

APPENDIX 2

Waste Development Framework Options Development and Appraisal

1. The LUC SEA/SA team met with Council waste planning officers on 18 December 2003 to develop a range of broad options (or 'alternatives') for key Plan issues, as detailed in Stage B of the October 2003 SEA guidance. The alternatives/options considered were strategic options appropriate to the level of detail envisaged for the Core Strategy DPD. The aim of this initial appraisal was to consider the key sustainability issues which need to be considered in selecting preferred options for the Core Strategy, particularly in terms of the sustainability advantages and disadvantages of these.

OPTION DEVELOPMENT

2. Key issues for the WLP Review were discussed during the October 2003 Stakeholder Consultation Event, under five topic areas:
 - Waste minimisation
 - Recycling
 - New sites for waste facilities
 - Environmental effects of waste management (positive and negative)
 - New technologies
3. Drawing upon the outcomes of the stakeholder event, the SEA/SA team and Council officers developed broad options for the following key Plan issues:
 - Overall balance of the Plan
 - Site Identification (Location and Assessment)
 - Environmental Effects and Mitigation (Communication/Awareness Raising, Facility Numbers, Green Belt, Brownfield Land, Local Designations)
 - Re-use of inert waste (Land Preparation)
 - Residual waste treatment (New Technologies, Landraise, Mineral Voids)
4. Council officers and the SEA/SA team discussed the current Plan approach to each of these issues, and took into account views of the stakeholders that came out of the October 2003 Stakeholder Consultation Event when developing broad options for each key Plan issue. As suggested in the ODPM's SA guidance (Appendix 11, Figure 27), the SEA/SA team and the Council officers considered a sequence of options for key Plan issues, from need/demand, to mode/process, to location and timing, to design. Key points arising from the guidance, which must be considered when defining/appraising options include:
 - Any options should be compatible with the plan objectives (although it is acknowledged that some of the options defined below may not be).
 - The 'business as usual' option of continuing with the existing plan or trends should be considered in all cases.

- Authorities should document and explain why they have not considered options, including apparently plausible options.
5. **Table AI** shows the example matrix the SEA/SA team and Council officers used to develop options for each key Plan issue, and the SEA/SA team used to subsequently appraise those options. For each key Plan issue, the approach in the current Plan was discussed, and then alternative options were considered that usually entailed either doing more than what the current Plan does, or doing less, as in the example in Table 7.1 for Local Designations. However, for many key issues, the distinction between options was not so simple and did not fall easily into two alternative options to the current Plan approach. For example, for Site Location, the current Plan approach is a mixture of identified Areas of Search, safeguarding existing and identified sites, and also criteria-based policies for new facilities. The development of possible alternative options considered the use of identified and safeguarded sites/Areas of Search only, criteria-based policies only, and a market-led approach. Thus, for that key issue, three alternative options were proposed.

Table AI Example matrix for option development and appraisal

Option	Main advantages	Main disadvantages	Comments
Key Plan Issue: e.g. Environmental Effects and Mitigation – Local Designations			
Current Plan approach Contained in Waste Policy 13 I) “minimise impact on local or natural environments”, and Waste Policies 33-37 which provide a framework for protecting and conserving locally important landscapes, nature reserves, semi-natural habitats, parks and gardens, and archaeological remains from any impacts proposed waste management facilities may have.	Briefly discuss advantages of option structured around the four themes: <ul style="list-style-type: none"> • Effective protection of the environment • Prudent use of natural resources • Maintenance of high and stable levels of economic growth and employment • Social progress which meets the needs of everyone 	Briefly discuss disadvantages of option structured around the four themes: <ul style="list-style-type: none"> • Effective protection of the environment • Prudent use of natural resources • Maintenance of high and stable levels of economic growth and employment • Social progress which meets the needs of everyone 	E.g. Summary of advantages and disadvantages for option in sustainability terms. State any assumptions used about the current Plan approach or alternative options.
Alternative Option 1 – Do more than the current Plan approach E.g. Increase the restriction on development of waste management facilities in locally designated areas.	As above.	As above.	As above.
Alternative Option 2 – Do less than the current Plan approach E.g. Decrease the	As above.	As above.	As above.

restriction on development of waste management facilities in locally designated areas.			
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6. Following the method set out above, the options developed by the SEA/SA team and Council officers are presented in **Table A2**. It is important to note that at this stage the options were only posed as possible alternative approaches to dealing with the key Plan issues and were not accepted options for the Plan. The options were incorporated into the Draft Issues and Options Paper (July 2004) and were subject to an extensive consultation programme in late summer 2004¹.

Table A2 Options developed for key Plan issues

Option	Description
OVERALL BALANCE OF THE PLAN	
<i>Need vs. Environmental Effects</i>	
Current Plan approach	Contained in Waste Policy 1: "...the County Council will have regard to the extent to which the (waste management) development is sustainable in form and location and helps to conserve resources of land, water, materials, energy and the environment and minimises traffic congestion, travel distances, waste generation and pollution...(and) give preference to the location of waste...facilities as close as practicable to the origin of waste"; and Waste Policy 2: "The establishment of...(waste management facilities)will be supported provided that in order to accommodate the equivalent of Hertfordshire's own waste arisings, there is a clearly established need for additional capacity and facilities of the kind that the proposed development would provide, which outweighs any material agricultural, landscape, conservation or environmental interest affected by the proposal." This is essentially a balance between environmental protection and meeting the need for sustainable waste management facilities.
Option 1	Place greater emphasis on the need for waste management facilities than environmental protection.
Option 2	While accepting that the need for waste management facilities is important, place even greater priority on environmental protection.

¹ The final Issues and Options Report was published in September 2004, and the consultation period ran from 11 October – 27 November 2004.

Option	Description
SITE IDENTIFICATION	
Site Location (All options should take into account the 4 key principles of waste management from PPG10: BPEO, Regional Self-Sufficiency, Proximity Principle and the Waste Hierarchy)	
Current Plan approach	Contained in Waste Policy 12: <i>“The County Council will grant permission for the establishment of permanent facilities on sites in the preferred Areas of Search, subject to the requirements of Waste Policy 2.”</i> and Waste Policy 18: <i>“The County Council will seek to safeguard the following land for re-use, recovery, recycling or transfer of waste and will normally oppose development proposals which would prevent or prejudice the use of this land for those purposes...”</i> 30 Areas of Search are listed in Waste Policy 12, which are mostly within Employment Areas identified in District Local Plans. Para. 6.34 notes that the Areas of Search contain sufficient sites to provide facilities for re-use and recycling of 25% of the “equivalent of all waste arising” in Hertfordshire. Waste Policy 18 lists 28 existing waste recycling and transfer sites and household waste sites, and one proposed household waste site.
Option 1	Do not identify Areas of Search or safeguard existing sites for waste management facilities, and rely on a market-led approach.
Option 2	Identify Areas of Search and safeguard existing and identified sites for waste management facilities, but have no criteria-based policies.
Option 3	Have criteria-based policies for waste management facilities without identifying Areas of Search.
Site Assessment	
Current Plan approach	Paragraph 6.30 in the current Waste Local Plan lists the criteria that were used to evaluate possible Areas of Search for inclusion in the Waste Local Plan, and Waste Policy 13 contains the same criteria also used to assess proposals for facilities outside the preferred Areas of Search.
Option 1	Revise criteria in para. 6.30 and Waste Policy 13 for assessing sites for waste management facilities, through consultation with local stakeholders.
Option 2	Retain criteria in para. 6.30 and Waste Policy 13, but include a criterion: “provided the site represents a viable option for the waste management industry”.
ENVIRONMENTAL EFFECTS AND MITIGATION	
PR/Communication/Awareness Raising	
Current Plan approach	The Plan recognises at para 2.1 <i>“that Local Planning Authority powers and influence in relation to waste, although considerable, do not extend to complete control over waste.”</i> Communication, education and awareness raising about waste management issues and the environmental effects associated with waste management facilities are not within the remit of a Waste Local Plan. However, one of the Plan’s aims and objectives listed in para. 3.2 is <i>“To involve the wider community in the waste management debate”</i> .
Option 1	The Council does more to raise awareness about wider waste management issues and the environmental effects associated with waste management facilities.

Option	Description
Option 2	Developers do more to raise awareness about wider waste management issues and the environmental effects associated with waste management facilities.
Facility numbers	
Current Plan approach	<p>Contained in Waste Policy 2: <i>“The establishment of...(waste management facilities) will be supported provided that in order to accommodate the equivalent of Hertfordshire’s own waste arisings, there is a clearly established need for additional capacity and facilities of the kind that the proposed development would provide...”</i> i.e. the Waste Local Plan seeks to provide for sufficient sites to meet the need for waste management in Hertfordshire.</p> <p>Indicative numbers and types of facility required were based on the Berkshire Waste Local Plan, and are included on p. 49 of Appendix 3. The Areas of Search identified in Waste Policy 12 of the Plan contain a variety of sizes of possible site, and provide for sufficient sites to provide facilities for re-use and recycling of 25% of the “equivalent” of all waste arisings in Hertfordshire. Waste Policy 18 lists 28 existing waste recycling and transfer sites and household waste sites, and one proposed household waste site. Waste Policy 21 lists 27 existing mineral working sites where disposal of waste will be permitted, and 5 former mineral working sites, provided it is in accordance with restoration. Proposals to meet the remaining need for facilities will be assessed against the criteria-based policies in the Plan.</p>
Option 1	In line with the revised targets, provide a small number of large waste management facilities to meet the need.
Option 2	In line with the revised targets, provide a large number of small waste management facilities to meet the need.
Option 3	In line with the revised targets, provide a mixture of small and large waste management facilities to meet the need.
Option 4	Favour extensions to existing sites, where adjoining land allows this.
Green Belt	
Current Plan approach	<p>Contained in Waste Policy 16: <i>“The use of land in the Green Belt for the re-use, recovery, recycling and storage of waste will not be permitted unless it maintains openness and does not conflict with the purposes of including land in the Green Belt. The construction of new buildings in the Green Belt...will not be permitted except in very special circumstances. The re-use of existing buildings in the Green Belt...may be permitted subject to other relevant policies of the Development Plan.”</i> Para. 6.46 notes that composting on a less than industrial scale could be appropriate development on sites in the Green Belt, subject to the advice contained in PPG2.</p>
Option 1	When considering proposals for waste management facilities, give more weight to Green Belt policy (PPG2) than to the need for the facility and the proximity principle, i.e. if a site is within the Green Belt, it will not be permitted even if its location is close to the source of the waste needing to be managed.

Option	Description
Option 2	When considering proposals for waste management facilities, give more weight to the need for the facility and the proximity principle than to Green Belt policy (PPG2), i.e. even if a site is within the Green Belt, it will be permitted if its location is close to the source of the waste needing to be managed and there is a clearly identified need that cannot be met elsewhere.
Brownfield land	
Current Plan approach	Contained in Waste Policy 13 V) a): <i>“Proposals for facilities to re-use, recover, transfer and recycle waste outside preferred areas of search, or for additional categories of waste management within the Areas of Search, will be permitted subject to compliance with Waste Policy 2 and provided the proposals...V) are preferably on land falling into one of the ...a) land allocated for development, or subject to potential redevelopment, or on despoiled land”</i> . Thus, the Waste Local Plan favours development on brownfield land, as do most development plans due to the national guidance in PPG I, that a sustainable planning framework should use already developed areas in the most efficient way. Other PPGs also advise using previously developed land before greenfield sites for different types of development, giving rise to competing demands for brownfield land.
Option 1	Waste management facilities should be given priority for brownfield land over other forms of development (i.e. housing, employment).
Option 2	Other forms of development (i.e. housing, employment) should be given priority for brownfield land over waste management facilities.
Local designations	
Current Plan approach	Contained in Waste Policy 13 I): <i>“Proposals for facilities to re-use, recover, transfer and recycle waste outside preferred areas of search, or for additional categories of waste management within the Areas of Search, will be permitted subject to compliance with Waste Policy 2 and provided the proposals...I) minimise impact on local or natural environments”</i> ; and Waste Policies 33-37 which provide a framework for protecting and conserving locally important landscapes, nature reserves, semi-natural habitats, parks and gardens, and archaeological remains from any impacts proposed waste management facilities may have
Option 1	Increase the restriction on development of waste management facilities in locally designated areas.
Option 2	Decrease the restriction on development of waste management facilities in locally designated areas.
RE-USE OF INERT WASTE – LAND PREPARATION	
Land preparation	
Current Plan approach	Contained in Waste Policy 7 <i>“In considering proposals for development. the County Council will have regard to the extent to which clean, excavated material from construction projects is to be re-used in the project itself as a first objective or otherwise used:</i> <ol style="list-style-type: none"> <li data-bbox="727 1703 1073 1730">1. as preparation for development; <li data-bbox="727 1730 984 1757">2. for land restoration; or <li data-bbox="727 1757 971 1785">3. for site landscaping.”
Option 1	Encourage the maximum re-use of clean, excavated material.

Option	Description
Option 2	Balance the re-use of clean, excavated spoil with environmental considerations such as landscape impact.
RESIDUAL WASTE TREATMENT	
<i>New technologies for dealing with residual waste</i>	
Current Plan approach	Contained in Waste Policy 19: <i>“Proposals for waste to energy plants...should: A) avoid major existing or proposed residential areas; B) minimise impact on local and natural environment; C) ...minimise the impact of traffic; D) be within or close to a major...industrial area; E) ...relate to existing or proposed waste management or energy proposals; F) located where visual and landscape impact is not a critical issue; G) comply with...Waste Policy 2”.</i>
Option 1	Give preference to technologies for treatment of residual waste which have an energy dimension.
Option 2	Do not give preference to technologies for treatment of residual waste which have an energy dimension.
<i>Landraise</i>	
Current Plan approach	Contained in Waste Policy 24: <i>“Disposal of waste by raising the level of land will only be permitted where it would assist the preparation of land for other approved development proposals or where the land is derelict or degraded or where it can be demonstrated that it will not give rise to unacceptable environmental and other effects, and it would result in significant agricultural, land drainage, landscape enhancement or other environmental benefit and...meet...Waste Policies 32-4.”</i>
Option 1	Do not include landraise as a method for residual waste treatment.
<i>Mineral voids</i>	
Current Plan approach	Contained in Waste Policy 21 which lists 27 existing mineral working sites where disposal of waste by landfill will be permitted in accordance with a scheme of working and restoration, 5 former mineral working sites where filling is required to achieve satisfactory restoration of the site, and refers to sites identified for future mineral extraction and on other sites approved for mineral extraction in the Hertfordshire Minerals Local Plan where there is a requirement for fill to achieve restoration; and Waste Policy 23: <i>“The County Council will seek to safeguard significant mineral working voids which could potentially be used for the disposal of waste by landfill in the future in line with the restoration objectives set out in the relevant sub-area in the Hertfordshire Minerals Local Plan...”</i>
Option 1	The restoration of mineral voids should be paramount, and they should not be used for disposal of waste by landfill, except where it is demonstrated that the disposal is necessary to achieve the most appropriate form of restoration.
Option 2	The use of mineral voids for disposal of waste by landfill is more important than the restoration of those mineral sites.

OPTION APPRAISAL

7. At the time of this options appraisal, the ODPM SEA Guidance only required that the SEA/SA team consider the main advantages and disadvantages of the options (in sustainable development terms, as shown in Table AI). Therefore, the broad advantages and disadvantages associated with each option were considered in terms of the four themes of sustainable development.
8. For each key issue, the options are compared with each other and with a continuation of the current Plan approach. The assumptions and thinking behind each of the issues and options, and the broad differences in sustainable development terms between the options for each key Plan issue are discussed below. The full appraisal table was presented in the Scoping Report².

Overall Balance of the Plan – Need vs Environmental Effects

9. The issue 'Overall balance of the Plan' is focussed on the balance between the need for waste management facilities and protection of the environment in terms of location of facilities. While there is some risk to the environment inherent in waste management activities, those environmental effects were considered when appraising the options for other issues dealing more with waste management activities and processes (e.g. specific facility types, new technologies for residual waste, landraise).
10. It is assumed that in attempting to achieve the proximity principle and using techniques further up the waste hierarchy, more facilities will be needed in Hertfordshire if it is to deal with the equivalent of its own waste (as there is currently a strong reliance on landfill voidspace in other counties). Thus, there will be a greater landtake in Hertfordshire for waste facilities than at present.
11. The Current Plan approach has many advantages in terms of the sustainable development themes. For example, Waste Policies 1 and 2 ensure that environmental protection and prudent use of natural resources are taken into consideration when identifying land or considering proposals for waste management development. By allowing for waste facilities to be developed in Hertfordshire, local employment opportunities will be created, and the waste management needs of Hertfordshire should be able to be met.
12. Option I for the overall balance of the Plan aims to place greater emphasis on the need for waste management facilities than environmental protection. It is assumed that this option could potentially require more facilities to meet the need for waste management than the Current Plan approach, resulting in a higher landtake and greater pressure on the environment. Therefore, Option I has the advantage of providing more local employment and allowing for sufficient waste management facilities to meet the needs of Hertfordshire County, thereby reducing the environmental effects of transporting waste out of the County. However, this option will have the disadvantages of more risk to the environment and local amenity due to having to locate more facilities within the County, and potential for less prudent use of land resources because of the higher landtake.

² Hertfordshire Waste Local Plan Review – Strategic Environmental Assessment/Sustainability Appraisal Draft Scoping Report. Prepared for Hertfordshire County Council by Land Use Consultants, June 2005.

13. The second alternative option to the current Plan approach for the overall balance of the Plan is to place even greater priority on environmental protection, while accepting that the need for waste management is important. This option could potentially result in fewer facilities than is required to meet the need for waste management, resulting in a lower landtake and less pressure on the environment. However, Option 2 may not provide enough facilities to meet the need for waste management within Hertfordshire and thus, may require more export of waste out of the County with associated transport impacts to the environment. Also, Option 2 may not provide the local employment opportunities that Option 1 and the Current Plan approach provide.
14. The Current Plan approach for the overall balance of the Plan is considered to have the most benefits for sustainable development and the least drawbacks out of the options appraised for this key issue.

The Preferred Option selected and reasons for selecting this option

A continuation of the Current Plan approach which involves a number of policies within the plan that balance the need for waste management facilities and environmental protection has been selected as the Preferred Option. This option is considered to have many advantages in terms of sustainable development, including ensuring that environmental protection is taken into account when identifying land or considering proposals for waste management development while at the same time enabling the County to meet its own waste management needs and promoting local employment opportunities by allowing waste management related development.

Site Identification – Site Location

15. It is assumed that environmental protection is built in to criteria-based policies for site location (e.g. Criteria 1 in Waste Policy 13 states that proposals outside of Areas of Search should “minimise impact on local or natural environments”), and that environmental protection also underpins the site selection process used by Waste Planning Authorities to select Areas of Search or preferred sites. All options will also take into account the four key principles of waste management from PPG10: BPEO, Regional Self-Sufficiency, Proximity Principle and the Waste Hierarchy. Thus, the options for Site Location are ‘neutral’ with respect to environmental protection and prudent use of natural resources, and the appraisal can not distinguish between options on environmental grounds. Therefore appraisal of these options for Site Location focuses on the balance between providing certainty and flexibility for the waste management industry.
16. The Current Plan approach uses a mixture of identified Areas of Search, safeguarded sites, and criteria-based policies. Therefore it provides both certainty and flexibility for the waste management industry, and should allow sufficient waste management to meet the needs of Hertfordshire County.
17. Option 1 is theoretical, as it has no policies on site location, which is inconsistent with national planning policy and could not be implemented. However, it has been

- included to highlight the differences between options that provide complete flexibility on site location and options that do not.
18. While Option 1 is favourable to the waste management industry, albeit it reduces certainty, it has the potential to adversely affect the environment and local communities, and may not represent the most prudent use of natural resources. However, it should allow for sufficient waste management facilities to meet the needs of Hertfordshire.
 19. Option 2 will identify Areas of Search and safeguard sites, but will not have criteria-based policies. It would ensure that the least environmentally sensitive sites are allocated for waste management facilities, but provides the least flexibility for the waste management industry, and therefore the least likelihood of meeting the waste management needs of society.
 20. Option 3 has criteria-based policies without identifying Areas of Search or sites. Thus it provides more flexibility for the industry, but less certainty, and therefore may not be able to provide sufficient waste management to meet the needs of Hertfordshire.

The Preferred Option selected and reasons for selecting this option

A continuation of the Current Plan approach which uses a mixture of identified Areas of Search, safeguarded sites, and criteria-based policies has been selected as the Preferred Option. This option provides both certainty and flexibility for the waste management industry, and should allow sufficient waste management sites to meet the needs of Hertfordshire County.

Site Identification – Site Assessment

21. The issue ‘Site Assessment’ is focussed on the criteria used to evaluate sites or Areas of Search for inclusion in the Waste Local Plan. It is assumed that by addressing the views of consultees in Option 1, there will be more emphasis on environmental protection. It is assumed that Option 2 addresses the industry’s concerns.
22. The Current Plan approach uses the same criteria to identify Areas of Search as in the criteria-based policy (for sites outside the Areas of Search). The Current Plan approach has advantages in terms of the sustainable development themes, although the requirements of the waste management industry are not addressed.
23. Option 1 has advantages in terms of environmental protection and prudent use of natural resources, but may not meet the needs of the waste management industry and therefore the needs of society.
24. Option 2 has the same advantages as the Current Plan approach, with the added advantage of considering the industry’s requirements, and therefore meeting the needs of society.

The Preferred Option selected and reasons for selecting this option

Option 1, a continuation of the Current Plan approach with updated criteria for determining planning applications, has been selected as the Preferred Option. Responses to Hertfordshire's Issues and Options consultation showed that most respondents considered that too few sites had come forward through the application of criteria in the current Waste Local Plan and that revision was required, particularly inclusion of a criterion favouring development on Previously Developed Land. The SA/SEA assumption that stakeholders would seek stronger environmental protection at the expense of the waste industry was reconsidered as a result. Therefore, it is considered that Option 1 offers the best opportunities for protection of the environment and natural resources while at the same time enabling society's needs for waste management to be met through consideration of the needs of the waste industry.

Environmental Effects and Mitigation – Communication/Awareness Raising

25. The issue 'Communication/Awareness Raising' is not within the remit of a Waste Local Plan, but it is recognised that community involvement and acceptance of the need for waste management facilities is important if Government targets on recovery are to be met. The options therefore focus on whether the Council or the waste management industry should do more to raise awareness of the issues. Both Options 1 and 2 may contribute to better achievement of the targets for waste management, but the appraisal can not distinguish between these options in terms of the sustainable development themes. However, they both perform better than the Current Plan approach as they will do more to communicate and raise awareness about waste management.
26. The Current Plan approach seeks to involve the community, but does less than Options 1 and 2, and therefore may not achieve as much waste minimisation or reduction of community concern over perceived risks associated with waste management facilities.
27. Option 1 sees the Council do more to raise awareness about wider waste management issues and the environmental effects associated with waste management facilities. It performs better against the sustainable development themes than the Current Plan approach as it seeks to raise more awareness about the importance of waste management and reduce fear of perceived risks associated with waste facilities.
28. Option 2 sees the waste management developers do more to raise awareness. It has the same advantages as Option 1, and therefore also performs better than the Current Plan approach.

The Preferred Option selected and reasons for selecting this option

Option 3 (a combination of Options 1 and 2), involving awareness raising by the County Council as well as a more proactive approach to community engagement by developers, has been selected as the preferred option. This option was selected because it is likely to increase community awareness of the importance of waste management as well as reducing community concern over perceived risks associated with waste management facilities.

Environmental Effects and Mitigation – Facility Numbers

29. For appraisal of 'Facility Numbers', it is generally assumed that fewer large facilities have less environmental and local amenity impacts than many small facilities dotted around the County, because the impacts are influenced by the overall number of facilities. For example, it is assumed that there is a potential risk of water pollution and odour/ dust/noise/visual impacts, however small, associated with each individual facility, thus, the more facilities there are, the greater the overall impact will be. In contrast however, there will be greater transport impacts associated with fewer larger facilities, as the distances travelled will be greater.
30. The contribution to or offsetting of more 'global' environmental effects such as greenhouse gas emissions, air acidification and depletion of the ozone layer is dependent on the type of facility, and therefore is not considered in appraisal of these options for the Facility Numbers issue. It should be noted that options to do with facility numbers and types of facility will be appraised more rigorously in the SA of the Site Allocations Policies and Proposals DPD. This level of assessment has not been undertaken within the SA of the Core Strategy DPD.
31. There are 19 Household Waste Recycling Centres in Hertfordshire, 1 landfill, and 30 proposed Areas of Search with varying sizes of possible site. It is assumed that the Current Plan approach represents a mixture of small and large facilities. It is also assumed, as stated above in the 'Overall balance of the Plan' issue, that more facilities will be needed in Hertfordshire if it is to deal with the equivalent of its own waste. Thus, there will be a greater landtake than at present.
32. The Current Plan approach provides some environmental protection and prudent use of natural resources within Hertfordshire, as much of the County's waste is transported out of the County to be managed. However, because of this, the transport impacts are high with the Current Plan approach, and there is not a lot of waste-related employment generated within the County as well as further afield.
33. Options 1 to 3 all need to be in line with the revised targets for waste management that will be addressed through the Waste Development Framework. The revised targets include some higher targets than in the Current Plan:
 - **Recovery** of 40% of **municipal waste** by 2005, and 50% by 2010 and 70% at 2015.
 - **Recovery** of 66% of **commercial and industrial waste** by 2005, 75% by 2015.

34. Thus, more facilities (other than landfill) will be required within Hertfordshire to meet the revised targets.
35. Option 1 is to provide a small number of large waste management facilities in line with the revised targets, and performs well in terms of providing local employment and meeting Hertfordshire's waste needs, and should have less environmental impacts than Option 2 with smaller facilities. It will require more landtake than the Current Plan approach, but that is needed in order to meet the revised targets.
36. Option 2 is to provide a large number of small waste management facilities and has the same employment and social advantages as Option 1, but will have more environmental impacts than Option 1 because it uses smaller facilities which will have a greater landtake overall. However, it will have less environmental effects associated with transportation of waste as the transport distances will be reduced.
37. Option 3 is the same as the Current Plan approach in that it uses a mix of small and large facilities, however, it needs to meet the revised targets. Thus, it is assumed that more facilities will be required in Hertfordshire. Option 3 performs slightly better than Option 2 due to the mixture of small and large facilities representing less facilities overall than Option 2, but more than Option 1. Therefore, it performs well in terms of providing local employment and meeting Hertfordshire's waste needs, and should have less environmental impacts than Option 2. It will require more landtake than the Current Plan approach, with associated environmental impacts, but that is needed in order to meet the revised targets.
38. Option 4 is to favour extensions to existing sites, and is not mutually exclusive from the other options, and could also be incorporated into the other options for this issue, except for the Current Plan approach, as there are not many existing waste management sites in Hertfordshire to be extended. Extension would have the effect of reducing the overall number of sites needed. Option 4 should provide more environmental protection and prudent use of resources when combined with Options 1 to 3, than Options 1 to 3 alone. It should also perform well in terms of providing local employment and meeting Hertfordshire's waste needs.

The Preferred Option selected and reasons for selecting this option

Option 5 (a combination of Options 3 and 4), involving a mix of small and large facilities as well as extensions of existing facilities, has been selected as the preferred option. This option offers relative benefits in terms of minimising environmental impacts and meeting society's need for waste facilities, by addressing the requirements of the waste management industry, when compared with other options.

Environmental Effects and Mitigation – Green Belt

39. The Green Belt issue considered the balance between prioritising the need to maintain the Green Belt, and the need to utilise the proximity principle in order to locate waste management facilities near to where the waste is produced. The Current Plan approach is essentially a restatement of national Green Belt policy (PPG2).

40. The Current Plan approach performs well in relation to environmental protection and social acceptance. However, it constrains the waste management industry and implementation of the proximity principle thus transport of waste will be increased, and it may not allow for sufficient waste management to meet the needs of Hertfordshire County without resulting in other adverse effects.
41. Option 1 provides more protection to the Green Belt, by giving even more weight to Green Belt policy than for the need for the facility and the proximity principle, thus strengthening the advantages and disadvantages outlined above for the Current Plan approach.
42. Option 2 reduces the protection of the Green Belt by placing more emphasis on implementing the proximity principle. Thus, it may reduce the environmental protection for the Green Belt and may increase the likelihood of greenfield development. However, it will decrease the transport of waste within the County and reduce the development pressure on sites not within the Green Belt. Option 2 also provides more flexibility for the waste management industry, and should therefore allow for sufficient waste management to meet the needs of Hertfordshire. In particular, some waste management options, such as open air windrow composting, are unsuitable in close proximity to urban areas due to potential impacts such as dust and odour. A flexible approach to locating waste operations will increase the likelihood that targets for recovery of value from waste are achieved. However, the waste management facilities will need to be designed and positioned to minimise the impact on the openness of the Green Belt, thereby protecting its essential purpose. It should also be noted that there is a strong community preference for maintaining the Green Belt.

The Preferred Option selected and reasons for selecting this option

Option 2, which reduces the protection of the Green Belt by placing more emphasis on implementing the proximity principle, has been selected as the preferred option. This option offers relative benefits in terms of reducing waste transport, reducing development pressure on sites outside the Green Belt and providing greater flexibility in meeting society's needs for waste management.

Environmental Effects and Mitigation – Brownfield Land

43. Recycling of 'brownfield' land for new development is generally preferable to releasing greenfield sites, however, brownfield sites have often developed biodiversity value, which would be lost if they are developed. As all of the options encourage the use of brownfield land, the appraisal of this issue focuses on the competing need between sectors for brownfield sites.
44. PPS3 requires that 60% of the housing required nationally be delivered on brownfield land, thus there is a strong policy focus for prioritising housing over other forms of development on brownfield sites. However, in sustainability terms, mixed-use developments are generally favoured, in order to create integrated, self-sufficient communities. Mixed-use developments are only successful if the neighbouring land uses are compatible (i.e. 'good neighbours'). Increasingly, the new generation of

facilities should fit in well in commercial and industrial areas. Additionally, waste management uses may often be more suitable for some brownfield sites than other forms of development (e.g. landfills, contaminated sites etc. may not be suitable for housing developments). The use of brownfield land within urban areas for waste management sites would also help to implement the proximity principle and reduce transport.

45. The Current Plan approach is in line with national policy guidance (in particular PPS1), and seeks to reduce environmental effects and make the most efficient use of already developed areas. The Current Plan approach constrains the waste management industry as it does not give priority to the waste management industry for brownfield sites, thus it may not allow for sufficient waste management to meet the needs of Hertfordshire.
46. Option 1 prioritises waste facilities for brownfield sites over other forms of development, thus it provides certainty for the waste management industry for use of brownfield sites and allows for sufficient waste management to meet the needs of Hertfordshire. However, provision of housing, employment and other industry will be constrained.
47. Option 2 gives priority to other forms of development (e.g. housing, commercial) for brownfield land and is not viable because it constrains the waste management industry and does not allow for sufficient waste management within Hertfordshire, the demand for which will be further increased when the housing and business developments that are given priority go ahead.

The Preferred Option selected and reasons for selecting this option

Option 3 (a new alternative option), which gives preference to the re-use of previously developed land but takes into account other locational criteria in site assessment. This preferred option was selected because it would avoid adverse effects on brownfield biodiversity as well as taking account of other locational criteria which would minimise environmental impacts while taking account of society's needs for waste management.

Environmental Effects and Mitigation – Local Designations

48. This issue considers the restriction on development of waste management facilities in locally designated areas. In Hertfordshire, there are 22 Local Nature Reserves, 34 HMWT Nature Reserves, 11 Woodland Trust sites and 1 Butterfly Conservation site. In 2006, a total of 1,984 Wildlife Sites had been identified in Hertfordshire covering 10% of the County's overall area.
49. The Current Plan approach provides a framework for protecting and conserving locally designated areas from any impacts proposed facilities may have, and thus provides effective protection of locally designated areas, but constrains the waste management industry by limiting the availability of sites and therefore reducing the ability to meet the waste management needs for Hertfordshire.

50. Option 1 increases the restriction on development of waste management facilities in locally designated areas, thus increasing the protection of the environment, but constraining the waste management industry further by limiting the availability of sites and therefore further reducing the ability to meet the waste management needs for Hertfordshire.
51. Option 2 decreases the restriction on development of waste management facilities in locally designated areas, thus providing more flexibility for the waste management industry, but reducing the environmental protection afforded to locally designated sites. Local designations have been through recognised designation procedures and prioritised for environmental protection, thus this option is not particularly viable.

The Preferred Option selected and reasons for selecting this option

Option 3 (a new alternative option), which continues the Current Plan approach of protection of locally designated sites but also provides protection of 'critical assets' thereby protecting important environmental and landscape assets, was selected as the Preferred Option. This preferred option was selected because it would provide greater protection of the environment, including both locally designated sites as well as other environmental and landscape assets. However, it is acknowledged that this option is likely to restrict the availability of sites for the development of waste facilities and in this way the ability of the waste industry to meet the waste management needs of Hertfordshire will be restricted.

Reuse of Inert Waste – Land Preparation

52. This issue deals with the re-use of inert waste (e.g. excavated fill from construction projects). The Current Plan approach has regard to the extent to which this material can be re-used in the construction project, or used for landscaping/restoration. Option 1 does more to encourage the re-use of this material in the construction project. Option 2 balances the re-use of this material with its use for landscaping as a screen for development.
53. The Current Plan approach has advantages if the criteria in Waste Policy 7 are met, i.e. development may be screened by the use of excavated fill for landscaping, transport and costs may be reduced due to re-use of the waste on-site, and the avoidance of using primary materials represents prudent use of natural resources. However, it does not actively encourage the re-use of inert waste, thus does not perform quite as well as Options 1 and 2.
54. Option 1 encourages the maximum re-use of clean, excavated material (instead of just allowing for it) and therefore strengthens the advantages of the Current Plan approach, but will provide less opportunity for landscape screening.
55. Option 2 does not exclude the re-use of inert waste, but balances it with the need to screen development through landscaping with inert waste. Option 2 has similar advantages to Option 1, but as it does not encourage re-using all of the inert waste in the construction project, there may still be some exportation of some inert waste and importation of primary materials, which is a less prudent use of natural resources, and requires associated transport of primary materials.

The Preferred Option selected and reasons for selecting this option

Option 3 (a new alternative option) was selected as the Preferred Option. This option (which combines elements of Options 1 and 2) promotes the reuse of clean, excavated spoil whilst considering environmental aspects such as landscape impact, as well as requiring that site waste management plans (which demonstrate that the majority of waste generated by development will be managed on site) are prepared for appropriate proposals. This option offers benefits in terms of reducing the need to both export waste and import raw materials to construction sites, thereby reducing the need for disposal of inert waste as well as reducing transport impacts and demand for raw materials.

Residual Waste Treatment – New Technologies

56. This issue addresses how to deal with residual waste (the portion of waste remaining after materials have been recycled). It is no longer an option to send all residual waste to landfill, thus other technologies must be used. These include biological treatment options (composting, anaerobic digestion (AD) and mechanical biological treatment (MBT)), and thermal treatment options (incineration, gasification and pyrolysis, all of which can produce energy in the form of heat or power – energy from waste (EfW) facilities). There will still be final residues from the treatment processes and it is likely that landfill will be needed for disposal of these.
57. Incineration of municipal waste with energy recovery has already been in use for several years (e.g. at Edmonton, and in other European countries). The newer technologies, AD, MBT, gasification and pyrolysis are still being researched and assessed for their ability to treat municipal and other waste streams (feasibility studies of each process were undertaken for the Hertfordshire Municipal Waste Strategy). There is uncertainty that recovery targets will be met if waste management strategies only involve the newer technologies. With the required reduction in landfill as a disposal option, residual waste would need to be stockpiled or exported out of the County incurring environmental and financial costs associated with transport of waste.
58. The East of England Regional Waste Management Strategy recognises that reduction, recycling and composting are unlikely to be sufficient to meet the Waste Strategy 2000 recovery targets for biodegradable waste, and includes 2 policies (17 and 18) to support EfW facilities, provided that recycling and composting of waste is not inhibited.
59. At the time of the original options appraisal, Hertfordshire's Municipal Waste Strategy (MWS) stated that residual waste treatment technologies for municipal waste not include EfW mass-burn incineration (apart from the approximately 7% municipal waste already exported to the Edmonton EfW plant under the existing waste disposal contract which expires at the end of 2017.) Despite this the SA recommended that the Waste Development Framework should not preclude the inclusion of criteria-based policies to cover any incineration proposals that may be put forward on the basis that the MWS is not a statutory document (and the Waste Development Framework does not have to be consistent with it). The decision to include reference to EfW facilities in the Waste Development Framework has more

recently been boosted by the county's new MWS which refers to '... the development of existing or provision of new... plants for the treatment of the residual waste that cannot be recycled or composted' as a key element of the overall strategy for the County if it is to achieve self-sufficiency in the future management of Hertfordshire's Waste.

60. The Current Plan approach does not discourage EfW proposals being made, but does not encourage EfW by identifying areas of search in the Plan. Thus, it provides the flexibility to include EfW as option for waste management in Hertfordshire. This has advantages in terms of reducing the need for landfill, allowing the implementation of the proximity principle, and thereby reducing transport and costs for the industry, providing flexibility for the industry and local employment opportunities. However, there may be potential for community objection due to the perceived risks associated with EfW facilities.
61. Option 1 gives preference to technologies which have an energy dimension for treatment of residual waste. Thus it strengthens the advantages of the Current Plan by giving preference to EfW facilities. However, there may also be potential for community objection due to the perceived risks associated with EfW facilities.
62. Option 2 does not give preference to technologies which have an energy dimension for treatment of residual waste. Option 2 has more disadvantages in sustainability terms as there is uncertainty about the ability of other treatment technologies to deal with all residual waste, thus, there may be export of waste out of the County, or stockpiling of waste until the treatment capacity becomes available.

The Preferred Option selected and reasons for selecting this option

Option 3, a new alternative derived from Option 1 and feedback from the SA (based on community concerns regarding health impacts), was selected as the Preferred Option. This option gives preference to technologies with an energy dimension while including measures to protect the environment and human health. This option offers benefits in terms of enabling the county to make use of all available technologies for waste management in achieving its goal of self-sufficiency, while at the same time minimising environmental impacts and impacts on human health.

Residual Waste Treatment – Landraise

63. Landraise is a final option for residual waste treatment (i.e. the waste residues left after other treatment processes). The only other option in the Plan for treating residual waste is landfill. It is assumed that both landfill and landraise facilities would be well managed in line with Waste Management Licence and PPC requirements.
64. The Current Plan approach allows landraise as a last resort after other waste treatment technologies have been considered and deemed not appropriate, and where it may have a role to play in land reclamation. The Current Plan approach therefore provides flexibility in waste management options available to the industry, and allows for sufficient environmental protection through criteria-based policies. However, it has the potential to increase flood risk if located in a floodplain, and

there is the potential for community objection if there is too great a change in landscape or visual impact.

65. Option 1 does not include landraise thus it reduces the options available for managing residual waste and it is assumed that the final residual waste is disposed of in landfill. The opportunity to reclaim damaged land through landraise is lost, but there will be less potential for increasing flood risk.

The Preferred Option selected and reasons for selecting this option

Option 3, a new alternative derived from the Current Plan approach and feedback from the SA (based on concerns about environmental and landscape impacts), was selected as the Preferred Option. This option permits landraising as an option subject to consideration of environmental and landscape impacts. It offers potential benefits in terms of restoration of derelict and degraded land while avoiding unacceptable landscape impacts and increased flood risk.

Residual Waste Treatment – Mineral Voids

66. This issue is concerned with the disposal of residual waste in mineral voids (i.e. where mineral extraction has, is or will occur), versus the restoration to a beneficial after-use of those mineral voids. For the purposes of the option appraisal, it has been assumed that disposal of residual waste in mineral voids (i.e. landfill) is distinct from other forms of restoration with benefits for biodiversity (e.g. habitat creation by filling the void with water), recreation (e.g. by providing areas for water sports, adventure playgrounds), or amenity through planting and creating new landscapes. In practice, most restoration of mineral voids is likely to involve some landfill, as recognised in the Current Plan approach.
67. The Current Plan approach is essentially a balance between allowing landfill of mineral voids, while ensuring restoration objectives are met. It will ensure worked out mineral voids remain in productive use (e.g. agriculture, recreation etc.). The Current Plan approach is a potentially cheaper option for the waste management industry, and will allow for sufficient waste management to meet the needs of Hertfordshire. If restoration objectives are met then it has the potential to provide environmental protection and enhancement and/or create recreation opportunities and local amenity value. However, these will be lost if a high standard of restoration is not achieved. In addition, landfilling void space has the potential for adverse impacts on geodiversity by obscuring geological features of interest.
68. Option 1 favours restoration of mineral voids instead of using them to dispose of waste by landfill. Thus, Option 1 has more disadvantages in sustainability terms because it does not provide the flexibility to use mineral voids for residual waste disposal, thus waste may need to be transported from the County, or more landtake required if new landfill sites are created. However, high standards of restoration should provide environmental protection and/or create recreation opportunities and local amenity value.

69. Option 2 favours the use of mineral voids for disposal of waste by landfill, therefore, it strengthens the advantages of the Current Plan approach discussed above. However, the opportunities for environmental protection, creating recreation and local amenity value from restoration of mineral voids will be lost.

The Preferred Option selected and reasons for selecting this option

Option 3, a new alternative which combines the Current Plan approach and Option 2, has been selected as the Preferred Option. This option permits the disposal of waste by landfill in mineral voids subject to satisfactory restoration and environmental protection, with such proposals dealt with on a case by case basis. This option offers opportunities for the restoration of void space, with associated environmental enhancement and recreation and amenity benefits, through appropriate landfill activity while avoiding environmental impacts.

Waste Transport

70. Waste transport was not specifically highlighted as an issue in the development of the broad options for the Waste Development Framework. However, it was addressed when looking at other issues such as the proximity of waste facilities to sources of waste (the proximity principle), site assessment and site locations.
71. The Current Plan approach allows choices in modes of waste transport. It clearly supports transport of waste by rail and takes account of the potential effect of lorry traffic on other local communities, other road users, road safety and the environment. The Current Plan approach should avoid significant impacts on the transport system as well as minimising some environmental and human health impacts associated with waste transport. However, it does not include reference to measures to minimise demand for waste transport, through for example, application of the proximity principle which would help reduce broader environmental and human health impacts as well as providing prudent use of natural resources.
72. The Preferred Option described in the Waste Core Strategy Report on Preferred Options, seeks to implement a strategic transport policy. This option builds on the Current Plan approach by supporting transport by rail and water and consideration of the capacity of the transport system. However, this approach reflects the fact that Hertfordshire's transport system is highly reliant on road transport and emphasises the need for waste development close to the source of waste where possible (i.e. the proximity principle) and ready access to the primary route network or alternative transport modes, to minimise demand for waste transport. This has the potential to avoid broader adverse impacts on the environment and human health as well as reducing consumption of natural resources (particularly fossil fuels). The Preferred Option does not however explicitly refer to the need to consider the effects of lorry traffic on local amenity, other road users, road safety or the environment.

The Preferred Option selected and reasons for selecting this option

The Preferred Option described in the Waste Core Strategy Report on Preferred Options, seeks to implement a strategic transport policy which builds on the Current Plan approach by supporting transport by rail and water and consideration of the capacity of the transport system as well as promoting implementation of the proximity principle and ready access to the primary route network or alternative modes of transport. This option better reflects the fact that Hertfordshire's transport system is highly reliant on road transport and that emphasis on minimising demand for waste transport is essential if environmental, human health and resource impacts are to be minimised.

