Gloucestershire Waste Core Strategy

Strategic Waste Sites

SUSTAINABILITY APPRAISAL REPORT

Prepared for
Gloucestershire County Council

by
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1. INTRODUCTION

1.1. Gloucestershire County Council as Minerals Planning Authority (MPA) and Waste Planning Authority (WPA) has been working on a Minerals & Waste Development Framework (MWDF) that will replace its currently adopted Minerals Local Plan and Waste Local Plan. To date, Gloucestershire County Council's Minerals & Waste Planning Policy Team has been working on the preparation of the following documents within the MWDF:

- An SPD on Waste Minimisation in Development Projects (Adopted September 2006)
- The Minerals Core Strategy (MCS) (Consultation completed on Preferred Options)
- The Waste Core Strategy (WCS) (Consultation completed on Preferred Options)

1.2. The preparation of the MWDF documents is being subject to a full sustainability appraisal (SA), in line with the Planning and Compulsory Purchase Act 2004 and current Government planning policy (PPS 12[1]). The preparation of the MWDF documents must also be in accordance with the requirements of European Directive 2001/42/EC (known as the strategic environment assessment, or SEA Directive).

PURPOSE OF THE SUSTAINABILITY APPRAISAL

1.3. The purpose of sustainability appraisal is to promote sustainable development by integrating sustainability considerations in to the preparation and adoption of plans.

1.4. The objective of strategic environmental assessment, as defined in Article 1 of the SEA Directive is *'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans….with a view to promoting sustainable development'.*

1.5. The 2005 Office of the Deputy Prime Minister (ODPM) guidance on sustainability appraisal[2] ("SA Guidance") explains the difference between environmental assessments required under the SEA Directive and sustainability appraisal of development plans as required by the UK Government. There are many parallels but also some differences, and the guidance clearly shows how assessment to comply with the SEA Directive can be integrated with current practice on sustainability appraisal. Simply put, sustainability appraisal includes a wider range of considerations, extending to social and economic impacts of plans, whereas SEA is more focussed on environmental impacts. The SA guidance describes how it is possible to satisfy both requirements through a single appraisal process undertaking a joint SA/SEA[3].

1.6. A key output of the SA process is a Sustainability Appraisal Report which describes what elements of the MWDF have been appraised and how, and the likely significant sustainability effects of implementation of the MWDF.

[1] *Planning Policy Statement 12: Local Spatial Planning.* Communities and Local Government, 2008

[2] *Sustainability Appraisal of Regional Spatial Strategies and Local Development Frameworks. Guidance for Regional Planning Bodies and Local Planning Authorities.* Office of the Deputy Prime Minister, November 2005.

[3] From this point on, references to the Sustainability Appraisal (SA) shall be taken as meaning *the SA incorporating SEA.*

BACKGROUND

1.7. To date Gloucestershire County Council (GCC) has undertaken its Sustainability Appraisal work 'in-house'[4] in terms of the development of the SA Framework and SA Reports. **Table 1.1** presents the SA Reports produced by GCC as part of the development of the SPD on Waste Minimisation in Development Projects (Adopted), the Waste Core Strategy and the Minerals Core Strategy (up to the Preferred Options consultation in 2008). All of the reports are available on GCC's website: www.gloucestershire.gov.uk[5]

Table 1.1 SA Reports produced to date for the MWDF by Gloucestershire County Council

SA Document	Date
Original SA Framework Context & Scoping Report	August 2005
Update 1 SA Framework Context & Scoping Report	November 2005
Update 2 SA Framework Context & Scoping Report	April 2006
Update 3 SA Framework Context & Scoping Report	January 2009
SA Framework Combined Context & Scoping Report for Waste Sites	July 2008 – added into Update 3 SA Framework Context & Scoping Reports Update 3
SA Report for Waste Minimisation in Development Projects SPD	April 2006
SA Report for the Waste Core Strategy Issues & Options	July 2006
SA Report for the Minerals Core Strategy Issues & Options	September 2006
SA Report for the Waste Core Strategy Preferred Options	January 2008
SA Report for the Minerals Core Strategy Preferred Options	January 2008

1.8. Consultation was carried out on the Minerals Core Strategy and Waste Core Strategy Preferred Options between January to March 2008. Since then, changes in Government policy (including PPS 12 on the preparation of Local Development Frameworks) have influenced where GCC has focused its efforts. GCC has had its third revision of the project plan for the MWDF (the 'Minerals and Waste Development Scheme') approved, which shows that the Waste Core Strategy will now be progressed in advance of the Minerals Core Strategy.

1.9. As part of the consultation on the Minerals Core Strategy and the Waste Core Strategy Preferred Options, Government Office for the South West responded to GCC stating that strategic sites for waste management (particularly focusing on facilities to manage residual municipal waste) should now be included in the Waste Core Strategy. Previously, following guidance in PPS12 no sites had been identified. The new revised PPS12 'Local Spatial Planning' 2008 allows for the identification of strategic sites if they are 'central to the achievement of the strategy'. GCC agreed with the Government Office for the South West that strategic sites will be added, but this had implications for the SA process. To date the SA Objectives set out in the SA Framework Context &

[4] This work, both the SA Framework as well as individual SA Reports have been peer reviewed by Levett-Therivel Sustainability Consultants. Habitat Regulations Assessments (HRA) of the Core Strategies have also been undertaken in-house with the use of expertise from the County Ecologist.

[5] Go to: Environment and Planning > Planning and Development > Minerals and Waste Policy > Sustainability Appraisal

Scoping Reports, have all been designed to assess high level non-site specific options within the Waste and Minerals Core Strategies.

1.10. GCC has sought to address this situation by producing a report for consultation which effectively added to the existing SA Framework – introducing objectives suitable for assessing strategic waste sites. This revision to the SA Framework was consulted upon and is contained within the SA Framework Context and Scoping Reports (Update 3) (January 2009).

1.11. Although the next 'Options' stage of consultation will require an extensive evidence base to be prepared, much of it compiled through technical and professional assessment, GCC considered that, due to the element of 'subjective' judgement, the preparation of an independent SA report would be appropriate and would assist in producing a sustainable and sound Waste Core Strategy.

1.12. Subsequently, Land Use Consultants (LUC) was appointed by Gloucestershire County Council in February 2009 to undertake the next stages of the SA of the Waste Core Strategy comprising two main components:

- SA Report for the 106 potential waste site options being considered for allocation as Strategic Waste Sites in the Waste Core Strategy.
- SA Report for the short list of site options and other policy options for the Waste Core Strategy options consultation to be held in August 2009.

AIM AND STRUCTURE OF THE REPORT

1.13. This report constitutes the SA Report for the 106 potential waste site options being considered for allocation as Strategic Waste Sites in the Waste Core Strategy. It has been produced in advance of the consultation on the Waste Core Strategy options in August 2009, as the SA findings are being used by GCC to inform the short list of site options that will be consulted upon. This SA Report will be available during the consultation to provide the public and statutory bodies with an opportunity to express their opinions on the SA Report and to use it as a reference point in commenting on the Waste Core Strategy.

1.14. This SA Report sets out the process and findings of the Sustainability Appraisal of the 106 potential waste site options. In doing this, account has been taken of the previous work conducted as part of the preparation of the Scoping Report and previous SA report described above, and much of the contextual material has been drawn from those reports and the consultation responses received.

1.15. As discussed above, the SA of the MWDF is being conducted as a joint SA/SEA because the Minerals and Waste Development Plan Documents are also required to have a strategic environmental assessment undertaken. This SA Report and the previous SA Framework Context & Scoping Reports prepared by GCC include the required elements of an 'Environmental Report' (the output required by the SEA Directive) and **Table 1.2** sign-posts the relevant sections of the SA Reports that are considered to meet the SEA Directive requirements.

1.16. This chapter provides the background to the SA of the 106 potential waste site options. The remainder of this report is structured into the following chapters:

Chapter 2 – SA Process, describes the stages in SA, the approach used and the specific SA tasks undertaken, along with the background to the identification of the 106 potential waste site options by GCC.

Chapter 3 – Appraisal Method and Assumptions, describes the SA Framework and assumptions used for assessing the potential sustainability effects of the 106 potential waste site options.

Chapter 4 – Appraisal of the Strategic Waste Site Options, sets out the main findings from the appraisals of the 106 potential waste site options, and draws conclusions from the findings of the appraisals.

Chapter 5 –makes initial recommendations for the approach for monitoring the sustainability effects of the potential waste site options.

Table 1.2 Summary of the requirements of the SEA Directive and where these have been addressed in this SA Report and GCC SA Reports (after Appendix 1, SA Guidance, ODPM, 2005)

SEA Directive Requirements	Where covered
Preparation of an environmental report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated. The information to be given is (Art. 5 and Annex I):	
a) An outline of the contents, main objectives of the plan or programme, and relationship with other relevant plans and programmes;	SA Context Report (Update 3, January 2009)
b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	SA Scoping Report (Update 3, January 2009)
c) The environmental characteristics of areas likely to be significantly affected;	SA Scoping Report (Update 3, January 2009)
d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.;	SA Scoping Report (Update 3, January 2009)
e) The environmental protection, objectives, established at international, Community or national 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;	SA Context Report (Update 3, January 2009)
f) The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. (Footnote: These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects);	Chapter 4 Appendix 2,
g) The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	Chapter 4 Appendix 2
h) 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;	Chapters 2 and 4
i) a description of measures envisaged concerning monitoring in accordance with Art. 10;	Chapter 5
j) a non-technical summary of the information provided under the above headings	Non-technical Summary available as separate document.
The report shall include the information that may reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the plan or programme, its stage in the decision-making process and the extent to which certain matters are more appropriately assessed at different levels in that process to avoid duplication of the assessment (Art. 5.2)	This report adheres to this requirement.
Consultation: • authorities with environmental responsibility, when deciding on the scope and level of detail of the information which must be included in the environmental report (Art. 5.4)	SA Context and Scoping Reports consulted upon in 2005-2008
• authorities with environmental responsibility and the public, shall be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme (Art. 6.1, 6.2)	Consultation on this SA Report and subsequent stages
• other EU Member States, where the implementation of the plan or programme is likely to have significant effects on the environment of that country (Art. 7).	Not applicable
Taking the environmental report and the results of the consultations into account in decision-making (Art. 8)	To be addressed at a later stage
Provision of information on the decision: When the plan or programme is adopted, the public and any countries consulted under Art.7 must be informed and the following made available to those so informed: • the plan or programme as adopted • a statement summarising how environmental considerations have been integrated into the plan or programme and how the environmental report of Article 5, the opinions expressed pursuant to Article 6 and the results of consultations entered into pursuant to Art. 7 have been taken into account in accordance with Art. 8, and the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and • the measures decided concerning monitoring (Art. 9)	To be addressed at a later stage
Monitoring of the significant environmental effects of the plan's or programme's implementation (Art. 10)	To be addressed at a later stage
Quality assurance: environmental reports should be of a sufficient standard to meet the requirements of the SEA Directive (Art. 12).	The QA task will be completed alongside the second SA Report for the Waste Core Strategy.

2. SUSTAINABILITY APPRAISAL PROCESS

2.1. The Sustainability Appraisal of the Waste Core Strategy potential waste site options has been undertaken in line with the Government's SA guidance, and seeks to meet the requirements of both the Planning and Compulsory Purchase Act 2004 and the SEA Directive (European Directive 2001/42/EC).

STAGES AND TASKS IN SA

2.2. The SA Guidance introduces the SA process and explains how to carry out SA as an integral part of DPD preparation. **Table 2.1** sets out the main stages of DPD preparation and shows how these link to the SA process. Note that there is currently no updated version of this table within PPS12 to reflect the changes in the Regulations for DPD preparation and consultation, thus reference to 'preferred options' remains.

Table 2.1 Corresponding stages in DPD preparation and SA (from SA Guidance, ODPM 2005)

Generic stages of DPD preparation	Stages and tasks	Purpose
Pre-production - Evidence gathering	**Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope**	
	A1: Identifying other relevant policies, plans and programmes, and sustainability objectives	To document how the DPD is affected by outside factors and suggest ideas for how any constraints can be addressed.
	A2: Collecting baseline information	To provide an evidence base for sustainability issues, effects prediction and monitoring.
	A3: Identifying sustainability issues and problems	To help focus the SA and streamline the subsequent stages, including baseline information analysis, setting of the SA Framework, prediction of effects and monitoring
	A4: Developing the SA Framework	To provide a means by which the sustainability of the DPD can be appraised
	A5: Consulting on the scope of the SA	To consult with statutory bodies with social, environmental, or economic responsibilities to ensure the appraisal covers the key sustainability issues
Production	**Stage B: Developing and refining options and assessing effects**	
	B1: Testing the DPD objectives against the SA Framework	To ensure that the overall objectives of the DPD are in accordance with sustainability principles and provide a suitable framework for developing options
	B2: Developing the DPD options	To assist in the development and refinement of the options, by identifying potential sustainability effects of options for achieving the DPD objectives
	B3: Predicting the effects of the DPD	To predict the significant effects of the DPD
	B4: Evaluating the effects of the DPD	To assess the significance of the predicted effects of the DPD and assist in the refinement of the DPD

Generic stages of DPD preparation	Stages and tasks	Purpose
	B5: Considering ways of mitigating adverse effects and maximising beneficial effects	To ensure all potential mitigation measures and measures for maximising beneficial effects are considered and as a result residual effects identified
	B6: Proposing measures to monitor the significant effects of implementing the DPD	To detail the means by which the sustainability performance of the DPD can be assessed
	Stage C: Preparing the Sustainability Appraisal Report	
	C1: Preparing the SA Report	To provide a detailed account of the SA process, including the findings of the appraisal and how it influenced the development of the DPD, in a format suitable for public consultation and decision-makers
Examination	**Stage D: Consulting on the preferred options of the DPD and SA Report**	
	D1: Public participation on the preferred options of the DPD and the SA Report	To provide the public and statutory bodies with an effective opportunity to express their opinions on the SA Report and to use it as a reference point in commenting on the DPD
	D2(i): Appraising significant changes	To ensure that any significant changes to the DPD are assessed for their sustainability implications and influence the revision of the DPD
	D2(ii): Appraising significant changes resulting from representations	To ensure that any significant changes to the DPD resulting from representations are assessed for their sustainability implications and influence the revision of the DPD
Adoption and Monitoring	**D3: Making decisions and providing information**	To provide information on how the SA Report and consultees' opinions were taken into account in preparing the DPD
	Stage E: Monitoring implementation of the plan	
	E1: Finalising aims and methods for monitoring	To measure the sustainability performance of the DPD in order to determine whether its effects are as anticipated, and thereby inform future revisions
	E2: Responding to adverse effects	To ensure that the adverse effects can be identified and appropriate responses developed

STAGE A: SETTING THE CONTEXT AND OBJECTIVES, ESTABLISHING THE BASELINE AND DECIDING ON THE SCOPE

2.3. GCC undertook the Scoping stage of the SA for the Waste Core Strategy in-house, and has presented the findings in two documents, which have been updated at each iteration of the Waste Core Strategy preparation. The "SA Context Reports" prepared by GCC set out the review of all international, national, regional, county and local plans or programmes that are relevant to the MWDF, including the Waste Core Strategy, i.e. Task A1 in the table above. The latest update of the SA Context Report (Update 3) was produced in January 2009.

2.4. In addition to the SA Context Report, the latest update of the SA Scoping Report (Update 3) was produced in January 2009. The "SA Scoping Report" prepared by GCC sets out the results of Tasks A2 to A5 in Table 2.1 above, i.e. it describes the baseline

information and sustainability issues for Gloucestershire in relation to minerals and waste, and the SA Framework. Development of an SA Framework is not a requirement of the SEA Directive, however, it provides a recognised way in which sustainability effects of a plan or document can be described, analysed and compared. The SA Framework consists of a set of sustainability objectives which state desired outcomes[6]. The SA objectives are distinct from the objectives of the MWDF; the MWDF's performance in terms of sustainability is appraised against the SA objectives. The SA Framework objectives have been through a series of iterations based on consultation responses and changes in response to the development of documents in the MWDF (e.g. the need to appraise potential waste sites). The SA Framework and assumptions used for the appraisal of the 106 potential waste sites is discussed further in **Chapter 3**.

STAGE B: DEVELOPING AND REFINING OPTIONS AND ASSESSING EFFECTS

2.5. Sustainability considerations have been taken into account throughout the development of the Waste Core Strategy. GCC prepared SA Reports at both the Issues & Options and Preferred Options stages and published them for consultation (see Table 1.1 in the Introduction).

2.6. The SEA Directive requires "*reasonable* alternatives" to be taken into account, and so not every possible alternative needs to be considered. In some instances, other policy considerations (e.g. PPSs, MPSs, and policies in the South West Regional Spatial Strategy) will pre-determine which policy approach needs to be adopted, effectively ruling out some options. The Government Office for the South West's consultation responses on the Waste Core Strategy Preferred Options required GCC to consider options for Strategic Waste Sites. The GCC Minerals & Waste Planning Policy Team has carried out a comprehensive exercise to identify all sites in the County with some potential for waste use, and then to refine the list down to a set of 106 'reasonable' options. This process is described below.

Reasons for selecting the 106 potential waste site options

2.7. PPS10[7] recommends that in searching for areas suitable for new or enhanced waste management facilities, waste planning authorities should consider opportunities for on-site management of waste where it arises, as well as a broad range of locations including industrial sites, and sites that represent opportunities to co-locate new waste management facilities with existing facilities or complementary activities. Priority should also be given to previously developed land. Therefore, the GCC Minerals & Waste Planning Policy Team identified an initial long list of potential sites to be considered for allocation in the Waste Core Strategy by looking at:

- **Existing licensed waste management facilities** (as there could be potential for expansion or infill within existing sites, or change of use e.g. transfer station to MRF). The existence and location of these facilities were taken from GCC planning history files;

[6] The ODPM SA Guidance explains that SA objectives should focus on outcomes, not how the outcomes will be achieved. For example, they should focus on improved biodiversity (the outcome), rather than protection of specific wildlife sites (a means to achieving it).

[7] *Planning Policy Statement 10: Planning for Sustainable Waste Management.* ODPM, 2005.

- Existing **policy allocations for waste management facilities** within the Gloucestershire Waste Local Plan;
- Existing **policy allocations for B1, B2 and B8 Employment/Industrial areas/sites** within the District Local Plans
- District **Employment Land** Reviews
- GCC also undertook a '**call for sites**' exercise inviting stakeholders to put forward potential sites for consideration

2.8. GCC then undertook a desk-based clustering exercise to group existing and potential waste sites that were close together. All sites less than 2 hectares were then discounted based on the assumption that a Strategic Waste Site would have a minimum throughput of 50,000 tonnes per annum (50ktpa), and facilities larger than this would require a site of at least 2 hectares[8].

2.9. In order to ensure there is adequate waste management capacity in suitable locations close to the current and future sources of waste arisings, all of the initial long list of waste sites have been screened for their proximity to the principal urban areas, following the spatial approach set out in Policy W2 of the South West Regional Spatial Strategy (GOSW Proposed Changes, July 2008). Policy W2, through a sequential approach, aims to focus principal waste facilities within, or in close proximity to Strategically Significant Cities and Towns (SSCTs). Following Policy W2, GCC defined a 16km buffer around Gloucester and Cheltenham and also considered a limited number of sites in or very close to the RSS named settlements of Cirencester, Coleford, Tewkesbury, Stroud, and Lydney.

Assessing Sustainability Effects

2.10. For each of the 106 potential waste sites, GCC's planning officers have carried out a detailed Site Assessment, collating information and visiting the sites to consider a number of criteria such as landscape, green belt, transport, biodiversity, flood risk etc. The full list of criteria and process used will be described in GCC's own Technical Evidence Papers. In order to obtain more specialised knowledge and assessment of some of the issues for the potential sites, GCC requested specialist input from:

- GCC's Highways Development Co-ordination team
- GCC's Public Rights of Way team
- Gloucestershire Airport and the Ministry of Defence
- GCC's Ecologist and the Gloucestershire Centre for Environmental Records
- Gloucestershire Geology Trust at the Geological Records Centre
- GCC's Archaeology team
- Gloucestershire's 15 District Councils

[8] This assumption was based on GCC Waste Management Team's expert opinion as well as the information contained in the Government's guidance document *Planning for Waste Management Facilities.* ODPM, 2004.

- Halcrow consultants for flood risk assessment.

2.11. Site Assessments were developed by GCC for all of the 106 potential waste sites, setting out the results of the assessment against each criterion, photos of the site and a short description of its location and characteristics. The GCC Site Assessments can be found in as part of the evidence base, which is made up of Technical Papers.

2.12. The LUC SA team considers that the site selection methodology addressed many sustainability considerations contained within the SA Headline Objectives, and that expert knowledge and professional judgement has been employed in assessing the suitability of the potential sites to accommodate waste management activities with minimum adverse effects on surrounding uses, communities, landscape and biodiversity.

2.13. However, in addition to the detailed site selection process undertaken by GCC; as required by the SEA Directive and the Planning and Compulsory Purchase Act 2004, all of the 106 potential waste site options, have been appraised by the LUC SA team against all 22 of the SA Objectives, and the sustainability implications and likely effects were predicted and assessed. The sustainability appraisal of the 106 sites was a desk-based exercise drawing on our own GIS analysis and the extensive data collected and assessment undertaken by the Council and their experts.

2.14. The detailed method carried out by LUC, including assumptions used in predicting and assessing the potential sustainability effects is described in **Chapter 3**. Summaries of the appraisal are set out in **Chapter 4** of this SA Report; the more detailed appraisal forms for each site can be found in **Appendix 1**.

STAGE C: PREPARING THE SUSTAINABILITY APPRAISAL REPORT

2.15. This document is the Sustainability Appraisal report. It sets out the likely significant effects on the environment, and social and economic factors of the 106 potential waste site options considered for allocation as Strategic Waste Sites in the Waste Core Strategy. It outlines the method used for selecting the 106 'reasonable alternatives' and the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan. It has been written to meet all the requirements of the SEA Directive for an environmental report (see **Table 1.2**), and the Planning and Compulsory Purchase Act requirement to prepare a report of the findings of the Sustainability Appraisal.

STAGE D: CONSULTING ON THE DPD AND SA REPORT

2.16. This Sustainability Appraisal Report has been produced to inform the development of the Waste Core Strategy and in particular the allocations of Strategic Waste Sites. It will be available during the consultation on the Waste Core Strategy options in August 2009. Any responses received from consultees on the sustainability effects of the Waste Core Strategy options and the content of this SA report will be considered and addressed in further iterations or annexes of the SA Report that will be produced as appropriate to accompany the final DPD for submission to Secretary of State for adoption.

STAGE E: MONITORING IMPLEMENTATION OF THE PLAN

2.17. Stage E will follow adoption of the Waste Core Strategy. LUC has not been commissioned to undertake the SA monitoring. However, the SEA Directive and SA guidance require that the Sustainability Report includes a description of measures envisaged concerning monitoring. This is discussed in **Chapter 5** of this SA Report.

3. APPRAISAL METHOD AND ASSUMPTIONS

DEVELOPMENT OF SA OBJECTIVES

3.1. Development of an SA Framework is not a requirement of the SEA Directive, however, it provides a recognised way in which sustainability effects of a plan or document can be described, analysed and compared. GCC developed the SA Framework for the Waste Core Strategy through a series of consultations with the public and relevant stakeholders such as Natural England and the Environment Agency, and most recently reviewed the SA objectives to ensure they could be used to appraise potential waste sites. More detailed information on the site focused SA Objective development is available in the report: *Sustainability Appraisal Context & Scoping Report for Strategic Waste Sites* (July 2008).

3.2. The final set of SA objectives, or the "SA Framework", against which to appraise the potential waste management sites is set out in the *Sustainability Appraisal Scoping Report (Update 3)* (January 2009). In line with the Government guidance, the SA Framework is structured into twenty-two "SA headline objectives" (see **Table 3.1**) highlighting the key sustainability objectives for the Waste Core Strategy.

Table 3.1: Headline SA Objectives

SA Objective and Sub Questions[9]
Social
1. To promote sustainable development and sustainable communities and improve the **health and well-being** of people living and working in Gloucestershire as well as visitors to the County. *- What are the potential health impacts on communities?* *- What are the potential health impacts on the employees at the site or facility?*
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire. *- Are there any groups who are particularly disadvantaged in terms of participation and access to waste services?* *- Does the site option cater for future demographic changes and waste growth?*
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development. *- What are the impacts in terms of noise and vibration?* *- What is the potential for significant problems with litter?* *- To what extent are there potential landuse conflict issues?* *- What is the potential for significant problems with vermin and birds?* *- Are there any cumulative effects in terms of adverse impacts on environmental quality, social cohesion and inclusion or economic potential?* *- Does the site provide opportunities for the co-location of complementary activities?* *- Will fly tipping in the County increase?*
Economic
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds. *- Does the site present opportunities for spin off employment or other opportunities?* *- Will the number of waste based Community or Social enterprises change as a result of the site option?*
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire. *- What are the costs?* *- Are there costs in the longer term that may not be obvious at the present time?*

[9] From: *Gloucestershire Minerals and Waste Development Framework Sustainability Appraisal Scoping Report (Update 3)* Gloucestershire County Council, January 2009.

SA Objective and Sub Questions[9]
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy. *- How many new jobs are likely to be created?* *- How far will employees have to travel to work?* *- Are there opportunities for employees to use sustainable transport?*
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**. *- Is the site close to an aerodrome or low flying area?* *- Will the site attract large numbers of scavenging birds / gulls etc?*
Environmental
8. To protect, conserve and enhance **biodiversity** in Gloucestershire. *- What are the potential impacts on sites which are Internationally and Nationally designated?* *- Are there any other potential significant impacts over and above the effects on designated sites - including on local sites, protected species and habitats and species of principle importance for biodiversity?* *- What are the potential impacts on the Strategic Nature Areas as indicated on the Gloucestershire Nature Map?* *- What potential is there for achieving biodiversity targets?*
9. To protect, conserve and enhance the **landscape** in Gloucestershire. *- What are the impacts on AONB?* *- What is the likely impact on specific landscape character as detailed in Gloucestershire's Landscape Character Assessment?* *- What is the scope for landscape improvement / enhancement?*
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated. *- Does the topography and setting naturally screen the site?* *- What is the potential for design-led solutions?*
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**. *- What are the likely impacts on material, cultural and recreational assets?* *- Have any material assets been overlooked?*
12. To protect conserve and enhance **geodiversity** in Gloucestershire. *- What if any are the likely impacts on geodiversity?*
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**. *- What are the potential adverse effects on heritage sites of International importance and / or sites or buildings with a nationally recognised designation?*
14. To prevent **flooding**, in particular preventing inappropriate development in the floodplain and to ensure that waste development does not compromise sustainable sources of water supply. *- Can the risk of flooding be minimised through site design?* *- Will surface water runoff be reduced?* *- Is there the potential to enhance and restore the river corridor?* *- Is there the potential to protect and promote areas for future flood alleviation schemes?* *- Do proposals improve flood awareness and emergency planning?*
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities. *- Is there a level of scientific uncertainty about risk such that the best available scientific advice cannot assess the risk with sufficient confidence to inform decision-making.*
16. To protect and enhance **soil / land quality** in Gloucestershire. *- What is the landtake?* *- Does the site suffer from potential land instability?* *- Is the site previously developed?* *- If the site is or was previously contaminated – is there the potential for effective remedial clean up?*
17. To protect and enhance **air quality** in Gloucestershire. *- What is the proximity of sensitive receptors and to what extent can air emissions, including dust be controlled?* *- What is the proximity of receptors sensitive to odours, and to what extent can odours be controlled.*
18. To protect and enhance **water quality** in Gloucestershire. *- What is the proximity of vulnerable surface or groundwater?* *- What are the impacts on water consumption?*
19. To reduce the adverse **impacts of lorry traffic** on the environment and communities through means such as:

SA Objective and Sub Questions[9]
a) reducing the need to travel b) promoting more sustainable means of transport e.g. by rail or water c) sensitive lorry routing d) the use of sustainable alternative fuels e) promoting the management of waste in one of the nearest appropriate installations. *- What is the capacity of the site and transport infrastructure to support the sustainable movement of waste and products arising from resource recovery?* *- Will access be reliant on local roads?*
20. To **reduce waste to landfill** and in dealing with all waste streams to actively **promote the waste hierarchy** (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste. *- What is the impact of any waste prevention and waste reduction activities?* *- What are the levels of reuse, recycling (including composting) and recovery achieved by each site option?* *- What is the diversion from landfill?*
21. To reduce the global **use of primary materials** and minimise net energy balance requirements. *- What is the impact on total material requirement?* *- What are the energy balance impacts?*
22. To reduce contributions to and to **adapt to Climate Change**. *- To what extent does the site or facility offer the capacity for net electricity generation, community heating / combined heat and power or the production of waste derived biofuels / biogas?* *- How flexible or adaptable is the site or facility in terms of a) adapting to Climate Change and b) using new technology as it develops?*

ASSUMPTIONS AND FACTORS TAKEN INTO ACCOUNT DURING THE SA

3.3. Sustainability appraisal inevitably relies on an element of subjective judgement. In predicting and assessing the sustainability effects of the 106 potential waste sites, we have drawn partly on GCC's analysis of the characteristics of Gloucestershire and the sustainability issues it faces (see *Sustainability Appraisal Scoping Report (Update 3)* (January 2009)), plus professional experience. In making our SA judgements, the SA team has also used the extensive data collated and assessments made by the Council for each site.

3.4. In order to provide a consistent approach to the prediction and assessment of effects, the LUC SA team has developed a series of decision-making criteria for each SA headline objective. The decision-making criteria relate specifically to the assessment of potential sites being considered for allocation in the Waste Core Strategy, and set out assumptions and justifications for the level of significance of potential effects that waste management development on those sites may have. These assumptions or justifications were developed so that where possible quantitative data could be used to appraise the sites. **Appendix I** sets out the full SA Framework with decision-making criteria and justification for assumptions used.

3.5. In particular, the type of waste management technology that might be developed on a strategic site is unknown at this stage, therefore the waste process with potentially the highest impact has been assumed for certain SA objectives, based on the full range of waste processes defined in the Government's document "Planning for Waste Management Facilities"[10]. For example, a large thermal treatment facility is likely to have a tall chimney, which may be more visible in the landscape and therefore have a greater effect on SA objective 9 than other types of facility. In addition, a composting facility may

[10] *Planning for Waste Management Facilities.* ODPM, August 2004.

produce more odour than other types of facility. Assumptions about the significance of effects are discussed below.

Determining significance

3.6. Annex II of the SEA Directive sets out criteria for determining the likely significance of effects. These criteria relate to:

- The characteristics of the plan or programme (in this case the potential waste site options for the Gloucestershire Waste Core Strategy).
- The characteristics of the effects and of the area likely to be affected (in this case all of the sites considered).

3.7. In determining the significance of the effects of the potential waste site options, it is important to bear in mind the relationship of the Waste Core Strategy with the other documents that together comprise the development plan for waste planning in Gloucestershire. These include the South West RSS (July 2008) and other MWDF documents and Local Development Frameworks within Gloucestershire. In addition, it is also important to take into account national planning policy (e.g. PPS10) and other statutory mechanisms such as environmental permitting required by the Environment Agency.

3.8. However, the likely effects of the potential waste sites themselves need to be determined in order that their significance can be assessed. This inevitably requires a series of judgments to be made. Our appraisal has attempted to differentiate between significant effects and other more minor effects through the use of symbols, see **Table 3.2**.

Table 3.2 Key to symbols used in predicting potential sustainability effects

Symbol	Type of effect
++	Significant positive effect likely
++ ?	Significant positive effect uncertain
+	Minor positive effect likely
+?	Minor positive effect uncertain
0 or +/- or ++/-- etc	No effect likely, or a mixture of positive and negative effects
-?	Minor negative effect uncertain
-	Minor negative effect likely
- -?	Significant negative effect uncertain
--	Significant negative effect likely
?	Effect uncertain due to lack of baseline information or detail regarding type of facility that would be developed
N/A	No effect has been assessed. This only relates to SA Objective 15, and is explained in the assumptions regarding each objective in **Appendix 1**.

3.9. The dividing line in making a decision about the significance of an effect is often quite small. Where we have used either ++ or -- to distinguish significant effects from more minor effects (+ or -), this is because, in our judgement, the effect on the SA objective of developing a waste facility on the potential site will be of such magnitude that it will have a noticeable and measurable effect compared with other factors that may influence the achievement of that objective. Our assumptions regarding significance of effects in relation to each SA objective are set out in **Appendix 1**. These assumptions are based on generic potential effects of waste management activities, as described in various documents such as PPS10, Planning for Waste Management Facilities[11], Government research conducted in 2004[12] and the Environmental Report for the Review of England's Waste Strategy[13].

3.10. The scores in the appraisal matrices are based on potentially significant effects of waste management on each site, without considering mitigation measures that might be employed. This is because at this stage in the Waste Core Strategy preparation the type of waste facility has not been specified for each site, and detailed proposals regarding mitigation for construction and operation activities are unknown. Mitigation of potential effects could be provided by successful implementation and use of other policies being developed in the Waste Core Strategy, which would reduce the potential significance or severity of the effect. We have also assumed that future waste management facilities would be constructed and operated in line with current environmental protection techniques and standards, and would be well-run and well-regulated. The 'residual significant effects' on sites (i.e. taking into account mitigation) will need to be determined during the next stage of the SA.

[11] *Planning for Waste Management Facilities. A Research Study.* ODPM, August 2004.
[12] *Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes.* Prepared for Defra by Enviros and University of Birmingham, May 2004.
[13] *Review of England's Waste Strategy. Environmental Report under the "SEA" Directive.* Prepared for Defra by Enviros/Scott Wilson/Mark Hannan, February 2006.

Limitations of sustainability appraisal as a tool for site selection

3.11. It is important to understand that the SA was a desk-based exercise carried out to report the generic potential sustainability effects of developing the sites for waste management activities. It is a strategic level exercise to inform the preparation of the DPD and therefore does not contain as much detail as a site-specific environmental impact assessment that might accompany a specific development proposal. It should be read in conjunction with the Site Assessments prepared by GCC for each site, as they set out in more detail the specific characteristics of each site and its potential sensitivities in relation to the site selection criteria such as surrounding uses, communities, landscape, biodiversity etc.

3.12. In addition, it should be noted that the sustainability appraisal itself has not been used to select the preferred sites for allocation in the Waste Core Strategy. Rather, it satisfies the requirements of the SEA Directive and Planning and Compulsory Purchase Act to identify the likely significant sustainability effects of implementing the DPD, i.e. it sets out the potential sustainability effects (both minor and significant) of all the sites considered by the Council for waste management activities. As discussed in **Chapter 2** and above, there has been considerable overlap between the SA process and the site selection process for the DPD, thus, the GCC Site Assessments also set out likely impacts and sustainability issues for the sites determined during the Councils' site selection process.

3.13. In sustainability terms, it is often the case that similar positive and negative effects are expected to arise in relation to the SA objectives from locating waste management facilities on any of the sites considered by the Council, and the findings of the sustainability appraisal do not necessarily identify major differences between the sites. Indeed, for some of the SA objectives, the sustainability effects for all sites are predicted to be the same, as the score reflects the nature of the use proposed (i.e. waste management) for the sites, not each site's specific location. For example, employment generation (SA objective 6) would be the same for a waste management facility regardless of the location of the site used, and reducing waste to landfill (SA objective 20) is not site-specific, because all of the new waste facilities that might be developed would contribute to diverting waste from landfill. Therefore, it is difficult to differentiate or select preferred sites based solely on the findings of the SA. Other factors must also be taken into account, such as availability of the site, whether it has planning permission, how it fits with the rest of the Waste Core Strategy (i.e. the need for waste facilities and the spatial strategy) etc. These factors will be determined by the Council's officers during the development of the Waste Core Strategy.

SITE APPRAISAL METHODOLOGY

3.14. The SA of the 106 potential waste site options used mapped and digital data and the detailed information provided with the GCC Site Assessments to assess the potential effects of each site on each of the SA objectives, (e.g. proximity to sensitive receptors, natural and cultural resources, landscapes, areas vulnerable to flooding etc.)

3.15. LUC developed a Microsoft Access database to record the assessment of sites against SA Objectives, and prepare individual site SA Schedules (see **Appendix 2**). The assessment of each SA Objective was completed using a variety of desk-based methods as described below, and summarised in **Table 3.3**.

GIS analysis alone

3.16. Where possible, the datasets needed to assess the sites were collated and mapped in GIS and shown on an Ordnance Survey (OS) 1:10,000 basemap. For example, in relation to SA Objective 8: Biodiversity and Geodiversity, all designated nature conservation sites were mapped. For those datasets where digital mapping was possible, LUC used GIS to carry out intersection analyses to determine which potential waste sites were within, or within the relevant proximity distances to particular areas of constraint described in the decision-making criteria (see **Appendix 1**) (e.g. within 250m of sensitive receptors such as residential housing, schools, hospitals.) For the relevant SA objectives, LUC populated the site assessment database with the SA scores based on the GIS analysis.

GIS analysis followed by manual check

3.17. In a number of cases, an initial assessment of the sites against the SA Objectives using GIS analysis was undertaken; however, this needed to be followed up by a further check of the data by LUC team members. This was due to two main factors:

- GIS data are often at quite a large scale and do not differentiate between potential waste sites which are partially within areas of constraint or wholly within areas of constraint. For example, potential waste sites which touch a small section of a designated site were identified as being 'within the designated site'. This also applies to areas of flood risk. There was a need for LUC team members to check the digital OS basemap to ensure that the correct sustainability judgement scores were assigned to each objective.

- In some cases, the same types of data were not available for all of the Districts within Gloucestershire. Therefore, following the analysis of the GIS data, members of the team checked the OS basemap to ensure that for example, all recreational facilities (relevant to SA Objective 11) were identified.

No GIS data needed

3.18. In the case of SA Objectives 2: Education & community participation, 5: Economically sustainable waste management, 6: Employment opportunities, 15: Prevent pollution, 18: Water quality, 20: Waste hierarchy and 21: Use of primary materials, all sites have the potential to have the same type and magnitude of effect regardless of the location of the site. Therefore GIS and data analysis was not required to appraise sites against these SA Objectives.

Data unavailable – carry out more detailed assessment at later stage

3.19. In the case of landscape sensitivity (SA Objective 9), location of proposed residential areas (SA Objective 1 and 3), topography and prominence of the site in the landscape (SA Objective 10) and proximity to known or proposed Combined Heat and Power (CHP) users, data were not available at the time of the assessment (there is currently no strategic CHP infrastructure in Gloucestershire). This information is therefore either unavailable, or has not been mapped or obtained by GCC, and will need to be considered if available, once the shorter list of sites has been determined. Some analysis of potential effects on the landscape and the prominence of the site in the landscape was possible through GIS analysis, e.g. proximity to Areas of Outstanding Natural Beauty (AONBs) and information provided in the GCC site assessments.

3.20. The site database was populated during the SA and site SA Schedules were produced, which summarise the potential sustainability effects of developing a waste management facility at each of the sites. These SA Schedules can be found in **Appendix 2** to this report. **Chapter 4** includes a summary of the SA scores for each site.

Table 3.3 Method used for assessing sites against SA Objectives

SA objective	Notes	Method of assessment
1. Health and Well-being	Proximity to Schools	GIS analysis but requires reality check on OS basemap.
	Proximity to Existing residential	No GIS available. Analysis of OS basemap for: If site within 250 m of residential area. Check GCC Site Assessment
	Proximity to Proposed residential	No GIS available Check GCC Site Assessment Uncertain due to lack of spatial data, if not mentioned.
	Proximity to Hospitals	GIS analysis but requires reality check on basemap.
	Proximity to Offices	No GIS available Analysis of OS basemap for: offices.
	Proximity to Faith centres (i.e. churches, mosques, temples etc)	No GIS available Analysis of OS basemap for: churches, mosques, temples.
2. Community participation/education	All sites have the potential to have the same type and magnitude of effect regardless of the location of the site.	No GIS needed
3. Local amenity	In relation to sensitive receptors – as per SA Objective 1.	In relation to sensitive receptors – as per SA Objective 1.
	In relation to cumulative impact on communities – as per SA assumptions in framework.	GIS analysis for existing waste facility locations, but check the GCC Site Assessment as well for more detail on facilities. Analysis of OS basemap for: If site within 250 m of residential area.
4. Sustainable Economic Development	In relation to proximity to industrial estates, existing waste management facilities or sites identified for waste use in the Waste Local Plan.	Analysis of OS basemap for: If site within industrial estate. GIS analysis for existing waste facility locations, but check the GCC Site Assessment as well for more detail on facilities.
5. Manage waste in economically sustainable way	All sites have the potential to have the same type and magnitude of effect regardless of the location of the site.	No GIS needed.
6. Employment opportunities	All sites have the potential to have the same type and magnitude of effect in relation to job creation, regardless of the location of the site.	No GIS needed.
	Opportunities for employees to use sustainable transport.	GCC Highways Assessment

SA objective	Notes	Method of assessment
7. Aerodromes	Proximity to Aerodrome Safeguarding areas	Check GCC Site Assessment.
8. Biodiversity	Proximity to International (SAC, SPA, Ramsar)	GIS analysis. Plus GCC Ecology Assessment
	Proximity to National (NNR, SSSI)	
	Proximity to Local (LNR, SINC)	
	Proximity to BAP priority species and habitats	
9. Landscape	Within industrial estate	Analysis of OS basemap for: If site within industrial estate.
	Proximity to AONB	GIS analysis.
	Topography/screening	GCC Site Assessments - Uncertain due to lack of information, if not mentioned.
11. Cultural and Recreation assets	Proximity to Open space and leisure and recreation	GCC Site Assessment, plus Analysis of OS basemap for: • Allotments • School fields • Children's play areas • Sports fields • Cemeteries/churchyards • Parks • Wooded areas • Other open spaces • (outdoor) swimming pools
	Proximity to Public rights of way	GCC Site Assessment, plus Analysis of OS basemap for: • PROW • other non designated paths
12. Geodiversity	Proximity to Regionally Important Geological Sites	GCC Site Assessment Uncertain due to lack of spatial data, if not mentioned.
13. Archaeology and heritage	Proximity to Historic park or garden	GIS only
	Proximity to Scheduled monuments/ Listed Buildings/World Heritage Sites	GIS only
	Proximity to Conservation Areas	GIS only Check GCC Site Assessment Choose "Uncertain due to lack of spatial data" if not mentioned.
	Proximity to Archaeological remains	GCC Site Assessment
14. Flooding	Proximity to Flood zones	GIS followed by check of GCC Site Assessment
15. Prevent pollution	All sites have the potential to have the same type and magnitude of effect regardless of the location of the site.	No GIS needed.
16. Soil/land quality	Proximity to Best and Most Versatile agricultural land	GIS analysis
	Proximity to Previously developed land	GCC Site Assessment if stated
17. Air Quality	Proximity to Air Quality Management Areas	GIS analysis
	Proximity to strategic highway network	GCC Highways Assessment
18. Water quality	All sites have the potential to have the same type and magnitude of	No GIS needed.

SA objective	Notes	Method of assessment
	effect regardless of the location of the site.	
19. Lorry traffic impacts	Potential for sustainable transport modes	GCC Highways assessment
	Proximity to strategic highway network	GCC Highways assessment
20. Waste Hierarchy	All sites have the potential to have the same type and magnitude of effect regardless of the location of the site.	No GIS needed.
21. Global use of primary materials	All sites have the potential to have the same type and magnitude of effect regardless of the location of the site.	No GIS needed
22. Climate change	Within Industrial estates	Analysis of OS basemap for whether site appears to be within or adjacent to an industrial estate.
	Proximity to Proposed CHP user (e.g. proposed residential/mixed use developments)	GIS analysis only – for sites within or adjacent to proposed residential/mixed use development areas. Check GCC Site Assessment Uncertain due to lack of spatial data, plus currently no CHP infrastructure in Gloucestershire.

4. APPRAISAL OF THE STRATEGIC WASTE SITE OPTIONS

4.1. The potential waste site options were appraised against the 22 SA Headline Objectives in the SA Framework (set out in **Chapter 3**), using the assumptions described in **Appendix 1**. The detailed site SA Schedules can be found in **Appendix 2**. **Table 4.1** at the end of the chapter summarises the potential sustainability effects of the 106 potential waste site options on each of the SA Objectives.

SUMMARY OF SA FINDINGS

Short, medium and long term effects

4.2. The SEA Directive requires that the assessment of effects should include "secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary effects" (SEA Directive Annex I). In the case of the potential waste site options, the number and spatial distribution of those sites that will be allocated in the Waste Core Strategy for Strategic Waste Sites is not yet known, and the exact nature of their future use will be very dependent on the proposals that come forward from the waste industry. Therefore, at this stage in the SA it is difficult to be precise about when, where and in what form the effects will arise, and how one effect might relate to another. The Government's SEA Guidance[14] states that "Where possible, it is useful to apply short, medium and long timescales consistently throughout the assessment. However if different timescales are used, this will need to be made clear within the Environmental Report. For air pollution, for instance, the short, medium and long terms could be 3, 10 and 25 years, while for climate change they could be 5, 20 and 100 years".

4.3. While there are no fixed definitions of short, medium or long term, it is possible to draw some broad conclusions from the SA about the nature and interrelationship of the effects of developing waste facilities on the potential sites:

- Most of the effects will be long-term, in that the Waste Core Strategy aims to provide waste development that will last over time. There will inevitably be some temporary and short or medium term effects during the construction or operation of facilities (see below);
- The effects which have been identified in the appraisal of the potential waste site options, both positive and negative, are likely to increase over time, as policies and proposals in the Waste Core Strategy are implemented, and more waste development is delivered in Gloucestershire.

Short-term effects of the potential waste site options

4.4. The cumulative impacts of the potential waste site options in the short-term (i.e. up to five years) would be mostly related to the initial impacts of construction of waste management facilities. This would include the removal of vegetation, top soil, sub soil, and construction of infrastructure required. Such works could have negative impacts on biodiversity, local amenity (possible disruption to Rights of Way, traffic flows, noise

[14] *A Practical Guide to the Strategic Environmental Assessment Directive.* ODPM, September 2005.

generation etc.), soil quality, and the landscape. However, these impacts would be temporary in nature and many are likely to be minimised through good design and successful implementation of development control policies.

Medium-term effects of the potential waste site options

4.5. Medium-term (i.e. five to ten years or as long as waste facilities are in operation) positive impacts relate to the employment and economic benefits of the waste management. Potential negative impacts in the medium term include the potential effects of operational waste management facilities on health and local amenity (e.g. noise, dust, increased traffic etc.).

Long-term effects of the potential waste site options

4.6. Long-term (i.e. longer than ten years), permanent benefits that would result from the development of sites allocated in the Waste Core Strategy include the provision of sufficient waste management capacity to meet Gloucestershire's needs. Long-term, negative impacts of the site allocations could be: loss of greenfield land and habitats, loss of areas of best and most versatile agricultural land; climate change contributions from the energy required to operate facilities and vehicle movements to transport waste and minerals.

Significant effects

4.7. Some of the potential waste site options are likely to have the following **significant positive effects** (alone or in combination):

- Efficient use of materials and reduction in the amount of waste going to landfill, by helping to deliver facilities for recycling, composting and recovery of waste;
- Efficient use of materials and reducing the amount of waste going to landfill also assists in reducing contributions to climate change through reductions in carbon dioxide (CO_2) and methane (CH_4).
- Opportunities for major enhancement and/or additional Public Rights of Way routes to be constructed, as identified in the GCC PRoW assessment for the site could have a significant positive effect on recreational assets in the County.
- Avoidance of areas at high risk of flooding.
- Reduction in loss of good quality soil/land through the use of large previously developed sites.
- Reduced potential for air pollution or contribution to climate change through the opportunity to transport waste using rail or canals, or minimising lorry movements on local roads through direct access onto the strategic highways network.
- Reduced contribution to climate change if energy, including heat, were to be generated from the waste management process and used within nearby development. Waste as a fuel can act as a substitute for fossil fuel energy generation.

4.8. In general, the majority of **potential significant negative** effects, which may occur from construction and operation of new waste management facilities on the potential waste site options (alone or in combination) are in relation to:

- Landtake (and potential loss of good quality soil/land, Public Rights of Way, or loss, fragmentation or damage to habitat for international or nationally designated nature conservation sites).
- Air emissions from road traffic to and from the new waste sites (including dust, e.g. or waste materials being broken up into particles through the transfer of waste) and emissions (combustion gases, e.g. oxides of nitrogen (NO_x), sulphur dioxide (SO_2) and ammonia (NH_3)) from some recovery facilities.
- Visual impact (on landscape (AONB), townscape and heritage assets such as Scheduled Ancient Monuments and Listed Buildings)
- Physical damage (to geological or archaeological assets).
- Flood risk through development in areas identified at high risk of flooding.

4.9. As discussed in the summaries below, it is likely that many of these potential effects would be reduced through successful implementation of robust development control policies within the Waste Core Strategy or an associated DPD, or through a planning application EIA, requiring good practice techniques by the waste industry. It is therefore assumed that the planning application process should ensure that any proposals for waste management facilities on the final allocated sites will seek to mitigate these potential significant effects through well designed and operated facilities.

4.10. Most waste management facilities will also need to meet the high standards of design and operation to obtain an Environmental Permit (EP) (formerly Pollution Prevention and Control (PPC) permits) regulated by the Environment Agency. The requirement to meet EP/PPC permitting standards (including emissions to air, land and water, energy efficiency, noise, vibration and heat and accident prevention) should ensure that design and operation of waste facilities minimises most of the potentially significant effects above.

Potential sustainability effects by SA Objective

4.11. A summary of the potential effects of the waste site options on each SA Objective and how they may interact to create cumulative effects is set out below.

SA Objective 1: To promote sustainable development and sustainable communities and improve the health and well-being of people living and working in Gloucestershire as well as visitors to the County

4.12. Some types of waste facilities could have a negative effect on protecting the health of local residents, communities and visitors to the County. This is due to the biospores or gaseous emissions that may be released from certain waste management technologies such as composting, anaerobic digestion or producing energy from waste. However, Government research conducted in 2004[15], reviewed evidence from a large range of studies, and concluded that modern waste management practices have at most a minor

[15] *Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes.* Prepared for Defra by Enviros and University of Birmingham, May 2004.

effect on human health. The minor effects related only to possible effects on residents living close to two types of waste management facility: landfills or commercial composting facilities. Although the majority of potential waste site options (98) have the potential for minor negative effects on the health and well being of local communities in Gloucestershire due to their proximity to sensitive receptors (within 250m of residential areas, schools, hospitals, offices and faith centres), most of the negative effects of the potential waste sites could be mitigated by robust development control policies, and the need for good design and operation of facilities to meet the high standards required by EP/PPC permits. In addition, health effects would only have the potential to arise from new composting facilities, and the type of facility that might be developed on the waste site options is not known at this stage. In a small number of cases there are dwellings located within site boundaries. In these cases it may be difficult to mitigate potential negative effects and therefore residual negative effects would remain.

SA Objective 2: To educate the public about waste issues and to maximise community participation and access to waste services and facilities in Gloucestershire

4.13. All of the site options could have an indirect positive effect on education opportunities, as new waste facilities may include education centres within the site. If the site were to be allocated for a new household recycling centre then it could also have an indirect positive effect on encouraging involvement and participation in recycling. However, this effect is uncertain at this stage in the planning process as the types of facilities have not been specified for particular sites.

SA Objective 3: To safeguard the amenity of local communities from the adverse impacts of waste development

4.14. As for SA Objective 1, the majority of the waste development sites (98) have the potential for minor negative effects on the amenity of local communities in Gloucestershire due to their proximity to sensitive receptors (within 250m of residential areas, schools, hospitals, offices and faith centres). This is because all development would result in some level of noise, traffic, and light pollution during construction and potentially during operation as well. However, most of the negative effects of the potential waste sites could be mitigated by robust development control policies, and the need for good design and operation of facilities to meet the high standards required by EP/PPC permits. In a small number of cases, however, there are dwellings located within site boundaries. In these cases it may be difficult to mitigate potential negative effects and therefore residual significant negative effects would remain.

4.15. In addition, 35 of the potential waste sites that are within 250m of residential areas are also adjacent to or within 250m of existing waste facilities, which in combination with a new waste management facility could result in a cumulative effect on local amenity in that area. PPS10[16] states that the cumulative effects of previous waste disposal facilities on the well-being of the local community should be considered when assessing the suitability of sites; thus regard should be given to the potential cumulative effects of sites located in close proximity to existing waste facilities when development proposals come forward.

[16] Planning Policy Statement 10: Planning for Sustainable Waste Management. *ODPM*, 2005.

SA Objective 4: To promote sustainable economic development in Gloucestershire giving opportunities to people from all social and ethnic backgrounds

4.16. The creation of any new waste management facilities within Gloucestershire may have a minor positive impact on encouraging investment and growth of 'green industry' in the County, regardless of the location. However, the majority of the potential sites (86) are within existing industrial estates, within 250m of, adjacent to or include existing waste facilities or sites allocated in the current Waste Local Plan and therefore also have the potential for positive effects on sustainable local economic activity as they could encourage complementary activities to waste management, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. However, this will depend on the type of facility proposed on the site, and the nature of neighbouring industrial/commercial outlets.

SA Objective 5: To manage waste in an economically sustainable way through means that represent good value for tax payers in Gloucestershire

4.17. At this stage in the Waste Core Strategy development, it is difficult to assess how the location of new large scale waste facilities may affect this SA objective. However it is important to note that certain sites will be more efficient than others (e.g. in terms of reductions in transport movements & costs), given their proximity to the main sources of waste arisings and to transfer stations and/or any other facilities that may service them. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of cost but this will not be known until the planning application stage.

4.18. The costs of disposing of waste to landfill are rising rapidly through the influence of the Landfill Allowance Trading Scheme (LATS) and the landfill tax. Therefore, by providing for new waste management facilities using processes other than landfill, the waste site options should have a long-term positive impact by reducing the costs associated with LATS. The Environment Report for the Gloucestershire Municipal Waste Management Strategy[17] notes that in terms of costs of the municipal waste management options, the cost of not segregating waste and depositing it to landfill will become higher than the cost of source segregation and waste treatment. In addition, while treating residual waste is expensive, these costs will be offset by the avoidance of LATS penalties and landfill tax. The actual impact will depend on the choice of technologies.

SA Objective 6: To provide employment opportunities in both rural and urban areas of the County, promoting diversification in the economy

4.19. The provision of potential waste sites within the Waste Core Strategy will help to create new facilities, which would be likely to create some employment opportunities during construction and operation. The cumulative effects of all the new waste development taken together are likely to have positive effects on employment opportunities in the County. However, due to a lack of information about the current contribution to wider employment in Gloucestershire of the waste industry, it is uncertain whether the numbers of jobs created through development of the Strategic Waste Sites (once allocated in the Waste Core Strategy) are likely to be high enough to cause a significant positive effect on employment.

[17] *Environmental Report for the Gloucestershire Municipal Waste Management Strategy.* Prepared for Gloucestershire County Council by Eunomia, October 2007.

4.20. In terms of opportunities for future employees of potential waste facilities on each site to use sustainable transport to travel to work, 17 sites were assessed as 'high' by GCC Highways and should therefore have a significant positive effect in reducing car travel by employees of new facilities developed on those sites. Fifty-nine sites would have a minor positive effect due to being assessed as medium potential, while the remaining 30 sites were assessed as having low potential for employees to use sustainable transport and would therefore have a minor negative effect.

SA Objective 7: To ensure that waste sites do not compromise the safety of commercial or military aerodromes

4.21. Just under half of the potential waste sites (47) will not compromise the safety of commercial or military aerodromes as they are not within aerodrome safeguarding areas. Negative effects may arise from 59 of the potential waste sites that are within aerodrome safeguarding areas (e.g. the Gloucestershire Airport zone and the MOD South Cerney aerodrome zone) due to the potential for birds and tall chimneys to provide a hazard to aircraft. This effect would only apply to sites allocated for new landfill or thermal treatment facilities, and it is unlikely that any of the potential sites being considered for allocation within the Waste Core Strategy will be for landfill. However, tall chimneys which may be required for some thermal treatment facilities could also present a hazard to aircraft. The specific types of facilities proposed on the potential waste sites is not known at this stage of the assessment, and will need to be considered once specific proposals are made.

SA Objective 8: To protect, conserve and enhance biodiversity in Gloucestershire

4.22. Development of 23 of the potential waste sites could have significant negative effects on biodiversity, due to the presence of Biodiversity Action Plan (BAP) habitats or species on the site, or the potential loss of land and habitats to development, and from emissions to air and water affecting designated habitats and species in proximity or hydrologically connected to the potential waste sites.

4.23. The potential for significant effects on the integrity of SAC/SPA/Ramsar sites identified need to be assessed through Habitats Regulations Assessment. Designated and non-designated habitats across the County could potentially become fragmented due to the development of minerals and waste sites in combination with the housing development proposed for Gloucestershire with the South West RSS. Fragmentation breaks up large areas of habitat into small, unconnected habitat 'fragments', which are often too small to support viable populations of plant and animal species. Various guidance documents show that while this should be avoided where possible, there are mitigation measures that could be implemented such as the retention of open space 'buffer zones', 'stepping stones' or wide 'corridors of habitat around and linking the fragments[18]. The best stepping stones are large in area, but as space is often limited within development sites, the establishment of green roofs, climbing plants on walls, individual trees, patches of grassland offers the opportunity to incorporate some wildlife habitats within new development.

[18] *Design for biodiversity.* London Development Agency, undated. (http://www.d4b.org.uk/why/design4Biodiversity.pdf)

SA Objective 9: To protect, conserve and enhance the landscape in Gloucestershire.

4.24. Development of a small number of the potential waste sites (ten) could have significant negative effects on the landscape due to being located within the Cotswold AONB. However, this effect is uncertain for eight of those sites as they are located within existing industrial estates. The potential for negative effects on other Landscape Character Areas (LCA) within the county are uncertain due to a lack of information about the sensitivity to development of each LCA. However, again, many of the potential waste sites are within or adjacent to existing industrial estates, thus should not have a significant effect on landscape character or the quality or setting of settlements. In addition, there is the potential for positive effects on landscape character at all of the potential sites as the design of modern waste management facilities is increasingly adopting innovative practice. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage.

SA Objective 10: To ensure that waste sites have the potential for adequate screening and/or innovative design to be incorporated

4.25. Potentially significant effects were only identified for four sites as it is uncertain to what extent waste facilities may be able to be screened, however, the GCC Site Assessments provided some information where screening was likely to be more of a challenge. Twenty four sites have the potential for minor negative effects on this objective. However, as with SA Objective 9, all new waste development has the potential for positive effects through innovative design to be achieved at any of the potential sites regardless of location, but the effects are uncertain until the exact nature and design of the proposed facility are submitted with a planning application.

SA Objective 11: To protect conserve and enhance Gloucestershire's material, cultural and recreational assets

4.26. Thirty three potential waste sites could have a significant negative effect on recreational assets in Gloucestershire because they include a leisure or recreational facility, open space, or Public Right of Way (PRoW). However, there are usually opportunities to redirect PRoWs, and some of the sites have the potential for positive effects due to the GCC PRoW team assessments identifying that there is an opportunity for the existing route to be enhanced.

SA Objective 12: To protect conserve and enhance geodiversity in Gloucestershire

4.27. Loss of geodiversity may occur as a result of developing waste management facilities on a small number (eight) of the potential waste sites due to their location within the boundary of a national site of geological interest (SSSI) or Regionally Important Geological/Geomorphological Site. These sites should be avoided unless adequate mitigation measures are put in place. However, there may be some opportunities to incorporate important geological features within the design of the development. This would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage.

SA Objective 13: To protect conserve and enhance townscapes and Gloucestershire's architectural and archaeological heritage

4.28. Thirty six of the potential waste sites could have a significant negative effect on Gloucestershire's townscapes, architectural and archaeological heritage due to their location within a Historic Park or Garden or Registered Battlefield, within a Conservation Area or having Listed Buildings or Scheduled Ancient Monuments present on site. However, many of the potential waste sites are within or adjacent to existing industrial estates, thus the significance of the effect on townscape character or a Conservation Area may be reduced. In addition, there is the potential for positive effects on townscape and architectural heritage at all of the potential sites as the design of modern waste management facilities is increasingly adopting innovative practice, for example, a recently built incinerator in the centre of Vienna, has become one of their biggest tourist attractions[19]. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage.

SA Objective 14: To prevent flooding, in particular preventing inappropriate development in the floodplain and to ensure that waste development does not compromise sustainable sources of water supply

4.29. Twenty six of the potential waste sites are likely to result in significant negative effects on flooding due to their location within Flood Risk Zone 3. These sites should be avoided unless sufficient mitigation measures can be in place (e.g. incorporating SuDS into areas of hardstanding and landscaping).

SA Objective 15: To prevent pollution and to apply the precautionary principle in consultation with waste regulation authorities

4.30. In relation to the location of potential waste sites, potential pollution effects are already covered under SA Objectives 1, 3, 16-18. The precautionary principle is inherently being applied during the site allocation process (which is still ongoing) through the Council's own site assessment methodology and this independent SA of the potential waste sites.

SA Objective 16: To protect and enhance soil / land quality in Gloucestershire.

4.31. Only three of the potential waste sites are likely to have a significant negative effect on soil/land quality in Gloucestershire, due to being large sites on high quality agricultural land. A large portion of the sites are previously developed and within industrial estates thus should not affect soil or land quality.

SA Objective 17: To protect and enhance air quality in Gloucestershire

4.32. Development of waste management facilities is likely to cause some emissions to air, due to waste transportation by road, as well as any air pollution associated with the operation of the facility and processes used, such as dust and odour if waste is stored in open areas, bio-aerosols from biological process and acid gases/CO2/dioxins and furans from thermal processes. The type and extent of air pollution (e.g. from dust or other emissions) will depend on the type of facility proposed on the site. However, only twenty eight sites are likely to have minor negative effects as they do not have good access onto the strategic highway network and waste lorries would have to travel via

[19] http://www.wieninternational.at/en/node/9543

local roads (which may or may not involve trips through the AONB). It is assumed that development control requirements and the EP/PPC standards regulated by the Environment Agency should ensure that impacts on air quality from waste operations are minimised.

SA Objective 18: To protect and enhance water quality in Gloucestershire

4.33. Enclosed waste management facilities (such as MRFs and in-vessel composting facilities) are not expected to affect water quality. As stated in Planning for Waste Management Facilities[20], "as most facilities are under cover and on concrete hard standing with separate foul water drainage, rainfall is unlikely to come into contact with the waste materials and, as such, water pollution is unlikely." Although composting operations produce leachate, the enclosure of such facilities will reduce potential impacts. Standard design features of such facilities require that sites are surfaced adequately, drainage is segregated and containment principles are applied.

SA Objective 19: To reduce the adverse impacts of lorry traffic on the environment and communities

4.34. Transport of waste by road can cause impacts on air pollution from emissions and on local amenity from noise and increased traffic and congestion on local roads. These effects have been partially predicted and assessed under SA Objective 17 above. The prediction of effects for this objective are based on the GCC Highways assessment of the site's potential to provide opportunities to explore more sustainable modes of transporting waste (with associated benefits for reducing contribution to climate change). In addition, direct impacts of lorry traffic (i.e. noise, nuisance, safety, congestion as opposed to air pollution) on communities relates to how much access is reliant on local roads, therefore the GCC Highways assessment in relation to proximity to the strategic highway network has also been used to assess the potential for effects on this objective.

4.35. A large number of the sites have the potential for significant positive effects due to their location adjacent to their having been assessed as having 'good' or 'high' potential by GCC Highways for sustainable transport for operational access or for their proximity to the strategic highway network meaning there will be less waste transport on local roads.

SA Objective 20: To reduce waste to landfill and in dealing with all waste streams to actively promote the waste hierarchy (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste.

4.36. All facility types that may be developed on sites allocated for waste management in the Core Strategy are likely to have a minor positive effect by ensuring waste management occurs using processes higher up the waste hierarchy than landfill. However, the specific location of sites for these waste management facilities has have no effects on this objective as the effects depend on the type of facility that eventually gets proposed. This may need to be re-assessed at a later stage if facility types are prescribed on the sites that get allocated in the Waste Core Strategy.

[20] *Planning for Waste Management Facilities: A Research Study,* ODPM, August 2004.

SA Objective 21: To reduce the global use of primary materials and minimise net energy balance requirements.

4.37. As with SA Objective 21 above, all facility types that may be developed on sites allocated for waste management in the Core Strategy are likely to have a minor positive effect by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help to recycle, compost and recover value or energy from waste and reduce use of primary materials. However, the specific location of sites for these waste management facilities would have no effects on this objective as the effects depend on the type of facility that eventually gets proposed.

4.38. The potential for energy generation from waste facilities is considered under SA Objectives 4 and 22. The mass energy balance that may be achieved through the use of different technologies would only be able to be estimated if specific facility types were identified on sites.

SA Objective 22: To reduce contributions to and to adapt to Climate Change.

4.39. All of the potential waste sites are expected to have no effect or positive effects on reducing contributions to and adapting to climate change. These effects have been predicted based on the scenario that energy recovered from the waste management process under a combined heat and power (CHP) scheme could have a significant positive effect on increasing the proportion of energy generated from renewable sources in Gloucestershire. However, in general, the opportunity to incorporate a CHP scheme is generally only available to future residential or business park developments as opposed to retrofitting infrastructure into existing development. Proximity to future residential/business developments is difficult to determine, but those sites that are within or adjacent to existing industrial estates have been assessed as potentially having a significant positive effect. The type of facility to be developed on each site will not be known until the planning application stage, thus overall, the significant positive effects would be uncertain.

4.40. With respect to the other sub-questions for SA Objective 22, effects were not able to be predicted as it is not possible for the undeveloped site to have an impact on reducing energy demand. In addition, the flexibility of the site to adapt to climate change will depend more on the specific design of the facility and its layout, and incorporation of sustainable construction techniques, drainage systems and measures to enable changes to new technologies as they develop etc. This can not be assessed until the detailed proposals for a site are known, which would be at the planning application stage. Other policies in the Waste Core Strategy which provide criteria for ensuring these measures are included in planning applications will be assessed separately from the potential waste sites.

CONCLUSIONS

4.41. A number of potential significant negative effects were identified during the SA, which mainly relate to the potential for effects on the environment during construction and operation of waste management facilities, visual intrusion of the facility, as well as increased road transport and flood risk. However, as discussed throughout this chapter, a number of these effects should be able to be mitigated by implementation of robust development control policies, or when details are known at the planning application stage. In addition, the requirement to meet EP/PPC permitting standards that are

regulated by the Environment Agency should ensure that design and operation of the waste facilities minimises any potentially significant effects. The EP/PPC standards cover emissions to air, land and water, energy efficiency, noise, vibration and heat and accident prevention.

4.42. However, the majority of effects of developing new waste facilities on the potential waste sites are likely to be negligible or in many cases positive, due to the reduction in waste going to landfill and associated efficiencies in resource use and sustainable economic development, along with opportunities for education, community participation and employment. In addition, the location of certain sites could help to reduce the severity of potential negative effects (e.g. on flooding, road transport and loss of good quality soil and land).

4.43. We have inevitably had to make assumptions in coming to judgements of the effects of the DPD. Our assumption with respect to effects, cumulative or otherwise, is on the basis of the intention of the Strategic Waste Site allocations i.e. what they are trying to achieve. However, development of the Strategic Waste Site allocations will also be considered alongside the other policies in the Waste Core Strategy, other documents in the MWDF and the South West RSS. Past experience suggests that, when considering development proposals, there will often be tensions when applying different policies, and deciding where weight should apply. Despite the best intentions of the planning authority, it may not always be possible to deliver development that meets all policy criteria and good practice guidance, and difficult choices will often have to be made.

Recommendations for reducing the list of potential waste sites

4.44. In considering which of the 106 potential waste site options should be taken forward for allocation as a Strategic Waste Site, GCC should take into account the potential significant negative effects identified, and the following recommendations.

4.45. Habitat loss should be avoided wherever possible, particularly if it is part of an internationally or nationally designated site of nature conservation importance such as a Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar wetland site or a Site of Special Scientific interest (SSSI). Site options where potential significant negative effects have been identified through the SA should not be taken forward into the shorter list of sites included in the Waste Core Strategy for consultation. If they are, they should be subject to screening under the Habitats Regulations to determine whether a significant effect may occur on the integrity of the habitats and species for which a SAC, SPA or Ramsar is designated.

4.46. Similarly, potential waste site options in Flood Risk Zone 3 should be avoided. PPS25: Development and Flood Risk requires development applicants to carry out an assessment of flood risk and the runoff implications of their proposals. This could be incorporated into the Waste Core Strategy as a requirement of the planning application process for waste development proposals in areas of high risk of flooding. The flood risk assessment should:

- Identify how much of the site is in flood-plain and how much capacity would need to be replaced.
- Demonstrate the likely impact of any displaced water on neighbouring or other locations which might be affected subsequent to development

4.47. Sustainable drainage systems (SuDS) are key to ensuring that long-term flood risk is managed. The incorporation of SuDS in the design and layout of waste management facilities and their circulation areas should help to reduce surface run-off and effects on land drainage in the locality.

4.48. As such a large number of sites are within 250m of sensitive receptors it will be too difficult to rule out all of them from further consideration. Therefore, robust development control policies will need to be included within the Waste Core Strategy or Development Control Policies DPD and implemented at the planning application stage.

4.49. Sites within the Cotswold AONB should be avoided unless a site-specific expert landscape assessment can be undertaken to prove that significant effects on the AONB are unlikely or could be mitigated. Similarly, due to the lack of information relating to the sensitivity of Landscape Character Areas within Gloucestershire, it is recommended that further expert assessment of potential landscape impacts are undertaken for any sites that make it into the shorter list for further consideration as Strategic Waste Site allocations.

Implementation

4.50. Implementation will be the key to success of the Waste Core Strategy and raises some key issues:

- A strong commitment is required to ensure that development delivers the positive effects identified. If not, then positive effects could easily change into negative effects, for example by the delivery of development that, through its location and design, erodes settlement and landscape and townscape character rather than contributing to it. Similarly, there are likely to be policies in the Core Strategy DPD that aim to protect environmental assets, reduce the need to transport waste and minerals, avoid increased flood risk, etc. These will need to be applied with rigour if development proposed on the allocated sites is to be sustainable.

- There is a need to co-ordinate the delivery of the MWDF documents as a package of policies to ensure that synergies between economic, social and environmental objectives are maximised e.g. co-locating waste management facilities to reduce transport and land take, maximising the re-use of construction and demolition materials to avoid the use of primary aggregates, and linking with improvements to the quality of the natural and built environment.

Table 4.1: Summary of SA Fiindings by SA Objective

Site ID	Site Name	SA Objective 1	SA Objective 2	SA Objective 3	SA Objective 4	SA Objective 5	SA Objective 6	SA Objective 7	SA Objective 8	SA Objective 9	SA Objective 10	SA Objective 11	SA Objective 12	SA Objective 13	SA Objective 14	SA Objective 15	SA Objective 16	SA Objective 17	SA Objective 18	SA Objective 19	SA Objective 20	SA Objective 21	SA Objective 22
2	Swindon Road, Cheltenham and Surrounding Industrial Estates	-?	+?	-	+?	0	+ +	-?	-?	0	?	+?	0	-	0	N/A	+?	+	0	+ +	+	+	+ +?
26	Foss Cross Industrial Estate	0	+?	0	+?	0	-	0	+?	- -	?	+?	-	+	+ +	N/A	+ +	+ +	0	-/++	+	+	+?
28	Huntsmans Quarry, Naunton	0	+?	0	+?	0	-	0	0	- -?	?	0	- -	- -	+ +	N/A	+?	-	0	-	+	+	+?
29	Kingshill North, Cirencester	-?	+?	-	0	0	+	-?	+?	-	?	+/-	0	-	+ +	N/A	-	+ +	0	-/++	+	+	+?
37	Siddington Park Farm	-?	+?	-	+?	0	-	-?	-?	-	-	+?	0	-	+ +	N/A	+/-	+	0	-/+	+	+	+?
51	Cinderford 3, Northern United	-?	+?	-	+?	0	+	0	-	-	-	- -	0	-	+ +	N/A	+	+	0	-/+	+	+	+?
52	Cinderford 4, Lightmoor	0	+?	0	+?	0	-	0	- -?	-	-	+/-?	0	- -	+ +	N/A	+	+	0	-/+	+	+	+?
57	Longhope 2	-?	+?	-	+?	0	+	0	0	-	-	-	0	-	+	N/A	+	+	0	-/+	+	+	+?
58	Mitcheldean 4	-?	+?	-	0	0	+	0	- -	0	?	0	- -	-	+	N/A	0	-	0	-	+	+	+?
78	Lydney 7, Hurst Farm	-?	+?	-	0	0	-	0	- -	-	-	- -	-	0	+ +	N/A	- -	+	0	++	+	+	0
88	Old Station Yard, Newent/Newent 6	-?	+?	-	+?	0	+	0	-	0	+?	-	0	-	+	N/A	+	+	0	-/+	+	+	+?
93	Wilderness Quarry, Mitcheldean	0	+?	0	+?	0	+	0	0	0	+?	0	- -	0	+	N/A	+?	+	0	-/+	+	+	+?
129	Sudmeadow Hempsted	-?	+?	-	+?	0	-	-?	-	0	0	+/-	0	-	- -	N/A	+?	+	0	+ +	+	+	+ +?
145	Industrial Estate, Former Moreton Valence Airfield	-?	+?	-	+?	0	+	0	0	-	?	-	0	+?	+ +	N/A	+ +	+ +	0	+	+	+	+?
163	Saul (Fretherne Nurseries)	-?	+?	-	+?	0	-	0	- -	-	+?	-	0	-	- -	N/A	+?	-	0	+/-	+	+	+?
177	Site EK1, Chalford Industrial Estate	-?	+?	-	0	0	+	0	+/-	- -?	-?	- -	0	- -	- -	N/A	+	+	0	+ +	+	+	+?
179	Site EK11, Salmon Springs Industrial Estate, Painswick Road, Stroud	-?	+?	-	+?	0	+	0	0	- -?	+?	+/-	0	- -	- -	N/A	+	-	0	-	+	+	+?
187	Site EK19, Inchbrook Industrial Estate, Bath Road, Nailsworth	-?	+?	-	+?	0	+	0	- -	0	+?	-	-	- -	- -	N/A	+	+	0	+/-	+	+	+?
189	Site EK20, Nailsworth Mill Industrial Estate, Avening Road, Nailsworth	-?	+?	-	+?	0	+ +	0	- -	0	?	+/-	- -	- -	- -	N/A	+	+	0	-/+	+	+	+?
190	Site EK21, Spring Mill Industrial Estate, Avening Road, Nailsworth	-?	+?	-	+?	0	-	0	-	- -?	+?	- -	-	- -	- -	N/A	+?	+	0	-/+	+	+	+?
191	Site EK22, Frampton Industrial Estate, Bridge Road, Frampton-on-Severn	-?	+?	-	+?	0	+	0	- -	0	+?	+/-	0	-	- -	N/A	+	-	0	+ +/-	+	+	+?
193	Site EK24 Cam Mills, Everlands, Cam	-?	+?	-	+?	0	+	0	0	-?	+?	+/-	0	?	- -	N/A	+?	-	0	-	+	+	+?
203	Site EK34, Former MOD Site 4, Hardwicke	-?	+?	-	+?	0	+	-?	+?	0	+?	- -	0	0	+ +	N/A	+ +	+ +	0	+	+	+	+?
205	Site EK36, Former MOD Site 6, Hardwicke	-?	+?	0	+?	0	-	-?	0	-?	+?	+	0	0	+	N/A	+	-?	0	+/-	+	+	+?
208	Site EK5, Upper Mills Industrial Estate, Bristol Road, Stonehouse	-?	+?	-	+?	0	+	0	0	-?	+?	- -	0	- -	+	N/A	+	-	0	+/-	+	+	+?
209	Site EK6, Ryeford Industrial Area, Stonehouse	-?	+?	-	+?	0	+	0	-?	-?	+?	-	0	- -	- -	N/A	+ +	+	0	+	+	+	+?
246	Malvern View, Bishop's Cleeve	-?	+?	-	+?	0	+	-?	+?	0	+?	+/-	0	+	+ +	N/A	+ +	+	0	+	+	+	+?
252	Business/Industrial Park, Tewkesbury/Aschurch	-?	+?	-	+?	0	+ +	-?	- -	0	+?	-?	0	-?	-	N/A	+ +	0	0	+ +	+	+	+?
253	Smiths Industrial Estate	-?	+?	-	+?	0	+	-?	0	0	+?	-	0	-	+ +	N/A	+ +	+	0	+	+	+	+?
272	Wingmoor Farm West, Sites A&B	-?	+?	-	+?	0	-	-?	0	0	+?	+/-	- -	+	+	N/A	+	+	0	++	+	+	+?
290	Mitcheldean 3	-?	+?	-	+?	0	+	0	- -	0	+?	-	- -	- -	+ +	N/A	+ +	+	0	-/+	+	+	+?
291	Drybrook 4	-?	+?	-	0	0	+	0	0	0	+?	+/-	- -	0	- -	N/A	+	+	0	-/+	+	+	0
294	Arle Court/Hatherley Lane/the Reddings	-?	+?	-	0	0	+ +	-?	-	0	+?	+/-	0	- -	+	N/A	+ +	+	0	+	+	+	+?
295	The Grange, Bishop's Cleeve	-?	+?	-	0	0	+	-?	0	0	+?	+/-	0	-	+ +	N/A	+ +	+	0	+	+	+	0
299	Toddington - Orchard Trading Estate	-?	+?	-	+?	0	-	0	+?	- -?	+?	+	0	-	+ +	N/A	+ +	+	0	-/+	+	+	+?

Site ID	Site Name	SA Objective 1	SA Objective 2	SA Objective 3	SA Objective 4	SA Objective 5	SA Objective 6	SA Objective 7	SA Objective 8	SA Objective 9	SA Objective 10	SA Objective 11	SA Objective 12	SA Objective 13	SA Objective 14	SA Objective 15	SA Objective 16	SA Objective 17	SA Objective 18	SA Objective 19	SA Objective 20	SA Objective 21	SA Objective 22
300	Uckington	-?	+?	-	0	0	+	-?	-	0	+?	+/-	0	0	0	N/A	+	0	0	-/+	+	+	+?
309	Andoversford	-?	+?	-	+?	0	-	0	0	- -?	- -?	+/-	0	0	0	N/A	+ +	+ +	0	-/++	+	+	+?
312	Ullenwood	-?	+?	-	0	0	-	-?	-	- -?	+?	+/-	-	+	+ +	N/A	+ +	-	0	-	+	+	0
357	Greater Blackfriars	-?	+?	-	+?	0	+ +	-?	0	0	+?	+/-	0	- -	0	N/A	+ +	0	0	+	+	+	0
359	Westgate Quay	-?	+?	-	0	0	+	-?	0	0	+?	+/-	0	-	- -	N/A	+	0	0	+ +	+	+	0
370	Gardner Denver, Barton Street	-?	+?	-	+?	0	+	-?	+?	0	+?	+/-	0	+	+ +	N/A	+	-	0	+ +/-	+	+	0
371	Olbas & Helipebs, Sisson Road, Gloucester	-?	+?	-	0	0	+	-?	+	0	+?	+/-	0	0	+ +	N/A	+	-	0	+ +/-	+	+	0
382	Goodridge Trading Estate	-?	+?	-	+?	0	+	-?	0	0	0	+	+?	+	+	N/A	+	+	0	+ +	+	+	+?
388	The Docks, Gloucester	-?	+?	-	0	0	+	-?	0	0	+?	+/--	0	- -	0	N/A	+ +	0	0	+ +	+	+	0
389	Eastbrook Road Trading Estate, Eastern Avenue	-?	+?	-	+?	0	+ +	-?	+	0	+?	+/-	0	+	+ +	N/A	+ +	0	0	+	+	+	+?
409	Gloucester Road - Travis Perkins	-?	+?	-	0	0	+ +	-?	+	0	-?	+/-	0	-	+ +	N/A	+	+	0	+	+	+	0
411	Blaisdon Way	-?	+?	-	0	0	+	-?	0	0	-	+/-	0	+	-	N/A	+	+	0	-/+	+	+	0
415	Lansdown and surrounding Industrial Estates	-?	+?	-	+?	0	+	-?	0	0	+?	+/-	0	-	+	N/A	+ +	+	0	+ +	+	+	+?
417	Bouncers Lane, Premiere Products	-?	+?	-	0	0	+	-?	+?	-?	-	+/-	0	- -	+	N/A	+	-	0	-	+	+	0
418	Maida Vale Business Centre, Liddington Trading Estate/Churchill Trading	-?	+?	-	+?	0	+ +	-?	0	-?	+?	+/-	0	-	+ +	N/A	+ +	-	0	-	+	+	+?
420	Battledown Industrial Estate, Hales Road	-?	+?	-	+?	0	+ +	-?	+	-?	0	+/-	0	-	+ +	N/A	+	-	0	-	+	+	+?
421	Cromwell Road - Kohler Mira	-?	+?	-	0	0	+ +	-?	+	-?	+?	+/-	0	+	+	N/A	+	-	0	-	+	+	0
422	Prestbury Road and Cleevemont Close	-?	+?	-	0	0	+ +	-?	+	0	-	+/-	0	- -	-	N/A	+	-	0	-	+	+	0
424	Additional land at Staverton Technology Park	-?	+?	-	0	0	-	-?	+?	0	+?	-	0	+	+	N/A	+ +	+	0	-/+	+	+	0
433	Aston Down	0	+?	0	0	0	+	0	0	- -?	+?	+/-	0	+	+ +	N/A	+ +	+	0	-/+	+	+	0
436	Mixed Use Land at Ebley Mill (MU2)	-?	+?	-	+?	0	+	0	-	-?	+?	-	0	- -	0	N/A	+ +	+	0	+	+	+	0
437	Mixed Use Land at Lister Petter (MU3)	-?	+?	-	+?	0	+	0	-	-	+?	- -	0	- -	0	N/A	-	+	0	-/+	+	+	0
439	Phoenix Way, Cirencester	-?	+?	-	0	0	+ +	-?	0	-?	-?	+/-	+?	- -	+	N/A	+	+	0	-/+	+	+	0
461	Netheridge STW	-?	+?	-	+?	0	-	-?	0	0	+?	+	+?	+	0	N/A	+ +	+	0	+ +	+	+	+?
462	Chosen Hill Reservoirs	-?	+?	-	+?	0	-	-?	0	-	-	-	-?	0	- -	N/A	+ +	-	0	-	+	+	0
464	Coaley STW	-?	+?	-	+?	0	-	0	+?	0	0	-	0	+ +	0	N/A	+/-	-	0	++/-	+	+	0
465	Stanley Downton STW	0	+?	0	+?	0	-	0	0	0	+?	-	0	0	+ +	N/A	+/-	-	0	+ +/-	+	+	0
468	Hayden STW	-?	+?	-	+?	0	-	-?	0	0	+?	+	0	+	+ +	N/A	+/-	-	0	-	+	+	+?
472	Lower Lode STW/WRW	0	+?	0	+?	0	-	-?	-	0	+?	+/-	0	- -	0	N/A	+/-	-	0	+/-	+	+	+?
502	Brockhampton STW	-?	+?	-	+?	0	-	-?	+?	0	+?	0	0	+ +	+	N/A	+/-	-	0	-	+	+	+?
510	Longhope STW	-?	+?	-	+?	0	-	0	-/+?	-?	?	- -	-	+	+	N/A	-	-	0	-	+	+	0
518	Arle Road & Tewkesbury Road Sites	-?	+?	-	+?	0	+ +	-?	0	0	+?	+/-	0	-	- -	N/A	+ +	+	0	+ +	+	+	0
525	Love Lane, Cirencester	-?	+?	-	+?	0	+	-?	0	-?	+?	- -	0	- -	+	N/A	+/-	+	0	-/+	+	+	+?
526	Lydney Industrial Sites	-?	+?	-	+?	0	-	0	- -	0	+?	- -	0	- -	- -	N/A	+/-	+	0	++	+	+	+?
527	Cinderford Industrial Sites	-?	+?	-	+?	0	+	-?	0	0	+?	- -	0	- -	+	N/A	+ +	+	0	-/+	+	+	+?
528	Coleford 4 and 5	-?	+?	-	+?	0	+	0	- -	-?	+?	- -	0	-	+ +	N/A	+/-	+	0	-/+	+	+	+?
530	Newent Business Park & Extension	-?	+?	-	+?	0	+	0	0	0	- -	- -	?	-	+ +	N/A	- -	+	0	-/+	+	+	+ +?
531	Sudmeadow Road area	-?	+?	-	+?	0	-	-?	-	0	-	- -	0	+/-	- -	N/A	++/-	+	0	+ +	+	+	+ +?

Site ID	Site Name	SA Objective 1	SA Objective 2	SA Objective 3	SA Objective 4	SA Objective 5	SA Objective 6	SA Objective 7	SA Objective 8	SA Objective 9	SA Objective 10	SA Objective 11	SA Objective 12	SA Objective 13	SA Objective 14	SA Objective 15	SA Objective 16	SA Objective 17	SA Objective 18	SA Objective 19	SA Objective 20	SA Objective 21	SA Objective 22
532	Industrial Sites, Bristol Road	-?	+?	-	+?	0	+	-?	- -	0	?	- -	0	0	+	N/A	+ +	+	0	+	+	+	+ +?
533	Off Eastern Avenue	-?	+?	-	+?	0	+ +	-?	-	0	?	-	0	+	- -	N/A	+ +	0	0	+ +	+	+	+ +?
534	Eastern Avenue Trading Estates	-?	+?	-	+?	0	+ +	-?	-	0	-	+/-	0	+	+	N/A	+ +	0	0	+ +	+	+	+ +?
535	Canal Corridor	-?	+?	-	+?	0	+	-?	-	0	-	+/-	0	-	0	N/A	+ +	-	0	+ +/-	+	+	+ +?
536	A38/A430 Junction	-?	+?	-	+?	0	+	-?	-	0	+?	- -	+?	+/-	-	N/A	+ +	+	0	+	+	+	+ +?
537	Green Farm and Olympus Parks	-?	+?	-	+?	0	+	-?	-	0	?	- -	-?	-	+	N/A	+/-	+	0	+	+	+	+ +?
538	Waterwells area	-?	+?	-	+?	0	+	-?	- -	0	?	- -	0	-	+	N/A	++/-	+	0	+ +	+	+	+ +?
539	Canal Area	-?	+?	-	+?	0	+	-?	-	0	?	+/-	-?	+/-	- -	N/A	++/-	+	0	+ +	+	+	+ +?
540	Barnett Way	-?	+?	-	+?	0	+	-?	-	0	?	-	0	-	+ +	N/A	++/-	+	0	+	+	+	+ +?
541	Unilever/Walls Area	-?	+?	-	+?	0	+	-?	0	0	+?	+/-	0	0	+	N/A	+ +/-	+	0	+ +	+	+	+ +?
542	Railway Corridor	-?	+?	-	+?	0	+ +	-?	-	0	-	+/--	0	- -	+	N/A	+ +	0	0	+ +	+	+	+ +?
543	Quedgeley	-?	+?	-	+?	0	+	-?	-	0	+?	+/-	0	- -	+	N/A	+ +	+	0	+ +	+	+	+ +?
544	Stroudwater Area	-?	+?	-	+?	0	+	0	- -	-?	-	- -	0	- -	+	N/A	+/-	+ +	0	+ +	+	+	+ +?
545	Frampton	-?	+?	-	+?	0	+	0	-	0	-	- -	-	- -	+ +	N/A	++/-	+ +	0	+	+	+	+ +?
546	Moreton Vallence Airfield	-?	+?	-	+?	0	-	0	+?	0	+?	+/-	0	+	+ +	N/A	++/-	+	0	+	+	+	+ +?
547	Sharpness Docks	-?	+?	-	+?	0	-	0	- -	0	?	- -	-	- -	- -	N/A	++/-	+	0	+ +	+	+	+ +?
548	Draycott Mills Industrial Estate Area, Cam	-?	+?	-	+?	0	+	0	-	0	?	- -	0	+/-	+	N/A	-	+	0	-/+	+	+	+ +?
549	Thrupp Mills 1	-?	+?	-	+?	0	+	0	- -	-?	- -	- -	-	- -	- -	N/A	+ +	+	0	+	+	+	+ +?
550	Meadow Mill, Eastington	-?	+?	-	+?	0	-	0	- -	0	0	+/--	0	- -	-	N/A	+/-	+	0	-/+	+	+	+ +?
552	Fromeside Industrial Estate/Cheapside Wharf	-?	+?	-	+?	0	+ +	0	- -	-?	-	- -	-?	- -	0	N/A	+ +	+	0	+ +	+	+	+ +?
553	Thrupp Mills 2	-?	+?	-	+?	0	+	0	- -	-?	- -	- -	-	- -	- -	N/A	+ +	+	0	+	+	+	+ +?
554	Woodchester	-?	+?	-	+?	0	+	0	- -	-?	?	+/-	-	- -	- -	N/A	+	+	0	-/+	+	+	+ +?
555	Hunt's Grove/Hardwicke	-?	+?	-	+?	0	+	-?	-	0	?	- -	0	-	+	N/A	- -	+ +	0	+ +	+	+	+ +?
556	Cainscross	-?	+?	-	+?	0	+	0	- -	-?	-?	- -	0	- -	- -	N/A	++	+	0	+	+	+	+ +?
557	Rodborough	-?	+?	-	+?	0	+	0	- -	-?	-?	- -	0	- -	- -	N/A	+ +/-	+	0	-/+	+	+	+ +?
558	Innsworth Area	-?	+?	-	+?	0	+	-?	-	0	0	- -	0	0	- -	N/A	+/-	-	0	-	+	+	+ +?
559	Gloucester Business Park	-?	+?	-	+?	0	+	-?	- -	-?	?	- -	0	-	+ +	N/A	+	+ +	0	-/++	+	+	+ +?
560	Ashville Business Park, Staverton	-?	+?	-	+?	0	+	-?	-	0	-?	- -	0	0	+	N/A	+ +/-	-	0	-	+	+	+ +?
561	Wingmoor Farm East	-?	+?	-	+?	0	-	-?	-	-	?	--/+	- -	+	+ +	N/A	++/–	+	0	+ +	+	+	+ +?
562	Anson & Staverton Parks	-?	+?	-	+?	0	+	-?	-	0	+?	+/--	0	+	+	N/A	+ +/-	-	0	-	+	+	+ +?
563	Isbourne Business Park & STW	-?	+?	-	+?	0	-	0	+/-	-?	-	+/-	0	+	- -	N/A	+/-	-	0	-	+	+	+ +?
998	CFS1: Site adjacent to Wingmoor Farm West	-?	+?	-	+?	0	-	-?	0	0	+?	- -	0	+	+	N/A	+/-	+	0	+	+	+	+ +?
999	CFS2: Toddington Saw Mills	-?	+?	-	+?	0	-	0	+	- -	-	- -	0	- -	+ +	N/A	+/-	+/-	0	-	+	+	+ +?

5. MONITORING

PROPOSALS FOR MONITORING

5.1. The SEA Directive requires that "*member states shall monitor the significant environmental effects of the implementation of plans or programmes… in order, inter alia, to identify at an early stage, unforeseen adverse effects, and be able to undertake appropriate remedial action*" (Article 10.1) and that the environmental report should provide information on "*a description of the measures envisaged concerning monitoring*" (Annex 1 (i)). The ODPM's SA Guidance states that monitoring proposals should be designed to provide information that can be used to highlight specific issues and significant effects, and which could help decision-making. This represents Task E1 in the ODPM's SA Guidance.

5.2. The ODPM's SA Guidance states that it is not necessary to monitor everything. Instead, monitoring should be focussed on the significant sustainability effects that may give rise to irreversible damage (with a view to identifying trends before such damage is caused) and the significant effects where there is uncertainty in the SA and where monitoring would enable preventative or mitigation measures to be taken. The monitoring measures proposed in this SA Report therefore focus on the predicted significant effects only.

5.3. As discussed in Chapter 4, the potential waste site options are likely to have the following **significant positive effects** (alone or in combination):

- Reduced potential for contribution to climate change through efficient use of materials and reduction in the amount of waste going to landfill, by helping to deliver facilities for recycling, composting and recovery of waste;
- Opportunities for major enhancement and/or additional Public Rights of Way routes to be constructed.
- Avoidance of areas at high risk of flooding.
- Reduction in loss of good quality soil/land through the use of large previously developed sites.
- Reduced potential for air pollution or contribution to climate change through the opportunity to transport waste using rail or canals, or minimising lorry movements on local roads through direct access onto the strategic highways network.
- Reduced contribution to climate change if energy were to be generated from the waste management process and used within nearby development.

5.4. The potential waste site options could have the following **significant negative effects** (alone or in combination):

- Adversely affecting designated nature conservation, archaeological or geological interest sites which are very close to sites;
- Adversely affecting landscape, townscape and the historic environment;

- Contributing to air pollution due to emissions from road traffic to and from the new waste sites (including dust, e.g. or waste materials being broken up into particles through the transfer of waste) and emissions (combustion gases, e.g. oxides of nitrogen (NO_x), sulphur dioxide (SO_2) and ammonia (NH_3)) from some recovery facilities.

- Increasing flood risk by locating development in Flood Risk Zones 2 and 3;

- Reducing the availability of best and most versatile land by locating waste development in high grade agricultural land;

5.5. The potential waste site options will be delivered in the context of the MWDF as a whole, and the wider policy framework which sits alongside the planning system. This means that the effects of the implementation of the Waste Core Strategy will be influenced by the degree to which other plans forming the MWDF are successfully implemented. For this reason, monitoring the sustainability effects of implementing the Waste Core Strategy should be conducted as part of an overall approach to monitoring the sustainability effects of the MWDF as a whole, as well as taking account of broader social, economic and environmental trends. This approach is based on the ODPM's Good Practice Guidance on monitoring Local Development Frameworks[21].

5.6. The Council is required under the Planning and Compulsory Purchase Act to prepare an AMR to assess the extent to which policies in each DPD are being implemented. The Waste Core Strategy is likely to set out a framework for monitoring, and should identify some targets and indicators that will be used to monitor the process, significant effects of the Waste Core Strategy. This will be reviewed in the SA of the Waste Core Strategy as a whole (rather than just the potential waste site options in this report), and proposed measures for monitoring the significant sustainability effects listed above of developing the preferred sites for allocation in the Waste Core Strategy will be identified. The monitoring proposals will include suggested indicators to add to the wider AMR framework for the MWDF.

5.7. As stated in the SA Guidance, the data used for monitoring will in many cases be provided by outside bodies (e.g. District Councils, the Environment Agency and Natural England). This has already been evidenced by the additional baseline information provided by the statutory environmental consultees during consultation on the Scoping Report for the SA. It is therefore recommended that Gloucestershire County Council continue the dialogue with statutory environmental consultees and other stakeholders commenced as part of the SA process and MWDF preparation, and work with them to agree the relevant sustainability effects to be monitored and to obtain information that is appropriate, up to date and reliable. It should be noted that the sustainability effects to be monitored may need to be revised at subsequent stages of the Waste Core Strategy preparation, in response to consultation comments and revisions to the DPD.

[21] *Local Development Framework Monitoring: A Good Practice Guide.* The Office of the Deputy Prime Minister 2004.

APPENDIX I

SA Framework and Assumptions

Gloucestershire Waste Core Strategy – Potential Waste Sites SA Framework and Assumptions

Decision-making criteria based on SA Objectives for Waste Core Strategy with assumptions and justifications for SA scores used to guide the appraisal of potential waste sites, and sources of data to aid the appraisal.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
Social			
1. To promote sustainable development and sustainable communities and improve the **health and well-being** of people living and working in Gloucestershire as well as visitors to the County. *- What are the potential health impacts on communities?* *- What are the potential health impacts on the employees at the site or facility?*		Some types of waste facilities could have a negative effect on protecting the health of local residents, communities and visitors to the County. This is due to the biospores or gaseous emissions that may be released from certain waste management technologies such as composting, anaerobic digestion or producing energy from waste. However, Government research conducted in 2004[23], reviewed evidence from a large range of studies, and concluded that modern waste management practices have at most a <u>minor</u> effect on human health. The minor effects related only to possible effects on residents living close to two types of waste management facility: landfills or commercial composting facilities. The studies into commercial composting facilities showed that there <u>might</u> be a link between emissions from the facility and the incidence of bronchitis and minor ailments in residents living nearby. The Government research explains that there are more studies into the health of employees at composting facilities, which showed some association between health effects in employees and exposure to bioaerosols. The Government research found no consistent evidence of a link between exposure to emissions from incinerators and an increased rate of cancer, or that emissions from incinerators make respiratory problems worse. In most cases the incinerator contributes only a small proportion to the local level of pollutants (compared with emissions from other sectors such as transport). *Planning for Waste Management Facilities: A Research Study* (ODPM, 2004) states in the General Siting Criteria sections for all of the different waste management facilities that where possible, they should be located at least 250 metres from sensitive properties (except Materials Recycling Facilities, which could be located within 100m). Specifically for composting operations, it states *"Site specific risk assessment needs to be a condition if composting operations are to be located within 250m of any working or dwelling place. Where possible facilities should be located at least 250m from sensitive properties, which may include business premises."*	GIS data from Gloucestershire County Council (GCC), Ordnance Survey (OS), and information from Council's own site assessments. Existing residential areas: examination of OS base maps Planned residential areas: South West RSS – indicative only as the strategic locations have yet to be confirmed through the District LDF process.
		Planning Policy Statement 10 (PPS10)[24] states at paragraph 30 that: *"Modern, appropriately located, well-run and well-regulated, waste management facilities operated in line with current pollution control techniques and standards should pose little risk to human health."* Development of waste facilities will	Offices: Strategic Employment Allocations.

[22] From: *Gloucestershire Minerals and Waste Development Framework Sustainability Appraisal Scoping Report (Update 3)* Gloucestershire County Council, January 2009.
[23] *Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes.* Prepared for Defra by Enviros and University of Birmingham, May 2004.
[24] *Planning Policy Statement 10: Planning for Sustainable Waste Management.* Office of the Deputy Prime Minister, July 2005.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
	need to meet the high standards of design and operation required to obtain Pollution Prevention and Control (PPC) permits and the Environmental Permits (EP) regulated and enforced by the Environment Agency. Emissions limits are set by the EC Waste Incineration Directive (2000), and waste management facilities are required under their PPC permits and EPs to operate within these limits. The requirement to meet PPC/EP permitting standards (including emissions to air, land and water, energy efficiency, noise, vibration and heat and accident prevention) should ensure that design and operation of waste facilities minimises any potentially significant effects on health of both the local residents and the employees at the site. In addition, many waste management facilities will meet the criteria that require a site-specific environmental impact assessment to be undertaken to accompany the planning application, which would look at the potential impacts and mitigation measures in more detail, and influence the conditions placed on the planning permission.		(Potential data limitation) Schools: http://www.edubase.gov.uk Primary road network: Ordnance Survey Hospitals: data from GCC and examination of OS base maps Faith centres: examination of OS base maps
	++	N/A	
	+	N/A	
	0	Potential sites which are: • Over 250m from sensitive receptors (i.e. residents, schools, hospitals, offices, faith centres)[25] are expected to have no or negligible effects on health.	
	-?	Potential sites which are: • Within 250m of sensitive receptors (i.e. residents, schools, hospitals, offices, faith centres) could have minor negative effects on health due to the potential release of biospores and air emissions from certain facilities such as composting, anaerobic digestion or producing energy from waste, although this impact is very dependent on the type of facility, its design and potential mitigation measures proposed, which would be assessed at the planning application stage. In addition, it is assumed that the facility will be well run and that mitigation measures implemented should be sufficient to avoid any potential health effects. Where any potential sites are within 250m of sensitive receptors, they will score a -? to reflect the uncertainty about the type of facility that would be developed on the site at this stage.	
	--	N/A	
2. To **educate the public** about waste issues and to **maximise community**	Some modern waste facilities are beginning to build small education centres on-site (e.g. MBT plant at Frog Island, East London) to improve understanding of sustainable waste management practices for the public and schools, thus waste development on sites could have a positive effect on		No data needed.

[25] In the absence of GIS data for all hotels, B&B accommodation in the County, it is assumed that most visitor accommodation would be found within existing residential areas.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
participation and access to waste services and facilities in Gloucestershire. *- Are there any groups who are particularly disadvantaged in terms of participation and access to waste services?* *- Does the site option cater for future demographic changes and waste growth?*	education opportunities in the County. However, this would not be known until the planning application stage when details of developments may be proposed on the sites allocated for waste in the Core Strategy. In terms of community participation and access to waste services, the location of new large scale waste facilities is unlikely to affect this SA objective. The location of smaller bring facilities or a household recycling centre could have an indirect positive effect on encouraging involvement and participation in recycling, however it is not known at this stage, which potential sites may be used for household recycling centres. In order to ensure there is adequate waste management capacity in suitable locations close to the current and future sources of waste arisings, all of the 106 potential waste sites have been screened for their proximity to the principal urban areas, following the spatial approach set out in Policy W2 of the South West Regional Spatial Strategy (GOSW Proposed Changes, July 2008). Policy W2, through a sequential approach, aims to focus principal waste facilities within, or in close proximity to Strategically Significant Cities and Towns (SSCTs). Following Policy W2, GCC defined a 16km buffer around Gloucester and Cheltenham and also considered a limited number of sites in or very close to the RSS named settlements of Cirencester, Coleford, Tewkesbury, Stroud, and Lydney. Therefore, the sub-question relating to future demographic changes has already been addressed during the site assessment process.		
	++	N/A	
	+?	All of the sites could have an indirect positive effect on education opportunities, as they may include education centres within the site. If the site were to be allocated for a new household recycling centre then it could also have an indirect positive effect on encouraging involvement and participation in recycling. However, this effect is uncertain at this stage in the planning process.	
	0	N/A	
	-	N/A	
	--	N/A	
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development. *- What are the impacts in terms of noise and vibration?* *- What is the potential for significant problems with litter?*	Waste facilities could have a negative effect on protecting the amenity of local residents and communities. This is because all development would result in some level of noise, traffic, and light pollution during construction and potentially during operation as well. Annex E of PPS 10 requires consideration of the suitability of the road network in testing the suitability of potential waste management sites, and the extent to which access would require reliance on local roads and this is considered further under SA Objectives 17 and 19 below. *Planning for Waste Management Facilities: A Research Study* (ODPM, 2004) states in the General Siting Criteria sections for many of the different waste management facilities (composting, anaerobic digestion, mechanical and biological		As for SA Objective 1, plus existing waste facilities: Grid references from GCC, and information from Council's site assessments undertaken

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
- To what extent are there potential land use conflict issues? *- What is the potential for significant problems with vermin and birds?* *- Are there any cumulative effects in terms of adverse impacts on environmental quality, social cohesion and inclusion or economic potential?* *- Does the site provide opportunities for the co-location of complementary activities?* *- Will fly tipping in the County increase?* (Partially covered under SA Objectives 17 and 19 in terms of reducing road transport of waste and reliance on local roads with associated impacts on amenity)		treatment, pyrolysis and gasification, thermal treatment) that where possible, they should be located at least 250 metres from sensitive properties (i.e. residential areas, schools, hospitals etc.). However, for Materials Recycling Facilities, it notes that if amenity issues such as noise and litter can be minimised facilities could be located within 100m of sensitive receptors. As above for SA Objective 1, development of waste facilities will need to meet the high standards of design and operation required to obtain PPC permits and Environmental Permits regulated and enforced by the Environment Agency. Emissions limits are set by the EC Waste Incineration Directive (2000), and waste management facilities are required under their PPC permits and EPs to operate within these limits. The requirement to meet PPC/EP permitting standards (including emissions to air, land and water, energy efficiency, noise, vibration and heat and accident prevention) should ensure that design and operation of waste facilities minimises most of the potentially significant effects on local amenity. In addition, many waste management facilities will meet the criteria that require a site-specific environmental impact assessment to be undertaken to accompany the planning application, which would look at the potential impacts and mitigation measures in more detail, and influence the conditions placed on the planning permission. PPS 10 (para. 21) states that when assessing the suitability of sites and areas for waste management, local authorities should have regard to the potential cumulative effect of previous waste disposal facilities on the well-being of the local community. Sub-question 6 (Co-location of complementary activities) is addressed under SA Objective 4 below. The choice of locations for potential waste sites is unlikely to have an effect on fly-tipping in the County.	by GCC Highways.
	++	N/A	
	+	N/A	
	0	Potential sites which are: • Over 250m from sensitive receptors (i.e. residents, schools, hospitals, offices, faith centres) are expected to have no or negligible effects on local amenity. Potential sites which are greater than 250m from an existing waste facility are not expected to have a cumulative effect on the local community. Potential sites which are adjacent to or within 250m of an existing waste management	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		facility, but over 250m from sensitive receptors are not expected to have a cumulative effect on the local community.	
	-	Potential sites which are: • Within 250m of sensitive receptors (i.e. residents, schools, hospitals, offices, faith centres) could have a minor negative impact on amenity, although this impact is very dependent on the type of facility, its design and potential mitigation measures proposed, which would be assessed at the planning application stage. In addition, it is assumed that the facility will be well run and that mitigation measures implemented should be sufficient to avoid any potential impacts on amenity. In addition, potential sites which are: • Within 250m from residential areas, and • Adjacent to or within 250m of existing waste management facilities could have a cumulative effect on the local community.	
	--	N/A	
Economic			
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds. *- Does the site present opportunities for spin off employment or other opportunities?* *- Will the number of waste based Community or Social enterprises change as a result of the site option?*	As the number of new waste management facilities focusing on sustainable waste management at the higher end of the waste hierarchy increases, a need to service these facilities should generate activity in the local economy and help to develop markets for waste materials. In addition, new recycling and composting facilities will generate feedstock for reprocessing facilities or composting outlets in close proximity, and facilities utilising energy recovery technologies would provide energy which could be used by existing or planned development, providing sustainability benefits associated with the proximity principle, reduced transportation distances, and potentially combined heat and power opportunities.		Existing industrial: examination of OS base maps and GCC site assessments Proximity to existing waste facilities: Grid references from GCC, and information from Council's own site assessments.
	++	N/A	
	+?	The creation of additional waste management facilities within Gloucestershire may have a minor positive impact on encouraging investment and growth of 'green industry' in the County. Potential sites that are within an industrial estate, within 250m of, adjacent to or include existing waste facilities or sites allocated in the current Waste Local Plan could also have the potential for positive effects on sustainable local economic activity as they could encourage complementary activities to waste management, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated.	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		This score is uncertain however, as it will depend on the type of facility proposed on the site, and the nature of neighbouring industrial/commercial outlets.	
	0	Sites that are greater than 250m from an industrial estate or existing waste facility or site allocated in the current Waste Local Plan would have no effect on this objective.	
	-	N/A	
	--	N/A	
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire. *- What are the costs?* *- Are there costs in the longer term that may not be obvious at the present time?*	0	At this stage it is difficult to assess how the <u>location</u> of new large scale waste facilities may affect this SA objective. However it is important to note that certain sites will be more efficient than others (e.g. in terms of reductions in transport movements & costs), given their proximity to the main sources of waste arisings and to transfer stations and/or any other facilities that may service them. Additionally, the <u>type</u> of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of cost but this will not be known until the planning application stage.	No data needed.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy. *- How many new jobs are likely to be created?* *- How far will employees have to travel to work?* *- Are there opportunities for employees to use sustainable transport?*	All of the sites could have an indirect positive effect on increasing employment levels when developed during construction and operation, as they are likely to result in a small amount of job creation for local people. However, job creation from the development of waste management facilities is not expected to be significant within the Gloucestershire economy. The Gloucestershire County Council Technical Paper WCS-G on Facility Types shows that most facilities would only employ on average one site manager and 2-3 operatives (in a few cases where hand-picking of waste may be needed, such as in a Materials Recycling Facility this would increase to between 10 and 50 operatives dependent on the scale of facility). However, given that the overall number of new waste management facilities likely to be developed in the County will not be a large number each year, the total numbers of new employment opportunities likely to be provided within the County is not considered to be significant. In relation to sub-questions 2 and 3 regarding potential employee transport, the GCC transport assessment considered the opportunities for future employees of potential waste facilities on each site to use sustainable transport to travel to work, and these assessments have been used to predict potential effects against this objective.		No data needed for job creation. GCC site assessments provide information on distances employees may have to travel to work.
	++	Potential sites which are assessed as: • 'High' by GCC Highways in relation to opportunities for future employees to use sustainable transport to travel to the site for work are expected to have a significant positive impact on this objective.	
	+	Potential sites which are assessed as:	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		• 'Medium' by GCC Highways in relation to opportunities for future employees to use sustainable transport to travel to the site for work are expected to have a positive impact on this objective.	
	0	N/A	
	-	Potential sites which are assessed as: • 'Low' by GCC Highways in relation to opportunities for future employees to use sustainable transport to travel to the site for work are expected to have a minor negative impact on this objective.	
	--	N/A	
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**. *- Is the site close to an aerodrome or low flying area?* *- Will the site attract large numbers of scavenging birds / gulls etc?*	PPS 10 (Annex E) states that some waste management facilities, especially landfills which accept putrescible waste, can attract birds. The numbers, and movements of some species of birds, may be influenced by the distribution of landfill sites. Where birds congregate in large numbers, they can provide a hazard to aircraft at locations close to aerodromes or low flying areas. As part of the aerodrome safeguarding procedure (ODPM Circular 1/2003) local planning authorities are required to consult aerodrome operators on proposed developments likely to attract birds. Consultation arrangements apply within safeguarded areas (which should be shown on the proposals map in the local development framework). This effect would only apply to sites allocated for new landfill, and it is unlikely that any of the potential sites being considered for allocation within the Waste Core Strategy will be for landfill. However, tall chimneys which may be required for some thermal treatment facilities could also present a hazard to aircraft. The specific types of facilities proposed on the potential waste sites is not known at this stage of the assessment, and would need to be considered once specific proposals are made.		Aerodrome safeguarding areas are provided in GCC site assessments for Gloucestershire Airport and MOD Airport.
	++	N/A	
	+	N/A	
	0	Potential sites that are not within an aerodrome safeguarding area are not expected to have an effect on this objective.	
	-?	Potential landfill or thermal treatment sites that are: • Within an aerodrome safeguarding area could have negative effects on the safety of commercial or military aerodromes due to the potential for birds and tall chimneys to provide a hazard to aircraft. A ? will be used to denote uncertainty about this effect as it is dependent on the type of facility to be proposed and eventually developed on a site, which will not be known until a later	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		stage in the DPD preparation or even at the planning application stage.	
	--	N/A	
Environmental			
8. To protect, conserve and enhance **biodiversity** in Gloucestershire. *- What are the potential impacts on sites which are Internationally and Nationally designated?* *- Are there any other potential significant impacts over and above the effects on designated sites - including on local sites, protected species and habitats and species of principle importance for biodiversity?* *- What are the potential impacts on the Strategic Nature Areas as indicated on the Gloucestershire Nature Map?* *- What potential is there for achieving biodiversity targets?*	International and national sites have statutory protection through international and EU conventions (Ramsar, 1971; Bern, 1979; Bonn, 1979) and directives (79/409/EEC; 92/43/EC) or should receive the highest possible planning protection as outlined in Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9). Locally important sites of nature conservation should also be protected under PPS9, and it will be necessary to consider those sites that are not afforded statutory protection but are of local importance; especially those that provide ecological connectivity. In addition, previously developed land will not be assumed to have no biodiversity value. Previously developed land that has been undisturbed for a significant period of time can in some instances have greater ecological value than 'greenfield sites'. Note that sites of geological interest are considered under SA Objective 12. The design of modern waste management facilities is increasingly adopting innovative practice and there may be opportunities to incorporate green or brown roofs within the design. Good design of any landscaped areas within the site could also incorporate the use of native species and habitats to encourage biodiversity within the site, which could contribute to achieving biodiversity targets. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage.		GIS data from Natural England (http://www.natureonthemap.org.uk/), GCC data on Strategic Nature Areas as indicated on the Gloucestershire Nature Map, ancient woodlands. There is no GIS data available for BAP Priority Species and Habitats, however, the Council's site assessments by GCC Ecologist and GCER provide assessments of the potential to affect biodiversity.
	++	N/A	
	+?	Potential sites which are: • Scored as positive (+) by GCC Ecologist and GCER (where the overall impact on biodiversity could be potentially uncertain or positive), and/or • Scored as +* by GCC Ecologist and GCER, which indicates proximity to designated aquifer/surface/flood water dependent site over 1km distant which may be affected. could have a minor positive effect on this objective.	
	0	Potential sites which are: • More than 500m from international (SAC, RAMSAR, SPA), national (NNR, SSSI), or local nature conservation designation, or BAP Priority Species and	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		Habitats, or • Scored as neutral by GCC Ecologist Team and GCER (where the overall impact on biodiversity could be potentially negative, uncertain or positive) and where the identified ecological constraint is up to and including 250m distant, and/or • Scored as 0* which indicates proximity to designated aquifer/surface/flood water dependent site over 1km distant which may be affected. are not expected to affect this objective[26].	
	-	Potential sites which are: • Within 500m of an international (SAC, RAMSAR, SPA), national (NNR, SSSI), or local nature conservation designation, or BAP Priority Species and Habitats, or • Assessed as -* by GCC Ecologist and GCER due to overall negative or uncertain impact on a nationally designated site fed by a designated aquifer or surface water/flood water dependent site could have a negative effect on this objective.	
	--	Potential sites which are: • Within the boundary of an international (SAC, RAMSAR, SPA), national (NNR, SSSI), or local nature conservation designation, or BAP Priority Species and Habitats, or • Assessed as negative (0) and (--* in relation to aquifer fed/surface water/flood water dependent site) by GCC Ecologist and GCER due to potentially negative or uncertain impact on an internationally designated site over 1km distant which may be affected (where the chosen waste technology and development design poses a risk to the water environment) could have significant negative effects on this objective.	
9. To protect, conserve and enhance the **landscape** in Gloucestershire. *- What are the impacts on AONB?*	AONBs have statutory protection through the Countryside and Rights of Way Act (2000). Areas of high landscape quality and the setting of settlements may be affected by the development of waste management facilities. In addition, areas with poor landscape character could be enhanced through the creation of a high quality design or landmark waste facility. However, this will not be able to be determined until the planning application stage.		GIS data from Natural England. Digital data on character areas not available. The

[26] The distances from assets within all of the SA Objectives used to predict the magnitude potential effects of allocating the sites are for a guide only and do not mean that facilities within a certain distance would definitely have an effect in every instance. The potential effect depends significantly on the type and design of facilities eventually developed on the site, which will need to be assessed if prescribed within the strategic allocations in the Waste Core Strategy or at the planning application stage.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
- What is the likely impact on specific landscape character as detailed in Gloucestershire's Landscape Character Assessment? *- What is the scope for landscape improvement / enhancement?*	It is assumed that sites within or adjacent to existing industrial estates should not have a significant effect on landscape character or the quality or setting of settlements.		Council's own site assessments provide information about landscape character areas. Industrial estates: examination of OS base maps and information from Council's own site assessments.
	++	N/A	
	+?	The design of modern waste management facilities is increasingly adopting innovative practice and this could have positive effects on landscape character. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage, thus is not recorded in the site appraisal.	
	0	Potential sites which: • Are more than 1km from an AONB, locally designated area of high landscape quality; and/or • Within or adjacent to existing industrial estates are considered to have no effect on these assets.	
	-	Potential sites which: • Are within 1km of an AONB, locally designated area of high landscape quality ; and/or • Are not within or adjacent to existing industrial estates could have a negative effect on these assets. This effect would be uncertain however, if the site was also within an existing industrial estate.	
	--	Potential sites which: • Are located within an AONB or locally designated area of high landscape quality could have a significant negative effect on these assets. This effect would be uncertain however, if the site was also within an existing industrial estate.	
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated. *- Does the topography and setting naturally screen the site?* *- What is the potential for*	The design of modern waste management facilities is increasingly adopting innovative practice and this could have positive effects on this SA objective. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage. If a site is lower lying than the surrounding landscape it would be less likely to have an effect than a site in a more prominent position.		Digital data on topography not available. The Council's own site assessments provide limited levels of detail about topography and potential for screening.
	++	N/A	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
design-led solutions?	+?	Positive effects through innovative design could be achieved at any of the potential sites regardless of location, but the effects are uncertain until the exact nature and design of the proposed facility are submitted with a planning application, thus is not recorded in the site appraisal.	
	0	Potential sites which: • Are not likely to be prominent in the landscape due to their topography (e.g. if facility were to be located at the base of an mineral extraction site that is much lower lying than the surrounding landscape) are considered to have no effect on these assets.	
	-	Potential sites which: • Are partially prominent in the landscape. For example, they may be visible from a small number of sensitive receptors, or from transient views from roads, but may be screened by woodland or existing development such as industrial warehousing. could have a negative effect on these assets.	
	--	Potential sites which: • Are likely to be prominent in the landscape because the surrounding landscape is very low-lying and flat, or the site is on a ridge or slope that would make it visible, and would be visible from a number of receptors could have a significant negative effect on these assets.	
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**. *- What are the likely impacts on material, cultural and recreational assets?* *- Have any material assets been overlooked?*	All of the potential waste sites could have negative effects on access to and the enjoyment of nature and recreational facilities if they are in close proximity, by making the sites less attractive for users or in some cases removing the access (e.g. public rights of way). This is because all development would result in some level of noise, traffic, and light pollution during construction and potentially during operation as well. There may be some opportunities for enhancement to footpaths/Public Rights of Way (PRoW) through development of particular sites. Protection and conservation of cultural assets is covered under SA Objective 13 below.		GIS data from GCC, OS base map and information from Council's own site assessments.
	++	Potential sites which are: • Assessed as having an opportunity for major enhancement and/or additional routes to be constructed, as identified in the GCC PRoW assessment for the site	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		could have a significant positive effect on recreational assets in the County.	
	+	Potential sites which are: • Assessed by the GCC PRoW Team as having no Public Right of Way network present, or presence of a PRoW network where there is an opportunity for the existing route to be enhanced. could have a positive effect on recreational assets in the County.	
	0	Potential sites which are: • More than 250m from a leisure or recreational facility or open space, including Rights of Way, or • Identified in GCC PRoW Team assessment as being a PRoW but not requiring diversion or enhancement. are not expected to have an effect on recreation assets in the County.	
	-	Potential sites which are: • Within 250m of a leisure or recreational facility or open space, including Rights of Way, or • Identified by GCC PRoW Team assessment as having an impact on the PRoW network with some minor re-routing required. could have a negative effect on recreation activities assets in the County by making the facilities less attractive for users.	
	--	Potential sites which: • Include a leisure or recreational facility or open space, including Rights of Way, or • Are identified by GCC PRoW Team as having a major adverse impact on the Network with potential closure, or major deviation to the network required could have a significant negative effect on recreation activities, as development of the sites would either mean removing part of a facility/open space, or removing land which has potential for recreation/access to the countryside.	
12. To protect conserve and enhance **geodiversity** in Gloucestershire. *- What if any are the likely impacts on geodiversity?*	National and regionally important sites of geological/geomorphological interest (SSSIs or RIGGS) should also be protected under PPS 9. PPS 9 states that the aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should		GIS data from Natural England.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
	ensure that, before planning permission is granted, adequate mitigation measures are put in place. Finally, plan policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development.		
	++	N/A	
	+?	The design of modern waste management facilities is increasingly adopting innovative practice and there may be opportunities to incorporate important geological features within the design of the development. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage, thus is not recorded in the overall SA judgement.	
	0	Potential sites which are: • More than 500m from a national site of geological interest (SSSI) or Regionally Important Geological/Geomorphological Site (RIGGS) are not expected to affect this objective.	
	-	Potential sites which are: • Within 500m of a national site of geological interest (SSSI) or Regionally Important Geological/Geomorphological Site could have a negative effect on this objective.	
	--	Potential sites which are: • Within the boundary of a national site of geological interest (SSSI) or Regionally Important Geological/Geomorphological Site could have significant negative effects on this objective.	
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**. *- What are the potential adverse effects on heritage sites of International importance and / or sites or buildings with a nationally recognised designation?*	Listed buildings have statutory protection through the Planning (Listed Buildings and Conservation Areas) Act 1990. The Ancient Monuments and Archaeological Areas Act (1979) protects monuments whose preservation is given priority over other land uses. Local authorities are required to make provision for the protection of the historic environment in their policies and their allocation of resources and registration of historic parks and gardens is a material consideration in planning terms, as defined in Planning Policy Guidance Note 15: Planning and the Historic Environment paragraph 2.24. The development of waste management facilities on sites in proximity to these assets could have a negative effect on the setting of these assets.		GIS data from English Heritage (EH) and information from Council's own site assessments. Conservation Areas designated within Gloucestershire Structure Plan and District Local Plans / LDFs
	++	N/A	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
	+	The design of modern waste management facilities is increasingly adopting innovative practice and this could have positive effects on townscape character. However, this would be very dependent on the exact nature and proposed design of the planned waste facility type, which would not be known until the planning application stage, thus is not recorded in the overall SA judgement. However, potential sites which: • Scores positive (+) in GCC Archaeology Team site assessment due to known historical or archaeological remains Could have a positive effect on archaeological heritage.	
	0	Potential sites which are: • Within or adjacent to industrial estates • More than 250m from a Historic Park or Garden or Registered Battlefield • More than 100m from a Scheduled Ancient Monument or Listed Building • More than 100m from a Conservation Area, or • Scores neutral (0) in GCC Archaeology Team site assessment since the site contains no known historical or archaeologically significant remains, but may provide a setting or potential to contain significant remains are considered to have no effect on these assets.	
	-	Potential sites which are: • Within 250m of a Historic Park or Garden or Registered Battlefield • Within 100m of a Scheduled Ancient Monument or Listed Building • Within 100m of a Conservation Area, or • Scores negative (-) in GCC Archaeology Team site assessment since it provides setting to a designated Category 1 site on known significant archaeological remains could have a negative effect on these assets.	
	--	Potential sites which: • Are within a Historic Park or Garden or Registered Battlefield • Have Listed Buildings or Scheduled Ancient Monuments present on site • Are located within a Conservation Area, or • Are assessed by GCC Archaeology Team as double negative (--) due to containing one of the above features.	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		could have a significant negative effect on these assets.	
14. To prevent **flooding**, in particular preventing inappropriate development in the floodplain and to ensure that waste development does not compromise sustainable sources of water supply. *- Can the risk of flooding be minimised through site design?* *- Will surface water runoff be reduced?* *- Is there the potential to enhance and restore the river corridor?* *- Is there the potential to protect and promote areas for future flood alleviation schemes?* *- Do proposals improve flood awareness and emergency planning?*	Planning Policy Statement 25: Development and Flood Risk (PPS 25) requires Local Authorities to take a risk based approach to proposals for development in or affecting flood-risk areas. Local Authorities should apply a Sequential Test when allocating land in Local Development Documents to demonstrate that there are no reasonably available alternative sites in areas with a lower probability of flooding that would be appropriate for the type of development proposed. Local authorities should take a sequential approach to developing in areas at risk of flooding, giving preference to locating development in Flood Zone 1, followed by Flood Zone 2 then Flood Zone 3.		GIS data from Environment Agency; and GCC's site assessment.
	++	Potential sites which are: • Entirely within Flood Zone 1, and • Scored very positively in relation to fluvial flood risk (++) by the GCC flood risk site assessment because the site is fully in Flood Zone 1 could have a significant positive effect on preventing flooding and reducing risk to public water supply.	
	+	Potential sites which are: • Scored as positive (+) in the GCC flood risk site assessment, which indicates that the site is mainly in Flood Zone 1, but is marginally affected by Flood Zones 2, 3a and 3b.	
	0	Potential sites which are: • Mainly in Flood Zone 1 and/or marginally affected by Flood Zones 2 or 3, and the GCC flood risk site assessment indicates that site may have some potential for waste uses through certain conditions (score 0) are not expected to have an effect on flood-risk areas.	
	-	Potential sites which are: • Partially or entirely within Flood Zone 2, and scored as a negative (-) in the GCC flood risk site assessment could have a negative effect on flood-risk areas.	
	--	Potential sites which are: • Partially or entirely within Flood Zone 3, and scored as a double negative (--) in the flood risk site assessment by GCC due to historical flood risk or flood risk from other sources	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		could have a significant negative effect on flood-risk areas.	
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities. *- Is there a level of scientific uncertainty about risk such that the best available scientific advice cannot assess the risk with sufficient confidence to inform decision-making.*	In relation to the <u>location</u> of potential waste sites, potential pollution effects are already covered under SA Objectives 1, 3, 16-18. The precautionary principle is inherently being applied to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.		No data needed.
16. To protect and enhance **soil / land quality** in Gloucestershire. *- What is the landtake?* *- Does the site suffer from potential land instability?* *- Is the site previously developed?* *- If the site is or was previously contaminated – is there the potential for effective remedial clean up?*	According to Planning Policy Statement 3: Housing, '*previously developed land is that which is or was occupied by a permanent structure, including the curtilage of the developed land and any associated fixed surface infrastructure*.' Most industrial sites are likely to be on previously developed land, but there may be some sites on the edges of towns etc. that are greenfield sites and may even be on high quality agricultural land. For the purposes of this appraisal, active or former waste management or minerals extraction sites have been assessed as previously developed. However, as stated in PPS3, previously developed land does not include '*land that has been developed for minerals extraction or waste disposal by landfill purposes where the provision for restoration has been made through development control procedures*.' Therefore, where former minerals and waste sites have been restored, these are not considered as previously developed land in the sustainability appraisal. Planning Policy Statement 7: Sustainable Development in Rural Areas states 'where significant development of agricultural land is unavoidable, local planning authorities should seek to use areas of poorer quality land (grades 3b, 4 and 5) in preference to that of a higher quality, except where this would be inconsistent with other sustainability considerations'. Mixed effects will be recorded for sites that although being classified as previously developed, also include or are wholly within grades 1, 2 or 3 best and most versatile agricultural land.		GIS data from National Land Use Database (PDL). Also from *Contaminated Land Officers at District Councils. (Note: Not all Districts were able to supply GCC with the information requested).* Defra (Best and Most Versatile (BMV) agricultural land)
	++	Potential sites which are: • Large (i.e. over 5 ha) <u>and entirely</u> on previously developed land (PDL) could have a significant positive effect on protecting or enhancing soil/land quality.	No data is available for areas of instability.
	+	Potential sites which are:	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		• Large (i.e. over 5 ha) and partially on previously developed land, or • Small to medium (i.e. less than 5 ha) and entirely on previously developed land (PDL) could have a positive effect on protecting or enhancing soil/land quality.	
	0	Potential sites which are: • Not within grade 1, 2 or 3 agricultural land • Not on greenfield sites are not expected to have an effect on protecting or enhancing soil/land quality.	
	-	Potential sites which are: • Large (i.e. over 5 ha) and partially within grade 1, 2 or within grade 3 BMV agricultural land, or partially within greenfield land; or • Small to medium (i.e. less than 5 ha) and entirely within grade 1, 2 or within grade 3 BMV agricultural land or entirely within greenfield land could have a negative effect on protecting or enhancing soil/land quality.	
	--	Potential sites which are: • Large (i.e. over 5 ha) and located entirely on greenfield sites or entirely within grade 1 or 2 BMV agricultural land could have a significant negative effect on protecting or enhancing soil/land quality.	
17. To protect and enhance **air quality** in Gloucestershire. *- What is the proximity of sensitive receptors and to what extent can air emissions, including dust be controlled?* *- What is the proximity of receptors sensitive to odours, and to what extent can odours be controlled?* (Partially covered under SA Objective 19 in terms of reducing road transport of waste)	Proposals for all types of waste management facilities could contribute to increasing air pollution in the County with regards to waste transportation by road, as well as any air pollution associated with the operation of the facility and processes used, such as dust and odour if waste is stored in open areas, bio-aerosols from biological process and acid gases/CO_2/dioxins and furans from thermal processes. The type and extent of air pollution (e.g. from dust or other emissions) will depend on the type of facility proposed on the site, which is not known at this stage in the planning process. Development of waste facilities will need to meet the high standards of design and operation required to obtain Pollution Prevention and Control (PPC) permits and the Environmental Permits (EP) regulated and enforced by the Environment Agency. Emissions limits are set by the EC Waste Incineration Directive (2000), and waste management facilities are required under their PPC permits and EPs to operate within these limits. The requirement to meet PPC/EP permitting standards (including emissions to air, land and water, energy efficiency, noise, vibration and heat and accident prevention) should ensure that design and operation of waste facilities minimises any potentially significant effects on human health and the environment. In addition, many waste		GIS data from GCC and the Council's own site assessments.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		management facilities will meet the criteria that require a site-specific environmental impact assessment to be undertaken to accompany the planning application, which would look at the potential impacts and mitigation measures in more detail, and influence the conditions placed on the planning permission. The 2004 Government[27] research showed that management of municipal solid waste accounts for less than 2.5% of all emissions for which data are available (including carbon dioxide and toxic gases but excluding methane). These conclusions mean that the overall scale of direct effects of releases to air from waste management practices is relatively small compared with emissions from other sectors such as transport. The contributions of municipal solid waste to air emissions of methane are higher (27% of UK total) but these arise mostly from landfill and are not considered in this SA as the Gloucestershire Waste Core Strategy is not seeking to make provision for new landfill sites. The sub-questions relating to air quality impacts on sensitive receptors due to emissions from the facility itself are already covered under the assumptions for SA Objectives 1 and 3 above. The assumptions discussed below for potential effects on this objective therefore relate to air emissions from road transport of waste only and consider the proximity of the site to the strategic highway network and Air Quality Management Areas (AQMAs) identified by local authorities as areas where existing air pollution is already an issue. Any increases in road transport of waste will lead to increases in local air pollution and emissions of CO2. The further vehicles transporting waste have to travel along local roads (i.e. not on the primary road network), the higher the potential for more localised air pollution as they are likely to travel more slowly on local roads. In addition, if the waste facility is within, or vehicles are travelling through, AQMAs where existing air pollution issues have been identified, there is more potential for negative effects on air quality. The Environment Report for the Gloucestershire Municipal Waste Management Strategy[28] notes that decreased quality of local air pollution could, in severe cases, lead to an increase in adverse health effects. It refers to the Health & Safety Executive website[29] which states that exposure to fumes from diesel engines can cause irritation to the eyes or respiratory tract. These effects are generally short term and should disappear when away from the source of exposure. However, prolonged exposure to diesel fumes can cause longer term problems, but the public are not considered to be at risk from these long term impacts as their exposure is only short term. Waste	

[27] *Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes.* Prepared for Defra by Enviros and University of Birmingham, May 2004.
[28] *Environmental Report for the Gloucestershire Municipal Waste Management Strategy.* Prepared for Gloucestershire County Council by Eunomia, October 2007.
[29] http://www.hse.gov.uk/pubns/indg286.htm

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
	collection crews may be at higher risk as they may have more prolonged exposure to fumes. However, this will depend to a large extent on the type and size of vehicle and can not be considered within this SA as it relates only to the potential sites for new facilities, and not the waste collection processes or routes. It should be noted also that general improvements in vehicle engines and abatement techniques have led to dramatic improvements in vehicle emissions. The potential of each site to reduce the distance waste travels by road (through the use of more sustainable transport modes) is covered under SA Objective 19 below.		
	++	Potential sites which are assessed as: • 'Good' or 'high' or 'medium' by GCC Highways in relation to proximity to the strategic highway network and are not within 1km of an AQMA are expected to have a significant positive impact on protecting air quality, although this impact is very dependent on the design, access and potential mitigation measures proposed, which would be assessed at the planning application stage.	
	+	Potential sites which are assessed as: • 'Medium' by GCC Highways in relation to proximity to the strategic highway network and are not within 1km of an AQMA are expected to have a positive impact on air quality, although this impact is very dependent on the design, access and potential mitigation measures proposed, which would be assessed at the planning application stage.	
	0	Potential sites which are assessed as: • 'Good' or 'high' or 'medium' by GCC Highways in relation to proximity to the strategic highway network but are within 1km of an AQMA are expected to have a negligible impact on protecting air quality, although this impact is very dependent on the design, access and potential mitigation measures proposed, which would be assessed at the planning application stage.	
	-	Potential sites which are: • Within 1km of an Air Quality Management Areas (AQMA), or • Assessed as 'poor' by GCC Highways in relation to proximity to the strategic highway network and requiring access via other (local) roads (which may involve trips through the AONB), or assessed as 'poor' since access would be via other (local) roads (but not involving trips through AONB). could have a negative impact on air quality, although this impact is very dependent on the design and potential mitigation measures proposed, which would be assessed at	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		the planning application stage.	
	--	N/A	
18. To protect and enhance **water quality** in Gloucestershire. *- What is the proximity of vulnerable surface or groundwater?* *- What are the impacts on water consumption?*	The Water Framework Directive[30] applies to all surface freshwater bodies (including lakes, streams and rivers), groundwaters, groundwater dependent ecosystems, estuaries and coastal waters out to one mile from low-water. It aims to improve inland and coastal waters and protect them from diffuse pollution in urban and rural areas; increase the sustainable use of water as a natural resource and create better habitats for wildlife that lives in and around water. The extent to which a waste management facility will affect ground and surface water on a potential site depends on the type of facility used. Non-inert landfill sites that are in Source Protection Zone 1 or adjacent to a water body could potentially lead to loss of contaminants or accidental pollution incidents. However, proposals for enclosed facilities are not expected to affect this objective. As stated in Planning for Waste Management Facilities[31], "*as most facilities are under cover and on concrete hard standing with separate foul water drainage, rainfall is unlikely to come into contact with the waste materials and, as such, water pollution is unlikely*." Although composting operations produce leachate, the enclosure of such facilities will reduce potential impacts. Standard design features of such facilities require that sites are surfaced adequately, drainage is segregated and containment principles are applied. As stated in Planning for Waste Management Facilities, "*leachate that is not recirculated should be collected or directed into a sewer or water course with appropriate consent or an inlet at a wastewater treatment plant.*" Therefore proposals for enclosed composting facilities are not expected to affect this objective. Potential for adverse effects on water quality will also be assessed at the planning application stage. It will not be possible to assess water use and efficiency at this stage in the planning process, as it will very much depend on the proposal (facility type, design, etc), which would be assessed at the planning application stage.		No data needed, but the Council's EA provided GIS data provides information about the location of underlying aquifers and Source Protection Zones.
	++	N/A	
	+	N/A	
	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings (as opposed to landfill).	
	-	N/A	
	--	N/A	
19. To reduce the adverse	All facilities that may be proposed on sites allocated for waste management in the Core Strategy		GIS data for mapped

[30] The European Water Framework Directive into force in December 2000, and was transposed into UK law by December 2003.

[31] *Planning for Waste Management Facilities: A Research Study,* ODPM, August 2004.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
impacts of lorry traffic on the environment and communities through means such as: a) reducing the need to travel b) promoting more sustainable means of transport e.g. by rail or water c) sensitive lorry routing d) the use of sustainable alternative fuels e) promoting the management of waste in one of the nearest appropriate installations. - *What is the capacity of the site and transport infrastructure to support the sustainable movement of waste and products arising from resource recovery?* - *Will access be reliant on local roads?* (Partially covered under SA Objectives 6 and 17 in terms of employee transport opportunities and air quality impacts of waste vehicles travelling on local roads)		are likely to involve some road transportation of waste, however, proximity to rail lines/depots/sidings, rivers/canals or wharves could provide opportunities to explore more sustainable modes of transporting waste. Paragraph 21 of PPS 10 sets out criteria for site assessments, which include the need to assess sites and areas against the capacity of existing and potential transport infrastructure to support sustainable movement of waste and products arising from resource recovery, seeking to use modes other than road transport where practicable and beneficial. As discussed above under SA Objective 17, air emissions from transport of waste are likely to have more of an effect on the environment and communities than air emissions from the facility itself, therefore, opportunities to reduce road transport of waste would have positive effects on this objective. Direct impacts of lorry traffic (i.e. noise, nuisance, safety, congestion as opposed to air pollution) on communities relates to how much access is reliant on local roads, therefore the GCC Highways assessment in relation to proximity to the strategic highways network has also been used to assess the potential for effects on this objective. Mixed effects may be recorded where a site is assessed by the GCC Highways assessment as having good or high potential for sustainable transport but poor in relation to its proximity to the strategic highway network (and vice versa). Some of the sub-questions for this objective are also covered under the assumptions for SA Objectives 6 and 17 above in relation to employee transport opportunities and air quality impacts of lorries travelling on local roads.	freight rail sidings, rivers, canals and wharves, OS base map, and Council's own site assessments relating to transport.
	++	Potential sites which are: • Assessed as having 'good' or 'high' potential by GCC Highways for sustainable transport for operational access. • Assessed as 'good' or 'high' or 'medium' by GCC Highways in relation to proximity to the strategic highway network could have a significant positive effect on reducing the impacts of lorry traffic on the environment and communities.	
	+	Potential sites which are: • Assessed by GCC Highways as having 'medium' or limited potential for sustainable transport due to distance from the nearest appropriate water/rail facility. • Assessed as 'medium' by GCC Highways in relation to proximity to the strategic highway network	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
		could have positive effect on reducing the impacts of lorry traffic on the environment and communities.	
	0	N/A	
	-	Potential sites which are: • Assessed by GCC Highways as having no potential for rail and/or water transport due to distances involved. • Assessed as 'poor' by GCC Highways in relation to proximity to the strategic highway network and requiring access via other (local) roads (which may involve trips through the AONB), or assessed as 'poor' since access would be via other (local) roads (but not involving trips through AONB). could have a minor negative effect on reducing the impacts of lorry traffic on the environment and communities.	
	--	N/A	
	+/-	A mixed effect (any combination of positives and negatives) will be recorded for sites which score a positive for the GCC Highways assessment as having good or high potential for sustainable transport but poor in relation to its proximity to the strategic highway network (and vice versa). The score for the sustainable transport potential is shown first, with the proximity to the strategic highways network score second.	
20. To **reduce waste to landfill** and in dealing with all waste streams to actively **promote the waste hierarchy** (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste. *- What is the impact of any waste prevention and waste reduction activities?* *- What are the levels of reuse, recycling (including composting) and recovery achieved by each site option?* *- What is the diversion from landfill?*	The Waste Core Strategy aims to ensure that landfill is a 'last resort' when developing waste management facilities.		None needed.
	++	N/A	
	+	All facility types that may be developed on sites allocated for waste management in the Core Strategy are likely to have a minor positive effect by ensuring waste management occurs using processes higher up the waste hierarchy than landfill. However, the specific <u>location</u> of sites for these waste management facilities would have no effects on this objective as the effects depend on the <u>type</u> of facility that eventually gets proposed. This may need to be re-assessed at a later stage if facility types are prescribed on the sites that get allocated in the Waste Core Strategy.	
	0	N/A	
	-	N/A	
	--	N/A	

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
21. To reduce the global **use of primary materials** and minimise net energy balance requirements. *- What is the impact on total material requirement?* *- What are the energy balance impacts?* (Partially covered under SA Objective 19 in terms of reducing road transport of waste)	All facility types that may be developed on sites allocated for waste management in the Core Strategy are likely to have a minor positive effect by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help to recycle, compost and recover value or energy from waste and reduce use of primary materials. However, the specific location of sites for these waste management facilities would have no effects on this objective as the effects depend on the type of facility that eventually gets proposed. The potential for energy generation from waste facilities is considered under SA Objectives 4 and 22. The mass energy balance that may be achieved through the use of different technologies would only be able to be estimated if specific facility types were identified on sites.		Potential data source are The Gloucestershire Energy Strategy & Carbon Management Strategy & Implementation Plan http://www.gloucestershire.gov.uk/index.cfm?articleid=1133 But these documents are general in scope and until a particular technology is proposed it will be difficult to assess energy balance impacts.
	++	N/A	
	+	All facility types that may be developed on sites allocated for waste management in the Core Strategy are likely to have a minor positive effect by ensuring waste management occurs using processes higher up the waste hierarchy than landfill. However, the specific location of sites for these waste management facilities would have no effects on this objective as the effects depend on the type of facility that eventually gets proposed. This may need to be re-assessed at a later stage if facility types are prescribed on the sites that get allocated in the Waste Core Strategy.	
	0	N/A	
	-	N/A	
	--	N/A	
22. To reduce contributions to and to **adapt to Climate Change**. *- To what extent does the site or facility offer the capacity for net electricity generation, community heating / combined heat and power or the production of waste derived biofuels / biogas?* *- How flexible or adaptable is the site or facility in terms of a) adapting to Climate Change and b) using new technology as it develops?*	It is not possible for the undeveloped site to have an impact on reducing energy demand, however, if energy were to be recovered from the waste management process under a combined heat and power (CHP) scheme, this could have a significant positive effect on increasing the proportion of energy generated from renewable sources in Gloucestershire. However, in general, the opportunity to incorporate a CHP scheme is only available to future residential or business park developments as opposed to retrofitting infrastructure into existing development. Proximity to future residential/business developments is difficult to determine. In addition, the type of facility to be developed on each site will not be known until the planning application stage thus the significant positive effects would be uncertain. The flexibility of the site to adapt to climate change will depend more on the specific design of the facility and its layout, and incorporation of sustainable construction techniques, drainage systems and measures to enable changes to new technologies as they develop etc. This can not be assessed until the detailed proposals for a site are known, which would be at the planning application stage. Other policies in the Waste Core Strategy which provide criteria for ensuring these measures are		No specific data available at this point in time as to suitable heat clients.

SA Objective and Sub Questions[22]	Score	Justification/reasons for score	Data sources (and limitations)
	included in planning applications will be assessed separately from the potential waste sites.		
	++?	Sites that are within or adjacent to an industrial estate or known/proposed user of CHP have the potential for significant positive effects if energy were to be generated from the waste management process and used within nearby development. This score is uncertain however, as it will depend on the type of facility proposed on the site, and the feasibility of incorporating energy use within nearby development, which will not be able to be determined until planning application stage.	
	+?	Sites that are within 250m of an industrial estate or known/proposed user of CHP could have a minor positive effect with regards this objective if energy were to be generated from the waste management process and used by neighbouring users. However, the potential for this will depend on the nature of the facility that would be developed on the site.	
	0	Sites that are greater than 250m from an industrial estate or known/proposed user of CHP would have no effect on this objective.	
	-	N/A	
	--	N/A	