Levett-Therivel

KENT COUNTY COUNCIL, SCOTT WILSON & LEVETT-THERIVEL

Sustainability Appraisal (SA) of Kent Joint Municipal Waste Management Strategy

F I N A L S A R E P O R T




May 2006

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Sustainability Appraisal (SA) of Kent Joint Municipal Waste Management Strategy

Final SA Report

26/05/2006

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SEA DIRECTIVE REQUIREMENTS CHECKLIST

Table 1 below indicates where specific requirements of the SEA Directive can be found within this report. This report is one of several key reports to be prepared as part of the SEA / SA process and Table 1 records where information can be found.

Table 1: SEA Directive requirements checklist

Environmental Report requirements[1]		Section of this report
(a)	an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	Scoping Report / Context Review / Section 4 (summary)
(b)	the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	Scoping Report / Section 4 (summary)
(c)	the environmental characteristics of areas likely to be significantly affected;	Scoping Report / Section 4 (summary)
(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;	Scoping Report / Section 4 (summary)
(e)	the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	Scoping Report / Section 4 (summary)
(f)	the likely significant effects[2] 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;	Sections 6, 7 and 8
(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;	Sections 6, 7 and 9
(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;	Section 5 (how the assessment was undertaken) and 6 (alternatives dealt with)
(i)	a description of the measures envisaged concerning monitoring in accordance with Article 10;	Section 10
(j)	a non-technical summary of the information provided under the above headings.	Section 1

[1] As listed in Annex I of the SEA Directive (Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment).
[2] These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

1 NON TECHNICAL SUMMARY

1.1 Introduction

1.1.1 All local authorities should have in place a strategy for managing their municipal waste. With this in mind, the Kent Waste Forum (KWF) has taken the lead in the development of a new **Joint Municipal Waste Management Strategy** (JMWMS) for the County. This will replace the existing Kent Household Waste Strategy which was adopted by the KWF and published in May 2003.

1.1.2 The KWF partner local authorities are the Districts of Ashford, Canterbury, Dartford, Dover, Gravesham, Maidstone, Sevenoaks, Shepway, Swale, Thanet, Tonbridge and Malling, Tunbridge Wells and Kent County Council. The KWF also includes representatives from the Environment Agency and the Association of Parish Councils.

1.1.3 The JMWMS ('the Strategy') covers the waste that the partner authorities are responsible for collecting, treating and disposing of. This includes waste collected from households, street sweepings, trade waste collections (where appropriate), and waste collected at Household Waste Recycling Centres (HWRCs). These waste streams are collectively referred to as **municipal solid waste** (MSW)[3]. The purpose of the Strategy is to set how the KWF's constituent authorities intend to manage municipal solid waste arisings over the next 20 years.

1.1.4 Developing a strategy to manage Kent's MSW is essential since recent years have witnessed an annual increase in waste arisings. In 2005 / 06, Kent residents produced approximately 811,000 tonnes of MSW – more than 1.4 tonnes per household. Although the Strategy assumes that waste growth per household will slow to zero, *overall* levels of MSW will grow in Kent due to the significant predicted growth in household numbers (particularly in the growth areas of Ashford and Kent Thameside).

1.1.5 The Strategy itself comprises a **Headline Strategy** together with a variety of supporting annexes including a baseline report on municipal waste in Kent and a series of documents setting out potential options for managing municipal waste. The Headline Strategy contains 20 policies addressing a range of issues including resource management; partnership working; education and engagement; waste minimisation and re-use; recycling and composting; and residual waste management services. Importantly, the Headline Strategy will be supported by a set of detailed **action plans** for implementing the policies and these will be developed during 2006. Further information on the Strategy is available on the Council's website[4].

[3] The Strategy does not address waste generated by businesses in Kent except where authorities arrange for its collection.
[4] See: http://www.kent.gov.uk/environment/recycling-rubbish-and-waste/managing-waste/waste-strategy.htm

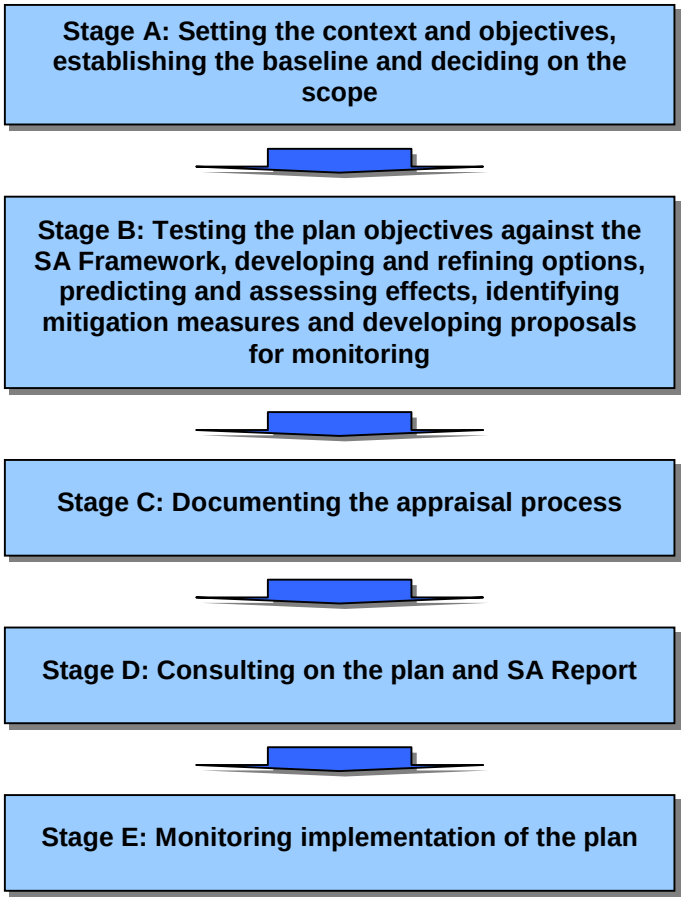
1.2 Sustainability Appraisal

1.2.1 Scott Wilson and Levett-Therivel have been commissioned to support Kent County Council ('the Council') is undertaking the **Sustainability Appraisal** (SA) of the JMWMS (as well as the Kent Minerals and Waste Development Framework and the Local Transport Plan for Kent 2006 – 11).

1.2.2 The Department for Environment, Food and Rural Affairs (DEFRA) suggests that SA is undertaken for municipal waste management strategies. SA involves the identification and evaluation of the Strategy's impacts on economic, social and environmental objectives – the three dimensions of **sustainable development**. The SA process incorporates the requirements of a new European law on the environmental assessment of plans (referred to as the 'Strategic Environmental Assessment Directive').

1.2.3 The SA process – incorporating SEA – involves five key stages – see Figure 1.

Figure 1. ***Five stage approach to SA***



1.2.4 Stage A in the SA process involved establishing the framework for undertaking the SA – essentially a set of sustainable development objectives against which the Strategy could be appraised – together with an evidence base to inform the appraisal. The framework and evidence base were documented in a **Scoping Report** which is available on the Council's website[5]. This report also provided the framework and evidence base for the appraisal of the Kent Minerals and Waste Development Framework (MWDF) and the Local Transport Plan for Kent 2006 – 11 (LTP).

1.2.5 Stage B in the process focused primarily on appraising, firstly, the various waste management **options** available to the KWF and, secondly, the 20 **policies** for waste management contained in the Headline Strategy. Following the appraisal, a series of recommendations were made for strengthening the Strategy's sustainability performance.

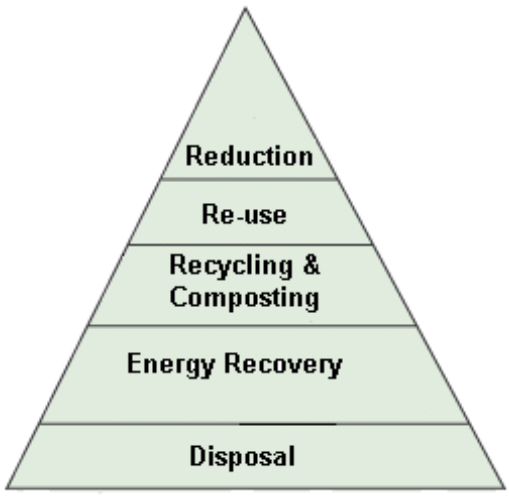
1.2.6 This report – Stage C in the SA process – documents the appraisal of the options and policies as well as the recommendations. The draft Strategy - together with this report - is subject to consultation under Stage D. This report also includes recommendations for monitoring the Strategy as required under Stage E.

1.3 Options for managing MSW

1.3.1 A key part of the SA process was the appraisal of different **options** for managing Kent's MSW. The choice between these options will provide the foundations for the Strategy's detailed action plans.

1.3.2 The KWF commissioned ERM to assist in developing and appraising various options. Options were generated for key levels in the **waste hierarchy** – for reduction and re-use; recycling and composting; and energy recovery and disposal (see Figure 2).

Figure 2. ***The waste hierarchy***



[5] Scoping Report available at: http://www.kent.gov.uk/publications/environment/scoping-report04-05.htm

1.4 Options for waste reduction and re-use

1.4.1 The KWF generated a series of options for **waste reduction** – or prevention – and **re-use** – see Table 2. These options comprised different combinations of various initiatives currently available to promote waste prevention and re-use. All of these approaches are focused on the reduction of waste with the exception of the last one – support for re-use of items, local waste exchanges and charity stores – which is a re-use measure.

Table 2. ***Options for waste reduction and re-use***

Option 1	Do nothing (do not further advance the various waste prevention and re-use initiatives currently in place)
Option 2	Implement programmes that do not require any capital expenditure: • trade waste diversion; • re-usable nappies; • waste aware (SMART) shopping; and • unwanted mail.
Option 3	Implement programmes that divert more than 2.5% of MSW arisings: • home composting; • waste aware (SMART) shopping; and • re-use – unwanted goods
Option 4	Implement all programmes offered identified by the KWF – home composting, waste aware (SMART) shopping, unwanted mail, re-usable nappies, trade waste diversion, product service businesses, and re-use – unwanted goods.

1.4.2 The appraisal concluded that, in general, the options that promised the greatest reduction in MSW arisings – Options 3 and 4 – performed best in terms of sustainability. Through reducing waste and increasing its re-use, they are likely to have positive implications for air quality, water quality, climate change, biodiversity, landscape and health. This is because Options 3 and 4 could lead to a reduction in MSW arisings such that there would be a corresponding reduction in the need for waste treatment facilities and the impacts associated with these.

1.4.3 Option 1 is the least compatible with sustainability principles since it essentially represents business-as-usual and will result in relatively little reduction in MSW arisings. Option 2 focuses on initiatives that do not require any capital expenditure (and relatively little action on the part of Kent's local authorities) and will result in comparatively less waste reduction than Options 3 and 4.

1.4.4 It should be noted that the difference between the performances of the options hinges on whether or not they actually lead to an overall *reduction* in MSW arisings. This 'tipping point' is the point at which an option is effective in reducing waste despite year-on-year increases in waste arisings.

1.4.5 It is acknowledged that some skepticism exists as to the effectiveness of waste prevention and re-use schemes. Nevertheless, work done on behalf of the KWF indicates that reductions in MSW arisings can be made, particularly under Options 3 and 4. However, the KWF's background work indicates that any waste reduction achieved by 2019 / 20 is likely to be limited (probably more so in light of planned housing growth for Kent). Achieving real reductions in waste arisings may require more radical measures (e.g. charging households per unit of waste produced[6]).

1.4.6 **Recommendation**: The KWF should pursue Options 3 or 4 (or a combination of these) since these options have the potential to reduce overall MSW arisings. This is crucial considering the recent year on year increases in MSW in Kent and the planned growth in the number of households.

1.5 Options for recycling and composting

1.5.1 The combined household **recycling and composting** rate for Kent, including material recycled at HWRCs, is currently around 29%. In light of this, the KWF generated a series of options for recycling and composting waste – see Table 3.

Table 3. ***Options for recycling and composting***

Option A	Raise participation and capture rates of current recycling collections to 80%
Option B	Increase coverage of recycling and composting collections to 100% and increase participation and capture to 80%
Option C	Expand glass collections to all households
Option D	Introduce compostable kitchen waste collections to all households
Option E	Expand garden waste collections to all relevant households
Option F	Expand the current cardboard collections to all households
Option G	Collect dense and film plastics from 100% of households
Option H	Collect tins and cans from 100% of households
Option I	Add kitchen and cardboard to current garden waste collections
Option J	Collect commingled plastics and tins and cans from 100% of households
Option K	Increase recycling at bring sites by 15%
Option L	Increase recycling at bring sites by 20%
Option M	Expand the range of bring sites to include dense and film plastics
Option N	Increase recycling at the Household Waste Recycling Centres (HWRCs) to 60%
Option O	Increase recycling at the HWRCs to 75%

[6] As recently recommended by the Policy Studies Institute (2006). *A Green Living Initiative* available at: http://www.psi.org.uk/pdf/2006/GreenLivingInitiative.pdf (NB this is not currently within the legal remit of authorities)

1.5.2 The appraisal concluded that Kent should maximise the coverage, participation and capture of recycling and composting collections as well as increasing recycling at bring sites and HWRC's. The Strategy should also make every effort to maximise the level of plastic and non-ferrous metal recycling within the County (therefore avoiding this being transported elsewhere).

1.5.3 **Recommendation**: It is recommended that Kent maximise the coverage, participation and capture of recycling and composting collections as well as increasing recycling at bring sites and HWRCs. The Strategy should also make every effort to ensure that such increases maximise the level of plastic and non-ferrous metal recycling within the County.

1.6 Options for energy recovery and disposal

1.6.1 Beyond recycling and composting, **recovery** is the capture of value from residual waste, usually in the form of energy. The Allington Waste Management Facility near Maidstone will include an Energy from Waste (EfW) plant - due to come on stream in late 2006 – and this will generate approximately 40 megawatt hours of electricity. Waste **disposal** generally involves landfilling residual waste and Kent currently sends approximately 552,000 tonnes of MSW per year to landfill. The amount of waste permitted to go to landfill is increasingly restricted under the EU Landfill Directive[7].

1.6.2 The KWF generated a series of options for energy recovery from waste and waste disposal – see Table 4. These centre on different waste treatment facilities and provide an indicative route to meeting the County's allowances under the Landfill and Allowance and Trading Scheme (LATS)[8].

Table 4. ***Options for energy recovery from waste and waste disposal***

Option 1	New Energy from Waste (EfW) facility in East Kent
Option 2	Expand current contracted capacity at Allington EfW
Option 3	Mechanical Biological Treatment (MBT) plant in East Kent providing Refuse Derived Fuel (RDF) to Allington EfW
Option 4	MBT plant in East Kent stabilising material to be sent to landfill
Option 5	Autoclave in East Kent with fluff to Allington EfW
Option 6	Gasification plant in East Kent
Option 7	Anaerobic Digestion facility in East Kent
Option 8	In-vessel composting facilities across Kent for Garden and Kitchen Waste

[7] The Landfill Directive sets demanding targets to reduce the amount of biodegradable municipal landfilled.
[8] The Landfill Allowances Trading Scheme (LATS) went live on 1st April 2005 and is designed to help English authorities meet the targets in the Landfill Directive. The allowances will convey the right for a waste disposal authority to landfill a certain amount of biodegradable municipal waste in a specified scheme year. Each waste disposal authority will be able to determine how to use its allocation of allowances in the most effective way. It will be able to trade allowances with other authorities, save them for future years (bank) or use some of its future allowances in advance (borrow).

1.6.3 The appraisal concluded that Kent should maximise the level of recycling and composting, particularly of plastics and metals, before any subsequent residual waste processing is carried out.

1.6.4 The technical appraisal work carried out by ERM, suggests that those options which generate energy perform better than those which do not. Of those which do, anaerobic digestion[9] (Option 7) is the only technology that generates renewable energy (under current definitions). It also operates further up the waste hierarchy than the other technologies and is therefore considered marginally more sustainable than the other energy generating technologies. However, it should be noted that the relatively strong performance of Option 7 rests on the fact that plastics and metals are removed (and recycled) prior to the digestion process.

1.6.5 **Recommendation**: It is recommended that Kent maximise the level of recycling and composting, particularly of plastics and metals, before any subsequent residual processing is carried out. The technical appraisal carried out by ERM suggests that although there is little difference between the options in terms of sustainability, those options which recover energy from waste perform better than those which do not. Of those that do, anaerobic digestion is the only option that generates renewable energy (under current definitions) and operates further up the waste hierarchy than the others. It is therefore marginally more compatible with sustainable development objectives than the other energy generating technologies.

1.7 Other recommendations from the options appraisal

1.7.1 Addressing the issues of waste reduction and re-use and recycling and composting on a separate basis (as required by Government guidance) can lead to potential incompatibilities. For example Option 3 for the reduction and reuse of waste emphasises that home composting can divert more than 2.5% of MSW arisings (and importantly promote a shift in household behaviour). Such a reduction could potentially be undermined by options for recycling and composting that lead to waste being collected from households and treated elsewhere. These options include the introduction of compostable kitchen waste collections to all households (Option D) and the expansion of garden waste collections to all relevant households (Option E).

1.7.2 **Recommendation**: The Strategy should elaborate on the relationship between home composting as a waste reduction measure and the collection of kitchen and garden waste as a recycling and composting measure. If necessary, the Strategy should include a policy or measures to ensure that the collection of kitchen and garden waste does not undermine efforts to promote home composting.

1.8 Headline Strategy policies

1.8.1 A key part of the SA process was the appraisal of the 20 policies for managing MSW contained in the Headline Strategy – see Table 5. The detailed action plans

[9] Anaerobic digestion is an alternative to landfilling of organic wastes. It is a naturally occurring process of decomposition and decay, by which organic matter is broken down to its simpler chemicals components under anaerobic conditions (without oxygen). The process produces biogas and digestate.

to be prepared in mid to late 2006 will set out how these policies will be implemented.

Table 5. ***Headline Strategy policies***

Policies for resource management	
Policy 1	The KWF will encourage the conservation of resources through the use in Kent of materials and energy recovered from wastes produced in Kent. It will aim to influence other areas of public policy and service delivery to support this agenda
Policies for partnership	
Policy 2	To deliver the Strategy, the County, District and Borough Councils will work towards a new Kent Waste Partnership with a formal joint committee structure; they will actively seek the views of stakeholders, and their contribution to achieving the Strategy's objectives
Policies for education and engagement	
Policy 3	All stakeholders, including elected Members, will be kept informed and consulted on waste management issues affecting Strategy implementation
Policy 4	Targeted and co-ordinated campaigns will be run across Kent to inform, educate and to work towards changing behaviour of householders
Policy 5	The authorities will work jointly and individually to encourage the Community and Social Enterprise Sector to reach its full potential in delivering cost-effective and sustainable waste management services
Policies for waste minimisation and re-use	
Policy 6	Waste minimisation and re-use will be prioritised and the KWF will seek through its wider policy aims to break the link between waste production and economic growth
Policy 7	The KWF will lobby for measures to combat waste growth in areas such as product design and producer responsibility that are most effectively pursued at the national and international levels
Policies for recycling and composting	
Policy 8	The KWF will achieve a level of 40% recycling and composting household waste by 2012 / 13
Policy 9	The KWF authorities will work together to develop, to maintain and to improve schemes that secure the best recycling and composting performance for Kent as a whole
Policy 10	The KWF will secure higher rates of performance from existing services through education and awareness-raising
Policy 11	The KWF will strive to make waste and recycling accessible and easy to use for all householders, across all housing types and sectors of the community
Policy 12	The KWF will work to secure additional in-vessel composting capacity in the County to enable the authorities in the east of Kent to provide an efficient and cost-effective service for managing compostable wastes
Policy 13	The recycling and composting performance of HWRCs will be improved, reaching 60% by 2012 / 13, while maintaining high standards of customer service
Policies for residual waste management services	

Recovery	
Policy 14	A timely procurement programme will be implemented to provide sufficient capacity for Kent to continue to meet its statutory targets for the diversion of biodegradable municipal waste
Policy 15	The procurement programme for additional capacity will take account of the opportunities for co-management with other waste streams, but will discourage facilities of a scale that will attract imports of waste to the County.
Policy 16	Procurement of additional capacity will keep technical options open and flexible in terms of the number and scale of facilities to be provided but will need to emphasise deliverability
Policy 17	Kent County Council will take a pragmatic approach to trading landfill allowances, being willing to trade, but not reliant on trading for compliance or essential income.
Disposal	
Policy 18	Kent will procure landfill capacity to meet the need for the disposal of residual waste for which recovery capacity is not contracted
Policy 19	Where it is cost effective, Kent will exceed its statutory targets for diversion of biodegradable municipal waste from landfill in order to preserve landfill void space in the County
Waste Transfer Facilities	
Policy 20	The transfer station network will be improved across Kent to promote the efficient transport of wastes for treatment, recovery and disposal.

1.8.2 The appraisal concluded that the Strategy's performance in relation to the many of the environmental aspects of sustainability (e.g. reducing flood risk, protecting and enhancing biodiversity, the countryside and the historic environment) depended on the location, scale and characteristics of new waste management facilities.

1.8.3 **Recommendation**: The Strategy should adopt a clear requirement that waste facilities should not have an adverse impact on the natural or built environment and should contribute to environmental enhancement wherever possible. This commitment could be expressed through an additional policy on environmental sustainability in the Headline Strategy. More broadly, this policy could also include an explicit commitment to promoting sustainable development through the Strategy.

1.8.4 The appraisal emphasised the adverse impacts associated with the transportation of waste around Kent (e.g. pollution, noise, disruption to local amenity etc.). With this in mind the appraisal highlighted the need to promote waste transportation via more sustainable modes (rail, river and sea as opposed to road) as well as the proximity principle with respect to local recycling centres (the proximity principle holds that the best place to deal with something is as close to that something as possible).

1.8.5 **Recommendation**: The Strategy should explicitly support the transportation of waste by more sustainable modes (rail, river and sea as opposed to road) as well as the location of recycling facilities within walking distance of residential areas in

order to reduce the need to travel by car). With this in mind, the KWF should clarify the meaning of the term 'accessible' under Policy 11.

1.9 Taking the Strategy forward

1.9.1 The 20 policies set out in the Headline Strategy will be implemented through a set of detailed **action plans** to be prepared during mid to late 2006. The completed Strategy including the action plans is set to be adopted in September 2006. In drawing up these action plans, choices will be made between the various options set out above for waste reduction and re-use, recycling and composting and energy recovery and disposal. In order to ensure that sustainability concerns are considered in formulating these action plans, the appraisal findings set out above should be explicitly taken into account. In addition, the KWF could consider undertaking formal SA of the emerging action plans.

1.9.2 **Recommendation**: The KWF should ensure that the findings of this SA are taken into account in formulating the action plans for policy delivery. The KWF should also consider undertaking formal SA of the emerging action plans.

1.10 Summary of recommendations

1.10.1 The recommendations arising from the appraisal are summarised in Table 6.

Table 6. ***Summary of recommendations***

Options for managing MSW	
Waste reduction and re-use	**Recommendation**: The KWF should pursue Options 3 or 4 (or a combination of these) since these options have the potential to reduce overall MSW arisings. This is crucial considering the recent year on year increases in MSW in Kent and the planned growth in the number of households.
Recycling and composting	**Recommendation**: The KWF should pursue options which maximise the coverage, participation and capture of recycling and composting collections as well as increasing recycling at bring sites and HWRC's. Furthermore, the Strategy should promote the recycling of materials such as plastics and non-ferrous metals within the County.
Energy recovery and disposal	**Recommendation**: It is recommended that Kent maximise the level of recycling and composting, particularly of plastics and metals, before any subsequent residual processing is carried out. The technical appraisal carried out by ERM suggests that although there is little difference between the options in terms of sustainability, those options which recover energy from waste perform better than those which do not. Of those that do, anaerobic digestion is the only option that generates renewable energy (under current definitions) and operates further up the waste hierarchy than the others. It is therefore marginally more compatible with sustainable development objectives than the other energy generating technologies.
Other issues	**Recommendation**: The Strategy should elaborate on the relationship between home composting as a waste reduction measure and the collection of kitchen and garden waste as a recycling and composting measure. If necessary, the Strategy should include a policy or measures to ensure that the collection of kitchen and garden waste does not undermine efforts to promote home composting.
Headline Strategy policies	
Recommendation: The Strategy should adopt a clear requirement that waste facilities should not have an adverse impact on the natural or built environment and should contribute to environmental enhancement wherever possible. This commitment could be expressed through an additional policy on environmental sustainability in the Headline Strategy. More broadly, this policy could also include an explicit commitment to promoting sustainable development through the Strategy.	
Recommendation: The Strategy should explicitly support the transportation of waste by more sustainable modes (rail, river and sea as opposed to road) as well as the location of recycling facilities within walking distance of residential areas in order to reduce the need to travel by car). With this in mind, the KWF should clarify the meaning of the term 'accessible' under Policy 11.	
Taking the Strategy forward	
Recommendation: The KWF should ensure that the findings of this SA are taken into account in formulating the action plans for policy delivery. The KWF should also consider undertaking formal SA of the emerging action plans.	

2 HOW TO COMMENT ON THE REPORT

2.1.1 To comment on this report please contact: Carolyn McKenzie on 01622 221916, by email to carolyn.mckenzie@kent.gov.uk or in writing to:

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3 INTRODUCTION

3.1 Kent JMWMS

3.1.1 All local authorities should have in place a strategy for managing their municipal waste[10]. With this in mind, the Kent Waste Forum (KWF) has taken the lead in the development of a new Joint Municipal Waste Management Strategy (JMWMS) for the County. This will replace the existing Kent Household Waste Strategy which was adopted by the KWF and published in May 2003.

3.1.2 The KWF partner local authorities are the Districts of Ashford, Canterbury, Dartford, Dover, Gravesham, Maidstone, Sevenoaks, Shepway, Swale, Thanet, Tonbridge and Malling, Tunbridge Wells and Kent County Council. The KWF also includes representatives from the Environment Agency and the Association of Parish Councils.

3.1.3 The JMWMS ('the Strategy') covers the waste that the partner authorities are responsible for collecting, treating and disposing of. This includes waste collected from households, street sweepings, trade waste collections (where appropriate), and waste collected at Household Waste Recycling Centres (HWRCs). These waste streams are collectively referred to as **municipal solid waste** (MSW)[11]. The purpose of the Strategy is to set how the KWF's constituent authorities intend to manage municipal solid waste arisings over the next 20 years.

3.1.4 Developing a strategy to manage Kent's MSW is essential since recent years have witnessed an annual increase in waste arisings (the increase in waste per household varies from year to year but has running at about 2.2%). In 2005 / 06, Kent residents produced approximately 811,000 tonnes of MSW – more than 1.4 tonnes per household. Although the Strategy assumes that waste growth per household will slow to zero, overall levels of MSW will grow in Kent due to the significant predicted growth in household numbers (particularly in the growth areas of Ashford and Kent Thameside)[12].

3.1.5 The Strategy itself comprises a **Headline Strategy** together with a variety of supporting annexes including a baseline report on municipal waste in Kent and a series of documents setting out potential options for managing municipal waste. The Headline Strategy contains 20 policies addressing a range of issues including resource management; partnership working; education and engagement; waste minimisation and re-use; recycling and composting; and residual waste management services. Importantly, the Headline Strategy will be supported by a set of detailed **action plans** for implementing the policies and these will be developed during 2006. Further information on the Strategy is available on the Council's website[13].

[10] DEFRA (2005). *Guidance on Municipal Waste Management Strategies* available at: http://www.defra.gov.uk/environment/waste/localauth/pdf/guidemunwaste-strategy.pdf
[11] The Strategy does not address waste generated by businesses in Kent except where authorities arrange for its collection.
[12] Household growth is forecast to be 17.5% from 2001-2021. This is spread unevenly across the County; Ashford and Dartford can expect household growth in excess of 40%, whilst others can expect household growth in the order of 10 to 19%. Even Sevenoaks, which is forecast to have a small decline in population, can expect household growth of 6%.
[13] See: http://www.kent.gov.uk/environment/recycling-rubbish-and-waste/managing-waste/waste-strategy.htm

3.2 Relationship with the Kent WDF

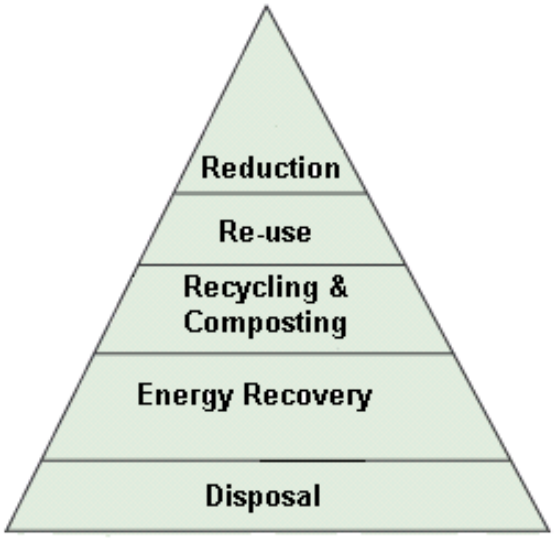
3.2.1 The Strategy does not address specific sites for the location of waste management facilities. Sites and related issued are being addressed through the Kent **Waste Development Framework** (WDF), which is being prepared by the Council in parallel to the Strategy. The Strategy and the WDF should have regard for one another. Importantly, both the Strategy and the WDF are subject to Sustainability Appraisal – see below. Further information on the WDF is available on the Council's website[14].

3.3 How was the Strategy developed?

3.3.1 The Strategy was developed by the KWF with support from consultants ERM. The strategy preparation process involved several key components including the development of a baseline report on MSW in Kent; a series of workshops with all of the partner authorities; the generation of options for managing MSW; and the preparation of a Headline Strategy setting out key policies. Input from stakeholders outside of the KWF was achieved through the Kent Waste Open Forum held in October 2005. A series of issues papers were prepared to facilitate discussion at the forum and these are available on the Council's website[15].

3.3.2 The development of the Strategy centred on a series of **options** for managing Kent's MSW. ERM generated and undertook a technical appraisal of options for key levels in the waste hierarchy – reduction and re-use; recycling and composting; and energy recovery and disposal (see Figure 3). The choice between these options will provide the basis for the detailed action plans for delivering the Strategy.

Figure 3. ***The waste hierarchy***



[14] See: http://www.kent.gov.uk/environment/planning-and-land-use/minerals-and-waste/
[15] See: http://www.kent.gov.uk/publications/environment/kent-waste-forum-issues.htm

3.3.3 Following the generation of options, the KWF prepared a draft **Headline Strategy** setting out 20 delivery policies. In some cases, these policies reflected a choice between the options outlined above. However, in the majority of cases the policies were relatively generic and the choice between the options will instead be made in formulating the detailed **action plans** for policy delivery. These action plans will be prepared during summer 2006 and the Strategy is due to be adopted in September 2006.

3.4 Incorporating sustainability considerations into the Strategy

3.4.1 Sustainability considerations were integrated into ERM's technical appraisal of the options from the outset. The criteria used to undertake the technical appraisal were based on the objectives used to undertake the SA process and covered economic, social and environmental issues. For example criteria were developed for job creation (economic), health (social) and impacts on water pollution (environmental). Appendix 1 sets out the full list of technical appraisal criteria and their links with the SA objectives.

3.4.2 The SA of the Strategy was an iterative process. For example, following the SA of the options, a briefing note on the appraisal findings was passed to the KWF for consideration. This made a series of recommendations including the need for the KWF to explore the possibility of developing and supporting local community recycling and composting schemes. This recommendation was ultimately reflected in Policy 5 of the Headline Strategy.

3.5 The Strategy's objectives

3.5.1 As part of the Strategy preparation process, a set of Strategy objectives and operating principles were developed through working groups with all the Kent local authorities and through the Kent Waste Open Forum held in October 2005[16]. These objectives – see Table 7 – and principles – see Table 8 - were designed to help guide the development of the Strategy.

[16] See: http://www.kent.gov.uk/NR/rdonlyres/6295DE1C-34AB-4741-B39A-9BC4A6BDEDB6/2118/visionobjectives.pdf

Table 7. ***JMWMS objectives***

Overall objectives
To meet the statutory targets set for Kent, and exceed them in areas where this is a locally agreed priority
To deliver high quality services
To engage householders so that they understand the need for waste reduction and recycling, and participate fully in recycling services
To support, where possible, other related policy aims of the Kent authorities (e.g. regeneration)
To Influence the Waste Development Framework and Regional Spatial Strategy to ensure deliverability
To secure sufficient funding to implement the Strategy
Waste minimisation
To break the link between waste growth and economic growth
To look at waste growth in Kent on a per capita basis
To lobby Government for new measures in areas such as product design, packaging and producer responsibility, which need to be addressed at national or international level
Recycling and composting
To retain 40% recycling and composting target
To set realistic and achievable targets
To aspire to the regional recycling targets, but not sign up to them
To make recycling convenient for householders, across all housing types
To increase participation and capture in existing schemes, alongside investing in new services
To invest in schemes that yield the best results in terms in recycling and composting for Kent
LATS
To provide additional capacity to enable Kent to meet its LATS obligations, (and not to rely on purchasing allowances)
To avoid over-scaling facilities, which could attract waste imports to the County
To take a pragmatic approach to trading, willing to trade but not reliant on trading for compliance or essential income

Table 8. ***JMWMS principles***

The Strategy should:
be flexible, deliverable, and cost effective;
to be responsive to the needs of the community;
examine the environmental effects of policy options, and be based on sound information;
contain objectives for Kent as a whole but ensure that each District is able to decide its own priorities within that; and,
be pursued on the basis of joint planning and financial openness between authorities, prior to decision-making.

3.6 Sustainability Appraisal

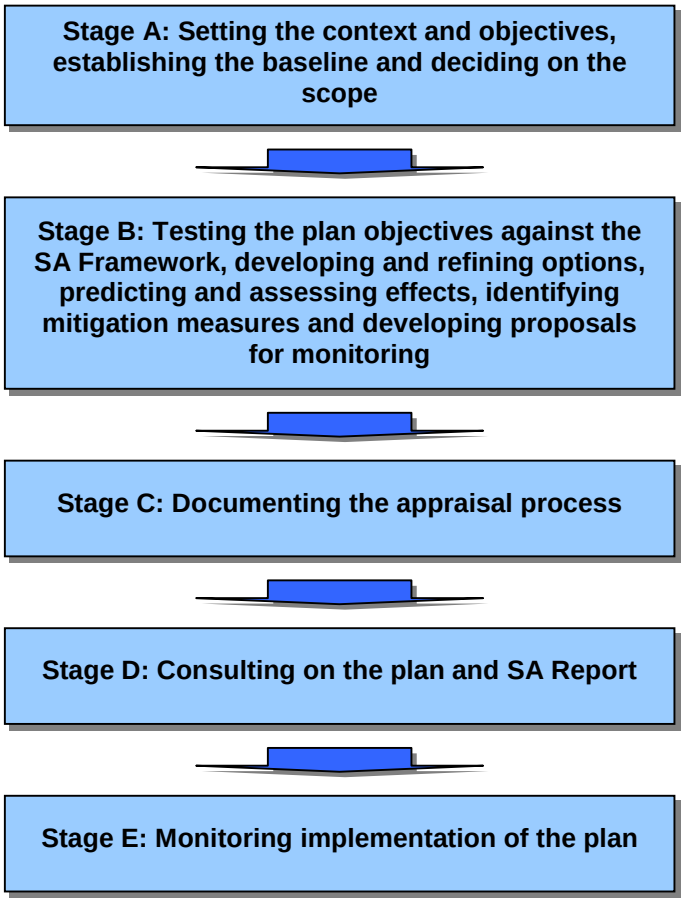
3.6.1 Scott Wilson and Levett-Therivel have been commissioned to support Kent County Council ('the Council') in undertaking the **Sustainability Appraisal** (SA) of the JMWMS (as well as the Minerals and Waste Development Framework, MWDF, and the Local Transport Plan for Kent 2006-11, LTP). The SA process incorporates a **Strategic Environmental Assessment** (SEA) – as required under the EU 'SEA Directive' and the English regulations which implement this[17]. SEA involves the systematic identification and evaluation of the environmental impacts of a strategic action (e.g. a plan or strategy). SA broadens the concept of SEA to encompass an assessment of economic and social impacts (therefore addressing the three 'pillars' of sustainable development).

3.6.2 Government guidance on preparing Municipal Waste Management Strategies ('the Guidance') stipulates that – as a minimum – strategies must undergo SEA. However, the Guidance also requires a thorough evaluation of economic and social – as well as environmental – factors and, as such, encourages authorities to undertake a wider SA[18].

3.6.3 The Council has developed a common five-stage approach to undertaking SA for the JMWMS, the MWDF and the LTP (see Figure 4). Stage A involved establishing the framework for undertaking the SA – essentially a set of sustainable development objectives against which each plan / strategy could be assessed – together with an evidence base to help inform the appraisal. The framework and evidence base are documented in a joint **Scoping Report**, which has been subject to consultation, and is available on the Council's website[19]. This report applies to the JMWMS, the MWDF and the LTP.

[17] In 2001, the EU legislated for SEA with the adoption of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the 'SEA Directive'). The Directive entered into force in the UK on 21 July 2004 and applies to a range of English plans and programmes including Municipal Waste Management Strategies, MWDFs and LTPs.
[18] DEFRA (2005). *Guidance on Municipal Waste Management Strategies* available at: http://www.defra.gov.uk/environment/waste/localauth/pdf/guidemunwaste-strategy.pdf
[19] Scoping Report available at: http://www.kent.gov.uk/publications/environment/scoping-report04-05.htm

Figure 4. ***Five stage approach to SA***



3.6.4 Stage B in the SA process focused primarily on appraising, firstly, the various waste management **options** generated by ERM and, secondly, the 20 **policies** for waste management contained in the Headline Strategy. Following the appraisal, a series of recommendations were made for strengthening the Strategy's sustainability performance.

3.7 This report

3.7.1 This report – Stage C in the SA process – documents the appraisal of the options and policies as well as the recommendations. The draft Headline Strategy - together with this report - is subject to consultation under Stage D (in line with the requirements of the SEA Directive and associated English regulations). This report also includes recommendations for monitoring the Strategy as required under Stage E.

3.7.2 This report is structured as follows:

Section 4 – summarises the evidence base developed to inform the appraisal as well as the appraisal framework (a set of sustainable development objectives)

Section 5 – sets out the appraisal methodology

Section 6 – introduces the options and sets out the findings of the options appraisal

Section 7 – introduces the policies in the Headline Strategy and the findings of the policy appraisal

Section 8 – investigates the potential cumulative impacts arising from the Strategy

Section 9 – sets out the recommendations arising from the appraisal

Section 10 – outlines the measures envisaged for monitoring the Strategy

Section 11 – sets out what happens next in the Strategy preparation and SA processes

3.8 Compliance with the SEA Directive

3.8.1 The SEA Directive sets out a legal assessment process that must be followed. In light of this, the report clearly sets out the relevant requirements of the SEA Directive – using a series of blue boxes - and explains how these have been satisfied (or will be satisfied).

4 EVIDENCE BASE AND SA FRAMEWORK

4.1 Introduction

4.1.1 The SA process is based on a five-stage approach – see Figure 4. Stage A involved establishing the framework for undertaking the SA – essentially a set of sustainable development objectives against which the Strategy (and the MWDF and LTP) could be assessed – together with an evidence base to help inform the appraisal. The findings from Stage A are documented in a Scoping Report available from the Council[20]. However, in order to provide the necessary context, the key findings and outcomes from Stage A are summarised below.

4.2 Policy and sustainability context

4.2.1 Stage A of the SA process involved firstly establishing the context in which the Strategy is being prepared, i.e. the other policies, plans, programmes, strategies and initiatives that influence its content (and vice-versa) and the opportunities and challenges they present.

4.2.2 The requirement to undertake a context review arises from the SEA Directive:

The 'Environmental Report' required under the SEA Directive should include:

"an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes"

(Annex 1(a))

4.2.3 Many policies, plans etc. also set out environmental and wider sustainability objectives. Under the SEA Directive, reference must be made to environmental objectives. The context review satisfies this requirement.

The 'Environmental Report' required under the SEA Directive should include:

"the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme…"

(Annex 1(e))

[20] Scoping Report available at: http://www.kent.gov.uk/publications/environment/scoping-report04-05.htm

4.3 Method

4.3.1 The key messages from the context review are set out in Table 9 (no priority should be inferred from the ordering). The full review findings are set out in a separate Context Review Report[21].

Table 9. ***Key messages for the JMWMS***

Key messages – the JMWMS should reflect the need to:
Increase municipal solid waste recycling at least in line with national and regional targets
Reduce the level of biodegradable waste going to landfill
Follow the waste hierarchy
Establish markets for recycled and recovered materials and products
Control fly tipping
Ensure net self-sufficiency in municipal solid waste treatment
Waste disposal, recovery and processing as close as possible to its source
Individuals, communities and organisations taking responsibility for their waste
Consideration of alternatives
Engagement with community in decision-making process
Assessment of environmental impact for each option
Environmental outcomes delivered that are feasible and at acceptable cost

4.4 Baseline information

4.4.1 The collection of baseline information is a key component of the SA process and a legal requirement under the SEA Directive. Baseline information helps to provide a basis for predicting and monitoring effects and assembling baseline data helps to identify sustainability problems (see Section 4.5).

4.4.2 The SEA Directive's requirements in relation to baseline information are:

The 'Environmental Report' required under the SEA Directive should include:

- ***"the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme"***
- ***"the environmental characteristics of areas likely to be significantly affected"***

(Annex 1(b) and (c))

[21] Context Review Report available at: http://www.kent.gov.uk/publications/environment/context-review-apr05.htm

4.4.3 The JMWMS, the MWDF and the LTP cover the County as a whole. With this in mind, the Scoping Report set out a broad baseline for Kent based on a series of indicators. This highlighted a series of indicators which the Council should consider priorities for action (although it was recognised that some of these might be beyond the Council's sphere of influence and could be better addressed by other organisations or partnerships). These indicators included **household waste arisings**. The evidence also indicated that general waste arisings in Kent were set to continue rising on current trends. However, the baseline also suggested that – based on current trends – rates of municipal waste recycling would grow.

4.4.4 Further baseline information relating to municipal waste is contained in the JMWMS baseline report (December 2005)[22]. This provides a snapshot of the current situation regarding the collection and disposal of waste in Kent.

4.4.5 According to the baseline report, dealing with Kent's household waste - a major component of municipal waste - will be a key challenge for Kent's collection and disposal authorities over the next 25 years and beyond. Household waste alone is growing at over 2% a year and, at this rate, Kent's authorities will have to collect and find options for the treatment and disposal of a further 400,000 tonnes of waste (a 45% increase) by 2020.

4.4.6 The baseline assessment emphasises that faster economic growth and rising population will have a direct impact on MSW arisings. In particular higher rates of population increase in the Growth Areas of Ashford and Kent Thameside will inevitably result in higher levels of MSW.

4.4.7 Kent is currently responsible for collecting and managing 826,000 tonnes of MSW. Canterbury, Maidstone and Swale have the largest total MSW arisings and Gravesham, Dartford and Dover the lowest. Just over 70% of Kent's MSW is sent to landfill. Over 80% of this is collected via Kent's constituent Districts and is primarily domestic household waste. The remaining MSW arises through the 18 Civic Amenity Sites run by Kent County Council. 95% of waste collected by the Districts is via domestic doorstep collections which alone account for 52% of all waste sent to landfill.

4.4.8 Almost 30% of Kent's MSW is recycled or composted: 14% through District collection schemes and 16% via Civic Amenity Sites. Of this, the largest proportion is dry recyclables making up 40% of the total. Green waste accounts for 27% with soil and rubble at 21%. Canterbury, Tunbridge Wells and Shepway have the highest recycling rates at 35%, 32% and 26%, respectively. Dover, Ashford and Dartford have the lowest.

4.4.9 Overall, Kent MSW has grown from 754,188 tonnes in 2001/2 to 826,061 in 2004/5, an increase of 8.7%. In comparison, recycling rates have increased at Household Waste Recycling Centres and through the Districts (Waste Collection Authorities) by over 13% and 9% respectively since 2001. MSW is still growing but the rate of growth has slowed over the last two years.

[22] See: http://www.kent.gov.uk/publications/environment/baseline-dec05.htm

4.5 Sustainability issues

4.5.1 Stage A of the SA process involves identifying the sustainability issues and problems facing the area in question. The requirement to identify sustainability problems arises from the SEA Directive:

The 'Environmental Report' required under the SEA Directive should include:

"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 **[the 'Birds Directive']** ***and 92/43/EEC*** **[the 'Habitats Directive']"**

(Annex 1(d))

4.5.2 The JMWMS, the MWDF and the LTP cover the County as a whole. With this in mind, the Scoping Report identified a set of broad issues and problems confronting the County as a whole (see Table 10). Of these, the growth in waste and the lack of landfill capacity is directly relevant to the JMWMS. Other particularly relevant issues include high and growing traffic levels, poor air quality and low levels of renewable energy provision.

Table 10. ***Sustainability problems facing Kent and associated supporting evidence***

Issue / problem	Background data / indicators from baseline review
High and growing traffic levels	Over the last 3 years, road traffic in Kent has grown by 2.6%: • Motorway +3% • Inter urban routes +11.5% • Urban areas +0.6% • Rural areas +5% This compares with an average increase of 1.43% for the UK over the same time period. The proportion of people travelling to work by car has risen from 63% to 64.6% since the 1991 census.
Poor air quality	In 2003, air quality was poor on 78 days in rural areas and 49 days in urban areas: this was 44% increase in rural areas in the last two years and a 133% increase in urban areas. PM10 levels were moderate or poor for 11 days in 2003; ozone for 71 days. The National Air Quality Strategy is for these to be no more than, respectively, 35 times and 10 days per year by end 2005.

Issue / problem	Background data / indicators from baseline review
Decline in the quality and extent of countryside and in biodiversity	10% loss in woodland 1961-1990 54% of Kent SSSIs were in favourable condition in 2004, compared with 46% nationally. National target is for 95% of SSSI area to be in favourable or recovering status by 2010. In the South East, between 1994 and 2002, farmland birds declined by 12%, woodland birds by 6%, and all native birds by 7%. Woodland bird numbers have stabilised since then, but farmland birds continue to decline. Continued loss of tranquillity and increase in light pollution.
Increasing potential for flooding	56,000 homes in Kent are at risk of flooding. Houses are still being built in flood risk areas. Limited potential in Kent for managed retreat.
Declining coastal and marine environment	There has been a long-term loss of key coastal habitats (saltmarsh and grazing marsh) in Kent, in part caused by coastal squeeze and rising sea levels. Internationally, fish stocks have declined rapidly over the last decade. Kent's compliance with the Bathing Water Directive has improved rapidly over the last five years, and is on trend to meet European targets set for 2010.
Growth in waste, lack of landfill capacity	565 kg of waste per person were produced in Kent in 2003/4. This has risen by almost 17% in the last 5 years, and compares with an England average of 521 in 2002/3. 28% of household waste was recycled in 2003/4, more than double that in 1998/9. The target for the South East is to double the amount of waste recycled by 2010.
Water use exceeds water provision	Average water consumption per person in Kent is 169 litres/day. This has remained steady for the last two years, but is high compared with the South East (150-165 litres/day).
Low levels of renewable energy provision	Estimated at 0.65% in Kent (compared to 1% for the South East) – Kent targets of 111 MW by 2010 and 154 MW by 2015 derived from regional targets
Areas of deprivation and social exclusion; pockets of unemployment	Homelessness in Kent has increased by 57% in four years, compared with 21% in the South East. More than 2000 homeless families were in temporary accommodation in 2004, twice as many as four years earlier Gross Value Added (GVA) per person in Kent was £12,100 in 2001, lower than the South East average (£15,900) or the UK average (£14,800)
Shortage of skills in key growth areas	Kent's levels of employment and skills are comparable with those of other counties in the South East. However there are pockets of high unemployment, and problems in keeping graduates within the County

Issue / problem	Background data / indicators from baseline review
Some town centres in decline, particularly coastal towns	No data available. Areas such as East Kent and the former coalfields are designated as Priority Areas for Economic Regeneration (PAERs) in current RPG
Poor access to services, particularly in rural areas	No data available
Rise in aviation-related problems	Noise and air pollution due to Kent International Airport and associated traffic congestion
Worsening health	The life expectancy of Kent's residents is comparable to that of the rest of the South East and UK. The proportion of Kent residents who had a long-term illness, health problem or disability in 2001 which limited their daily activities was 17%, compared with 15.5% in the South East and 18% nationally. However this had risen sharply, from 11% in 1991.
Road accidents	Continued decline in the number of people killed or seriously injured on roads in the County. However, road traffic in Kent is increasing.

4.6 SA objectives

4.6.1 SA is fundamentally based on an **objectives-led approach** whereby the potential impacts of a plan are gauged in relation to a series of objectives for sustainable development. In other words, the objectives provide a methodological yardstick against which to assess the effects of the plan.

4.6.2 As part of Stage A, a series of 15 sustainable development objectives were established for appraising the JMWMS, MWDF and LTP – see Box 1. These were based on:

- the Integrated Regional Framework for the South East (IRF) – sets out 25 objectives for sustainable development in the region;
- the Vision for Kent (2002) – the Community Strategy for Kent;
- the sustainability problems identified in Table 10; and
- the Government's new sustainable development strategy (2005)[23].

4.6.3 Of the 15 objectives, objectives 1, 8 and 14 were not considered applicable to the JMWMS and were not used in the appraisal.

[23] HM Government (2005). *Securing the Future: Delivering UK Sustainable Development Strategy* (available at: http://www.sustainable-development.gov.uk/documents/publications/strategy/SecFut_complete.pdf)

Box 1. ***Kent SA objectives (for application to the JMWMS, MWDF and LTP)***

1. To ensure that everyone has the opportunity to live in a decent, sustainably constructed and affordable home (only applicable to minerals plans)
2. To reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment
3. To reduce air pollution and ensure air quality continues to improve; and to address the causes of climate change through reducing emissions of greenhouse gases and ensure that Kent is prepared for its impacts
4. To maintain and improve the water quality of Kent's rivers, coasts and groundwater and to achieve sustainable water resource management
5. To conserve and enhance Kent's biodiversity, including coastal and marine biodiversity
6. To protect, enhance and make accessible for enjoyment, Kent's countryside and coast, and its historic environment
7. To improve efficiency in land use through the re-use of previously developed land and existing buildings, including re-use of materials from buildings, and encourage urban renaissance (the last 4 words only applicable to transport plans)
8. To improve accessibility to all services and facilities (only applicable to transport plans)
9. To reduce road traffic and its impacts, promote more sustainable modes of transport and reduce the need to travel by car/lorry
10. To reduce waste generation and disposal, and achieve the sustainable management of waste
11. To increase energy efficiency (only applicable to transport and waste plans) and the proportion of energy generated from renewable sources in Kent (only applicable to waste plans)
12. To reduce the global, social and environmental impact of consumption of resources by using sustainably produced and local products and services
13. To improve the health and well-being of the population and reduce inequalities in health
14. To reduce crime and the fear of crime (only applicable to transport plans)
15. To build a strong, stable and sustainable economy which provides prosperity and opportunities (including learning and skills) for all, and in which environmental and social costs fall on those who impose them, and efficient resource use is incentivised

5 APPRAISAL METHODOLOGY

5.1 Introduction

The 'Environmental Report' required under the SEA Directive should include:

"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"

(Annex 1(h))

5.1.1 Following the completion of A in the SA process (see Section 4), Stage B involved:

- appraising the sustainability of the Strategy objectives;
- appraising the various options for managing MSW as well as the policies in the Headline Strategy;
- proposing recommendations for strengthening the Strategy's sustainability performance; and
- developing proposals for monitoring.

5.2 Appraising the Strategy objectives

5.2.1 As part of the Strategy preparation process, a set of Strategy objectives and operating principles were developed through working groups with all the Kent local authorities and through the Kent Waste Open Forum held in October 2005. These objectives – see Table 7 – and principles were designed to help guide the development of the Strategy. As part of the SA process, the objectives were appraised against the SA objectives developed during Stage A (see Box 1) to establish the degree to which they reflected sustainability principles. The findings of this appraisal are set out in Appendix 2.

5.3 Appraising the options and policies

5.3.1 The appraisal involved assessing the performance of each option and each policy against each SA objective (see Box 1) using a matrix. The appraisal was based on a combination of professional judgement on the part of those undertaking the appraisal (informed by the information gathered in the Scoping Report – see Section 4) and the findings of ERM's quantitative appraisal of the options (documented in various Annexes to the Headline Strategy).

5.3.2 This approach reflects the Government's guidance on undertaking SEA which suggests that, in terms of methodology, *"Each alternative can be tested against the SEA [in this case SA] objectives, with positive as well as negative effects being considered, and uncertainties about the nature and significance of effects noted"*[24].

5.3.3 The impacts of the options and the policies on the objectives was recorded using a combination of symbols and text since it was felt that a purely symbol-based approach would be too simplistic and misleading given the level of uncertainty surrounding the impacts of the options and policies. A summary of the options appraisal is set out in Section 6 and a summary of the policies appraisal in Section 7. The detailed findings of the options appraisal – the completed matrices - are set out in **Technical Appendix 1** to this report and the detailed findings of the policy appraisal – again the completed matrices - in **Technical Appendix 2**. These appendices are both available on the Council's website.

5.3.4 In order to appraise each set of options – for waste reduction and re-use, recycling and composting, and energy recovery and disposal – a **round table discussion** was held between key players[25]. This provided an opportunity to debate the options themselves and discuss their likely potential impacts. Following each round table session, the options appraisal matrices were completed by the Council's Principal Strategy Officer (Sustainability Appraisal) and a Senior Environmental Consultant from Scott Wilson.

5.3.5 A variety of key players attended the round table sessions – see Table 11 (NB not all players attended each round table).

Table 11. ***Round table attendees***

Chair - Kent Waste Partnership
Environment Strategy Manager – Kent County Council
Policy Officer (Health Impact Assessment) – Kent County Council Social Services
Economic Development Policy Manager – Kent County Council
Partnership and Programmes Manager – Kent County Council
Principal Strategy Officer (Sustainability Appraisal) – Kent County Council
Senior Environmental Consultant - Scott Wilson
Senior Consultant – ERM

[24] ODPM, Scottish Executive, Welsh Assembly Government and Department of the Environment (2005). *A Practical Guide to the Strategic Environmental Assessment Directive* available at: http://www.odpm.gov.uk/pub/290/APracticalGuidetotheStrategicEnvironmentalAssessmentDirectivePDF776Kb_id1143290.pdf

[25] Round table on the waste reduction and re-use options – Monday 19th December 2005; round table on the recycling and composting options – Friday 17th March 2006; round table on the energy recovery and disposal options – Monday 10th April 2006

5.4 Proposing recommendations

The 'Environmental Report' required under the SEA Directive should include:

"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"

(Annex 1(g))

5.4.1 Following the appraisal of the options and policies, the Council and the consultants put forward a series of recommendations were put forward for strengthening the Strategy's sustainability performance – see Section 9. Several of these take the form of measures to prevent, reduce and / or offset the environmental and sustainability impacts associated with the Strategy's implementation and therefore constitute mitigation measures as required under the SEA Directive (see above).

5.5 Developing proposals for monitoring

5.5.1 In light of the appraisal, a series of potential indicators were proposed for monitoring the implementation of the Strategy – see Section 10. Developing and finalising measures for plan monitoring is a key requirement of the SEA Directive.

5.6 Difficulties encountered

5.6.1 In undertaking the appraisal of the Strategy, several key issues were encountered:

- a series of 'gaps' in data coverage for Kent during preparation of the SA Scoping Report (please see the Scoping Report for further details);
- uncertainty over which of the options would be taken forward and provide the basis for the action plans (choices between the options will be made during summer 2006 in formulating the plans); and
- uncertainty as to how the various options and policies would manifest themselves on the ground (assuming their full implementation).

6 OPTIONS APPRAISAL

6.1 Introduction

Under the SEA Directive, plan and programme proponents should ensure that: *"reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated"* (Article 5(1)) and the Environmental Report should include *"an outline of the reasons for selecting the alternatives dealt with"* (Annex I(h)).

6.1.1 SA centres on the consideration of different **options**. The KWF commissioned ERM to assist in developing and appraising various options for managing MSW. Options were generated for key levels in the waste hierarchy – for reduction and re-use; recycling and composting; and energy recovery and disposal (see Figure 3).

6.1.2 This reflects the Government's guidance on municipal waste management strategies[26], which emphasises that strategies should provide a critical evaluation of options for service development that seek to drive waste management up the waste hierarchy.

6.1.3 Options can be described as the range of rational choices open to plan-makes for delivering the plan objectives. In line with Government guidance this report considers the term "options" to be synonymous with the term "alternatives".

6.1.4 This stage of the SA process involved assessing the options generated by the KWF against the SA framework – essentially the SA objectives agreed at the scoping stage – see Section 4. The appraisal was based on a combination of professional judgement on the part of those undertaking the appraisal (informed by the information gathered in the Scoping Report – again see Section 4) and the findings of ERM's quantitative appraisal of the options (documented in various Annexes to the Headline Strategy).

6.1.5 It should be noted that it is not the role of the SA to determine which of the options should be chosen as the basis for moving forward; the findings of this appraisal – alongside other considerations - will inform the KWF's decision as to which options will provide the foundations for the Strategy's detailed action plans.

6.1.6 When assessing alternatives, Government guidance[27] suggests that it may be helpful to ask a series of questions and these were borne in mind during the appraisal:

- Are the alternatives distinct and clearly presented?

[26] DEFRA (2005). *Guidance on Municipal Waste Management Strategies* available at: http://www.defra.gov.uk/environment/waste/localauth/pdf/guidemunwaste-strategy.pdf

[27] ODPM, Scottish Executive, Welsh Assembly Government and Department of the Environment (2005). *A Practical Guide to the Strategic Environmental Assessment Directive* available at: http://www.odpm.gov.uk/pub/290/APracticalGuidetotheStrategicEnvironmentalAssessmentDirectivePDF776Kb_id1143290.pdf

- Are they likely to have any adverse effects? Can these be prevented, reduced or offset?
- Can positive effects be enhanced?
- Can any of the effects be quantified in a meaningful way?
- Who are likely to be the 'winners', and 'losers' for each alternative (e.g. rural versus urban dwellers; young versus old; people with cars versus those without; future versus current generations, etc.)?
- Are any effects of the alternatives unclear or ambiguous? Is any further analysis appropriate?
- Are the effects likely to be variable over the short, medium and long-term?

6.1.7 The three sets of options – for waste reduction and re-use, recycling and composting, and energy recovery and disposal – are introduced below together with a summary of the appraisal findings. The full appraisal findings – the completed matrices – can be found in **Technical Appendix 1**.

6.2 Options for waste reduction and re-use

6.2.1 The Government requires that any strategy produced by local authorities should start by considering the practical extent to which the amount of waste produced can be reduced - waste minimisation must take priority. Government suggests that authorities should then repeat the process for each subsequent stage in the hierarchy in turn (re-use, recycling and composting and energy recovery). Disposal of waste should be seen as the last resort but should nevertheless still be addressed.

6.2.2 The KWF generated a series of options for **waste reduction** – or prevention – and **re-use** – see Table 12. These options comprise different combinations of various initiatives currently available to promote waste prevention and re-use – see Table 13. All of these approaches are focused on the reduction of waste with the exception of the last one – support for re-use of items, local waste exchanges and charity stores – which is a re-use measure. Table 13 provides an indication of their capacity to reduce MSW arisings.

Table 12. ***Options for waste reduction and re-use***

Option 1	Do nothing (do not further advance the various waste prevention and re-use initiatives currently in place)
Option 2	Implement programmes that do not require any capital expenditure: • trade waste diversion; • re-usable nappies; • waste aware (SMART) shopping; and • unwanted mail.
Option 3	Implement programmes that divert more than 2.5% of MSW arisings: • home composting; • waste aware (SMART) shopping; and • re-use – unwanted goods
Option 4	Implement all programmes offered identified by the KWF – home composting, waste aware (SMART) shopping, unwanted mail, re-usable nappies, trade waste diversion, product service businesses, and re-use – unwanted goods.

6.2.3 It is important to note that the options are 'additive':

- Option 1 involves **business-as-usual** (i.e. Kent's current efforts to promote various waste reduction and re-use initiatives)
- Option 2 involves **business-as-usual** plus additional effort to promote **initiatives that do not involve capital expenditure**.
- Option 3 involves **business-as-usual** plus additional effort to promote **initiatives that divert more than 2.5% of MSW arisings**.
- Option 4 involves **business-as-usual** plus additional effort to promote **all the initiatives referred to in the ERM document** (and listed in Table 13).

6.2.4 Other key points to note include:

- The transition from Option 1 to Option 4 involves greater capital expenditure but higher levels of waste reduction (indicating a potential trade-off between waste reduction / reuse and cost).
- In relation to Option 2, the onus is on individuals and households (as well as companies in the case of trade waste diversion) to modify their behaviour.
- Option 3 additionally promotes those initiatives that have the potential to deliver a reduction of **2.5% or more** in MSW arisings (individually not collectively). These are: home composting (4%); waste aware (SMART) shopping (3%); and re-use – unwanted goods (2.5%) (see Table 13).

Table 13. ***Waste reduction and re-use initiatives (source: KWF / ERM)***

Home composting
Prevents garden and vegetable waste from entering the waste stream. Kent's War on Waste has been promoting home composting with compost bins offered to Kent residents. Nearly 70,000 composting bins have been sold. According to the KWF, there are further opportunities for all Kent's constituent authorities to increase the level of home composting. The potential exists to reduce MSW arisings by **4%** by 2019 / 20.
Waste Aware (SMART) Shopping
Householders can influence waste arisings through informed purchasing to reduce potential waste entering the home. They can also reduce waste by buying more durable goods, or reusing and repairing products in the home. Some authorities have implemented smart / sustainable shopping programmes or Shop SMART (Save Money And Reduce Trash). Ultimately, educating the community to consider the impact of their choices on the environment is likely to lead to long-term behaviour change and thus greater success regarding waste prevention. Currently, there are no smart shopping schemes in Kent. The potential exists to reduce MSW arisings by **3%** by 2019 / 20.
Unwanted mail
Unwanted mail, including advertising materials and free newspapers accounts for around 3% of household waste. The Mailing Preference Scheme is not widely promoted in Kent. The potential exists to reduce MSW arisings by up to **1%** by 2019 / 20.
Reusable nappies
Using reusable nappies as opposed to disposables can contribute to the diversion of waste from landfill. Kent currently has a number of reusable nappy initiatives. The potential exists to reduce MSW arisings by up to **0.4%** by 2019 / 20.
Trade waste diversion
Illegal disposal of trade waste at Household Waste Recycling Centres contributes to Kent's MSW arisings. Some common approaches to addressing this problem are already employed in Kent. The potential exists to reduce MSW arisings by **1.7%** by 2019 / 20.
Product service businesses
The product service approach involves encouraging the loan, hire and lease of services rather than goods, or where goods are purchased, they are combined with services including upgrade, delivery, cleaning or maintenance, to enhance the longevity of the product. Overall, this approach reduces the amount of new materials entering the system and ultimately the future waste stream. Obvious examples of this approach include public libraries loaning books as well as CDs and DVDs and milk rounds and other bottle return arrangements (e.g. with local breweries). Kent has a range of services in this area but these are not widely promoted and there is not central information database that Kent residents can access for information. The potential exists to reduce MSW arisings by up to **0.5%** by 2019 / 20.
Unwanted goods
Re-use involves passing on used goods (with or without sorting / refurbishment) to those who can make further use of them. To maximise the re-use potential of the waste stream, development and delivery of a re-use scheme should be facilitated, coordinated and promoted by a strong network at a County level. There are several re-use schemes operating in Kent (e.g. Scrapstore, which aims to divert waste from landfill by using it as a resource for educational purposes). The potential exists to reduce MSW arisings by up to **2.5%** by 2019 / 20.

6.2.5 In general, the options that promise the greatest reduction in municipal waste arisings – Options 3 and 4 – performed best in the appraisal. Through reducing waste and increasing its re-use, they have are likely to have positive implications for air quality, water quality, climate change, biodiversity, landscape and health. This is because Options 3 and 4 could lead to a reduction in MSW arisings such that there would be a corresponding reduction in the need for waste treatment facilities and the impacts associated with these.

6.2.6 **Option 1** is considered the least compatible with sustainability principles since it essentially represents business-as-usual and will result in relatively little reduction in MSW arisings. Option 1 – do nothing – effectively means doing nothing over-and-above what is currently being done in Kent to promote various waste prevention and re-use initiatives. Table 13 outlines key reduction and re-use initiatives and the degree to which they are currently promoted in Kent. This indicates that the do nothing option involves continuation of: the War on Waste home composting scheme; various reusable nappy initiatives; measures to divert trade waste; various product service businesses; and several re-use schemes. However, getting a precise handle on the scope of these schemes – particularly the broad ranging product service businesses – is difficult and means that Option 1 is not easily definable (and therefore not easy to appraise).

6.2.7 **Option 2** focuses on initiatives that do not require any capital expenditure (and relatively little action on the part of Kent's local authorities) and will result in comparatively less waste reduction than Options 3 and 4.

6.2.8 **Option 3** results in greater reduction in waste than Options 1 and 2 and therefore scores well against the majority of the sustainability objectives. However, a key issue is the 'tipping point' at which actual reductions in waste become apparent – see below.

6.2.9 **Option 4** is generally the most sustainable option and the option most likely to achieve real reductions in waste arisings, particularly when considering the likely increases in waste arisings that will occur in Kent, particularly in the two growth areas (Ashford and Kent Thameside).

6.2.10 It is acknowledged that some scepticism exists as to the effectiveness of waste prevention and re-use schemes. Nevertheless, work done on behalf of the KWF indicates that reductions in municipal waste arisings can be made, particularly under Options 3 and 4. However, the KWF's background work indicates that any waste reduction achieved by 2019 / 20 is likely to be limited, particularly in light of planned housing growth for Kent. Achieving real reductions in waste arisings may require more radical measures such as charging households for every kilogram of waste produced, as recommended by the Policy Studies Institute[28].

6.2.11 In terms of mitigation measures, the design of new dwellings could include measures to encourage householders to prevent MSW arisings particularly through the standard incorporation of home composting facilities. Home composting could be particularly encouraged in the growth areas of Ashford and Kent Thameside where considerable housing development will take place in the future. Reference

[28] Policy Studies Institute (2006). *A Green Living Initiative* available at: http://www.psi.org.uk/pdf/2006/GreenLivingInitiative.pdf

to home composting facilities is included in the Kent Design Guide[29] - *"The provision of allotments and gardens that allow for the composting and growing of food produce should be encouraged"* (p. 81) – and this should be rigorously pursued by Kent's constituent authorities in granting permissions for new housing developments.

6.2.12 In addition, the KWF report has highlighted general benefits that may be gained from reducing the amount of waste generated within communities – see Box 2.

Box 2. ***Benefits from reducing waste generation (as highlighted by the National Resource and Waste Forum[30])***

- Reducing demands on finite natural resources and the often 'hidden' adverse environmental impacts of resource extraction and harvesting
- Reducing the transport impacts that are often significant in overall environmental impact terms (as shown by life cycle assessment methods)
- Meeting the demands of EU legislation, particularly the biodegradable municipal waste (BMW) diversion targets of the Landfill Directive as estimated in the Landfill Allowance Trading Scheme
- Reducing the need for often unpopular waste management facilities
- Reducing the need for often unpopular waste management facilities
- Reducing the cost of waste management by reducing the need for waste collection, disposal, treatment and landfill levies, freeing up resources for other priority investments, such as public education and health care
- Encouraging social inclusion and economic development through creating jobs and training opportunities for the most disadvantaged in society

6.3 Options for recycling and composting

6.3.1 The KWF generated a series of options for **recycling and composting** waste – see Table 14. By way of context, the combined household recycling and composting rate for Kent, including material recycled at HWRCs, is currently around 29%.

[29] See: http://www.kent.gov.uk/council-and-democracy/priorities-policies-and-plans/priorities-and-plans/kent-design-guide/
[30] Household Waste Prevention Toolkit August 2004, available at: http://www.nrwf.org.uk/Reportsandpublications.htm

Table 14. ***Options for recycling and composting***

Option A	Raise participation and capture rates of current recycling collections to 80%
Option B	Increase coverage of recycling and composting collections to 100% and increase participation and capture to 80%.
Option C	Expand glass collections to all households.
Option D	Introduce compostable kitchen waste collections to all households.
Option E	Expand garden waste collections to all relevant households.
Option F	Expand the current cardboard collections to all households.
Option G	Collect dense and film plastics from 100% of households.
Option H	Collect tins and cans from 100% of households.
Option I	Add kitchen and cardboard to current garden waste collections.
Option J	Collect commingled plastics and tins and cans from 100% of households.
Option K	Increase recycling at bring sites by 15%.
Option L	Increase recycling at bring sites by 20%.
Option M	Expand the range of bring sites to include dense and film plastics.
Option N	Increase recycling at the Household Waste Recycling Centres (HWRCs) to 60%.
Option O	Increase recycling at the HWRCs to 75%.

6.3.2 It is important to note that the options for recycling and composting are not mutually exclusive and that the Strategy and the actions taken to implement it will probably be based on a combination of options or elements of options.

6.3.3 The impact of the recycling and composting options on flood risk, water quality, biodiversity, the countryside and historic environment and the use of previously developed land are largely a factor of site location and pressures at and around the site in question. As the location of the sites is, as yet, uncertain so are the impacts. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and these criteria will be considered as part of that analysis.

6.3.4 The options that result in the greatest recycling and composting offset the need to extract and process virgin materials. These options are more compatible with the sustainability objectives and score positively in relation to climate change, air quality, energy efficiency and resource use. It should be noted that many of the positive benefits are likely to be felt outside of Kent (in the short term at least) in areas where virgin materials are extracted and processed. Reducing imports of resources from outside of Kent could also have adverse impacts on economies elsewhere. Benefits for Kent are likely to be felt in the longer term and reflect the fact that Kent and the South East are over reliant on resources from elsewhere (i.e. they have a significant ecological footprint). This continued over-reliance will ultimately have adverse economic, social and environmental costs.

6.3.5 The technical appraisal carried out by ERM has demonstrated that those options that maximise recycling and composting result in the greatest transportation of waste. The need to reduce road traffic is a major sustainability issue in Kent and therefore the impacts will be felt by residents in terms of increased congestion, air pollution, and disruption to amenity etc. However, ERM's work has demonstrated that the environmental impacts arising from the transportation of waste are offset by the reduction in the pollution attributable to resource extraction and processing. It is also important to note that the transportation impacts reflect the current location of processing facilities, particularly for plastics in St Helens in Merseyside. Any change in the location of such facilities, or the method of transportation would result in a change in the relative transport impacts.

6.3.6 Notwithstanding such transport impacts, **Option B** - increasing coverage of recycling and composting collections to 100% and increase participation and capture to 80% - is clearly the most compatible with the sustainability objectives for Kent. Options B, G, J and M all improve the recycling of plastics and or metals and therefore also rank highly.

6.3.7 Options N and O which will result in a significant increase in recycling / composting perform only moderately well because the materials recovered are used primarily as construction aggregates which have low associated resource depletion benefits. Options D, E and F recover organic material which have lower resource depletion impacts and therefore rank less favourably against the sustainability objectives. It is clear from the appraisal that the performance of the different options depends on the material(s) they prioritise for recycling / composting.

6.3.8 Finally, it is important to note that the options make no mention of local community recycling and composting schemes. Such schemes, could achieve high rates of recycling and composting, reduce transportation requirements and could also play a part in delivering the necessary behavioural shift required to achieve a reduction in waste arisings (a win-win solution).

6.4 Options for energy recovery and disposal

6.4.1 The KWF generated a series of options for energy recovery from waste and waste disposal – see Table 15. These centre on different treatment facilities and provide an indicative route to meeting LATS targets within the County.

Table 15. ***Options for energy recovery from waste and waste disposal***

Option 1	New Energy from Waste (EfW) facility in East Kent
Option 2	Expand current contracted capacity at Allington EfW
Option 3	Mechanical Biological Treatment (MBT) plant in East Kent providing Refuse Derived Fuel (RDF) to Allington EfW
Option 4	MBT plant in East Kent stabilising material to be sent to landfill
Option 5	Autoclave in East Kent with fluff to Allington EfW
Option 6	Gasification plant in East Kent
Option 7	Anaerobic Digestion facility in East Kent
Option 8	In-vessel composting facilities across Kent for Garden and Kitchen Waste

6.4.2 The impact of the various technologies on flood risk, water quality, biodiversity, the countryside and the historic environment and the use of previously developed land are largely a factor of site location and pressures at and around the site in question. As the location of the sites is, as yet, uncertain so are the impacts. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and these criteria will be considered as part of that analysis.

6.4.3 Despite the short-term negative impacts of the facilities themselves, all of the options can be said to have long-term benefits in that they divert a large proportion of MSW away from landfill.

6.4.4 Generally speaking there is little to separate each of the options in terms of sustainability impacts. The options that result in the greatest recovery and recycling of waste offset the need to extract and process virgin materials. These options are more compatible with the sustainability objectives and score positively in relation to climate change, air quality, energy efficiency and resource use. It should be noted that many of the positive benefits are likely to be felt outside of Kent (in the short term at least) in areas where virgin materials are extracted and processed. Reducing imports of resources from outside of Kent could also have adverse impacts on economies elsewhere. Benefits for Kent are likely to be felt in the longer term and reflect the fact that Kent and the South East are over reliant on resources from elsewhere (i.e. they have a significant ecological footprint). This continued over-reliance will ultimately have adverse economic, social and environmental costs.

6.4.5 The technical appraisal carried out by ERM has demonstrated that those options that maximise recovery and recycling result in the greatest transportation of waste. The need to reduce road traffic is a major sustainability issue in Kent and therefore the impacts will be felt by residents in terms of increased congestion, air pollution and disruption to amenity etc. However, ERM's work has demonstrated that the environmental impacts arising from the transport of waste are offset by the reduction in pollution attributable to resource extraction and processing (as well as energy production in some cases) that the options deliver. It is also important to note that the transportation impacts reflect the current location of processing

facilities, particularly for plastics in St Helens in Merseyside. Any change in the location of such facilities, or the method of transportation would result in a change in the relative transport impacts.

6.4.6 For the reasons above, **Option 7** – an anaerobic digestion facility in East Kent - and **Option 5** – an autoclave in East Kent with fluff to Allington EfW - rank as the most sustainable options. It is important to note that the performance of the energy generating options hinges on whether or not plastics and metals are separated for recycling before processing.

6.4.7 ERM's work suggests that those options which recover energy from waste perform better than those which do not. Of those, **anaerobic digestion** is the only option that generates renewable energy (under current definitions) and operates further up the waste hierarchy than the other options. It is therefore considered marginally more compatible with the sustainability objectives than the other energy generating technologies.

7 POLICY APPRAISAL

7.1 Headline Strategy policies

7.1.1 Following the generation of options, the KWF prepared a draft **Headline Strategy** for consultation setting out 20 delivery **policies** – see Table 16. In some cases, these policies reflected a choice between the options outlined in Section 6. For example, Policy 13 - the recycling and composting performance of HWRCs will be improved, reaching 60% by 2012 / 13, while maintaining high standards of customer service – clearly reflects Option N for recycling and composting - increase recycling at the HWRCs to 60% (see Table 14). However, in the majority of cases the policies are relatively generic and the choice between the options will instead be made in formulating the detailed **action plans** for policy delivery. These action plans will be prepared during summer 2006 and the Strategy is due to be adopted in September 2006.

7.1.2 This stage of the SA process involved assessing each policy against the SA framework – essentially the SA objectives agreed at the scoping stage – see Section 4. The appraisal was based on a combination of professional judgement on the part of those undertaking the appraisal (informed by the information gathered in the Scoping Report – again see Section 4) and the findings of ERM's quantitative appraisal of the options (documented in various Annexes to the Headline Strategy).

7.1.3 The appraisal findings are set out below and are organised around each of the 12 objectives used to undertake the appraisal. The full appraisal findings – the completed matrices – can be found in **Technical Appendix 2**.

Table 16. ***Headline Strategy policies***

Policies for resource management	
Policy 1	The KWF will encourage the conservation of resources through the use in Kent of materials and energy recovered from wastes produced in Kent. It will aim to influence other areas of public policy and service delivery to support this agenda
Policies for partnership	
Policy 2	To deliver the Strategy, the County, District and Borough Councils will work towards a new Kent Waste Partnership with a formal joint committee structure; they will actively seek the views of stakeholders, and their contribution to achieving the Strategy's objectives
Policies for education and engagement	
Policy 3	All stakeholders, including elected Members, will be kept informed and consulted on waste management issues affecting Strategy implementation
Policy 4	Targeted and co-ordinated campaigns will be run across Kent to inform, educate and to work towards changing behaviour of households
Policy 5	The authorities will work jointly and individually to encourage the Community and Social Enterprise Sector to reach its full potential in delivering cost-effective and sustainable waste management services
Policies for waste minimisation and re-use	
Policy 6	Waste minimisation and re-use will be prioritised and the KWF will seek through its wider policy aims to break the link between waste production and economic growth
Policy 7	The KWF will lobby for measures to combat waste growth in areas such as product design and producer responsibility that are most effectively pursued at the national and international levels
Policies for recycling and composting	
Policy 8	The KWF will achieve a level of 40% recycling and composting household waste by 2012 / 13
Policy 9	The KWF authorities will work together to develop, to maintain and to improve schemes that secure the best recycling and composting performance for Kent as a whole
Policy 10	The KWF will secure higher rates of performance from existing services through education and awareness-raising
Policy 11	The KWF will strive to make waste and recycling accessible and easy to use for all householders, across all housing types and sectors of the community
Policy 12	The KWF will work to secure additional in-vessel composting capacity in the County to enable the authorities in the east of Kent to provide an efficient and cost-effective service for managing compostable wastes
Policy 13	The recycling and composting performance of HWRCs will be improved, reaching 60% by 2012 / 13, while maintaining high standards of customer service
Policies for residual waste management services	
Recovery	
Policy 14	A timely procurement programme will be implemented to provide sufficient capacity for Kent to continue to meet its statutory targets for the diversion of biodegradable municipal waste

Policy 15	The procurement programme for additional capacity will take account of the opportunities for co-management with other waste streams, but will discourage facilities of a scale that will attract imports of waste to the County.
Policy 16	Procurement of additional capacity will keep technical options open and flexible in terms of the number and scale of facilities to be provided but will need to emphasise deliverability
Policy 17	Kent County Council will take a pragmatic approach to trading landfill allowances, being willing to trade, but not reliant on trading for compliance or essential income.
Disposal	
Policy 18	Kent will procure landfill capacity to meet the need for the disposal of residual waste for which recovery capacity is not contracted
Policy 19	Where it is cost effective, Kent will exceed its statutory targets for diversion of biodegradable municipal waste from landfill in order to preserve landfill void space in the County
Waste Transfer Facilities	
Policy 20	The transfer station network will be improved across Kent to promote the efficient transport of wastes for treatment, recovery and disposal.

7.2 Flood risk

7.2.1 The anticipated collective impact of the policies on flood risk is summarised in Table 17.

Table 17. ***Anticipated impacts on flood risk***

OBJECTIVE 1
To reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment
Appraisal summary Any impacts on flood risk in Kent (as well as on other issues with a spatial expression such as landscape and biodiversity) will arise from the provision of new waste facilities. Several of the policies indicate the need for new or expanded facilities (e.g. Policy 16 on additional recovery capacity and Policy 20 on an improved transfer station network) but the impact of these policies on flood risk will ultimately depend on where new facilities are located, how they are designed etc. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and flood risk will be considered as part of that analysis. Technical Appendix 1 sets out the appraisal of the options for energy recovery and disposal including the amount of land take associated with the various technologies. The technical work undertaken by ERM indicates that the differences between these options in terms of the land they require – and therefore their likely impacts on issues such as flood risk – is negligible.

7.3 Air pollution and climate change

7.3.1 The anticipated collective impact of the policies on air pollution and climate change is summarised in Table 18.

Table 18. ***Anticipated impacts on air pollution and climate change***

OBJECTIVE 2
To reduce air pollution and ensure air quality continues to improve; and to address the causes of climate change through reducing emissions of greenhouse gases and ensure that Kent is prepared for its impacts
Appraisal summary Impacts on air quality and climate change arise from the treatment and transportation of waste. Reducing these impacts ultimately depends on reducing waste arisings to the point where the number of treatment, recovery and disposal facilities and the corresponding level of waste transportation necessary is reduced. Many of the policies are premised on the need to minimise waste arisings, particularly Policy 6. The success of policies such as these will depend on the measures adopted in the Strategy's detailed Action Plans and the success with which these are implemented. The appraisal of the four options for waste reduction and re-use (see Technical Appendix 1) indicates that only Options 3 and 4 could lead to the necessary reduction in MSW arisings. The technical work by ERM concluded that the options for recycling and composting (see Technical Appendix 1) all result in a net reduction in air pollution and – with the exception of Option F - a net reduction in greenhouse gas (GHG) emissions (NB Option F involves expanding the current cardboard collections to all households). The results indicate that the avoidance of air pollution and GHG emissions through recycling and composting outweighs the air pollution and GHG costs of waste processing and transportation. Option B – increasing the coverage of recycling and composting collections to 100% and increasing participation and capture to 80% - involves the greatest amount of material recovery and therefore the most benefits in terms of reducing air pollution and GHG emissions. The degree of benefit generally depends on the materials targeted for collection with those options that displace virgin non-ferrous metals and plastics performing particularly well. It is important to note that the benefits of reducing air pollution and GHG emissions associated with the avoidance of resource extraction and processing are only likely to be felt outside of Kent (in the short term at least). Please see Technical Appendix 1 for further details. Similarly, the technical work by ERM also concluded that the options for energy recovery and disposal (see Technical Appendix 1) would all result in a reduction in air pollution and GHG emissions and that the differences between the options were relatively insignificant. Options that result in the greatest level of recovery particularly of metals and plastics perform well in terms of reducing air pollution and GHG emissions. Option 4 (MBT plant in East Kent stabilising material to be sent to landfill) and Option 8 (In-vessel composting facilities across Kent for kitchen and garden waste) perform the least well because they do not generate energy. It is important to note that the benefits of reducing air pollution and GHG emissions associated with the avoidance of resource extraction and processing are only likely to be felt outside of Kent (in the short term at least). Two further factors should be noted. Firstly, home composting can serve to reduce waste arisings whereas the collection of garden and / or kitchen waste for large scale composting (e.g. using an in-vessel compost facility) involves waste processing and transportation. Home composting could therefore be considered superior and the KWF should consider promoting this over in-vessel composting.

Secondly, the impacts of air pollution that are most likely to have an impact on Kent residents are those resulting from the transportation of MSW. Mitigation measures should therefore include adhering to the proximity principle – ensuring that waste is processed as close to source as possible – and promoting more sustainable modes of waste transport (rail, river and sea as opposed to road).

7.4 Water quality and water resources

7.4.1 The anticipated collective impact of the policies on water quality and water resources is summarised in Table 19.

Table 19. ***Anticipated impacts on water quality and water resources***

OBJECTIVE 3
To maintain and improve the water quality of Kent's rivers, coasts and groundwater and to achieve sustainable water resource management
Appraisal summary Any impacts on water quality and water resources in Kent (as well as on other issues with a spatial expression such as landscape and biodiversity) will arise from the provision of new waste facilities. Several of the policies indicate the need for new or expanded facilities (e.g. Policy 16 on additional recovery capacity and Policy 20 on an improved transfer station network) but the impact of these policies on water quality and water resources will ultimately depend on where new facilities are located, how they are designed etc. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and water quality and water resources will be considered as part of that analysis. Technical Appendix 1 sets out the appraisal of the options for energy recovery and disposal including the amount of land take associated with the various technologies. The technical work undertaken by ERM indicates that the differences between these options in terms of the land they require – and therefore their likely impacts on issues such as water quality and water resources – is negligible. However, ERM's work also included an analysis of the likelihood of water pollution arising from the different technologies and the consequences of such an event. This appraisal indicated that the options resulting in the most landfilling performed worst since landfill and hazardous landfill are associated with the highest risk of pollution. The appraisal also indicated that gasification and incineration present a marginally higher risk in terms of water pollution than other facilities.

7.5 Biodiversity

7.5.1 The anticipated collective impact of the policies on biodiversity is summarised in Table 20.

Table 20. ***Anticipated impacts on biodiversity***

OBJECTIVE 4
To conserve and enhance Kent's biodiversity, including coastal and marine biodiversity
Appraisal summary Any impacts on biodiversity in Kent (as well as on other issues with a spatial expression such as flood risk and landscape) will arise from the provision of new waste facilities. Several of the policies indicate the need for new or expanded facilities (e.g. Policy 16 on additional recovery capacity and Policy 20 on an improved transfer station network) but the impact of these policies on biodiversity will ultimately depend on where new facilities are located, how they are designed etc. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and biodiversity will be considered as part of that analysis. Technical Appendix 1 sets out the appraisal of the options for energy recovery and disposal including the amount of land take associated with the various technologies. The technical work undertaken by ERM indicates that the differences between these options in terms of the land they require – and therefore their likely impacts on issues such as biodiversity – is negligible. The appraisal of these options (see Technical Appendix 1) scored their impacts on biodiversity as negative on the basis that in the short term all the options are likely to have some negative impact on biodiversity and none of the options are likely to enhance biodiversity. However, in the longer-term all of the options will reduce the requirement for landfill and it is assumed that this will have positive benefits for biodiversity.

7.6 Countryside and the historic environment

7.6.1 The anticipated collective impact of the policies on the countryside and the historic environment is summarised in Table 21.

Table 21. ***Anticipated impacts on the countryside and the historic environment***

OBJECTIVE 5
To protect, enhance and make accessible for enjoyment, Kent's countryside and coast, and its historic environment
Appraisal summary Any impacts on the countryside and the historic environment in Kent (as well as on other issues with a spatial expression such as flood risk and biodiversity) will arise from the provision of new waste facilities. Several of the policies indicate the need for new or expanded facilities (e.g. Policy 16 on additional recovery capacity and Policy 20 on an improved transfer station network) but the impact of these policies on the countryside and the historic environment will ultimately depend on where new facilities are located, how they are designed etc. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and the countryside and the historic environment will be considered as part of that analysis. Technical Appendix 1 sets out the appraisal of the options for energy recovery and disposal including the amount of land take associated with the various technologies. The technical work undertaken by ERM indicates that the differences between these options in terms of the land they require – and therefore their likely impacts on issues such as the countryside and the historic environment – is negligible. The appraisal of these options (see Technical Appendix 1) scored their impacts on the

countryside and the historic environment as negative on the basis that in the short term all the options are likely to have some negative impact on these and none of the options are likely to enhance the countryside or the historic environment. However, in the longer-term all of the options will reduce the requirement for landfill and it is assumed that this will have positive benefits for the countryside and the historic environment.

7.7 Efficient use of land and buildings

7.7.1 The anticipated collective impact of the policies on the efficient use of land and buildings is summarised in Table 22.

Table 22. ***Anticipated impacts on the efficient use of land and buildings***

OBJECTIVE 6
To improve efficiency in land use through the re-use of previously developed land and existing buildings, including re-use of materials from buildings
Appraisal summary In order to promote the efficient use of land, any new waste facilities arising from the Strategy (e.g. in-vessel composting facilities, recovery facilities or transfer stations) should be located on previously developed land wherever possible. The Waste Development Framework will include an analysis of potential sites for locating waste management facilities and the status of the land (e.g. greenfield, previously developed etc.) will be considered as part of that analysis. The options for energy recovery and disposal are set out in Technical Appendix 1. The technical work by ERM indicates that the difference between these options in terms of the land required for them is negligible. The appraisal of these options (see Technical Appendix 1) scored their impacts on the efficient use of land as negative on the basis that in the short term all the options are likely to have some negative impact on the efficiency of land use. However, in the longer-term all of the options will reduce the requirement for landfill and it is assumed that this will have positive benefits.

7.8 Road traffic and sustainable transport

7.8.1 The anticipated collective impact of the policies on road traffic and sustainable transport is summarised in Table 23.

Table 23. ***Anticipated impacts on road traffic and sustainable transport***

OBJECTIVE 7
To reduce road traffic and its impacts, promote more sustainable modes of transport and reduce the need to travel by car / lorry
Appraisal summary The transportation of waste for treatment, recovery or disposal gives rise to a range of impacts including on air quality, climate change and local amenity. Reducing these impacts ultimately depends on reducing waste arisings to the point where the number of treatment, recovery and disposal facilities and the corresponding level of waste transportation is reduced. Many of the policies are premised on the need to minimise waste arisings, particularly Policy 6. The success of policies such as these will depend on the measures adopted in the Strategy's detailed Action Plans and the success with which these are implemented. The appraisal of the four options for waste reduction and re-use (see Technical Appendix 1) indicates that only Options 3 and 4 could lead to the necessary reduction in MSW arisings. ERM's technical work included an analysis of the transport impacts of each of the options for recycling and composting. The requirement to reduce road traffic and the need to travel by car and lorry was identified as a priority for action during the scoping stage of the SA process. As it is assumed that none of the options will result in a net decrease in waste associated traffic, all the options score a negative in relation to the objective. Generally speaking, the negative impacts associated with each of the options increases with an increase in the quantity of material recycled and the distance each material has to travel to reprocessing sites. Option B – increasing coverage of recycling and composting collections to 100% and increasing participation and capture to 80% - results in the most transportation impacts as it delivers the highest levels of recycling / composting. Please see Technical Appendix 1 for further details. ERM also undertook an analysis of the transport impacts of each of the options for energy recovery and disposal. As it is assumed that none of the options will result in a net decrease in waste associated traffic, all the options score a negative in relation to the objective. Option 2 – expanding current contracted capacity at Allington EfW – results in the least transport impacts, mainly because there is no pre-sorting of waste and any by-products are sent to Sheppey for subsequent landfill. There is little to separate the remaining options in terms of transport impacts since these will be dependent on the location of the facility (except for Option 5 which involves transporting recyclables to St Helens in Merseyside for processing). Again please see Technical Appendix 1 for further details. Two further factors should be noted. Firstly, home composting can serve to reduce waste arisings whereas the collection of garden and / or kitchen waste for large scale composting (e.g. using an in-vessel compost facility) involves waste processing and transportation. Home composting could therefore be considered superior and the KWF should consider promoting this over in-vessel composting. Secondly, the impacts of air pollution that are most likely to have an impact on Kent residents are those resulting from the transportation of MSW. Mitigation measures should therefore include adhering to the proximity principle – ensuring that waste is processed as close to source as possible – and promoting more sustainable modes of waste transport (rail, river and sea as opposed to road).

7.9 Waste management

7.9.1 The anticipated collective impact of the policies on waste management is summarised in Table 24.

Table 24. ***Anticipated impacts on waste management***

OBJECTIVE 8
To reduce waste generation and disposal, and achieve the sustainable management of waste
Appraisal summary Unsurprisingly, the Headline Strategy generally performs well in relation to the objective. However, several key points should be made. Firstly, the Strategy should clearly prioritise waste minimisation and re-use over recycling and composting and recovery and disposal. Most of the options for waste minimisation and re-use involve increasing participation in various schemes (e.g. home composting, waste aware shopping, reusable nappies etc.). Increasing participation will depend on successful campaigns under Policy 4; however, the Headline Strategy does not provide details of these campaigns and much will depend on what is set out in the detailed Action Plans. The uncertainty over this leads to uncertainty as to how successful the Strategy will be in reducing overall waste arisings. This is crucial because in order to reduce the impacts associated with waste, waste arisings need to decline to the point where fewer waste treatment facilities are necessary in Kent. Secondly, currently almost 30% of waste produced by households in Kent is separated through kerbside collection, household waste recycling centres (HWRCs) and bring back facilities for recycling and composting. The target under Policy 8 – that the KWF will achieve a level of 40% recycling and composting household waste by 2012 / 13 – therefore represents a considerable increase in recycling and composting relative to the current baseline and – assuming its achievement – should provide a strong boost for sustainable waste management in Kent. A key issue in relation to this is home composting versus the collection of garden and / or kitchen waste for large scale composting (e.g. using an in-vessel compost facility). It would be helpful if the Strategy clarified the relationship between home composting and larger scale composting and whether promoting the latter could potentially undermine progress in promoting the former. Thirdly, ERM's technical work included an analysis of the degree to which each option for recycling and composting increased recycling relative to the baseline. The analysis concluded that all of the options would result in an increase in recycling and composting. Option B – increasing coverage of recycling and composting collections to 100% and increasing participation and capture to 80% - resulted in the most recycling / composting followed by Option O – increasing recycling at HWRCs to 75%. Option F – expanding the current cardboard collections to all households – resulted in the least recycling / composting. Please see Technical Appendix 1 for further details. Fourthly, ERM also undertook an analysis of the degree to which each option for energy recovery and disposal reduced the amount of waste going to landfill. The analysis concluded that all the options will result in a reduction in the need for landfill. Option 8 – in-vessel composting facilities across Kent for garden and kitchen waste – performs best as it increases the tonnage of waste composted as well as reducing the dependence on landfill. Option 5 (autoclave in East Kent with fluff to Allington EfW) and Option 7 (anaerobic digestion facility in East Kent) perform strongly since they involve recycling and energy recovery. Option 4 – MBT plant in East Kent stabilising material to be sent to landfill – performs the worst as it results in the most waste being sent to landfill. Again please see Technical Appendix 1 for further details.

Fifthly, as stated under Policy 11, the KWF will strive to make waste and recycling accessible and easy to use for all householders, across all housing types and sectors of the community. The precise meaning of the term 'accessible' in this context should be clarified. Ideally recycling facilities should be within walking distance of residential areas to reduce the need for car use and this principle should be supported in the Strategy.

Finally, Policy 1 - encouraging the conservation of resources through the use in Kent of materials and energy recovered from wastes produced in Kent - could help to promote the perception of waste as a resource and promote a 'green economy' in Kent whereby local markets for Kent's wastes are developed. Developing such a green economy should be a key overarching aim of the Strategy.

7.10 Energy efficiency and renewable energy

7.10.1 The anticipated collective impact of the policies on energy efficiency and renewable energy is summarised in Table 25.

Table 25. Anticipated impacts on energy efficiency and renewable energy

OBJECTIVE 9
To increase energy efficiency and the proportion of energy generated from renewable sources in Kent
Appraisal summary Processing and transporting waste requires energy. Reducing waste arisings and therefore the need to process and transport waste is the key to promoting energy efficiency. Many of the policies are premised on the need to minimise waste arisings, particularly Policy 6. The success of policies such as these will depend on the measures adopted in the Strategy's detailed Action Plans and the success with which these are implemented. The appraisal of the four options for waste reduction and re-use (see Technical Appendix 1) indicates that only Options 3 and 4 could lead to the necessary reduction in MSW arisings. ERM's technical work included an analysis of the energy consumption associated with each option for recycling and composting. The analysis concentrated on the energy consumed in waste treatment; energy generated (e.g. through the capture and utilisation of landfill gas); and the displacement of energy used in the processing of virgin materials. The analysis concluded that Option B – increasing coverage of recycling and composting collections to 100% and increasing participation and capture to 80% - resulted in the greatest reduction in energy consumption. It is important to note that as resources are not sourced solely within Kent, many of the benefits in terms of reduced energy consumption will likely be felt outside of Kent. Please see Technical Appendix 1 for further details. ERM also undertook an analysis of the energy consumption associated with each option for energy recovery and disposal. The analysis concluded that all the options resulted in a net energy saving. These savings are made through reduced demand on virgin materials and through the recovery of energy. It is important to note that as resources are not sourced solely within Kent, many of the benefits in terms of reduced energy consumption will likely be felt outside of Kent. The Headline Strategy emphasises that no specific technology is favoured in the procurement of additional capacity. In the context of promoting renewables, it should be noted that only anaerobic digestion produces what can be classified as renewable energy (under current definitions). The

work undertaken by ERM indicates that the option for an anaerobic digestion facility in East Kent performs the best in terms of energy efficiency. Please see Technical Appendix 1 for further details.

Two further factors should be noted. Firstly, home composting can serve to reduce waste arisings whereas the collection of garden and / or kitchen waste for large scale composting (e.g. using an in-vessel compost facility) involves waste processing and transportation. Home composting could therefore be considered superior and the KWF should consider promoting this over in-vessel composting.

Secondly, energy consumption can be reduced through minimising and reducing the impacts associated with waste transportation. Mitigation measures should therefore include adhering to the proximity principle – ensuring that waste is processed as close to source as possible – and promoting more sustainable modes of waste transport (rail, river and sea as opposed to road).

7.11 Sustainable production and local products and services

7.11.1 The anticipated collective impact of the policies on sustainable production and local products and services is summarised in Table 26.

Table 26. Anticipated impacts on sustainable production and local products and services

OBJECTIVE 10
To reduce the global, social and environmental impact of consumption of resources by using sustainably produced and local products and services
Appraisal summary Policy 1 - encouraging the conservation of resources through the use in Kent of materials and energy recovered from wastes produced in Kent - could help to promote the perception of waste as a resource and promote a 'green economy' in Kent whereby local markets for Kent's wastes are developed. This reflects the philosophy of using local products and services. Several of the options considered by the KWF for waste reduction and re-use include measures which could promote the use of sustainably produced and / or local products and services. These measures include waste aware (SMART) shopping schemes and product service businesses (involving the loan, hire and lease of services rather than goods). Although initiatives such as these are premised on reducing waste arisings, they could also promote the use of sustainably produced and / or local products and services. For example, product service businesses include libraries, Local Exchange Trading Systems and organic boxes. The Headline Strategy also emphasises the role of the Community and Social Enterprise Sector and this fits with the philosophy of using local products and services. ERM's technical work included an analysis of the resource depletion resulting from each option for recycling and composting (see Technical Appendix 1). This exercise measured resource depletion using crude oil, coal and gas as proxies for non-renewable resources. The appraisal indicated that all the recycling and composting options scored positively in terms of resource depletion. Option B – Increasing coverage of recycling and composting collections to 100% and increasing participation and capture to 80% - resulted in the greatest recovery of materials and would achieve the greatest reduction in resource depletion. It is important to note that as resources are not sourced solely within Kent, the benefits of resource depletion will likely be felt outside of Kent. Please see Technical Appendix 1 for further details.

ERM also undertook an analysis of the resource depletion resulting from each option for energy recovery and disposal (see Technical Appendix 1). The appraisal indicated that all the energy recovery and disposal options scored positively in terms of resource depletion. Option 5 (autoclave in East Kent with fluff to Allington EfW) and Option 7 (Anaerobic digestion facility in East Kent) scored highly since they result in the greatest amount of plastic and metal recovery and generate energy. Option 4 (MBT plant in East Kent stabilising material to be sent to landfill) and Option 8 (in-vessel composting facilities across Kent for garden and kitchen waste) scored the worst since neither generates energy. It is important to note that as resources are not sourced solely within Kent, the benefits of resource depletion will likely be felt outside of Kent. Again please see Technical Appendix 1 for further details.

7.12 Health and well-being

7.12.1 The anticipated collective impact of the policies on health and well-being is summarised in Table 27.

Table 27. Anticipated impacts on health and well-being

OBJECTIVE 11
To improve the health and well-being of the population and reduce inequalities in health
Appraisal summary ERM's technical work included an analysis of the health impacts associated with each option for recycling and composting. The analysis was based on human toxicity related to the inputs (full life cycle) and outputs of the waste treatment activities. Option B – increasing coverage of recycling and composting collections to 100% and increase participation and capture to 80% - results in the greatest recovery of materials and therefore the greatest benefit. The results again demonstrate that the major benefit of recycling / composting is that it reduces the need for primary resource extraction and production. In this case, as the production of virgin aluminium generates toxic pollution, so the options that recycle non-ferrous metal score highly. It is important to note that as resources are not sourced solely within Kent, many of the benefits in terms of improved health will likely be felt outside of Kent. Please see Technical Appendix 1 for further details. ERM has emphasised that the construction of new waste management facilities for energy recovery and disposal is often controversial, with their perceived public health impacts central to the debate. There are also numerous conflicting reports and opinions about the relative impacts of different facilities available to fuel this debate. In an attempt to clarify the situation, DEFRA recently published a health effects report[31] that aimed to bring together, in one place, information from all the studies conducted to date. Although there are a number of data gaps (notably on composting and emerging technologies such as autoclaving), this is the best reference information that is available, and ERM used it as the basis for the technical appraisal work. Although any health impact should be treated with concern, the studies show the total number of emissions to hospital associated with waste technologies to be relatively low (although this is clearly reliant on the correct operation of facilities). ERM also undertook an analysis of the health impacts associated with each of the options for

[31] *Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes*, Enviros Consulting Ltd and University of Birmingham with Risk and Policy Analysts Ltd, Open University and Maggie Thurgood, 2004 available at: http://www.defra.gov.uk/ENVIRONMENT/WASTE/research/health/pdf/health-report-contents.pdf

energy recovery and disposal. This indicates that the greatest impact on health is associated with the energy from waste (EfW) options. Option 1 – new EfW facility in East Kent – and Option 2 – expand current contracted capacity at Allington EfW – therefore perform the worst. However, as stated above, the impacts are considered relatively insignificant. Option 7 – anaerobic digestion facility in East Kent – has the smallest health impacts since anaerobic digestion is currently believed to be benign and because the end product is landfilled. Please see Technical Appendix 1 for further details.

Notwithstanding the above, the most effective way to reduce health risks (perceived or otherwise) is to reduce overall waste arisings and therefore the need for additional waste management facilities. Many of the policies are premised on the need to minimise waste arisings, particularly Policy 6. The success of policies such as these will depend on the measures adopted in the Strategy's detailed Action Plans and the success with which these are implemented. The appraisal of the four options for waste reduction and re-use (see Technical Appendix 1) indicates that only Options 3 and 4 could lead to the necessary reduction in MSW arisings.

7.13 Economy

7.13.1 The anticipated collective impact of the policies on the economy is summarised in Table 28.

Table 28. Anticipated impacts on the economy

OBJECTIVE 12
To build a strong, stable and sustainable economy which provides prosperity and opportunities (including learning and skills) for all, and in which environmental and social costs fall on those who impose them, and efficient resource use is incentivised
Appraisal summary Policy 1 - encouraging the conservation of resources through the use in Kent of materials and energy recovered from wastes produced in Kent - could help to promote the perception of waste as a resource and promote a 'green economy' in Kent whereby local markets for Kent's wastes are developed with associated prospects for job creation. Developing such a green economy should be a key overarching aim of the Strategy. Policy 6 emphasises that breaking the link between waste production and economic growth is key to a sustainable economy. However, the Strategy's scope for decoupling waste arisings from economic growth appears to be limited. In terms of job creation, technical work by ERM indicates that increasing recycling at HWRCs to 60% performs well relative to other options for recycling and composting (see Technical Appendix 1). The work by ERM also indicates that there is only a marginal variation between the employment opportunities offered by different energy recovery and disposal facilities.

8 CUMULATIVE IMPACTS

8.1 Introduction

8.1.1 One of the principal rationales for undertaking SEA (and SA) is the opportunity it affords to identify and evaluate cumulative impacts. The SEA Directive specifically requires the consideration of cumulative impacts (see below).

The 'Environmental Report' required under the SEA Directive should include:

"the likely significant effects (1) 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

(1) These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects"

Annex 1(f)

8.2 The Strategy's cumulative effects

8.2.1 Cumulative effects are considered here as the total effects of multiple actions on a receptor. The 12 objectives used to undertake the appraisal represent proxies for key economic, social and environmental receptors. Table 29 summarises the potential impacts of the 20 policies in the Headline Strategy on the 12 objectives / receptors.

Table 29. Cumulative impact assessment

Headline Strategy policy / objective	1. Flood risk	2. Air pollution and climate change	3. Water quality and water resources	4. Biodiversity	5. Countryside and the historic environment	6. Efficient use of land and buildings	7. Road Traffic and sustainable transport	8. Waste management	9. Energy Efficiency and renewable energy	10. Sustainable production and local products and services	11. Health and well-being	12. Economy
Policy 1	0	?	0	0	0	0	?	+	0	+	0	+
Policy 2	0	0	0	0	0	0	0	0	0	0	0	0
Policy 3	0	0	0	0	0	0	0	0	0	0	0	0
Policy 4	0	0	0	0	0	0	0	+?	0	?	0	0
Policy 5	0	?	0	0	0	0	?	?	0	0	0	?
Policy 6	+?	+?	+?	+?	+?	+?	+?	+?	+?	?	+?	?
Policy 7	0	0	0	0	0	0	0	0	0	0	0	0
Policy 8	?	+	?	?	?	?	-	+	+	+	?+	?
Policy 9	?	+	?	?	?	?	-	+	+	+	?+	?
Policy 10	0	0	0	0	0	0	0	+	0	0	0	0
Policy 11	0	?	0	0	0	0	?	+	?	0	0	0
Policy 12	?	?	?	?	?	?	?	?	?	0	0	0
Policy 13	?	+	?	?	?	?	?	+	+	+	?+	+
Policy 14	?	+	?	?	?	?	-	+	+	+	?-	0
Policy 15	0	0	0	0	0	0	0	0	?	0	0	0
Policy 16	?	+	?	?	?	?	-	+	+	+	?-	0
Policy 17	0	0	0	0	0	0	0	0	0	0	0	0
Policy 18	?	0	?	?	?	?	0	0	0	0	0	0
Policy 19	0	0	0	0	0	0	0	+	0	0	0	0
Policy 20	?	?	?	?	?	?	?	?	?	0	0	0

8.2.2 Several patterns can be identified from Table 29:

- Several of the policies – notably policies 2, 3 and 7 – are procedural and are likely to have little substantive impact on the ground (these policies relate to issues such as partnership working, education and engagement, and Government lobbying).

- There is considerable uncertainty surrounding Policy 6 on waste minimisation and re-use. This stems from the fact that the Strategy's success in this regard will depend heavily on the measures proposed in the detailed action plans and whether or not these succeed in reducing waste arisings to the point where fewer waste management facilities are necessary in Kent.

- Policy 8 on increased levels of recycling and composting (together with Policies 9 and 13 which also relate to this) generates a mix of impacts. On the one hand, it has positive impacts in relation to air pollution and climate change, energy efficiency and sustainable production (although these impacts relate to corresponding decreases in the need to extract and process virgin materials, often overseas). On the other hand, it will increase levels of road traffic as waste is transported to recycling centres etc. (this is on the assumption that very little waste will be transported by rail, river and sea).

- Policy 12 on in-vessel composting gives rise to considerable uncertainty since the location, size and capacity of such a facility (or facilities) is not currently clear. The impacts of Policy 20 - an improved transfer station network - are uncertain for similar reasons.

- Like Policy 8, policies 14 and 16 on the procurement of energy recovery and disposal capacity also generate a mix of impacts. Again there are positive impacts in relation to air pollution and climate change, energy efficiency and sustainable production but these once again often relate to activities overseas. Again, additional facilities will also increase levels of road traffic. These facilities also have potential health impacts associated with them (although these should not be overstated).

- Objectives 1, 3, 4, 5 and 6 relate to environmental receptors with a strong spatial dimension (flood risk, water quality and water resources, biodiversity etc.) and the impacts of the policies on these objectives are consistently labelled uncertain. This uncertainty arises because the Strategy is not site-specific in its intentions and the precise impacts on these receptors will depend on the eventual location of recycling and composting, energy recovery and disposal facilities. The location of waste management facilities will instead be addressed through the Waste Development Framework.

- The Strategy's most definite adverse impacts are associated with increased road traffic as a direct result of increased recycling and composting, energy recovery and disposal. This indicates a clear trade-off: increased traffic levels in exchange for more sustainable waste management. In order to minimise the impacts of road traffic the Strategy should explicitly promote the transportation of waste via more sustainable modes (rail, river and sea as opposed to road).

9 RECOMMENDATIONS

9.1 Options for waste reduction and re-use

9.1.1 The KWF generated a series of options for **waste reduction** – or prevention – and **re-use** – see Table 30. These options comprised different combinations of various initiatives currently available to promote waste prevention and re-use. All of these approaches are focused on the reduction of waste with the exception of the last one – support for re-use of items, local waste exchanges and charity stores – which is a re-use measure.

Table 30. ***Options for waste reduction and re-use***

Option 1	Do nothing (do not further advance the various waste prevention and re-use initiatives currently in place)
Option 2	Implement programmes that do not require any capital expenditure: • trade waste diversion; • re-usable nappies; • waste aware (SMART) shopping; and • unwanted mail.
Option 3	Implement programmes that divert more than 2.5% of MSW arisings: • home composting; • waste aware (SMART) shopping; and • re-use – unwanted goods
Option 4	Implement all programmes offered identified by the KWF – home composting, waste aware (SMART) shopping, unwanted mail, re-usable nappies, trade waste diversion, product service businesses, and re-use – unwanted goods.

9.1.2 The appraisal concluded that, in general, the options that promised the greatest reduction in MSW arisings – Options 3 and 4 – performed best in terms of sustainability. Through reducing waste and increasing its re-use, they are likely to have positive implications for air quality, water quality, climate change, biodiversity, landscape and health. This is because Options 3 and 4 could lead to a reduction in MSW arisings such that there would be a corresponding reduction in the need for waste treatment facilities and the impacts associated with these.

9.1.3 Option 1 is the least compatible with sustainability principles since it essentially represents business-as-usual and will result in relatively little reduction in MSW arisings. Option 2 focuses on initiatives that do not require any capital expenditure (and relatively little action on the part of Kent's local authorities) and will result in comparatively less waste reduction than Options 3 and 4.

9.1.4 It should be noted that the difference between the performances of the options hinges on whether or not they actually lead to an overall *reduction* in MSW arisings. This 'tipping point' is the point at which an option is effective in reducing waste despite year-on-year increases in waste arisings.

9.1.5 It is acknowledged that some skepticism exists as to the effectiveness of waste prevention and re-use schemes. Nevertheless, work done on behalf of the KWF indicates that reductions in MSW arisings can be made, particularly under Options 3 and 4. However, the KWF's background work indicates that any waste reduction achieved by 2019 / 20 is likely to be limited (probably more so in light of planned housing growth for Kent). Achieving real reductions in waste arisings may require more radical measures (e.g. charging households per unit of waste produced[32]).

9.1.6 **Recommendation**: The KWF should pursue Options 3 or 4 (or a combination of these) since these options have the potential to reduce overall MSW arisings. This is crucial considering the recent year on year increases in MSW in Kent and the planned growth in the number of households.

9.2 Options for recycling and composting

9.2.1 The combined household **recycling and composting** rate for Kent, including material recycled at HWRCs, is currently around 29%. In light of this, the KWF generated a series of options for recycling and composting waste – see Table 31.

Table 31. ***Options for recycling and composting***

Option A	Raise participation and capture rates of current recycling collections to 80%
Option B	Increase coverage of recycling and composting collections to 100% and increase participation and capture to 80%
Option C	Expand glass collections to all households
Option D	Introduce compostable kitchen waste collections to all households
Option E	Expand garden waste collections to all relevant households
Option F	Expand the current cardboard collections to all households
Option G	Collect dense and film plastics from 100% of households
Option H	Collect tins and cans from 100% of households
Option I	Add kitchen and cardboard to current garden waste collections
Option J	Collect commingled plastics and tins and cans from 100% of households
Option K	Increase recycling at bring sites by 15%
Option L	Increase recycling at bring sites by 20%
Option M	Expand the range of bring sites to include dense and film plastics

[32] As recently recommended by the Policy Studies Institute (2006). *A Green Living Initiative* available at: http://www.psi.org.uk/pdf/2006/GreenLivingInitiative.pdf (NB this is not currently within the legal remit of authorities)

Option N	Increase recycling at the Household Waste Recycling Centres (HWRCs) to 60%
Option O	Increase recycling at the HWRCs to 75%

9.2.2 The appraisal concluded that Kent should maximise the coverage, participation and capture of recycling and composting collections as well as increasing recycling at bring sites and HWRC's. The Strategy should also make every effort to maximise the level of plastic and non-ferrous metal recycling within the County (therefore avoiding this being transported elsewhere).

9.2.3 **Recommendation**: It is recommended that Kent maximise the coverage, participation and capture of recycling and composting collections as well as increasing recycling at bring sites and HWRCs. The Strategy should also make every effort to ensure that such increases maximise the level of plastic and non-ferrous metal recycling within the County.

9.3 Options for energy recovery and disposal

9.3.1 Beyond recycling and composting, **recovery** is the capture of value from residual waste, usually in the form of energy. The Allington Waste Management Facility near Maidstone will include an Energy from Waste (EfW) plant - due to come on stream in late 2006 – and this will generate approximately 40 megawatt hours of electricity. Waste **disposal** generally involves landfilling residual waste and Kent currently sends approximately 552,000 tonnes of MSW per year to landfill. The amount of waste permitted to go to landfill is increasingly restricted under the EU Landfill Directive[33].

9.3.2 The KWF generated a series of options for energy recovery from waste and waste disposal – see Table 32. These centre on different waste treatment facilities and provide an indicative route to meeting the County's allowances under the Landfill and Allowance and Trading Scheme (LATS)[34].

[33] The Landfill Directive sets demanding targets to reduce the amount of biodegradable municipal landfilled.
[34] The Landfill Allowances Trading Scheme (LATS) went live on 1st April 2005 and is designed to help English authorities meet the targets in the Landfill Directive. The allowances will convey the right for a waste disposal authority to landfill a certain amount of biodegradable municipal waste in a specified scheme year. Each waste disposal authority will be able to determine how to use its allocation of allowances in the most effective way. It will be able to trade allowances with other authorities, save them for future years (bank) or use some of its future allowances in advance (borrow).

Table 32. ***Options for energy recovery from waste and waste disposal***

Option 1	New Energy from Waste (EfW) facility in East Kent
Option 2	Expand current contracted capacity at Allington EfW
Option 3	Mechanical Biological Treatment (MBT) plant in East Kent providing Refuse Derived Fuel (RDF) to Allington EfW
Option 4	MBT plant in East Kent stabilising material to be sent to landfill
Option 5	Autoclave in East Kent with fluff to Allington EfW
Option 6	Gasification plant in East Kent
Option 7	Anaerobic Digestion facility in East Kent
Option 8	In-vessel composting facilities across Kent for Garden and Kitchen Waste

9.3.3 The appraisal concluded that Kent should maximise the level of recycling and composting, particularly of plastics and metals, before any subsequent residual waste processing is carried out.

9.3.4 The technical appraisal work carried out by ERM, suggests that those options which generate energy perform better than those which do not. Of those which do, anaerobic digestion[35] (Option 7) is the only technology that generates renewable energy (under current definitions). It also operates further up the waste hierarchy than the other technologies and is therefore considered marginally more sustainable than the other energy generating technologies. However, it should be noted that the relatively strong performance of Option 7 rests on the fact that plastics and metals are removed (and recycled) prior to the digestion process.

9.3.5 **Recommendation**: It is recommended that Kent maximise the level of recycling and composting, particularly of plastics and metals, before any subsequent residual processing is carried out. The technical appraisal carried out by ERM suggests that although there is little difference between the options in terms of sustainability, those options which recover energy from waste perform better than those which do not. Of those that do, anaerobic digestion is the only option that generates renewable energy (under current definitions) and operates further up the waste hierarchy than the others. It is therefore marginally more compatible with sustainable development objectives than the other energy generating technologies.

9.4 Other recommendations from the options appraisal

9.4.1 Addressing the issues of waste reduction and re-use and recycling and composting on a separate basis (as required by Government guidance) can lead to potential incompatibilities. For example Option 3 for the reduction and reuse of waste emphasises that home composting can divert more than 2.5% of MSW arisings (and importantly promote a shift in household behaviour). Such a reduction could potentially be undermined by options for recycling and composting that lead to

[35] Anaerobic digestion is an alternative to landfilling of organic wastes. It is a naturally occurring process of decomposition and decay, by which organic matter is broken down to its simpler chemicals components under anaerobic conditions (without oxygen). The process produces biogas and digestate.

waste being collected from households and treated elsewhere. These options include the introduction of compostable kitchen waste collections to all households (Option D) and the expansion of garden waste collections to all relevant households (Option E).

9.4.2 **Recommendation**: The Strategy should elaborate on the relationship between home composting as a waste reduction measure and the collection of kitchen and garden waste as a recycling and composting measure. If necessary, the Strategy should include a policy or measures to ensure that the collection of kitchen and garden waste does not undermine efforts to promote home composting.

9.5 Headline Strategy policies

9.5.1 A key part of the SA process was the appraisal of the 20 policies for managing MSW contained in the Headline Strategy – see Table 16. The detailed action plans to be prepared in mid to late 2006 will set out how these policies will be implemented.

9.5.2 The appraisal concluded that the Strategy's performance in relation to the many of the environmental aspects of sustainability (e.g. reducing flood risk, protecting and enhancing biodiversity, the countryside and the historic environment) depended on the location, scale and characteristics of new waste management facilities.

9.5.3 **Recommendation**: The Strategy should adopt a clear requirement that waste facilities should not have an adverse impact on the natural or built environment and should contribute to environmental enhancement wherever possible. This commitment could be expressed through an additional policy on environmental sustainability in the Headline Strategy. More broadly, this policy could also include an explicit commitment to promoting sustainable development through the Strategy.

9.5.4 The appraisal emphasised the adverse impacts associated with the transportation of waste around Kent (e.g. pollution, noise, disruption to local amenity etc.). With this in mind the appraisal highlighted the need to promote waste transportation via more sustainable modes (rail, river and sea as opposed to road) as well as the proximity principle with respect to local recycling centres (the proximity principle holds that the best place to deal with something is as close to that something as possible).

9.5.5 **Recommendation**: The Strategy should explicitly support the transportation of waste by more sustainable modes (rail, river and sea as opposed to road) as well as the location of recycling facilities within walking distance of residential areas in order to reduce the need to travel by car). With this in mind, the KWF should clarify the meaning of the term 'accessible' under Policy 11.

9.6 Taking the Strategy forward

9.6.1 The 20 policies set out in the Headline Strategy will be implemented through a set of detailed **action plans** to be prepared during mid to late 2006. The completed Strategy including the action plans is set to be adopted in September 2006. In drawing up these action plans, choices will be made between the various options

set out above for waste reduction and re-use, recycling and composting and energy recovery and disposal. In order to ensure that sustainability concerns are considered in formulating these action plans, the appraisal findings set out above should be explicitly taken into account. In addition, the KWF could consider undertaking formal SA of the emerging action plans.

9.6.2 **Recommendation**: The KWF should ensure that the findings of this SA are taken into account in formulating the action plans for policy delivery. The KWF should also consider undertaking formal SA of the emerging action plans.

9.7 Summary of recommendations

9.7.1 The recommendations arising from the appraisal are summarised in Table 33.

Table 33. ***Summary of recommendations***

Options for managing MSW	
Waste reduction and re-use	**Recommendation**: The KWF should pursue Options 3 or 4 (or a combination of these) since these options have the potential to reduce overall MSW arisings. This is crucial considering the recent year on year increases in MSW in Kent and the planned growth in the number of households.
Recycling and composting	**Recommendation**: The KWF should pursue options which maximise the coverage, participation and capture of recycling and composting collections as well as increasing recycling at bring sites and HWRC's. Furthermore, the Strategy should promote the recycling of materials such as plastics and non-ferrous metals within the County.
Energy recovery and disposal	**Recommendation**: It is recommended that Kent maximise the level of recycling and composting, particularly of plastics and metals, before any subsequent residual processing is carried out. The technical appraisal carried out by ERM suggests that although there is little difference between the options in terms of sustainability, those options which recover energy from waste perform better than those which do not. Of those that do, anaerobic digestion is the only option that generates renewable energy (under current definitions) and operates further up the waste hierarchy than the others. It is therefore marginally more compatible with sustainable development objectives than the other energy generating technologies.
Other issues	**Recommendation**: The Strategy should elaborate on the relationship between home composting as a waste reduction measure and the collection of kitchen and garden waste as a recycling and composting measure. If necessary, the Strategy should include a policy or measures to ensure that the collection of kitchen and garden waste does not undermine efforts to promote home composting.
Headline Strategy policies	
Recommendation: The Strategy should adopt a clear requirement that waste facilities should not have an adverse impact on the natural or built environment and should contribute to environmental enhancement wherever possible. This commitment could be expressed through an additional policy on environmental sustainability in the Headline Strategy. More broadly, this policy could also include an explicit commitment to promoting sustainable development through the Strategy.	

Recommendation: The Strategy should explicitly support the transportation of waste by more sustainable modes (rail, river and sea as opposed to road) as well as the location of recycling facilities within walking distance of residential areas in order to reduce the need to travel by car). With this in mind, the KWF should clarify the meaning of the term 'accessible' under Policy 11.
Taking the Strategy forward
Recommendation: The KWF should ensure that the findings of this SA are taken into account in formulating the action plans for policy delivery. The KWF should also consider undertaking formal SA of the emerging action plans.

10 MONITORING

10.1 Introduction

10.1.1 The SEA Directive includes a specific requirement for monitoring the significant environmental effects of plans and programmes and the Environmental Report (incorporated within this report) should include a description of the measures envisaged for monitoring the plan.

The 'Environmental Report' required under the SEA Directive should include:

"a description of the measures envisaged concerning monitoring in accordance with Article 10"

Annex 1(i)

"Member States shall monitor the significant environmental effects of the implementation of plans and programmes…"

(Article 10(1))

10.1.2 Monitoring allows the significant environmental and sustainability effects of the Strategy's implementation to be identified and dealt with early on. It helps to assess the actual effects of the Strategy against those predicted in the SA and can provide baseline information for future waste planning.

10.1.3 The draft Headline Strategy states that the Strategy will be monitored for compliance with Government policy and guidance and to ensure that it is current and relevant in the light of changing circumstances. Government guidance on municipal waste management strategies[36] states that it is vital that the delivery of strategies is properly monitored and success properly evaluated. It advises that Strategies should set clear indicators and targets against which to measure progress and should identify the triggers for a fundamental review. The guidance advises that authorities should include both **environmental indicators** and **other performance indicators** within the action plans.

10.1.4 Government guidance provides examples of performance indicators. These include the number of householders with gardens who are home composting; kilograms of recyclables collected per household; and quantity of biodegradable municipal waste landfilled.

[36] DEFRA (2005). *Guidance on Municipal Waste Management Strategies* available at: http://www.defra.gov.uk/environment/waste/localauth/pdf/guidemunwaste-strategy.pdf

10.2 Environment and sustainability indicators

10.2.1 The environment and sustainability indicators to be included in the action plans should provide a means to monitor the *significant* environmental and sustainability effects identified in the appraisal. With this in mind, Table 34 sets out the significant impacts identified through the appraisal process as well as potential indicators the KWF might wish to include in the action plans. These impacts are organised around the themes of the 12 objectives used to undertake the appraisal.

Table 34. ***Significant environmental and sustainability effects of the Strategy and potential indicators***

Significant effect	Potential indicators
Flood risk	
The provision of new recycling and composting and energy recovery and disposal facilities will inevitably involve land take with potentially consequent adverse effects on flood risk.	• Flood risk in Kent – Overlay EA flood zone maps with JMWMS derived schemes over a given threshold in scale.
Air quality and climate change	
Impacts on air quality and climate change can arise from new recycling and composting and energy recovery and disposal facilities as well as associated transportation. They also arise from extraction and processing of virgin materials that ultimately generates waste.	• Additional levels of waste transportation associated with JMWMS derived schemes • Carbon emissions from waste treatment and disposal
Water quality and water resources	
The provision of new recycling and composting and energy recovery and disposal facilities will inevitably involve land take with potentially consequent adverse effects on water quality in particular.	• Proportion of river length achieving compliance, marginal and significant failure against overall river quality objectives.
Biodiversity	
The provision of new recycling and composting and energy recovery and disposal facilities will inevitably involve land take with potentially consequent adverse effects on biodiversity.	• Net loss of any designated area due to JMWMS derived scheme. • Potential impacts of proposed JMWMS derived scheme on biodiversity. (Information derived from relevant planning application and environmental statement).
Countryside and the historic environment	
The provision of new recycling and composting and energy recovery and disposal facilities will inevitably involve land take with potentially consequent adverse effects on the countryside and the historic environment.	• Net loss of any designated area due to JMWMS derived scheme • Potential impact of proposed JMWMS derived scheme on landscape designations and landscape character (Information derived from relevant planning application and environmental statement).
Efficient use of land and buildings	

The provision of new recycling and composting and energy recovery and disposal facilities will inevitably involve land take which could include greenfield land	• Net loss of greenfield land and / or greenbelt as a result of proposed JMWMS derived scheme. (Information derived from relevant planning application and environmental statement).
Road traffic and sustainable transport	
The provision of new recycling and composting and energy recovery and disposal facilities will involve the transportation of waste – the more demanding recycling and composting options involve greater levels of transportation.	• Additional levels of waste transportation associated with JMWMS derived schemes • Proportion of MSW in Kent transported by rail, river and sea
Waste management	
It is assumed that the degree to which the management of MSW in Kent is driven up the waste hierarchy will be monitored through the various performance indicators.	
Energy efficiency and renewable energy	
The provision of new recycling and composting and energy recovery and disposal facilities will involve energy consumption and could potentially generate renewable energy. Energy will also be used for associated waste transportation. However, the energy necessary to extract and process virgin materials may decline (generally outside of Kent)	• Additional levels of waste transportation associated with JMWMS derived schemes • Renewable energy generated from energy recovery facilities (NB zero if anaerobic digestion is not pursued)
Sustainable production and local products and services	
The role of the Community and Social Enterprise Sector in managing MSW could be significant with impacts on household behaviour, transportation etc.	• Prevalence of community-based MSW management schemes
Health and well-being	
Studies show the total number of emissions to hospital associated with waste technologies to be relatively low (although this is clearly reliant on the correct operation of facilities).	• Failures in operating procedures at JMWMS derived schemes
Economy	
Generally speaking there are limited employment opportunities arising from new waste management facilities and this is not considered a significant issue	N/A

11 WHAT HAPPENS NEXT?

11.1 Taking the appraisal and consultation findings into account

11.1.1 This report is being issued for public consultation alongside the draft Headline Strategy. Following the receipt of comments from the public and the Consultation Bodies (the Countryside Agency, English Heritage, English Nature and the Environment Agency), the comments and the findings of the appraisal will be taken into taken into account by the KWF in finalising the Strategy.

Under the SEA Directive:

"The environmental report…[and] the opinions expressed [through the consultation]…shall be taken into account during the preparation of the plan or programme and before its adoption…"

(Article 8)

11.2 SEA / SA Statement

11.2.1 Once a plan or programme has been adopted, the SEA Directive requires those responsible for preparing it – in this case the KWF - to provide the public and the Consultation Bodies with information on how environmental considerations and consultation responses are reflected in the plan or programme and how its implementation will be monitored in the future.

Plan or programme proponents should ensure that, when a plan or programme is adopted, the Environmental Consultation Bodies and the public "*are informed and the following items are made available to those so informed:*

(a) the plan or programme as adopted;

(b) a statement summarising how environmental considerations have been integrated into the plan or programme…[including] the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with, and

(c) the measures decided concerning monitoring [of the plan]

(Annex 9(1)

11.2.2 In light of this requirement, the KWF will prepare a **SEA / SA Statement** setting out the above information. This will most likely be issued after the Strategy has been adopted – anticipated to be in September 2006.

APPENDIX 1 – INTEGRATING SUSTAINABILITY INTO STRATEGY DEVELOPMENT

Criteria for the technical appraisal of the options for recycling and composting (source: ERM)

SA Objectives	Assessment Criteria	Comments
To ensure that everyone has the opportunity to live in a decent, sustainably constructed home	N/A	Not applicable to a strategic level MSW Strategy
To reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment.	N/A	This objective is only relevant when dealing with site-specific issues and is largely dependant on location. This will therefore not be applied at a strategic level
To improve the health and well being of the population and reduce inequalities in health	✓ **Health Impact - emissions injurious to human health**	
To reduce crime and the fear of crime	N/A	Not applicable to a strategic level MSW Strategy
To improve accessibility to all services and facilities	✓ **Accessibility to Services**	
To improve efficiency in land use	✓ **Land use Impacts**	
To reduce air pollution and ensure air quality continues to improve; and to address the causes of climate change through reducing emissions of greenhouse gasses and ensure Kent is prepared for its impacts	✓ **Air Pollution**	
	✓ **Emissions of Greenhouse Gases**	
To conserve and enhance Kent's biodiversity	N/A	This objective is only relevant when dealing with site specific issues and is largely dependant on location. This will therefore not be applied at a strategic level
To protect, enhance and make accessible for enjoyment, Kent's countryside and coast, and its historic environment	N/A	This objective is only relevant when dealing with site specific issues and is largely dependant on location. This will therefore not be applied at a strategic level
To reduce road traffic and its impacts, promote sustainable modes of transport and reduce the need for travel by car or lorry	✓ **Impacts of Road Transportation**	

SA Objectives	Assessment Criteria	Comments
To reduce the global, social and environmental impact of consumption of resources by using sustainably produced and local products and services	✓ **Impact of Resource use (Resource Depletion)**	
To reduce waste generation and disposal and achieve sustainable waste management	✓ **Compatibility with the Waste Hierarchy**	
	✓ **Reliability of Delivery**	
	✓ **Liability of End Product**	
To maintain and improve the water quality of Kent's rivers, coasts and groundwater	✓ **Impact on Water Pollution**	
To increase energy efficiency and the proportion of energy generated from renewable sources in Kent	✓ **Energy generation and consumption**	
To build a strong, stable and sustainable economy which provides prosperity and opportunities (including learning and skills) for all, and in which environmental and social costs fall on those who impose them, and efficient resource use is incentivised	✓ **Number of jobs created**	
	✓ **Financial Cost**	

Criteria for the technical appraisal of the options for energy recovery and disposal (source: ERM)

SA Objectives	Assessment Criteria	Comments
To ensure that everyone has the opportunity to live in a decent, sustainably constructed home	N/A	Not applicable to a strategic level MSWS
To reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment.	N/A	This objective is only relevant when dealing with site specific issues and is largely dependant on location. This will therefore not be applied at a strategic level
To improve the health and well being of the population and reduce inequalities in health	✓ **Health Impact - emissions injurious to human health**	
To reduce crime and the fear of crime	N/A	Not applicable to a strategic level MSWS

SA Objectives	Assessment Criteria	Comments
To improve accessibility to all services and facilities	N/A	Not applicable to a strategic level MSWS
To improve efficiency in land use	✓ **Land use Impacts**	
To reduce air pollution and ensure air quality continues to improve; and to address the causes of climate change through reducing emissions of greenhouse gasses and ensure Kent is prepared for its impacts	✓ **Air Pollution**	
	✓ **Emissions of Greenhouse Gases**	
To conserve and enhance Kent's biodiversity	N/A	This objective is only relevant when dealing with site-specific issues and is largely dependant on location. This will therefore not be applied at a strategic level
To protect, enhance and make accessible for enjoyment, Kent's countryside and coast, and its historic environment	N/A	This objective is only relevant when dealing with site-specific issues and is largely dependant on location. This will therefore not be applied at a strategic level
To reduce road traffic and its impacts, promote sustainable modes of transport and reduce the need for travel by car or lorry	✓ **Impacts of Road Transportation**	
To reduce the global, social and environmental impact of consumption of resources by using sustainably produced and local products and services	✓ **Impact of Resource use (Resource Depletion)**	
To reduce waste generation and disposal and achieve sustainable waste management	✓ **Compatibility with the Waste Hierarchy**	
	✓ **Reliability of Delivery**	
	✓ **Liability of End Product**	
To maintain and improve the water quality of Kent's rivers, coasts and groundwater	✓ **Impact on Water Pollution**	
To increase energy efficiency and the proportion of energy generated from renewable sources in Kent	✓ **Energy generation and consumption**	
To build a strong and stable economy which provides prosperity and opportunities for all	✓ **Number of jobs created**	
	✓ **Financial Cost**	

APPENDIX 2 – APPRAISAL OF THE STRATEGY OBJECTIVES

Introduction

The appraisal of the working Strategy objectives was undertaken by Levett-Therivel in December 2005. Table 35 lists the objectives with the numbers used to identify them in this Appendix.

Table 35. ***JMWMS objectives***

Overall objectives	
1.	To meet the statutory targets set for Kent, and exceed them in areas where this is a locally agreed priority
2.	To deliver high quality services
3.	To engage householders so that they understand the need for waste reduction and recycling, and participate fully in recycling services
4.	To support, where possible, other related policy aims of the Kent authorities (e.g. regeneration)
5.	To Influence the Waste Development Framework and Regional Spatial Strategy to ensure deliverability
6.	To secure sufficient funding to implement the Strategy
Waste minimisation	
7.	To break the link between waste growth and economic growth
8.	To look at waste growth in Kent on a per capita basis
9.	To lobby Government for new measures in areas such as product design, packaging and producer responsibility, which need to be addressed at national or international level
Recycling and composting	
10.	To retain 40% recycling and composting target
11.	To set realistic and achievable targets
12.	To aspire to the regional recycling targets, but not sign up to them
13.	To make recycling convenient for householders, across all housing types
14.	To increase participation and capture in existing schemes, alongside investing in new services
15.	To invest in schemes that yield the best results in terms in recycling and composting for Kent
LATS (Landfill Allowance Trading Scheme)	
16.	To provide additional capacity to enable Kent to meet its LATS obligations, (and not to rely on purchasing allowances)
17.	To avoid over-scaling facilities, which could attract waste imports to the County
18.	To take a pragmatic approach to trading, willing to trade but not reliant on trading for compliance or essential income

Given the 'draft' nature of the objectives, Levett-Therivel did not consider it possible to carry out a formal appraisal of the objectives (although they were able to identify some gaps where the working objectives do not cover the full range of sustainability issues). Instead, this appendix summarises some issues that they felt should be resolved as part of the further development of the objectives and before the Strategy is adopted. The analysis focuses on:

- unclear objectives;
- 'objectives' that may not really be objectives;
- possibly inconsistent and overlapping objectives;
- gaps where further objectives may be needed; and
- overall comments.

Recommended changes to the working objectives are in italics.

Unclear objectives

- 1. To meet the statutory targets set for Kent. *Environmental, social and economic targets, or just waste targets?*
- 2. To deliver high quality services. *High quality for whom? How would this manifest itself, i.e. what would be indicators for this?*
- 11. To set realistic and achievable targets: *Specify that this is for recycling and composting.*

'Objectives' that may not really be objectives

- 5. To Influence the Waste Development Framework and Regional Spatial Strategy to ensure deliverability: *this seems to be about the role of the strategy rather than its contents – delete?*
- 6. To secure sufficient funding to implement the Strategy: *this seems to be about the delivery of the strategy rather than its contents: delete?*
- 8. To look at waste growth in Kent on a per capita basis: *this seems to be a principle that underlies the development of the Strategy rather than an objective in its own right… unless it is rephrased as something like 'to reduce per capita waste production': delete?*
- 9. To lobby Government for new measures in areas such as product design, packaging and producer responsibility, which need to be addressed at national or international level: *is this in the remit of the strategy, or is this a wider county council role? delete?*

Possibly inconsistent / overlapping objectives

Table 36 sets out a 'compatibility appraisal' of the working objectives. It identifies several possible inconsistencies and overlapping objectives in three clusters.

Table 36. Compatibility appraisal of working objectives

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2	✓																
3	✓	✓															
4	✓	✓	✓														
5	✓																
6	✓																
7	✓	✓	✓	✓													
8																	
9	✓			✓													
10	X?	✓	✓	✓			✓										
11	X?									X?							
12	X?									X?	X?						
13	✓	✓	✓				✓			✓	✓	✓					
14	✓	✓	✓				✓			✓	✓	✓	✓				
15	✓		✓	✓			✓			✓	✓	✓	✓	✓			
16	✓																
17	X?			✓												X?	
18	X?															✓	✓

Cluster 1: Recycling targets

1. To meet the statutory targets set for Kent, and exceed them in areas where this is a locally agreed priority

10. To retain 40% recycling and composting target

11. To set realistic and achievable targets

12. To aspire to the regional recycling targets, but not sign up to them

- *Are the statutory targets (1) and regional recycling targets (12) targets the same thing? If so, 1. suggests meeting / exceeding them whilst 12. suggests not signing up to them: inconsistency. If not, clarify what the difference is.*

- *Are the statutory (1), regional (12) and 40% recycling/composting (10) considered to be realistic and achievable (11)? If yes, is 11 necessary? If no, then there is inconsistency between the objectives.*

Cluster 2: LATS targets

1. To meet the statutory targets set for Kent, and exceed them in areas where this is a locally agreed priority

16. To provide additional capacity to enable Kent to meet its LATS obligations, (and not to rely on purchasing allowances)

17. To avoid over-scaling facilities, which could attract waste imports to the county.

- *Objectives 16 and 17 contradict each other when they are viewed separately, but between them presumably aim to provide a balanced approach. Merge them into one objective?*

- *Does either 16 or 17 contradict 1? Are there any statutory targets for LATS?*

Cluster 3: Engaging the public

3. To engage householders so that they understand the need for waste reduction and recycling, and participate fully in recycling services

13. To make recycling convenient for householders, across all housing types

14. To increase participation and capture in existing schemes, alongside investing in new services

15. To invest in schemes that yield the best results in terms in recycling and composting for Kent.

- *Are 3. and 13. the way of achieving the first part of 14?*

- *Is the second part of 14 covered by 15?*

- *In other words, is 14 necessary?*

- *Alternatively, if 'engaging householders' is an overall objective, should the "… so that" part of 3. be broadened out to encompass the whole waste hierarchy?*

Gaps where further objectives may be needed

Table 37 below shows how the SA objectives are covered by the working objectives. Only one SA objective is covered quite well – that on waste generation and disposal – although even there, the working objectives are more about generation than about disposal. Most of the SA objectives are only partly covered by only one working objective, which itself is very vague and qualified: "4. To support, where possible, other related policy aims of the Kent authorities". Working objectives 10, 14 and 15 contribute to several SA objectives because they are reasonably specific, and would indirectly help to reduce the need for new landfill

sites and thus impacts on biodiversity, the countryside and historic environment etc. Many of the other objectives are too indirect ("to influence", "to lobby", "to set targets") to clearly support the SA objectives.

- *Be more specific about what policy aims are promoted in 4, and translate them into a direct objective (e.g. "to maintain and enhance Kent's biodiversity, landscape etc." rather than "to support related policy aims")*

Table 37. How the SA objectives are covered by the working objectives

SA objective	Covered by objectives…
1. To reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment	4?
2. To reduce air pollution and ensure air quality continues to improve; and to address the causes of climate change through reducing emissions of greenhouse gases and ensure that Kent is prepared for its impacts	4?, 10, 14, 15
3. To maintain and improve the water quality of Kent's rivers, coasts and groundwater	4?
4. To conserve and enhance Kent's biodiversity, including coastal and marine biodiversity	4?, 10, 14, 15
5. To protect, enhance and make accessible for enjoyment, Kent's countryside and coast, and its historic environment	4?, 10, 14, 15
6. To improve efficiency in land use through the re-use of previously developed land and existing buildings, including re-use of materials from buildings	4?
7. To reduce road traffic and its impacts, promote more sustainable modes of transport and reduce the need to travel by car/lorry	4?
8. To reduce waste generation and disposal, and achieve the sustainable management of waste	3,7, 9, 10, 13, 14, 15
9. To increase energy efficiency and the proportion of energy generated from renewable sources in Kent	4?
10. To reduce the global, social and environmental impact of consumption of resources by using sustainably produced and local products and services	
11. To improve the health and well-being of the population and reduce inequalities in health	4?
12. To build a strong, stable and sustainable economy which provides prosperity and opportunities (including learning and skills) for all, and in which environmental and social costs fall on those who impose them, and efficient resource use is incentivised.	4?, 7

Covered only by indirect objective 4, or not at all.

- The working objectives cover waste minimisation and recycling / composting, but they do not mention the other parts of the waste hierarchy: reuse, other forms of waste management (e.g. incineration), and final disposal. *Add objectives for these; or sub-categories as for waste minimisation and recycling; or make all the objectives generic to all the levels of the waste hierarchy.*

- The working objectives say nothing about transport of waste, for instance the proximity principle (managing waste close to its point of origin) and use of more sustainable modes of transport. *Add 1-2 objectives for this.*

- Given the historical links between waste management and minerals extraction (use of disused minerals sites for waste disposal, recycling of aggregates etc.)… *add a specific objective on links with mineral extraction?*

Overall comments

Overall the working objectives look very much like a consensus of public opinion rather than a strategy which makes some difficult and necessary decisions. Waste produced per person in Kent has risen by about 3% per year for the last five years; is more than 8% higher than the national average; and shows no signs of going down. Although the working objectives propose a break between economic growth and waste growth, they do not recommend a decrease in the amount of waste produced. It is a decrease that is needed to be sustainable. "Aspiring to regional targets but not signing up to them" and "setting realistic and achievable targets" suggests an emphasis on political acceptability rather than the tough kind of action that is needed.

Consider adding objectives on:

- *waste reduction;*

- *incineration (or not);*

- *how to deal with landfill;*

- *financial incentives or disincentives for promoting waste minimisation;*

- *support of community based organisations that support waste minimisation, recycling etc.;*

- *Kent County Council procurement systems that minimise waste production; and*

- *requiring developers to include recycling facilities in new developments.*

TECHNICAL APPENDIX – DETAILED APPRAISAL FINDINGS

Technical Appendix 1 – Detailed findings of the options appraisal

Technical Appendix 2 – Detailed findings of the policy appraisal