how options were assessed by asking questions of each option through use of the SA objectives and sub objectives, as well as by predicting how these indicators might change if particular options were to be adopted.

The Sustainability Framework is shown at appendix 1 of this report. As explained in chapter 2, the SA Framework was tested to ensure that it would help to ensure that ecosystem services found within the Plan area would not be deleteriously affected by any of the SA objectives and that opportunities to support ecosystem services would be taken where appropriate. In a similar way we tested the proposed objectives against rural proofing criteria. Finally, we tested the SA objectives against one another and made adjustments to resolve any internal incompatibility (see the SA Scoping Report for further details).

Table 6 below shows how the topics required by the SEA Regulations are covered by the SA objectives contained in the SA Framework.

SEA Topic	**SA Objective**
Biodiversity	Objective 1
Population*	Objective 17
Human Health	Objective 15
Fauna	Objectives 1
Flora	Objective 1
Soil	Objective 5
Water	Objectives 2 & 16
Air	Objectives 3 & 4
Climatic Factors	Objectives 3, 6 & 7

Material Assets*	Objectives 8 & 9
Cultural heritage including architectural and archaeological heritage	Objective 10
Landscape	Objective 11

Table 6: Coverage of SEA Directive Topics by Sustainability Appraisal Objectives
* These terms are not clearly defined in the SEA Directive / Regulations

4.3 Assessment of Sites

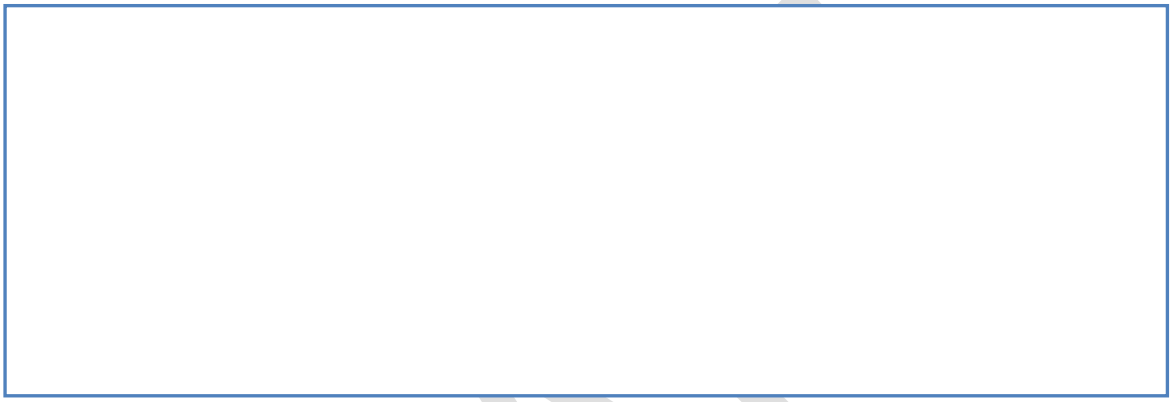
The SA Framework was also adapted to the assessment of proposed site allocations, as explained in section 2.3 above. A copy of the adapted SA Framework for the sites assessment work is included in Appendix 3.

5. Review of Alternatives

5.1 Why do we need to review alternatives

The SEA Directive requires that the likely significant effects of implementing the Joint Plan, including reasonable alternatives to it are identified, described and evaluated. This section of the Sustainability Appraisal Report discusses the alternatives that have been considered in this assessment.

In addition to the requirements of the SEA Directive, the National Planning Policy Framework requires the strategy to be the most appropriate 'when considered against the reasonable alternatives'[34].



In the Scoping Report to this sustainability appraisal it was stated that:

"*To generate realistic options, Planning Advisory Service guidance[35] suggests that the evidence base needs to contain a comprehensive review of the policy context, an analysis of opportunities and constraints, area profiles and an analysis of what might happen without the Plan. The evidence base for the Plan, as well as the baselines for the plan area and for the City of York and the North York Moors National Park (see section 5), provide this information and will be updated as and when necessary throughout the course of the production of the Plan.*

At Issues and Options stage, Sustainability Appraisal will be undertaken on each option which, along with consideration of consultation responses at issues and option consultation stage and other elements of the evidence base, will help to inform selection of preferred options. The Sustainability Appraisal will play a key role in helping to generate alternative options. An option which looks at how sustainability issues would fare without the Plan will also be considered. A Sustainability Appraisal Update Report will be published as part of the Issues and Options consultation which will contain the conclusions of the Sustainability Appraisal for each option".

In line with this guidance we have assessed each policy option contained within the plan. We have also assessed each of the submitted sites (a long list of sites) in order to help short list preferred sites.

[34] National Planning Policy Framework (CLG, 2012) – see paragraph 182.
[35] Local Development Frameworks – Guidance on Options Generation and Appraisal (Planning Advisory Service, 2009). Document no longer available.

To follow emerging best practice in sustainability appraisal we have also categorised policy alternatives as 'high level alternatives', which provide a view of the alternatives to producing the plan as a whole; 'other strategic alternatives', which provide a view of alternatives to other strategic policy options; and 'further alternatives' (i.e. the alternatives considered in relation to other policies).

5.2 High level alternatives

Within our Issues and Options Interim Sustainability Appraisal Update Report we undertook a review of the vision and the objectives of the draft plan. This work was further updated to reflect revisions to the vision and alternatives presented at the Preferred Options stage of plan production. Further revisions to the vision and objectives were then made following the consultation on Preferred Options.

We have presented a final version of the assessment of the vision in Appendix 1. While the assessment of the vision is a high level assessment of broad compatibility with the SA objectives, due to its very aspirational nature we have not compared this to any alternatives as it is felt that such a comparison would not yield meaningful results.

We have however, re-assessed the objectives of the plan to reflect the draft version published in the draft plan. At this stage in plan making we also have the benefit of knowing more about how the objectives will be implemented through policy, so are able to remove some of the uncertainty initially reported in earlier assessments. We have also, in this report, compared it to a scenario of not producing a plan, in line with what we suggested at our scoping consultation.

Due to the large number of plan objectives, although we have assessed each individual objective, we have also presented a 'whole plan' range of scores and narrative to illustrate what sustainability effects a plan based on the published plan objectives might be expected to have. This enables the plan objectives as a whole to be compared against the no plan alternative.

First Alternative: Implement the objectives of the plan

The assessment table below shows assessment of individual plan objectives against sustainability appraisal objectives. The plan objectives are as follows:

Objective 1	Encouraging the management of waste further up the hierarchy
Background explanation supporting the objective.	This includes supporting the efficient use of materials in the design and construction of development and supporting a reduction in the amount of waste generated by individuals and organisations; delivering national and local targets for high quality recycling, composting and diversion of waste from landfill; using waste as a resource; incinerating waste without effective energy recovery and disposing of waste via landfill only as a last resort or to ensure that landfill sites, quarries or degraded land are restored to beneficial use, and; building appropriate links between waste and minerals policy.

Objective 2	**Making adequate provision for the waste management capacity needed to manage waste arising within the sub-region and safeguarding important waste management infrastructure**
Background explanation supporting the objective.	This includes planning for the delivery, where practicable, of the new waste management infrastructure needed to manage a level of arisings equivalent to the anticipated future arisings of waste in the Plan area, including arisings of Local Authority Collected Waste arising within the adjacent Yorkshire Dales National Park Authority area, and; safeguarding and supporting the best use of important waste management infrastructure and ensuring appropriate co-ordination with District and Borough Councils in North Yorkshire to ensure a joined-up approach to safeguarding. It also helps support the contribution of the waste industry to the local and wider economy.

Objective 3	**Safeguarding important minerals resources and minerals infrastructure for the future**
Background explanation supporting the objective.	This includes safeguarding relevant surface and underground minerals resources of national and local importance, important aggregates supply and transport infrastructure such as railheads, wharfs, roadstone coating and concrete plants; and ensuring appropriate co-ordination with District and Borough Councils in North Yorkshire to ensure a joined-up approach to safeguarding.

Objective 4	**Prioritising the long-term conservation of minerals through facilitating provision of sustainable alternatives to primary minerals extraction, including increasing the re-use and recycling of minerals and the use of secondary aggregates**
Background explanation supporting the objective.	This includes identifying an appropriate local contribution from alternative sources to primary land won minerals; supporting the development of such alternative sources in appropriate locations; encouraging the efficient use of minerals resources through the sustainable design and construction of new development; and building appropriate policy links between minerals and waste policy.

Objective 5	**Planning for the steady and adequate supply of the minerals needed to contribute to local and wider economic growth, built development, quality of life, local distinctiveness and energy requirements, within the principles of sustainable development**
Background explanation supporting the objective.	This includes identifying and maintaining future supply requirements for minerals, in line with national planning policy and the North Yorkshire Local Aggregates Assessment and maintaining adequate landbanks,; recognising the role of the Plan area in supply of minerals beyond the Plan area boundary, whilst also considering and responding to the ability of the area to sustain minerals extraction without compromising other social, economic and environmental goals including obligations under the Climate Change act.

Objective 6	**Identifying suitable locations for the extraction and recycling of minerals, the production of secondary aggregate, key minerals supply and transport infrastructure and the management of waste**
Background explanation supporting the objective.	This includes identifying and allocating appropriate sites or areas for future minerals working, the provision of secondary and recycled aggregate, minerals supply and transport infrastructure and the disposal of mineral waste, as well as identifying and allocating appropriate sites or areas for the management and where necessary disposal of waste. Identification of strategically important sites or areas will be the priority. It also includes identifying appropriate development criteria for new sites where identification of specific sites or areas is not practicable.

Objective 7	**Seeking a good match between locations for waste management infrastructure and the places where waste arises, and between locations for mineral working and minerals supply infrastructure and the places where minerals and mineral products are used, in order to minimise the overall need for transport**
Background explanation supporting the objective.	This includes developing locational policy which encourages new waste management infrastructure in locations as near as practicable to existing sources of arisings and expected patterns of future growth; co-locating waste facilities, where practicable, with complementary industries, businesses and producers or end users of waste including taking opportunities to utilise heat and/or power for the benefit of local communities and businesses, and; encouraging new minerals workings and infrastructure, including sites for the supply of secondary and recycled aggregate, in locations well related to existing markets within and near to the Plan area.

Objective 8	**Promoting the use of alternatives to road transport and ensuring that new development is served by suitable transport networks**
Background explanation supporting the objective.	This includes developing locational policy which encourages new waste management infrastructure, minerals workings and minerals supply infrastructure, where practicable for longer distance and large scale movements, to locations where sustainable transport modes such as rail, water, pipeline and underground conveyor systems can be utilised, and; where such modes are not practicable, that locations for development are well connected to suitable highways infrastructure and impacts on the road network minimised.

Objective 9	**Protecting and where appropriate enhancing the natural and historic environment, landscapes and tranquil areas of the Plan area**

Background explanation supporting the objective.	This includes developing policy to protect, conserve and where practicable enhance the environment of the Plan area, including natural, historic and pre-historic assets, landscapes and environments, priority habitats and biodiversity, geodiversity, ground and surface waters, green infrastructure (including agricultural land) and ecosystems services; recognising and protecting the special qualities of the North York Moors National Park and the AONBs, and the historic views into York and supporting the use of local building stone to help maintain and improve the quality of the built environment and local distinctiveness.

Objective 10	**Protecting local communities, businesses and visitors from the impacts of minerals and waste development, including transport**
Background explanation supporting the objective.	This includes promoting high standards of design, operation and where relevant reclamation of minerals and waste sites (including sites for the supply of secondary and recycled aggregate and the disposal of mineral waste) and high standards in the transport of minerals and waste; as well as promoting the involvement of local communities and businesses in proposals for minerals and waste development in order to help protect local amenity, quality of life and the local economy.

Objective 11	**Encouraging the sustainable design and operation of minerals and waste development activity, including using opportunities arising from minerals and waste development and reclamation activity to mitigate and adapt to climate change**
Background explanation supporting the objective.	This includes planning for more sustainable design and working practices, including those aimed at carbon reduction, at minerals and waste sites; considering opportunities for the delivery of renewable and low carbon energy; and taking a long term view of the potential for reclaimed minerals sites for purposes such as flood alleviation, the provision of ecosystems services and maintenance of agricultural capacity. This objective would also contribute to meeting the national requirement to reduce greenhouse gas emissions by 80% below 1990 levels by 2050.

Objective 12	**Delivering benefits for biodiversity, geodiversity, recreation and public access and other green infrastructure through reclamation of minerals workings**
Background explanation supporting the objective.	This objective supports wider objectives within the NPPF and within local strategies which seek to enhance conditions for biodiversity and other important environmental objectives, increase opportunities available for recreation and public access and ensure measures are in place to enhance green infrastructure. This objective would also support the utilisation of a strategic, landscape scale, approach to reclamation where this could help minimise adverse impacts and deliver maximum benefits.

	Sustainability Objectives																
Joint Plan Objective	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Economic growth	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
	Delivering sustainable waste management																
1	+	+	+	+	+	++	+	++	++	+	+	++	+	+	+	0	+
		-	?														
2	+	0	+	+	?	0	0	+	+	?	-	+	+	-	+	0	+
	-	-	-	-									-		-	-	
	Achieving the efficient use of minerals resources																
3	0	0	+	0	0	0	0	+	+	+	0	+	0	0	0	0	+
4	+	+	+	+	+	++	+	++	++	+	+	+	+	0	+	+	+
		-	-	-									-			-	
5	-	-	-	-	-	m-	-	--	0	-	-	++	+	-	-	-	+
							+						-		+	+	
	Optimising the spatial distribution of minerals and waste development																
6	-	-	+	-	+	m-	+	+	0	-	-	++	+	-	-	0	+
					-			-					-		+	-	
7	0	0	++	+	0	+	+	0	0	0	+	+	+	0	+	0	0
8	+	0	++	+	0	+	0	+	0	0	+	0	+	+	++	0	0
	Protecting and enhancing the environment, supporting communities and businesses and mitigating and adapting to climate change.																
9	++	+	0	+	+	+	+	0	0	++	++	+	+	+	+	+	+
10	0	+	+	+	0	0	+	0	0	+	+	+	++	+	++	+	+
11	+	+	+	+	+	+	++	+	+	+	0	+	+	0	+	+	+
12	+	0	0	0	0	0	++	0	-	0	+	+	+	++	+	+	+
	++					+											

Assessment table: assessment of individual plan objectives against sustainability appraisal objectives

Justification of assessment findings[36]

In this justification we have documented what has led us to the assessment findings for the options recorded above. It should be noted that we have noted a range of effects here, rather than an aggregate score for each objective, to better illustrated the wide range of effects that occur when assessing objectives in one framework[37].

SA Objective	Impact / timescale			Type of effect				Analysis
	S	M	L	P	T	D	I	
1.Bio / geo-diversity	+ ++ - 0	+ ++ - 0	+ ++ - 0	✓	✓	✓	✓	Broadly the objectives are positive as they protect biodiversity, enhance green infrastructure and allow for restoration. Indirect positive effects also occur, for instance through promoting the waste hierarchy (which protects biodiversity in other parts of the world where primary materials are extracted to make products). Minor negative effects are observed in relation to plan objectives 2, 5, and 6. This is because these objectives deal with making adequate capacity to deal with waste, adequate supply of minerals and identifying locations for minerals and waste development. Such objectives would all require land to be used, which is likely to disturb biodiversity. Objective 12 (restoration), in particular, is likely to lead to significant enhancements to biodiversity in the longer term. Development management and other policies in the plan are likely to reduce most effects.
2.Water	+ - 0	+ - 0	+ - 0	✓	✓	✓	✓	While many of the objectives report positive effects for a range of reasons (for instance objective 11's emphasis on sustainable design is likely to save water, while objective12 would protect ecosystem services, so indirectly this would protect water), some objectives report negative effects. This is because, plan objectives 2 5,and 6 in particular deal with making adequate capacity to deal with waste, adequate supply of minerals and identifying locations for minerals and waste development. Such objectives would all require industrial development to be put in place, which may well require water consumption and generate water waste. In addition, objective 4 seeks to increase re-use and recycling of minerals, which is likely to have a significant water footprint. Development management and other policies in the plan are likely to reduce most effects.

[36] For the purposes of this assessment we have used a specific recording form that is designed to record the most strategic effects. We look at policies and sites in more detail using a slightly different recording from that distinguishes between local and plan wide effects. Cumulative effects are considered within the body of the analysis in these assessments.

[37] This is different form the way in which we record effects elsewhere in the plan where we make an overall score where possible unless effects are more mixed.

3.Transport	++ ++ ++ + + + - - - ? ? ? 0 0 0	✓	✓	✓	✓	The majority of plan objectives are positive for transport, as they do things like encourage the management of waste up the waste hierarchy, which would reduce the lifecycle impacts of products (though there is some uncertainty over this), provide local waste management capacity, match waste and minerals locations to markets, and promote alternatives to road transport. However, some negative effects are noted, such as local impacts on communities close to waste and minerals infrastructure (for example, planning for a steady and adequate supply of minerals, would be likely to generate impacts such as dust and traffic affecting local receptors).
4.Air	+ + + - - - ? ? ? 0 0 0		✓	✓	✓	The plan objectives are mostly positive in relation to air quality. For instance, managing waste further up the waste hierarchy would reduce the degradation of waste in landfill, which can generate methane; while even producing energy from waste would displace energy produced from coal or gas which produces air pollution. Recycling is even better, as embodied / lifecycle pollution in recycled products is likely to be less than other products. Other reasons for positive outcomes from objectives include reducing traffic and protecting the natural environment (which helps to regulate air pollution). As well as also having positive effects some locally negative effects are observed in relation to objective 2 (provision of waste capacity) and 4 (sustainable alternatives to minerals), as such objectives could generate dusty activities and local traffic. Minor negative effects are noted for plan objectives 5 (adequate supply of minerals) and 6 (suitable locations) as objective 5 will allow for more quarrying, which often, for example, brings dust and traffic effects (as borne out by the site allocations), although the objective does aim for this development without compromising other goals. While suitable locations for development are identified under plan objective 6, given the distribution of human and wildlife receptors, there is still a good chance of at least some receptors being affected by dust and traffic. Effects are recorded as low negative as they would also ultimately be mitigated to an extent by development management policies in the plan.
5.Soil/land	+ + + - - - ? ? ? 0 0 0	✓	✓	✓	✓	Generally effects are positive or neutral as objectives often seek to protect the environment, restore the environment or move waste up the waste hierarchy (which means that less land is needed to create new products). The negative effects associated with plan objectives 5 and 6 are down to planning for / allocating more minerals sites (which in the Joint Plan's land allocations assessments are predicted to lead to a loss

						of land, albeit controlled by development management policies and consideration of sustainable locations). Uncertainty at plan objective 2 is because although more waste capacity could lead to a loss of land, often, though not always, waste sites bring previously developed, and often contaminated, land back into use.
6.Climate change	++ ++ ++ + + + - m- m- ? ? ? 0 0 0		✓	✓	✓	✓	Most objectives are positive or neutral for this SA objective as moving waste up the waste hierarchy, reducing traffic, promoting sustainable design and protecting the natural environment are all positive for climate change. However, the negative effects associated with plan objectives 5 and 6 are down to planning for / allocating more minerals sites (which in the Plan's land allocations will lead to a loss of land and its carbon resource and generate more traffic, albeit controlled by development management policies and consideration of sustainable locations). It should be noted while emissions baseline would likely reduce under this alternative, the baseline of atmospheric concentrations of CO2 would cumulatively worsen as a result of these plan objectives.
7.Climate adaptation	++ ++ ++ + + + - - - 0 0 0		✓	✓	✓	✓	Most objectives are positive or neutral for climate change adaptation. This is because, while there are directly positive effects resulting from objective 11, which seeks to adapt to climate change, other objectives generally move the plan in the direction of sustainable development, which is generally beneficial to adaptation. For instance, protecting the natural environment (plan objective 9) reduces the development pressure that habitats experience cumulatively with climate change effects. Moving waste up the waste hierarchy helps to reduce the amount of future landfill that may be vulnerable to increased flooding, while providing for infrastructure (plan objectives 5,6) for minerals and waste increases the chances that future systems of minerals supply and waste management will continue to function as climate change impacts further disrupt vulnerable infrastructure elsewhere. Objective 10, which protects communities etc. from the impacts of development, helps to ensure that climate change effects aren't as badly felt (for instance, the predicted increase in droughtiness under climate change would likely make dust impacts more severe without this objective). One negative effect was noted for plan objective 5 (which also notes positive effects – i.e. planning for more minerals will help ensure future supply in a changing climate) as planning for more minerals activity may have effects on habitat networks and flooding (effects which are predicted in the proposed site allocations).
8.Minimise resources	++ ++ ++ + + + - - -			✓	✓	✓	Mostly the effects of the plan objectives are either positive or neutral as the plan seeks to move waste up the waste hierarchy (saving many resources), reduce road transport (saving fuel resources), and prioritise alternatives to primary minerals. There are however some negative effects arising from plan objectives 5

	- - / - - / - - / ? / ? / ? / 0 / 0 / 0					and 6. This is because these objectives promote a steady and adequate supply of minerals (which uses up finite minerals resources) and identify where it should go (which helps facilitate this use of resources). However, plan objective 6 also provides for suitable locations, which can mean locations that link to existing infrastructure (thus saving resource use).
9.Waste hierarchy	+ + / + + / + + / + / + / + / - / - / - / 0 / 0 / 0	✓	✓	✓	✓	Effects on this SA objective are mostly neutral. However, there is clearly a strong contribution from plan objective 1 (encourage the management of waste further up the hierarchy) and the waste hierarchy objective of the SA, as well as from plan objective 4, which encourages re-use and recycling. Other plan objectives (2, 3, and 11) have an indirect positive effect through providing or safeguarding waste management infrastructure or promoting sustainable design. A minor negative effect is noted in relation to plan objective 12, as restoration of sites can drive a demand for landfill material to help restore ground levels. While arguably this is a productive use for inert material, such material would be prevented from achieving higher value uses.
10.Historic environment	+ + / + + / + + / + / + / + / - / - / - / 0 / 0 / 0 / ? / ? / ?	✓	✓	✓	✓	There are a number of positive effects on SA objectives, particularly as the plan objectives seek to protect the historic environment (plan objective 9), while other objectives, through promoting recycling of minerals and movement of waste up the waste hierarchy, or through the protection of communities, indirectly benefit the historic environment (e.g. by reducing pressure on land / reducing impacts on the built environment in communities). Negative effects are noted for plan objectives 5 (adequate supply of minerals) and 6 (suitable locations) as objective 5 will allow for more quarrying and thus land take, and objective 6 is partly implemented through the allocations of the plan (where negative effects on the historic environment are observed).
11.Landscape	+ + / + + / + + / + / + / + / - / - / - / 0 / 0 / 0	✓	✓	✓	✓	The plan objectives are largely positive or neutral in relation to the landscape SA objective. Like other assessments of plan objectives positive effects are either direct, such as the strong positive effect observed in relation to objective 9 which protects and enhances the landscape; or indirect, because the objectives reduce impacts on land or communities.

						There are also potentially positive effects on SA objective 7 and 8, as a good match between minerals and waste and markets, and seeking alternatives to road transport, would reduce traffic and thus preserve tranquillity; while the possibilities for co-location highlighted through objective 7 would reduce landscape effects. Minor negative effects are noted for objectives 2 (waste management capacity), 5 (adequate supply of minerals) and 6 (suitable locations) as these objectives facilitate land use for minerals and waste development which will have effects on views.
12.Sustainable economic growth	++ ++ ++ + + + 0 0 0		✓	✓	✓	The sustainable economic growth SA objective benefits from almost all the plan objectives in some way, with only plan objective 8 having a neutral effect. This is because planning for minerals and waste underpins a successful economy, while ensuring that the best use is made of resources, that traffic effects are reduced, and environmental and community constraints are protected will also help support sustainable economic growth more generally, by creating the right environment to attract businesses, tourism and investment.
13.Community vitality	++ ++ ++ + + + - - - 0 0 0		✓	✓	✓	Most effects on community vitality are positive or neutral, except for the effects arising from plan objectives 2, 4, 5 and 6 which have mixed positive and negative effects (because while minerals and waste development will provide jobs critical to maintaining community vitality, it may also generate effects on communities such as traffic, dusts and visual effects).
14.Recreation	++ ++ ++ + + + - - - 0 0 0		✓	✓	✓	Effects are mostly positive or neutral because either direct enhancements are provided for through plan objectives such as objective 12, or indirect benefits may occur from plan objectives that reduce transport, as recreational users of roads or land near roads would be affected less by new development. Negative effects occur with plan objectives 5 and 6, because these objectives promote more development and the allocation of that development. This would potentially mean that rights of way could be compromised by diversions or open countryside could be lost.
15.Health /wellbeing	++ ++ ++ + + + - - - 0 0 0		✓	✓	✓	Most plan objectives report positive effects on the health SA objective, because plan objectives do things like reduce traffic, protect the natural environment (which delivers ecosystem services that help deliver health outcomes), or move waste up the waste hierarchy (which means that products are less likely to be landfilled and replacement materials are less likely to be needed, thus indirectly reducing a whole range of

							lifecycle environmental impacts). Plan objectives 2,5 and 6 report mixed positive and negative effects because they broadly provide for more minerals and waste development, which could locally have negative effects (all be they largely mitigated by development management policies), but could also lead to positive effects on health through job creation.
16.Flooding	+ / - / 0	+ / - / 0	+ / - / 0	✓	✓	✓	✓	Often the plan objectives are neutral in relation to flooding, though there are some positive and negative effects. Objectives that seek to protect the environment and communities have generally positive effects on flooding, particularly as support for the natural environment can reduce flood risk. Plan objective 5 has mixed effects. This is because minerals sites can act as an important resource for flood storage, though some sites may also add to flood risk due to dewatering / pumping groundwater out to surface water receptors. Similarly, plan objective 4 has mixed effects, with positive effects noted because alternatives to minerals would reduce demand for quarries and thus dewatering, and negative effects noted because it would also reduce the amount of flood storage created through quarrying.
17.Changing population	+ / 0	+ / 0	+ / 0	✓	✓	✓	✓	The plan objectives support a changing population, or are neutral. This is because a secure supply of minerals, alternatives to minerals and the preservation of a high quality environment all contribute to the ability to live and work in the plan area across different stages in life and changing circumstances.

Table 7: Summary of findings of First Alternative

Second Alternative Option: No plan is adopted

Under this option no plan would be adopted and planning decisions would be made on the basis of national planning policy. As there are no specific objectives in national planning policy that neatly align with the objectives of the Joint Plan, for the purpose of scoring we have reviewed planning policy as a whole and present a set of scores that can be compared with the first alternative scores above. As with the assessment above, we have presented a range of scores rather than a single aggregated score for each objective, to aid comparison.

SA Objective	**Impact / timescale**			**Type of effect**				**Analysis**
	S	**M**	**L**	**P**	**T**	**D**	**I**	
1.Bio / geo-diversity	+ / - / ?	+ / m - / ?	+ / - - / ?	✓	✓	✓	✓	In terms of the approach to sustainable waste management the onus is placed upon local plans to identify suitable sites and areas. However, the National Planning Policy for Waste does seek to consider nature conservation in determining planning applications although without allocations there is no strategic overview as to what might constitute an acceptable

						location. In addition, local constraints, such as SINC sites are not identified. The waste hierarchy is promoted largely through local plans, though planning applications would still be required not to prejudice the waste hierarchy. So ultimately a lesser contribution to moving waste up the hierarchy would be evident, with the potential for a greater indirect / embodied land take and thus a greater impact on biodiversity / geodiversity. In terms of protecting biodiversity, the NPPF puts in place a mitigation hierarchy for biodiversity and protects designated sites and irreplaceable habitats. However, it also places a great deal of emphasis on local plans to protect features like ecological networks and protect geological interest, which wouldn't happen under this 'no plan' scenario. In addition, if it is assumed that other areas outside of the plan area have their own local plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the plan area, coupled with the lack additional policies to adhere to, could attract more waste development in particular, but also some additional minerals development. This could result in some clustering of development with impacts on biodiversity. However, effects are of highly uncertain magnitude. Overall it is considered that while there would be some minor positive impacts there would be significantly more negative effects under this no plan option that would become worse over time.
2.Water	+ + + - - - ? ? ?			✓	✓	✓	✓	In the National Planning Policy for Waste the onus is placed upon local plans to identify suitable sites and areas, though water is listed as a consideration for determining planning applications. However, without allocations there is no strategic overview as to what

							might constitute an acceptable location (uncertain impact). The waste hierarchy is promoted largely through local plans, though planning applications would still be required not to prejudice the waste hierarchy. So ultimately a lesser contribution to moving waste up the hierarchy would be evident, with the potential for a greater embodied land take and water footprint, though recycling and re-use sites may also have a significant water footprint. In terms of protecting the environment the NPPF emphasises that the flow and quantity of surface and groundwater should be considered in planning applications for minerals, and such impacts are also relevant to waste planning applications. In addition, if it is assumed that other areas outside of the plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the plan area, coupled with the lack additional policies to adhere to could attract more waste development in particular to the Plan area, but also some additional minerals development. However, as rivers and aquifers may span large areas, and this predicted additional development may otherwise have impacted on the same resource area but in a different location, these effects are of highly uncertain magnitude. Overall we have predicted that effects are mixed between minor positive, minor negative and uncertain.
3.Transport	- / ?	m- / ?	m- / ?		✓	✓	✓	In the National Planning Policy for Waste the onus is placed upon local plans to identify suitable sites and areas, though traffic and access is listed as a consideration for determining planning applications; although without allocations there is no strategic

							overview as to what might constitute an acceptable location (uncertain impact). However, for minerals the NPPF leaves it to local plans to develop policies in relation to traffic, although more generally "all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment". The lack of a strategic approach under this alternative may also lead to issues like clustering of sites, where impacts from traffic could be cumulative. In addition, if it is assumed that other areas outside of the Plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the Plan area, coupled with the lack additional policies to adhere to could attract more waste development in particular to the Plan area (and possibly also more minerals development). This could lead to greater traffic (at least in the Plan area). There is significant uncertainty due to a lack of local plan policy. Negative effects are tentatively predicted to cumulatively be up to moderate negative.
4.Air	+ + + - m- m- ? ? ?		✓	✓	✓		Air emissions and dust in relation to both human and ecological receptors are an important consideration in determining planning applications in the National Planning Policy for Waste. Similarly, when determining planning applications for minerals, local planning authorities should ensure 'unavoidable… dust and particle emissions…are controlled, mitigated or removed at source', although without the strategic approach provided by a local plan there may be more scope for mitigation of impacts than for avoidance in the first place. The lack of a strategic approach under this alternative may also lead to issues like clustering of sites, where impacts to air could be cumulative. In addition, if it is assumed that other areas outside of the Plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the Plan area, coupled with the lack additional policies to adhere to, could attract more waste development in particular (and also possibly more minerals development). This could lead to greater dust and air pollution, as well as traffic pollution (at least in the Plan area – elsewhere there may be less traffic). Broadly these effects are highly uncertain, but we have tentatively noted minor positive, and up to moderate negative effects in addition to uncertain effects.
5.Soil/land	- m- m-	✓	✓	✓	✓	There is relatively little emphasis on soils in the National Planning Policy for Waste. Meanwhile in the

						NPPF, safeguarding of best and most versatile agricultural land and conserving soil resources is an issue for policies in local minerals plans. However, in the wider NPPF, local planning authorities should 'take into account the economic and other benefits of best and most versatile agricultural land', while planning decisions should encourage the effective use of previously developed land. The lack of a strategic approach under this alternative may also lead to issues like clustering of sites, where impacts to soils / land could be cumulative. In addition, if it is assumed that other areas outside of the Plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the Plan area, coupled with the lack additional policies to adhere to could attract more waste development, and possibly some additional minerals sites. This could lead to greater demand for land. Whether this is any better or worse than elsewhere outside the Plan area is a moot point, and it should be noted that much of the waste development already proposed for allocation in the Joint Plan is planned to take place on previously developed land. However, for the Plan area we tentatively predict a minor to moderate negative effect. Overall it is predicted that the baseline would progressively deteriorate under this scenario.
6.Climate change	+ + + - m- m-	✓		✓	✓	Although the National Planning Policy for Waste seeks to bring climate change benefits through driving waste management up the waste hierarchy, most of the responsibility to do this rests with up-to-date Local Plans, with reference only to 'not prejudicing movement up the waste hierarchy' when determining planning applications. However, many of the locational criteria identified for consideration in planning applications would have indirect positive effects, such as consideration of nature conservation, traffic, and air emissions. The NPPF calls for local planning authorities to 'plan for new development in locations and ways which reduce greenhouse gas emissions', though much of the emphasis is on 'pro-active strategies' for climate change' which would most likely be delivered through the Local Plan. There are no direct references to climate change in the NPPF's section on minerals planning, though arguably by preventing unacceptable impacts on the environment greenhouse gas emissions will indirectly be reduced. Overall, it is considered that this alternative would lessen the rate of greenhouse gas emissions (an improved baseline), though as climate change is cumulative effects on the baseline of greenhouse gases in the atmosphere would worsen.

7.Climate adaptation	+	+	+	✓	✓	✓	✓	The National Planning Policy for Waste says little on adaptation to climate change in relation to planning applications (though would have some indirect benefits such as consideration of vulnerability to flooding). The National Planning Policy Framework also requires site specific flood risk assessment when considering planning applications, though places a greater requirement on pro-active strategies to adapt to climate change, that are likely to be best delivered through the Local Plan. Overall it is considered that just relying on national policy would be positive and negative for climate change adaptation due to the strong approach to flood risk, but lesser approach to wider climate change adaptation without a plan. As time goes on vulnerability to climate change is likely to get more severe.
	-	-	m -					
8.Minimise resources	+	+	+	✓			✓	While alternative 1 observes some strong positive effects due to moving waste up the hierarchy, without a plan in place there would be a reliance on the National Planning Policy for Waste approach to considering planning applications. While this is largely focussed on delivering the waste hierarchy through developing local plans, development would still be required not to prejudice the waste hierarchy. So ultimately a lesser contribution to moving waste up the hierarchy would be evident, which would result in a significant consumption of resources. While some minor positives are noted, the overriding effect is negative.
	m -	m -	m -					
9.Waste hierarchy	+	+	+	✓		✓		While alternative 1 observes some strong positive effects due to moving waste up the hierarchy, without a plan in place there would be a reliance on the National Planning Policy for Waste approach to considering planning applications. While this is largely focussed on delivering the waste hierarchy through developing local plans, development would still be required not to prejudice the waste hierarchy. So ultimately a lesser contribution to moving waste up the hierarchy would be evident. While some minor positives are noted, the overriding effect is negative.
	m -	m -	m -					
10.Historic environment	m +	m +	m +	✓	✓	✓	✓	The National Planning Policy for Waste states that for planning applications “considerations will include the potential effects on the significance of heritage assets, whether designated or not, including any contribution made by their setting”. Similarly, the NPPF also states a number of requirements for conserving the historic environment when making planning decisions. This is positive, though clearly more prior information would be utilised in plan making to steer development away from
	-	-	-					
	m -	m -	m -					
	?	?	?					

							significant clusters of heritage assets. The lack of a strategic approach under this alternative may also lead to issues like clustering of sites, where impacts to the historic environment could be cumulative. In addition, if it is assumed that other areas outside of the plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the Plan area, coupled with the lack additional policies to adhere to could attract more waste development, and possibly some additional minerals sites. This could have greater impacts on the setting or location of historic assets. Whether this is any better or worse than elsewhere outside the Plan area is a moot point, and it should be noted that much of the waste development already in the Plan area is planned to take place on previously developed land. However, for the plan area we tentatively predict a minor to moderate negative effect.
11.Landscape	+	+	+	✓	✓	✓	✓	Landscape and visual impacts are a consideration for planning applications in the National Planning Policy for Waste, and landscapes are considered in the NPPF when considering minerals planning applications by avoiding designated landscapes when maintaining landbanks and ensuring no unacceptable impact on the natural environment occur. Nonetheless, this option would be more reactive than if a local plan were put in place (as a local plan would allow for the consideration of sites in the plan at an early opportunity to enable acceptable applications to be submitted). Positive and negative. The lack of a strategic approach under this alternative may also lead to issues like clustering of sites, where impacts to the landscape could be cumulative. In addition, if it is assumed that other areas outside of the plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market in parts of the Plan area, coupled with the lack additional policies to adhere to, could attract more waste development, and possibly some additional minerals sites, and thus greater impacts on visual receptors. Whether this is any better or worse than development elsewhere outside of the Plan area is a moot point. However, for the Plan area we tentatively predict a minor to moderate negative effect.
	-	-	-					
	m -	m -	m -					
12.Sustainable economic growth	?	?	?		✓	✓	✓	While no plan might mean a lesser degree of local policy protection for certain environmental and community assets, which would suggest that growth might be at a higher rate, this growth is unlikely to be
			-					

						sustainable, as ultimately perceptions of the plan area might be damaged, making it a less attractive location for investment. Moreover, the plan allows for allocations for development, which bring a higher degree of certainty that requirements for minerals and waste will be met and that land, where deemed to be a sustainable location, can at least in principle be developed. The situation without a plan is highly uncertain, but effects are considered to be more negative than positive in the longer term.
13.Community vitality	- - - ? ? ?		✓	✓	✓	With no plan, while planning applications would still be received and possibly at a faster rate than with a plan, there would be less certainty that those sites would be in a sustainable location (so they may generate greater amenity issues like traffic than the alternative 1, though there are still substantive protections in the NPPF / National Planning Policy for Waste as illustrated by the SA objective assessments above). There would also be no allocations, which would place existing employees at sites seeking extensions at greater uncertainty about their future. However, new sites elsewhere may provide a jobs boost to communities, if they are approved. Having a plan can provide for investment and therefore help promote sustainable economic growth. Overall effects are considered to be minor negative, with uncertainty.
14.Recreation	+ + m + - - - ? ? ?	✓	✓		✓	The NPPF states that planning policies should protect and enhance public rights of way. However, under this scenario there would be no plan in which to express planning policies. Protection for rights of way is less clear in relation to making development decisions without a plan, as there

			✓	✓	✓		is a wider requirement in the NPPF for planning decisions to deliver recreational facilities and services, though no specific reference to protecting rights of way. The NPPF also requires that, through planning decisions, local planning authorities should "provide for restoration and aftercare at the earliest opportunity to be carried out to high environmental standards…", which would benefit this objective in the longer term. It also attaches great weight to conserving national parks and AONBs, and offers at least protection for the natural and historic environment, which are important assets for recreation. Without a plan in place however, the opportunity is lost to adhere to the NPPF requirement for plans to protect and enhance rights of way. In addition, a wide range of locally significant recreational assets can be considered in relation to site allocations and policies in the Joint Plan. Broadly a mixture of positive and locally negative, with some uncertainty.
15.Health / Wellbeing	++	++	++	✓	✓	✓	✓	Health is a key consideration in the NPPF, and specifically in relation to minerals, 'when determining planning applications, local planning authorities should…ensure in granting planning permission for mineral development, that there are no unacceptable adverse impacts on……human health". In addition, the National Planning Policy for Waste states 'when determining planning applications, waste planning authorities should…consider the likely impact on the local environment and on amenity against the criteria set out in Appendix B and the locational implications of any advice on health from the relevant health bodies…". Appendix B lists a wide range of issues that are pertinent to the achievement of health and wellbeing, such as flood risk management, land instability, conserving the natural environment (important for the health benefits it provides), traffic and access, air emissions and odours. However, the lack of a strategic approach under this alternative may also lead to issues like clustering of sites, where impacts to the landscape could be cumulative. In addition, if it is assumed that other areas outside of the plan area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of parts of the Plan area, coupled with the lack additional policies to adhere to could attract more waste development, and possibly some additional minerals sites, and thus greater potential for cumulative impacts on health and wellbeing (e.g. from traffic or changes to the character of an area, affecting wellbeing). This is highly uncertain, but for the plan area we tentatively predict a moderate negative effect.
	m-	m-	m-					
	?	?	?					
16.Flooding	0	0	0	✓	✓	✓	✓	While Local Plans require a strategic flood risk assessment, development in the absence of a local

	-	-	-				plan would still require a sequential test if in Flood Zones 2 or 3. Arguably this may vary from the approach in an SFRA, so sites may not get an equal level of consideration, though the outcome in terms of flood risk is considered broadly similar. However, proposed site allocations in the Joint Plan may also be identified as presenting a potential opportunity for flood storage. While this may still occur through a planning application without the influence of the plan, it would not be a top down requirement, so opportunities may be missed. Neutral to minor negative.
17.Changing population	?	?	?		✓	✓	A changing population has a need for a range of housing and infrastructure that must ultimately be provided from building materials such as brick and sand and gravel. While no plan might mean a lesser degree of local policy protection for certain environment and community assets, which would suggest that new sites might come forward at a higher rate (and may or may not be approved); the plan allows for allocations for development, which brings a higher degree of certainty that requirements for minerals and waste will be met, and that land, where deemed to be a sustainable location, can at least in principle be developed. Overall the situation without a plan is highly uncertain, though tentatively a minor negative effect is predicted.
	-	-	-				

Table 8: Summary of findings of Second Alternative

Summary of assessment

<u>Alternative 1: Implement the objectives of the Plan</u>

Taken as a whole the Plan's objectives compare well to the Sustainability Appraisal Objectives. The Plan objectives which seek to protect the environment and address climate change score particularly positively in relation to the SA objectives, as one might expect, with only one minor negative noted (in relation to Plan objective 12 - because restoring sites might drive a demand for inert landfill to restore ground levels). Other Plan objectives are broadly positive or neutral, though negative or mixed positive / negative effects are identified in relation to objectives 5 and 6 in particular, and more mixed effects recorded in relation to objectives 2 and 4. This is because objectives 2, 5 and 6 deal with providing adequate capacity to deal with waste, supply minerals and identify locations for this development, all of which would promote development on the ground, which could lead to a range of environmental and social effects.

Objective 4 supports sustainable alternatives to primary minerals and the use of secondary aggregates, which generally scores very positively for SA objectives such as minimising resources and moving waste up the waste hierarchy, but also notes some locally mixed positive and minor negative effects in relation to air, water and

community vitality as industrial processes will be involved in meeting this objective, which could generate dust or traffic; though the objective would also reduce extraction of primary minerals which would otherwise have generated similar environmental impacts.

In contrast to earlier assessment on the Plan objectives, it has been possible to remove much of the uncertainty from this assessment as site allocations and policies that accord with these objectives have now been more fully developed. Some uncertainty still remains in relation to Plan Objective 2 about making provision for waste management capacity and how it performs in relation to the soil / land SA objective and the historic environment SA objective as this type of development often, but not always, takes place on previously developed land, which is of uncertain value in relation to these SA objectives.

It should be noted that all objectives will operate in combination with each other and that a positive score has been recorded at least once in relation to each sustainability objective, meaning that the Plan will positively contribute in some way towards each SA objective.

Alternative 2: No plan is adopted

Under this alternative most SA objectives report a greater level of uncertainty than option 1 over sustainability effects. This is because, without a plan in place planning decisions would primarily be made using the National Planning Policy Framework (NPPF) and the National Planning Policy for Waste (NPPW). Both of these policy documents place a large emphasis on different elements of sustainable development policy being delivered through Local Plans. Without a Local Plan in place, it is highly uncertain that sustainability would be fully factored in to planning decisions.

There are still a wide number of positive effects, though these are often at a lower level than alternative 1. This is because, even without a Local Plan, the NPPF and NPPW still require that decisions on planning applications take into account a range of sustainability criteria. Quite often though, locally important issues may not be factored in to such decisions.

Several negative effects are noted, which are often of moderate or greater significance. In particular, the lack of a strategic approach under this alternative may lead to issues like clustering of sites in some parts of the plan area, where impacts to a range of SA objectives could be cumulative. In addition, if it is assumed that other areas outside of the Plan Area have plans in place, while the Joint Plan area does not under this scenario, the good transport links and proximity to market of several parts of the plan area, coupled with the lack additional policies to adhere to, could attract more waste development, and possibly some additional minerals sites, and thus a greater demand for land to develop (with associated environmental effects). Whether this is any better or worse than elsewhere outside the plan area cannot be predicted. However, for the Plan area we have tentatively predicted negative effects of minor to moderate significance in relation to these ‘absence of plan’ type effects.

There is also a high degree of uncertainty as to the effects on sustainable economic growth and the requirements of a changing population. This is because a lesser degree of policy protection might suggest that growth could be at a higher rate. This growth is, however, unlikely to be as sustainable as alternative 1 as ultimately perceptions of the plan area might be damaged, making it a less attractive location for investment. In addition, without the allocations provided by a plan, there is less certainty that land can, at least in principle, be developed. Having a plan can provide for investment and therefore help promote sustainable economic growth..

Recommendations

It is recommended that Alternative 1 is pursued and Alternative 2 is discounted.

5.3 Other Strategic Alternatives

At the Issues and Options stage of plan development all policy options were presented as a series of options to guide further policy development. A large number of policy themes and alternatives were assessed by the Sustainability Appraisal initially, and then following consultation a series of further additional options were assessed (these alternatives were derived through consideration of responses to consultation). These reports are available to view on the Sustainability Appraisal website. While the detailed assessments would take up several hundred pages if we were to reproduce them in this report, in the interests of making this report accessible to readers we have summarised the strategic alternatives considered in a text box following each finalised policy assessment. In this way we show the range of options considered as well as the SA's view on which option should be considered most sustainable.

It should be noted that policy options are very different from the finalised format of policies. Generally options were broad indications of the focus and intent of possible future policies, so predicting sustainability effects was done at a high level, and often noted significant uncertainty. In this sense, findings can at best be considered indicative. Nonetheless, they proved to be a useful steer for further policy development. A far greater resolution of assessment has been applied to the draft policies considered in this report.

Whilst undertaking the assessment it was, however, clear that a number of high level strategic options would help guide key elements of the Plan, affecting other policies as well as the allocation of sites. We have described some of the key sustainability findings of these 'high level options' in section 5.4 below. Table x shows the strategic options that we consider to be the most high level and our reasoning.

Policy Theme [38]	**Why is this considered a high level strategic option?**
Plan objectives	These guide the production of the whole plan. Assessed against a 'no plan' alternative in section 5.2 above.
Broad geographical approach to supply of aggregates	These options direct development to different parts of the plan area – and thus inform further policy development as well as the site allocations.
Overall distribution of sand and gravel provision	These options show the northwards – southward split in proportioning sand and gravel provision.

[38] These are considered to be the highest level options. However, there are many other strategic options that we have considered in the issues and options SA assessment documents, including strategic options for other minerals types not considered here. Readers should view the policy assessment summaries in chapter 6 to get a broad view of the sustainability effects of the earlier alternative options that were considered, and consult the issues and options SA assessment to view the full assessments where necessary.

Key spatial principles for oil and gas	Shows where oil and gas development should be directed to.
Overall approach to the waste hierarchy	Shows the range of policy interventions that would move waste up the waste hierarchy and the level of emphasis on higher tiers. This option has informed other policies and the development of land allocations.
Strategic role of the plan area in the management of waste	Shows the degree to which the plan should aim for self-sufficiency or the emphasis that should be placed on imports and exports of waste. This has informed the development of land allocations.
Overall locational principles for provision of new waste capacity	Shows where waste capacity should be directed to.

As the Sustainability Appraisal has progressed, continual feedback from consultees and further updates to evidence has allowed us to make further revisions to the original draft assessments. The summaries below reflect the latest thinking in relation to these options, which in some cases has progressed from the original assessments

5.4 Review of key high level policy option alternatives

Broad geographical approach to supply of aggregates

Two options were considered at the Issues and Options stage. These were:

Option1: This approach could seek to ensure that requirements for new aggregates supply from the Joint Plan area would be met only from those parts of the area outside the North York Moors National Park, AONBs and the City of York area.

Option 2: In addition to aggregates supply from the NYCC area, this approach could seek to deliver an element of total sand and gravel supply requirements from the City of York area by encouraging working of sand and gravel (including building sand) in appropriate locations.

Further options considered post consultation:

Proposed alternative option 3: (And) Supply from the National Park and the AONBs would be supported in circumstances where demand could not be met from locations outside protected areas.

Proposed alternative option 4: (Or) In addition to supply from the NYCC area, this approach could seek to deliver an element of total sand and gravel supply requirements from the City of York area by encouraging working of sand and gravel (including building sand) in appropriate locations. Extraction within the City of York area would be supported where it is on a small scale and is for use only within the City of York area.

Proposed alternative option 5: (Or) This option would allow extraction of aggregates from any geographical location in the Joint Plan area.

Proposed alternative option 6: (And) This option would only permit future extraction in the geographical area between the North York Moors and Yorkshire Dales National Parks where sites were to be restored to their former use.

Proposed alternative option 7: (And) Notwithstanding the restrictions identified in Options 1 and 2, this option would support aggregate extraction through extensions to former quarries in the National Park.

Proposed alternative option 8: (And) This option could work alongside Options 1 or 2 and, notwithstanding any restrictions applied through options 1 and 2, would support the use of excess crushed rock from building stone sites in the National Park and AONBs as aggregate for use in the local area.

Updated comparative scoring matrix

	S=Short Term M= Medium Term L=Long Term	SA Objectives Key: 1. Biodiversity / Geo-diversity, 2. Water Quality / Quantity, 3. Transport, 4. Air Quality, 5. Soil / Land, 6. Reduce Climate Change, 7. Adapt to Climate Change, 8. Minimise Resource Use, 9. Minimise Waste, 10. Historic Environment, 11. Landscape, 12. Economic Growth, 13. Community Vitality, 14. Recreation, Leisure and Learning, 15. Wellbeing, Health and Safety, 16. Flooding, 17. Changing Population Needs																
Option	Timescale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	S	+ -	-	+	+ -	-	+	+ -	0	0	- +	+ -	+	+	++ -	?	-	+
	M	++ -	-	+	+ -	-	+	+ -	0	0	- +	++ -	+	+	++ -	?	-	+
	L	++ -	-	+	+ -	-	+	++ -	0	0	- +	++ -	+	+	++ -	?	++	+
2	S	?	?	++	+	?	+	-	0	0	-	- +	+	+	- +	-	-	+
	M	?	?	++	+	?	+	-	0	0	-	- +	+	+	- +	-	-	++
	L	? +	?	++	+	?	+	-	0	0	- +	- +	+	+	- +	-	+	++
3	S	? 0	? 0	0	? 0	? 0	0	0	- 0	- 0	? 0	? 0	+	+ - 0	? 0	? 0	0	+
	M	? 0	? 0	0	? 0	? 0	0	0	- 0	- 0	? 0	? 0	+	+ - 0	? 0	? 0	0	+
	L	? 0	? 0	+	? -	? -	+ - 0	+	- 0	- 0	? 0	? 0	+	+ - 0	? 0	? 0	+	++
4	S	?	?	+	+	?	+	-	0	0	-	- +	+	+	- +	-	-	+
	M	?	?	+	+	?	+	-	0	0	-	- +	+	+	- +	-	-	+
	L	? +	?	++	+	?	+	-	0	0	- +	- +	+	+	- +	-	+	+
5	S	-	?	-	-	?	-	+	0	0	?	m- --	- +	+ -	m-	?	+	+
	M	-	?	-	-	?	-	+	0	0	?	m- --	+ -	+ -	m -	?	+	+
	L	- +	?	-	-	?	-	++	0	0	? +	m- --	+ -	+ -	m -	?	++	+
6	S	0	0	0	0	0	0	-	0	0	-	0	0	0	0	0	-	0
	M	0	0	0	0	0	0	-	0	0	-	0	0	0	0	0	-	0
	L	?	0	0	0	? +	0	--	0	0	- +	0	0	0	? -	? -	--	0
7	S	-	-	- +	0	- +	-	0	+	+	-	-	+ -	+ -	-	- +	0	0

	M	-	-	- +	0	- +	-	0	+	+	-	-	+ -	+ -	-	- +	0	0
	L	-	-	- +	0	- +	-	0	+	+	-	-	+ -	+ -	-	- +	+	0
8	S	0	0	+	0	+	+	0	+	+	+	0	+	+	0	-	0	++
	M	0	0	+	0	+	+	0	+	+	+	0	+	+	0	-	0	++
	L	0	0	+	0	+	+	0	+	+	+	0	+	+	0	-	0	++

While all options display a mixture of positive, negative and uncertain effects, Options 1 and 2 exhibit more positive effects than Option 3. Negative effects are associated with land and soils and recreation to some degree under options 1, 2, 3 and 7 and, in relation to recreation, option 8.

In broad terms, while Option 1 and 2, 4 and to some extent 'and' option 8, are considered to reduce journey lengths, there remains a slight risk that those journeys will run close to communities under Option 1 and 2 in particular. Similarly options 4 and 5 broadly reduce journey lengths. Another key issue is how options may restrict the distribution of sites – with Options 1, 3 and 6 in particular more likely to attract sites to areas that may be visible from protected landscapes, and most options other than objective 8 (and to a limited degree objective 7) exhibiting uncertainty or negative effects in relation to whether best quality agricultural land would be likely to be lost.

Some options carry some degree of economic benefit, however options 1, 4, 5 and 7 may have some negative effects on tourism (due to visibility of quarries from national parks) and quality of life (due to more traffic on the local road network), while some options show some degree of dis-benefit in terms of opportunities for recreation and leisure (impacting in varying degrees on recreational assets such as enjoyment of national parks or the public access network).

The assessment of Option 3 is generally more uncertain than other options as it is not known what the resultant overall spatial distribution of aggregate sites will be, though it could offer increased locational choice which may bring some benefits. There are also a number of negative effects that are particularly associated with option 6 as under that option site locations are determined to a degree by their restoration potential rather than the impacts that they may have during their operational lifetime, and may end up clustering together displaying cumulative effects.

Recommendations

It is recommended that a combination of options 1, 2 and 3 be progressed, whereby the policy is clear that extraction should take place outside of the National Park and the AONBs as a first priority but also within the rest of the NYCC area and the City of York area. Option 8 should also be supported as a further means of enabling aggregates extraction with minimal environmental effects.

Policy Progressed by the Plan

The preferred approach is a combination of Options 1 *(aggregates only from outside the National Park / AONBs / City of York) and 2 (aggregates from NYCC area plus City of York)* with elements of additional options 3 *(only source from National Park / AONBs where demand can't be met from areas outside)* and 8 *(which is option 1 or 2 with the addition of*

*support for use of excess crushed rock from building stone sites in National Park / AONBs).*This approach has been chosen as it broadly accords with SA findings and *would provide a positive approach to the supply of aggregate, recognising the wide distribution of high level constraints, would be generally consistent with national policy and helps support supply of aggregate from locations near to where they are used.*

Overall distribution of sand and gravel provision

Four options were considered at the Issues and Options stage. These were:

Option 1: This option could make future provision for sand and gravel on the basis of separate provision for the southwards and northwards distribution areas (concreting sand and gravel) and for building sand, at a ratio of 50:45:5.

Option 2: This option could make future provision for sand and gravel on the basis of separate provision for the southwards and northwards distribution areas with an increased emphasis on provision for the southwards distribution area. This could assume provision based on a ratio of 55:40:5 southwards: northwards: building sand.

Option 3: This option could make future provision for sand and gravel on the basis of separate provision for the southwards and northwards distribution areas with increased emphasis on provision for the northwards distribution area. This could assume provision on the basis of a ratio of 45:50:5 southwards: northwards: building sand

Option 4: This option could make provision for sand and gravel on the basis of a single subdivision, combining concreting sand and gravel provision across the northwards and southwards distribution areas

Further options considered post consultation:

Proposed alternative option 5: (And) This option would enable provision for sand and gravel to be made from across the plan area to meet either northwards or southwards demand where there is a shortfall in either the northwards or southwards distribution area.

Updated comparative scoring matrix

	S=Short Term M= Medium Term L=Long Term	SA Objectives Key: 1. Biodiversity / Geo-diversity, 2. Water Quality / Quantity, 3. Transport, 4. Air Quality, 5. Soil / Land, 6. Reduce Climate Change, 7. Adapt to Climate Change, 8. Minimise Resource Use, 9. Minimise Waste, 10. Historic Environment, 11. Landscape, 12. Economic Growth, 13. Community Vitality, 14. Recreation, Leisure and Learning, 15. Wellbeing, Health and Safety, 16. Flooding, 17. Changing Population Needs																
Option	Timescale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	S	? -	? -	+	+	? -	+	0	0	0	? -	? - +	+	0	? -	+ - ?	0	0
	M	? -	? -	++	+	? -	++	0	0	0	? -	? - +	++	- +	? -	+ - ?	0	+
	L	+	+	++	+	?	++	0	0	0	?	?	++	-	?	+	+	+

												-				-		
		-	-			-					-	+		+	+	?		
2	S	? -	? -	? -	? -	? -	? -	0	0	0	? -	? - +	?	0	? -	? -	0	?
	M	? -	? -	? -	? -	? -	? -	0	0	0	? -	? - +	?	- +	? -	? -	0	?
	L	? -	? -	? -	? -	? -	? -	0	0	0	? -	? - +	?	- +	? -	? -	+	?
3	S	? -	? -	? -	? -	? -	-	0	0	0	? -	? - +	?	0	? - +	? +	0	?
	M	? -	? -	? -	? -	? -	-	0	0	0	? -	? - +	?	0	? - +	? +	0	?
	L	? -	? -	? -	? -	? -	-	0	0	0	? -	? - +	?	0	? - +	? +	++	?
4	S	? -	+ ?	- ?	- ?	- ?	- ?	0	0	0	+ ?	+ ?	+ ?	?	?	?	0	?
	M	? -	+ ?	-- ?	-- ?	- ?	-- ?	0	0	0	+ ?	+ ?	+ ?	?	?	?	0	?
	L	? -	+ ?	-- ?	-- ?	- ?	-- ?	0	0	0	+ ?	+ ?	+ ?	?	?	?	+	?
5	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	M	? +	? +	-	-	? +	? -	0	0	0	? -	? -	++	?	0	?	0	+
	L	? +	? +	-	-	? +	? -	0	0	0	? -	? -	++	?	0	?	0 + -	+

All options display a mixture of uncertain, negative and positive effects. However, Option 1 displays the strongest positive effects largely because it matches well with current market demand, so effects on transport, air pollution and climate change as well as economic growth are all positive. There are also a number of areas where negative or mixed positive and negative effects occur, largely due to the fact that environmental receptors will potentially come within range of extraction sites given the geographical scale of these options.

Other options tend to perform less well, and effects vary depending on the ratio of northern to southern division. For instance, landscape effects are both positive and negative under Options 1 to 4 though some uncertainty is noted. Similarly, the transport related benefits become negative under Options 2 and 3, or uncertain to highly negative for option 4.

Option 4 displays significant uncertainty across most of the SA objectives as it is not clear where sand and gravel extraction will occur under this objective.

The addition of Option 5 is considered likely to result in a number of minor positive effects as it would ensure that demand is met leading to positive economic benefits, and where a shortfall exists, it would allow a larger number of sites from which overall sand and gravel provision can be made. This means that it is less likely that the most sensitive sites will need to be developed in order to meet demand. Option 5 would lead to some minor negative impacts in relation to transport, air quality and climate change although wherever possible

provision would be met within the designated distribution areas, keeping these negative effects to a minimum.

Recommendations

Option 1 is associated with a clear economic, and a number of outright environmental, benefits and is seen to perform best in relation to the SA Framework. It is considered that Option 1 should be combined with Option 5 in order to ensure that demand can be met and to strengthen the economic benefits.

Policy Progressed by the Plan

As described above, 4 options were assessed at Issues and Options with a further 1 alternative options assessed that was suggested by consultees. The preferred approach is based on option 1 *(northwards sand and gravel – southward sand and gravel – building sand provision split at a ratio of 50:45:50).* This was selected as it was considered to best reflect the evidence set out in the Local Aggregate Assessment, as historic supply patterns and the objective of seeking to achieve a good fit between locations of supply and locations of demand for sand and gravel, taking into account the wide geographical area supplied with sand and gravel from North Yorkshire.

Key spatial principles for oil and gas

Three options were considered at the Issues and Options stage. These were:

Option 1: Aim to direct all gas developments (including production and processing) to locations outside of the National Park and AONBs, where viable alternatives to these locations exist.

Option 2: Support the principle of gas developments (including production and processing) across the whole of the Joint Plan area provided that, within the National Park and AONBs, and in locations which may impact on the townscape and setting of the historic City of York, particularly high standards of siting, design and mitigation are applied.

Option 3: Support the principle of exploration and appraisal for gas development across the whole of the Joint Plan area, but aim to direct the siting of any processing or electricity generating facilities to locations outside National Parks and AONBs, where viable alternatives to these locations exist.

Further options considered post consultation:

Proposed alternative option 4: (Or) This option supports the principle of gas developments (including production and processing) across the whole of the Joint Plan area provided that, within the National Park and AONBs, and in locations which may impact on the townscape and setting of the historic City of York, particularly high standards of siting, design and mitigation are applied, but aim to direct the siting of any processing or electricity generating facilities to locations outside the National Park and AONBs where viable alternatives to these exist.

Proposed alternative option 5: (Or) This option supports the principles of gas developments (including production and processing) across the whole of the Joint Plan area.

Proposed alternative option 6: (Or) Under this option planning permission will be granted for exploration, appraisal or production of oil and gas and unconventional hydrocarbons provided they do not result in any significant adverse impacts on local communities or the environment.

Updated comparative scoring matrix

	S=Short Term M= Medium Term L=Long Term	SA Objectives Key: 1. Biodiversity / Geo-diversity, 2. Water Quality / Quantity, 3. Transport, 4. Air Quality, 5. Soil / Land, 6. Reduce Climate Change, 7. Adapt to Climate Change, 8. Minimise Resource Use, 9. Minimise Waste, 10. Historic Environment, 11. Landscape, 12. Economic Growth, 13. Community Vitality, 14. Recreation, Leisure and Learning, 15. Wellbeing, Health and Safety, 16. Flooding, 17. Changing Population Needs																
Option	Timescale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	S	+ / -	-	+ / m-	+ / - / ?	-	-	0	m-	0	+ / -	-	m+	+ / -	+ / -	?	0	0
	M	+ / -	-	+ / m-	+ / - / ?	-	-	0	m-	0	+ / -	-	m+	+ / -	+ / -	?	0	-
	L	+ / -	-	+ / m-	+ / - / ?	-	-	0	m-	0	+ / -	-	m+	+ / -	++ / -	?	0	-
2	S	-	? / -	m- / +	- / ?	+ / -	m-	0	m-	0	-	-	++ / -	+ / -	-	?	0	++
	M	-	? / -	m- / +	- / ?	+ / -	m-	0	m-	0	-	-	++ / -	+ / -	-	?	0	++
	L	-	? / -	m- / +	- / ?	+ / -	m-	0	m-	0	-	-	++ / -	+ / -	-	?	0	++
3	S	-	? / -	m-	- / ?	+ / m-	-	0	m-	0	? / -	-	m+	+ / -	-	?	0	+
	M	-	? / -	m-	- / ?	+ / m-	-	0	m-	0	? / -	-	m+	+ / -	-	?	0	+
	L	-	? / -	m-	- / ?	+ / m-	m-	0	m-	0	? / -	-	m+	+ / -	- / m-	?	0	+
4	S	0 / -	? / -	+ / m-	- / ?	m-	-	0	m-	0	? / -	-	m+	+ / -	-	?	0	+
	M	0 / -	? / -	+ / m-	- / ?	m-	-	0	m-	0	? / -	-	m+	+ / -	-	?	0	+
	L	0 / -	? / -	+ / m-	- / ?	m-	m-	0	m-	0	? / -	-	m+	+ / -	-	?	0	+
5	S	- / --	?	m-	- / ?	? / m-	-	0	m-	0	- / --	- / --	m+ / m-	- / m-	- / --	?	0	++
	M	- / --	?	m-	- / ?	? / m-	m-	0	m-	0	- / --	- / --	m+ / m-	- / m-	- / --	?	0	++
	L	- / --	?	m-	- / ?	? / m-	m-	0	m-	0	- / --	- / --	m+ / m-	- / m-	- / --	?	0	++
6	S	0 / ?	0 / ?	?	0 / ?	-	- / ?	?	--	0	0 / ?	- / ?	+ / ?	+ / ?	0 / ?	0 / ?	0	+ / ?
	M	0 / ?	0 / ?	?	0 / ?	-	- / ?	?	--	0	0 / ?	- / ?	+ / ?	+ / ?	0 / ?	0 / ?	0	+ / ?
	L	0 / ?	0 / ?	?	0 / ?	-	- / ?	?	--	0	0 / ?	- / ?	+ / ?	+ / ?	0 / ?	0 / ?	0	+ / ?

The assessment has revealed that Option 1 is likely to provide the most benefits in terms of both protecting the natural environment and landscapes and also supporting local economies, although this option could potentially direct gas developments to areas of highest agricultural land quality and areas where water sources are protected as well as having negative effects in terms of meeting the energy needs of the population. Under all options other than option 6, but particularly options 2, 3, 4 and 5 there may be negative effects on the landscape, natural and historic environment and recreation. Effects under Option 6 are generally insignificant due to the requirement that they do not result in any significant adverse impacts on local communities or the environment. However, they would allow extraction in National Parks and AONBs, which although their environmental and community effects might be deemed insignificant, generate significant uncertainty in this assessment as factors such as the threshold of significant impacts is not known (which may be lower in sensitive areas such as national parks and AONBs).

All options are considered to be negative in relation to minimising resource use due to the support they offer to the extraction of a non-renewable resource. Option 6 performs the worst in this respect as its support the extraction of a wider range of hydrocarbons. Some options report mixed positive and negative effects in relation to transport, e.g. options 2 and 4 because they may encourage some but not all development closer to centres of population and the major road network.

Effects on the economy are generally positive across all options as extraction of hydrocarbons would bring jobs and potentially investment, while community vitality may also benefit from jobs. Both the economy and community SA objectives also record possible negative effects on the tourism economy however, across all options, but particularly where options allow development in protected landscapes.

Significant uncertainty was noted across many objectives, often because the strategic nature of these options makes it hard to identify where and how significant effects might be.

Recommendations

Option 1 performs best overall. A combination of options whereby license holders, whose license(s) cover land both within and outside National Parks and AONBs, must investigate possibilities outside of these areas first and all operators must aim to locate processing facilities outside of these areas and apply particularly high standards of siting, design and mitigation within these areas would lessen the effects of many individual options, though option 6's requirement for avoidance of 'significant adverse impacts on local communities or the environment' provides a broader scope for mitigation (provided it is coupled with the 'particularly high standard' mentioned in some of the options).

Whilst the initial recommendation of the SA was to choose option 1 or combine elements of several of the options as outlined, the further assessment work undertaken as a result of the compilation of this sustainability appraisal report, which takes on board issues highlighted during consultations and further research (particularly in relation to carbon, tourism and land effects) suggests that a slightly different approach should be recommended. This revised recommendation is that option 1 should be pursued, but with added emphasis on option 6's requirement for avoidance of 'significant adverse impacts on local communities or the environment' outside of national parks and AONBs. Additionally, application of particularly

high standards of siting, design and mitigation where development may affect the setting of the City of York (element of option 2) would also strengthen the approach.

Policy Progressed by the Plan

As shown above, 3 options were assessed at Issues and Options, with 3 further alternative options assessed that were suggested by consultees. The selected approach, i.e.: policy M16: Key Spatial Principles for Oil and Gas development, represents a combination of elements of a number of initial options, including elements of options 3,4 and 6, but has been revised and updated significantly since preferred options stage to reflect emerging information relating to unconventional hydrocarbons, particularly shale gas. The selected option is considered to represent an approach which supports the principle of oil and gas development in appropriate locations, reflecting national policy, whilst also acknowledging distinctions between the main forms of hydrocarbons development that could come forward, as well as the range of important constraints that exist in the Plan Area The full assessment of this alternative is shown in chapter 6.

Overall approach to the waste hierarchy

Option 1: This option would help move waste up the waste hierarchy by:

– Supporting in principle proposals which enable the re-use, recycling and composting of waste and supporting the principle of recovery of waste where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy.

– Supporting provision of new capacity for the landfill of bio-degradable waste only where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy and there is insufficient landfill capacity in the area to meet identified needs. Incineration of waste without energy recovery would only be supported for the small scale incineration of specialised wastes arising in the area and where the scale of the development would mean that energy recovery is not viable.

– In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Option 2: The option would be similar to option 1 but would give stronger encouragement to dealing with waste further up the hierarchy by:
- Supporting in principle proposals which can demonstrate that the waste to be managed at the facility would be managed at the highest practicable level of the hierarchy appropriate to the type/s of waste to be dealt with;
- Supporting provision of new capacity for the landfill of biodegradable waste only in exceptional circumstances where it can be demonstrated that it is the only practicable management option for the waste to be managed and there is sufficient capacity available within or outside of the Plan area which could meet the need.
-Incineration of waste without energy recovery would only be supported for the small scale incineration of specialised waste arising in the area and where the scale of the development would mean that energy recovery is not viable.

In relation to inert waste, landfill would only supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity.

Option 3: The option would provide support in principle for proposals for a range of waste management methods where it can be demonstrated that the facility would help to reduce reliance on landfill as a means of waste management.

Support in principle would also be provided for new landfill of waste where it can be demonstrated that the proposals would meet an unforeseen requirement for additional landfill capacity or it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity.

Further options considered post consultation:

Proposed alternative option 4: (Or) [add option text] This option would give support in principle to proposals which enable the re-use, recycling and composting of waste and would support the principle of recovery of waste where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy.

Provision of new capacity for the landfill of biodegradable waste would only be supported where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy and there is insufficient landfill capacity in the area to meet identified needs. Incineration of waste would only be supported if there are plans to use the heat generated.

In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity.

Proposed alternative option 5: (Or) This option would be similar to Option 4 but would give stronger encouragement to dealing with waste further up the hierarchy by:

- Supporting in principle proposals which can demonstrate that the waste to be managed at the facility would be managed at the highest practicable level of the hierarchy appropriate to the type/s of waste to be dealt with.
- Supporting provision of new capacity for the landfill of bio-degradable waste only in exceptional circumstances where it can be demonstrated that it is the only practicable management option for the waste to be managed and there is insufficient capacity available within or outside the Plan area which could reasonably meet the need. Incineration of waste would only be supported if there are plans to use the heat generated.

- In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the

substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 6: (Or) This option would provide support in principle for facilities which enable re-use, recycling and composting of waste however facilities for incineration, energy recovery and disposal would not be supported.

Proposed alternative option 7: (Or) This option would help move waste up the waste hierarchy by:
- Supporting in principle proposals which enable the re-use, recycling and composting of waste and supporting the principle of recovery of waste where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy.
- Supporting provision of new capacity for the landfill of biodegradable waste only where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy and there is insufficient landfill capacity in the area to meet identified needs. Incineration of waste would only be supported where no other methods are possible.
- In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 8: (Or) The option would be similar to option 4 but would give stronger encouragement to dealing with waste further up the hierarchy by:

- Supporting in principle proposals which can demonstrate that the waste to be managed at the facility would be managed at the highest practicable level of the hierarchy appropriate to the type/s of waste to be dealt with;
- Supporting provision of new capacity for the landfill of biodegradable waste only in exceptional circumstances where it can be demonstrated that it is the only practicable management option for the waste to be managed and there is insufficient capacity available within or outside of the Plan area which could reasonably meet the need. Incineration of waste would only be supported where no other methods are possible;
- In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 9: (Or) This option would provide support in principle for proposals for a range of waste management methods where it can be demonstrated that the facility would help to reduce reliance on landfill as a means of waste management. Incineration of waste would only be supported where no other methods are possible.

Support in principle would also be provided for new landfill of waste where it can be demonstrated that the proposal would meet a need for additional landfill capacity not identified at the time of preparation of the Plan, or it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 10: (Or)
This option would help move waste up the waste hierarchy by:
- Supporting in principle proposals which enable the re-use, recycling and composting of waste and supporting the principle of recovery of waste where it can be demonstrated that it is not practicable to manage the waste further up the hierarchy.
- Landfill of biodegradable waste would not be supported. Incineration of waste without energy recovery would only be supported for the small scale incineration of specialised wastes arising in the area and where the scale of the development would mean that energy recovery is not viable.
- In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 11: (Or) The option would be similar to proposed alternative option 10 but would give stronger encouragement to dealing with waste further up the hierarchy by:
- Supporting in principle proposals which can demonstrate that the waste to be managed at the facility would be managed at the highest practicable level of the hierarchy appropriate to the type/s of waste to be dealt with;
- Landfill of biodegradable waste would not be supported. Incineration of waste without energy recovery would only be supported for the small scale incineration of specialised wastes arising in the area and where the planning authority can be satisfied that the scale of the development would mean that energy recovery is not viable.
- In relation to inert waste, landfill would only be supported where it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 12: (Or): This option would provide support in principle for proposals for a range of waste management methods where it can be demonstrated that the facility would help to reduce reliance on landfill as a means of waste management. Landfill of biodegradable waste would not be supported.

Support in principle would also be provided for new landfill of waste where it can be demonstrated that the proposal would meet a need for additional landfill capacity not identified at the time of preparation of the Plan, or it would facilitate a high standard of quarry reclamation in accordance with agreed reclamation objectives, or the substantial improvement of derelict or degraded land to a condition where it can be returned to agricultural productivity or other beneficial use.

Proposed alternative option 13: (Or) Under this option the level of carbon emissions expected to be produced would be a key consideration, whilst also aiming to manage waste as far up the waste hierarchy as possible

Proposed alternative option 14: (Or) This option would support diverting all waste away from landfill to be dealt with by other waste management methods.

Updated comparative scoring matrix

	S=Short Term M= Medium Term L=Long Term	SA Objectives Key: 1. Biodiversity / Geo-diversity, 2. Water Quality / Quantity, 3. Transport, 4. Air Quality, 5. Soil / Land, 6. Reduce Climate Change, 7. Adapt to Climate Change, 8. Minimise Resource Use, 9. Minimise Waste, 10. Historic Environment, 11. Landscape, 12. Economic Growth, 13. Community Vitality, 14. Recreation, Leisure and Learning, 15. Wellbeing, Health and Safety, 16. Flooding, 17. Changing Population Needs																
Option	Timescale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	S	? / m+	+ / - / ?	?	?	m+ / -	m+	0	m+	m+	0 / ?	0 / ?	m+	+ / -	0 / ?	+ / -	0 / ?	+
	M	? / m+	+ / - / ?	?	?	m+ / -	m+	0	m+	m+	0 / ?	0 / ?	m+	+ / -	0 / ?	+ / -	0 / ?	+
	L	? / m+	+ / - / ?	?	?	m+ / -	m+	0	m+	m+	0 / ?	0 / ?	m+	+ / -	0 / ?	+ / -	0 / ?	+
2	S	? / ++	+ / - / ?	?	? / +	m+ / -	++	0	++	++	0 / ?	0 / ?	m+	+ / -	0 / ?	+ / -	0 / ?	m+
	M	? / ++	+ / - / ?	?	? / +	m+ / -	++	0	++	++	0 / ?	0 / ?	m+	+ / -	0 / ?	+ / -	0 / ?	m+
	L	? / ++	+ / - / ?	?	? / +	m+ / -	++	0	++	++	0 / ?	0 / ?	m+	+ / -	0 / ?	+ / -	0 / ?	m+
3	S	- / ?	+ / - / ?	?	? / + / -	+ / -	+	0	? / m-	? / m-	0 / ?	0 / ?	+	+ / -	0 / ?	+ / m-	0 / ?	+
	M	- / ?	+ / - / ?	?	? / + / -	+ / -	+	0	? / m-	? / m-	0 / ?	0 / ?	+	+ / -	0 / ?	+ / m-	0 / ?	+
	L	- / ?	+ / - / ?	?	? / + / -	+ / -	+	0	? / m-	? / m-	0 / ?	0 / ?	+	+ / -	0 / ?	+ / m-	0 / ?	+
4	S	? / m+	+ / ? / -	?	?	- / m+	++	0	m+	m+	0 / ?	0 / ?	++	m+	0 / ?	+ / -	0 / ?	+
	M	? / m+	+ / ? / -	?	?	- / m+	++	0	m+	m+	0 / ?	0 / ?	++	m+	0 / ?	+ / -	0 / ?	+
	L	? / m+	+ / ? / -	?	?	- / m+	++	0	m+	m+	0 / ?	0 / ?	++	m+	0 / ?	+ / -	0 / ?	+
5	S	? / m+	+ / ? / -	?	?	- / m+	++	0	m+	++	0 / ?	0 / ?	++	m+	0 / ?	+ / -	0 / ?	+
	M	? / m+	+ / ? / -	?	?	- / m+	++	0	m+	++	0 / ?	0 / ?	++	m+	0 / ?	+ / -	0 / ?	+
	L	? / m+	+ / ? / -	?	?	- / m+	++	0	m+	++	0 / ?	0 / ?	++	m+	0 / ?	+ / -	0 / ?	+
6	S	? / ++	- / ? / +	m-	- / +	m+	++ / -	0	++	++	0 / ?	0 / ?	++	++ / -	0 / ?	m+ / -	0 / ?	m+
	M	? / ++	- / m-		-	m+	++	0	++	++	0	0	++	++	0	m+ / -	0	m+

		++	? +		+		-				?	?		-	?		?	
		?	-		-		++				0	0		++	0	m+	0	
		++	?															
	L		+	m -	+	m+	-	0	++	++	?	?	++	-	?	-	?	m+
		?	+ -			-					0	0		+	0	+	0	
7	S	m+	?	?	?	m+	m+	0	m+	m+	?	?	m+	m+	?	-	?	+
		?	+ -			-					0	0		+	0	+	0	
	M	m+	?	?	?	m+	m+	0	m+	m+	?	?	m+	m+	?	-	?	+
		?	+ -			-					0	0		+	0	+	0	
	L	m+	?	?	?	m+	m+	0	m+	m+	?	?	m+	m+	?	-	?	+
		?	+ -			-					0	0		+	0	+	0	
8	S	++	?	?	?	m+	++	0	++	++	?	?	m+	-	?	-	?	m+
		?	+ -			-					0	0		+	0	+	0	
	M	++	?	?	?	m+	++	0	++	++	?	?	++	-	?	-	?	m+
		?	+ -			-					0	0		+	0	+	0	
	L	++	?	?	?	m+	++	0	++	++	?	?	++	-	?	-	?	m+
		?	? -		? -	-			+		0	0	+	+	0	+ -	0	
9	S	+	+	?	+	+	+	0	?	+	?	?	?	-	?	--	?	+
		?	? -		? -	-			+ ?	+	0	0	+	+	0	+ -	0	
	M	+	+	?	+	+	+	0	m-	m-	?	?	?	m-	?	--	?	+
		?	? -		? -	-			+ ?	+	0	0	+	+	0	+ -	0	
	L	+	+	?	+	+	+	0	m-	m-	?	?	?	m-	?	--	?	+
		?	? -		? -	-					0	0		+	0	+	0	
10	S	m+	+	?	+	+	++	0	++	m+	?	?	m+	-	?	-	?	+
		?	? -		? -	-					0	0		+	0	+	0	
	M	m+	+	?	+	+	++	0	++	m+	?	?	m+	-	?	-	?	+
		?	? -		? -	-					0	0		+	0	+	0	
	L	m+	+	?	+	+	++	0	++	m+	?	?	m+	-	?	-	?	+
		?	? -		?	-					0	0		+	0	+	0	
11	S	++	+	?	+	m+	++	0	++	++	?	?	m+	-	?	-	?	m+
		?	? -		?	-					0	0		+	0	+	0	
	M	++	+	?	+	m+	++	0	++	++	?	?	++	-	?	-	?	m+
		?	?		?	-					0	0		+	0	+	0	
	L	++	+	?	+	m+	++	0	++	++	?	?	++	-	?	-	?	m+
		?	?		?	m-			+ ?		0	0	+	+	0	+ -	0	
12	S	-	+	?	-	+	+	0	m-	+	?	?	?	-	?	--	?	+
		?	?		?	m-			+ ?		0	0	+	+	0	+ -	0	
	M	-	+	?	-	+	+	0	m-	+	?	?	?	-	?	--	?	+
		?	?		?	m-			+ ?		0	0	+	+	0	+ -	0	
	L	-	+	?	-	+	+	0	m-	+	?	?	?	-	?	--	?	+
		?	? -			+					0	0		++	0	+ -	0	
13	S	++	+	m+	m+	-	++	0	++	++	?	?	++	-	?	?	?	m+
	M	?	? -	m+	m+	+	++	0	++	++	0	0	++	++	0	+ -	0	m+

		++	+			-					?	?		-	?	?	?	
		?	?			+					0	0		++	0	+ -	0	
	L	++	+	m+	m+	-	++	0	++	++	?	?	++	-	?	?	?	m+
		?	?		?				?		0	0		+	0	+	0	
		+	+		+	+			+							-	?	
14	S	-	-	?	-	-	+	0	m-	+	?	?	+	-	?	--	?	+
		?	?		?				?		0	0		+	0	+	0	
		+	+		+	+			+							-		
	M	-	-	?	-	-	+	0	m-	+	?	?	+	-	?	--	?	+
		?	?		?				?		0	0		+	0	+	0	
		+	+		+	+			+							-		
	L	-	-	?	-	-	+	0	m-	+	?	?	+	-	?	--	?	+

Most of the options put forward would encourage more sustainable waste management, to varying degrees, by managing waste higher up the waste hierarchy. This tends to result in a range of positive effects on the climate change, material resources and waste hierarchy objectives in particular. There are also potential economic benefits, particularly where waste is managed higher up the waste hierarchy as this promotes a more 'circular economy' where waste is used as an economic resource. Other objectives, such as the biodiversity, historic environment and landscape objectives, often display more uncertain effects, as the waste facilities that might come on stream as a result of different options being pursued have effects that are dependent on location.

The options also report significant indirect effects. This is most often because moving waste up the waste hierarchy would be beneficial because it reduces the amount of virgin materials that are consumed by the economy (which has benefits such as requiring less land for minerals extraction, consuming less energy, carbon and other resources in the process).

Option 6 in particular also reports some indirect negative transport and air effects. This is because, while not supporting incineration or energy disposal would potentially reduce local air pollution, it may mean that some waste streams end up being transported to neighbouring plan areas, generating traffic and pollution en route and exporting local air pollution impacts to neighbouring plan areas.

Other exceptions to the broad pattern of impacts include options 3, 12 and 14, which although they seek to avoid landfilling waste, do not offer specific support for higher levels of the waste hierarchy (option 9 is similar, though this includes a steer against incineration). As such it is considered that some of the benefits associated with other options, such as the promotion of a more circular materials economy, become more uncertain or negative, and the capacity for amenity impacts becomes greater.

Recommendations

The SA considers that the most sustainable approach would be to pursue option 5. Option 13 could also be combined with option 5 or other options to maximise sustainability.

Policy Progressed by the Plan

As mentioned above, 3 options were assessed at Issues and Options, with 11 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on Option 4. The selected option is considered to provide strong encouragement to moving waste up the hierarchy whilst providing flexibility for a range of

waste management processes to be involved in achieving this. Whilst the SA favoured option 5, option 4, which is similar, is considered to be more in line with national policy, which does not require the applicant to demonstrate that it is not practicable to manage waste further up the hierarchy, when bringing forward specific proposals.

Strategic role of the plan area in the management of waste

Option 1: This option would seek to ensure that capacity is provided across the Plan area at a level sufficient to meet identified needs for waste arising in the area (i.e. a level that would allow net self-sufficiency to be achieved where practicable) whilst allowing for current known levels of imports to continue. This would exclude more specialised management needs including capacity for landfilling and/or treatment of hazardous waste and low level non-nuclear radioactive waste and other specialised provision which can only be met on a wider geographical basis.

Option 2: This option would acknowledge that significant export movements of waste already take place across the Plan area boundary and, for those waste streams or facility types for which a potential capacity gap has been identified, would assume that existing cross-border export movements would continue to operate in conjunction with existing and planned capacity in the area. Where necessary, this approach could also seek opportunities to use existing or planned capacity elsewhere in order to meet any additional un-met requirements. This option would assume that imports of waste into the area would continue broadly in line with recent levels.

Option 3: This option would follow the same approach as for Option 1 or 2 but would in addition make an express commitment that the Plan would make provision for the management of waste arising within that part of the Yorkshire Dales National Park falling within NYCC (other than for local scale re-use and recycling facilities which it may be practicable to provide in the National Park area).

Further options considered post consultation:

Proposed alternative option 4: (Or) This option would seek to increase the amount of waste exported and would only support the development of new facilities in the Plan area where it can be shown that the waste cannot be managed at facilities elsewhere and where the facility is of a scale to meet local needs.

Proposed alternative option 5: (Or) This option would be similar to Option 2 but, with the exception of waste from the Yorkshire Dales National Park, would not make any allowance for imports to the plan area.

Updated comparative scoring matrix

	S=Short Term M= Medium Term L=Long Term	SA Objectives Key: 1. Biodiversity / Geo-diversity, 2. Water Quality / Quantity, 3. Transport, 4. Air Quality, 5. Soil / Land, 6. Reduce Climate Change, 7. Adapt to Climate Change, 8. Minimise Resource Use, 9. Minimise Waste, 10. Historic Environment, 11. Landscape, 12. Economic Growth, 13. Community Vitality, 14. Recreation, Leisure and Learning, 15. Wellbeing, Health and Safety, 16. Flooding, 17. Changing Population Needs																
Option	Timescale		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

		1																
1	S	-	-	++	- +	-	+	0 -	m-	0	-	-	++	?	-	--	0 -	+
	M	-	-	++	- +	-	+	0 -	m-	0	-	-	++	?	-	--	0 -	+
	L	m-	-	++	- +	m-	m+	0 -	m-	0	m-	m-	++	?	m-	--	0 -	+
2	S	0	0	0 - ?	0 - ?	0	0 - ?	0	+	0 ?	0	0	+	0	0	0 ?	0	0 ?
	M	0	0	0 - ?	0 - ?	0	0 - ?	0	+	- ?	0	0	+ ?	0	0	0 ?	0	?
	L	0	0	0 - ?	0 - ?	0	0 - ?	0	+	- ?	0	0	+ ?	0	0	0 ?	0	?
3	S	0 +	0	0	0	0	0 +	0	0	0	0 +	0 +	0 +	0 +	0 +	0 -	0	0
	M	0 +	0	0	0	0	0 +	0	0	0	0 +	0 +	0 +	0 +	0 +	0 -	0	0
	L	0 +	0	0	0	0 -	0 +	0	0	0	0 +	0 +	0 +	0 +	0 +	0 -	0	0
4	S	+	+	--	--	+	-- +	0	+ - ?	0	+	+	+	+	+	+	?	-
	M	+ -	+ -	--	--	+	-- +	0	+ - ?	0	+	+ -	+ -	+ -	+ -	+ -	?	-
	L	-	-	- --	- --	-	- --	0	+ - ?	0	-	-	+ -	-	-	-	?	-
5	S	+ -	+ -	?	?	+ -	0 ?	0	0 - ?	0	+ -	+ -	+ -	+ -	+ -	+ -	+ -	?
	M	+ -	+ -	?	?	+ -	0 ?	0	0 - ?	0	+ -	+ -	+ -	+ -	+ -	+ -	+ -	?
	L	+ -	+ -	?	?	+ -	0 ?	0	0 - ?	0	+ -	+ -	+ -	+ -	+ -	+ -	+ -	?

Whilst Option 1 would have positive effects in the Plan Area in terms of reducing transport miles and associated emissions (particularly in comparison to Option 2) and in supporting the economy and jobs, it is likely to have negative effects on most of the environment and community SA objectives. This is because it may require additional facilities with additional impacts. Option 2 essentially would maintain the status quo in terms of how waste is dealt with in the Plan Area as it would assume that exports and imports would continue in line with current levels. This would largely result in neutral effects on the Plan area and would derive a greater benefit from achieving economies of scale in waste management than would be achieved under option 1.

Option 3 would largely maintain the status quo in terms of how waste is managed from the National Park, and this would have mainly neutral effects on the Plan Area and modest benefits for the Yorkshire Dales as it will allow the special qualities of the National Park to be maintained.

Option 4 would have some benefits for the Plan Area in the short and medium term, but would also export a range of negative impacts to areas outside of the Plan Area. Some benefits in terms of resource use might be achieved through greater economies of scale

through this option, while effects of higher negative significance would be likely to occur in relation to transport, air pollution and climate change. The option would also export jobs to other areas.

Option 5 may result in some benefits for the plan area in terms of the environmental and community SA objectives due to the reduced requirement for waste management facilities in the plan area. These impacts may however be displaced to authorities outside of the plan area.

Recommendations

It is recommended that a combination of Options 1 and 2, which would enable facilities to be provided for in the plan area where this would lead to sustainability benefits such as reduced transportation distances, be followed along with Option 3.

Policy Progressed by the Plan

As discussed above, 3 options were assessed at Issues and Options, with 2 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on a combination of elements of Options 1 (*ensure that capacity is provided across the Plan area at a level sufficient to meet identified needs for waste arising in the area whilst allowing for current known levels of imports to continue*) and 3 (*same approach as for Option 1 or 2 but would in addition make an express commitment that the Plan would make provision for the management of waste arising within that part of the Yorkshire Dales National Park falling within NYCC*).

This combination of options was selected as it was considered to best reflect national policy objectives of community responsibility for the management of waste near to where it arises, whilst also acknowledging existing inter-relationships and the fact that market forces will also play a significant role in determining where some waste is managed, which may be outside the plan area.

5.5 Further Consideration of Alternatives

During the Issues and Options phase of Joint Plan Development all policy options were compared to the SA objectives. The full findings of this exercise can be reviewed in a separate report on the Sustainability Appraisal website.

The next chapter of this report describes the SA findings of the final policies in the Joint Plan, and a brief summary of earlier SA recommendations related to each policy's development is also described.

6. Appraisal of the Minerals and Waste Plan Policies and Sites and Mitigation

6.1 Appraisal Results

In this chapter of this SA Report we present the conclusions of the assessment work carried out on the draft publication policies and allocation sites of the plan alongside the results of the assessment of sites. Results are presented alongside recommendations (mitigation) for their improvement. We also show a brief summary of how each policy has evolved from earlier options. The full assessments of alternatives at issues and options are available on the Sustainability Appraisal website.

The full results of the SA can be found in Appendix 2 (separate volume) and follow the methodology outline in the scoping report, with effects described in detail.

Readers should note that for reasons of brevity policies assessed are not referred to in full, and for that reason, assessments should be read alongside corresponding policies or sites in the Joint Plan.

6.2 Minerals Policies Results

Policy M01: Broad Geographical Approach to Supply of Aggregates

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+ -	-	+	+ -	-	+	0	0	0	+ -	+ -	+	+	+ -	?	0	+
M	+ -	-	+	+ -	-	+	0	0	0	+ -	+ -	+	+	+ -	?	0	+
L	+ -	-	+	+ -	-	+	0	0	0	+ -	+ -	+	+	m+	?	0	+

Summary of Sustainability Appraisal Findings

This preferred option exhibits a range of different effects. In the main the sustainability objectives recorded minor positive effects for the protected landscapes in the plan area. However, some minor negative effects associated with crushed rock extraction shifted location away from protected areas and into the remaining plan area. There were also positive benefits noted on tourism, which benefit the economy and community vitality objectives, and for the recreation objective effects were mixed, but became more positive in

the longer term as quarry restorations are either enhanced, or possibly directed closer to more populated areas in the wider plan area.

Recommendations

No recommendations are made.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options with a further 6 alternative options assessed that were suggested by consultees. The preferred approach is a combination of Options 1 *(aggregates only from outside the National Park / AONBs / City of York) and 2 (aggregates from NYCC area plus City of York)* with elements of additional options 3 *(only source from National Park / AONBs where demand can't be met from areas outside)* and 8 *(which is option 1 or 2 with the addition of support for use of excess crushed rock from building stone sites in National Park / AONBs)*. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that a combination of options 1, 2 and 3 be progressed, whereby the policy is clear that extraction should take place outside of the National Park and the AONBs as a first priority but within the rest of the NYCC area and the City of York area. Option 8 should also be supported as a further means of enabling aggregates extraction with minimal environmental effects.

Policy MO2: Provision of sand and gravel

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+ / -	-	+	+ / -	-	+	0	0	0	+ / -	+ / -	+	+	+ / -	?	0	+
M	+ / -	-	+	+ / -	-	+	0	0	0	+ / -	+ / -	+	+	+ / -	?	0	+
L	+ / -	-	+	+ / -	-	+	0	0	0	+ / -	+ / -	+	+	m+	?	0	+

Summary of Sustainability Appraisal Findings

This policy's effects are, in effect the cumulative effects of the plan as it relates to sand and gravel extraction, so many effects are either cumulatively negative, or cumulatively mixed negative and positive. Some objectives also benefit from the cumulative effect of sand and gravel restoration schemes in the longer term (e.g. flooding, recreation, health). Some

objectives report highly negative effects, as quarrying for sand and gravel will inevitably involve the significance utilisation of material resources and have a large carbon footprint.

Recommendations

To some extent this policy is mitigated by policy M11 which encourages alternatives to land won primary aggregate, though it is acknowledged that many secondary and recycled aggregates are not direct substitutes for sand and gravel. Further consideration of the potential contribution made by recycled and secondary aggregate is recommended when this policy is considered at the mid-term review, depending on the availability of reliable data.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

6 options were assessed at Issues and Options with a further 4 alternative options assessed that were suggested by consultees. The preferred approach represents an alternative option not specifically considered at Issues and Options stage. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 6 (*projecting forward 10 year annual sales to calculate provision but factor in reduction for other alternative sources of supply*) performs the most positively in terms of the sustainability appraisal. However, this option did present some uncertainty in terms of meeting demand for sand and gravel. This might be addressed by allowing greater flexibility to increase supply in a similar way to option 4 *(includes a review of provision in 2019 with ability to increase supply by 10%)* and Option 10 (*includes a review of provision in 2019 with ability to increase supply by 10% but also considering provision from outside of the Plan area)*.

The SA Team felt that as option 6 took account of the potential for other alternative sources of supply, final consideration of this option should also include consideration of the alternatives presented under ID14 (The preferred option for this is M11: 'Supply of Alternatives to Land won Primary Aggregate').

Policy M03: Overall distribution of sand and gravel provision

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	m-	m-	m-	-	m-	m-	+ -	0	0	m-	m-	++	+ -	-	+ -	+	+
M	m- +	m-	m-	-	m-	m-	+ -	0	0	m-	m-	++	+ -	-	+ -	+	+
L	m-	m-	m-	-	m-	m-	++	0	0	m-	m-	++	+	m+	+	++	+

Summary of Sustainability Appraisal Findings

This policy's effects are, in effect, the cumulative effects of the plan as it relates to the distribution of sand and gravel extraction, so many effects are either cumulatively negative, or cumulatively mixed negative and positive. Some objectives also benefit from the cumulative effect of sand and gravel restoration schemes in the longer term (e.g. flooding, recreation, health). Some objectives report neutral effects, as effects are more lined to the amount of material removed from the ground rather than locational factors (e.g. the material resources and waste objectives).

Recommendations

No further mitigation is proposed. However, sites should implement recommendations made through the site assessment process.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options with a further 1 alternative options assessed that was suggested by consultees. The preferred approach is based on option 1 *(northwards sand and gravel – southward sand and gravel – building sand provision split at a ratio of 50:45:50).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 1 was associated with a clear economic, and a number of outright environmental, benefits and was seen to perform best in relation to the SA Framework. It was considered that Option 1 should be combined with Option 5 (*an option that looked across the plan area to meet shortfalls)* in order to ensure that demand can be met and to strengthen the economic benefits.

Policy M04: Landbanks for sand and gravel

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	0	0	0	--	--	0	0	++	0	0	0	0	0
M	0	0	0	0	0	-	0	--	--	0	0	++	+	0	0	0	+
	-	-	-	-	-					-	-		-	-	-		
L	-	-	-	-	m-	-	0	--	--	-	-	++	+	-	0	0	+
													-				

Summary of Sustainability Appraisal Findings

Impacts in relation to this policy are largely neutral in the short term with minor negative impacts occurring in the medium to long term. This is because in the longer term separate northwards and southwards distribution area landbanks could mean that there is increased pressure to maintain the landbank in defined (and therefore finite) areas, which may put additional pressure to approve sites in areas where cumulative effects on are already starting to build. Higher negative impacts have been recorded in relation to minimising resource use and prioritising management of waste as high up the waste hierarchy as practicable as maintaining a landbank is likely to reduce incentive to work towards these objectives. Positive impacts have been identified in relation to the economy and meeting the needs of a changing population as this policy would ensure that adequate resources are available to support growth.

Recommendations

No further mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options. No further alternative options suggested by consultees were assessed. The preferred approach is based on option 1 (7 year land banks for both the southwards and northwards distribution areas and for building sand). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 3 *(allowing time extensions to allow full extraction)* combined with one of the first two options *(which both suggested different ways of delivering a 7 year landbank)* would be the most sustainable option.

Policy M05: Provision of crushed rock

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	m- ?	m-	m-	-	m-	--	-	--	-	m-	m-	++	+ -	-	- +	0	+
M	m- +	m-	m-	-	m-	--	-	--	-	m-	m-	++	+ -	-	- +	0	+
L	m- + ?	m-	m-	-	-	--	- +	--	-	m- ?	m- ?	++	+ -	- m+	- +	0	+

Summary of Sustainability Appraisal Findings

This policy's effects are, in effect the cumulative effects of the plan as it relates to crushed rock extraction, so many effects are either cumulatively negative, or cumulatively mixed negative and positive. Some objectives also benefit from the cumulative effect of site restoration schemes in the longer term (e.g. flooding, recreation, health). Some objectives report highly negative effects, as quarrying for sand and gravel will inevitably involve the significance utilisation of material resources and have a large carbon footprint. Uncertainty is also noted later in the plan period ad there may be increased pressure from additional sites, particularly in the Magnesian limestone area, which would affect the biodiversity, landscape and historic environment objectives.

Recommendations

The policy is already well mitigated by development management policies and to some extent this policy is partly mitigated by policy M11 which encourages alternatives to land won primary aggregate, though it is acknowledged that many secondary and recycled aggregates are not direct substitutes for crushed rock. Further consideration of the potential contribution made by recycled and secondary aggregate is recommended when this policy is considered at the mid-term review, depending on the availability of reliable data.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options with a further 3 alternative options assessed that were suggested by consultees. The preferred approach represents an alternative option not specifically considered at Issues and Options stage. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

Of the previous options considered, the SA recommended that Option 3 *(increased use of secondary and recycled materials alongside provision of 65 mt of crushed rock)* be pursued, as this would enable sufficient provision of Magnesian limestone whilst limiting negative effects and encouraging of use of secondary and recycled aggregates.

Policy M06: Landbanks for crushed rock

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	0
M	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	0

L	- ++	--	-	- +	--	m-	0	--	--	-- ?	- -- ++	++	- ++	- ++	- +	0	++

Summary of Sustainability Appraisal Findings

This policy could have longer term negative effects on the environment, including biodiversity / geodiversity, air and water quality, landscape, resource use, minimising waste and the historic environment, and communities of the Plan area should these landbanks result in the need to release more land for extraction than is currently permitted. The policy would however, enable a level of minerals supply to meet demand for development and therefore would result in major positive impacts in relation to the economy and meeting the needs of a changing population. By requiring new reserves of crushed rock to be sourced from outside the National Park and AONBs, this policy would result in some positive effects for these designated areas particularly relating to landscape, recreation and tourism, cultural heritage and amenity. Some negative impacts may occur in these designated landscapes as there would be a decrease in local job opportunities.

Recommendations

No mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options with no further alternative options assessed that were suggested by consultees (as no further realistic options were proposed). The preferred approach is based on a combination of Option 2 *(separate land banks for Magnesian limestone and other crushed rock)* and 3 *(maintenance of land banks outside of the National Parks and AONBs).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that provided sufficient safeguards exist in the Development Management policies, no further mitigation would be necessary under options 1 *(10 year land bank of crushed rock)* and 2. Option 3 should be followed (in combination with 1 or 2) to avoid any of the uncertainty presented by option 4 *(reliance on national policy).*

Policy M07: Meeting concreting sand and gravel requirements

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	Extraction of sand and gravel from the sites and Areas of Search specified in this policy may																

M L	result in a range of impacts in relation to the Sustainability Appraisal objectives. Each site has been individually assessed as part of the site assessment methodology and the results are presented in the Site Sustainability Appraisal Report

Summary of Sustainability Appraisal Findings

A wide range of impacts will result from extraction of sand and gravel at the sites and Areas specified in this policy. These are outlined in the Site Sustainability Appraisal Appendix and Areas Assessment Appendix. As many of the site allocations lie in close proximity to other existing or allocated sites, cumulative impacts will be of particular importance

Recommendations

Appropriate mitigation should be incorporated at each allocation site in line with recommendations in the Site / Area Sustainability Appraisal findings for each site and with other policies in the Plan. Cumulative impacts should be given particular regard through the planning application process.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options with 1 further alternative option assessed that was suggested by consultees. The preferred approach is based on is based on Option 1 *(focus on specific site allocations for sand and gravel delivery).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 1 be considered the most sustainable option.

Policy M08: Meeting building sand requirements

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S M L	Extraction of sand from the sites specified in this policy may result in a range of impacts in relation to the Sustainability Appraisal objectives. Each site has been individually assessed as part of the site assessment methodology and the results are presented in the Site Sustainability Appraisal Appendix.																

Summary of Sustainability Appraisal Findings

A wide range of impacts will result from extraction of sand at the sites specified in this policy. These are outlined in the Site Sustainability Appraisal Appendix. As many of the site allocations lie in close proximity to other existing or allocated sites, cumulative impacts will be of particular importance.

Recommendations

Appropriate mitigation should be incorporated at each allocation site in line with recommendations in the Site Sustainability Appraisal findings for each site and with other policies in the Plan. Cumulative impacts should be given particular regard through the planning application process.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with 1 further alternative option assessed that was suggested by consultees. The preferred approach is based on is based on Option 1(*focus on specific site allocations and criteria for building sand delivery*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 1 performed significantly more strongly against the sustainability appraisal objectives than the other options (i.e. Option 2's focus on areas of search and Option 3's focus on site allocations, criteria and areas of search).

Policy M09: Meeting crushed rock requirements

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S M L	Extraction of crushed rock from the sites specified in this policy may result in a range of impacts in relation to the Sustainability Appraisal objectives. Each site has been individually assessed as part of the site assessment methodology and the results are presented in the Site Sustainability Appraisal Appendix.																

Summary of Sustainability Appraisal Findings

A wide range of impacts will result from extraction of crushed rock at the sites specified in this policy. These are outlined in the Site Sustainability Appraisal Appendix. As many of the site allocations lie in close proximity to other existing or allocated sites, cumulative impacts will be of particular importance.

Recommendations

Appropriate mitigation should be incorporated at each allocation site in line with recommendations in the Site Sustainability Appraisal findings for each site and with other policies in the Plan. Cumulative impacts should be given particular regard through the planning application process.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options. No realistic alternatives were put forward by consultees. The preferred approach is based on is based on Option 1 (*which focused on*

specific site allocations and criteria for Magnesian limestone). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 1 performed significantly more strongly against the sustainability appraisal objectives. (*Option 2 focussed on preferred areas and areas of search.)*

Policy M10: Unallocated extensions to existing quarries

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+	+	+	+	-	0	-	0	+	m+	++	+	+	-	0	+
		0	-	-	-	?				-	-		-	-			
M	+	+	+	+	+	-	-	-	0	+	m+	++	+	+	-	-	+
	-	0	-	-	-	?	?			-	-		-	-			
L	+	+	+	+	+	-	-	-	0	+	m+	++	+	+	-	-	+
	-	0	-	-	-	?	?			-	-	?	-	-			
													?				

Summary of Sustainability Appraisal Findings

For most SA objectives this preferred policy results in mixed positive and negative effects when compared to the SA objective. This is because the option allows unallocated extensions to sites, which would ordinarily result in a range of negative environmental and social effects (largely because it will either extend or increase issues that affected areas surrounding quarries during the lifetime of the quarry). However, the preferred policy does include a number of safeguards against this that should lessen effects and make sites more sustainable, not least the major development test and the reference to consistency with development control policies. The policy would also offset the need for some new sites to be developed.

Some objectives vary from this pattern slightly. For instance, for climate change the extended negative traffic impacts at sites are seen as outweighing the benefits of making use of existing infrastructure at site (though there is considerable uncertainty here), while the soils objective notes the loss of land / soils that is potentially allowed by this policy. Similarly, although this option might reduce the need for new sites elsewhere to some degree, there will be jobs and revenue / viability benefits from allowing site extensions, as well as benefits to tourism that will result from the protections afforded to protected landscapes in the policy. This leads to strongly positive effects on the economy objective. Other objectives where

positives outweigh the negative, or are positive in their own right are the landscape and changing population needs objectives.

Recommendations

This policy is largely already mitigated for by the Development Management Policies. No further mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 5 further alternative options assessed that were suggested by consultees. The preferred approach is based on is based on Option 1 (*support the principle of extensions on unallocated sites consistent with the overall aggregates supply strategy, or meet another demonstrable need for aggregates consistent with Joint Plan, without undermining alternatives to primary aggregate)* but extended to apply to all forms of mineral working. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that either Option 2 *(supports principle of unallocated extensions only where necessary to maintain a land bank)* or 3 *(would not support principle of extensions on unallocated sites)* would be the most sustainable to follow, although Option 3 is possibly a little inflexible and could lead to negative effects should insufficient land banks be maintained and /or new unallocated sites come forward. The chosen option should be combined with the element of Option 1 which requires consideration to be given to implications for increasing the contribution that secondary and recycled aggregates make to aggregates supply. There may also be some merit in considering a *preference* for extending existing sites rather than developing new sites, though it as yet unclear how this could work outside of the allocations process, and the issues of prolonged local effects resulting from extensions to permission for working at a site would need strong mitigation.

Policy M11: Supply of alternatives to land-won primary aggregates

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+	+	-	++	++	0	++	++	-	+	0	0	0	0	?	+
		-								+	?		-		-		
										?							
M	++	+	+	-	++	++	0	++	++	-	+	0	0	0	0	?	+
		-								+	?		-		-		
										?							
L	++	+	+	-	++	++	0	++	++	-	+	0	0	0	0	?	+
	?	-	?		?	?		?	?	+	?		-		-		?

Summary of Sustainability Appraisal Findings

For most of the SA objectives positive effects arise because supporting the use of secondary and recycled aggregates would offset the need to extract primary aggregates (and the negative effects associated with this). Some SA objectives report neutral effects as impacts associated with primary extraction are simply shifted to new locations. However, the health and wellbeing and community vitality objectives note some additional negative effects associated with the dusty nature of some secondary aggregates, while the water objective recognises the potential for water pollution from the storage and processing of some secondary aggregates (which would be dealt with via the environmental permitting regime). There are also uncertainties associated with the supply of secondary aggregates such as colliery spoil (particularly if sources of colliery spoil close down

Recommendations

This policy is largely mitigated by other policies in the plan (particularly D02 Local Amenity and Cumulative Impacts) as well as the environmental permitting / pollution control regime. However, monitoring of the supply of secondary and recycled aggregates is recommended due to uncertainties over supply.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with 2 further alternative options assessed that were suggested by consultees. The preferred approach is based on a combination of Options 1 *(supports new infrastructure where secondary aggregates produced, supports limited re-working of secondary aggregate, and supports a policy for the sustainable use of materials in design and construction of development)* and 2 *(sets out a range of measures to support recycled aggregates)*. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommends that all options have merits and elements of each could be pursued (including elements of option 3 which supports use of colliery spoil provided it is not from restored tips, and option 4 (which prefers using supplies of secondary aggregate direct from source rather than extracting from tip sites).

Policy M12: Continuity of supply of silica sand

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	0	0	0	-	--	-	-	?	-	-	++	+	-	-	0	0
	?	-	-			?	+			?	?			?			
M	-	0	0	0	-	--	-	-	?	-	-	++	+	-	-	0	0
	?	-	-			?	+			?	?			?			
L	-	0	0	0	-	--	-	-	?	-	-	++	+	-	-	0	0
	?	-	-			?	+			?	?			?			

Summary of Sustainability Appraisal Findings

Supporting these two sites and the deepening of or extension of them could lead to a range of negative effects. These are outlined in the site sustainability appendix in detail. Major positive effects are also identified for the economy objective, as silica sand is a nationally significant mineral resource.

While the development management policies should help moderate many of the effects noted, particular issues that would need satisfactory resolution include the Blubberhouses site's potential impact on peat and possibly deep peat as well as any issues that might be identified through appropriate assessment of the effects of the Blubberhouses site on the blanket bog habitats and species associated with the North Pennine Moors SAC/SPA.

Recommendations

Appropriate mitigation should be incorporated at each allocation site in line with the Site Sustainability Appraisal findings (where relevant) and with other policies in the Plan. Cumulative impacts should be given particular regard through the planning application process.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, but no realistic alternatives were put forward by consultees. The preferred approach is based on a combination of options 2 *(support production / lateral extensions and / or deepening at Burythorpe only to maintain 10 year landbank)* and 3 *(identify a range of criteria for silica sand proposals).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that while option 3 performed comparatively better than other options, the SA considered that the effects of options 1 *(support the principle of continued production at the Blubberhouses and Burythorpe sites, including the principle of lateral extensions and/or deepening to maintain land banks)* and 2 are largely the results of potential and uncertain effects on local receptors. Because of the major negative economic effects of

option 3, consideration should be also given to more fully exploring the potential for mitigating the local effects of options 1 and 2 through the allocations process so that if one or more sites proves sustainable a criteria based approach could potentially support one or more allocations.

Policy M13: Continuity of Supply of Clay

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0 +	0 -	-	0 -	- ?	-	0 -	-	0	- ?	-	++	++	-	0 - +	0	++
M	0 +	0 -	-	0 -	- ?	-	0 -	-	0	- ?	-	++	++	-	0 - +	0	++
L	+	0 -	-	0 -	- ?	-	+ ?	-	0	- ?	-	++	++	+ ?	0 - +	+ ?	++

Summary of Sustainability Appraisal Findings

A wide range of impacts will result from extraction of clay at the sites specified in this policy. These are outlined in the Site Sustainability Appraisal Report. As many of the site allocations lie in close proximity to other existing or allocated sites, cumulative impacts will be of particular importance.

In terms of unallocated sites, a range of minor positive and negative effects are recorded for most SA objectives as such sites will need to comply with development management policies, which will either control effects or may leave some minor residual effects when they are applied to clay development (such as residual effects on soils / land, water and landscape) or may result in minor positive effects (e.g. through mitigation providing a net gain and a high level of protection – as is the case for biodiversity, or through gains made through restoration). Strong positive effects are observed in relation the economy, community vitality and population change as ultimately clay extraction supports the brick industry and the wider construction industry and the jobs associated with those industries.

Recommendations

Appropriate mitigation should be incorporated at each allocation site in line with recommendations in the Site Sustainability Appraisal findings. Cumulative impacts should be given particular regard through the planning application process.

Planning applications, particularly those which require an EIA (which must consider alternatives), should consider the suitability of possible alternative locations to see if soils could be better conserved at those alternative locations.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, but no realistic alternatives were put forward by consultees. The preferred approach is based on a combination of options 2 *(support production / lateral extensions and / or deepening at Burythorpe only to maintain 10 year landbank)* and 3 *(identify a range of criteria for silica sand proposals).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that while option 3 performed comparatively better than other options, the SA considered that the effects of options 1 *(support the principle of continued production at the Blubberhouses and Burythorpe sites, including the principle of lateral extensions and/or deepening to maintain land banks)* and 2 are largely the results of potential and uncertain effects on local receptors. Because of the major negative economic effects of option 3, consideration should be also given to more fully exploring the potential for mitigating the local effects of options 1 and 2 through the allocations process so that if one or more sites proves sustainable a criteria based approach could potentially support one or more allocations.

Policy M14: Incidental working of clay in association with other minerals

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	- ?	0	+	0	0	++	++	0	0	+	0	0	0	0	+
M	0	0	- ?	0	+	0	0	++	++	0	0	+	0	0	0	0	+
L	0	0	-	0	+	0	0	++	++	0	0	+	0	0	0	0	+

Summary of Sustainability Appraisal Findings

The impacts associated with this policy are predominantly neutral. The policy would support incidental clay extraction where overall sustainability and environmental / amenity impacts

would not be significantly increased. However, there is some uncertainty as to the consideration of 'significance' in relation to these impacts. However, this is largely resolved by considering this policy alongside the development management policies in the plan.

Some positive impacts would result from this policy as it would increase productivity from mineral extraction, minimising the generation of clay waste, providing a valuable building material and providing positive benefits for the economy.

Recommendations

While not a specific mitigation measure of this SA, an advisory recommendation would be to consider adding policy D03 to the 'key links to other policies' box in the policy table for policy D03.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The preferred approach is based on Option 1 *(support the incidental working of clay in association with production of other minerals)*. Option 2 *'would not expressly support the incidental working of clay in association with production of other minerals'*. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA considered that option 1 should be pursued.

Policy M15: Continuity of supply of building stone

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	-	-	-	-	-	0	m-	m-	++ -	- ++	+	+ -	-	-	0	++
M	-	-	-	-	-	-	0	m-	m-	++ -	- ++	+	+ -	-	-	0	++
L	- +	-	-	-	-	-	+	m-	m-	++ -	- ++	+	+ -	- +	-	0 +	++

Summary of Sustainability Appraisal Findings

It is considered that this policy would provide an adequate supply and range of building stone to market and therefore positive impacts have been recorded in relation to the economy, community viability and vitality and meeting the needs of a changing population.

The policy would enable building stone to be extracted in close proximity to historic assets or from former quarries where required in order that the correct type of stone can be sourced, conserving the historic environment of an area and the character of its heritage assets. This would result in minor to strong positive impacts in relation to the historic environment and landscape objectives.

Although building stone extraction tends to be a relatively small scale operation, negative impacts have been identified in relation to a number of the environmental and social objectives as this policy is likely to result in an increase in active building stone sites with associated biodiversity, water, air quality, recreation, landscape and amenity impacts. These effects are likely to be reduced to just low level effects, however, as mitigation is provided through the development management policies.

Recommendations

None

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 2 further alternative options assessed that were suggested by consultees for the 'Continuity and Supply of Building Stone' group of options (ID20). The preferred approach takes forward option 2 *(support the building stone at new sites / extensions to existing sites).*

Additionally this preferred policy incorporates option 2 (*support extraction of building stone for use only within the Joint Plan area unless for repair of designated or undesignated structures elsewhere which rely on this stone)* of the previous 'Use of Building Stone' group of options (ID21) (for which 4 options were assessed at Issues and Options and a further 2 additional options proposed by consultees and subsequently assessed). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 3 *(identify a range of criteria for development of building stone resources additional to development management policies)* of ID20 would enable new sites to come forward where required whilst having minimal detrimental effects on the environment. As a number of positive effects were also recorded in relation to Option 4 (*in addition to other options support the sourcing and provision of building stone from sites which are primarily extracting crushed rock*), it was considered that Option 3 should be adopted alongside Option 4 recognising that in most cases extracting building stone from an existing crushed rock quarry is likely to have a lower order impact than developing a new quarry.

Further, for ID21, the SA recommended that a combination of Options 1 (*which supports extraction of building stone from within the National Park and AONBs only where the stone would be used within the designated area it is extracted from, unless for repair of important designated or undesignated structures elsewhere which rely on this stone while elsewhere in the Joint Plan area there would be no restriction placed on the use of the stone extracted*) and 4 *(which supports limited extraction of stone for use in building projects on the same site)* with appropriate development management to control negative effects, would be the most sustainable approach.

Policy M16: Key spatial principles for hydrocarbon development

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0 -	- ?	0	-	+ - ?	+	--	0	0	? -	m+ ? -	+ ?	- ?	0 -	0	+ -
M	0	0 -	- ?	0	-	+ - ?	+	--	0	0	? -	m+ ? -	+ ?	- ?	0 -	0	+ -
L	0	0 -	- ?	0	-	+ - ?	+	--	0	0	? -	m+ ? -	+ ?	- ?	0 -	0	+ -

Summary of Sustainability Appraisal Findings

This policy exhibits a range of mostly neutral or neutral to minor negative effects. This is because in the main it provides a high level of protection for environmental and social factors when considered in combination with other policies in the Plan. This enables objectives such as biodiversity, water, historic environment air and health to report either insignificant or insignificant to minor residual effects after mitigation required by the plan is taken into account.

Some effects are more significantly negative. For instance, because hydrocarbons are a non-renewable fossil fuel, this form of development can only be negative for the materials resources objective. In addition, traffic effects were minor negative as, while policy requires consideration of other policies such as M17 which requires transport assessment, there is some concern that rural areas may receive more traffic but within the capacity of the road and within acceptable levels in terms of their impact, while uncertainty remains that traffic assessment would always be sufficiently broad in scope to accurately capture cumulative traffic impacts. Local rights of way may also be affected by views of development of industrial character even after mitigation is applied.

The policy also has a number of mixed effects, for example on the economy and population objectives as it supports jobs and the provision of energy, though the locational restrictions in the policy could limit the potential for this whilst at the same time helping to protect the existing rural or visitor economy. Mixed effects are reported for climate change as on the one hand shale gas may generate significant traffic movements, while on the other hand it may provide a domestic source of gas that could offer an alternative to liquid natural gas (LNG)

and coal, resulting in carbon savings, though this is uncertain as it also depends on higher level policy decisions made by energy providers and government.

Uncertainty occurs at a number of points in the assessment the scale of development, along with any supporting development, is to an extent unknown.

Recommendations

While it is considered that the policy could do little else to effectively manage this type of development, the SA highlighted an uncertainty in relation to the quality of transport assessments. To ensure that high quality assessments are received the SA should include an indicator to monitor transport assessments and their consideration of cumulative issues

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 3 further alternative options assessed that were suggested by consultees. The selected approach, i.e.: policy M16: Key Spatial Principles for Oil and Gas development, represents a combination of elements of a number of initial options, including elements of options 3,4 and 6, but has been revised and updated significantly since preferred options stage to reflect emerging information relating to unconventional hydrocarbons, particularly shale gas. The selected option is considered to represent an approach which supports the principle of oil and gas development in appropriate locations, taking into account national policy, whilst also acknowledging distinctions between the main forms of hydrocarbons development that could come forward, as well as the range of important constraints that exist in the Plan Area.

The SA advised that *"It is acknowledged that whilst Option 1* [*direct all gas developments outside of the National Park / AONBs*] *performs best overall, Options 2* [*high standard of siting, design and mitigation across the Plan Area*] *and 3* [*support exploration and appraisal across the plan area, but direct processing or electricity generating facilities outside of National Parks and AONBs*] *would provide a better framework for ensuing sufficient gas developments can come forward. A combination of options whereby license holders, whose license(s) cover land both within and outside National Parks and AONBs, must investigate possibilities outside of these areas first and all operators must aim to locate processing facilities outside of these areas and apply particularly high standards of siting, design and mitigation within these areas is recommended, though option 6's requirement for avoidance of 'significant adverse impacts on local communities or the environment' provides a broader scope for mitigation (provided it is coupled with the 'particularly high standard' mentioned in some of the options)"*.

Policy M17: Other spatial and locational criteria applying to hydrocarbons development

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	m+	m+ ?	m+	+	+ ?	0	0 -	+	+	+	m+ -	m+	+	++	+	0
M	+	m+	m+ ?	m+	+	+ ?	0	0 -	+	+	+	m+ -	m+	+	++	+	0
L	+	m+	m+ ?	m+	+	+ ?	0	0 -	+	+	+	m+ -	m+	+	++	+	0

Summary of Sustainability Appraisal Findings

The policy mostly acts as a positive safeguard against the main impacts of hydrocarbon development, with some level of positive effect on most of the SA objectives, particularly the water, transport, air, community and health SA objectives. Some uncertainty is highlighted for the transport objective due to uncertainties over the quality of transport assessments, and there is also uncertainty pertaining to climate change as it is not known to what extent features such as pipelines would indirectly generate carbon through their lifecycle. There are also mixed positive and negative scores for the sustainable economy objective because, while policy protects local economies, for developers the policy may be seen as quite restrictive.

We have scored this assessment in terms of the effect it would have on the plan's approach to hydrocarbons rather than its effect on the baseline, which is covered by the assessment of M16 in combination with these policies.

Recommendations

See the recommendation for monitoring transport assessments made at policy M16.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

1 option (ID24) was assessed at Issues and Options, with a further 2 alternative options assessed that were suggested by consultees. The preferred policy was incorporated into policy M16, M17 and 18.

The SA advised that Option 1*(sites selected to minimise adverse impacts on the environment, amenity, and transport / particularly high standards of siting, design and mitigation within or closes to National Park / AONBs / townscape and setting of York)* should be pursued as this criteria based approach provides guidance and standards specific to gas exploration and appraisal and provides greater certainty in the medium to long term. It is recommended that Option 1 is extended to include more detail as to social factors to be considered, such as effects on safety, to the extent it falls within the scope of the planning

system, and local economy. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach, to help ensure a comprehensive approach to the range of relevant issues required to be addressed.

Policy M18: Other specific criteria applying to hydrocarbons development

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0 +	+	+ - ?	0	0	+ - ?	0	0	++	0	0	- + ?	0 ?	0	+	0	0
M	0 +	+	+ - ?	0	0	+ - ?	0	0	++	0	0	- + ?	0 ?	0	+	0	0
L	+	m+	+ - ?	+	+	+ - ?	0	0	++	0	m+	- + ?	0 ?	+	+	0	0

Summary of Sustainability Appraisal Findings

Generally this policy has positive effects on most of the objectives effects. This is because it generally encourages on site management of waste (such as reuse/recycling of returned water) ensuring a high standard of environmental protection in doing so (with positive effects for many of the environment objectives as well as the health objective). It also requires hydrocarbon sites to be returned to their original use or other agreed beneficial use (essentially a return to the baseline, though we have scored this assessment in terms of the effect it would have on the plan's approach to hydrocarbons rather than its effect on the baseline, which is covered by the assessment of M16 in combination with these policies). This is positive as it benefits objectives like the landscape and land objectives in the long term.

Slight negative effects are noted as off-site facilities are also allowed providing they are consistent with policy W10 (which prioritises siting facilities for NORM at existing wastewater treatment works) which could generate some traffic (minor negative, but uncertain as to the volume of traffic) though W11 prioritises waste management close to source. The sustainable economy objective records mixed effects as the policy potentially places specific financial requirements on hydrocarbon developers due to the need, where justified by specific circumstances, for a financial guarantee to secure restoration. On the other hand recycling liquid / other wastes may ultimately save disposal costs.

Recommendations

Due to uncertainty over the volume of traffic generated by off-site disposal it is recommended that the SA monitors the significance of this through submitted planning applications.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no alternative options assessed that were suggested by consultees. The preferred policy was incorporated into policy M16, M17 and 18.

The SA recommended that option 1 of ID26 be pursued *(support new gas production and processing where consistent with other plan policies / minimise any adverse impacts on the environment / public safety / transport / preference for brownfield land and opportunities for CHP with particularly high standards of siting, design and mitigation within or close to National Park / AONBs / setting of York).* In relation to ID24 the SA recommended that supporting a co-ordinated approach such as option 1 is more likely to positively contribute to sustainable development and the consideration of cumulative effects as opposed to relying on other policies in the plan to make decisions on gas extraction and processing. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach. It has been refocused around the management of waste and requirements for site restoration, with other matters also presented in the initial options being addressed through Policies M16 and M17 where appropriate.

Policy M19: Carbon and gas storage

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	0	+	0	-	++	0	0	0	?	?	+	+	?	0	0	0
	?		?	-	?	0				-	-	0	0	0	-	?	
	0		0	?	0	?				0	0	?	?		?		
						-											
M	-	0	+	0	-	++	0	0	0	?	?	++	+	?	0	0	0
	?		?	-	?	0				-	-	0	0	0	-	?	
	0		0	?	0	?				0	0	?	?		?		
						-											
L	-	0	+	0	-	++	0	0	0	?	?	++	+	?	0	0	0
	?		?	-	?	0				-	-	0	0	0	-	?	
	0		0	?	0	?				0	0	?	?		?		
						-											

Summary of Sustainability Appraisal Findings

This preferred policy has strong positive effects for the economy (in terms of the energy security provided by gas storage and the business opportunities associated with CCS technology) as well as for climate change mitigation. Other effects tend to be location specific though could be negative due to factors such as the land footprint of buildings and pipelines and the risk that leaks could occur.

Recommendations

No further mitigation proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were considered at Issues and Options (under the options grouping "Coal Bed Methane, Underground Coal Gasification, Shale gas and Carbon and Gas storage"). A further 2 options were suggested by consultees and also assessed.

The SA recommended that Option 1 (*support the development of CBM, UGC and shale gas resources with robust assessment of geological / hydrogeological resources / availability of water resources / local amenity / public safety issues; transport of gas to be via pipeline; high standard of design in / close to National Parks / AONBs / setting of York)* would provide a more certain approach for the Joint Plan area provided that the precautionary approach underlies the support in principle. It is considered that incorporating Option 3 (*extension to the precautionary principle in Option 1 or Option 4 by requiring applications for permission for the development of CBM, UCG and shale gas resources to demonstrate that the proposed site has been identified so as to avoid sensitive locations and designations including residential areas, important environmental designations and other important assets which require protection under the planning system*) may be beneficial but careful consideration would need to be given to defining the terms used. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

Policy M20: Deep coal and disposal of colliery spoil

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	-	-	-	-	-	0	--	m-	0	-	+	+	+	-	0	+
	?	?	?	?	?	?	?	?	?	?	m-	?	-	-	?	?	?
											?		?	?			
M	-	-	-	-	-	m-	0	--	m-	0	-	+	+	+	-	0	+
	?	?	?	?	?	?	?	?	?	?	m-	?	-	-	?	?	?

											?		?	?			
L	-	m-	-	-	-	--	0	--	m-	0	-	+	+	m+	-	0	+
	?	?	?	?		?	?	?	?	-	m-	?	-	?	+	?	?
										?	?		?		?		

Summary of Sustainability Appraisal Findings

This preferred policy exhibits a mixture of mainly minor negative effects and uncertain. Most minor negative effects occur because, while the preferred policy combines with the development control policies in the plan, because of the nature of deep coal and colliery spoil development, residual effects may remain. This is the case for the flooding, biodiversity, health and wellbeing, landscape, historic environment, soils, traffic, air and water objectives. More significant minor effects occurred in relation to the resource use (as coal mining is the extraction of a non-renewable resource) and climate change (due to longer term greenhouse gas emissions from mines) objectives.

Positive contributions were also recorded, particularly in terms of the economy. However, all options recorded a high level of uncertainty as coal mining in the UK has an uncertain future.

Recommendations

Generally this policy links well to development management policies which provide appropriate mitigation. However, there is an opportunity to link this policy to the hydrocarbon policy (M16) to further promote capture of coal mine methane.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The Preferred approach was based on Option 1 *(Lateral extensions to Kellingley Colliery with criteria for assessment)*. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA made several recommendations to improve both objectives, including expanding the range of criteria considered to include water pollution impacts, considering the potential for a secondary use for spoil and considering the utilisation of coal mine methane (which may also be considered under other options, if chosen).

Broadly, the SA reports mixed effects for these options with option 2 *(no support for lateral extensions to Kellingley, but maximise exploitation from within current permitted area)* favoured for environmental performance, and option 1 favoured for economic and social performance.

Policy M21: Shallow coal

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	-	+	-	--	m-	0	--	0	-	-	m+	?	-	-	0	0
	?	?	?	?	?	?		?	?	?	--	?		?	?		
											?						
M	-	-	+	-	--	m-	0	--	-	-	-	m+	?	-	-	0	0
	?	?	?	?	?	?		?	?	?	--	?		?	?		
											?						
L	0	-	+	-	?	m-	0	--	--	-	-	m+	?	-	-	0	0
	+	?	?	?		?		?	?	?	--			?	?		
	?										?	?					

Summary of Sustainability Appraisal Findings

This preferred option mainly reports negative effects against the SA objectives that result from the potential for shallow coal to create large scale holes in the ground or generate impacts such as traffic, dust and water pollution. While development management policies elsewhere in the plan will help mitigate these impacts, the possibility that one or more large scale sites could result from the policy may leave some minor residual impacts.

Some objectives fare slightly worse with minor to major / moderate negative effects being reported under the landscape objective and climate change, land and waste objectives.

Recommendations

This policy is generally mitigated by other policies in the plan (particularly relation to the water environment, local amenity and cumulative impacts, transport, agricultural land and soils, reclamation and after use and historic environment). Further mitigation might be achieved through restoration which helps to offset greenhouse gases – for instance restoration of habitats that sequester carbon or restoration to renewable energy production in the supporting text to this policy this (by pointing out the link between this policy and part one (iv) of policy D10 on reclamation and afteruse).

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The Preferred approach is based is based on a combination of Option 1 *(no specific support for shallow coal, but allow extraction to avoid sterilisation by other surface development)* and elements of Option 2 *(support for shallow coal where consistent with the development management policies)*. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The sustainability appraisal has shown the potential for significant negative sustainability effects associated with option 2. From a sustainability perspective option 1 is preferable. Consideration of the implications for these options should be considered when selecting / drafting development management policies.

Policy M22: Potash, polyhalite and salt supply

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	-	-	-	-	-	0	--	-	-	-	?	?	?	?	0	+
	?		?	?		m-	-			?	?	-	++	-	-	-	
						?	+					++	-	+			
M	-	-	-	-	-	-	0	--	-	-	-	?	?	?	?	0	+
	?		?	?		m-	-			?	?	-	++	-	-	-	
						?	+					++	-	+			
L	-	-	-	-	-	-	0	--	-	-	-	?	?	?	?	0	+
	?		?	?		m-	-			?	?	-	++	-	-	-	
						?	+					++	-	+			

Summary of Sustainability Appraisal Findings

Most SA objectives have negative effects resulting from application of the major development requirements, which significantly moderate effects, but may still allow some development in the National Parks and AONBs. Support for new development outside of designated landscapes (albeit subject to specific criteria and the development management policies) could lead to negative effects (with significant uncertainty) for most SA objectives. In addition, lateral extensions could lead to subsidence or could extend the time period in which Boulby and Dove Farm operate, with corresponding minor negative / uncertain sustainability effects. Effects, however, tend to be minor as they are mitigated by other policies in the Plan.

The economic and community vitality SA objectives report a mixture of uncertain, strongly positive and minor negative effects. This is because significant jobs could be provided, but tourism may suffer, depending on location. Positive effects are also noted for the changing population SA objective, as potash is an important resource for food production.

The climate change and resource use objectives show stronger negative effects, the former due to the factors such as possible transport of materials, loss of soils and habitat and the embodied carbon in infrastructure such as road connections, pipelines (if used) and buildings (with uncertainty noted about the configuration of future sites, and effects moderated to a degree by the sustainable design policy), the latter objective recognising a

large scale extraction of a non-renewable resource (albeit a resource which has limited potential for substitution).

Minor negative effects are reported for the water quality SA objective, as the potash resource outside of the National Park includes a concentration of Source Protection Zones.

Recommendations

This policy is already significantly mitigated through links to other policies in the plan. Monitoring of the plan should determine the extent to which this policy directs development to areas outside of the designated landscapes and what the effects of this might be.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with a further 1 alternative option suggested by consultees and then assessed. It was considered that elements of a number of options could provide the basis for a preferred approach. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 1 *(support an indigenous supply of potash from one location only)* be pursued. The next best option, at least in terms for protecting the most nationally significant environmental assets, would be option 4 *(support extraction of potash from under the National Park as well as outside of the National Park, but only support siting of surface infrastructure outside the National Park)*. However, there are question marks over deliverability of this option as it is unknown if viable locations could be found. So if this option were to be pursued further work to establish the quality of the resource may be necessary, or an approach akin to option 5 (*support the supply of potash from new sites. Within the National Park and AONBs the requirements of the major development test would need to be met)* may allow a better balance between protecting nationally important assets and delivering a steady supply of potash.

Policy M23: Supply of gypsum

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	+	+	0	0	0	-	-	0	0	+	+	0	0	0	+
	?	?	?	?	?	+		+	+	?	?	++			?	-	++
						?										?	
M	0	0	+	+	0	0	0	-	-	0	0	+	+	0	0	0	+
	?	?	?	?	?	+		+	+	?	?	++			?	-	++
						?										?	

L	0	0	?	?	0	0	0	-	-	0	0	+	+	0	0	0	+
	?	?			?	+		+	+	?	?	++			?	-	++
						?										?	

Summary of Sustainability Appraisal Findings

The consideration of future gypsum and DSG proposals against the development control policies should have broadly neutral / insignificant effects as future development will need to take account of a range of environment and amenity criteria. It will also potentially have a strong positive effect on the economic growth and changing population needs objectives as gypsum supply will be more secure going forward as both gypsum and DSG are supported. This could underpin future development due to gypsum's importance as a construction material, though it is acknowledged that there is currently little interest in gypsum development so effects could be lower.

Two objectives reported mixed positive and negative effects. The 'minimising resource use' objective identified that support for gypsum would consume a primary natural resource on the one hand, but support for DSG would do the opposite in that it would save / offset consumption of primary gypsum. A similar effect was observed for the 'minimising waste objective' in that the policy might, though supporting gypsum, allow gypsum to be extracted at the expense of utilising waste DSG as a resource. However, the policy also supported DSG, so the market may play a role in optimising the balance between these two materials.

Recommendations

There was some uncertainty noted as to the volume of gypsum that will be extracted in the future and the supply of DSG. This should continue to be monitored.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The Preferred approach combines option 1 *(support the principle of the extraction of natural gypsum subject to environmental criteria)* and 3 (*support the principle of continued supply of desulphogypsum (DSG) from power stations).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 1 should be pursued for natural gypsum. In relation to synthetic gypsum, it is likely that the planning processes cannot influence the process of supply in the long-term given it is a by-product from coal-fired power stations; pursuing either option 3 or 4 *(policy would not support continued supply of desulphogypsum (DSG) from power stations)* in this case would present broadly the same sustainability outcomes.

Policy M24: Supply of vein minerals

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-	-	-	-	-	-	-	-	-	-	-	m+		-	-		
M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-	-	-	-	-	-	-	-	-	-	-	m+		-	-		
L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-	-	-	-	-	-	-	-	-	-	-	m+		-	-		

Summary of Sustainability Appraisal Findings

This policy does not provide support for the extraction of vein minerals in the plan area however should development come forward and gain consent, a number of negative impacts could result particularly in relation to the environmental SA objectives. This is largely because vein minerals occur close to sensitive receptors (such as wildlife sites and designated landscapes) and extraction techniques can utilise a significant area of land and can be energy intensive. However, these are all mitigated down to low and possibly insignificant levels due to development management policies elsewhere in the plan, or the protections referred to in the policy. There may be positive economic benefits associated with this policy should new vein minerals development come forward and gain consent.

Recommendations

No mitigation proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The preferred approach is based on Option 2 *(no support in principle for the development of vein minerals but identify criteria to be applied to the consideration of such applications).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that while both options 1 *(support the principle of the further development of resources of vein minerals in suitable locations subject to criteria)* and 2 display broadly negative effects, option 2 performs more favourably against the SA framework. However, the assessment notes significant potential for development of more comprehensive criteria which could lessen environmental effects under both options.

Policy M25: Borrow pits

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	++	0	+	+	0	-	-	?	?	+	?	?	+	0	++
	-	-		-						-	-			-	-		
				+						0	0				0		
M	0	0	++	0	+	+	+	-	-	?	?	+	?	?	+	+	++
	-	-		-						-	-			-	-		
				+						0	0				0		
L	0	0	++	0	+	+	+	-	-	?	?	+	?	?	+	+	++
	-	-		-						-	-			-	-		
	+			+						0	0				0		

Summary of Sustainability Appraisal Findings

This policy would have some positive impacts in terms of reducing transport miles, reducing climate change impacts and shortening supply chains resulting in positive economic effects and a positive contribution towards meeting the needs of a changing population. However, borrow pits would also have some low level negative effects, such as possible local effects on water quality, temporary generation of dust, loss of primary resources, and impacts on the historic environment, landscape or recreation. However, these effects are generally very short term and uncertain due to being dependent on location.

Recommendations

The existing development management criteria are considered sufficient to mitigate negative effects to acceptable levels.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The preferred approach is a modified option, based on Option 1 *(support borrow pits where all of a series of criteria can be met).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 2 *(only support borrow pits where the mineral cannot be supplied by existing quarries / secondary or recycled sources or the supply from existing sources would be detrimental to the area subject to criteria)* should be followed.

6.3 Waste Policies

Policy W01: Moving waste up the waste hierarchy

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	- m+	- ?	?	? +	- ++	++	0	++	++	? 0	? 0	++	+ -	? 0	+ - ?	? 0	++
M	- m+	- ?	?	? +	- ++	++	0	++	++	? 0	? 0	++	+ -	? 0	+ - ?	? 0	++
L	- m+	- ?	?	? +	- ++	++	0	++	++	? 0	? 0	++	+ -	? 0	+ - ?	? 0	++

Summary of Sustainability Appraisal Findings

This policy would encourage sustainable resource management by prioritising the management of waste as higher up the waste hierarchy. This results in particularly positive effects in relation to resource consumption, soils, climate change, minimising waste generation and managing waste as high up the waste hierarchy as practicable, the economy and meeting the needs of a changing population. Uncertain effects or effects which have both positive and negative aspects have been recorded against several of the other environmental and social objectives as the scale of impacts would be determined by the nature and location of the particular waste management facility.

Some objectives, such as biodiversity, climate change and soils also show strong indirect global effects as the policy in effect reduces the carbon and land footprint of many of the products that we use that currently end up reaching the end of their life in landfill. One area where minor negative effects could occur on balance is in relation to water demand, as some recycling operations can be water intensive (though the assessment is quite uncertain in relation to this).

Recommendations

No mitigation is proposed as locational/development management issues will be dealt with under other policies in the Plan.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 11 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on

Option 5. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that the most sustainable approach would be to pursue option 5 (*waste managed at highest practicable level of the waste hierarchy / new capacity for landfill only in exceptional circumstances / use heat from incineration / support landfill only for quarry restoration).* Option 13 (*carbon emissions would be a key consideration whilst also aiming to manage waste as far up the waste hierarchy as possible)* could also be combined with option 5 or other options to maximise sustainability.

Policy W02: Strategic role of the Plan area in the management of waste

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	-	+	-	-	+	0	-	0	-	m-	++	+	-	-	-	++
	+		-	+	m+	-			+				-				
M	-	-	+	-	-	+	0	-	0	-	m-	++	+	-	-	-	++
	+		-	+	m+	-			+				-				
L	-	-	+	-	-	+	0	-	0	-	m-	++	+	-	-	-	++
	+		-	+	m+	-			+				-				

Summary of Sustainability Appraisal Findings

This policy would have a range of mainly minor and often mixed effects on the SA objectives. In particular, while there are outright positive effects on the economy and population needs objectives as a result of provision of jobs and ensuring that an effective waste management system operates, minor negative effects are observed across most of the other SA objectives as cumulatively allocated sites plus further planning permissions are likely to exhibit residual effects on objectives after they have been controlled by other policies in the plan (for instance land will be used up, traffic will be generated, buildings will be built and impacts such as dust and odour may occur at low levels). Some objectives also report indirect positive impacts such as biodiversity and soils, as a result of decreased carbon and land footprints. Some sites such as waste transfer sites exhibit significant positive effects on transport, so this also shows up in this assessment which notes both positive and negative effects for transport. In terms of providing capacity within the plan area to deal with waste arising in the Yorkshire Dales National Park this would largely maintain the status quo in terms of how waste is managed from the National Park, and this would

have mainly neutral effects on the Plan Area and modest benefits for the Yorkshire Dales as it will allow the special qualities of the National Park to be maintained.

Recommendations

No further mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 2 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on a combination of elements of Options 1 (*ensure that capacity is provided across the Plan area at a level sufficient to meet identified needs for waste arising in the area whilst allowing for current known levels of imports to continue*) and 3 (*same approach as for Option 1 or 2 but would in addition make an express commitment that the Plan would make provision for the management of waste arising within that part of the Yorkshire Dales National Park falling within NYCC*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that a combination of Options 1 and 2 (*assume that existing cross-border export movements would continue to operate in conjunction with existing and planned capacity in the area. Where necessary, this approach could also seek opportunities to use existing or planned capacity elsewhere in order to meet any additional un-met requirements*), which would enable facilities to be provided for in the plan area where this would lead to sustainability benefits such as reduced transportation distances, be followed along with Option 3.

Policy W03: Meeting waste management capacity requirements - Local Authority Collected Waste

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	-	-	-	-	-	0 -	++	++	-	-	++	+ -	-	-	0 -	0
M	-	-	-	-	-	-	0 -	++	++	-	-	++	+ -	-	-	0 -	0
L	-	-	-	-	-	-	0 -	++	++	-	-	++	+ -	-	-	0 -	0

Summary of Sustainability Appraisal Findings

For this policy Allerton Park (WJP08), Harewood Whin (WJP11) and Common Lane Burn (WJP16) have been assessed separately as part of the site assessment process as they each have quite different sustainability impacts.

Supporting additional proposals for recycling, reprocessing and composting may also generate new facilities with potential environmental and community effects (though these effects will be reduced by policies W10 and W11 as well as the development management policies). Similarly, supporting improvements to the Household Waste Recycling network may result in new development. Again, the effects of this development are considered to potentially involve minor effects on the environment and community objectives that will be reduced by development management policies. The effects on the environmental and community objectives are considered to range from insignificant to minor negative.

This policy is likely to have strong benefits on the economy SA objective. It will generate jobs and promote low carbon resources from what previously would have been considered waste. It will also reduce the costs associated with alternative disposal in landfill. There are also strong benefits for the minimising resources and waste hierarchy SA objectives as this development is essential for reducing waste.

Recommendations

Mitigation has been proposed in relation to Allerton Park (WJP08), Harewood Whin (WJP11) and Common Lane Burn (WJP16) in the Site Assessment appendix.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with 1 further alternative option suggested by consultees and subsequently assessed. The preferred approach is based on Option 1 (*Support provision of adequate capacity for management of LACW through…Allerton Park and Harewood Whin as strategic locations; transfer station capacity; proposals which would deliver increased capacity for the recycling, reprocessing and composting of LACW where this would reduce reliance on export of waste; supporting improvements to the Household Waste Recycling Centre network*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The sustainability appraisal observed a slight preference for Option 3 *(combine Options 1 and 2 to give support to permitted facilities but also provide an element of flexibility if some of the permitted facilities were not operational)* as this combines the benefits of Option 1 and Option 2 (*less targeted approach and would seek to provide more flexibility for the delivery of any new capacity required for managing LACW*)

Policy W04: Meeting waste management capacity requirements - Commercial and Industrial waste (including hazardous C&I waste)

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	0	+	+	+	m+	0	++	++	-	-	m+	-	0	-	0	+
			-	-		-											
	-		?	?	-	?							+		?		
M	+	0	+	+	+	m+	0	++	++	-	-	m+	-	0	-	0	+
	-		-	-	-	-							+		?		
			?	?		?											
L	+	0	+	+	+	m+	0	++	++	-	-	m+	-	0	-	0	+
	-		-	-	-	-							+		?		
			?	?		?											

Summary of Sustainability Appraisal Findings

This policy has both positive and negative effects in relation to many of the objectives. This is because it supports the management of waste higher up the waste hierarchy and away from landfill, which has benefits in terms of reducing the land take and amenity impacts of simply landfilling waste, though the facilities for waste management higher up the waste hierarchy will themselves have a land footprint or amenity impacts (though this will largely be controlled by the development management policies and locational principles in the plan).

Some effects are outright positive, for instance strong positive effects were noted for the minimising resource use and minimising waste objectives. Other impacts were related to the transport of waste, for which there are benefits through reducing reliance on exporting waste for recycling and/or reprocessing (resulting in shorter journeys), while there are lesser negative effects associated with exporting hazardous waste. This results in mixed effects for the transport, air quality and climate change objectives.

Positive effects were noted for the economy objective (due to the greater local focus being more cost effective for industry and supporting local jobs) and the changing population objective (as there may be benefits such as increased energy security). Elsewhere in the assessment uncertainty was noted as effects were seen as highly dependent on location.

A potential effect was noted in relation to community vitality and health and wellbeing. This is because hazardous waste will be managed outside of the Plan Area, which will in effect mean that some small scale noise and traffic effects may be exported and also negative perceptions of any properties close to hazardous waste sites may endure. However, such disposal sites are often remote from community receptors so the effect is considered insignificant.

Recommendations

Most negative effects are moderated by the development management policies down to low levels. However, it is recommended that a strong pursuit of the duty to co-operate is adopted to ensure that hazardous waste sites in neighbouring authorities maintain strong protection against any negative effects from hazardous waste disposal, as waste may in part come from this Plan Area.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were considered at Issues and Options stage. The preferred approach is based on elements of options 1 (*support provision of adequate capacity for, and promote self-sufficiency in, management of C&I waste through a series of defined measures*) and 2 (*same as option 1 but would, additionally, provide support in principle for proposals for the management of C&I waste arising outside the area (consistent with the locational and other relevant policies in the plan) and additionally, for proposals for recovery of waste, the facility would represent the nearest appropriate installation for the waste to be dealt with*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The Issues and Options SA considered that Option 2 could be the most sustainable.

Policy W05: Meeting waste management capacity requirements - Construction, Demolition and Excavation waste (including hazardous CD&E waste)

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	- +	-	+ ?	+ -	++	+ -	0	m+	m+	0 +	- +	+	-	+	- ?	0	+
M	- +	-	+ ?	+ -	++	+ -	0	m+	m+	0 +	- +	+	-	+	- ?	0	+
L	- +	-	+ ?	+ -	++	+ -	0	m+	m+	0 +	- +	+	-	+	- ?	0	+

Summary of Sustainability Appraisal Findings

This policy has a range of mixed effects. Many SA objectives report both minor positive and negative effects because while new facilities may be built to support the policy (having potentially negative effects on biodiversity and generating dust, noise, local traffic and

carbon which affect a number of other objectives such as air and wellbeing), utilising CD&E waste to regenerate land or for quarry restoration will often restore degraded land, which, depending on the restoration proposed, could bring a range of sustainability benefits. The 'restoration' aspect of this policy is the key reason why a strong positive effect is noted for the soils and land SA objective.

In a similar way some objectives noted both a neutral or minor negative effect and a positive effect, largely because policies elsewhere in the Plan would reduce any negative effects, but the positive effects of quarry restoration would still occur. This occurs with the historic environment and landscape objectives.

Other strong positives are noted for the minimising resources and minimising waste SA objectives, which identified that more recycling of CD&E waste would reduce demand for new materials to be extracted and also reduce demand for disposal of materials. This can add value to what was once a waste, bringing economic benefits.

A potential negative effect was noted in relation to community vitality and health and wellbeing. This is because hazardous CD&E waste will be managed outside of the Plan Area, which will in effect mean that some small scale noise and traffic effects may be exported and also negative perceptions of any properties close to hazardous waste sites may endure. However, such disposal sites are often remote from community receptors so the effect is considered low.

Recommendations

Effects are largely mitigated by other plan policies leaving only residual effects. However, it is recommended that a strong pursuit of the duty to co-operate is adopted to ensure that hazardous waste sites in neighbouring authorities maintain strong protection against any negative effects from hazardous waste disposal, as waste may in part come from this Plan Area.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with 1 further alternative option suggested by consultees and subsequently assessed. The preferred approach is based on a combination of elements of Options 1 (support provision of adequate capacity for, and promote self-sufficiency in, management of CD&E waste through a series of defined measures) and 2 (*same as option 1 but would, additionally, provide support in principle for proposals for the import for landfill of inert CD&E waste arising outside the area where needed to achieve mineral site reclamation*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that on balance Option 2 would be more sustainable as it would provide greater opportunity for securing enhancements to former quarries.

Policy W06: Managing agricultural waste

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	m+ -	+	0	++ ?	++	0 +	++	0 ?	0 ?	0 ?	+	0	0	0	0	0
M	-	m+ -	+	0	++ ?	++	0 +	++	0 ?	0 ?	0 ?	+	0	0	0	0	0
L	-	m+ -	+	0	++ ?	++	0 +	++	0 ?	0 ?	0 ?	+	0	0	0	0	0

Summary of Sustainability Appraisal Findings

For most objectives this option displays either positive effects or neutral effects. In particular the preferred policy performs very positively against the resource use and waste minimisation objectives, in part because it encourages lower resource use and moves waste up the waste hierarchy by supporting anaerobic digestion. It also performs well for the soils and land objective because of the benefits of utilising organic farm wastes in composts (which are routinely made on farms) or as biodigestate for improving the productivity of land. However, this same objective records some uncertainty that crops may be grown as a feedstock for an AD facility, which if this were to happen could negatively impact on land as it my displace food crops.

A minor negative effect was noted in relation to biodiversity due to the possible combined effect of land take and leachate from off and on-farm facilities as well as localised nutrient loading of soils from on-farm facilities still being significant even after other policies mitigating policies are applied. Similarly the water objective noted the positive effects of using biodigestate and compost as fertilisers, but also the potentially minor negative effect of run off and leachate from sites, though this would be largely mitigated by development management policies in the Plan.

Recommendations

It may be advantageous to slightly alter the policy to add wording akin to ‘additional organic waste streams may be acceptable at agricultural anaerobic digestion facilities provided that they serve a local need and comply with the overall policy’. This would further enhance benefits, particularly to the land / soils objective.

Clear links in the ‘key links to other relevant policies’ box to policy D09 on the water environment would further lessen any effects on aquatic biodiversity and water bodies.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The preferred approach is based on a combination of elements of option 1 (*support self-sufficiency in capacity for management of waste, as well as supporting the on-farm management of agricultural waste at the point of arising. Where waste can only be managed through more specialised facilities or facilities which can only realistically be provided at a larger scale, then support would be provided subject to various requirements*) and option 2 (*in combination with Option 1 give specific support in principle for the development of Anaerobic Digestion (AD) facilities for the management of agricultural waste*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA advised that option 2 is considered the more sustainable option, though both options would require a supporting policy framework to maximise sustainability benefits.

Policy W07: Managing low level (non-nuclear industry) radioactive waste

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	- ?	0	+ -	0	- ?	+ -	0	?	+ 0	- ?	- ?	0	0	?	0	0	0
M	- ?	0	+ -	0	- ?	+ -	0	?	+ 0	- ?	- ?	0	0	?	0	0	0
L	- ?	0	+ -	0	- ?	+ -	0	?	+ 0	- ?	- ?	0 +	0	?	0	0	0

Summary of Sustainability Appraisal Findings

Mostly the effects of this preferred policy are small scale as the volume of LLRW is expected to be low and most significant impacts would be regulated through the environmental permitting regime. There could however be small impacts associated with land take, changes to character resulting from small built structures or low level changes in traffic levels as a result of this preferred policy. This leads to low level negative effects (with considerable uncertainty) on the biodiversity, soil, climate change, historic environment, and landscape objectives with mixed positive and negative effects on the transport objective. There are low level positive effects on the waste management and economy (longer term only) objectives. Elsewhere effects are either uncertain or no effects are observed.

Recommendations

Effects are mitigated by other policies in the Plan so no mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The preferred approach is based on Option 2 *(assume that the needs for capacity for management of LLNNR waste are likely to be met outside the plan area but would provide support in principle for development of specialist facilities in the Plan area where is can be demonstrated that the facility would enable LLNNR waste arising in the area to be managed further up the hierarchy)*. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA expressed a preference for option 1 *(assume that needs for capacity for management of LLNNR waste would be met outside of the Plan area)* primarily as it may allow the building of new facilities in the plan area which would inevitably have some low level sustainability effects (though there was considerable uncertainty in the assessment)[39].

Policy W08: Managing waste water and sewage sludge

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	- / +	+	+	-	- / +	- / +	-	++	++	-	-	+	+	-	m+	-	++
M	- / +	+	+	-	- / +	- / +	-	++	++	-	-	+	+	-	m+	-	++
L	- / +	+	+	-	- / +	- / +	-	++	++	-	-	+	+	-	m+	-	++

Summary of Sustainability Appraisal Findings

Mostly the sustainability effects of this preferred option are small scale and minor and may be positive or negative. For instance, minor negative effects are associated with the objectives for air, adaptation to climate change, historic environment, landscape and flooding in part because the facilities supported by the policy have a physical land take, would be likely to be located close to water and through traffic, construction activities and bio-aerosols, would impact upon air. Some objectives (such as the biodiversity, land use, climate change

[39] It should be noted that this recommendation is largely the result of the scope of the SA which is best suited to identifying effects within the Plan Area. Uncertainty was noted for a number of effects outside of the Plan Area where baseline data was not available.

and health and wellbeing objectives) displayed mixed positive and negative effects because while the processes that take place may intrinsically have negative effects associated with them, co-location with AD and expanding sites allows for new positive effects such as reduced additional land take or the offsetting of energy use to take place. For the health and wellbeing objective, waste water treatment is on the one hand seen as essential for health and wellbeing while on the other hand could have local amenity effects.

The policy performs particularly strongly against the resource use and waste hierarchy objectives as co-locating AD facilities with waste water / sewage treatment facilities will help turn waste materials into economically valuable resources. Sewage / water treatment also underpins the further development of settlements so performs well against the changing population needs objective.

Recommendations

Negative effects associated with this preferred policy have already largely been reduced by this policy. However, sequential testing of waste water treatment plants for flooding will be required prior to allocation or planning approval. Flood plain compensatory storage may also be required.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The preferred approach is based on Option 2.

(Option 1 *would support the development of new infrastructure for the management of waste water, where such provision would be in line with requirements identified in asset management plans (with a preference given to the expansion of existing infrastructure in appropriate locations).* Option 2 would be the same as option 1 *but support would also be provided in principle for the development of new sites in appropriate locations for management of waste water as well as for the expansion of existing facilities*.) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 1 be pursued.

Policy W09: Managing power station ash and Incinerator Bottom Ash

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	-	0	0	0	+	+	0	++	++	-	0	+	-	-	0	0	+
	+	-	-	-	?					+	-		+	?	-	?	

	?	+ ?	?	+ ?						?	+ ?		?		+ ?		
M	- + ?	0 - + ?	0 - ?	0 - + ?	+ ?	+	0	++	++	- + ?	0 - + ?	+	- + ?	- ?	0 - + ?	0 ?	+
L	- + ?	0 - + ?	0 - ?	0 - + ?	+ ?	++	0	++	++	- + ?	0 - + ?	+	- + ?	- ?	0 - + ?	0 ?	+

Summary of Sustainability Appraisal Findings

There are some minor negative effects on biodiversity, water, local air quality and the historic environment, as well as less certain minor negative effects on landscape, community vitality (for which there are also some positive effects associated with employment) and health and wellbeing associated with this preferred policy, arising out of localised problems such as dust generation, possible runoff / leachate and traffic, all of which would be likely to be controlled by development management measures in the plan to acceptable levels. These may however be offset to a degree by positive environmental and social effects, particularly in relation to reduced land take, resulting from lower levels of primary minerals extraction should support for use of power station ash result in less demand / need for this.

The policy does allow for management of power station ash at new facilities which could generate some further effects which are dependent on location (so uncertainty is noted in many places in the assessment) though effects would be low as they will be constrained by policy W11 and development management measures.

There are some major positive effects associated with climate change, minimising the use of resources and minimising waste generation resulting from the potential for power station ash to reduce demand for primary aggregates, and minor positive effects associated with the economy and meeting the needs of the population.

Recommendations

It is considered that other development management policies in the Plan, combined with environmental permitting would mitigate for the issues relating to dust, water pollution and air quality that have been identified in this assessment. No further mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

1 option was assessed at Issues and Options (*Option 1: support the use of ash as an alternative to primary aggregate but, for ash which cannot be used in this way, support its continued disposal in accordance with existing arrangements at the Gale Common, Barlow and Brotherton Ings ash disposal sites*), with 1 further alternative option (*Option 2: support the disposal of power station ash along with inert material in landfill*) suggested by consultees and subsequently assessed. The preferred approach is based on Option 1. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended Option 1 be pursued with mitigation measures.

Policy W10: Overall locational principles for provision of new waste capacity

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	m+	m+	+	+	++	m+	0	++	++	++	m+	++	+	m+	-	0	m+
	-	-			-					-	-			?	+		
M	m+	m+	+	+	++	m+	0	++	++	++	m+	++	+	m+	-	0	m+
	-	-			-					-	-			?	+		
L	m+	m+	+	+	++	m+	0	++	++	++	m+	++	+	m+	-	0	m+
	-	-			-					-	-			?	+		

Summary of Sustainability Appraisal Findings

This preferred policy has mostly positive effects when compared to the SA objectives. This is largely because it maximises and builds on the use of facilities that are already there (which is generally a good thing to do in sustainability terms), and also seeks to reduce the transport footprint of new facilities while linking the policy strongly to the waste site identification principals and other policies in the plan.

Amongst the most notable sustainability effects were strong positive contributions to the 'reduce resource use' and 'minimise waste' objectives (as less building will be needed to deliver the policy, and the policy underpins a wider strategy in this Plan to move waste up the waste hierarchy). In addition, the policy has strong economic effects as it retains jobs and potentially reduces business costs. The policy would also protect the special qualities of protected landscapes as well as the tourist jobs that depend on them.

Mixed positive and negative effects were recorded for a number of objectives, such as biodiversity, water, soils, historic environment and landscape objectives. While the dominant effect is positive for these objectives, minor negative effects were noted due to possible displacement of some development to locations outside of protected landscapes. Similarly a mixed assessment is recorded for a changing population objective as, while there are strong positive effects in terms of delivering a working system of waste management, there is a minor concern that waste management in designated landscapes will become more difficult in the future.

Recommendations

None

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with 3 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on a combination of elements of options 2 *(ensure that sufficient waste management capacity is provided through a combination of making the best use of the existing facility network, supporting the provision of capacity at new sites and locating strategic sites where overall transport requirements would be minimised)* and 4 (*alongside options 1 to 3 limit provision of new waste management capacity to those parts of the Plan area outside the North York Moors National Park and AONBs unless the facility to be provided is designed and scaled specifically for meeting waste management needs arising in the designated area and can be provided without causing harm to the designated area*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA concluded that Options 2, 3 (*provide sufficient waste management capacity through best use of facility network and new sites to be compatible with the waste site identification criteria with priority to new sites within 5km of the major road network*) and 5 (*best use of existing facility network, support capacity to meet needs identified in the Plan and consistent with waste site identification criteria, and support strategic facilities where transport impacts would be minimised*) performed best against the SA Framework.

Policy W11: Waste site identification principles

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	- / 0 / +	+	+ / -	m+	++	++ / -	+	m+	+	+	+	++	m+	+	m+	+	+
M	- / 0 / +	+	+ / -	m+	++	++ / -	+	m+	+	+	+	++	m+	+	m+	+	+
L	- / 0 / +	+	+ / -	m+	++	++ / -	+	m+	+	+	+	++	m+	+	m+	+	++

Summary of Sustainability Appraisal Findings

Effects in relation to this policy are largely positive. The preference for locations close to where heat generated through Combined Heat and Power schemes can be utilised, would support climate change objectives as well as having a positive outcome for local communities and businesses. The principle of co-location could also have some positive

impacts in terms of the economy, reducing transport miles, soils and land, and minimising resource use. Reference to national policy in relation to consideration of specific environmental and community issues, may lead to a number of positive impacts as the NPPF and National Planning Policy for Waste cover issues relating to most of the SA objectives.

Some minor or negative effects are recorded in relation to biodiversity (as habitats on previously developed land may be lost) and landscape (where less valued landscapes may endure negative effects), though development management measures would reduce these issues down to low or insignificant levels. In addition, while siting facilities for recycling CDE waste close to the point of arising will reduce transport, there could be some negative transport effects arising from recycling at active minerals sites, though the policy does mitigate for a proportion of the effect through its existing wording.

Recommendations

Better links to development management policies could be made in the 'key links to other relevant policies' box, particularly the landscape, biodiversity and historic environment policies.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no sufficiently distinct alternatives were put forward by consultees. (Option 1 supported *'provision of waste management capacity at sites which meet the range of criteria identified in national waste policy'* while Option 2 *set out more specific local principles for identification of sites*) The preferred approach is based on Option 2. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 2 be pursued.

6.4 Minerals and Waste Transport and Other Infrastructure Policies

Policy I01: Minerals and waste transport infrastructure

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	+	+	0	+	0	+	0	?	?	+	?	-	+	0	0
		?	?			?						-		+	-	?	
M	-	0	m+	++	0	m+	0	+	0	-	-	+	?	-	m+	0	0
	?	?	?		-	?		-		?	?	-		+	-	?	

L	-	0	m+	++	0	m+	0	+	0	-	-	+	?	-	m+	0	0
	?	?	?		-	?		-		?	?	-		+	-	?	

Summary of Sustainability Appraisal Findings

This policy is likely to have some positive impacts through the retention of the existing rail, pipeline and water transportation infrastructure and support for the development of new infrastructure. These positive effects relate to reducing the need to transport minerals and waste by road with knock on benefits in relation to air quality, climate change, amenity and the economy. Impacts are uncertain in relation to a number of the environmental objectives such as biodiversity, water quality, landscape and cultural heritage as impacts will be dependent upon the location, type and scale of additional infrastructure as well as the frequency of its use. Small scale negative impacts may occur as a result of construction on new transport links such as loss of habitats, impacts upon the setting of historic assets or loss of archaeology and landscape impacts.

Recommendations

None noted.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees (Option 1 *would encourage the use of existing rail, water and pipeline transport infrastructure, and also support the development of new rail, water or pipeline facilities in appropriate locations consistent with protection of local communities and the environment, for the transport of minerals and waste*; Option 2 *would be the same as option 1 but would require the carbon implications of any proposal to also be considered.*) The preferred approach is based on Option 2. The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach. The SA concluded that option 2 performed marginally better than option 1 (on account of its positive climate change and air pollution effects).

Policy I02: Locations for ancillary minerals infrastructure

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+	+	+	0	0	0	0	0	+	+	++	+	+	+	0	0
		?	?		-			+			-	-	-		-		

					+												
M	+	+	+	+	0	0	0	0	0	+	+	++	+	+	+	0	0
		?	?		-			+			-	-	-		-		
					+												
L	+	+	+	+	0	0	0	0	0	+	+	++	+	+	+	0	0
		?	?		-			+			-	-	-		-		
					+												

Summary of Sustainability Appraisal Findings

In the main the protections in this policy will avoid significant effects on the environmental objectives, though uncertainty is occasionally noted due to uncertainty over locations where minerals ancillary infrastructure would take place and how 'additional significant environmental effects' may be interpreted by different developers, particularly if the host site already has significant impacts.

Elsewhere, mixed effects are often reported. For instance, the economic objective notes how this policy helps to add value to minerals products, but also the potentially restrictive nature of the policy which may make some development more difficult to achieve. The community vitality and health and wellbeing objectives note that synergies between different impacts, such as traffic, noise and visual impacts may together result in minor significant effects on perceptions of an area or on wellbeing.

Recommendations

Given that secondary aggregate processing may have significant water impacts policy DO9 should be referred to in the key links to other relevant policies and objectives. In addition, to address synergies between effects, policy D02's reference to cumulative effects could be clarified in that policy's supporting text so that it includes synergies between different types of effect.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The preferred approach is based on a combination of elements from Option 1 (*support locating ancillary minerals infrastructure on active mineral extraction sites (including sites for the production of secondary aggregate) provided certain listed criteria are met*) and Option 4 (*this would be the same as option 3 (allows ancillary infrastructure away from minerals extraction sites subject to criteria) except that support would only be provided where the site would be located outside the North York Moors National Park, with the exception of Whitby Business Park*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA concluded that overall it is considered that Options 2 (*the same as option 1 except that support would only be provided where the 'host' site would be located outside the North York Moors National Park and AONBs and ancillary infrastructure related to extraction sites in National Parks or AONBs would need to be located outside of these areas*) and 4 would have the most sustainability benefits but may be more applicable to different ancillary functions. The SA recommended that they could be combined to optimise positive effects.

6.5 Minerals and Waste Safeguarding Policies

Policy S01: Safeguarding mineral resources

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+	0	+	+	0	0	++	0	++	+	++	0	+	++	0	++
	?	?	?	?	?	?	?			?	?	?	?	?	?	?	?
M	+	+	0	+	+	0	0	++	0	++	+	++	0	+	++	0	++
	?	?	?	?	?	?	?			?	?	?	?	?	?	?	?
L	+	+	0	+	+	0	0	++	0	++	+	++	0	+	++	0	++
	?	?	?	?	?	?	?			?	?	?	?	?	?	?	?

Summary of Sustainability Appraisal Findings

As safeguarding does not infer that minerals extraction will take place there are generally no predicted direct effects. Were development to take place it would need to accord with other policies in the Plan.

This policy is likely to result in minor to very positive impacts in relation to encouraging the safeguarding of resources, economic growth and meeting the needs of a changing population as future mineral resource sterilisation is avoided, thus conserving resources for future benefit. The safeguarding of buffer zones around mineral reserves may also have minor positive impacts in relation to minimising air quality and amenity impacts experienced by users of new proximal development.

Some uncertainty is noted in relation to the amount and location of any future development that may be displaced as a result of this policy, and the consequences of this displacement, is not known. However, some objectives noted that there could be some positive benefits from not developing the area which is safeguarded.

Recommendations

None.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

Safeguarding of mineral resources has been combined into one Policy (S01). The table below sets out the original policies at Issues and Options and the options that have been taken forward and combined.

Table 6: Safeguarding Options Audit Trail

Original Option Number	Issue	Number of options considered	How the options influenced preferred option S01
ID06	Safeguarding of sand and gravel resources	6	Combination of option 1 and option 5 represented the most appropriate approach.
ID09	Safeguarding crushed rock	4	The preferred approach is based on a combination of Option 1 and 4.
ID16	Silica sand resources safeguarding	4	The preferred approach is based on Option 1. Safeguarding of mineral resources has been combined into one Policy.
ID19	Clay resources safeguarding	4	The preferred policy approach is based on a combination of Option 1 and 4.
ID22	Safeguarding building stone	4	A combination of options 3 and 4 will be taken forward.
ID31	Safeguarding shallow coal	4	The preferred approach is based on Option 4. Safeguarding of mineral resources has been combined into one Policy.
ID32	Safeguarding deep coal	5	The preferred policy approach is based on a combination of options 4 and 5.
ID37	Gypsum safeguarding	2	The preferred approach is based on Option 1.
ID38	Safeguarding deep mineral resources	3	The preferred approach is therefore based on Option 3.
ID40	Safeguarding vein minerals	2	The preferred approach is based on Option 1.

For ID06 the SA does not show a strong preference for one particular option, though options 2 (*safeguard all known sand and gravel resources with a 100m buffer zone to help prevent sterilisation from proximal development*) and 4 (*safeguard sand and gravel resource areas with an identified tonnage of 0.75mt or more*) are considered less sustainable than options 1 (safeguard all known sand and gravel resources with a 250m buffer zone) and 6 *(safeguard all known sand and gravel resources with a 500m buffer zone)*. Option 5 (*in parallel with other options and would safeguard any additional resources (not identified in the current evidence base) where proposed in site allocations and preferred areas*) can add some beneficial effects to other options when used together with them.

For ID09 the SA recommended that Option 1 *(safeguard all known crushed rock resources with a 500m buffer zone)* be pursued due to the greater level of sustainability benefits along with Option 4 (*in parallel with other options safeguard any additional resources proposed in site allocations and preferred areas where supported by adequate resource information*) which would bring additional slight positive benefits.

For ID16 the SA concluded on the basis of the information available at the time of assessment options 1 (*safeguard all known silica sand resources, with a 500m buffer zone*) and 4 *(in parallel with other options safeguard any additional resources of silica sand not identified in current minerals resource evidence proposed in site allocations and preferred areas)* performed most strongly in sustainability terms.

For ID19 the SA indicates that Option 1 *(safeguard all known clay resources with a 250m buffer zone*) and Option 4 *(in parallel with other options safeguard any additional resources of clay not identified in current minerals resource evidence proposed in site allocations and preferred areas)* should be pursued.

For ID22 a combination of Option 1 and Option 4 is likely to be most beneficial in sustainability terms as the greatest area of building stone resource would be safeguarded. (*Option 1 is to safeguard all known resources with potential for use as building stone, while option 4 would operate in parallel with the other options and would safeguard any additional resources of building stone not identified in current BGS minerals resource information proposed in the site allocations and preferred areas.*)

For ID31 the SA showed a mild preference for option 3 (*only safeguard shallow resources outside urban areas and National Park and AONB designations as working in these areas are less likely to be acceptable*), though it should be noted that this preference is based on an assumption that development is less likely outside of safeguarded areas. Option 1 (*safeguard the whole of the known shallow coal resource, with a 500m buffer zone*) and 4 (*250m buffer zone*) advocate 'buffer zones' which show some limited benefit when contrasted with option 2 (no buffer zone).

For ID32 Option 5 combined with option 2, 3 or 4) is the most compatible with the SA Framework. (Option 5 would add a 700m buffer to other safeguarding deep coal options. Options 2, 3 and 4 would safeguard the whole deep coal area; extant coal mining licence areas for Kellingley Colliery and within the Selby Coalfield; and deep coal resources within only the Kellingley Colliery licensed area respectively.

The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA indicated that option 1 is the most sustainable option for ID37. (*Option 1 would safeguard gypsum based on the area covered by the extant permission for gypsum in the Sherburn-in-Elmet area*).

For ID38 the SA recommended that option 3 be pursued. (*Option 3 would expand on option 1 (requires the developer to demonstrate that there would not be significant conflict with other areas and forms of deep minerals extraction*) to state that the greatest weight should be given to the mineral reserve which is scarcest and most economically significant). For

ID40 the SA recommended option 1 as the most sustainable. (*Option 1 would safeguard the area of extant dormant permissions for vein minerals extraction*).

Policy S02: Developments proposed within Minerals Safeguarding Areas

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+	0	+	+	0	+	++	0	+	+	-	-	+	+	0	-
	?	?		?	?					?	?			?	?		+
M	+	+	0	+	+	0	+	++	0	+	+	-	-	+	+	0	-
	?	?		?	?					?	?			?	?		+
L	+	+	0	+	+	0	+	++	0	+	+	-	-	+	+	0	-
	?	?		?	?					?	?	++		?	?		+

Summary of Sustainability Appraisal Findings

In terms of the environmental sustainability objectives there are minor benefits from this policy, as arguably it would potentially reduce the amount of development in safeguarding areas, though to some extent some of this development would simply go somewhere else (with uncertain impacts). The assessment also picked strong benefits for the minimising resource use objective as safeguarding a broad range of minerals resources would help protect resources for possible future use. Similarly, an additional benefit was noted for climate adaptation as safeguarding potash and polyhalite will help save a key resource for manufacturing fertiliser, which ultimately will help tackle the issue of food security (which is a recognised climate change vulnerability).

There were however some minor negative effects noted in relation to the economy, community vitality and changing population objectives. This is because some economically valuable development may be deterred from taking place (though the policy does contain a criteria which considers the need for the development and whether this outweighs the need to safeguard the mineral), while some housing projects may also be less viable (though there are exemptions which help moderate this). The economy objective also records a long term benefit arising from having greater access to minerals for extraction.

Recommendations

No mitigation is suggested.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The Preferred approach is based on a combination of Options 1, 2 and 3. (*Option 1 indicated that within Minerals Safeguarding Areas non-minerals development will only be permitted in certain circumstances and outlined a list of appropriate circumstances; Option 2 would adopt a list of application types that would be exempt from consideration under the Minerals Safeguarding Area policy and set out a list of application types; option 3 proposed that in areas identified as underground coal or potash Minerals Safeguarding Areas, applicants proposing certain listed types of development would be required to consider the potential impacts on the proposed development arising from extraction of the safeguarded resources, as well as the potential for the surface development to sterilise the underlying resource.)* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that a combination of Options 5 (*which is essentially the same as option 1 but with an additional circumstance in which non minerals development would be appropriate in a Minerals Safeguarding Area – i.e.* the mineral is not needed in the foreseeable future), as well as options 2 and 3 are pursued.

Policy S03: Waste management facility safeguarding

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	?	?	+	?	?	m+	0	++	++	?	?	?	?	?	?	0	+
	m+	+		m+	m+				m-	m+	m+	m+	m+	m+	m+		
	-	-		-	-					-	-	-	-	-	-		
M	?	?	+	?	?	m+	0	++	++	?	?	?	?	?	?	0	+
	m+	+		m+	m+				m-	m+	m+	m+	m+	m+	m+		
	-	-		-	-					-	-	-	-	-	-		
L	?	?	+	?	?	m+	0	++	++	?	?	?	?	?	?	0	+
	m+	+		m+	m+				m-	m+	m+	m+	m+	m+	m+		
	-	-		-	-					-	-	-	-	-	-		

Summary of Sustainability Appraisal Findings

It is not possible to accurately identify effects against a number of environmental sustainability objectives as often the main sustainability effect arises as a result of a safeguarded site and its buffer displacing another type of development to an alternative location (which may be positive or negative for the SA objectives). On the other hand, there could be some positive benefits from not developing the area, including the buffer, which is

safeguarded, and safeguarding sites also benefits a number of objectives because it simply reduces the need to develop wholly new sites.

This policy may also however provide positive effects in relation to a number of objectives including minimising the use of resources, managing waste as high up the waste hierarchy as practicable and meeting the needs of a changing population. Minor negative impacts may arise as the policy could also result in facilities that manage waste lower down the waste hierarchy (e.g. landfill and incineration facilities) being safeguarded.

Recommendations

None.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with 2 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on Option 1. (*Option 1 would identify a limited number of strategically significant sites for specific safeguarding. Other waste facilities and sites would be safeguarded through a development control policy requiring the presence of an existing waste site or facility to be taken into account in other development control decisions*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that Option 1 be pursued as this would support the overall approach to provision of waste management facilities in the Plan area in line with other policies in this Plan.

Policy SO4: Transport infrastructure safeguarding

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	?	++	?	+	m+	0	++	0	0	0	+	0	0	0	0	0
	?		?	m+	?	?				?	?	?	?	?	?		?
M	0	?	++	?	+	m+	0	++	0	0	0	+	0	0	0	0	0
	?		?	m+	?	?				?	?	?	?	?	?		?
L	0	?	++	?	+	m+	0	++	0	0	0	+	0	0	+	0	0
	?		?	m+	?	?				?	?	?	?	?	?		?

Summary of Sustainability Appraisal Findings

This policy would ensure that wharves and railheads/rail links are safeguarded for the transportation of minerals and waste but retains an element of flexibility to ensure that

unused sites with little potential for future use or sites that would have greater benefit being used for an alternative purpose are not safeguarded. Positive impacts have been identified in relation to encouraging the use of more sustainable modes of transport, air quality, land use, climate change, resource use and the economy. There is an element of uncertainty throughout the assessment as safeguarding may displace other forms of development that may otherwise have taken place in an area and the consequences of this displacement is not known.

Recommendations

No mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The preferred approach is based on Option 1 (*safeguard all known railheads, rail links to quarries and wharfage which would have the potential for minerals transport, unless the need for the alternative development would outweigh the benefits of retaining the facility).* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA considered that Option 3 (*option would consider each railhead, quarry rail link and wharfage to assess its potential for minerals transport now and in the future, and only those with greater potential for such use would be safeguarded*) showed more positive benefits overall when compared to option 1 and 2, although it is acknowledged that for the majority of objectives no strong preference for any option was identified.

Policy S05: Minerals ancillary infrastructure safeguarding

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+	0	+	+	0	0	m+	+	+	+	+	+	+	+	0	-
	?	?		?	?					?	?		?	?	?		+
M	+	+	0	+	+	0	0	m+	+	+	+	+	+	+	+	0	-
	?	?		?	?					?	?		?	?	?		+
L	+	+	0	+	+	0	0	m+	+	+	+	+	+	+	+	0	-
	?	?		?	?					?	?		?	?	?		+

Summary of Sustainability Appraisal Findings

There are some very minor benefits that occur because this policy essentially reduces the likelihood of development within 100m of safeguarded sites. Alternatively it may displace some development, leading to uncertain effects (which depend on the location that development is displaced to).

Elsewhere in the assessment a moderate benefit was noted relating to minimising resource use, as safeguarding land for ancillary infrastructure would save the need for developing new plant. The policy also enables retention of minerals ancillary infrastructure development for future use, which would add value to minerals and help promote economic viability.

Effects on communities and health are minimised by the application of the 100m buffer, whereas mixed positive and negative effects were predicted for the changing population objective (as some limited housing development might be displaced, but minerals supply would be facilitated).

Recommendations

No recommendations are made.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with 1 further alternative option suggested by consultees and subsequently assessed. The preferred policy approach is based on Option 2 combined with elements of Option 4 and Option 5. (*Option 2 would safeguard only stand-alone sites for concrete batching, roadstone manufacture, other concrete products manufacture and the handling, processing and distribution of recycled and secondary aggregate; Option 4 would safeguard all known sites for concrete batching, roadstone manufacture, other concrete products manufacture and the handling, processing and distribution of recycled and secondary aggregate; Option 5 would safeguard the surface infrastructure for oil and gas developments.*) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA suggested that, on balance, it is considered that Option 4 would have the most sustainability benefits.

Policy S06: Consideration of applications in Consultation Areas

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	0	0	0	++	0	+	0	0	0	0	0	0	++
M	0	0	0	0	0	0	0	++	0	+	0	0	0	0	0	0	++
L	0	0	0	0	0	0	0	++	0	+	0	0	0	0	0	0	++

Summary of Sustainability Appraisal Findings

In most cases this policy has no link with the SA objectives. However, there are indirect positive effects in relation to three objectives. In terms of minimising resource use, this would prevent needless sterilisation of minerals resources. In terms of the historic environment, building stone may be protected from sterilisation, and these benefits would also support the changing population objective. Similarly requiring consultation with the County Council over development affecting safeguarded infrastructure (minerals transport infrastructure, minerals ancillary infrastructure and waste infrastructure) performs positively as it reduces the need for resource use and supports future supply and distribution of minerals for the population.

Recommendations

No further mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

1 option was assessed at Issues and Options, with 1 further alternative option suggested by consultees and subsequently assessed. The preferred approach is based on Option 1 and Option 2. *(Option 1 outlined that where safeguarding of a particular minerals resource is identified in the Plan, this option would define the whole of that area as a Minerals Consultation Area, where District/Borough Councils would be required to consult the County Council in respect of any non-exempt proposals. Option 2 suggested minerals infrastructure and ancillary development would be included within Minerals Consultation Areas.*) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that a combination of both options be pursued.

6.6 Development Management Policies

Policy D01: Presumption in favour of sustainable minerals and waste development

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	0	0	0	0	0	0	0	+	+	0	+	0	+
M	0	0	0	0	0	0	0	0	0	0	0	+	+	0	+	0	+
L	?	?	?	?	?	?	?	?	?	?	+	+	+	?	+	?	-
													?		?		?

Summary of Sustainability Appraisal Findings

Most environmental SA objectives report neutral effects in the short and medium term as a result of this policy as this is largely an affirmation that the policies in the Plan, and national policy and Neighbourhood Plans will be taken into account. However, uncertainty creeps into the assessment in the longer term as some locally distinctive issues may get a lesser degree of emphasis if the NPPF becomes the sole decision making document when the plan becomes out of date. In terms of National Parks and AONBs however, the continued application of the major development test positively supports the long term outlook for achieving the landscape objective.

The preferred policy supports the economic objective due to its 'pro-active approach' to finding solutions. It also supports the community vitality, wellbeing and population needs objectives in the short and medium term as it takes into account community defined Neighbourhood Plans. In the longer term the policy makes decision making more reliant on national policy than local views.

Recommendations

No specific recommendation is made. However, when policies in the Plan become out of date they should be updated to ensure that a locally relevant approach to sustainable development is still applied.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The preferred approach is based on a combination of Option 1 and 2. (*Option 1 was where the NPPF model policy would include a minor adjustment to replace the word 'council' with 'authority' to reflect it being a Joint Plan and to replace reference to 'neighbourhood plans' with a reference to 'and other elements of the development plan where relevant'; Option 2 would develop a more specific phrasing based on the national presumption but which promotes not only working proactively with applicants, but also with other stakeholders including consultees and communities jointly to find solutions to planning issues, in line with the draft vision of the Joint Plan.*) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA suggested that it is likely that a combination of Options 2 and 3 (*use the model wording (under either option 1 or 2 above) as a starting point but adapt it to specifically state that within the North York Moors National Park and the AONBs the starting point for any decisions will be ensuring that development is consistent with delivering sustainable development within the context of statutory National Park purposes*) would provide the most positive effects on the sustainability objectives.

Policy D02: Local amenity and cumulative impacts

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	++	m+	++	+	+	0	0	+	+	++	+ ?	++	++	++	0	+
M	+	++	m+	++	+	+	0	0	+	+	++	+ ?	++	++	++	0	+
L	+	++	m+	++	+	+	0	0	+	+	++	+ ?	++	++	++	0	+

Summary of Sustainability Appraisal Findings

Broadly this policy performs very well against the sustainability appraisal objectives. In particular it strongly contributes to the wellbeing, health and safety objective, as well as objectives where it directly seeks to reduce relevant impacts, such as impacts to water and air. Although broadly positive for the economy as amenity is important to local businesses, there is an uncertain effect on the viability of some proposals.

Recommendations

Although no mitigation is proposed for this policy it will be important to address the uncertain effect on the viability of local businesses through monitoring this aspect of the Plan.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further alternative options suggested by consultees. The preferred approach is based on Option 2 with the addition of additional criteria. (*Option 2 suggested that in addition to the matters outlined in option 1 (which supported proposals that could demonstrated unacceptable effects on local amenity will not arise), this option would specifically encourage applicants to conduct early and meaningful engagement with local communities, in line with statements of community involvement, prior to submission of an application, and to reflect the outcome of those discussions in the design of the proposals*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 2 be taken forward.

Policy D03: Transport of minerals and waste and associated traffic impacts

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	m+	m+	0	+	0	0	0	0	?	+	+	0	+ ?	0	+
M	0	0	m+	m+	0	+	0	0	0	0	?	+	+	0	+ ?	0	+
L	0	0	m+	m+	0	+	0	0	0	0	?	+	+	0	+ ?	0	+

Summary of Sustainability Appraisal Findings

Mostly this preferred policy option either supports or has no effect on the SA objectives. Key positives relate to the transport, air quality, climate change, economic growth, community vitality and population needs objectives. Some uncertainty was noted in relation to the effect of road improvements etc. on sensitive landscapes as well as a mixed positive / uncertain outcome for the health and wellbeing objective as the policy supporting text currently does not link well to other policies relating to amenity and cumulative impacts.

Recommendations

Better linkages between this policy and the amenity / cumulative effects policy (D02) in the 'key links to other relevant policies and objectives' box would help reduce the uncertainties identified in this assessment.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 3 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on a combination of Option 2 and Option 3. *(Option 2 would not seek to give preferential consideration to proposals which would include non-road modes of transport but would require all proposals involving significant transport of minerals or waste by road to demonstrate that the development would, taking into account minerals resource constraints where relevant, be well located in relation to sources of arisings or markets and in relation to suitable road networks; Option 3 would, in combination with either Option 1 (priority for proposals utilising non –road transport) or Option 2, set out criteria to address various potential impacts arising from unavoidable road transport of minerals and waste.)* The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA advised that option 3 combined with option 4 *(priority for non-road transport plus waste and non-energy minerals developments should demonstrate that the development be*

well located in relation to sources of arisings or markets and in relation to suitable road networks) would be most sustainable.

Policy D04: Development affecting the North York Moors National Park and the AONBs

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	+ ?	+	+	-	+	0	0	0	+ -	++	+ -	+	++	+ -	0	0
M	+	+ ?	+	+	-	+	0	0	0	+ -	++	+ -	+	++	+ -	0	0
L	+	+ ?	+	+	-	+	0	0	0	+ -	++	+ -	+	++	+ -	0	0

Summary of Sustainability Appraisal Findings

Whilst the assessment identifies that there may be negative effects for the economy of these areas through restricting minerals and waste developments it also identifies potential positive effects on the tourism economy of maintaining these high quality environments. Particularly positive impacts have been identified in relation to recreation and leisure and landscape whilst some minor negative impacts have been identified in relation to land use, as development may be displaced to areas of higher agricultural land value, and cultural heritage, as this policy may restrict the supply of local building stone in the National Parks and AONBs. There are mixed effects for health and wellbeing as development will be less likely to happen in designated landscapes, reducing health effects there, but that development may take place somewhere else in the Plan Area.

Recommendations

Overall the policy is considered to be largely positive and no mitigation is suggested.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The preferred approach is based on a combination of Option 2 and Option 3. *(Option 2: include the major development test, but also include a criteria based policy setting out the factors that should be considered for any development in the National Park and AONBs, including non-major development; Option 3: in association with*

either option 1 (apply the major development test) or option 2, for development outside of National Parks and AONBs consideration to be given to the effects on the setting and views out of these protected areas. These considerations would also apply to the setting of and views out of the adjacent Yorkshire Dales National Park.) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that a combination of Options 2 and 3 be pursued.

Policy D05: Minerals and waste development in the Green Belt

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	+	-	+ -	+ -	0	0	-	m+ ?	++	+ -	+	+	+	0	0
M	0	0	m-	-	+ -	+ -	0	0	-	m+ ?	++	+ -	+	+	+	0	0
L	0	0	m-	-	+ -	+ -	0	0	-	m+ ?	++	+ -	+	m+	m+	0	0

Summary of Sustainability Appraisal Findings

For some SA objectives the predicted effects for the waste and minerals parts of this preferred policy diverge, with a continuation of minor positive effects resulting from minerals development noted for the transport and climate change objectives, while at the same time negative effects are noted that arise from a number of restrictive factors in relation to waste sites in the Green Belt. Similarly, for the economy SA objective, while minerals sites may continue to bring jobs to Green Belt communities, waste related jobs may become scarcer.

Elsewhere effects are broadly neutral or positive, with strong positive effects noted for landscape. The soils objective notes positive effects from the policy's approach to waste in relation to conserving soils (as in the Green Belt allowable waste development will mostly be located in places such as quarry voids or established industrial sites), while negative effects are noted for minerals development (as the Green Belts coincide with a large amount of higher quality grade 2 and 3 land). Similarly effects on the waste hierarchy may be negative, as the policy may drive some facilities to less optimal locations (which may affect the costs of operating waste sites or even viability for more some future facilities).

While the historic environment is predicted to benefit from this policy's emphasis on protecting the special character of York, uncertain indirect effects were noted as some development may be displaced to other locations and have other impacts on the objective.

Recommendations

This option largely complements national policy and affords a level of protection that, while having some minor effects, is balanced by a broad sweep of positive effects. Therefore no mitigation is recommended.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 1 further alternative option suggested by consultees. The Preferred approach is based on Option 1. (Option 1: *Include a specific policy supporting waste development and minerals extraction and minerals ancillary development within the Green Belt unless it conflicts with the purposes of the Green Belt designation.*) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 1 be pursued for minerals and option 3 pursued for waste. (Option 3: *providing a more flexible approach to waste development in the Green Belt where the development would be located at existing Green Belt waste management facilities within the Plan area, as well as being subject to the other criteria outlined in Option 2*. Option 2 *sought to allow a more flexible local approach to waste development proposals in the Green Belt subject to demonstration that the development would make a significant contribution to the provision of an appropriate overall network of facilities, enabling waste to be moved up the hierarchy and managed in proximity to arisings, and where particularly high standards of siting, design and mitigation of any impacts can be achieved.*)

Policy D06: Landscape

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	+	-	+	+	-	+	0	0	0	++	++	+	+	+	+	-	0
	?	?	-	-	?	-				-		-	-		-		
M	+	-	+	+	-	+	0	0	0	++	++	+	+	+	+	-	0
	?	?	-	-	?	-				-		-	-		-		
L	+	-	+	+	-	+	0	0	0	++	++	+	+	+	+	-	0
	?	?	-	-	?	-				-		-	-		-		

Summary of Sustainability Appraisal Findings

This policy is likely to result in a number of positive impacts particularly in relation to protection of the landscape. This is likely to also result in positive impacts in relation to cultural heritage, tourism and amenity in those areas of high landscape value. This policy may to some extent result in a clustering of development outside of the designated and high value landscapes in the plan area therefore resulting in cumulative negative impacts. These would largely be moderated by other development management measures in the Joint Plan.

Recommendations

None noted.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The Preferred approach is based on Option 1. (Option 1: *support proposals which demonstrate that unacceptable impact on the landscape would not arise, having regard to the nature and purpose of any statutory or non-statutory designations that apply, including the setting of these designations, and taking into account any mitigation measures.*) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

In terms of this sustainability appraisal, while there are benefits and disadvantages associated with both options, option 1 is favoured.

Policy D07: Biodiversity and geodiversity

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	++ ?	+	0	+	+	+ ?	+	0	0	0	m+	- +	- +	m+	+	+	-
M	++ ?	+	0	+	+	+ ?	+	0	0	0	m+	- +	- +	m+	+	+	-
L	++ ?	+	0	+	+	+ ?	++	0	0	0	m+	- +	- +	m+	+	+	-

Summary of Sustainability Appraisal Findings

This preferred policy will have a range of largely positive effects as through the protection and enhancement of biodiversity valuable ecosystem services, such as water or air quality improvements, carbon storage benefits, or increased access to outdoor space. It may also benefit the local economy, helping to ensure that the plan area remains attractive to tourists

and investors. Some uncertainty was however noted in relation to biodiversity offsetting which while seeking to provide a net gain, might fail to fully replicate lost habitats (albeit that these are likely to be of local rather than national value), or might locate them some distance away from the original beneficiaries of habitats. Nonetheless, offsetting would provide minerals and waste developers with greater flexibility to locate in the best locations. Some negative effects were noted due the burden that this policy may put on new development.

Recommendations

Broadly the policy is seen as positive in terms of most SA objectives. However, the uncertainties raised over biodiversity may benefit from additional clarification on the circumstances when it would be suitable (i.e. when exceptional circumstances; might apply, the offset metrics expected of developers and the geographical scope of its application)[40]. As national guidance is not currently available in relation, this clarification may be best developed either as supporting information to the plan (e.g. through a Supplementary Planning Document) or could be incorporated when the Plan is reviewed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

4 options were assessed at Issues and Options, with 2 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on Options 2 and 3. (*Option 2: support proposals which demonstrate that unacceptable impacts on biodiversity and geodiversity would not arise, having regard to any statutory or non-statutory designations and/or legal protections that apply as well as any agreed local priority habitats, habitat networks and species, looking to avoid effects and, where this is not possible, mitigate effects. Proposals should look to contribute towards the delivery of agreed biodiversity and geodiversity objectives with the aim of achieving net gains for biodiversity or geodiversity ;* Option 3: *Where impacts cannot be avoided and mitigation is not feasible and the need for the development overrides the need to protect the site, habitat or species, the option would support the principle of biodiversity offsetting in relation to fully compensating for any losses and would require any gains to be related to the planning authority area in which the loss occurred*.) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended options 2 and 3 but that reference is included to ensuring that any offsetting includes consideration of replacing the community and climate regulation value attached to the biodiversity of the site to be developed.

Policy D08: Historic environment

SA Scores

[40] National guidance on biodiversity offsetting has not yet been finalised. Information on the pilot work and consultation work run by Defra is available at https://www.gov.uk/biodiversity-offsetting.

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	0	0	0	?	? -	++	++	- +	+	+	0	0	-
M	0	0	0	0	0	0	0	?	? -	++	++	- +	+	+	0	0	-
L	0	0	0	0	0	0	0	?	? -	++	++	- +	+	+	0	0	-

Summary of Sustainability Appraisal Findings

This policy would have particularly strong positive impacts in relation to the historic environment and landscape objectives. The policy would conserve and where appropriate enhance the historic environment and affords particular protection for the most significant historic assets within the plan area. Positive impacts are also likely to result in relation to tourism, recreation, community viability and vitality and the economy as this policy may boost tourism and conserve and enhance the special qualities of the National Park. Some negative impacts may result particularly in relation to the economy and meeting the needs of a changing population should this policy result in prevention of minerals and waste development due to historic environment considerations.

Recommendations

None noted.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with 1 further alternative option suggested by consultees and subsequently assessed. The Preferred approach is based on a combination of Options 2 and 3. (Option 2: *would indicate that heritage assets will be conserved in line with the requirements of the NPPF but would encourage proposals, where practicable, to deliver enhancements to the setting and/or secure improved access to and understanding of the asset.* Option 3: *under either option 1 or option 2, this option would seek to protect the setting of the City of York by supporting proposals which do not compromise the setting.*) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 1 and option 4 are taken forward. (Option 1: option would not set out specific local policy for conservation and enhancement of the historic environment and would rely on national policy in the NPPF, together with any other relevant policies in the development plan; Option 2: *In conjunction with either Option 1 or Option 2,*

this option would seek to protect the setting of the City of York and other historic settlements in the Plan area by supporting proposals which do not compromise their settings.)

Policy D09: Water environment

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	++	++	0	0	0	+	++	0	0	0	0	++	++	+	++	++	+
M	++	++	0	0	0	+	++	0	0	0	0	++	++	+	++	++	+
L	++	++	0	0	0	+	++	0	0	0	0	++	++	+	++	++	+

Summary of Sustainability Appraisal Findings

This is a generally positive development management policy, with benefits to biodiversity, water, climate change mitigation and adaptation, the economy, community vitality, recreation, health and wellbeing and a changing population. It will work well alongside the environmental permitting and water licensing regimes. The policy is also supported by supporting text referring to the importance of not impeding the achievement of water status objectives (which is important in meeting obligations under the Water Framework Directive).

Recommendations

None noted.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with no further alternative options suggested by consultees taken forward but several points were raised which should be considered during the progression of the policy. The preferred approach is based on Options 1 and 2. (Option 1: *this would not set out a specific local policy for the protection of the water environment and would rely on national policy in the NPPF, together with any other relevant policies in the development plan;* Option 2: *Proposals will be supported where it can be demonstrated, when considered against the criteria (which include impacts a range of water constraints as well as impacts on ground and surface water flooding), that unacceptable adverse (including cumulative) effects can be avoided or have been appropriately mitigated and, where possible, that the development would provide enhancements to the locality*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 2 be pursued.

Policy D10: Reclamation and afteruse

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	++	+	+	+	++	+	++	+ ?	+ ?	++	+ ++	+ ?	+	+	m+	++	++
M	++	+	+	+	++	+	++	+ ?	+ ?	++	+ ++	+ ?	+	++	m+	++	++
L	++	+	+	+	++	m+	++	+ ?	+ ?	++	+ ++	+ ?	+	++	m+	++	++

Summary of Sustainability Appraisal Findings

This policy is likely to result in largely positive impacts with particularly strong positive effects recorded in relation to biodiversity, land use, climate change adaptation, historic environment, flood risk and meeting the needs of a changing population due to the wide range of considerations promoted by the policy. Some uncertainties were noted in relation to the material resources and waste management objectives as the preference for using onsite materials for reclamation purposes could reduce the opportunities for disposing of inert wastes, which would represent a positive effect, though the magnitude of that effect is highly uncertain.

Recommendations

This policy is considered to be largely positive and no mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options, with 2 further alternative options suggested by consultees and subsequently assessed. The preferred approach is based on a combination of Options 1 and 2. (Option 1: *would support reclamation and afteruse proposals across the whole of the Plan area which meet a number of general criteria*; Option 2: *In addition to the general criteria identified in Option 1, this option would seek to deliver a more targeted approach to minerals site reclamation and afteruse by supporting proposals which, where relevant, focus reclamation and/or afteruse proposals towards particular objectives*.) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that both options 1 and 2 be followed.

Policy D11: Sustainable design, construction and operation of development

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	m+	m+	m+	+	m+	+ ++	++	+	++	+	+	?	0	0	+ - ?	m+	0
M	m+	m+	m+	+	m+	+ ++	++	+	++	+	+	?	0	0	+ - ?	m+	0
L	m+	m+	m+	+	m+	+ ++	++	+	++	+	+	?	0	0	+ - ?	m+	0

Summary of Sustainability Appraisal Findings

It is considered that this policy would have an overall positive effect on achieving sustainable design, construction and operation of developments. The policy performs positively against most SA objectives, particularly those relating to air quality, climate change and flooding. Some areas of uncertainty have been highlighted including in relation to objective 12 (economic growth) as the costs associated with developing a site are likely to increase given the requirement for high standards of sustainable design and construction and additional mitigation where required. Also, part 2 of the policy requires additional land for the sorting and storage of waste arising through construction. These additional costs would be balanced with the gains that are likely to accrue through low running costs due to the energy efficiency of any development and cost reduction through re-using resources. However, this will vary depending on the site.

Recommendations

This policy is largely very positive and no mitigation is proposed.

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

2 options were assessed at Issues and Options. The preferred approach is based on Options 1 and 2. (Option 1: *support proposals for minerals and waste development which demonstrate that, where relevant, appropriate measures have been incorporated in the design, construction and operation of the development and where relevant, reclamation of the site in relation to a range of criteria defined in the option / proposals for new minerals*

extraction / treatment, recovery or disposal of waste should be accompanied by a climate change assessment; Option 2: *sets out criteria which would, where relevant, apply in addition to the criteria set out in option 1, and which would also apply to proposals for new residential, industrial and commercial development. The additional criteria would seek to help deliver sustainable waste management and the sustainable use of minerals*.) The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended that option 1 in combination with option 2 should be taken forward.

Policy D12: Protection of agricultural land and soils

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	++	+	0	0	++	++	++	+	+	+	++	m+ -	+	+	+	+	++
M	++	+	0	0	++	++	++	+	+	+	++	m+ -	+	+	+	+	++
L	++ -	+	0	0	++	++	++	+	+	+	++	m+ -	+	+ -	+ -	+ -	++

Summary of Sustainability Appraisal Findings

This policy will help towards the sustainable conservation of our most important soil resources. It performs positively against most SA objectives, particularly those relating to protecting soils and land, adapting to climate change, protecting landscapes and supporting a changing population's needs. While some mixed outcomes may be expected in the long term when the benefits of low level quarry restoration are considered (i.e. for the biodiversity, recreation and health objectives) these are minor exceptions to a broadly very positive assessment. Mixed effects are also observed in relation to the sustainable economy objective, as the policy may prove restrictive to some development. However, there are also key economic benefits from conserving soils, which underpin the agricultural and food retail economies.

Recommendations

This policy is highly positive and further mitigation is not noted

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

Neither of the 2 options for ID69: 'Other key criteria for minerals and waste development' were taken forward. Following consultation the scope of this option set was amended to relate specifically to BMV Land (now D12). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA's recommendation in relation to ID69 was for option 1 to be pursued (*which supported development that avoid / mitigate for unacceptable impacts on, or enhance, a range of criteria, including impacts on best and most versatile land and protection of soil resource.)*

Policy D13 - Consideration of applications in Development High Risk Areas

SA Scores

Timescale	1.Bio / geo-diversity	2.Water	3.Transport	4. Air	5. Soil / land	6. Climate change	7. Climate adaptation	8. Minimise resources	9. Waste hierarchy	10. Historic environment	11. Landscape	12. Sustainable Economy	13. Community vitality	14. Recreation	15. Health / wellbeing	16. Flooding	17. Changing population
S	0	0	0	0	+	0	+	0	0	0	0	0	0	0	+	+	+
M	0	0	0	0	+	0	+	0	0	0	0	0	0	0	+	+	+
L	0	0	0	0	++	0	+	0	0	0	0	0	0	0	+	+	+

Summary of Sustainability Appraisal Findings

There are unlikely to be widespread effects as a result of this policy, however, there are some small scale positive effects on soil / land, climate change adaptation, health and wellbeing, flood risk and meeting the needs of the population. This is because the policy is likely to ensure that development is less prone to land instability impacts (such as subsidence) which can impact on the aforementioned objectives.

Recommendations

No further mitigation is proposed

Policy Evolution: Alternatives Considered and how they were Influenced by the SA

3 options were assessed at Issues and Options, with no further realistic alternative options suggested by consultees. The preferred approach is based on Option 1 of ID72 'Coal Mining Legacy'. (Option 1: *ensure that coal mining legacy issues are taken into account during assessment of development proposals which are proposed in development high risk areas identified by the Coal Authority*). The policy has evolved further in light of consultation and updated evidence and the need for clarity on the proposed approach.

The SA recommended Option 1 be taken forward.

SA options assessments can be viewed in the Updated Issues and Options Sustainability Appraisal Update.

6.7 Appraisals of Sites

The assessment of sites has been a core part of the sustainability appraisal process and the SA has helped to select a number of preferred sites. To carry out this task we have followed a Site Identification and Assessment Methodology. This methodology took a stepped approach to assessing sites:

Step 1: Identification and initial screening of potentially suitable Sites and Areas;
Step 2: Identification and mapping of key constraints;
Step 3: Initial sustainability appraisal of Sites;
Step 4: Panel review of initial SA findings and feedback to Sustainability Appraisal Report

Following the initial screening at step 1, all sites were mapped and considered against a broad range of constraints and opportunities, most of which was available as mapped information, though other data sets, such as studies and reports were also considered. These datasets are listed in the Site Identification and Assessment Methodology.

This information was used to complete an assessment of each site against the 17 SA objectives that have also been used for the assessment of policy options. A key difference, however, was that a series of site based (rather than strategic) questions to ask of each site were defined to support each objective[41]. Following the completion of these assessments 3 specialist panels were convened to review sites. The details of who attended the panel sessions and the key points raised are published on the Site Assessment Website. The findings of these panel sessions allowed us to refine the assessments. Proposals for mitigation were then developed.

The key issues and mitigation identified for each site are summarised in appendix 3 of this report. Readers should, refer to appendix 3 for a full explanation of significant effects and mitigation.

The appraisals of Sites, Preferred Areas and Areas of Search is presented at Appendix 3

[41] Analogous to the sub objectives used in the sustainability appraisal of policies

6.8 Secondary, cumulative and synergistic effects

In both the assessments of policies and sites we have included consideration of secondary, cumulative and synergistic effects in the commentaries against each of the SA objectives in the full SA findings at appendix 2 and 3 and key effects are referred to in the summaries of assessment findings in this volume. Effects were very often cumulative or secondary, with key cumulative issues often relating to traffic and climate change in particular. Indirect effects were often noted in the policy assessments, particularly where the exclusion of part of the plan area was referred to in a policy, which was often predicted to have possible displacement effects to other parts of the plan area or other plan areas. Readers should refer to appendix 2 and 3 to see the detail of where secondary, cumulative and synergistic effects may occur.

6.9 Mitigation Measures

As with the assessments of cumulative effects we have considered mitigation measures in detail at appendix 2 and 3. However, in this volume we have, in relation to each policy advised on a ‘recommendation’ for improvement of the policy and we have also summarised recommendations in relation to sites.

7. Limitations and Uncertainties

7.1 Key limitations and uncertainties encountered during assessment

This Sustainability Appraisal represents a strategic appraisal of the likely significant effects of the Joint Plan. As such it considers the policies and sites and areas presented in that plan. However, the assessment has been carried out at a high level, using a combination of pre-existing information, such as government reports, information presented with past planning applications and software tools such as geographical information systems, as well as limited empirical information, such as information provided by submitters of sites, information provided through site visits and specially commissioned assessments such as Strategic Flood Risk Assessment. Professional judgement has been employed to interpret the evidence and to make the appraisals, and the assessments have been validated by consultation at issues and options and preferred options stages. However, Sustainability Appraisal is not Environmental Impact Assessment, so detailed information about the environmental effects of sites has often not been available either to the process of site assessment, or to extrapolate from to inform the assessment of policies.

This means that while appraisal predicts the environmental, social and economic effects of the Joint Plan, in a complex environment predictions can often turn out to be less than accurate. For instance, while we may predict a negative effect on biodiversity on the basis of a map showing the presence of priority habitat, the reality may be that what was once habitat may recently have been ploughed up after it was mapped. Only detailed ecological survey can verify the actual level of impact that a policy or site might have on biodiversity. The same is true of almost all the SA objectives. Predictions are presented on the basis of the best available knowledge, but this is not the same as testing out the effects of the plan through detailed empirical survey.

In some instances we have encountered difficulty obtaining data. In particular, we have not been able to obtain data on local geological sites (such as Regionally Important Geological Sites) and have relied on information from geological SSSI citations to make assessments. In addition, while early strategic work was undertaken on ecosystem services at the scoping stage, only limited evidence on ecosystem services has been available to the assessors as the plan has developed. Similarly, a change of government and a referendum on EU membership have taken place during the authoring of the sustainability appraisal. This has left assessors with a degree of uncertainty over the future, and in some cases current, status of some plans and legislation.

Our predictions too are often qualified with uncertainty. For instance, we have often reported an uncertain effect because we simply do not know what form development will take when a planning application comes forward or where a planning application outside of the allocations in the plan might occur. The design and location of development can make a significant difference to its sustainability effects.

To help overcome this uncertainty we have proposed a series of indicators that should help us review sustainability effects. These are listed in the next chapter of this report.

8. Proposals for Monitoring

Monitoring the significant environmental effects of implementing a plan is an important part of Strategic Environmental Assessment. Article 10 of the SEA Directive states:

"Member states shall monitor the significant environmental effects of the implementation of plans and programmes in order, inter alia, to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action".

The Government's 'Practical Guide to the SEA Directive' builds on this and gives guidance on what should be monitored, stating that monitoring must be clearly linked to the SEA process and that it should consider both the adverse and beneficial effects of a plan as a whole. Importantly, it is not necessary to measure everything, rather 'monitoring needs to be focused on significant environmental effects'. Key areas for monitoring include those:

-"That indicate a likely breach of international, national or local legislation, recognised guidelines or standards;

-that may give rise to irreversible damage, with a view to identifying trends before such damage is caused;

-where there was uncertainty over possible adverse effects, and where monitoring would enable mitigation measures to be taken".

It is proposed that a series of indicators will be monitored on an annual reporting cycle where possible. Where possible indicators are linked to the existing baseline information (see Chapter 3 of this Sustainability Report), however a full baseline for monitoring will be set out when indicators are finalised in the post adoption statement of this Sustainability Appraisal. Table 9 sets out the initial proposed indicators.

SA objective	**Key issues Identified by SA**	**Possible Indicator**
1. Protect and enhance biodiversity and geo-diversity and improve habitat connectivity	• Effects on protected species • Effects on priority habitats • Effects on protected sites	• Number of Planning Applications supported by a Habitat Regulations Assessment • SSSI condition status
2. Enhance or maintain water quality and supply and improve efficiency of water use	• Diversion of or pollution of watercourses • Effects on groundwater	• Water body status for key rivers
3. Reduce transport miles and associated emissions from transport and encourage the use of sustainable modes of transportation	• HGV use on minor roads • Traffic generated by offsite disposal of hydrocarbon wastes	• Number of planning applications with a travel plan / traffic assessment • Number of traffic assessments accounting for cumulative effects • Number of planning applications utilising rail or water transport

		• Vehicle numbers required for offsite disposal of hydrocarbons listed in EIAs
4. Protect and improve air quality	• Impacts on AQMAs • Dust in reaching receptors	• Number of Air Quality Management Areas
5. Use soil and land efficiently and safeguard or enhance their quality	• Loss of Best and Most Versatile Land	• Area of BMV land lost.
6. Reduce the causes of climate change	• Embodied energy in built infrastructure	• Number of planning applications providing a BREEAM pre-assessment
7. Respond and adapt to the effects of climate change	• Development prone to flooding • Ecological networks become fragmented	• Percentage of planning applications submitted with a Flood Risk Assessment. • Area of Minerals Applications providing flood storage.
8. Minimise the use of resources and encourage their re-use and safeguarding	• Secondary and recycled aggregate use • Potash extraction may be directed to areas outside of designated landscapes • Supply of DSG (desulphogypsum)	• Number of Sites providing Secondary or Recycled Aggregates / volume provided • Potash applications inside of / outside of designated landscapes • Number of applications for DSG
9. Minimise waste generation and prioritise management of waste as high up the waste hierarchy as practicable	• Volumes of waste managed	• Municipal Waste to Landfill
10. Conserve and enhance the historic environment, heritage assets and their settings.	• Loss of heritage assets • Effects on the setting of heritage	• Number of sites on Heritage at Risk Register
11. Protect and enhance the quality and character of landscapes and townscapes	• Visibility of sites • Loss of tranquillity	• Planning applications including a Landscape and Visual Impact Assessment
12. Achieve sustainable economic growth and create and support jobs	• Value added to minerals • Viability of businesses subjected to policies in the plan	• Total employment in the minerals and waste sector
13. Maintain and enhance the viability and vitality of local communities	• Creation of Jobs • Effects on the tourism economy	• Economically active rate of 16-64 year olds
14. Provide opportunities to enable recreation, leisure and learning	• Diversion of rights of way	• Number of minerals / waste sites restored to accessible open space
15. Protect and improve the wellbeing, health and safety of local communities	• Dust / particulates affecting wellbeing	• Number of planning applications providing an air quality / dust

		assessment
16. Minimise flood risk and reduce the impact of flooding	• Development prone to flooding	• Percentage of planning applications submitted with a Flood Risk Assessment. • Area of Minerals Applications providing flood storage.
17. Address the needs of a changing population in a sustainable and inclusive manner	• Minerals supply to support housing	• House completions

Table 9: Proposed Monitoring Measures

9. Conclusions

This assessment has followed the requirements of the SEA Directive and attempted to document the key sustainability effects associated with implementing the Joint Plan. It has also documented the alternatives considered as the plan has developed, and documented the sustainability effects of each of these alternatives.

While minerals and waste planning deals with issues that are often hard to reconcile with sustainability, the plan attempts to choose the most sustainable approach to minerals and waste planning. Inevitably environmental, social and economic impacts remain, though these effects, in the most part cannot be attributed to the Joint Plan. Rather it is society's continued demand for minerals, and our continued consumption of resources that eventually become waste that produces many of these effects. Those who are concerned with sustainable development should consider that we can all do something to reduce these effects, by thinking about how we use resources, and choosing products that are durable and recyclable.

Minerals and Waste operators have a role to play too, and much good work has been undertaken by the industry to improve the sustainability of their operations. It will be important to continue this work, and the findings of this SA should not be read as a substitute for other non-planning related initiatives associated with good environmental management.

Where the sustainability appraisal has observed sustainability effects that are within the gift of the Joint Plan to avoid it has made recommendations in relation to these. While the plan is not duty bound to take on board these recommendations, we hope that the guidance issued by this SA will improve the sustainability of future minerals and waste development.

We have also referred to the way in which we propose to monitor the sustainability effects of the plan and should the need arise, it will be important to use the findings of this monitoring to suggest further action to remedy sustainability effects.