Gloucestershire Waste Core Strategy

Strategic Waste Sites

STAGE 2
SUSTAINABILITY APPRAISAL
REPORT

Prepared for
Gloucestershire County Council

by
Land Use Consultants

September 2009

14 Great George Street
Bristol BS1 5RH
Tel: 01179 291 997
Fax: 01179 291 998
bristol@landuse.co.uk

CONTENTS

1. Introduction 1

Purpose of the Sustainability Appraisal 1

Background 2

Aim and Structure of the Report 3

2. Sustainability Appraisal Process 7

Stages and Tasks in SA 7

Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope 8

Stage B: Developing and refining options and assessing effects 9

Assessing Sustainability Effects 10

Stage C: Preparing the Sustainability Appraisal Report 11

Stage D: Consulting on the DPD and SA Report 11

Stage E: Monitoring Implementation of the Plan 11

3. Appraisal Method and Assumptions 13

Development of SA objectives 13

Assumptions and factors taken into account during the SA 15

Determining significance 16

Limitations of sustainability appraisal as a tool for site selection 19

Site appraisal methodology 19

Summary of Stage 1 SA methodology 20

Stage 2 SA methodology 20

4. Appraisal of the Strategic Waste Site Options 21

Summary of SA Findings 21

Short, medium and long term effects 21

Significant effects 22

Potential sustainability effects by SA Objective 23

Conclusions 32

Recommendations 32

Implementation 33

5. Monitoring 35

Proposals for monitoring 35

APPENDICES

Appendix 1 SA Framework and assumptions used in assessing effects
Appendix 2 Site SA Schedules: Sites within Zone C
Appendix 3: Site SA Schedules: Sites outside of Zone C
Appendix 4: Spatial Options Schedules
Appendix 5: Summaries of SA Findings by SA Objective

1. INTRODUCTION

1.1. Gloucestershire County Council (GCC) 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] *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.*

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

BACKGROUND

1.7. To date 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 and 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, the 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

[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

are 'central to the achievement of the strategy'. GCC agreed with the Government Office for the South West that strategic sites would be added, but this had implications for the SA process. To date the SA Objectives set out in the SA Framework Context & 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 would 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 (Stage 1, completed in April 2009).
- SA Report for the short list of site options and other policy options for the Waste Core Strategy options consultation to be held in October 2009 (Stage 2, the subject of this report, completed in September 2009).

1.13. Following the Site Options Consultation (to be held October-November 2009), the Waste Core Strategy will be brought together in one document, taking account of the three main consultation phases: Issues and Options, Preferred Options and Site Options. Following a final six week consultation period in Autumn 2010, submission to the Secretary of State is scheduled for December 2010.

AIM AND STRUCTURE OF THE REPORT

1.14. This report constitutes the Stage 2 SA Report for the short list of site options and has been produced in advance of the consultation on the Waste Core Strategy options to be held in October 2009. This SA Report will be available during the consultation period 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 when commenting on the Waste Core Strategy.

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

1.16. As discussed above, the SA of the MWDF is being conducted as a joint SA/SEA because it is also necessary to undertake a Strategic Environmental Assessment of the Minerals and Waste Development Plan Documents. 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.

1.17. This chapter provides the background to the SA of the site options consultation document. The remainder of the report is structured as follows:

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 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 potential waste site options.

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

Chapter 5 – Makes initial recommendations regarding the approach to 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).	Details of how this SA Report meets the requirements of the SEA Directive are outlined above.

2. SUSTAINABILITY APPRAISAL PROCESS

2.1. The Sustainability Appraisal of the Waste Core Strategy 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 sets out the SA Framework. Development of an SA Framework is not a requirement of the SEA Directive, however, it provides a recognised way in which the likely 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 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 waste sites are 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 to this report).

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. Planning Policy Statements, Mineral Policy Statements, and policies in the South West Regional Spatial Strategy) will pre-determine which policy approach needs to be adopted, effectively ruling out some options.

2.7. 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 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. The selections were made based on factors including the size of potential sites and their relative locations, in order to ensure that potential sites would be able to accommodate waste facilities of an adequate size and that they would be appropriately located in relation to the RSS-named settlements within Gloucestershire (Cheltenham, Gloucester, Cirencester, Coleford, Tewkesbury, Stroud and Lydney).

2.8. Following the production of the Stage 1 SA Report, which appraised this long list of 106 sites, it was further reduced by GCC on the basis of the SA findings, technical input and deliverability investigations.

2.9. The site options consultation document sets out four potential spatial options, centred on the designation of 'Zone C', which is an area running through the Central Severn Vale close to Gloucester and Cheltenham. This area was identified following the Preferred

[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).

Options consultation in 2008, which discussed the broad locational strategy for waste treatment facilities. The four spatial options set out are:

- Focus strategic sites within Zone C;
- Allocate sites outside of Zone C for smaller-scale facilities/transfer;
- Incorporate waste treatment into the urban extensions to Cheltenham and Gloucester proposed under the RSS; or
- A combination of the above options.

2.10. Within the context of these spatial options, the original list of 106 potential sites has been reduced to 13 potential sites: ten within Zone C and three outside of Zone C. This Stage 2 SA Report comprises the appraisal of these four broad spatial options, as well as the reduced list of specific waste site options.

Assessing Sustainability Effects

2.11. For each of the original 106 potential waste sites, GCC's planning officers 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 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 6 District Councils
- Halcrow consultants for flood risk assessment.

2.12. Site Assessments were developed by GCC for all of the original 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 as part of the evidence base, which is made up of Technical Papers.

2.13. 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.

2.14. 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 potential waste site options were appraised by the LUC SA team against the 22 SA Objectives, and the sustainability implications and likely effects were predicted and assessed. During Stage 1 of the SA process all 106 of the original potential sites were appraised through a desk-based exercise which drew on our own Geographical Information Systems (GIS) analysis and the extensive data collected and assessments undertaken by the Council and their experts. The findings are contained in the Stage 1 SA Report (April 2009). The Stage 2 appraisal of the reduced list of site options has drawn upon the Stage 1 appraisal findings, along with additional information provided by the Council as described in **Chapter 3**.

2.15. 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 findings are set out in **Chapter 4** of this SA Report and the more detailed appraisal schedules for each site or spatial option can be found in **Appendices 2-4**.

STAGE C: PREPARING THE SUSTAINABILITY APPRAISAL REPORT

2.16. This document is the Sustainability Appraisal report for Stage 2 of the SA of the waste site options for the Waste Core Strategy. It sets out the likely significant effects on the environment, and social and economic implications of the spatial options and short list of potential waste site options considered for allocation as Strategic Waste Sites in the Waste Core Strategy. It outlines the method used for selecting the short listed sites 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

2.17. This Sustainability Appraisal Report has been produced to inform the development of the Waste Core Strategy and in particular the allocation of Strategic Waste Sites. It will be available during the consultation on the Waste Core Strategy site options in October 2009. Any responses received from consultees on the sustainability effects of the Waste Core Strategy site 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

2.18. 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 the likely sustainability effects of a plan or document can be described, analysed and compared. GCC developed an 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 that they could be used to appraise potential waste sites. More detailed information on the development of site-focused SA Objectives is available in the report: *Sustainability Appraisal Context & Scoping Report for Strategic Waste Sites* (July 2008). The SA framework was developed prior to use for the Stage 1 SA Report and the same framework was again used to appraise the site options document (Stage 2).

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[7]
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?*

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

SA Objective and Sub Questions[7]
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?*
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.*

SA Objective and Sub Questions[7]
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: 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 likely sustainability effects of the potential waste sites, we have drawn 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 produced 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 facilities developed at 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 justifications for the assumptions used. The assumptions used in this Stage 2 appraisal process were the same as those used in the previous Stage 1 SA of the original 106 potential waste sites.

3.5. The type of waste management technology that might be developed on a strategic site is unknown at this stage, and different types of facility may have different effects on certain SA objectives, for example under Objective 9, which considers the likely impacts on the

landscape, facilities that incorporate a tall emissions stack may have significant effects in comparison to other types of constructions. Although for many of the objectives there will be no difference in the predicted effects, in order to highlight where this is the case, each site has been appraised on the basis of six different types of facility:

- Large facility (Thermal Treatment)
- Large facility (not Thermal Treatment)
- Medium facility (Thermal Treatment)
- Medium facility (not Thermal Treatment)
- Small facility (Thermal Treatment)
- Small facility (not Thermal Treatment)

3.6. However, for the sites outside of Zone C, assessments were only carried out for medium and small sized facilities, as this option covers only smaller-scale facilities/transfer.

3.7. The definition of each size of facility was taken to be:

Small – Capable of handling up to 50,000 tpa of waste

Medium – Capable of handling between 50,000 and 100,000 tpa of waste

Large – Capable of handling over 100,000 tpa of waste

3.8. Although the sustainability effects of each site are still somewhat uncertain without exact details regarding types of facilities and their design, appraising these six broad facility types against each objective allows for a more detailed assessment of sustainability effects and highlights which sustainability effects may be particularly dependent on the type and size of facility developed.

Determining significance

3.9. 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).

3.10. 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.

3.11. 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, as set out in **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**.

3.12. 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 the significance of effects in relation to each SA objective are set out in **Appendix 1**. These assumptions are based on the generic potential effects of waste management activities, as described in various documents such as PPS10, Planning for Waste Management Facilities[8], Government research conducted in 2004[9] and the Environmental Report for the Review of England's Waste Strategy[10].

3.13. The scores in the appraisal matrices are based on the potential effects of waste management on each site, without taking into account any 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 of the effects of construction and operation activities are unknown. Mitigation of potential effects could be provided by the successful implementation of other policies being developed in the Waste Core Strategy. 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.

[8] *Planning for Waste Management Facilities. A Research Study.* ODPM, August 2004.
[9] *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.
[10] *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

3.14. 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 and biodiversity.

3.15. 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.

3.16. 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 and how it fits with the rest of the Waste Core Strategy (i.e. the need for waste facilities and the spatial strategy). These factors will be determined by the Council's officers during the development of the Waste Core Strategy.

SITE APPRAISAL METHODOLOGY

3.17. The SA of the short list of potential waste sites and spatial options (Stage 2) built upon the findings of the Stage 1 SA Report, which 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.). The detailed methodology for this process is set out in the Stage 1 SA Report and is summarised below.

Summary of Stage 1 SA methodology

3.18. 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.

3.19. 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.

3.20. 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.

3.21. In the case of a number of the SA Objectives, all sites had 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.

3.22. The site database was populated during the Stage 1 SA and site SA Schedules were produced, which summarised the potential sustainability effects of developing a waste management facility at each of the sites. These SA Schedules can be found in **Appendix 2** of the Stage 1 SA Report.

Stage 2 SA methodology

3.23. The Stage 2 SA drew heavily on the findings of this detailed first assessment; however whereas the Stage 1 appraisal considered the effects of a waste management facility generally on each site, this second stage considered the likely effects of six different types of facility, as described in Section 3.5. In addition, the assumptions used were updated to take into consideration additional information that had been provided by the Council, including the Landscape assessment[11] and Highways assessments.

3.24. In addition, the Site Options consultation document includes some broad spatial options for the distribution of waste facilities within Gloucestershire (as described in Section 2.9). These were also appraised, using the same SA framework that was used to assess individual sites.

3.25. For the first two spatial options, a number of specific sites were proposed: ten for the option of focusing development within Zone C and three for the option of allocating sites outside of Zone C for smaller-scale transfer/facilities. Site specific appraisals were therefore carried out for these 13 sites, in addition to an appraisal of each of the four broad spatial options.

[11] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

4. APPRAISAL OF THE STRATEGIC WASTE SITE OPTIONS

4.1. The four spatial options and short list of 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 2-4**.

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[12] 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. However, there will inevitably be some temporary and short or medium term effects during the construction or operation of facilities (see below);
- The effects that 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 mostly be related to the initial impacts of construction of waste management facilities. This would include the removal of vegetation, top soil, sub soil, and the construction of additional infrastructure required. Such work could have negative impacts on biodiversity, local amenity (possible disruption to Rights of Way, traffic flows, noise 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.

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

Medium-term effects of the potential waste site options

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

Long-term effects of the potential waste site options

4.6. Long-term (i.e. longer than ten years) or permanent positive effects that could 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 include the loss of greenfield land and habitats, loss of areas of best and most versatile (BMV) agricultural land and 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):

- Reduced contributions to climate change through reductions in carbon dioxide (CO_2) and methane (CH_4);
- Focusing development in areas at lower risk of flooding;
- Reduction in the loss of good quality soil/land through the use of large previously developed sites;
- Minimising lorry movements on local roads by locating development where there is direct access onto the strategic highways network; and
- 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 the construction and operation of new waste management facilities on the potential waste site options (alone or in combination), relate to:

- Landtake (and the potential loss of good quality soil/land, Public Rights of Way, or loss, fragmentation or damage to habitats at international or nationally designated nature conservation sites);
- 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 the 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 in 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 required to obtain an Environmental Permit (EP) (formerly Pollution Prevention and Control (PPC) permits), as 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 the design and operation of waste facilities minimises most of the potentially significant effects outlined 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 result in 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. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed. However, Government research conducted in 2004[13], reviewed evidence from a wide range of studies and concluded that modern waste management practices have at most a minor effect on human health. These minor effects related only to possible effects on residents living close to two types of waste management facility: landfill sites or commercial composting facilities. Although all of the 13 potential waste site options 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 to meet the high standards required by EP/PPC permits. In addition, health effects would have the potential to arise only from new composting facilities, and the type of facility that might be developed on the waste site options is not known at this stage.

4.13. In terms of the potential spatial patterns of waste developments, focusing sites within Zone C would result in a more centralised pattern of development, which may concentrate any negative impacts on health and result in cumulative negative effects. However, allocating sites outside of Zone C and thus dispersing it more across the county could mean that a greater number of sensitive receptors are affected by waste management facilities. Again, the precise health effects will not be known until the planning application stage, where these potential impacts can be more accurately predicted.

[13] *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.

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

4.14. All of the 13 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 a positive effect on encouraging community involvement and participation in recycling. However, this effect is uncertain at this stage in the planning process as the type of facilities proposed have not been specified for each particular site.

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

4.15. As for SA Objective 1, all of the 13 waste site options 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 be expected to 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 to meet the high standards required by EP/PPC permits.

4.16. In addition, all but two of the 13 potential waste sites, which all lie 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 cumulative effects on local amenity in that area. PPS10[14] 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.

4.17. Similarly to Objective 1, the effects of the different spatial options on amenity may be compounded where facilities are more closely concentrated together within Zone C; however, two of the sites outside of Zone C are located very close together therefore cumulative effects may still arise. If facilities were to be located within the proposed urban extensions to Cheltenham and Gloucester, it may be that a significant number of residential properties and facilities within the urban extensions are adversely affected. However, the fact that the dwellings and buildings housing the sensitive receptors and the potential waste facilities would be newly developed may mean that there would be good opportunities for appropriate design and other mitigation measures to be implemented in order to reduce the extent of any negative effects.

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

4.18. 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, all of the 13 the potential sites 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

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

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. If waste facilities were to be developed within the proposed urban extensions to Cheltenham and Gloucester there may be particular opportunities for waste-derived CHP to be used in thousands of new homes and businesses, having significant positive benefits in terms of sustainable economic development.

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

4.19. 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. All of the ten proposed sites within Zone C lie within reasonable proximity to Cheltenham or Gloucester; however the 3 proposed sites outside of Zone C are located further away from these main sources of waste arisings.

4.20. If facilities were to be developed within Zone C or within the proposed urban extensions to Cheltenham and Gloucester, there may be benefits in terms of lower transport costs as waste would be processed in closer proximity to the main sources of waste arisings. The sites outside of Zone C may have higher associated transport costs as they are located further from the main urban areas of Cheltenham and Gloucester. 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 and will not be affected by their spatial location.

4.21. 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[15] 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

4.22. The provision of potential waste sites within the Waste Core Strategy will contribute to the creation of new facilities, which would be likely to generate some employment opportunities during construction and operation. The cumulative effects of all the new waste developments taken together are likely to have positive effects on employment opportunities in the County. However, due to a lack of information about the current

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

contribution of the waste industry to wider employment in Gloucestershire, it is uncertain whether the number of jobs created by development of the Strategic Waste Sites (once allocated in the Waste Core Strategy) is likely to be high enough to result in a significant positive effect on employment.

4.23. In terms of opportunities for future employees of potential waste facilities to use sustainable modes of transport to travel to and from work, most of the sites have fairly limited opportunities due to either their distance from residential areas or because of potential hazards/obstructions created by roads or canals for walkers and cyclists. However, at a number of sites (e.g. sites 7 and 8) there may be reasonable opportunities. All three sites outside of Zone C were assessed by GCC in the individual site assessment as having low potential for sustainable employee transport (although these sites were not included in the more detailed Highways Assessment Report produced by GCC), therefore having a negative effect in this sense. As such, locating waste facilities outside of Zone C would appear to have mixed effects, as although employment opportunities would potentially be provided in more rural parts of the county, opportunities for sustainable transport use by employees would appear to be very limited. In contrast, locating facilities within Zone C would have less of a beneficial effect in terms of rural employment opportunities, but the potential for employees to use sustainable modes of transport are slightly better. Locating facilities within the proposed urban extensions to Cheltenham and Gloucester would also be likely to incur negative effects in terms of retaining employment opportunities within urban areas, rather than rural areas.

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

4.24. Seven of the proposed waste sites within Zone C, but none of the three sites outside of Zone C, may compromise the safety of commercial or military aerodromes as they lie within an aerodrome safeguarding area (the Gloucestershire Airport zone). As such, negative effects may result from the potential for birds and tall emissions stacks to provide a hazard to aircraft. However, 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 emissions stacks 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 more detailed proposals are made. In terms of the broad spatial location of facilities, when considering the position of the main aerodrome safeguarding area in the locality in relation to Zone C, it can be seen that developments outside of this area would have fewer negative effects in terms of aerodrome safety.

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

4.25. Development of three of the ten potential waste sites within Zone C could have minor negative effects on biodiversity, and two of the potential sites outside of Zone C could have significant negative effects, due to the presence of Biodiversity Action Plan (BAP) habitats or species on the site, the potential loss of land and habitats to development, or from emissions to air and water affecting designated habitats and species in proximity or hydrologically connected to the potential waste sites. Overall spatial patterns of development would not influence the effects on biodiversity; rather this is dependent on the characteristics of each individual proposed site.

4.26. The potential for significant effects on the integrity of SAC/SPA/Ramsar sites identified needs to be assessed through Habitats Regulations Assessment (HRA). The initial screening findings indicate that all but one (Site 7) of the ten sites located within Zone C have the potential for negative impacts on designated sites as a result of their lying less than 10km upwind of a designated site that is already vulnerable to air pollution. In addition, both 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[16]. 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 and patches of grassland offers the opportunity to incorporate some wildlife habitats within new development.

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

4.27. Development of one of the potential waste sites outside of Zone C (Foss Cross) could have significant negative effects on the landscape due to the fact that it is located within the Cotswolds AONB. This effect is uncertain for the Foss Cross site as the landscape and visual impact assessment[17] carried out for the Council does not include this site, thus this impact is uncertain. However, many of the potential waste sites are within or adjacent to existing industrial estates, which may reduce their impact on landscape character and the quality or setting of settlements. The ultimate effects of a waste facility would be very dependent on its exact nature and proposed design, which would not be known until the planning application stage, and would not be affected by the overall spatial pattern of waste developments within the county.

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

4.28. All new waste development has the potential for positive effects through innovative design to be achieved, regardless of the site location, but the effects are uncertain until the exact nature and design of the proposed facility are submitted with a planning application. The detailed landscape and visual impact assessment[18] carried out for most of the sites within Zone C has highlighted a number of potential adverse impacts, although in most cases it is acknowledged that there is potential for these effects to be minimised through design and screening measures, Again, the overall spatial pattern of waste site developments would not have an effect on this objective, although it is possible that where sites are more closely concentrated, i.e. within Zone C or within the proposed urban extensions to Cheltenham and Gloucester, cumulative effects on the landscape may be experienced and screening may become more challenging. However, waste development is more likely to be compatible within the urban townscape/landscape.

[16] *Design for biodiversity.* London Development Agency, undated. (http://www.d4b.org.uk/why/design4Biodiversity.pdf)
[17] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment
[18] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

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

4.29. Five of the potential waste sites (three within Zone C and two outside of it) could have a significant negative effect on recreational assets in Gloucestershire because they include a Public Right of Way (PRoW), which may be disturbed or lost. However, there are usually opportunities to redirect PRoWs. A number of other sites have a nearby PRoW but still have the potential for positive effects due to the GCC PRoW team assessment identifying that there is an opportunity for the existing route to be enhanced. The effect of waste sites on material, cultural and recreational assets will be determined by individual site characteristics rather than by the broad spatial pattern of developments.

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

4.30. Loss of geodiversity may occur as a result of developing waste management facilities on four of the potential waste sites due to their location within 500m of a Regionally Important Geological/Geomorphological Site. Another site has a RIGS within its boundaries. Development on 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. Again, the broad pattern of waste developments will not affect this objective; rather the impacts will be determined by the individual site characteristics.

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

4.31. Three of the potential waste sites could have a significant negative effect on Gloucestershire's townscapes, architectural and archaeological heritage due to the presence of a listed building on site. A further two of the sites within Zone C have a listed building nearby. However, many of the potential waste sites are within or adjacent to existing industrial estates, thus the effect on townscape character or a Conservation Area may be reduced. In addition, there is some 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. Again, the broad pattern of waste developments will not affect this objective; rather the impacts will be determined by the individual site characteristics and surrounding features.

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

4.32. All but one of the 13 proposed sites are likely to have either positive or significant positive effects on this objective, as they are located away from Flood Risk Zones. The site which is partially within Flood Zone 3 (Land at Lydney Industrial Estate) should be avoided unless sufficient mitigation measures can be in place (e.g. incorporating SuDS into areas of hardstanding and landscaping). Alternatively, the large size of the site (28ha)

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

means that it may be possible to locate development within the site away from the area of Flood Zone 3; although this will be dependent on the precise design and nature of the facility to be developed. Again, the broad pattern of waste developments will not affect this objective; rather the impacts will be determined by the individual site characteristics.

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

4.33. 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.

4.34. All but one of the 13 proposed sites are likely to have either minor or significant positive effects on soil/land quality as they are almost all located on previously developed land and are within industrial estates, thus should not affect soil or land quality. Again, the broad pattern of waste developments will not affect this objective; rather the impacts will be determined by the individual site characteristics.

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

4.35. Development of waste management facilities is likely to result in some emissions to air, as a result of 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, where thermal treatment facilities are proposed, it is assumed that there will be minor negative effects on air quality due to the release of gases through thermal processes. These effects would not be significant however, because the overall scale of emissions from thermal treatment facilities is relatively small compared with emissions from road transport. In addition, it is assumed that development control requirements and the need to meet EP/PPC standards should ensure that impacts on air quality from waste operations are minimised. All of the sites within Zone C except for Site 7 were assessed as having either reasonable or good access to the strategic highways network by the detailed GCC Highways Assessment Report. This would have positive effects in terms of protecting local air quality. In addition, all of the three sites within Zone C were assessed as having either good or medium strategic access.

4.36. The spatial location of waste developments across the county would only be expected to affect this objective where facilities are more centralised and are located in close proximity to the M5 (meaning that higher levels of road transportation are likely), e.g. if facilities were to be located within Zone C or within the proposed urban extensions to Cheltenham and Gloucester. In this sense, these spatial options may have negative effects on this objective, although effects will in general be determined more by the types of facilities than by their overall spatial distribution.

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

4.37. 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

4.38. Transport of waste by road can result in 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.

4.39. At the majority of sites within Zone C, which were assessed under the detailed GCC Highways report, opportunities for sustainable transport for strategic access were low, usually as a result of prohibitive costs that may prevent the development of new rail/canal links required. For the three sites outside of Zone C, two were assessed as having high potential for sustainable transport, although these sites were not subject to the same more detailed level of assessment as the sites within Zone C, therefore a direct comparison of the scores may not be accurate. All of the sites within Zone C except for Site 7 were assessed as having either reasonable or good access to the strategic highways network by the detailed GCC Highways Assessment Report. This would have positive effects in terms of reducing the adverse impacts of lorry traffic. In addition, all of the three sites within Zone C were assessed as having either good or medium strategic access.

4.40. Where facilities are located together within Zone C, in closer proximity to the main urban areas of Cheltenham and Gloucester, there may be more potential for lorry traffic to have negative effects on local communities as the proximity of the M5 may make road traffic a more commonly used transport method. However, this proximity should also mean that overall distances travelled are generally lower. A slightly more dispersed pattern of smaller-sized waste facilities outside of Zone C could avoid the cumulative impacts of lorry traffic to and from sites within a smaller area. In addition, the sites outside of Zone C are all still within reasonable proximity to waste arisings, meaning that overall distances transported should remain fairly low. However, more dispersed facilities may also mean that a greater number of sensitive receptors are likely to be affected by lorry traffic transporting waste.

4.41. However, most of the sites within Zone C and two of those outside of Zone C have the potential for significant positive effects as they have been assessed as having 'good' or 'high' potential by GCC Highways for sustainable transport for operational access or because of their proximity to the strategic highway network, meaning there will be less

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

waste transportation via local roads. As such, either of these options should have some positive impacts in this sense.

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.

4.42. 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 that waste management uses processes higher up the waste hierarchy than landfill. However, the specific location of sites for these waste management facilities has no effect on this objective as the effects depend on the type of facility that eventually gets proposed rather than on its location. This may need to be reassessed at a later stage if facility types are prescribed for the sites that get allocated in the Waste Core Strategy.

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

4.43. As with SA Objective 20 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 that waste management uses processes higher up the waste hierarchy than landfill, which should help to recycle, compost and recover value or energy from waste and reduce the use of primary materials. However, the specific location of sites for these waste management facilities would have no effect on this objective as the effects depend on the type of facility rather than on its location.

4.44. 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 could only be estimated if specific facility types were identified for individual sites.

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

4.45. All of the 13 waste site options are expected to have either negligible 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 under the spatial option which involves the development of waste facilities in the proposed urban extensions to Cheltenham and Gloucester, there may be particularly significant positive effects in this sense.

4.46. With respect to the other sub-questions for SA Objective 22, it was not possible to predict the likely effects as it is not possible for an 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 factors such as 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. This can not be assessed until the detailed proposals for a site are known 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

4.47. A number of potential significant negative effects were identified during the SA, which mainly relate to potential impacts on the environment during construction and operation of waste management facilities. However, as discussed at the start of this chapter, a number of these effects may be mitigated by the implementation of robust development control policies, or when details are known at the planning application stage and the most appropriate mitigation measures can be identified. 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.

4.48. 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 reduced volume of waste going to landfill and the 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 the loss of good quality soil and land).

4.49. We have inevitably had to make assumptions in reaching judgements regarding the likely effects of the DPD. Our assumptions with respect to effects, cumulative or otherwise, are based on 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

4.50. In considering which of the 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.

4.51. 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 such potential significant negative effects in this area have been identified through the SA should not be taken forward. 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 site is designated.

4.52. Similarly, the potential waste site option in Flood Risk Zone 3 should be avoided unless a facility can be developed in areas within the site that are less at risk of flooding. 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; and
- Demonstrate the likely impact of any displaced water on neighbouring or other locations which might be affected as a result of development.

4.53. Sustainable drainage systems (SuDS) are key to ensuring that long-term flood risk is managed for all new waste facilities, but particularly those on sites in Flood Risk Zone 3. 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.

4.54. As all of the 13 waste site options are within 250m of sensitive receptors it will be impractical 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.

4.55. The Foss Cross site 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.

Implementation

4.56. Implementation will be the key to the Waste Core Strategy's success and raises some key issues:

- A strong commitment is required to ensure that development delivers the potential 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 enhancing it. Similarly, there are likely to be policies in the Core Strategy DPD with aims such as protecting environmental assets, reducing the need to transport waste and minerals and avoiding increasing the flood risk. These will need to be applied with rigour if development on the sites eventually 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.

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 measures or mitigation to be applied. 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 contributions to climate change through reductions in carbon dioxide (CO_2) and methane (CH_4);
- Focusing development in areas at lower risk of flooding;
- Reduction in the 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 by locating development where there is direct access onto the strategic highways network; and
- 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.

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

- Landtake (and the potential loss of good quality soil/land, Public Rights of Way, or loss, fragmentation or damage to habitats at international or nationally designated nature conservation sites);
- Flood risk through development in areas identified at high risk of flooding.

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 Annual Monitoring Report to assess the extent to which policies in each MWDF document are being implemented. The Waste Core Strategy is therefore likely to set out its own framework for monitoring, which will identify targets and indicators that will be used to monitor successful implementation of all its policies. This may include targets and indicators that will also be relevant for monitoring the predicted significant sustainability effects of the Waste Core Strategy. This monitoring framework will be reviewed in the SA of the Waste Core Strategy as a whole (rather than just the potential waste site options), and proposed measures for monitoring the significant sustainability effects listed above will be identified. The monitoring proposals will include suggested indicators to add to the wider Annual Monitoring Report 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 works 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[1]	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[2], 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)[3] 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.

[1] From: *Gloucestershire Minerals and Waste Development Framework Sustainability Appraisal Scoping Report (Update 3)* Gloucestershire County Council, January 2009.
[2] *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.
[3] *Planning Policy Statement 10: Planning for Sustainable Waste Management.* Office of the Deputy Prime Minister, July 2005.

SA Objective and Sub Questions[1]	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)[4] 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	

[4] 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[1]	Score	Justification/reasons for score	Data sources (and limitations)
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?*	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 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.		No data needed.
	++	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*	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		As for SA Objective 1, plus existing waste facilities: Grid references from

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
of noise and vibration? *- What is the potential for significant problems with litter?* *- 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)		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 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.	GCC, and information from Council's site assessments undertaken by GCC Highways.
	++	N/A	
	+	N/A	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	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 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*	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,

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
employment or other opportunities? *- Will the number of waste based Community or Social enterprises change as a result of the site option?*	++	N/A	and information from Council's own site assessments.
	+?	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. 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 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.	No data needed.

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
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 by GCC Highways as having very good potential 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: • Assessed by GCC Highways as having reasonable potential 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: • Assessed by GCC Highways as having poor potential 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	

<table>
<tr><th>SA Objective and Sub Questions[1]</th><th colspan="2">Score</th><th>Justification/reasons for score</th><th>Data sources (and limitations)</th></tr>
<tr><td rowspan="5">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?</td><td colspan="2">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 emissions stacks 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.</td><td rowspan="5">Aerodrome safeguarding areas are provided in GCC site assessments for Gloucestershire Airport and MOD Airport.</td></tr>
<tr><td>++</td><td>N/A</td></tr>
<tr><td>+</td><td>N/A</td></tr>
<tr><td>0</td><td>Potential sites that are not within an aerodrome safeguarding area are not expected to have an effect on this objective.</td></tr>
<tr><td>-?</td><td>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 emissions stacks 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 stage in the DPD preparation or even at the planning application stage.</td></tr>
<tr><td>--</td><td>N/A</td></tr>
<tr><td>Environmental</td><td colspan="3"></td><td></td></tr>
<tr><td>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</td><td colspan="3">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</td><td>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.</td></tr>
</table>

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
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?*	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.		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.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	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 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[5].	
	-	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, or • Within 10km of a designated site which lies downwind of the potential waste site (thus may experience adverse impacts relating to air quality) could have a negative effect on this objective.	

[5] 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[1]	Score	Justification/reasons for score	Data sources (and limitations)
	--	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), or • Within 10km of a designated site which is downwind of the potential waste site and is already experiencing air quality issues could have significant negative effects on this objective.	
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?*	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. 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.		GIS data from Natural England. Digital data on character areas not available. The 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. Positive scores are also assumed for those sites that have been classed as being of high landscape suitability in the landscape and visual impact assessment[6] carried out for the sites.	

[6] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	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 • Have been classed as being of medium landscape suitability in landscape and visual impact assessment[7] carried out for the sites 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 • Have been classed as being of low landscape suitability in landscape and visual impact assessment[8] carried out for the sites 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	

[7] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment
[8] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective and Sub Questions[1]	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.

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	++	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 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.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
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 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.		GIS data from Natural England.
	++	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.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
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	
	+	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.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	-	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. 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.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	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 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*	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*.'		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

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
potential for effective remedial clean up?	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.		Versatile (BMV) agricultural land) No data is available for areas of instability.
	++	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.	
	+	Potential sites which are: • Large (i.e. over 5 ha) <u>and partially</u> on previously developed land, <u>or</u> • Small to medium (i.e. less than 5 ha) <u>and entirely</u> 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) <u>and partially</u> within grade 1, 2 or within grade 3 BMV agricultural land, <u>or partially</u> within greenfield land; <u>or</u> • Small to medium (i.e. less than 5 ha) <u>and entirely</u> within grade 1, 2 or within grade 3 BMV agricultural land <u>or entirely</u> 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) <u>and located entirely</u> on greenfield sites <u>or entirely</u> within grade 1 or 2 BMV agricultural land could have a significant negative effect on protecting or enhancing soil/land quality.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
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 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[9] 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.	GIS data from GCC and the Council's own site assessments.

[9] *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.

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
		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[10] 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[11] 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 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 by GCC as being within good 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.	

[10] *Environmental Report for the Gloucestershire Municipal Waste Management Strategy.* Prepared for Gloucestershire County Council by Eunomia, October 2007.
[11] http://www.hse.gov.uk/pubns/indg286.htm

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	+	Potential sites which are: • Assessed by GCC as being within medium 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 by GCC as being in either good or reasonable 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 by GCC Highways as being within low proximity to the strategic highway network and requiring access via other (local) roads (which may involve trips through the 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 the planning application stage.	
	--	N/A	

<table>
<tr><th>SA Objective and Sub Questions[1]</th><th>Score</th><th>Justification/reasons for score</th><th>Data sources (and limitations)</th></tr>
<tr><td rowspan="6">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?</td><td colspan="2">The Water Framework Directive[12] 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[13], "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.</td><td rowspan="6">No data needed, but the Council's EA provided GIS data provides information about the location of underlying aquifers and Source Protection Zones.</td></tr>
<tr><td>++</td><td>N/A</td></tr>
<tr><td>+</td><td>N/A</td></tr>
<tr><td>0</td><td>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).</td></tr>
<tr><td>-</td><td>N/A</td></tr>
<tr><td>--</td><td>N/A</td></tr>
</table>

[12] The European Water Framework Directive into force in December 2000, and was transposed into UK law by December 2003.
[13] *Planning for Waste Management Facilities: A Research Study,* ODPM, August 2004.

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
19. To reduce the adverse **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)	All facilities that may be proposed on sites allocated for waste management in the Core Strategy 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). If the more detailed assessment of the sites undertaken in September 2009[14] provides more detail about the potential for sustainable transport then this has been reflected in the scoring. 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.		GIS data for mapped freight rail sidings, rivers, canals and wharves, OS base map, and Council's own site assessments relating to transport.
	++	Potential sites which are: • Assessed by GCC Highways as having good potential for sustainable transport for operational access. • Assessed by GCC Highways as being within good proximity to the strategic highway network could have a significant positive effect on reducing the impacts of lorry traffic on the environment and communities.	

[14] GCC (2009) Transport Appraisal of the Phase 2 list of Strategic Waste Sites identified as part of the Waste Core Strategy

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
	+	Potential sites which are: • Assessed by GCC Highways as as having medium potential for sustainable transport for operational access due to distance from the nearest appropriate water/rail facility. • Assessed by GCC Highways as being within medium proximity to the strategic highway network 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 by GCC Highways as being within low proximity of the strategic highway network and requiring access via other (local) roads (which may involve trips through the 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 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*	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.	

SA Objective and Sub Questions[1]	Score	Justification/reasons for score	Data sources (and limitations)
reduction activities? *- What are the levels of reuse, recycling (including composting) and recovery achieved by each site option?* *- What is the diversion from landfill?*	0	N/A	
	-	N/A	
	--	N/A	
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 <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. 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 <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[1]	Score	Justification/reasons for score	Data sources (and limitations)
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 included in planning applications will be assessed separately from the potential waste sites.		No specific data available at this point in time as to suitable heat clients.
	++?	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	

APPENDIX 2

Site Schedules: Sites within Zone C

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 1: Areas A, B & C at Wingmoor Farm East, Tewkesbury							
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.	-	-?	-	-?	-	-?	There are a number of sensitive receptors within 250m of the site boundaries. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[15] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise community**	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.

[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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
participation and access to waste services and facilities in Gloucestershire.							
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has a number of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The fact that the site is adjacent to extensive areas of landfill may mean that there is a cumulative negative effect on local amenity. The GCC Highways Assessment for this site noted that HGV trips through Stoke Orchard Village should be discouraged by the weight limit in place, which should help to avoid any negative impacts on amenity there that may otherwise have resulted from lorry movements.
4. To promote **sustainable**	+?	+?	+?	+?	+?	+?	The creation of additional waste management facilities within

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
economic development in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.							Gloucestershire may have a minor positive impact on encouraging investment and growth of 'green industry' in the County. This site is adjacent to extensive areas of existing landfill. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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. The proximity of the site to Cheltenham,

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							along with the fact that there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	-/+	-/+	-/+	-/+	-/+	-/+	In terms of opportunities for future employees to use sustainable transport to travel to work, the GCC Highways Assessment found that pedestrian access from Bishop's Cleeve may need upgrading and that bus frequency is poor, therefore in this sense negative effects on this objective are likely. However, positive effects are associated with general job creation at the site, so overall effects are likely to be mixed. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	A Key Wildlife Site (Wingmoor Farm Meadow GWT Reserve) and BAP priority habitat (Lowland Meadows) can be found adjacent to Area C. This has the potential for a minor negative effect on biodiversity. In addition, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of Dixton Wood SAC. As such, minor negative effects may be associated. However, this negative score is also uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely than certain other facilities to have a negative impact on the landscape. However, this site is more than 1km from the nearest AONB and is adjacent to an existing landfill site;

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							therefore negligible impacts on the landscape may be expected. However, the landscape and visual impact assessment[16] carried out for the sites concluded that impacts would depend on which parcel of land within the site is to be developed. The centre of the site, where there is an existing waste management facility (Area B), could accommodate a large-scale facility with minimal impact on the landscape; however a large facility with emissions stack located at Area A was found to have a potentially moderate adverse impact on local landscape character and visual amenity. As such, Area B was assessed as being of high landscape suitability, whereas Areas A and C were assessed as being of low-medium and medium landscape suitability respectively. As such, uncertain negative scores are associated with all types of facility at this site as it is presently uncertain which areas would be developed with what type of facilities.
10. To ensure	-	-	-	-	-	-	The GCC assessment notes that there

[16] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.							is limited screening around the site, particularly along the southern boundary, due to the predominantly flat topography of the land. The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening particularly difficult. The landscape and visual impact assessment[17] carried out for the sites also noted the presence of several residential properties overlooking fields adjacent to the site, with glimpses of the existing landfill activities on site.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-/+	-/+	-/+	-/+	-/+	-/+	There is a park, a civic amenity site and areas of non-coniferous trees to the west of the site, therefore there is potential for negative effects on recreation activities. The GCC assessment, however, scores the site as + in relation PRoW, noting that there is no PRoW network present within 250m, so the overall effects are mixed.
12. To protect conserve and enhance	-	-	-	-	-	-	The site is within 500m of a RIG (Wingmore Farm Pit) and so development of any type of waste

[17] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
geodiversity in Gloucestershire.							facility here could have a negative effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	+	+	+	+	+	+	The larger site of Wingmoor Farm East, within which Areas A, B and C are located, scored as positive in the GCC Archaeology Team site assessment due to low potential to impact upon known historical or archaeological remains.
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.	+	+	+	+	+	+	The SFRA Level 2 indicates that there are no significant flooding issues on the Wingmoor Farm East site (or on Areas A, B and C within it) therefore development here should have a positive effect on this objective.
15. To **prevent pollution** and to apply the	N/A	N/A	N/A	N/A	N/A	N/A	In relation to the location of potential waste sites, potential pollution effects are already covered under SA

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
precautionary principle in consultation with waste regulation authorities.							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.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	++	++	These areas together comprise a large sized site located on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	+/-	+	+/-	+	+/-	+	The GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network via the A435. In addition, it is more than 1km from an AQMA; therefore in this sense the site should have positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **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	-/+	-/+	-/+	-/+	-/+	-/+	The GCC Highways Assessment found that, although the site is adjacent to a mapped freight rail head, at present there are no sidings and thus a new main line connection and loading siding would be required. The cost of installing such a mainline connection is likely to be very high, unless associated works are programmed; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network via the A435, therefore

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
c) sensitive lorry routing d) the use of sustainable alternative fuels e) promoting the management of waste in one of the nearest appropriate installations.							mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
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.	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of**	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
primary materials and minimise net energy balance requirements.							residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The fact that the site is already developed means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							they develop. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
Site 2: Areas A, B & C at Wingmoor Farm West, Tewkesbury							
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.	-	-?	-	-?	-	-?	There are a small amount of sensitive receptors within 250m of the site boundaries. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[18] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise**	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.

[18] 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.

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
community participation and access to waste services and facilities in Gloucestershire.							
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	There are a small amount of sensitive receptors within 250m of the site boundaries, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The fact that the site is already used for waste management activities may mean that there is a cumulative negative effect on local amenity. The GCC Highways Assessment for this site noted that HGV trips through Stoke Orchard Village should be discouraged by the weight limit in place, which should help to avoid any negative impacts on amenity there that may otherwise have resulted from lorry movements.

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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. This site incorporates existing waste management uses and is close to a HRC and active landfill site. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
Gloucestershire.							main sources of waste arisings and to transfer stations and/or any other facilities that may service them. The proximity of the site to Cheltenham, along with the fact that there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	-/+	-/+	-/+	-/+	-/+	-/+	In terms of opportunities for future employees to use sustainable transport to travel to work, the GCC Highways Assessment found that the site is some distance from Bishop's Cleeve, thus opportunities for employees to walk to the site are limited. There may be some potential for cycle use although the presence of HGV's may also make this unrealistic, meaning that negative effects are likely in this sense. However, positive effects are associated with general job creation

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
							at the site, so overall effects are likely to be mixed. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The GCC ecological assessment found that there should be no significant effects on biodiversity from a potential waste management facility developed on the Wingmoor Farm West site, within which Areas A, B and C lie. However, the initial findings of the HRA Screening Report indicate that Areas A, B and C lie within 10km upwind of Dixton Wood SAC. As such, minor negative effects may be associated with this objective. However, this negative

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
							score is uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	-?	-?	-?	-?	-?	-?	Although the site is more than 1km from the nearest AONB and is an existing industrial estate, the landscape and visual impact assessment[19] carried out for the sites concluded that the Greenfield parts of the site, including Areas B and C, are of low-medium suitability for development due to the detrimental impact the loss of existing vegetation would have on the wider landscape character. As such, uncertain negative scores are associated with all facility types as it is not yet certain which areas would be developed for which type of facilities.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. However, all sites would have the potential for positive effects through design to be achieved, although the effects are uncertain until the exact

[19] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
							design of the proposed facility is submitted with a planning application at a later stage. The landscape and visual impact assessment[20] carried out for the sites recognises the potential for screening measures to minimise any negative impacts on the landscape and highlights the enclosed character of the study area.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-/+	-/+	-/+	-/+	-/+	-/+	GCC site assessment and GIS analysis indicates that there are no PROW present on site, but that there may be potential to enhance the local footpath network, therefore having a minor positive effect on material, cultural and recreational assets. However, the site is close to a rugby ground and rifle range and may have the potential for a minor negative effect on recreation in these areas by making these facilities less attractive to users of recreational facilities in the County.
12. To protect conserve and enhance	-	-	-	-	-	-	The site is within 500m of a RIG (Wingmore Farm Pit) and so development of any type of waste

[20] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
geodiversity in Gloucestershire.							facility here could have a negative effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	+	+	+	+	+	+	The larger Wingmoor Farm West site, within which Areas A, B and C lie, scored positive in the GCC Archaeology Team site assessment due to low potential to impact upon known historical or archaeological remains. The report confirms that the site is near to the former Stoke Orchard World War II airfield, but notes that much of the site has already been destroyed by landfill, and the remainder of the airfield is now used by the Coal Research Establishment.
14. To prevent **flooding**, in particular preventing inappropriate development in the floodplain and to ensure that waste development does not compromise sustainable	+	+	+	+	+	+	The SFRA Level 2 indicates that the only area at risk of flooding (from the River Swilgate) is land to the south of Area A, therefore development here should have a positive effect on this objective.

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
sources of water supply.							
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	++	++	These areas comprise a large sized site located entirely on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	+/-	+	+/-	+	+/-	+	The GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network via the A435. In addition, it is more than 1km from an AQMA; therefore in this sense the

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
							site should have positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts of lorry traffic** on the environment and communities through means such as: a) reducing the	-/+	-/+	-/+	-/+	-/+	-/+	The GCC Highways Assessment found that, although the site is adjacent to a mapped freight rail head, at present there are no sidings and thus a new main line connection and loading siding would be required. The cost of installing such a mainline connection is likely to be very high, unless associated works are

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
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.							programmed; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network via the A435, therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
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,	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
Dispose) to achieve the sustainable management of waste.							
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The fact that the site is an area of existing waste management means that there are unlikely to be opportunities for incorporating a CHP scheme. However, where energy is recovered from the waste management process within a thermal treatment facility, there would be significant positive effects

SA Objective	Large Facility Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment	Small Facility (not Thermal Treatment)	Justification
							on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 3: Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury							
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.	-	-?	-	-?	-	-?	There are residential properties and businesses within 250m of the site boundaries, mainly to the north. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[21] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the**	+?	+?	+?	+?	+?	+?	All of the facilities could have an

[21] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
public about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.							indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	There are sensitive receptors within 250m of the site boundaries, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The GCC Highways Assessment for this site found that impacts on local amenity from lorry traffic should be negligible as there are few residential properties nearby, and the site is in close proximity to the strategic

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							highways network, meaning that lorry travel on local roads will be very limited.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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. This site is already used as an industrial estate, and as a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically**	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
sustainable way through means that represent good value for tax payers in Gloucestershire.							affect this 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. The proximity of the site to Cheltenham means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in	+	+	+	+	+	+	In terms of opportunities for future employees to use sustainable transport to travel to work, the GCC Highways Assessment found that this site is reasonably close to residential properties in

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
the economy.							Ashchuch, Northway and Tewkesbury, which could result in some walking/cycling/bus journeys to the facility. Cycle route improvements as part of Tewkesbury Healthy Towns project could provide improved opportunities for walking and cycling trips by employees. In addition, positive effects are associated with general job creation at the site. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The GCC ecological assessment found that there should be no significant effects on biodiversity from a potential waste management facility developed on the larger Business/Industrial Park site, within which Easter Park lies. However, the initial findings of the HRA Screening Report indicate that the Easter Park site lies within 10km upwind of Dixton Wood SAC and Bredon Hill SAC. As such, minor negative effects may be associated with this objective. However, this negative score is uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	0	0	0	0	0	0	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is in an existing industrial estate; therefore no negative impacts

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							on the landscape are expected from development at this site.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. However, all sites would have the potential for positive effects through design to be achieved, although the effects are uncertain until the exact design of the proposed facility is submitted with a planning application at a later stage.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-	-	-	-	-	-	GCC site assessment and GIS analysis indicates that there is a PROW within 250m of the site. In addition, the site is within 250m of a tennis court, playground and a youth club, and so may have the potential for a negative effect on recreation by making these facilities less attractive to users. As such, the impact of development here would be likely to be negative.
12. To protect	0	0	0	0	0	0	The site is further than 500m

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
conserve and enhance **geodiversity** in Gloucestershire.							from a SSSI or RIG, so is not expected to have an impact on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	0	0	0	0	0	0	The site is more than 250m from a historic park or garden or registered battlefield and is also more than 100m from a listed building, conservation area or SAM, therefore no effect on this objective is expected.
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.	+	+	+	+	+	+	The SFRA Level 2 indicates that this part of the larger Business/Industrial Park site is entirely in Flood Zone 1 and that there is therefore a low risk of flooding.
15. To **prevent pollution** and to apply the precautionary	N/A	N/A	N/A	N/A	N/A	N/A	In relation to the location of potential waste sites, potential pollution effects are already covered under SA Objectives 1,

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
principle in consultation with waste regulation authorities.							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.
16. To protect and enhance **soil / land quality** in Gloucestershire.	+	+	+	+	+	+	This is a small site located entirely on previously developed land, therefore should have a positive effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	++/-	++	++/-	++	++/-	++	The GCC Highways Assessment found that the site is within very close proximity to the strategic highways network via Junction 9 of the M5 motorway. In addition, it is more than 1km from an AQMA; therefore in this sense the site should have significant

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts of lorry traffic** on the environment and communities through means	-/++	-/++	-/++	-/++	-/++	-/++	The GCC Highways Assessment found that, whilst the site is in fairly close proximity to the main railway line, connection of rail to the site is likely to be prohibitively

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.							expensive due to the presence of the A46 road, and there are also issues relating to available freight paths; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment also found that the site is within very close proximity to the strategic highways network via Junction 9 of the M5 motorway, therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
20. To **reduce waste to landfill** and in dealing with all waste streams to actively **promote the**	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
waste hierarchy (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste.							therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to**	++	+?	++	+?	++	+?	The fact that the site is an existing industrial estate means that there are unlikely to be

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Climate Change.							opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 4: Javelin Park, Stroud							
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.	-	-?	-	-?	-	-?	There are a small amount of sensitive receptors within 250m of the site boundary, including one residential property close to the entrance to the site. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[22] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate**	+?	+?	+?	+?	+?	+?	All of the facilities could have an

[22] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
the public about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.							indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has a small number of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. As there is an existing waste facility within 250m of the site, there could be a cumulative effect on the one residential property (as opposed to a whole local community) from development of this site. The GCC Highways Assessment for this site found that lorry traffic is unlikely to impact significantly on local amenity

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							as the site is not in close proximity to residential properties, and the vast majority of road traffic should travel directly north to M5. However there is some potential for negative impacts on Stonehouse, depending on the exact weight restriction boundaries.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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. This site has been previously developed and there is an existing waste facility within 250m. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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. The proximity of the site to Gloucester, along with the fact that there are existing waste facilities near to the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and	-/+	-/+	-/+	-/+	-/+	-/+	In terms of opportunities for future employees to use sustainable transport to travel to work, the GCC Highways Assessment found

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
urban areas of the County, promoting diversification in the economy.							that the site would be difficult to access by walking or cycling due to the distance and the effective barrier of Junction 12 (although some bus access can be provided via existing Stroud-Gloucester service) meaning that negative effects are likely in this sense. However, positive effects are associated with general job creation at the site, so overall effects are likely to be mixed. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	0	0	0	0	0	0	The site is not within an Aerodrome Safeguarding zone; therefore waste facilities developed on this site are not expected to present a hazard to aircraft.
8. To protect, conserve and enhance	-?	-?	-?	-?	-?	-?	The GCC ecological assessment found that there should be no significant effects on biodiversity

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
biodiversity in Gloucestershire.							from a potential waste management facility at this site. However, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of the Cotswold Beechwoods SAC. As such, minor negative effects may be associated with this objective. However, this negative score is uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	0	0	0	0	0	0	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is previously developed; therefore negligible impacts on the landscape may be expected from development at this site. The landscape and visual impact assessment[23] carried out for the sites concluded that the site is of medium-high landscape suitability for waste development due to the

[23] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							existing business use of the site and its already poor landscape quality.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	-	-	-	-	-	-	The GCC site assessment describes the site as containing very little vegetation, with some mature trees along the boundary with the M5 to the west and considers that screening a large facility would be challenging. The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening particularly difficult. In addition, the landscape and visual impact assessment[24] carried out for the sites states that the site is highly visible and exposed from the Cotswolds AONB. However, the assessment also states that there is the potential to make a high quality architectural statement, and that development here presents the opportunity to set the design quality for future development.
11. To protect conserve and enhance Gloucestershire's	-/+	-/+	-/+	-/+	-/+	-/+	GCC site assessment and GIS analysis indicates that there are no PROW present on site, but that there may opportunities for existing

[24] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
material, cultural and recreational assets.							routes to be enhanced, therefore having a minor positive effect on material, cultural and recreational assets. However, the site is adjacent to a garden centre and may have the potential for a minor negative effect on leisure in the area by making this facility less attractive to users.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	0	0	The site is more than 500m from a RIG so development here is not expected to have an effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	+	+	+	+	+	+	The site scored positive in the GCC Archaeology Team site assessment due to low potential to impact upon known historical or archaeological remains.
14. To prevent **flooding**, in particular preventing inappropriate development in	+	+	+	+	+	+	The SFRA Level 2 indicates a very low risk of flooding on this site therefore development here should have a positive effect on this objective.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
the floodplain and to ensure that waste development does not compromise sustainable sources of water supply.							
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	++	++	This is a large site located entirely on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							facility.
17. To protect and enhance **air quality** in Gloucestershire.	++/-	++	++/-	++	++/-	++	The GCC Highways Assessment found that the site is within very close proximity to the strategic highways network via Junction 12 of the M5 motorway. In addition, it is more than 1km from an AQMA; therefore in this sense the site should have significant positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							buildings.
19. To reduce the adverse **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.	-/++	-/++	-/++	-/++	-/++	-/++	The GCC Highways Assessment found that, the site is over a kilometre west of the existing mainline railway. The construction of a new line is likely to need to be around 1.5km length to avoid Haresfield village and this is likely to be prohibitively expensive and could have land ownership issues; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment also found that the site is within very close proximity to the strategic highways network via Junction 12 of the M5 motorway, therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
20. To **reduce**	+	+	+	+	+	+	The Waste Core Strategy Options

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.							Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The fact that the site is previously developed means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 5: Land adjacent to Quadrant Business Centre, Quedgeley							
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.	-	-?	-	-?	-	-?	There are a few sensitive receptors within 250m of the site boundary, therefore particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[25] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.

[25] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
maximise community participation and access to waste services and facilities in Gloucestershire.							
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has a small number of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they are likely to create less traffic movement. In terms of the likely effects of lorry traffic on local amenity, the GCC Highways Assessment found that there are currently no residential properties in close proximity, although there is outline consent for housing to south of Shorn Brook. However HGV routing should not be particularly close to these properties.
4. To promote	+?	+?	+?	+?	+?	+?	The creation of additional waste

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
sustainable economic development in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.							management facilities within Gloucestershire may have a minor positive impact on encouraging investment and growth of 'green industry' in the County. This site is an industrial estate. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							that may service them. The proximity of the site to Gloucester means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	+	+	+	+	+	+	In terms of the potential for future employees to use sustainable transport modes to travel to and from work, the GCC Highways Assessment found that the site has reasonable non-car accessibility. It is fairly close to the Waterwells Park & Ride and in future years there will be residential properties relatively near to the site at the Hunts Grove residential development. In addition, positive effects are expected in relation to general employment creation at the site. Although it is likely that larger facilities will result in higher levels of employment during construction and operation,

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The GCC ecological assessment found that there should be no significant effects on biodiversity from a potential waste management facility developed on the larger Hunt's Grove site, within which the Easter Park site lies. However, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of the Cotswold Beechwoods SAC. As such, minor negative effects may be associated with this objective. However, this negative score is uncertain as the judgement is subject to more detailed Appropriate Assessment.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	0	0	0	0	0	0	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is in an existing industrial estate; therefore no negative impacts on the landscape are expected from development at this site.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. However, all sites would have the potential for positive effects through design to be achieved, although the effects are uncertain until the exact design of the proposed facility is submitted with a planning application at a later stage.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational**	+	+	+	+	+	+	GCC site assessment and GIS analysis indicates that there are no PROW present on site, but that there may be potential to enhance the local footpath network, therefore having a minor positive effect on material, cultural and

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
assets.							recreational assets.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	0	0	The site is more than 500m from a RIG so development here is not expected to have an effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	-?	-?	-?	-?	-?	-?	The Hunt's Grove site (within which Easter Park lies) scored as negative in the GCC Archaeology Team site assessment as it contains evidence for Romano British settlement and burials, therefore development here may have a minor negative effect on this objective. However, this score is uncertain as it is unclear from the information available whether these remains can be found within the Easter Park part of the larger overall site originally assessed.
14. To prevent **flooding**, in particular preventing inappropriate development in the floodplain and to ensure that waste development	+	+	+	+	+	+	The SFRA Level 2 indicates there are no significant flooding issues on this site, therefore development here should have a positive effect on this objective.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
does not compromise sustainable sources of water supply.							
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	++	++	This is a large site located on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller facilities may result in a smaller area of the site being developed, thus having particularly positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	+/-	+	+/-	+	+/-	+	The GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network using

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							Davey Close and the Waterwells roundabout to access the A38 and then Junction 12 of M5 to the south. In addition, it is more than 1km from an AQMA; therefore in this sense the site should have positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts of**	-/+	-/+	-/+	-/+	-/+	-/+	The GCC Highways Assessment found that, the site is too far from existing rail/water infrastructure for

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.							these modes to be suitable; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment also found that the site is within reasonable proximity to the strategic highways network, therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores
20. To **reduce waste to landfill** and in dealing with all waste streams to	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
actively **promote the waste hierarchy** (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste.							these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce	++	+?	++	+?	++	+?	The fact that the site is an existing

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
contributions to and to **adapt to Climate Change**.							industrial estate means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 6: Land at Moreton Valence, Stroud							
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.	-	-?	-	-?	-	-?	There are a small amount of sensitive receptors (residential properties) within 250m of the site boundary. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[26] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include

[26] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
to **maximise community participation** and access to waste services and facilities in Gloucestershire.							education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has a small number of residential properties within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The fact that the site is already used for waste management activities may mean that there is a cumulative negative effect on local amenity. The GCC Highways Assessment concluded that the site is not in close proximity to a significant number of residential properties whose amenity may be adversely affected by lorry traffic.
4. To promote	+?	+?	+?	+?	+?	+?	The creation of additional waste

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
sustainable economic development in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.							management facilities within Gloucestershire may have a minor positive impact on encouraging investment and growth of 'green industry' in the County. This site is an industrial estate with existing waste management uses and as a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							stations and/or any other facilities that may service them. The proximity of the site to Gloucester, along with the fact that there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	-/+	-/+	-/+	-/+	-/+	-/+	In terms of opportunities for future employees to use sustainable transport modes to access the site, the GCC Highways Assessment found that the site is outside reasonable walking distances, and that cycle/bus access is also likely to be fairly limited, in this sense having negative effects on this objective. However, positive effects are associated with general job creation at the site, so overall effects are likely to be mixed. Although it is likely that larger facilities will result

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	0	0	0	0	0	0	The site is not within an Aerodrome Safeguarding zone; therefore development of any facility here would not be expected to have an impact on this objective.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	Development of any facility at this site could have a potentially positive impact on biodiversity, as the site has no international, national or local designations within the immediate vicinity and was assessed in the GCC site assessment as having a potentially uncertain or positive impact on biodiversity. However, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of the Cotswold Beechwoods SAC. As such, minor negative effects may be associated with this objective. However, this negative score is

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	-	0	-	0	-	0	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is in an existing industrial estate; therefore negligible impacts on the landscape may be expected from development at this site. The landscape and visual impact assessment[27] carried out for the sites concluded that the site is of medium landscape suitability, as a small or medium sized facility with any height emissions stack would have a slight to moderate adverse impact and a large facility with any height emissions stack would have a moderate to substantial adverse impact on the landscape. As such, the site is not recommended for a technology requiring the erection of a medium or large emissions stack.

[27] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	-	-	-	-	-	-	The GCC assessment states that screening potential at this site would depend on the size and technology of a proposed facility and that there is currently large bunding screening from the M5 which could potentially be improved. The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. The landscape and visual impact assessment[28] carried out for the sites notes the presence of several residential properties which have views of the site.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-/+	-/+	-/+	-/+	-/+	-/+	GCC site assessment and GIS analysis indicates that there are no PROW present on site and that there may be potential to enhance the local footpath network, although there are no existing footpaths on the site, and this could have a minor positive effect on material, cultural and recreational assets.. However, the site is close to a camp site and there may be

[28] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							potential for a minor negative effect on recreation in these areas by making such facilities less attractive to users. The overall effect would therefore be mixed.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	0	0	The site is more than 500m from a SSSI or RIG, so development here would not be expected to have an impact on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	+	+	+	+	+	+	The site scored positive in the GCC Archaeology Team site assessment due to low potential to impact upon known historical or archaeological remains.
14. To prevent **flooding**, in particular preventing inappropriate development in the floodplain and to ensure that waste development	++0	++	++	++	++	++	The site is entirely within Flood Zone 1 and the GCC assessment scored it very positively as there are no historic flood outlines and there are no recorded incidents of flooding from other sources within the site. As such, the site could have a significant positive effect on preventing flooding and reducing the risk to the public water supply.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
does not compromise sustainable sources of water supply.							
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	++	++	This is a large sized site located entirely on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller sized-facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in	++/-	++	++/-	++	++/-	++	The GCC Highways Assessment found that the site is within close proximity of the strategic highways

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Gloucestershire.							network via Junction 12 of the M5 motorway (via A38/Cross Keys Roundabout). In addition, it is more than 1km from an AQMA; therefore in this sense the site should have significant positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts**	-/++	-/++	-/++	-/++	-/++	-/++	The GCC Highways Assessment considered that the site is too far

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.							from existing rail/water infrastructure for these modes to be suitable; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment also found that the site is within close proximity of the strategic highways network via Junction 12 of the M5 motorway (via A38/Cross Keys Roundabout), therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
20. To **reduce waste to landfill** and in dealing with all waste	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
streams to actively **promote the waste hierarchy** (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste.							types that may be developed on these sites are therefore likely to have a minor positive effect by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce	++	+?	++	+?	++	+?	The fact that the site is an existing

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
contributions to and to **adapt to Climate Change**.							industrial estate means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 7: Land north of Railway Triangle, Gloucester							
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.	-	-?	-	-?	-	-?	There are residential areas within 250m of the site. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[29] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is

[29] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on local amenity. The GCC Highways Assessment found that this site is likely to

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							have a significant impact on the numerous residential properties that are in close proximity; in particular Horton Road. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The fact that the site is already used for waste management activities may mean that there is a cumulative negative effect on local amenity.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							This site is an industrial estate with existing waste management uses and as a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this objective. However it is important to note

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							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. The proximity of the site to Gloucester, along with the fact that there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	+	+	+	+	+	+	In terms of opportunities for future employees to use sustainable modes of transport to access the site, the GCC Highways Assessment found that the site is well placed for employee access by non-car modes as there are numerous residences in close walking, cycling and bus distance. However, the nearby rail lines (and level crossing) do provide some constraints. In addition, positive effects are associated with general job creation at the site. Although it is likely that larger facilities will result in higher levels of employment during construction and

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The GCC assessment found that a facility developed at the larger Railway Corridor site (within which this site lies) would have a neutral effect on biodiversity. However, the overall impact of development there was considered likely to be

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							negative as the site is within 500m of various BAP species (e.g. Badger, Kestrel). It is not possible to tell from the information available whether these species are in close proximity to the part of the site now being assessed as Land north of Railway Triangle, therefore the score is uncertain.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	+?	+?	+?	+?	+	+	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is an existing industrial estate; therefore negligible impacts on the landscape would be expected from

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							development at this site. The landscape and visual impact assessment[30] carried out for the sites concluded that this site was of high landscape suitability, although there is a preference to locate any medium or larger facility away from the north of the site due to potential adverse effects on visual amenity. As such, the positive scores for these size of facilities are uncertain as it would depend on their specific location within the site.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	+?	+?	The GCC assessment found that screening may be limited on much of the site although the Allstone shed is well screened

[30] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							on the north boundary by very large coniferous trees. Most of the area is very visible from the elevated Metz Way. The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening even more difficult. However, the more detailed landscape and visual impact assessment[31] carried out for the sites concluded that the main visual impacts of development could be almost entirely mitigated through sensitive planning and screen planting.
11. To protect conserve and enhance Gloucestershire's	-	-	-	-	-	-	There is a PROW very close to the site boundary to the east

[31] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
material, cultural and recreational assets.							on Blinkhorns Bridge Lane. In addition, the site is within 250m of playing fields and may have the potential for a negative effect on recreation by making this facility less attractive to users of recreational facilities in the County. As such, the impact of development here would be likely to be negative.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	0	0	The site is further than 500m from a SSSI or RIG, so is not expected to have an impact on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	0	0	0	0	0	0	The site is more than 250m from a Historic Park or Garden or Registered Battlefield and is more than 100m from a SAM or listed building or a Conservation Area, therefore no effect on

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							this objective is expected.
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.	+	+	+	+	+	+	The SFRA Level 2 indicates a low risk of flooding on this site as it is predominantly within Flood Zone 1, therefore development here should have a positive effect on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in	+	+	+	+	+	+	This is a large site located entirely on previously developed

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Gloucestershire.							land, therefore should have a positive effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	-	-	-	-	-	-	The GCC Highways Assessment found that access from the site to the strategic road network is difficult. Using current links traffic would need to use Myers Road and then probably Horton Road north (to avoid the level crossing) and then Barnwood Rd to the A38/A417 r/bout (Walls). It would be more appropriate to construct a direct

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							access off Metz Way, although HGV's would still then need to use the A38. As such, negative effects on this objective are expected. Where thermal treatment facilities are proposed, there could be further negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **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.	+?/--	+?/--	+?/--	+?/--	+?/--	+?/--	In terms of the potential for sustainable transport modes to be used at the site, it is adjacent to an operational railway, with the mainline connection to an adjoining loop still in place. It could therefore be relatively easy to be connected back into the network, although there would still be cost issues, and minor track repairs and renewals may first be required. Further investigation of the sidings would be necessary, alongside feasibility discussions with Network Rail,

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							therefore uncertain positive scores have been given. However, the GCC Highways Assessment found that access from the site to the strategic road network is difficult and that new road links to the site may be required, therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
20. To **reduce waste to landfill** and in dealing with all waste streams to	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
actively **promote the waste hierarchy** (i.e. Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste.							to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The fact that the site is an existing industrial estate means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility to adapt to climate change will depend more on the

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 8: Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud							
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.	-	-?	-	-?	-	-?	There are a small number of residential properties within 250m of the site boundary. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[32] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other

[32] 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.

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has a small number of residential properties within 250m and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on local amenity. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The GCC Highways Assessment

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							found that the site is within an existing commercial/ residential area and thus impacts on residential properties should be relatively minor. However, the fact that the site is already used for waste management activities may mean that there is a cumulative negative effect on local amenity.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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. This site is adjacent to a business park and as a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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. The reasonable proximity of the site to Gloucester, along with the fact that

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	+	+	+	+	+	+	In terms of opportunities for future employees to use sustainable modes of transport to access the site, the GCC Highways Assessment found that the site benefits from reasonable access for pedestrians and cyclists from Stonehouse, and that there are bus services allowing some access from further afield. In addition, positive effects are

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							associated with general job creation at the site. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	0	0	0	0	0	0	The site is not within an Aerodrome Safeguarding zone; therefore development of any facility here is not expected to have an impact on this objective.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The larger site of Stroudwater Area, within which the Nastend Farm site lies, is within 500m of several BAP species (e.g. common toad, kingfisher) and BAP habitats (e.g. Stonehouse Newt Pond and lowland calcareous

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							grassland). As such, development of any facility at this site has the potential for a negative effect on biodiversity, although this score is at present uncertain as the proximity of these species to the Nastend Farm area of the larger site is unclear from the information available. In addition, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of the Cotswold Beechwoods SAC. As such, minor negative effects may be associated with this objective. However, this negative score is also uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	+	+	+	+	+	+	The site is located within 1km of the Cotswolds AONB so may be expected to have a

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							potentially negative effect on the landscape. The design of thermal treatment facilities, with tall emissions stacks, means that they are particularly likely to have a negative impact. However, the landscape and visual impact assessment[33] carried out for the sites states that due to the presence of existing structures of a similar nature, including tall emissions stacks in the development would have a negligible impact and that overall the site is of high suitability for development.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	-	-	-	-	-	-	The GCC assessment found that there is some potential for certain areas of the site to be fairly well screened, however parts are visible from quite a

[33] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							distance including the Leonard Stanley area and the M5. The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. The landscape and visual impact assessment[34] carried out for the sites found that there is some potential for the use of woodland planting around site boundaries and off site to screen views.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	--	--	--	--	--	--	The site includes a PROW and the GCC assessment has identified the site as having a major adverse impact on the network. In addition the site is within 250m of a leisure/recreation facility, therefore this site has the potential for significant negative effects on this objective.

[34] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	0	0	The site is more than 500m from a SSI or a RIG, therefore is not expected to have an effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	-	-	-	-	-	-	The site is within 100m of a listed building, so is assessed as having a potentially negative effect on this 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.	+	+	+	+	+	+	The site is mainly within Flood Zone 1 and is only marginally affected by Flood Zones 2 and 3. In addition, the GCC assessment of the overall Stroudwater Area site (within which the Nastend Farm site lies) found that there is some potential for positive effects on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	N/A	N/A	In relation to the location of potential waste sites, potential pollution effects are already covered under SA Objectives 1, 3, 16-18. The precautionary

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							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.
16. To protect and enhance **soil / land quality** in Gloucestershire.	--	--	--	--	--	--	This is a large site located on undeveloped farmland, therefore would have a significant negative effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having fewer negative effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	+/-	+	+/-	+	+/-	+	The GCC Highways Assessment found that the site benefits from reasonably good strategic access - vehicles would need to travel south to the A419 (through the existing commercial area) and then a short distance west to

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							M5 Junction 13 or east on the A419 towards Stroud. In addition, the site is more than 1km from an AQMA; therefore in this sense the site should have positive effects on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **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.	-/+	-/+	-/+	-/+	-/+	-/+	The GCC Highways Assessment found that the site is around 0.5km from the mainline railway and thus would require construction of a branch line. The optimal location would be governed by signalling equipment and other infrastructure. The provision of rail is likely to be prohibitively expensive, and there could also be land ownership issues, therefore negative effects are likely. However, the GCC Highways Assessment found that the site benefits from reasonably good access to the strategic highways network, therefore mixed effects are likely overall. There may be some level

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
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.	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The fact that the site is previously undeveloped farmland means that there are more likely to be opportunities for incorporating a CHP scheme within a new development. In addition, the energy recovered from the waste management process within a thermal treatment facility may also

SA Objective	Large Facility (Thermal Treatment	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 9: Netheridge Sewage Treatment Works, Gloucester							
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.	-	-?	-	-?	-	-?	There are some properties and businesses within 250m of the site boundary. Particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[35] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.

[35] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has residential properties and businesses within 250m and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on local amenity. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The fact that the site is already used for waste management activities may mean that there is a cumulative negative effect on local amenity. However, the GCC Highways Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							found that, as the site is not particularly close to residences and the routing for HGV's would not generally result in passing significant amounts of residential properties, effects are not likely to be significant.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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. This site is already developed and is currently used for sewage treatment works. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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. The proximity of the site to Gloucester, along with the fact that there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	+	+	+	+	+	+	In terms of opportunities for future employees to use sustainable modes of transport to access the site, the GCC Highways Assessment found that the site is reasonably placed for employee accessibility, although the nearby canal reduces the walking/cycling accessibility to some extent. There is some nearby bus access, although not all the way into the site. In addition, positive effects are associated with general job creation at the site. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
compromise the **safety of commercial or military aerodromes**.							zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The Walmore Common SPA/Ramsar/SSSI is located 5,770m from the site, and the Severn Estuary SAC/SPA/Ramsar/SSSI is 10,000m from the site, thus the GCC site assessment found that there should be no significant effects on biodiversity from a potential waste management facility. However, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of the Cotswold Beechwoods SAC. As such, minor negative effects may be associated with this objective. However, this negative score is uncertain as the judgement is subject to more detailed Appropriate Assessment.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	+?	+	+?	+	+?	+	The site is more than 1km from the nearest AONB and is already developed; therefore no negative impacts on the landscape in this sense are expected from development at this site. The landscape and visual impact assessment[36] carried out for the sites concluded that this site is of high landscape suitability for development, but that any facility incorporating a tall emissions stack would be more suited to the northern part of the site.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	+?	+?	This site is a large existing sewage treatment works and is adjacent to other industrial estates across the canal, with some existing screen planting in place. The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult;

[36] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							however the landscape and visual impact assessment[37] carried out for the sites states that the main impacts on potential visual receptors could be substantially mitigated through sensitive site planning and reinforcement of existing screen planting.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	+	+	+	+	+	+	There are no PROW within the site, and the GCC site assessment confirms that no diversion will be necessary and enhancements are unlikely, therefore there should be minor positive effects on recreational access since there are already good footpath links to and from the River Severn across the canal to neighbouring residential areas.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	0	0	The site is more than 500m from a SSSI or RIG so is not expected to have an impact on this objective.

[37] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	+	+	+	+	+	+	The site scored positive in the GCC Archaeology Team site assessment due to low potential to impact upon known historical or archaeological remains.
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.	+	+	+	+	+	+	The site has been assessed in the GCC Flood risk assessment as being predominantly in Flood Zone 1, but is affected by Flood Zones 2, 3a and 3b on the eastern side, and therefore overall has been rated as Flood Zone 2. The SFRA Level 2 indicates a very low risk of flooding on this site therefore development here should have a positive effect on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation	N/A	N/A	N/A	N/A	N/A	N/A	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 to

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
authorities.							the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	++	++	This is a large site located entirely on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller-sized facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	+/-	+	+/-	+	+/-	+	The GCC Highways Assessment found that the site benefits from fairly good strategic access to and from the south using the A430 Hempsted bypass and then the A38 to Junction 12 of M5. In addition, the site is more than 1km from an AQMA; therefore in this sense the site should have positive effects on protecting air

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts of lorry traffic** on the environment and communities through means	+?/+	+?/+	+?/+	+?/+	+?/+	+?/+	The GCC Highways Assessment found that the site backs on to the Gloucester & Sharpness Canal, which is a working canal although commercial flows are currently low on

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.							this section. There is therefore an option of using water for forward distribution of waste by-products. It is understood that a wharf/jetty exists although this would possibly need to be refurbished or rebuilt. Further progression of this option would require liaison with British Waterways, therefore an uncertain positive score has been given. In addition the GCC Highways Assessment found that the site benefits from reasonably good strategic access. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
20. To **reduce waste to landfill**	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.							seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The large sewage treatment works already on the site makes use of CHP on site, thus there should be further opportunities for incorporating a CHP scheme into a new development. In addition, the energy recovered from the waste management process within a thermal treatment facility may also be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							known at the planning application stage.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 10: The Park, Wingmoor Farm West, Tewkesbury							
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.	-	-?	-	-?	-	-?	There are a few sensitive receptors within 250m of the site boundary, therefore particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[38] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to	+?	+?	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres

[38] 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.

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
maximise community participation and access to waste services and facilities in Gloucestershire.							within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-	-	-?	-?	-?	-?	The site has a small amount of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they may create less traffic movement. The fact that the site is already used for waste management activities may mean that there is a cumulative negative effect on local amenity. The GCC Highways Assessment for this site noted that HGV trips through Stoke Orchard Village should be discouraged by the weight limit in place, which should help to avoid any negative impacts on amenity there that may otherwise have

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							resulted from lorry movements.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	+?	+?	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. This site is an industrial estate with existing waste management uses, and is close to a HRC and active landfill site. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for	+	+	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this objective. However it is important to note that certain sites will be more efficient than others (e.g. in terms of

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
tax payers in Gloucestershire.							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. The proximity of the site to Cheltenham, along with the fact that there are existing waste facilities at the site, means that transport distances are likely to be lower, having a positive effect in terms of this objective. Additionally, the type of facilities eventually proposed on sites once allocated in the Waste Core Strategy may differ in terms of overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	-/+	-/+	-/+	-/+	-/+	-/+	In terms of opportunities for future employees to use sustainable transport to travel to work, the GCC Highways Assessment found that the site is some distance from Bishop's Cleeve, thus opportunities for employees to walk to the site are limited. There may be some potential for cycle use although the presence of HGV's may also make this unrealistic, meaning

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							that negative effects are likely in this sense. However, positive effects are associated with general job creation at the site, so overall effects are likely to be mixed. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore significant positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	-?	0	-?	0	The site is within the Aerodrome Safeguarding zone for Gloucestershire Airport, therefore thermal treatment facilities, which are likely to include tall emissions stacks, could potentially present a hazard to aircraft if developed on this site.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	-?	-?	-?	-?	-?	-?	The GCC ecological assessment found that there should be no significant effects on biodiversity from a potential waste management facility developed on this site. However, the initial findings of the HRA Screening Report indicate that the site lies within 10km upwind of the

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							Dixton Woods SAC. As such, minor negative effects may be associated with this objective. However, this negative score is uncertain as the judgement is subject to more detailed Appropriate Assessment.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	+	+	+	+	+	+	This site is more than 1km from the nearest AONB and is an existing industrial estate; therefore negligible impacts on the landscape may be expected from development. In addition, the landscape and visual impact assessment[39] carried out for the sites concluded that an emission stack would have a minimal impact on the landscape due to the frequency of similar structures in the wider area and concluded that the site is of high landscape suitability.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative**	+?	+?	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult; however the landscape and visual impact assessment[40] carried out for the sites notes

[39] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment
[40] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
design to be incorporated.							the enclosed character of the study are and recognises that sensitive planning would minimise any negative impacts.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-/+	-/+	-/+	-/+	-/+	-/+	GCC site assessment and GIS analysis indicates that there are no PROW present on site, but that there may be potential to enhance the local footpath network, therefore having a minor positive effect on material, cultural and recreational assets. However, the site is close to a rugby ground and rifle range and may have the potential for a minor negative effect on recreation in these areas by making these facilities less attractive to users of recreational facilities in the County.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	-	-	-	-	-	-	The site is within 500m of a RIG (Wingmore Farm Pit) and so development of any type of waste facility here could have a negative effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural**	+	+	+	+	+	+	The larger Wingmoor Farm West site, within which Areas A, B and C lie, scored positive in the GCC Archaeology Team site assessment due to low potential to impact upon known

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
and archaeological heritage.							historical or archaeological remains. The report confirms that the site is near to the former Stoke Orchard World War II airfield, but notes that much of the site has already been destroyed by landfill, and the remainder of the airfield is now used by the Coal Research Establishment.
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.	+	+	+	+	+	+	The SFRA Level 2 indicates a very low risk of flooding on this site therefore development here should have a positive effect on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation	N/A	N/A	N/A	N/A	N/A	N/A	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 to the site allocation

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
authorities.							process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	+	+	+	+	+	+	This is a medium sized site located on previously developed land, therefore should have a positive effect on this objective. Medium and smaller facilities may result in a smaller area of the site being developed, thus having even greater positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	+/-	+	+/-	+	+/-	+	The GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network via the A435. In addition, it is more than 1km from an AQMA; therefore in this sense the site should have positive impacts on protecting air quality. However, where thermal treatment facilities are proposed, there could also be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							however, because the overall scale of emissions from thermal treatment facilities is relatively small and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **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	-/+	-/+	-/+	-/+	-/+	-/+	The GCC Highways Assessment found that, although the site is adjacent to a mapped freight rail head, at present there are no sidings and thus a new main line connection and loading siding would be required. The cost of installing such a mainline connection is likely to be very high, unless associated works are programmed; therefore negative effects in terms of sustainable transport use are expected. However, the GCC Highways Assessment found that the site is within reasonable proximity to the strategic highways network via the A435,

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
d) the use of sustainable alternative fuels e) promoting the management of waste in one of the nearest appropriate installations.							therefore mixed effects are likely overall. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
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.	+	+	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and	++?	+	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
minimise net energy balance requirements.							have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	++	+?	The fact that the site is an existing industrial estate means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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

SA Objective	Large Facility (Thermal Treatment)	Large Facility (not Thermal Treatment)	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
							and measures to enable changes to new technologies as they develop. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

APPENDIX 3

Site Schedules: Sites outside Zone C

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 1a: Foss Cross Industrial Site, north of Cirencester					
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.	-	-?	-	-?	There are one or two sensitive receptors within 250m of the site boundary including workplaces, therefore particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[41] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-?	-?	-?	-?	The site has a small number of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result in fewer negative effects in this sense as they are likely to create less traffic movement.

[41] 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.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	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. This site is an industrial estate and already includes a Household Recycling Centre. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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 overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	-	-	-	-	This site was assessed by GCC as 'low' in relation to opportunities for future employees to use sustainable transport to travel to work as it is located some distance from residential areas and has limited scope for non-car access, therefore is likely to have negative effects on this

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					objective. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	0	0	0	0	The site lies outside of all Aerodrome Safeguarding zones therefore none of the different types of facilities are expected to have an effect on this objective.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	+?	+?	+?	+?	The GCC ecological assessment scored this site as having a potentially uncertain or positive impact on biodiversity.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	--?	--?	--?	--?	This site is located within the Cotswolds AONB; therefore development here could have significant negative effects on this objective. The design of thermal treatment facilities, with tall emissions stacks, means that they are particularly likely to have a negative impact on the landscape. The landscape and visual impact assessment[42] carried out for the Council does not include this site, thus this impact is uncertain.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. However, all sites would have the potential for positive effects through design to be achieved, although the effects are uncertain until the exact design of the proposed facility is submitted with a planning application at a later stage.
11. To protect conserve and	+	+	+	+	GCC site assessment and GIS analysis indicates that there

[42] Atkins (2009) Gloucestershire County Council Potential Waste Sites: Landscape and Visual Impact Assessment

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
enhance Gloucestershire's **material, cultural and recreational assets**.					are no PROW present on site, but that there may be potential to enhance the local footpath network, therefore having a minor positive effect on material, cultural and recreational assets.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	-	-	-	-	The site has several RIGs within 500m (including Foss Cross and Stony Furlong Railway Cutting) so development here may have a negative effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	+	+	+	+	The site scored as positive in the GCC Archaeology Team site assessment in relation to known historical or archaeological remains, therefore positive effects on this objective are expected.
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.	+	+	+	+	The SFRA Level 2 indicates the site is fully within Flood Zone 1 and therefore there is very low flood risk, and so development here should have a positive effect on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	This is a large site located on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller facilities may result in a smaller area of the site being developed, thus having particularly positive effects, although this is uncertain and will depend on the final design of the facility.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
17. To protect and enhance **air quality** in Gloucestershire.	-	++	-	++	This site has been assessed as good in terms of its proximity to the Strategic Highway Network within the GCC Highways assessment as it has good access to the A429. In addition, it is not within 1km of an AQMA, therefore this site could have a significant positive impact on protecting air quality. However, where thermal treatment facilities are proposed, there could be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small compared with emissions from road transport, and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **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	-/++	-/++	-/++	-/++	The GCC Highways assessment scored the site as having low potential for sustainable transport. Thus it could have negative effects on reducing the impacts of road traffic to and from the site if developed for waste use. The assessment for proximity to the strategic highways network was good, however so overall effects may be mixed. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
waste in one of the nearest appropriate installations.					
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.	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	The fact that the site is an existing industrial estate means that there are unlikely to be opportunities for incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					develop. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 2a: Hurst Farm, Lydney					
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.	-	-?	-	-?	There are a few sensitive receptors within 250m of the site boundary, therefore particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[43] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-?	-?	-?	-?	The site has a small number of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result

[43] 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.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					in fewer negative effects in this sense as they are likely to create less traffic movement.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	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. This site is an existing industrial estate. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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 overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the	-	-	-	-	This site was assessed by GCC as 'low' in relation to opportunities for future employees to use sustainable transport to travel to work, therefore negative effects on this objective are likely. Although it is likely that larger

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
economy.					facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore positive effects for larger facilities in this sense cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	0	0	0	0	The site is outside of all Aerodrome Safeguarding zones, therefore development at this site is not expected to have an effect on this objective.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	--	--	--	--	The GCC ecological assessment for the slightly larger site within which this site lies (Lydney-Hurst Farm) found that the overall impact on biodiversity as a result of development at this site could be potentially negative or uncertain due to potential impacts on an internationally designated site (the Severn Estuary SPA/SAC/Ramsar site.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	0	0	0	0	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is in an existing industrial estate; therefore no negative impacts on the landscape are expected from development at this site.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. However, all sites would have the potential for positive effects through design to be achieved, although the effects are uncertain until the exact design of the proposed facility is submitted with a planning application at a later stage.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-	-	-	-	GIS analysis indicates that Public Rights of Way pass along the site boundary; therefore development at this site could have a negative effect on this objective. In addition, there is a nearby golf course which may be adversely affected.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	0	0	0	0	The site is more than 500m from a RIG so development here is not expected to have an effect on this objective.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	0	0	0	0	The larger Lydney –Hurst Farm site scored as neutral in the GCC Archaeology Team site assessment as it contains no known archaeological or historically significant remains; therefore no effects on this objective are expected.
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.	+	+	+	+	The SFRA Level 2 indicates there the site is fully within Flood Zone 1 and thus there is a low flood risk, therefore development here should have a positive effect on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	--	--	--	--	This is a large site located on previously undeveloped land, therefore could have a significant negative effect on this objective. Medium and smaller facilities may result in a smaller area of the site being developed, thus having

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					fewer negative effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	-	+	-	+	This site has been assessed as 'medium' in terms of its proximity to the Strategic Highway Network within the GCC Highways assessment as it has reasonable access to the A48. In addition, it is not within 1km of an AQMA, therefore this site could have a positive impact on protecting air quality. However, where thermal treatment facilities are proposed, there could be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small compared with emissions from road transport, and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **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	++	++	++	++	The GCC Highways assessment scored the site as having high potential for sustainable transport. Thus it could have a significant positive effect on reducing the impacts of road traffic to and from the site if developed for waste use. The assessment for proximity to the strategic highways network was medium. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
d) the use of sustainable alternative fuels e) promoting the management of waste in one of the nearest appropriate installations.					be the case and cannot be assumed, no differences are reflected in the scores.
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.	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	The fact that the site is previously undeveloped farmland means that there are more likely to be opportunities for incorporating a CHP scheme within a new development. In addition, the energy recovered from the waste management process within a thermal treatment facility may also be used for something other than CHP and this would have a significant positive effect on this objective.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
Site 3a: Land at Lydney Industrial Estate					
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.	-	-?	-	-?	There are a small number of sensitive receptors within 250m of the site boundary, therefore particularly where thermal treatment facilities are proposed, there could be negative effects on health and well-being as a result of gaseous emissions; however these are classed as minor due to the fact that Government research[44] has concluded that modern waste management practices have at most a minor effect on human health. The fact that the effects are likely to be only minor means that no differentiation between the effects of large and smaller facilities is expected. With other types of facilities, the effects are uncertain and will depend on the precise nature and any mitigation measures proposed.
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	All of the facilities could have an indirect positive effect on education opportunities, as they may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste development.	-?	-?	-?	-?	The site has a small number of sensitive receptors within 250m, and as facilities are served by large numbers of HGVs this may combine with mechanical operations to increase noise levels, thus having negative effects on this objective. Medium and smaller-sized facilities may result

[44] 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.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					in fewer negative effects in this sense as they are likely to create less traffic movement. In addition, there is already a waste transfer station on site, therefore there may be cumulative effects on local amenity.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic backgrounds.	+?	+?	+?	+?	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. This site is an industrial estate. As a result there is potential for positive effects on sustainable local economic activity as complementary activities to waste management may be encouraged, e.g. reprocessing facilities or composting outlets that could make use of recyclate or compost generated. This score is uncertain, however, as it is dependent on the nature of neighbouring industrial / commercial outlets.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+	+	+	+	At this stage it is difficult to assess how the location of new large-scale waste facilities may affect this 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 overall costs but this will not be known until the planning application stage.
6. To provide **employment opportunities** in both rural and	-	-	-	-	This site was assessed by GCC as 'low' in relation to opportunities for future employees to use sustainable

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
urban areas of the County, promoting diversification in the economy.					transport to travel to work. Although it is likely that larger facilities will result in higher levels of employment during construction and operation, this will not always be the case and therefore positive effects for larger facilities cannot be assumed.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	0	0	0	0	The site is outside of all Aerodrome Safeguarding zones, therefore development of any facility at this site is not expected to have an effect on this objective.
8. To protect, conserve and enhance **biodiversity** in Gloucestershire.	--	--	--	--	The GCC ecological assessment of the larger site within which this site lies (known as Lydney Industrial Estate) found that there are potential significant negative effects on biodiversity if development of this site were to take place, as there is the potential for negative impacts on the nearby Severn Estuary SPA/SAC/Ramsar site.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	0	0	0	0	The design of thermal treatment facilities, with tall emissions stacks, means that they are more likely to have a negative impact on the landscape. However, the site is more than 1km from the nearest AONB and is in an existing industrial estate; therefore no negative impacts on the landscape are expected from development at this site.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	The tall emissions stacks incorporated into the design of thermal treatment facilities could make screening more difficult. However, all sites would have the potential for positive effects through design to be achieved, although the effects are uncertain until the exact design of the proposed facility is submitted with a planning application at a later stage.

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-	-	-	-	GIS analysis indicates that Public Rights of Way pass within 250m of the site, therefore development at this site could have a negative effect on this objective.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	-?	-?	-?	-?	The larger Lydney Industrial Estate site, within which this site lies, is within 500m of a RIG (Lydney Cliff) so development here may have a negative effect on this objective. However, the score is uncertain as it is unclear how close this RIGS lies to the part of the site being assessed here as Land at Lydney Industrial Estate.
13. To protect conserve and enhance **townscapes** and Gloucestershire's **architectural and archaeological heritage**.	--?	--?	--?	--?	The larger Lydney Industrial Estate site, within which this site lies scored as significantly negative in the GCC Archaeology Team site assessment as it contains listed buildings, the setting of which may be significantly affected. Again, the score here is uncertain as it is unclear if these remains can be found in the part of the site being assessed here as Land at Lydney Industrial Estate.
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.	--	--	--	--	The SFRA Level 2 indicates that the majority of the site is not at major risk of flooding, but the access road (Harbour Road) and the far north west corner is in the functional floodplain i.e. Flood Zone 3b. As such the site is assessed as having potentially significant negative effects on this objective.
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	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 to the site allocation process through the Council's own site assessment methodology

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					and this independent SA of the potential waste sites.
16. To protect and enhance **soil / land quality** in Gloucestershire.	++	++	++	++	This is a large site located on previously developed land, therefore should have a significant positive effect on this objective. Medium and smaller facilities may result in a smaller area of the site being developed, thus having particularly positive effects, although this is uncertain and will depend on the final design of the facility.
17. To protect and enhance **air quality** in Gloucestershire.	-	+	-	+	This site has been assessed as 'medium' in terms of its proximity to the Strategic Highway Network within the GCC Highways assessment as it has good access to the A48. In addition, it is not within 1km of an AQMA, therefore this site could have a positive impact on protecting air quality. However, where thermal treatment facilities are proposed, there could be negative impacts on air quality due to the release of gases through thermal processes. These effects would not be significantly negative however, because the overall scale of emissions from thermal treatment facilities is relatively small compared with emissions from road transport, and also because of the distance of the site from an AQMA.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	Potential sites for waste management are expected to have no effect on this objective, as the requirement for future residual waste management within Gloucestershire is likely to be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts of lorry traffic** on the environment and communities through means such as:	++	++	++	++	The GCC Highways assessment scored the site as having high potential for sustainable transport. Thus it could have a significant positive effect on reducing the impacts of road traffic to and from the site if developed for waste

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
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.					use. The assessment for proximity to the strategic highways network was also medium. There may be some level of variation between the effects of small, medium and larger sites, as larger sites may result in higher levels of waste transportation. However, as this will not always be the case and cannot be assumed, no differences are reflected in the scores.
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.	+	+	+	+	The Waste Core Strategy Options Consultation is seeking to identify strategic sites for dealing with residual municipal waste. All facility types that may be developed on these sites are therefore likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	++?	+	++?	+	All facility types that may be developed on sites allocated for residual waste management in the Core Strategy are likely to have minor positive effects by ensuring waste management occurs using processes higher up the waste hierarchy than landfill, which should help recycle, compost and recover value or energy from waste and reduce use of primary materials. Thermal treatment facilities may have a significant positive effect on this objective if the potential for using the energy produced is realised.
22. To reduce contributions to and to **adapt to Climate Change**.	++	+?	++	+?	The fact that the site is an existing industrial estate means that there are unlikely to be opportunities for

SA Objective	Medium Facility (Thermal Treatment)	Medium Facility (not Thermal Treatment)	Small Facility (Thermal Treatment)	Small Facility (not Thermal Treatment)	Justification
					incorporating a CHP scheme. However, the energy recovered from the waste management process within a thermal treatment facility may still be used for something other than CHP and this would have a significant positive effect on this objective. The ability of the facility 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. This cannot be assessed until the detailed proposals for a site are made known at the planning application stage.

APPENDIX 4

Spatial Options SA Schedules

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
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.	-?	-?	-?	-?	Some types of waste facility could have a negative effect on the health of local communities due to the biospores or gaseous emissions that may be released from certain waste management activities such as composting, anaerobic digestion or producing energy from waste. The effects of these emissions would depend on the proximity of sensitive receptors to the final locations of strategic waste facilities, e.g. where there are a very small number of residential properties nearby, fewer negative effects would be anticipated. As such, all negative scores are accompanied by a '?'. Regardless of the facility type ultimately developed, the negative effects are considered to be minor due to the fact that Government research[45] has concluded that modern waste management facilities have at most a minor effect on human health. There could be cumulative effects from emissions where facilities are concentrated more closely together, particularly where they are focussed within Zone C, which would involve a more centralised pattern of development. However, a more dispersed pattern of development where facilities are located outside of Zone C may mean that potentially a larger number of sensitive receptors would be in the vicinity of a waste management facility, although the cumulative effects resulting from clustering facilities nearer to one another would be avoided to some extent.

[45] *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.

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					However, two of the sites outside of Zone C are located very close to one another; therefore cumulative effects may still occur. Incorporating waste facilities into urban extensions to Cheltenham and Gloucester would mean that waste facilities would be likely to be close to residential properties and other sensitive receptors which could lead to negative effects on human health and well being. Applying a combination of these options would mean that minor negative effects would be likely depending on the location of sensitive receptors in relation to planned waste facilities; however the precise effects would depend on the exact combination of options used.
2. To **educate the public** about waste issues and to **maximise community participation** and access to waste services and facilities in Gloucestershire.	+?	+?	+?	+?	All of the options could have potentially positive effects on this objective as all facilities, regardless of their spatial distribution, may include education centres within the site.
3. To safeguard the **amenity of local communities** from the adverse impacts of waste	-?	-?	-?	-?	Waste facilities may have negative effects on the amenity of local communities because all development would result in some level of noise, traffic and light pollution during construction and potentially during operation. These effects are likely to be more

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
development.					significant where development is more centralised, e.g. within Zone C or within urban extensions to Cheltenham and Gloucester, although this is uncertain as it depends on the proximity of sensitive receptors to the final allocated waste sites. Where facilities are more dispersed, e.g. outside of Zone C, the more dispersed pattern of development means that there should be fewer cumulative effects from the presence of several facilities within a smaller area. However, although the proposed Foss Cross site is located further from the other two sites, Hurst Farm and the Land at Lydney site are located close together so cumulative effects may still occur here, thus negative effects on the amenity of local communities remain likely. Again, the score is uncertain as it will be dependent on the proximity of the final allocated waste sites to sensitive receptors. The precise effects of applying a combination of options would depend on the combination used, but negative effects are expected as all of the associated options that may be combined have potential negative impacts associated with them.
4. To promote **sustainable economic development** in Gloucestershire giving opportunities to people from all social and ethnic	+?	+?	++?	+?	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

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
backgrounds.					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. The creation of additional waste management facilities in Gloucestershire may therefore have a minor positive impact on encouraging investment and growth of 'green industry' in the county. These effects will occur across all of the options and will not be affected by the spatial distribution of new facilities. The one exception is that by incorporating waste facilities into new urban extensions to Cheltenham and Gloucester, there may be particular opportunities for utilising the sustainability benefits that could be gained from waste derived CHP for thousands of new homes and businesses. As such, this option has potential significant positive effects on sustainable economic development. All of the ten sites that are being proposed for development within Zone C are either within an industrial estate, within 250m of, adjacent to or include existing waste facilities or sites allocated in the current Waste Local Plan, and could therefore also increase 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,

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					these effects will depend on these sites being allocated for development. Similarly, of the three sites proposed for development outside of Zone C, all are either existing industrial estates or have existing waste management facilities within close proximity. As such, this option may also have positive effects on this objective, although this will again depend on these sites being allocated.
5. To manage waste in an **economically sustainable** way through means that represent good value for tax payers in Gloucestershire.	+?	?	?	?	At this stage it is difficult to assess how the spatial location of new large scale waste facilities may affect this objective. However, 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. As such, focussing development within Zone C around Cheltenham and Gloucester or within their proposed new urban extensions could have positive effects as facilities would be located within closer proximity to local waste arisings, however, they may not always be close to transfer stations and recycling/composting facilities. In contrast, the fact that the proposed sites outside of Zone C lie further from the main urban areas of Cheltenham and Gloucester means that this could potentially lead to higher transport costs etc. However, five of the ten sites being considered within Zone C are within close proximity of existing waste facilities and transfer stations, which should help to reduce transport of residual waste.

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					The precise effects of applying a combination of options would again depend on the combination used and on the resulting impacts on transport movements. At this stage therefore the effects are uncertain. 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 affected by their spatial distribution. As such all scores for this objective are currently uncertain.
6. To provide **employment opportunities** in both rural and urban areas of the County, promoting diversification in the economy.	-	-	-	?	The centralised nature of focusing development within Zone C means that employment opportunities associated with the construction and operation of waste facilities would be concentrated nearer to the urban areas of the county, having some negative effects on this objective. Focussing facilities outside of Zone C may have less of a negative effect in that the jobs created would be more dispersed and located further from the main urban areas of Cheltenham and Gloucester; however two of the three proposed sites are still located very close to one another. Incorporating waste treatment works into the new urban extensions may again have negative effects on this objective as any jobs created would be focussed in urban areas. However, the precise job creating effects of waste facilities would depend on the exact size and design of facilities to be developed. The precise effects of applying a combination of effects would again depend on the combination of options used and on the resulting

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					impacts on employment opportunities. At this stage therefore the effects are unknown. The effects of each site on the ability of employees to use sustainable transport modes to travel to and from work will depend on the proximity of each site to sustainable transport links. This will be determined by the individual location of waste facilities rather than on their spatial distribution at the county-scale, so the impacts of most options are unknown until specific sites are allocated.
7. To ensure that waste sites do not compromise the **safety of commercial or military aerodromes**.	-?	0	?	?	The impact of waste facilities on the safety of commercial or military aerodromes depends on the nature and design of facilities rather than on their spatial distribution. Regardless of design, negative effects would only be anticipated where facilities lie within an aerodrome safeguarding area but this is determined by their precise location rather than by the spatial patterns of development identified within the options. Sites 1, 2, 3, 5, 7 and 10 of the ten sites being considered within Zone C are within aerodrome safeguarding areas, which could have negative effects on the safety of these aerodromes if energy from waste facilities were developed on these sites. None of the three sites proposed outside of Zone C are within an aerodrome safeguarding zone, therefore this option is not likely to have an effect on this objective.
8. To protect, conserve and enhance	-?	--?	?	?	The effects of each option on this objective will depend on the biodiversity value of the final allocated sites, and on their proximity

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
biodiversity in Gloucestershire.					to designated sites and protected species. As such the options for spatial distribution of waste facilities do not directly affect biodiversity. Within Zone C, ten individual site options have been proposed, and for each it has been possible to appraise the likely effects on biodiversity. The majority of these sites would have either a neutral or negative impact; therefore a possible negative effect is expected for this spatial option. This is uncertain, however, as it depends on which of the sites are eventually allocated for development within either option. Of the three sites proposed for development outside of Zone C, two are likely to lead to significant negative impacts on Biodiversity, although again it is uncertain whether either or both of these sites would be eventually allocated under this option. For both of the other options, the likely effects on biodiversity are unknown until specific sites are identified.
9. To protect, conserve and enhance the **landscape** in Gloucestershire.	--?	--?	?	?	The effects of development on the landscape will depend on the proximity of facilities to an AONB and on whether they are located on or adjacent to existing industrial estates. These factors will be determined by the individual location of waste facilities rather than on their spatial distribution at the county-scale, so the impacts of most options are unknown until specific sites are allocated

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					Within Option C, ten individual site options have been proposed, and for each it has been possible to appraise the potential effects on landscape. Sites 3, 4 and 8 were identified as potentially having negative impacts on landscape. However, it is uncertain if these sites will be eventually allocated for development within either option. Similarly, three sites have been proposed for development outside of Zone C, and one of these sites (Foss Cross) is located within the Cotswolds AONB, meaning that development may have significant negative effects on the landscape, but again it is not certain whether this site would be developed as part of this option.
10. To ensure that waste sites have the potential for adequate **screening and / or innovative design** to be incorporated.	+?	+?	+?	+?	Positive effects through innovative design could be achieved at any of the potential sites regardless of their spatial distribution, but the effects are uncertain and will depend on the nature and design of the proposed facility rather than on the spatial distribution of development.
11. To protect conserve and enhance Gloucestershire's **material, cultural and recreational assets**.	-?	-?	?	?	The spatial distribution of waste development will not affect this objective; rather it will be determined by the presence of public rights of way on or near to individual sites and on the presence of nearby recreational assets that may be compromised. As such the effects of all options are unknown until specific sites are allocated. Javelin Park, which is one of the ten sites being considered within Zone C is within 250m of a garden centre and Public Right of Way, thus the recreational assets may be negatively affected if waste

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					facilities were developed on these sites. However, it is uncertain if this site will be eventually allocated for development within this option. Similarly, the sites at Hurst Farm and Lydney Industrial Estate, which are being considered for development outside of Zone C, have Public Rights of Way passing through them, therefore development could have a significant negative effect on recreational assets in the county. However, it is again uncertain that either or both sites would be developed under this option.
12. To protect conserve and enhance **geodiversity** in Gloucestershire.	- -?	--?	?	?	The effect of each option on this objective would be dependent on the presence of SSSIs or RIGs at or near to any proposed site for development, and would not be determined by the spatial distribution of development. As such the effects of all options are unknown until specific sites are allocated. Sites 1, 2 and 3 within the ten sites being considered within Zone C are within the boundary of a Regionally Important Geological site and thus could have significant negative effects on geodiversity. However, it is uncertain if these sites will be eventually allocated for development within this option. Similarly, the sites at Foss Cross and Lydney Industrial Estate, which are being considered for development outside of Zone C are within 500m of a RIGS, therefore this option may also result in negative effects on this objective.
13. To protect conserve and enhance **townscapes** and	- -?	- -?	?	?	The effect of each option on this objective would be dependent on the presence of nearby listed buildings, SAMs, Historic Parks and Gardens and Conservation area at or near to any proposed site

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
Gloucestershire's **architectural and archaeological heritage**.					for development, and would not be determined by the spatial distribution of development. As such the effects of all options are unknown until specific sites are allocated. Nastend Farm, which is one of the ten sites being considered to within Zone C, is within the Stroud Industrial Heritage Conservation Area and is within 100m of a listed building, therefore could have a significant negative effect on architectural and archaeological heritage. In addition, Lydney Industrial Estate, which is being considered for development outside of Zone 3, also includes listed buildings; therefore negative effects under this objective are also possible. However, it is uncertain if these sites will be eventually allocated for development within the options.
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.	+?	-?	?	?	The effect of each option on this objective would be dependent on the level of flood risk zone at or near to any proposed site for development, and would not be determined by the spatial distribution of waste development. As such the effects of all options are unknown until specific sites are allocated. However, the SFRA shows that there is little or no risk of flooding on the ten sites being considered within Zone C, thus this option should have a positive effect on this objective. However, one of the three sites being considered for development outside of Zone C, Lydney Industrial Estate, includes some land within Flood Zone 3b. As such, this option may have negative effects on this objective.

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
15. To **prevent pollution** and to apply the precautionary principle in consultation with waste regulation authorities.	N/A	N/A	N/A	N/A	In relation to the location of potential waste sites, potential pollution effects are already covered under SA Objectives 1, 3, 16-18.
16. To protect and enhance **soil / land quality** in Gloucestershire.	+?	+?	?	?	The effect of each option on this objective would be dependent on the size of individual sites and by the quality of agricultural land at those sites, and would not be determined by the spatial distribution of development. As such the effects of the options are unknown until specific sites are allocated. However, the ten sites being considered within Zone C are all on previously developed land, thus these options should have a positive effect on this objective. The three sites being considered outside of Zone C are also all within previously developed land, therefore minor positive effects are also associated with this option.
17. To protect and enhance **air quality** in Gloucestershire.	-?	-?	-?	?	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 partly on the type of facility proposed on the site, which is not known at this stage in the planning process, so all scores are uncertain.

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					However, in terms of the effects of road transport on air quality, the options of either focussing facilities within Zone C or within urban extensions to Cheltenham and Gloucester, which involve more centralised waste facilities, could result in higher levels of road transportation due to the proximity of the M5, therefore having a potentially negative impact on air quality. Locating waste facilities outside of Zone C would also have potential negative effects, as the sites proposed are not particularly dispersed and are still within reasonable proximity to the M5. The effects of applying a combination of options would be uncertain as this would depend on the combination of options applied.
18. To protect and enhance **water quality** in Gloucestershire.	0	0	0	0	Potential sites for waste management and the pattern of their distribution are expected to have no effect on water quality, as the requirement for future residual waste management within Gloucestershire will be met by modern facilities within enclosed buildings.
19. To reduce the adverse **impacts of lorry traffic** on the environment and communities through	+	+/-?	+	?	Locating waste facilities more centrally within Zone C or within urban extensions to Cheltenham and Gloucester should have positive effects in that sites would be nearer to the main source of waste arisings, which would have beneficial effects in terms of reducing transportation distances. In addition, the M5 lies within

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
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.					Zone C as well as other major roads, meaning that transportation of waste should be faster and more efficient due to the proximity of the strategic road network. The potential for using sustainable modes of transport is unknown until specific sites are allocated. However, the ten sites being considered for development within Zone C were all assessed as having medium or good potential for sustainable transport for operational access, thus this option could have a positive effect in this sense as well. Locating facilities outside of Zone C could have minor positive effects as this option involves positioning facilities in a slightly more dispersed pattern but still within reasonable proximity to waste arisings, which could have some benefits in terms of reducing the distances of road transportation. However, at the Foss Cross site the potential for using sustainable modes of transport was assessed as low, therefore there are also minor negative effects associated with this objective. The effects of applying a combination of options would be uncertain as this would depend on the combination of options applied.
20. To **reduce waste to landfill** and in dealing with all waste streams to actively **promote the waste hierarchy** (i.e.	+	+	+	+	All facility types that may be developed on sites allocated for residual 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 and distribution of sites for these waste

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
Prevent, Reduce, Reuse, Recycle, Recover, Dispose) to achieve the sustainable management of waste.					management facilities would have no effects on this objective as the effects depend on the type of facility that eventually gets proposed.
21. To reduce the global **use of primary materials** and minimise net energy balance requirements.	+	+	+	+	All facility types that may be developed on sites allocated for residual 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 and distribution 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.
22. To reduce contributions to and to **adapt to Climate Change**.	-?	-?	+?	?	The flexibility of the site to adapt to climate change will depend not on the spatial location of developments but instead 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, thus all scores are at present uncertain. 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.

SA Objective	Focus strategic sites within Zone C	Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	Incorporation of waste treatment into urban extensions	Combination of other options	Justification
					The potential for this is highest where facilities are developed within new urban extensions to Cheltenham and Gloucester as this would involve locating waste facilities in the vicinity of new housing and business developments which may utilise CHP. Under all of the other options, the potential for this is lower as 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. The effects resulting from applying a combination of the options are unknown as this will depend on the combination of options applied.

APPENDIX 5

Summaries of SA Findings by SA Objective

Site No.	Site Name	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
	Large Facility (Thermal Treatment)																						
1	Areas A, B & C at Wingmoor Farm East, Tewkesbury	-	+?	-	+?	+	-/+	-?	-?	-?	-	-/+	-	+	+	N/A	++	+/-	0	-/+	+	++?	++
2	Areas A, B & C at Wingmoor Farm West, Tewkesbury	-	+?	-	+?	+	-/+	-?	-?	-?	+?	-/+	-	+	+	N/A	++	+/-	0	-/+	+	++?	++
3	Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury	-	+?	-	+?	+	+	-?	-?	0	+?	-	0	0	+	N/A	+	++/-	0	-/++	+	++?	++
4	Javelin Park, Stroud	-	+?	-	+?	+	-/+	0	-?	0	-	-/+	0	+	+	N/A	++	++/-	0	-/++	+	++?	++
5	Land Adjacent to Quadrant Business Centre, Quedgeley	-	+?	-	+?	+	+	-?	-?	0	+?	+	0	-?	+	N/A	++	+/-	0	-/+	+	++?	++
6	Land at Moreton Valance, Stroud	-	+?	-	+?	+	-/+	0	-?	-	-	-/+	0	+	0	N/A	++	++/-	0	-/++	+	++?	++
7	Land north of Railway Triangle, Gloucester	-	+?	-	+?	+	+	-?	-?	+?	+?	-	0	0	+	N/A	+	-	0	+?/-	+	++?	++
8	Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud	-	+?	-	+?	+	+	0	-?	+	-	--	0	-	+	N/A	--	+/-	0	-/+	+	++?	++
9	Netheridge Sewage Treatment Works, Gloucester	-	+?	-	+?	+	+	-?	-?	+?	+?	+	0	+	+	N/A	++	+/-	0	+?/+	+	++?	++
10	The Park, Wingmoor Farm West, Tewkesbury	-	+?	-	+?	+	-/+	-?	-?	+	+?	-/+	-	+	+	N/A	+	+/-	0	-/+	+	++?	++
1a	Foss Cross Industrial Estate, Calmsden, Cotswold	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2a	Hurst Farm, Lydney	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3a	Land at Lydney Industrial Estate, Lydney	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Site No.	Site Name	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
	Large Facility (Non-Thermal Treatment)																						
1	Areas A, B & C at Wingmoor Farm East, Tewkesbury	-?	+?	-	+?	+	-/+	0	-?	-?	-	-/+	-	+	+	N/A	++	+	0	-/+	+	+	+?
2	Areas A, B & C at Wingmoor Farm West, Tewkesbury	-?	+?	-	+?	+	-/+	0	-?	-?	+?	-/+	-	+	+	N/A	++	+	0	-/+	+	+	+?
3	Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury	-?	+?	-	+?	+	+	0	-?	0	+?	-	0	0	+	N/A	+	++	0	-/++	+	+	+?
4	Javelin Park, Stroud	-?	+?	-	+?	+	-/+	0	-?	0	-	-/+	0	+	+	N/A	++	++	0	-/++	+	+	+?
5	Land Adjacent to Quadrant Business Centre, Quedgeley	-?	+?	-	+?	+	+	0	-?	0	+?	+	0	-?	+	N/A	++	+	0	-/+	+	+	+?
6	Land at Moreton Valance, Stroud	-?	+?	-	+?	+	-/+	0	-?	0	-	-/+	0	+	++	N/A	++	++	0	-/++	+	+	+?
7	Land north of Railway Triangle, Gloucester	-?	+?	-	+?	+	+	0	-?	+?	+?	-	0	0	+	N/A	+	-	0	+?/-	+	+	+?
8	Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud	-?	+?	-	+?	+	+	0	-?	+	-	--	0	-	+	N/A	--	+/-	0	-/+	+	+	+?
9	Netheridge Sewage Treatment Works, Gloucester	-?	+?	-	+?	+	+	-?	-?	+?	+?	+	0	+	+	N/A	++	+/-	0	+?/+	+	+	+?
10	The Park, Wingmoor Farm West, Tewkesbury	-?	+?	-	+?	+	-/+	-?	-?	+	+?	-/+	-	+	+	N/A	+	+/-	0	-/+	+	+	+?
1a	Foss Cross Industrial Estate, Calmsden, Cotswold	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2a	Hurst Farm, Lydney	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3a	Land at Lydney Industrial Estate, Lydney	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A score of N/A is given to the three sites outside of Zone C for all Objectives in the appraisal for large facilities (both thermal treatment and non-thermal treatment). As explained in Chapter 3, these sites were only appraised for medium and small facilities as they are proposed in the Site Options document only for smaller-scale facilities/transfer.

Site No.	Site Name	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
	Medium Facility (Thermal Treatment)																						
1	Areas A, B & C at Wingmoor Farm East, Tewkesbury	-	+?	-?	+?	+	-/+	-?	-?	-?	-	-/+	-	+	+	N/A	++	+/-	0	-/+	+	++?	++
2	Areas A, B & C at Wingmoor Farm West, Tewkesbury	-	+?	-?	+?	+	-/+	-?	-?	-?	+?	-/+	-	+	+	N/A	++	+/-	0	-/+	+	++?	++
3	Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury	-	+?	-?	+?	+	+	-?	-?	0	+?	-	0	0	+	N/A	+	++/-	0	-/++	+	++?	++
4	Javelin Park, Stroud	-	+?	-?	+?	+	-/+	0	-?	0	-	-/+	0	+	+	N/A	++	++/-	0	-/++	+	++?	++
5	Land Adjacent to Quadrant Business Centre, Quedgeley	-	+?	-?	+?	+	+	-?	-?	0	+?	+	0	-?	+	N/A	++	+/-	0	-/+	+	++?	++
6	Land at Moreton Valance, Stroud	-	+?	-?	+?	+	-/+	0	-?	-	-	-/+	0	+	++	N/A	++	++/-	0	-/++	+	++?	++
7	Land north of Railway Triangle, Gloucester	-	+?	-?	+?	+	+	-?	-?	+?	+?	-	0	0	+	N/A	+	-	0	+?/-	+	++?	++
8	Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud	-	+?	-?	+?	+	+	0	-?	+	-	--	0	-	+	N/A	--	+/-	0	-/+	+	++?	++
9	Netheridge Sewage Treatment Works, Gloucester	-	+?	-?	+?	+	+	-?	-?	+?	+?	+	0	+	+	N/A	++	+/-	0	+?/+	+	++?	++
10	The Park, Wingmoor Farm West, Tewkesbury	-	+?	-?	+?	+	-/+	-?	-?	+	+?	-/+	-	+	+	N/A	+	+/-	0	-/+	+	++?	++
1a	Foss Cross Industrial Estate, Calmsden, Cotswold	-	+?	-?	+?	+	-	0	+?	--?	+?	+	-	+	+	N/A	++	-	0	-/++	+	++?	++
2a	Hurst Farm, Lydney	-	+?	-?	+?	+	-	0	--	0	+?	-	0	0	+	N/A	--	-	0	++	+	++?	++
3a	Land at Lydney Industrial Estate, Lydney	-	+?	-?	+?	+	-	0	--	0	+?	-	-?	--?	--	N/A	++	-	0	++	+	++?	++

Site No.	Site Name	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
	Medium Facility (Non-Thermal Treatment)																						
1	Areas A, B & C at Wingmoor Farm East, Tewkesbury	-?	+?	-?	+?	+	-/+	0	-?	-?	-	-/+	-	+	+	N/A	++	+	0	-/+	+	+	+?
2	Areas A, B & C at Wingmoor Farm West, Tewkesbury	-?	+?	-?	+?	+	-/+	0	-?	-?	+?	-/+	-	+	+	N/A	++	+	0	-/+	+	+	+?
3	Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury	-?	+?	-?	+?	+	+	0	-?	0	+?	-	0	0	+	N/A	+	++	0	-/++	+	+	+?
4	Javelin Park, Stroud	-?	+?	-?	+?	+	-/+	0	-?	0	-	-/+	0	+	+	N/A	++	++	0	-/++	+	+	+?
5	Land Adjacent to Quadrant Business Centre, Quedgeley	-?	+?	-?	+?	+	+	0	-?	0	+?	+	0	-?	+	N/A	++	+	0	-/+	+	+	+?
6	Land at Moreton Valance, Stroud	-?	+?	-?	+?	+	-/+	0	-?	0	-	-/+	0	+	++	N/A	++	++	0	-/++	+	+	+?
7	Land north of Railway Triangle, Gloucester	-?	+?	-?	+?	+	+	0	-?	+?	+?	-	0	0	+	N/A	+	-	0	+?/-	+	+	+?
8	Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud	-?	+?	-?	+?	+	+	0	-?	+	-	--	0	-	+	N/A	--	+	0	-/+	+	+	+?
9	Netheridge Sewage Treatment Works, Gloucester	-?	+?	-?	+?	+	+	0	-?	+	+?	+	0	+	+	N/A	++	+	0	+?/+	+	+	+?
10	The Park, Wingmoor Farm West, Tewkesbury	-?	+?	-?	+?	+	-/+	0	-?	+	+?	-/+	-	+	+	N/A	+	+	0	-/+	+	+	+?
1a	Foss Cross Industrial Estate, Calmsden, Cotswold	-?	+?	-?	+?	+	-	0	+?	--?	+?	+	-	+	+	N/A	++	++	0	-/++	+	+	+?
2a	Hurst Farm, Lydney	-?	+?	-?	+?	+	-	0	--	0	+?	-	0	0	+	N/A	--	+	0	++	+	+	+?
3a	Land at Lydney Industrial Estate, Lydney	-?	+?	-?	+?	+	-	0	--	0	+?	-	-?	--?	--	N/A	++	+	0	++	+	+	+?

Site No.	Site Name	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
	Small Facility (Thermal Treatment)																						
1	Areas A, B & C at Wingmoor Farm East, Tewkesbury	-	+?	-?	+?	+	-/+	-?	-?	-?	-	-/+	-	+	+	N/A	++	+/-	0	-/+	+	++?	++
2	Areas A, B & C at Wingmoor Farm West, Tewkesbury	-	+?	-?	+?	+	-/+	-?	-?	-?	+?	-/+	-	+	+	N/A	++	+/-	0	-/+	+	++?	++
3	Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury	-	+?	-?	+?	+	+	-?	-?	0	+?	-	0	0	+	N/A	+	++/-	0	-/++	+	++?	++
4	Javelin Park, Stroud	-	+?	-?	+?	+	-/+	0	-?	0	-	-/+	0	+	+	N/A	++	++/-	0	-/++	+	++?	++
5	Land Adjacent to Quadrant Business Centre, Quedgeley	-	+?	-?	+?	+	+	-?	-?	0	+?	+	0	-?	+	N/A	++	+/-	0	-/+	+	++?	++
6	Land at Moreton Valance, Stroud	-	+?	-?	+?	+	-/+	0	-?	-	-	-/+	0	+	++	N/A	++	++/-	0	-/++	+	++?	++
7	Land north of Railway Triangle, Gloucester	-	+?	-?	+?	+	+	-?	-?	+	+?	-	0	0	+	N/A	+	-	0	+?/-	+	++?	++
8	Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud	-	+?	-?	+?	+	+	0	-?	+	-	--	0	-	+	N/A	--	+/-	0	-/+	+	++?	++
9	Netheridge Sewage Treatment Works, Gloucester	-	+?	-?	+?	+	+	-?	-?	+?	+?	+	0	+	+	N/A	++	+/-	0	+?/+	+	++?	++
10	The Park, Wingmoor Farm West, Tewkesbury	-	+?	-?	+?	+	-/+	-?	-?	+	+?	-/+	-	+	+	N/A	+	+/-	0	-/+	+	++?	++
1a	Foss Cross Industrial Estate, Calmsden, Cotswold	-	+?	-?	+?	+	-	0	+?	--?	+?	+	-	+	+	N/A	++	-	0	-/++	+	++?	++
2a	Hurst Farm, Lydney	-	+?	-?	+?	+	-	0	--	0	+?	-	0	0	+	N/A	--	-	0	++	+	++?	++
3a	Land at Lydney Industrial Estate, Lydney	-	+?	-?	+?	+	-	0	--	0	+?	-	-?	--?	--	N/A	++	-	0	++	+	++?	++

Site No.	Site Name	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
	Small Facility (Non-Thermal Treatment)																						
1	Areas A, B & C at Wingmoor Farm East, Tewkesbury	-?	+?	-?	+?	+	-/+	0	-?	-?	-	-/+	-	+	+	N/A	++	+	0	-/+	+	+	+?
2	Areas A, B & C at Wingmoor Farm West, Tewkesbury	-?	+?	-?	+?	+	-/+	0	-?	-?	+?	-/+	-	+	+	N/A	++	+	0	-/+	+	+	+?
3	Easter Park, Ashchurch/Tewkesbury Industrial Estate, Tewkesbury	-?	+?	-?	+?	+	+	0	-?	0	+?	-	0	0	+	N/A	+	++	0	-/++	+	+	+?
4	Javelin Park, Stroud	-?	+?	-?	+?	+	-/+	0	-?	0	-	-/+	0	+	+	N/A	++	++	0	-/++	+	+	+?
5	Land Adjacent to Quadrant Business Centre, Quedgeley	-?	+?	-?	+?	+	+	0	-?	0	+?	+	0	-?	+	N/A	++	+	0	-/+	+	+	+?
6	Land at Moreton Valance, Stroud	-?	+?	-?	+?	+	-/+	0	-?	0	-	-/+	0	+	++	N/A	++	++	0	-/++	+	+	+?
7	Land north of Railway Triangle, Gloucester	-?	+?	-?	+?	+	+	0	-?	+	+?	-	0	0	+	N/A	+	-	0	+?/-	+	+	+?
8	Nastend Farm, Stroudwater Business Park, Stonehouse, Stroud	-?	+?	-?	+?	+	+	0	-?	+	-	--	0	-	+	N/A	--	+	0	-/+	+	+	+?
9	Netheridge Sewage Treatment Works, Gloucester	-?	+?	-?	+?	+	+	0	-?	+	+?	+	0	+	+	N/A	++	+	0	+?/+	+	+	+?
10	The Park, Wingmoor Farm West, Tewkesbury	-?	+?	-?	+?	+	-/+	0	-?	+	+?	-/+	-	+	+	N/A	+	+	0	-/+	+	+	+?
1a	Foss Cross Industrial Estate, Calmsden, Cotswold	-?	+?	-?	+?	+	-	0	+?	--?	+?	+	-	+	+	N/A	++	++	0	-/++	+	+	+?
2a	Hurst Farm, Lydney	-?	+?	-?	+?	+	-	0	--	0	+?	-	0	0	+	N/A	--	+	0	++	+	+	+?
3a	Land at Lydney Industrial Estate, Lydney	-?	+?	-?	+?	+	-	0	--	0	+?	-	-?	--?	--	N/A	++	+	0	++	+	+	+?

Spatial Option	SA Obj 1	SA Obj 2	SA Obj 3	SA Obj 4	SA Obj 5	SA Obj 6	SA Obj 7	SA Obj 8	SA Obj 9	SA Obj 10	SA Obj 11	SA Obj 12	SA Obj 13	SA Obj 14	SA Obj 15	SA Obj 16	SA Obj 17	SA Obj 18	SA Obj 19	SA Obj 20	SA Obj 21	SA Obj 22
Focus strategic sites within Zone C	-?	+?	-?	+?	+?	-	-?	-?	--?	+?	-?	- -?	- -?	+?	N/A	+?	-?	0	+	+	+	-?
Allocate Sites for smaller-scale facilities/ transfer outside of Zone C	-?	+?	-?	+?	?	-	0	--?	--?	+?	-?	--?	- -?	-?	N/A	+?	-?	0	+/-?	+	+	-?
Incorporation of waste treatment into urban extensions	-?	+?	-?	++?	?	-	?	?	?	+?	?	?	?	?	N/A	?	-?	0	+	+	+	+?
Combination of other options	-?	+?	-?	+?	?	?	?	?	?	+?	?	?	?	?	N/A	?	?	0	?	+	+	?