Strategic Environmental Assessment of Draft Joint Municipal Waste Management Strategy for Herefordshire and Worcestershire

Interim Report

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Joint Waste Resource Management Forums for Herefordshire & Worcestershire

Strategic Environmental Assessment of Draft Joint Municipal Waste Management Strategy for Herefordshire and Worcestershire: *Interim Report*

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For and on behalf of
Environmental Resources Management

Approved by: Paul Fletcher _____

Signed: _____

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Date: 28th December 2008 _____

CONTENTS

This report sets out the results of a Strategic Environmental Assessment of the draft Joint Municipal Waste Management Strategy (JMWMS) for Herefordshire and Worcestershire. This is an interim report based on appraisal of an early draft of the Headline Strategy and associated options for minimisation, recycling and residual treatment, as of 21 November 2008. The purpose is to inform the future development and refinement of the JMWMS by setting out information on the likely effects of implementation and on the relative performance of the options, and making recommendations for improvements to the JMWMS. A full Environmental Report will be produced to accompany the consultation version of the JMWMS due in February 2009.

Draft Headline Strategy

The Strategy has a very strong commitment to promoting the waste hierarchy, promoting greater resource efficiency and a reduction in greenhouse gas emissions. Energy recovery is promoted in preference to landfill, although no particular commitments are made. The Strategy will seek to improve access to waste services and promote greater public participation. It will also indirectly support business growth in the waste sector and the development of new resource-efficient technologies.

The effect of the Strategy on traffic and transport is unclear. Increased recycling and recovery could lead to greater waste transport distances, but the policy on transport is still to be drafted.

Promoting recovery of resources from waste will require construction of new facilities, particularly treatment facilities. The significance of impacts on environmental and historic assets is unknown and depends strongly on local conditions, on planning and development control and on operational standards; factors which are outside the scope of the JMWMS.

Mitigation is recommended to:

- commit to minimising transport distances;
- clarify engagement with commercial sector waste producers and processors;
- promote energy recovery wherever practicable, including from landfill gas;
- commit to ensuring good accessibility to Household Waste Sites across the two counties, providing new sites where required;
- promote the inclusion of bring sites within larger developments;
- seek the provision of recycling facilities in commercial developments; and
- include measures to reduce fly-tipping.

Minimisation Options

Enhancement of home composting activity will produce the greatest sustainability development benefits of the options, providing the greatest degree of minimisation, and in reduction in waste transport and in landfill of biodegradable waste. This scheme involves the greatest amount of participation by the public, and by making alternative soil improvers available it will reduce consumption of natural resources and may help to increase biodiversity. Finally, it is estimated to provide the greatest economic gain.

Efforts to minimise the amount of food waste would also provide a significant range of benefits, although not to the same degree as home composting. The performance of other proposed service enhancements are more mixed.

It is therefore recommended that resources are focused as a priority on enhancing home composting and food waste reduction initiatives, with some additional effort directed to increasing junk mail prevention and promoting smart shopping as a secondary priority. Enhancing reuse initiatives could also be promoted as a third priority for their social benefits.

Recycling Options

Providing the widest possible range of recyclable collection services will secure most sustainability benefits, principally deriving from the recycling of significantly greater tonnages of green and food waste than other options. However, it is expected to incur significant additional costs for food waste collections with additional fleet and manpower requirements.

Of the options which exclude area-wide food waste collections, options which have area-wide green waste collections secure most benefits overall because of the increased tonnages of waste recycled, principally biodegradable waste.

Residual Options

A residual waste solution based on Energy from Waste with combined heat and power (EfW/CHP) provides the greatest sustainability benefits in comparison to the other options, maximising performance against the waste hierarchy and minimising the landfilling of biodegradable waste, while providing the greatest reduction of greenhouse gas emissions and also enabling the generation of renewable energy. It will also minimise the requirements for onward transport of process outputs. Whilst it does not secure the lowest total costs, it compares reasonably favourably to other options on cost.

The overall environmental burden will be reduced with EfW/CHP, although by less than with autoclave or mechanical biological treatment (MBT). Local emissions may give rise to environmental effects with all options, but these could be minimised with autoclave or MBT technologies. However, the

significance of effects is strongly dependent on location and on operational standards.

Exporting waste out of the sub-region to an EfW plant does not provide any benefits over and above those provided by EfW within the sub-region, and performs less well against a number of the appraisal objectives.

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 The Draft Joint Municipal Waste Management Strategy

The local authorities that make up the Joint Waste Resource Management Forums for Herefordshire & Worcestershire (namely Herefordshire Council, Worcestershire County Council, Worcester City Council, Bromsgrove District Council, Malvern Hills District Council, Redditch Borough Council, Wychavon District Council and Wyre Forest District Council) are currently in the process of revising their Joint Municipal Waste Management Strategy (JMWMS).

The JMWMS describes current and future arrangements for waste management in Herefordshire and Worcestershire, and will set the strategic approach to municipal waste management for the two counties for the next thirty years. It provides an integrated approach which encompasses both collection and disposal functions, and aims to clarify key issues and give clear direction on waste management. It sets out general principles, policies and targets across all authorities in Herefordshire and Worcestershire.

The JMWMS replaces the original JMWMS for Herefordshire and Worcestershire published in 2004.

1.1.2 Strategic Environmental Assessment

Under the *Environmental Assessment of Plans and Programmes Regulations 2004,* the JMWMS must be subjected to a Strategic Environmental Assessment (SEA) before it is adopted. The SEA is a tool for integrating environmental and sustainability considerations into the preparation of the JMWMS, by considering the effects of implementing the plan or strategy during its preparation and before its adoption. The SEA is required systematically to assess the strategy against a list of environmental, economic and social criteria. It should identify, describe and evaluate the likely significant effects of implementing the Strategy, and reasonable alternatives, taking into account the objectives and scope. These issues must be taken into account in the preparation of the JMWMS.

As part of the SEA process, an initial appraisal has been undertaken of the emerging draft JMWMS and options which have been developed by the Joint Waste Resource Management Forums for Herefordshire & Worcestershire. This has identified the key sustainability implications of those issues and options, with the aim of informing the process of development of the Strategy. This document sets out the results of this initial appraisal and highlights the main implications of the options.

1.2 PROCESS

1.2.1 Scoping

The first step in the SEA work was a scoping stage, to identify the sustainability context for municipal waste management in Herefordshire and Worcestershire.

The scoping stage involved the collection of a wide range of baseline data covering economic, social and environmental issues in order to provide a picture of the current sustainability status of the two counties and to identify emerging trends where possible. The baseline data was analysed to identify the key sustainability issues for the area, within the particular context of municipal waste management.

In tandem with the baseline data collection and analysis, a review was undertaken of the national, regional and local policy framework relevant to sustainable development in Herefordshire and Worcestershire. This involved:

- reviewing key environmental, social and economic documents which set the policy framework governing activities in the sub-region; and

- identifying the sustainable development policy objectives and targets with which municipal waste management in the sub-region must or should conform, and highlighting the key implications for the SEA.

On the basis of this work, a set of relevant sustainable development policy objectives were drawn up against which to appraise the JMWMS.

The results of the scoping stage were set out in a Scoping Report which was issued to key stakeholders for consultation in April 2008. The following stakeholder organisations were consulted:

- Environment Agency
- Natural England
- English Heritage
- Herefordshire Wildlife Trust
- Worcestershire Wildlife Trust
- Worcestershire Primary Care Trust

Six responses were received; one from each of the consultees. The main comments related principally to the coverage of baseline data, key issues (specifically flood risk, waste management, the historic environment and biodiversity), additional documents for the policy review, and the prioritisation of appraisal objectives. Consultation comments have been taken on board and further scoping work undertaken to ensure that the relevant key issues and policies are reflected in the framework.

1.2.2 Draft Headline Strategy and Options

The emerging JWMWS consists of a draft Headline Strategy and three sets of options which underpin the Strategy, on waste minimisation, recycling and composting and residual waste treatment.

The draft Headline Strategy comprises:

- a set of ten principles governing the overall approach to municipal waste management;
- 23 policies and associated targets which aim to implement the principles; and
- supporting text which clarifies the aims and intended outcomes of the policies.

The waste minimisation options look at ways of enhancing each of the existing services currently promoted by the councils:

- Home composting
- Food waste reduction campaign
- Re-use initiatives
- Promoting sink disposal units
- Home shredding service for green waste
- Junk mail reduction campaign
- Real Nappy Project and Real Nappy Incentive Scheme
- Waste collection policies eg side waste restrictions

The recycling and composting options consider different ways of combining the following service enhancements, comparing them to current service performance levels:

- Full core kerbside recycling service
- Green waste collection in Bromsgrove
- Paid-for green waste collection everywhere
- Food waste collection in Wychavon
- Food waste collection everywhere
- Recycling street sweepings

The residual waste treatment options examine and compare the following alternative technologies:

- 1 site EfW
- 1 site EfW with CHP
- 2 site MBT with on site combustion
- 2 site MBT with off site combustion
- 1 site autoclave
- 2 site autoclave
- Out of county EfW

In addition, a sensitivity test was carried out for the EfW option, to examine the effect that a different type of EfW plant would have on the results.

1.2.3 Initial Appraisal

The appraisal determined the likely effects arising from the principles, policies and targets of the draft Headline Strategy. It also assessed the minimisation, recycling and residual treatment options to identify the likely effects of each and to compare the alternatives being considered.

This was done by assessing the Strategy and each option against the appraisal objectives in turn. The objectives, developed as discussed above, are listed in *Table 1.1*.

Table 1.1 Appraisal Objectives

1. Waste
Manage the waste streams in accordance with the waste hierarchy, encouraging reuse and recovery addressing waste as a resource
To minimise the production of waste generated
2. Climate Change
Reduce causes of and adapt to the impacts of climate change
Minimise biodegradable waste going to landfill
Maximise opportunities to generate power from methane at landfill sites
3. Traffic & Transport
To reduce the need to travel and move towards more sustainable travel patterns
Ensure the disposal of waste as close to point of origin as practicable and promote transfer of waste by rail or water transport where appropriate
4. Growth with prosperity for all
Develop a knowledge-driven economy, the infrastructure and skills base whilst ensuring all have access to the benefits urban and rural
To encourage business development within the waste sector to achieve Government targets for waste
To encourage rural regeneration
5. Participation by all
To provide opportunities for communities to participate in and contribute to the decisions that affect their neighbourhoods and quality of life, encouraging pride and social responsibility in the local community
To provide opportunities for communities to participate in and contribute to waste planning decisions
6. Technology, innovation & inward investment
Promote and support the development of new technologies of high value and low impact, especially resource efficient technologies and environmental technology initiatives
To make an economic gain from the recovery and treatment of waste streams wherever this is environmentally acceptable
7. Energy
Promoting energy efficiency and energy generated from renewable energy and low carbon sources
In accordance with waste hierarchy support the generation of energy from waste
8. Natural resources
Protect and improve standards of air, water and soil quality ensuring prudent use of natural resources
Minimise the creation of dust, odour and noise and other pollutants in the vicinity of waste station / facilities
9. Access to services
To improve the quality of and equitable access to local services and facilities, regardless of age, gender, ethnicity, disability, socioeconomic status or educational attainment
To improve accessibility to kerbside recycling and Household Waste Sites

10. Landscape
Safeguard and strengthen landscape character and quality
Encourage design that reduces visual intrusion and is sensitive to the local vernacular, as defined by the county landscape character assessment, county historic landscape characterisation and conservation area appraisals
11. Biodiversity / Geodiversity / Flora / Fauna
To conserve and enhance biodiversity and geodiversity
To assist in meeting Biodiversity Action Plan targets during the lifetime of the JMWMS
12. Health
To improve the health and well being of the population and reduce inequalities in health
To limit environmental impacts of waste treatment facilities on the local population including pest species at landfill sites
To reduce respiratory diseases/allergy related illness
13. Provision of housing
Provide decent affordable housing for all, of all the right quality and tenure and for local needs, in clean, safe and pleasant local environments
Encourage the use of sustainable building technologies in new housing developments in particular the re-use of construction and demolition waste
Promote the provision of recycling facilities within new housing developments
14. Learning and skills
To raise the skills level and qualifications of the workforce
To encourage engagement in community/environmentally responsible activities
15. Cultural heritage, architecture and archaeology
Conserve and enhance the architecture, cultural and historic environment heritage and seek well designed, resource efficient, high quality built environment in new development proposals
Promote design concepts for new buildings that are informed by the local vernacular
The siting of new waste management facilities should not have a detrimental effect on the setting and in-situ conservation of historic buildings, areas, landscapes or archaeological remains
16. Material assets
Ensure efficient use of land through safeguarding of mineral reserves, the best and most versatile agricultural lands, lands of green belt value, maximising use of previously developed land and reuse of vacant buildings, where this is not detrimental to open space, biodiversity interest or the historic environment
To support the reuse of construction materials
To protect land from contamination arising from waste
To restore landfill sites to amenity purposes.
17. Crime
Reduce crime, fear of crime and antisocial behaviour
Reduce the number of fly tipping incidents
18. Flooding
Ensure inappropriate development does not occur in high risk flood areas and does not adversely contribute to fluvial flood risks or contribute to surface water flooding in all other areas
Ensure development does not occur in flood risk areas

An assessment was made of the likely effects of the options and the draft Headline Strategy, with reference where relevant and possible to the baseline data from the Scoping Report. For the Strategy, the assessment was largely qualitative in nature. For the three sets of options, quantitative data was available from the technical options appraisal carried out separately for the JMWMS by ERM and by in-house staff of Worcestershire County Council and reported in separate reports. The quantitative information from these reports was supplemented with other more qualitative assessments to ensure complete coverage of the appraisal objectives.

The effects were also rated for their significance in terms of the importance for achieving each appraisal question within the context of the SA objective. The factors were:

- the expected scale of the effects or the degree to which the effects are likely to contribute to the achievement of the appraisal objective in the sub-region overall;
- the certainty or probability that the effect is likely to occur as a consequence of the policies or options;
- whether the effects would be permanent or reversible;
- whether or not the effect will occur as a direct result of the option or policy, in other words whether the policies or options are key for achieving or controlling effects;
- whether the effect is more strongly dependent on other interventions or other factors;
- how important the objective is in differentiating between options.

The initial appraisal of the principles of the JMWMS was undertaken according to the recommendations in government guidance, by undertaking a compatibility assessment of the objectives against the SEA appraisal objectives. The purpose of this is to identify the positive compatibilities between the two sets of objectives and also where there are potential conflicts.

The main conclusions of the appraisal are set out in *Sections 2* and *3*.

1.2.4 Future Steps

Over the period from December 2008 to February 2009 the draft JMWMS will be amended and refined taking into account views and inputs from Members, Officers, residents' focus groups and the SEA.

The SEA will undertake further appraisal of the draft JMWMS to respond to any revisions made to it, and a full Environmental Report will be produced to accompany the public consultation on the draft JMWMS which is scheduled to begin in February 2009. The aim of the Environmental Report is to inform the public consultation so that the predicted effects of the JMWMS can be better understood.

In addition to the information produced for this Interim Report, the Environmental Report will be fully compliant with the requirements of legislation and guidance. In particular, recommendations will be developed and proposed for monitoring the effects of implementing the JMWMS.

2 INITIAL APPRAISAL OF OPTIONS

2.1 INTRODUCTION

This section sets out the results of the initial appraisal of minimisation, recycling and residual treatment options, showing the assessment of the effects of each of the options against the objectives of the appraisal framework. It summarises the key findings which have emerged from the appraisal where significant effects are predicted.

The following symbols have been used in to indicate the broad nature of the predicted effect:

+	effect likely to be positive
-	effect likely to be negative
0	no significant effect
?	effect unknown

Multiple symbols have been used (eg ++) to indicate a different scale of impact relative to the other options, in other words where the impacts of an option are *significantly* better or worse than others.

The *Tables* include an assessment of where particular options perform notably well relative to the other options:

	Option performs well relative to the others

Full detailed results of the options appraisals showing the assessment against the full set of appraisal objectives will be provided in the final version of this report which will accompany the consultation version of the draft Headline Strategy in February 2009.

2.2 MINIMISATION OPTIONS

2.2.1 *The Options*

In Herefordshire and Worcestershire, a range of initiatives are already in place for minimising the amount of waste generated in the two counties. In considering further options for waste minimisation, the Joint Forums have therefore examined the potential for enhancements to the current initiatives to achieve improved performance. The aim is to identify where resources can be focused in order to achieve the best overall result.

Enhancements were considered for the following initiatives:

- Home composting

- Food waste reduction campaign
- Re-use initiatives
- Promoting sink disposal units
- Home shredding service for green waste
- Junk mail reduction campaign
- Real Nappy Project and Real Nappy Incentive Scheme
- Waste collection policies e.g. side waste restrictions

2.2.2 *Appraisal Results*

Table 2.1 shows how the different options perform against those appraisal objectives where there is a significant effect. For several of the objectives, the minimisation options have no effect or the effect would be insignificant.

The results show that enhancement of home composting activity (option A) would produce the greatest benefits against a large number of sustainable development objectives. It will enable the greatest degree of minimisation, allowing the greatest reduction in waste transport and in landfill of biodegradable waste. This scheme involves the greatest amount of participation by the public, and by making alternative soil improvers available it will reduce consumption of natural resources and may help to increase biodiversity. Finally, it is estimated to provide the greatest economic gain.

Additional efforts to minimise the amount of food waste (option H) would also provide a significant range of benefits, although not to the same degree as home composting. It produces the second highest reduction in waste, reducing the need for waste transport and landfill, while also providing a large economic gain.

The performance of the other proposed service enhancements are more mixed. Enhancing reuse initiatives (option G) provides good opportunities for participation and access to services, and while it provides a degree of minimisation, it has a small net cost and is outperformed by other options against other sustainability criteria. Preventing junk mail (option E) and promoting smart shopping (option F) provide a similar level of minimisation to option G, while also helping to reduce waste transport and landfill of biodegradable waste and also providing an economic gain.

It is recommended that resources are focused as a priority on enhancing home composting and food waste reduction initiatives, with some additional effort directed to increasing junk mail prevention and promoting smart shopping as a secondary priority. Enhancing reuse initiatives could also be promoted as a third priority for their social benefits.

Table 2.1 Significant Effects of Minimisation Options

Appraisal objectives:	A Home composting	B Real nappies	C Sink Your Waste	D Home shredding	E Junk mail prevention	F Smart shopping	G Reuse initiatives	H Food waste	Comments
Implement the waste hierarchy	+++	+	+	+	++	++	++	+++	Option A provides the greatest opportunities to minimise waste, and option D the smallest. All options will achieve a smaller degree of minimisation in the short term.
Reduce causes of climate change	+++	++	++	++	++	+	0	+++	All options will reduce the emissions of CO_2 from waste transport, and from landfill (with the exception of option G). Options A and H will minimise emissions.
Minimise landfill of biodegradable waste	+++	+	+	+	+	+	0	++	Options A and H give the greatest minimisation of landfill of biodegradable waste, although most options provide some reduction with the exception of option G.
Reduce the need to travel	+++	+	+	+	+	++	0	++	Options A, H and F contribute the greatest to reducing the need for waste transport by minimising the amount of waste to be collected. Option G will not remove the need for waste transport, and option B may not depending on the type of reuse schemes adopted by parents.
Make economic gain from waste	+++	-	+	-	+	++	-	+++	Options A and H provide the greatest estimated overall economic gain, followed by options F and E. Options B, D and G each have a small net cost.
Prudent use of natural resources	++	0	0	+	+	+	+	+	Green waste recycling will help to conserve natural resources by producing alternative soil improvers.
Improve access to services	0	0	0	+	0	0	++	0	Options D and G will make a small contribution to improving access to waste services. Option G can help to improve access to low-cost goods for disadvantaged individuals, groups, schools and charities.
Conserve and enhance biodiversity	+++	+	+	+	+	+	0	++	Increased composting will increase the availability of alternative soil improvers, so helping to reduce peat use and possibly improving garden biodiversity.
Encourage engagement in environmentally responsible activities	++++	+++	++	+	+++	+++	++++	+++	Options A and G provide the greatest opportunities to encourage engagement in responsible activities, by enabling, engaging, encouraging and exemplifying environmentally responsible behaviour.

2.3 *RECYCLING OPTIONS*

2.3.1 *The Options*

Existing recycling services in Herefordshire and Worcestershire consist of a range of kerbside collection services in the different authorities, including some green waste and food waste collections, together with recycling at bring sites and at Household Waste Sites. The recycling and composting options looked at different ways of enhancing those services, by combining the following service enhancements in different ways and comparing them to current service performance levels:

- Full core kerbside recycling service, involving collection of glass, paper and card, foil, cans and plastics across all authorities;
- Green waste collection in Bromsgrove;
- Paid-for green waste collection everywhere;
- Food waste collection in Wychavon;
- Food waste collection everywhere;
- Recycling street sweepings.

The following options have been devised:

Table 2.2 ***Recycling Options***

	A	B	C	D	E	F	G	H	I
Status quo – current service levels	✓								
Full core kerbside recycling service		✓	✓	✓	✓	✓	✓	✓	✓
Green waste collection in Bromsgrove		✓							
Green waste collection everywhere			✓			✓	✓		✓
Food waste collection in Wychavon									✓
Food waste collection everywhere				✓		✓			
Recycling street sweepings					✓	✓	✓		✓

2.3.2 *Appraisal Results*

Table 2.3 shows how the different options perform against those appraisal objectives where there is a significant effect. For several of the objectives, the recycling options have no effect or the effect would be insignificant.

The option which includes the widest possible range of services (option F) secures most sustainability benefits, principally deriving from the recycling of significantly greater tonnages of biodegradable waste than other options, with collections of green and food waste across the whole of the two counties. However, it is expected to incur significant additional costs for food waste collections with additional vehicle fleet and manpower requirements.

Of the options which exclude area-wide food waste collections, options which have area-wide green waste collections (options C, G and I) secure more benefits overall than other options because of increased tonnages of waste recycled, principally biodegradable waste. Option I performs slightly better

than option G due to the additional food waste collection in Wychavon which secures slightly greater reductions of biodegradable waste, although this also has additional costs with additional vehicle fleet and manpower requirements.

It is worth noting that option D, the other option which includes food waste collection apart from F, does not achieve significantly greater benefits than options C, G or I.

Table 2.3 Significant Effects of Recycling Options

Appraisal objectives:	A Status quo	B Core + Broms green	C Core + paid green	D Core + food	E Core + street	F Core + paid green + food + street	G Core + paid green + street	H Core, no green	I Core + paid green + street + Wych food	Comments
Implement the waste hierarchy	+	++	++	++	++	+++	++	+	++	Option F recycles 38% more waste than the status quo. The next best performer is option I which recycles 25% more than the status quo (food collection only in Wychavon).
Minimise waste production	0	++	++	0	++	0	++	++	+	Options without a food collection will include schemes to encourage additional waste minimisation.
Reduce causes of climate change	+	++	++	++	++	+++	++	+	++	Options with higher recycling levels will contribute more to reducing greenhouse gas emissions through greater resource efficiency, although the difference in tonnages will mean a small difference in climate effects.
Minimise landfill of biodegradable waste	0	+	++	++	0	+++	++	0	++	Option F diverts 70% more biodegradable waste from landfill than the next best performing option (D), and over twice as much as option I (food collection only in Wychavon).
Encourage business development	0	+	+	++	+	++	+	+	++	Increased core recyclables collection services and food collection will indirectly help to encourage new businesses in waste recycling/processing.
Support development of new technologies	+	+++	+++	+++	++	+++	+++	++	+++	All options will indirectly help to promote technologies which increase resource efficiency, although these are not usually either high value or low impact. The main benefits will arise from increased core recyclables collections and diversion of biodegradable waste from the waste stream.
Make economic gain from waste	-	---	---	-----	--	-----	---	--	----	All basic collection services have a cost, however figures are not available for the expected cost of the various new services. Green waste collections will have some cost-recovery, although will still involve some costs to the counties. Food waste collections will involve significant cost by requiring additional fleet and manpower, estimated at 50% increase in costs. Recycling of street sweepings will involve minimal additional cost.
Prudent use of natural resources	0	+	++	++	0	+++	++	0	++	Green waste recycling will help to conserve natural resources by producing alternative soil improvers.
Improve access to services	0	++	++	+++	+	++++	++	+	++	All options apart from the status quo will increase kerbside recycling services. Food waste collections aim to secure 55% participation while green waste recycling will achieve around 10% participation.
Conserve and enhance biodiversity	0	+	++	++	0	+++	++	0	++	Increased recycling of green and food waste will increase the availability of alternative soil improvers, so helping to reduce peat use.
Encourage engagement in environmentally responsible activities	+	++	++	++	++	++	++	++	++	Provision of kerbside collection services encourages engagement in environmentally responsible activities. Additional core recyclables collections will increase basic participation, although additional collections of food and green waste are not likely to increase the number of households participating in recycling activities in addition to those separating recyclables for core services.

2.4 RESIDUAL TREATMENT OPTIONS

2.4.1 The Options

For residual waste treatment, a long list of generic technology types was considered, taking account of the range of possible technologies at various stages of development and implementation worldwide. This was then narrowed down taking account of the likely deliverability and appropriateness of the various technologies for the particular context in Herefordshire and Worcestershire.

In addition, consideration was given to the potential number and scale of facilities, in particular the possibility of delivering a residual treatment solution with smaller facilities on more than one site. An option for three or more facilities was dismissed as it was not considered appropriate for the capacity required in terms economies of scale and the risks associated with site availability and deliverability.

Currently the Partnership export residual waste to EfW facilities in the West Midlands. There are a number of operating and planned waste treatment facilities in the areas surrounding Worcestershire and Herefordshire. It was therefore deemed necessary to assess an option that utilises waste treatment capacity outside the Partnership area. This option was subjected to a sensitivity test to determine the extent to which its performance was affected by the nature of EfW plant rather than its location.

The final options considered for residual treatment technology are set out in the table below.

Table 2.4 ***Residual Treatment Technology Options***

Option	Description
A	1 site Energy from Waste (EfW)
B	1 site EfW with Combined Heat and Power (CHP)
C	2 site Mechanical Biological Treatment with on-site combustion
D	2 site Mechanical Biological Treatment with off-site combustion
E	1 site autoclave
F	2 site autoclave
G	Out of county EfW
G2	Out of county EfW (alternative plant type)

2.4.2 Appraisal Results

Table 2.4 shows how the options compare in terms of relative performance to each other, for those appraisal objectives where the effects are significant and help to differentiate between the options. It should be noted that each of the technology options perform well against some objectives and less well against others, but that no one option performs better than the others consistently for all objectives.

However, the results show that a residual waste solution based on Energy from Waste with CHP (option B) provides the greatest sustainability benefits in comparison to the other options, maximising performance against the waste hierarchy and minimising the landfill of biodegradable waste, while providing the greatest reduction of greenhouse gas emissions and also enabling the generation of renewable energy. It will also minimise the requirements for onward transport of process outputs. Whilst it does not offer a solution with the lowest total costs, it compares reasonably favourably to other options on cost.

The overall environmental burden will be reduced with option B, although not by as much as with autoclave (options E and F) or MBT (options C and D). Local emissions may give rise to environmental effects with all options, including effects on vegetation and ecosystems, but these could be minimised with autoclave or MBT technologies. However, the significance of any effects is strongly dependent on choice of location and on operational standards.

An option whereby waste is exported out of Herefordshire and Worcestershire to an EfW plant does not provide any benefits over and above those provided by EfW within the sub-region, and performs less well against a number of the appraisal objectives.

A solution involving autoclave technology will maximise performance against the waste hierarchy to a similar degree as EfW with CHP, while minimising the risk to the environment from emissions. However, autoclave performs less well against a number of other objectives including transport, climate change and energy generation.

Mechanical Biological treatment performs less well than either EfW or autoclave, and the effects vary depending on whether the output is burnt on- or off-site. However, like autoclave, it minimises the risk to the local environment from emissions.

Table 2.5 Significant Effects of Residual Treatment Options

Appraisal objectives	A: 1 site EfW	B: 1 site EfW with CHP	C: 2 site MBT (on site combustion)	D: 2 site MBT (off site combustion)	E: 1 site autoclave	F: 2 site autoclave	G: Out of county EfW	G2: Out of county EfW (sensitivity test)	Comments
Implement the waste hierarchy	++	+++	+	+	+++	+++	++	++	Options B, E and F perform best in terms of managing waste as high up the hierarchy as possible. Options C and D perform least well.
Reduce causes of climate change	+	+++	+	++	++	++	+	+	Option B makes the greatest contribution to reducing greenhouse gas emissions, with the largest net negative balance of all the options. Option G has a significant positive balance of greenhouse gas emissions, however all options are likely to reduce emissions of greenhouse gases from waste management, because of the increased levels of recycling and recovery involved.
Minimise landfill of biodegradable waste	+++	+++	+	+	++	++	+++	+++	Options A, B, G and G2 minimise the landfill of biodegradable waste. All options would meet the joint Herefordshire and Worcestershire LATS targets for 2020.
Reduce the need to travel	-	-	--	--	--	---	--	--	Options A and B require the smallest amount of waste transport, because they involve the smallest amount of onward transport of outputs to other destinations. Option F requires a relatively large amount of waste transport because of the large amounts of recyclate to be transported from more than one facility. NB current levels of waste transport are unknown, but all options are likely to increase waste transport because of the need for onward transport of process outputs.
Ensure disposal close to origin	+	+	+	-	n/a	n/a	-	-	Neither options D, G or G2 will ensure disposal of waste as close to its origin as practicable, as it will be exported out of the sub-region for combustion. NB this assumes the definition of disposal to include EfW.
Economic gain	+++	++	+	+	++	++	++	++	Option A has the lowest total cost and options C and D the highest. However, figures do not include any income generated as it is impossible to make reliable future predictions.
Promote renewable energy generation	0	++	+	0	0	0	0	0	Option B will qualify for more Renewables Obligation Certificates than option C. No other options will generate energy which qualifies, other than from landfill gas. However, this will reduce over time with the increased diversion which each option allows, and furthermore the eligibility of landfill gas for ROCs will also reduce.
Support energy generation from waste	++	+++	++	+++	+	+	++	++	Option D recovers the most energy, closely followed by option B. These two recover significantly more energy than the other options.
Protect and improve environmental quality	-	+	++	++	+++	+++	--	--	Options E and F make the largest contribution to improving environmental standards, as they produce the largest net reductions in aquatic ecotoxicity, eutrophication and acidification. Options C and D also have a relatively large net reduction in aquatic ecotoxicity and acidification, but increase eutrophication. Options A, G and G2 are net contributors to acidification as well as eutrophication.

Appraisal objectives	A: 1 site EfW	B: 1 site EfW with CHP	C: 2 site MBT (on site combustion)	D: 2 site MBT (off site combustion)	E: 1 site autoclave	F: 2 site autoclave	G: Out of county EfW	G2: Out of county EfW (sensitivity test)	Comments
Minimise local emissions	- -	- -	-	- - -	-	-	- - -	- -	Options C, E and F produce the lowest levels of NOx and PM10s, minimising the emission of these key pollutants in the vicinity of waste facilities. Options D and G produce the highest levels of emissions.
Conserve and enhance biodiversity	- -	- -	-	- -	-	-	- - -	- -	Options C, E and F minimise emissions of nitrogen oxides, which in some parts of Herefordshire and Worcestershire are predicted to be above the standard for the protection of vegetation and ecosystems in 2010. Option G produces significantly higher levels of NOx emissions than the other options, although not all of these will be emitted in Herefordshire and Worcestershire.

3 INITIAL APPRAISAL OF DRAFT HEADLINE STRATEGY

3.1 INTRODUCTION

This section sets out the results of the initial appraisal of the draft Headline Strategy as at 21 November 2008. It summarises the results of the assessment of principles, policies and targets, making a prediction of the likely effects of the draft strategy. Recommendations are made where appropriate for amendments to the strategy in order to mitigate the likely negative effects or maximising the opportunities for benefits.

3.2 APPRAISAL OF PRINCIPLES

3.2.1 Process

Government guidance recommends that the SEA should undertake a compatibility analysis between the aims of the draft Headline Strategy and the SEA appraisal objectives. This has been undertaken and the results are set out in detail in *Annex A* and summarised here.

The purpose of the exercise is to determine whether the objectives of the draft Headline Strategy will contribute to sustainable development, and to identify any potential incompatibilities between the principles of the strategy and sustainable development policy objectives. To do this, the principles have been compared with each of the SEA appraisal objectives and an assessment made of the likelihood that the draft Strategy will contribute to the achievement of each objective for sustainable development.

3.2.2 Results

There are a small number of incompatibilities between the principles of the draft Strategy and the appraisal objectives, although it is not recommended that any action is taken to address this. Specifically, reducing the landfill of biodegradable waste will reduce opportunities to generate energy from landfill gas. However, diversion from landfill should not be avoided because diversion gives rise to a number of benefits.

There are a number of areas of uncertainty arising out of the compatibility assessment. The main reason for this is that the appraisal objectives are more detailed and specific than the principles of the Strategy, which are expressed in more general terms. It is therefore not known whether or not there are likely to be specific sustainability impacts. It is only possible to make a meaningful appraisal by assessing the detailed policies and targets of the Strategy. Amendments to the overarching principles are therefore not recommended. The areas of uncertainty specifically relate to transport impacts, energy recovery, and specific environmental impacts including biodiversity, historic assets, landscape and other land-based assets.

There are a number of sustainability objectives which are not dealt with or affected in any foreseeable way by the strategic principles, but in each case the objectives are largely outside of the scope of the JMWMS and therefore no recommendations are made for additional principles to cover these objectives. These relate to design issues, Biodiversity Action Plan targets, the provision of decent and affordable housing, use of sustainable construction techniques, raising workforce skills and qualifications and restoration of landfill sites.

3.3 APPRAISAL OF POLICIES AND TARGETS

The detailed policies and their associated targets have been appraised against the framework of sustainable development objectives, taking into account the additional information provided in the supporting text as context to the policies. Results, policy by policy, are set out in *Annex B*.

The following symbols have been used to indicate the broad nature of the predicted effect:

+	Effect likely to be positive
-	Effect likely to be negative
0	No significant effect
?	Effect unknown
Ø	Not relevant

An assessment is also made of the significance of effects based on a number of criteria (see *Section 1.2.3*), and is indicated by colour:

	Not relevant
	No significance
	Medium significance
	High significance

A summary of the overall effects of implementing the draft Headline Strategy is set out in *Table 3.1*, and recommendations made for mitigating negative effects or maximising opportunities for benefits.

The full detailed results of the policy appraisal will be provided in the final version of this report which will accompany the consultation version of the draft Headline Strategy in February 2009.

Table 3.1 Summary of Significant Effects of Draft Headline Strategy

Appraisal objectives	Assessment		Mitigation
Promoting the waste hierarchy	+	The Strategy has a very strong commitment to promoting the waste hierarchy, with a range of policies and targets addressing all aspects of the hierarchy.	None
Reducing the causes of climate change	+	The Strategy has a clear commitment to reducing greenhouse gas emissions from waste management activities. It will achieve this through greater prevention, reuse, recycling and treatment, and by adopting a target for reducing emissions from waste collection. It will also reduce the landfill of biodegradable waste through prevention and recycling measures. It does not require energy generation from landfill gas, however this is already required by the Environment Agency unless there are exceptional circumstances.	None
Reducing traffic and transport	?	Through increased waste prevention the Strategy will reduce the need for waste to be transported. However, increased recycling and treatment may result in greater amounts of waste transport overall as it will increase the tonnages of recyclables to be delivered to appropriate facilities, and also increases the onward transport of process outputs.	The transport policy is still to be drafted, but should contain a commitment to minimising waste transport distances by the appropriate choice of location for facilities, and by promoting local recycling/composting capacity where this is practicable. Choices for location of facilities should take into account the potential impacts on waste transport, and waste transport should be minimised where practicable. Alternatives to road should be promoted. Bring facilities should be located close to centres of population and other local facilities.
Encouraging business development	+	There is a clear commitment to working with other organisations such as the voluntary and community sectors and contractors in order to support markets for recycled products. The Strategy will also indirectly support business development by increasing the need for waste management facilities to be provided. It also encourages reuse and recycling by the commercial sector, although it is not clear whether this will be directed at waste producers or waste processors. The supporting text indicates that the councils will seek greater recycling by the commercial sector.	The strategy should give a clearer commitment to commercial sector engagement, both producers and processors. In particular, there should be a clear policy to promote increased recycling by commercial waste producers, as well as support and engagement with waste processors.
Participation in decision-making	0	The Strategy is unlikely to significantly affect public participation in decision-making, although this is largely outside its remit. However, adopting a transparent approach to performance monitoring may indirectly support community participation in decision-making by providing knowledge and information in support of that.	None
Promoting	+	Moving the management of waste up the waste hierarchy is likely to require new economic	The strategy should give a clearer commitment to

new technologies		enterprises in waste recycling and treatment within the counties and elsewhere. This may help to support the development of new methods of managing waste which will enable greater resource efficiency, and to make an economic gain from marketing recycled products. It may also allow LATS permits to be sold, enabling an economic gain to be made from the recovery and treatment of waste. The Strategy also encourages reuse and recycling by the commercial sector, although it is not clear whether this will be directed at waste producers or waste processors. If waste processors, then this may help to promote the development of new technologies.	commercial sector engagement, both producers and processors. In particular, there should be a clear policy to promote increased recycling by commercial waste producers, as well as support and engagement with waste processors.
Energy efficiency and generation	?	The Strategy commits to the waste hierarchy, including the promotion of energy recovery in preference to landfill. In addition, promoting greater waste minimisation will help to reduce the demand for energy for waste transport and processing. However, there is no other reference to the recovery of energy where practicable. In order to achieve the targets for recovery and to reduce CO_2 emissions the strategy may promote energy recovery, although this is not explicit .	Include policy or supporting text to promote energy recovery wherever practicable, including from landfill gas.
Protecting natural resources	+/?	Promoting the waste hierarchy will help to promote more sustainable use of natural resources by reducing the demand for virgin materials and avoiding the need for extraction and processing. Greater minimisation, reuse and recycling may also help to reduce the risk of pollution in the vicinity of waste management facilities although this is more strongly dependent on operational standards. However, promoting recovery of resources from waste will require construction of new treatment facilities which are likely to be within Herefordshire and Worcestershire, which will increase emissions in the vicinity of facilities. The significance of the impacts of these emissions depends on local conditions and on operational standards. Some areas particularly within Bromsgrove and Wychavon have poor air quality that exceeds standards for NOx for protection of vegetation and ecosystems.	Ensure that the location and design of waste treatment facilities takes account of local environmental conditions and prevents adverse impacts on air, water and soil.
Improving access to services	+	The Strategy contains a range of commitments which will improve the quality and accessibility of services, including waste minimisation, kerbside recycling and bring sites. Household Waste Sites are likely to provide improved facilities although their accessibility is unlikely to change. Implementing minimisation initiatives will also increase access to low-cost goods for disadvantaged individuals, groups, schools and charities. However, the Strategy also plans to restrict residual waste collection services which can be perceived as a reduction in service availability.	The strategy should commit to ensuring good accessibility to Household Waste Sites across the two counties, providing new sites where required.
Protecting landscape	?	Increasing recycling and recovery will require new waste management facilities to be constructed. These may have effects on landscape character, depending on where they are located and standards of design. However, this is principally a matter for planning and development control.	Ensure land use plans take account of landscape impacts in identifying locations for facilities and require high standards of design.
Conserving and	+/?	Reducing the need for landfill by implementing the waste hierarchy will help to reduce the risk of water pollution which may have local benefits for aquatic biodiversity, although this	Potential biodiversity sensitivities should be taken into account in selection of suitable sites, and EIAs should

enhancing biodiversity and geodiversity		is also dependent on operational standards. Increased home composting may help to increase garden biodiversity. However, developing new recycling and residual treatment capacity may have adverse impacts in terms of increased air emissions and landtake, although the significance of effects is unknown and dependent on locations and types of technology employed. Higher tonnages sent for recycling and treatment is also likely to increase emissions from waste transport, although this is unlikely to be significant in terms of transport overall in Herefordshire and Worcestershire. Some areas particularly within Bromsgrove and Wychavon have poor air quality that exceeds standards for NOx for protection of vegetation and ecosystems.	assess the impacts of air emissions and disturbance on biodiversity.
Protecting and improving health	+	By aiming to move waste management up the hierarchy, the strategy is likely to ensure any risks to human health are minimised by reducing the quantity of waste requiring disposal. New recycling and treatment facilities will need to be constructed, however exposure to risks is unlikely to be significant and it is primarily dependent on operational standards at individual facilities. Current pollution control techniques and standards should ensure that developments pose a very small or no risk to human health.	None
Promoting facilities within new developments	+	The Strategy explicitly seeks to provide minimisation and recycling facilities in new developments. This could incorporate bring sites, although this is not explicitly promoted by the policy.	Supporting text to policy 21 could promote the location of bring sites within larger developments. The Strategy could also seek the provision of facilities in commercial developments.
Raising skills and encouraging participation	+	Promoting more minimisation and recycling and improving the quality and accessibility of services will require the councils to encourage engagement in environmentally responsible activities, and this is actively promoted by the Strategy. In addition, by supporting reuse of goods and materials, the policy can make an indirect contribution to developing skills in product reconditioning and refurbishment. The adoption of sustainable procurement will help to promote more environmentally responsible activities by council staff, and potentially also by suppliers.	None
Protection of built and historic environment	?	Achieving the targets for recovery will require new treatment facilities to be constructed within Herefordshire and Worcestershire. It may also require new recycling and composting facilities including bring sites. New facilities and sites could have a detrimental effect on the historic environment and landscapes depending on where they are situated and standards of design and construction. However, this falls within the remit of planning and development control.	Ensure planning policy takes appropriate account of the historic environment in location and design and that sites and facilities do not negatively affect historic assets or their setting.
Efficient use of land-based assets	?	By reducing the landfill of waste, the policy will ensure the most efficient use of landfill space, which will help to protect land-based assets in the two counties. Increased recovery will require new facilities to be constructed but these will have a much smaller footprint than landfill sites. A new facility could have effects on land-based assets such as green belt or on use of previously developed land, but this depends on location and design which are principally a matter for planning and development control.	Ensure land use plans take account of the type and value of land in identifying locations for facilities and require high standards of design.

Reducing fly-tipping	?	By providing improved quality of some services such as at Household Waste Sites and to continue to provide bulky waste collections and promote their use, the Strategy may help to reduce the incidence of fly-tipping. Promoting awareness of waste issues may also indirectly help to reduce fly-tipping by changing attitudes to waste and its impacts. However, restricting residual waste collections may increase the incentive for householders to fly-tip waste.	The strategy should include measures to reduce fly-tipping, for example by making reference to such measures in supporting text.
Avoiding flood risk	?	Reducing the landfill of waste by increasing recovery will require new treatment facilities to be built. The location of this may affect flood risk depending on location and standards of design but this is a matter for planning and development control.	Ensure land use plans take account of flood risk in identifying locations for facilities and require high standards of design.

3.3.1 Summary of Results

The Strategy has a very strong commitment to promoting the waste hierarchy, with a range of policies and targets addressing all aspects of the hierarchy. This will enable it to promote greater resource efficiency and to contribute to a reduction in greenhouse gas emissions from waste management activity, which will be partially reinforced by the adoption of a target for emissions from collection. As a component of the hierarchy, energy recovery will be promoted in preference to landfill, although no particular commitments are made to energy recovery in the Strategy.

In order to achieve the waste hierarchy, the Strategy will seek to improve access to waste services and promote greater public participation in environmentally responsible activities. It will also indirectly support business growth in the waste sector and the development of new resource-efficient technologies.

The effect of the Strategy on traffic and transport is unclear. Increased recycling and recovery could lead to greater waste transport distances, but the policy on transport is still to be drafted.

Promoting recovery of resources from waste will require construction of new facilities, particularly treatment facilities which are likely to be within Herefordshire and Worcestershire. This will increase emissions in the vicinity of facilities and may have effects on environmental and historic assets. The significance of these impacts is unknown and depends strongly on local conditions, on planning and development control and on operational standards, factors which are outside the scope of the JMWMS.

Annex A

Compatibility of Principles and Appraisal Objectives

As recommended by government guidance, the principles of the draft Headline Strategy have been tested against the appraisal objectives to ensure compatibility with sustainable development objectives.

The strategic principles are set out in *Table A.2* and the results of the compatibility test in *Table A.3*.

Table A.2 Summary of Principles

Principle One	Meeting the challenge of climate change by viewing waste as a resource
Principle Two	Commitment to the waste hierarchy of which waste prevention is the top
Principle Three	Influencing Government, waste producers and the wider community
Principle Four	Continued commitment to re-use, recycling and composting
Principle Five	Minimising the use Of landfill
Principle Six	Partnership
Principle Seven	Monitoring and review
Principle Eight	Customer focus
Principle Nine	Value for money
Principle Ten	Consideration of social, environmental and economic impacts

Table A.3 Assessment of Strategic Objectives against SA Objectives

Key:
✓ Positive compatible
× Possible conflict
? Uncertain
Ø Neutral

Objectives	Principles										Comments
	1	2	3	4	5	6	7	8	9	10	
1. Waste											
Manage the waste streams in accordance with the waste hierarchy, encouraging reuse and recovery addressing waste as a resource	✓	✓	✓	✓	✓	Ø	Ø	✓	Ø	Ø	
To minimise the production of waste generated	✓	✓	✓	Ø	Ø	Ø	Ø	✓	Ø	Ø	
2. Climate Change											
Reduce causes of and adapt to the impacts of climate change	✓	✓	✓	✓	✓	Ø	Ø	✓	Ø	?	Principle 10 states that environmental impacts will be considered together with social and economic impacts. The effect of this on greenhouse gas emissions is unclear.
Minimise biodegradable waste going to landfill	✓	✓	✓	✓	✓	Ø	Ø	✓	Ø	Ø	
Maximise opportunities to generate power from methane at landfill sites	?	×	?	×	×	Ø	Ø	✓	Ø	Ø	Diversion of biodegradable waste from landfill will reduce opportunities, but diversion should not therefore be avoided.
3. Traffic & Transport											
To reduce the need to travel and move towards more sustainable travel patterns	?	✓	?	?	?	Ø	Ø	Ø	Ø	?	Transport will be reduced by minimisation but may increase with greater recycling and if waste is exported for treatment. Considering environmental impacts may or may not result in reduction of waste transport. Issue will be examined in more detail in the policies although the transport policy is yet to be drafted.
Ensure the disposal of waste as close to point of origin as practicable and promote transfer of waste by rail or water transport where appropriate	?	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Exporting waste will not ensure its disposal close to its origin although environmental soundness will be taken into account and this should include consideration of transport impacts. Issue is examined in more detail in the residual options appraisal. Considering environmental impacts may or may not result in reduction of waste transport. Issue will be examined in more detail in the policies although the transport policy is yet to be drafted.
4. Growth with prosperity for all											
Develop a knowledge-driven economy, the infrastructure and skills base whilst ensuring all have access to the benefits urban and rural	Ø	Ø	Ø	Ø	Ø	✓	Ø	Ø	Ø	Ø	

Objectives	Principles										Comments
	1	2	3	4	5	6	7	8	9	10	
To encourage business development within the waste sector to achieve Government targets for waste	Ø	Ø	Ø	?	Ø	✓	Ø	Ø	Ø	Ø	Aiming to achieve targets may indirectly encourage development of the waste sector in order to achieve the targets.
To encourage rural regeneration	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
5. Participation by all											
To provide opportunities for communities to participate in and contribute to the decisions that affect their neighbourhoods and quality of life, encouraging pride and social responsibility in the local community	Ø	✓	✓	Ø	Ø	Ø	Ø	?	Ø	Ø	Designing systems around customers in order to meet their needs may involve their participation in decisions, although this is largely outside the remit of the JMWMS.
To provide opportunities for communities to participate in and contribute to waste planning decisions	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	Ø	Ø	
6. Technology, innovation & inward investment											
Promote and support the development of new technologies of high value and low impact, especially resource efficient technologies and environmental technology initiatives	?	Ø	✓	✓	✓	✓	✓	Ø	Ø	Ø	Greater resource efficiency through improved waste management practices may indirectly help to promote the development of new technologies.
To make an economic gain from the recovery and treatment of waste streams wherever this is environmentally acceptable	✓	Ø	Ø	✓	✓	Ø	Ø	?	✓	✓	Seeking to deliver services at an affordable cost may indirectly help to promote economic gain from waste management where possible.
7. Energy											
Promoting energy efficiency and energy generated from renewable energy and low carbon sources	?	✓	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Implementing the waste hierarchy may result in energy recovery, but this is not explicitly sought.
In accordance with waste hierarchy support the generation of energy from waste	?	✓	Ø	Ø	?	Ø	Ø	Ø	Ø	?	
8. Natural resources											
Protect and improve standards of air, water and soil quality ensuring prudent use of natural resources	✓	✓	✓	✓	✓	Ø	Ø	Ø	Ø	?	Environmental impacts will be considered holistically with economic and social impacts, which may or may not improve environmental quality.
Minimise the creation of dust, odour and noise and other pollutants in the vicinity of waste station / facilities	?	✓	Ø	Ø	✓	Ø	Ø	Ø	Ø	?	Environmental impacts will be considered holistically with economic and social impacts, which may or may not reduce emissions from facilities.
9. Access to services											
To improve the quality of and equitable access to local services and facilities, regardless of age, gender, ethnicity, disability, socioeconomic status or educational attainment	Ø	✓	?	?	Ø	Ø	Ø	✓	Ø	Ø	Aiming for increased recycling and composting should promote better access to services, although this is not explicitly sought.
To improve accessibility to kerbside recycling and Household Waste Sites	Ø	✓	?	?	Ø	Ø	Ø	✓	Ø	Ø	

Objectives	Principles										Comments
	1	2	3	4	5	6	7	8	9	10	
10. Landscape											
Safeguard and strengthen landscape character and quality	?	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	Environmental impacts will be considered holistically with economic and social impacts, which may or may not safeguard landscapes, although this is largely within the remit of planning and development control.
Encourage design that reduces visual intrusion and is sensitive to the local vernacular, as defined by the county landscape character assessment, county historic landscape characterisation and conservation area appraisals	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Design issues are normally beyond the scope of principles for a MWMS.
11. Biodiversity / Geodiversity / Flora / Fauna											
To conserve and enhance biodiversity and geodiversity	?	Ø	?	Ø	?	Ø	Ø	Ø	Ø	?	Increasing minimisation, recycling and composting may indirectly help to reduce pressures on biodiversity and geodiversity. Environmental impacts will be considered which may or may not ensure conservation and enhancement of biodiversity and geodiversity.
To assist in meeting Biodiversity Action Plan targets during the lifetime of the JMWMS	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	BAP targets are normally beyond the scope of principles for a MWMS.
12. Health											
To improve the health and well being of the population and reduce inequalities in health	✓	✓	Ø	✓	✓	Ø	Ø	Ø	Ø	?	Environmental and social impacts will be considered holistically with economic impacts, which may or may not help to improve health. Reduction of landfill through increased minimisation and recovery will help to minimise a potential source of health impacts.
To limit environmental impacts of waste treatment facilities on the local population including pest species at landfill sites	✓	✓	Ø	✓	✓	Ø	Ø	Ø	Ø	?	
To reduce respiratory diseases/allergy related illness	?	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	Ø	Increased recovery has an uncertain effect on emissions and health. This is examined in more detail in the options appraisal.
13. Provision of housing											
Provide decent affordable housing for all, of all the right quality and tenure and for local needs, in clean, safe and pleasant local environments	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Outside the remit of the JMWMS
Encourage the use of sustainable building technologies in new housing developments in particular the re-use of construction and demolition waste	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Outside the remit of the JMWMS
Promote the provision of recycling facilities within new housing developments	Ø	Ø	Ø	?	Ø	Ø	Ø	?	Ø	Ø	Increased recycling and ensuring services meet customer needs may indirectly help to promote the provision of facilities in new housing developments, but this is not inevitable.
14. Learning and skills											

Objectives	Principles										Comments
	1	2	3	4	5	6	7	8	9	10	
To raise the skills level and qualifications of the workforce	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	Considering the business case in waste management may indirectly help to promote better workforce skills/qualifications, but this is not certain.
To encourage engagement in community/environmentally responsible activities	Ø	✓	✓	✓	Ø	✓	✓	✓	Ø	Ø	
15. Cultural heritage, architecture and archaeology											
Conserve and enhance the architecture, cultural and historic environment heritage and seek well designed, resource efficient, high quality built environment in new development proposals	?	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Considering environmental impacts may or may not result in conservation of assets.
Promote design concepts for new buildings that are informed by the local vernacular	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Design issues are normally beyond the scope of principles for a MWMS.
The siting of new waste management facilities should not have a detrimental effect on the setting and *in situ* conservation of historic buildings, areas, landscapes or archaeological remains	?	Ø	Ø	Ø	✓	Ø	Ø	Ø	Ø	?	Considering environmental impacts may or may not result in conservation of assets.
16. Material assets											
Ensure efficient use of land through safeguarding of mineral reserves, the best and most versatile agricultural lands, lands of green belt value, maximising use of previously developed land and reuse of vacant buildings, where this is not detrimental to open space, biodiversity interest or the historic environment	Ø	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Considering environmental impacts may or may not result in efficient use and conservation of land-based assets.
To support the reuse of construction materials	Ø	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
To protect land from contamination arising from waste	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
To restore landfill sites to amenity purposes.	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Outside the scope of the JMWMS
17. Crime											
Reduce crime, fear of crime and antisocial behaviour	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Ø	?	Increased awareness, customer focus and consideration of social impacts may indirectly help to reduce fly-tipping incidents, although this is not explicitly sought.
Reduce the number of fly tipping incidents	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Ø	?	
18. Flooding											
Ensure inappropriate development does not occur in high risk flood areas and does not adversely contribute to fluvial flood risks or contribute to surface water flooding in all other areas	Ø	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	?	Consideration of environmental, social and economic impacts and exporting where environmentally sound may indirectly help to avoid pressures to develop in flood risk areas, although this is not inevitable.
Ensure development does not occur in flood risk areas	Ø	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	?	

Annex B

Summary Assessment of Policies

Table B.1 Detailed Assessment of Policies

Key:

+	effect likely to be positive
-	effect likely to be negative
0	no significant effect
?	effect unknown
Ø	not relevant

	Not relevant
	No significance
	Medium significance
	High significance

Appraisal objectives	**Policies**																						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
1. Waste • Manage the waste streams in accordance with the waste hierarchy, encouraging reuse and recovery addressing waste as a resource • To minimise the production of waste generated	+	Ø	+	+	+	Ø	Ø	+	+	+	+	+	+	+	+	+	+	+	Ø	+	+	Ø	+
2. Climate Change • Reduce causes of and adapt to the impacts of climate change • Minimise biodegradable waste going to landfill • Maximise opportunities to generate power from methane at landfill sites	+	Ø	+	+	+	Ø	+	+	+	+	+	+	+	+	+	+	+	+	Ø	+	+	Ø	+
3. Traffic & Transport • To reduce the need to travel and move towards more sustainable travel patterns • Ensure the disposal of waste as close to point of origin as practicable and promote transfer of waste by rail or water transport where appropriate	?	Ø	?	?	0	Ø	+	?	+	+	+	0	?	?	?	?	?	?	Ø	?	?	Ø	?
4. Growth with prosperity for all • Develop a knowledge-driven economy, the infrastructure and skills base whilst ensuring all have access to the benefits urban and rural • To encourage business development within the waste sector to achieve Government targets for waste • To encourage rural regeneration	+	Ø	+	+	+	Ø	Ø	+	0	0	0	+	+	0	+	+	+	+	Ø	?	Ø	Ø	0

Appraisal objectives	Policies																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
5. Participation by all • To provide opportunities for communities to participate in and contribute to the decisions that affect their neighbourhoods and quality of life, encouraging pride and social responsibility in the local community • To provide opportunities for communities to participate in and contribute to waste planning decisions	0	Ø	?	0	Ø	+	Ø	0	0	0	0	Ø	0	Ø	Ø	Ø	Ø	0	Ø	Ø	Ø	Ø	0
6. Technology, innovation & inward investment • Promote and support the development of new technologies of high value and low impact, especially resource efficient technologies and environmental technology initiatives • To make an economic gain from the recovery and treatment of waste streams wherever this is environmentally acceptable	+	+	+	+	+	Ø	Ø	+	0	0	+	0	+	+	+	+	+	+	Ø	?	0	Ø	+
7. Energy • Promoting energy efficiency and energy generated from renewable energy and low carbon sources • In accordance with waste hierarchy support the generation of energy from waste	+/?	Ø	0	0	0	Ø	?	0	+	+	+	0	?	0	0	?	?	Ø	Ø	Ø	Ø	Ø	?
8. Natural resources • Protect and improve standards of air, water and soil quality ensuring prudent use of natural resources • Minimise the creation of dust, odour and noise and other pollutants in the vicinity of waste station / facilities	+	Ø	+	+	+	Ø	Ø	+	+	+	+	+	+	+	+	+/?	+/?	+	Ø	+	+	Ø	+
9. Access to services • To improve the quality of and equitable access to local services and facilities, regardless of age, gender, ethnicity, disability, socioeconomic status or educational attainment • To improve accessibility to kerbside recycling and Household Waste Sites	+	Ø	+	+	Ø	Ø	Ø	+/?	+	Ø	Ø	+	+	+	+	Ø	+	+/?	Ø	+	+	Ø	0
10. Landscape • Safeguard and strengthen landscape character and quality Encourage design that reduces visual intrusion and is sensitive to the local vernacular, as defined by the county landscape character assessment, county historic landscape	?	Ø	Ø	?	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	0	0	?	?	Ø	Ø	Ø	Ø	Ø	0

Appraisal objectives	Policies																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
characterisation and conservation area appraisals																							
11. Biodiversity / Geodiversity / Flora / Fauna • To conserve and enhance biodiversity and geodiversity • To assist in meeting Biodiversity Action Plan targets during the lifetime of the JMWMS	+/?	Ø	Ø	+/?	Ø	Ø	+	Ø	Ø	+	0	Ø	+/?	Ø	Ø	+/?	+/?	Ø	Ø	Ø	Ø	Ø	0
12. Health • To improve the health and well being of the population and reduce inequalities in health • To limit environmental impacts of waste treatment facilities on the local population including pest species at landfill sites • To reduce respiratory diseases/allergy related illness	+	Ø	Ø	+	Ø	Ø	Ø	+	+	+	0	0	+/0	0	0	+	+	0	Ø	0	0	Ø	+
13. Provision of housing • Provide decent affordable housing for all, of all the right quality and tenure and for local needs, in clean, safe and pleasant local environments • Encourage the use of sustainable building technologies in new housing developments in particular the re-use of construction and demolition waste • Promote the provision of recycling facilities within new housing developments	Ø	Ø	Ø	Ø	Ø	Ø	Ø	0	Ø	0	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø
14. Population 1 (Learning and skills) • To raise the skills level and qualifications of the workforce • To encourage engagement in community/environmentally responsible activities	+	Ø	+	+	+	Ø	Ø	+	+	+	Ø	+	+	+	+	+	+	+	+	+	+	Ø	0
15. Cultural Heritage, architecture and archaeology • Conserve and enhance the architecture, cultural and historic environment heritage and seek well designed, resource efficient, high quality built environment in new development proposals • Promote design concepts for new buildings that are informed by the local vernacular The siting of new waste management facilities should not have a detrimental effect on the setting and in-situ conservation of historic buildings, areas, landscapes or archaeological remains	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	?	0	?	?	Ø	Ø	Ø	Ø	Ø	Ø

Appraisal objectives	Policies																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16. Material Assets • Ensure efficient use of land through safeguarding of mineral reserves, the best and most versatile agricultural lands, lands of green belt value, maximising use of previously developed land and reuse of vacant buildings, where this is not detrimental to open space, biodiversity interest or the historic environment • To support the reuse of construction materials • To protect land from contamination arising from waste • To restore landfill sites to amenity purposes.	Ø	Ø	Ø	Ø	?	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	+	Ø	Ø	Ø	Ø	Ø	Ø
17. Population 2 (Anti social behaviour, crime, litter and graffiti) • Reduce crime, fear of crime and antisocial behaviour • Reduce the number of fly tipping incidents	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	Ø	Ø	Ø	+	Ø	Ø	?	Ø	Ø	?	Ø	Ø	Ø	Ø	Ø
18. Flooding • Ensure inappropriate development does not occur in high risk flood areas and does not adversely contribute to fluvial flood risks or contribute to surface water flooding in all other areas • Ensure development does not occur in flood risk areas	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	?	Ø	Ø	Ø	Ø	Ø	Ø