CDSx2

West Sussex Minerals and Waste Development Framework

Background Paper 6

Strategic Waste Sites

Version 1
October 2008

west sussex county council

Purpose

This Background Paper on Strategic Waste Sites is one of a series that has been produced to support the preparation of the Minerals and Waste Core Strategy Development Plan Document (DPD) (the 'Core Strategy'). The Core Strategy is part of the Minerals and Waste Development Framework (MWDF) that will help decide how and where waste should be dealt with and minerals produced in West Sussex in the future. More information about the MWDF can be found on the Council's website: www.westsussex.gov.uk/mwdf . A glossary of technical terms can be found in Appendix A.

The Background Papers are being used to identify baseline data and inform discussions with key stakeholders on the MWDF. The Papers are intended to 'set the scene' and present the evidence as it stands at this stage, to enable the Council to work effectively with stakeholders to:

- Check the information to ensure the Council's knowledge and understanding of waste and minerals is robust.
- Identify potential issues, problems or concerns relating to the management of all types of waste and production of minerals in West Sussex.
- Build on work carried out at the previous Preferred Option stage, taking forward comments received and addressing areas that required further examination. This will help ensure waste is managed and minerals are produced in a manner that has the most positive effect on local communities.

Information gathered in response to the Background Papers will assist the progress of the Core Strategy to the next stage. **You are invited to comment on the Papers or provide further related information. Specific questions, where comments on particular matters are invited, are included in this paper.**

It is important to get involved at this early stage, as it is difficult for the Council to take new information on board at later stages in the process.

The Background Papers are 'living draft' documents and will continue to be refined and supplemented throughout the informal engagement process as the evidence base is checked, challenged and clarified. Should you wish to comment on this document, please respond in writing to:

Minerals and Waste Policy,
County Development Division,
County Hall,
CHICHESTER,
West Sussex
PO19 1RH

Or by email to MWDF@westsussex.gov.uk

Table of Contents

1. Introduction

1.1 This Background Paper sets out:

- The Vision and Strategic Objectives for waste planning in West Sussex;
- A brief summary of previous waste site selection work carried out;
- A summary of the need for waste management facilities (as set out in Background Paper 2: Waste Arisings and Waste Management Capacity) and indicative 'options' for how this could be delivered;
- The 'options' for spatial strategies to address the shortfall in waste management capacity;
- The proposed site selection methodology for each different type of facility.

1.2 The Vision and Strategic Objectives relating to waste management facilities are:

Vision and Strategic Objectives

Waste Management Facilities

The waste that is generated must be managed locally, where practicable and viable, reducing the need for transport over long distances. Accordingly, there will be a network of waste management facilities, within or close to the main towns along the coast and in the north-east of the County, and within or adjoining the larger settlements in rural areas. These facilities will ensure that waste will be managed close to where it arises and minimise the distance that it travels. Existing facilities need to be safeguarded and new waste management facilities built, to complement existing facilities in order to maximise the amount of waste recycled, recovered and composted and, therefore, diverted from landfill. Facilities will be located so as to minimise any potential impacts on communities and the environment and character of the County.

Strategic Objective 8:
To protect existing waste management sites.

Strategic Objective 9:
To make provision for new waste management facilities as close as possible to where the waste arises.

Landfill

By 2026, the amount of waste requiring disposal to land will be significantly reduced, due to a reduction in the growth of waste and improvements in waste management facilities. Over the plan period, therefore, provision will only be made for new landfill capacity to meet any shortfall that arises.

Strategic Objective 10:
To make provision for non-inert and inert landfill sites to meet identified need.

2. Background

2.1. The County Council undertook some initial work on waste sites during 2006/07 as part of the work on the Strategic Waste Site Allocations Development Plan Document: Preferred Option (January, 2007). Due to the recent changes to the planning system recently announced by Central Government, it is now proposed to include strategic waste sites as part of the Core Strategy rather than in a separate Development Plan Document (DPD) because they are considered to be of strategic importance in the county. Strategic sites are defined in Planning Policy Statement 12 "Local Spatial Planning" (para.4.6, June, 2008) as being central to achievement of the strategy. It is proposed to build on the previous work which was undertaken, although circumstances may have changed since 2007, it will be necessary to update this work and provide an opportunity for further sites to be considered. A summary of the comments which were raised on the Strategic Waste Site Allocations Development Plan Document: Preferred Option (January, 2007) is given on the Council's website and these comments have been taken into consideration in the preparation of this Background Paper (http://www.westsussex.gov.uk/ccm/content/your-council/plans-policies-reports-and-initiatives/mwdf/strategic-waste-site-allocations-preferred-option.en)

2.2. As well as building on the Strategic Waste Site Allocations DPD: Preferred Option work, this Background Paper builds on and updates the work carried out on the Core Strategy Preferred Option (January 2007). The Paper sets out, in more detail, how the capacity shortfall for waste management facilities in West Sussex could be met and develops initial 'options' for doing this. It also sets out 'options' for the spatial strategies for each type of waste management facility. These strategies will help to guide the search for sites and ensure that the final selection of sites will deliver the spatial strategies.

3. What is required?

3.1 The key issue to resolve is the shortfall between the amount of waste managed at existing waste management facilities in West Sussex and the amount of waste that will need to be managed in the future. This is discussed in detail in Background Paper 2: Waste Arisings and Waste Management Capacity.

3.2 There are acknowledged shortcomings in the accuracy of waste data for Commercial and Industrial (C&I) waste, and Construction and Demolition (C&D) waste, including the lack of up-to-date information on how much waste is arising and how it is managed. This problem has been recognised and work is being undertaken at national and regional levels in order to improve the availability and accuracy of C&I and C&D data.

3.3 The AEAT Waste Forecast, and the Scenarios produced based on the Forecast (see Section 3), do not include any calculations of the amount of residual waste requiring disposal to land resulting from C&I treatment. This is due to uncertainty about the type of treatment facility that would be provided (and therefore differing amounts of residual waste). If this residual waste was included in the Scenario calculations then the landfill capacity shortfall would be marginally increased.

3.4 As more accurate information becomes available, the West Sussex waste forecasts will need to be updated. The forecasts also need to be updated to reflect the increased certainty about the delivery of the Municipal Waste Management Contract (MRMC) for the treatment of Municipal Solid Waste (MSW). There is also a project being led by the South East England Regional Assembly (SEERA) which aims to assess regional waste management capacity (building on the previous Regional Waste Management Capacity Survey, 2007). There is a need to reconcile the data and assumptions made in the regional study with the West Sussex AEAT Forecasts, to ensure consistency of approach. The Council are looking into how this can be achieved and the results will be incorporated into later versions of Background Papers 2 and 6.

3.5 A summary of the capacity gap is set out in Table 1.

Table 1: Built Waste Management Capacity Surplus or Shortfall (mtpa)

Built Waste management type	Waste type	Estimated Need (2008-2026)	Current Capacity (operational)	Planned additional capacity (under construction but non-operational)	Capacity Surplus or Shortfall by 2026	Total
Recycling and composting	Municipal Solid Waste (MSW)	0.25	0.16	0.1	+0.01	**0.35**
	Commercial and Industrial Waste (C&I)	0.6	0.25		0.35	
	Inert Waste (Construction and Demolition, C&D)	0.8	0.6		0.2	**0.2**
Treatment	Municipal Solid Waste (MSW)	0.24	0.0		0.2–0.25	**0.31–0.36**
	Commercial and Industrial Waste (C&I)	0.17	0.018*	0.04	0.11	
	Inert Waste (Construction and Demolition, C&D)	0.4	0.2		0.17	**0.17**

*Figure differs from 'other management' figure in Table 2 of the AEAT Waste Forecast (2008) as the AEAT figure includes transfer of waste outside the County and not just current operational capacity.

3.6 In order to meet this capacity gap the Council are required to make provision for a network of sites. The provision of new facilities, combined with the safeguarding of existing facilities, will help achieve and maintain net self-sufficiency in managing waste within West Sussex. The following sections present options for how the capacity gap could be met by the provision of

different facilities, in order to provide an indication of the locational requirements of the sites that will need to be found. The options, at this stage, provide an indication of what could be provided, although the decisions about what is actually provided will be made by the industry. The Council will be liaising with the waste management industry in order to test which options are realistic and deliverable.

Recycling and Composting

Municipal Solid Waste (MSW)

3.7 Table 1 identifies that there will be sufficient capacity to achieve 50% recycling of MSW by 2026 once the Materials Recovery Facility currently being constructed at Ford is completed.

Commercial and Industrial (C&I) Waste

3.8 In respect of commercial and industrial waste, current figures indicate that an additional 0.35mtpa capacity will be required in order to meet recycling targets. Part of this capacity may be provided if the proposed in-vessel composting facility at Poling is constructed, providing an additional 0.04mtpa of capacity. The balance between whether more recycling facilities or more composting facilities are needed is unclear as data for the two is amalgamated.

3.9 The type and number of facilities provided to meet the shortfall will be subject to commercial considerations but options could include:

Option 1: 3 x recycling facilities (0.1mtpa each) = 0.3mtpa
2 x composting facilities (0.025mtpa each) = 0.05mtpa

Option 2: 1 x large recycling facility = 0.3mtpa
1 x large composting facility = 0.05mtpa

Option 3: 5 x small recycling facilities (0.05mtpa each) = 0.25mtpa
4 x composting facilities (0.025mtpa each) = 0.1mtpa

Inert Waste Processing

3.10 Inert waste processing is the treatment of construction and demolition waste to produce secondary aggregates or soils for reuse. With regard to inert waste processing (construction and demolition waste), the capacity shortfall by 2026 will be 0.2mtpa. The draft South East Plan recommends that provision needs to be made for 0.8mtpa of recycled and secondary aggregate by 2016. Sites will need to be identified to meet this capacity. The type and number of sites provided to meet the shortfall will be subject to commercial considerations but Options could include:

Option 1: 1 x large facility = 0.2mtpa

Option 2: 4 x small facilities (0.05mtpa each) = 0.2mtpa

Option 3: Combination of Option 1 and Option 2

Treatment

Municipal Solid Waste (MSW)

3.11 The original scenarios explored in the Material Resource Management Strategy can be converted into options and include:

Option 1: centralised 'energy from waste' (EfW) - 1 x EfW facility = 0.27mtpa plus 1 x mechanical biological treatment (MBT) facility = 0.06mtpa.

Option 2: decentralised EfW – 1 x MBT = 0.14mtpa plus 3 x smaller EfW facilities = 0.075mtpa.

Option 3: new technologies - alternative EfW technologies (gasification/ pyrolysis) = 0.060mtpa, plus MBT with anaerobic digestion (AD) = 0.210mtpa. With or without waste prevention of 12%

Option 4: extra waste prevention with centralised MBT and EfW - 1 x smaller EfW facility = 0.166mtpa, plus MBT = 0.140mtpa.

Option 5: extra waste prevention plus decentralised MBT and EfW - MBT = 0.130mtpa, plus 3 smaller EfW facilities (0.04mtpa each) = 0.120mtpa.

Option 6: decentralised MBT with AD and refuse derived fuel (RDF) to landfill – 3 MBT plants with AD facilities (1 x 0.130mtpa plus 2 x 0.060mtpa) = 0.25mtpa. RDF to landfill or to gasifier.

3.12 There is currently no treatment capacity for MSW in West Sussex and in order to divert significant amounts of waste from landfill there is a requirement of between 0.2–0.25mtpa of treatment capacity. The new Materials Resource Management Contract (MRMC) is for the processing of household waste that is not recycled. The Council has agreed to appoint Biffa Waste Services as 'Preferred Bidder' for the MRMC. The contract is due to be signed in March 2009 and the outcome of negotiations with Biffa will influence the type of facilities provided to deliver the necessary capacity.

3.13 The MRMC will deliver an MBT facility to recover value from around 300,000tpa of MSW. Biffa propose to build the new facilities on its own site at Brookhurst Wood, Warnham which will require further planning permission (Biffa already has planning permission for waste treatment on the site, which has not yet been built). This is in line with a centralised option, providing all of the treatment capacity on one site.

Commercial and Industrial

3.14 The shortfall for C&I treatment set out in Background Paper 2: Waste Arising and Waste Management Capacity, Version 1 was approximately 0.21mtpa, in order to reduce the amount of waste going to landfill. Table 1 above identifies the shortfall in C&I treatment capacity as 0.11mtpa, based on achieving targets in RPG9. The options set out below are based on providing for the higher figure of 0.21mtpa which would ensure that greater amounts

of waste are diverted from landfill. Again, the type and number of facilities provided to meet the shortfall will be subject to commercial considerations but could include:

Option 1: 1 x very large treatment facility = 0.21mtpa

Option 2: 3 x smaller treatment facilities (0.07mtpa each) = 0.21mtpa

Option 3: Combination of the above

Inert waste treatment

3.15 The capacity shortfall for inert waste will be 0.17mtpa by 2026. However as C&D waste is considered to have been 'recovered' if it is used at a registered exempt site for either land reclamation of infrastructure projects, it is not necessary to provide specific sites for inert waste treatment.

Wastewater treatment

3.16 The capacity shortfall for wastewater treatment was not explored in Background Paper 2: Waste Arisings and Waste Management Capacity, however, dialogue with the water companies has identified that there is likely to be additional capacity in some areas. A summary of their comments is set out below:

Thames Water

3.17 In response to WSCC's enquiry into broad areas where wastewater treatment works (WWTW) may be required to serve new developments Thames Water responded with the following comments:

- Crawley Borough has been identified in the emerging South East Plan and Crawley/Horsham Local Development Framework as a strategic growth area.
- The existing WWTW in Crawley are operating near or at capacity. Either the existing site will need to be extended or a new site will be needed to accommodate the growth. Major upgrading of Crawley WWTW will be problematic as there is a lack of spare land to accommodate an extension.
- A new site will be the most appropriate option, however planning for a new site will require a great deal of mediation (BAA owns a great deal of land surrounding Crawley) as well as a detailed study which will consider the stringent process needed to treat waste water from the Gatwick stream.

Southern Water

3.18 Correspondence from Southern Water resulted in the comments below:

- Additional treatment capacity will be needed to meet anticipated demand from new development to 2021.
- The location, scale and timing of new development must be known for WWTWs to be planned. Therefore, funding and investment can only take

place when LDFs have been adopted. However, Southern Water has undertaken preliminary research to assess the potential impact of Horsham District Council's emerging LDF in order to identify the location of increased pressure on WWTWs.

- Results from Southern Water's assessment found that additional capacity will be needed at Chephurst Copse, Rudgwick, and Henfield WWTW to accommodate new developments. The remainder of WWTWs will be able to accommodate the proposed developments.

- Regarding the proposed development of 10,000 houses at Shoreham Harbour; the Shoreham WWTWs currently serves 23,000 houses and would not be able to accommodate a further 10,000. Therefore, a suitable site for a WWTW will need to be allocated.

- In terms of delivery, construction of a new WWTW would take two years from the receipt of necessary planning consent. Southern Water comment that in past experience, the delivery of a new WWTW could take 10 years.

3.19 Additional capacity may also be required at other locations in the County, but this will be dependant on the location, timing and scale of new development identified in District and Borough Local Development Frameworks.

Option 1: Provide sufficient capacity to meet the identified shortfall in Crawley, Horsham District and Shoreham Harbour

Option 2: Option 1, plus, ensuring provision is made for additional shortfalls that may arise as District and Borough LDFs are adopted.

Disposal to land

Non-inert waste

3.20 The Scenarios developed reflect the varying levels of certainty about the achievement of recycling targets and the amount of treatment capacity that may be provided over the plan period, particularly for commercial and industrial (C&I) waste. Variations in both of these factors will influence the amount of additional capacity that will be required for non-inert landfill. Table 2 provides information on the assumptions made to develop the Scenarios set out in Table 3.

Table 2: Scenarios for Estimating Future Need for Non-Inert Landfill				
Scenario (base growth rate)	**Recycling**		**Treatment**	
	MSW	C&I	MSW	C&I
Scenario 1 (current situation) (Recycling remains at current rates, no additional treatment – existing MSW treatment approx. 1,000tpa, existing C&I treatment approx. 120,000tpa)	36%	33%	Existing	Existing
Scenario 2 (MSW recycling reaches 50% plus additional MSW treatment of approx. 250,000tpa by 2026. C&I recycling remains at current rates, existing treatment plus Lancing EfW facility operational 2009 – 40,000tpa capacity)	50%	33%	Existing plus MRMC	Existing plus Lancing EfW facility
Scenario 3 (MSW recycling reaches 50% plus MSW treatment of approx. 250,000tpa by 2026. C&I recycling remains at current rates, Lancing EfW facility operational 2009 – 40,000tpa capacity plus additional C&I treatment of approximately 180,000tpa by 2026)	50%	33%	Existing plus MRMC	Existing plus Lancing EfW facility and others
Scenario 4 (MSW recycling reaches 50% plus MSW treatment of approx. 250,000tpa by 2026. C&I recycling reaches 50% by 2026, Lancing EfW facility operational 2009 – 40,000tpa capacity)	50%	50%	Existing plus MRMC	Existing plus Lancing EfW facility
Scenario 5 (MSW recycling reaches 50% plus MSW treatment of approx. 250,000tpa by 2026. C&I recycling reaches 50% by 2026, Lancing EfW facility operational 2009 – 40,000tpa capacity, plus additional C&I treatment of approximately 180,000tpa by 2026)	50%	50%	Existing plus MRMC	Existing plus Lancing EfW facility and others

3.21. It should be noted that the Scenarios presented here are different from the Scenarios set out in Background Paper 2: Waste Arisings and Waste Management Capacity Version 1. This is because further work has been carried out in order to ensure that the Scenarios reflect the current situation and what may happen in the future. Further information on the development of the Scenarios will be provided in the next version of Background Paper 2: Waste Arisings and Waste Management Capacity, i.e. Version 2.

3.22 Due to the uncertainties mentioned above in paragraphs 3.2-3.4, the estimated need for additional landfill in Table 3 does not include any additional residual waste from C&I treatment. It also does not include any residual waste from MSW treatment, as the AEAT Waste Forecast needs to be updated to reflect more detailed information about the type of MSW treatment that will be provided through the MRMC. This may result in a minimal increase in the amount of landfill capacity required.

3.23 Table 3 sets out the landfill capacity shortfall that will arise if the different Scenarios are applied.

Table 3: Estimated Need for Additional Non-Inert Landfill Capacity (2008–26)*			
Scenario	Estimated Need	Current Capacity	Shortfall
Scenario 1 (current situation)	13.2mt	3.2mt	10mt
Scenario 2	8.3mt	3.2mt	5.1mt
Scenario 3	6.7mt	3.2mt	3.5mt
Scenario 4	6.6mt	3.2mt	3.4mt
Scenario 5	4.7mt	3.2mt	1.5mt
* excludes London waste – potential 1.92mt (1.23mt 2006-2015, 0.69mt 2016-2025).			

3.24 Scenario 1 reflects the current situation. Scenario 2 reflects the fact that the Council have control over the management of Municipal Solid Waste (MSW) and have certainty about the delivery of MSW recycling and treatment through the Reclaim contract and the Materials Resource Management Contract. It also includes the new Sussex Waste Recycling Energy from Waste Facility at Lancing (40,000tpa capacity for C&I waste).

3.25 Scenario 5 is the most optimistic Scenario and assumes that both MSW and C&I recycling will reach 50% by 2026 and that additional treatment facilities for C&I will be developed by the waste industry. The calculations are based on the waste arising figures in the AEA Technology Report but with the application of alternative recycling rates and treatment capacity.

3.26 Permitted landfill capacity at Horton is anticipated to run out by 2010/11 and Lidsey by 2012/13. This leaves the Brookhurst Wood site as the only site to provide capacity from 2012/13 onwards.

3.27 Table 4 provides an indication of the annual permitted remaining landfill capacity at key dates in the plan period and an annualised surplus or shortfall figure. This provides a breakdown of the total amounts set out in Table 3.

Table 4: Annual landfill capacity surplus or shortfall at key dates over the plan period					
	Total permitted capacity	Scenario 2	Scenario 3	Scenario 4	Scenario 5
2008	770	+95	+95	+114	+114
2010	350	-217	-217	-180	-176
2015	170	-229	-171	-130	-74
2020	0	-406	-289	-258	-138
2025	0	-438	-259	-321	-103
Total 2008-2026	3.2mt	5.1mt	3.5mt	3.4mt	1.5mt

3.28 Making provision for new landfill capacity within West Sussex will require the identification of void-space, which can deal with an initial input of between 0.17 and 0.2mtpa of additional capacity by 2010, reducing to 0.1mtpa by 2025 if Scenario 5 is achieved, but increasing to 0.26mtpa if Scenario 3 is achieved.

3.29 Over the plan period there will be need to identify void-space for between 1.5mt and 5.1mt, depending on which Scenario is achieved.

3.30 One approach would be to allocate sufficient capacity to meet Scenario 2 but to restrict the release of sites over the plan period, based on an assessment of need. The average annual throughput of each existing non-inert landfill site is approximately 0.2mtpa.

3.31 For the period 2010-2015, this would mean one additional site, providing 0.2mtpa capacity. Post 2015, if only Scenario 2 is achieved, there will be a need for a second site providing 0.2mtpa capacity. However, if Scenarios 3 or 4 were achieved, the inputs to this site would need to be limited to around 0.1mtpa in order to avoid over-provision. If Scenario 5 were achieved then the second site would need to be kept in reserve.

3.32 The provision of sites with smaller or larger annual throughputs would increase or decrease the number of facilities required accordingly. The following options reflect the different Scenarios discussed:

Option 1: Provide sufficient landfill capacity to meet the shortfall for Scenario 2 (two sites with total capacity of 5.1mt) but phase the release of sites or phase sites based on need to ensure that there is no over-provision.

Option 2: Provide sufficient capacity to meet the shortfall for Scenarios 3 or 4 (two sites with a total capacity of at least 3.5mt) and limit the input to the second site to avoid over-provision if the need declines. This would ensure that a contingency is in place.

Option 3: Provide sufficient capacity to meet the shortfall for Scenario 5 (one site with a capacity of 1.2mt) but allocate a reserve site to ensure that an under-provision does not occur. This would ensure that a contingency is in place.

<u>London Waste</u>

3.33 The calculations above exclude the provision of a declining amount of waste from London. The latest figures suggested by the Government amount to a total of 1.92mt (1.23mt 2006-2015, 0.69mt 2016-2025). This would amount to an additional 0.12mtpa from 20060-2015 and 0.07mtpa from 2016-2025. This would mean that an additional site with a capacity of up to 0.12mtpa would need to be identified up to 2015. It would also mean that the second site identified above would be required post 2015 and would not be limited or kept in reserve if Scenarios 3, 4, or 5 were achieved. A worse case would be that only Scenario 2 is achieved and in this case, a third site would be required to provide capacity for London's waste up to 2026.

<u>Inert waste</u>

3.34 If a 50% recycling rate is achieved for inert waste then the amount of inert landfill capacity required to meet the shortfall would be 7.6mt. If higher recycling rates are achieved then this decreases to 6.1mt. It is estimated that current permitted inert landfill capacity will be used up by the end of

2008/09. However, the figures include waste that is used for landfill engineering at landfill sites and it is not clear how much is used elsewhere and how much waste in landfilled in inert sites. The options reflect this uncertainty.

Option 1: Provide sufficient capacity to meet the shortfall of 7.6mt but phase the release of sites based on need to ensure that there is no over-provision

Option 2: Provide sufficient capacity to meet a lower shortfall of 4mt to reflect the fact that inert waste is used elsewhere

Question 1:
Are the options for meeting the capacity shortfall deliverable and realistic?

Question 2:
Are there any alternative options that should be considered?

4. Spatial Strategy Options

4.1 In order to achieve the vision and objectives and address the issues raised, a spatial strategy needs to be developed which will drive the safeguarding of existing sites and the allocation of new sites. This means determining which are the appropriate existing sites and facilities to safeguard or extend and then determining the most appropriate locations for new waste management and disposal in West Sussex.

4.2 The spatial strategies set out below build on the approach set out in the Core Strategy Preferred Option DPD (January 2007) whilst seeking to address the comments and feedback received following the consultation exercise. The strategies take into account the different characteristics of waste management facilities, which make them more suited or less suited to be located in a particular area.

Safeguarding existing waste management sites

4.3 Part of the spatial strategy for waste management sites is to safeguard the most suitable waste management sites, in order to maintain a network of waste management facilities across the county. This network of facilities can then be enhanced by the provision of new facilities in order to meet the capacity shortfall. The network of existing facilities is set out in Background Paper 2: Waste Arisings and Waste Management Capacity (illustrated on Map 1, Appendix B).

4.4 The strategy needs to flexible enough to accommodate future decisions on the approach to municipal waste management and investment decisions by the waste industry. From the comments received at the Preferred Option stage in 2007, it is clear the existing sites need to be examined prior to being safeguarded, in order to ensure that there is no conflict with any wider aims for the area set out in adopted or emerging District and Borough Local

Development Frameworks. Concern was also raised about allowing too much flexibility which would lead to waste sites being lost to other uses. The issue of sites with temporary permissions also needs to be examined, to ensure that sites which are not suitable for permanent uses are not safeguarded. This will ensure that the network of safeguarded facilities are the most suitable for retention and will continue to meet needs in the future.

Option 1: Assess all existing waste management facilities to determine if sites should be safeguarded.

Guiding the location of new sites

4.5 The following outlines the options for the location of different waste management facilities within West Sussex. The spatial strategies set the context for the assessment of sites and will guide the site selection process. The following sources of information have been used to inform the spatial strategy options:

- Minerals and Waste Core Strategy Preferred Option (WSCC, 2007)
- High Quality Waste Facilities Supplementary Planning Document (WSCC, December 2006) http://www.westsussex.gov.uk/yourcouncil/ppri/mwdf/adopted_spd_dec06.pdf.
- Planning for Waste Management Facilities: A Research Study (ODPM, August 2004).
- New Technologies Publications (Defra, 2007) - http://www.defra.gov.uk/environment/waste/wip/newtech/index.htm

4.6 It should be noted that in all the options generated, accessibility is an important consideration. In the Core Strategy Preferred Option document (2007), the term 'well-related to the Advisory Lorry Route (ALR)' was used: but not defined. The ALR is defined in the West Sussex Transport Plan and is divided into the 'Strategic Lorry Routes' (SLR), which are the preferential routes, and the 'Local Lorry Routes' (LLR) which should only be used for the start of final leg of a journey between built up areas in West Sussex. A map showing the ALR in West Sussex is shown in map 5 of Background Paper 1: Spatial Portrait, Issues, Vision and Objectives.

4.7 There is no single accepted definition of what the term 'well-related to the ALR' should encompass. East Sussex and Brighton and Hove have used 1km in their Waste and Minerals Core Strategy and Minerals Sites DPDs – Issues and Options document (February 2008). The Revised Hampshire Waste Management Plan Scoping Report for the Integrated Sustainability Appraisal (2006) discussed the waste site selection process and considered that sites over 2km from their 'Minerals and Waste Lorry Route' would be given a 'red light' as a negative indicator.

4.8 For the purposes of the built waste facility spatial strategies, a distance of 3km from the ALR will be calculated, in order to provide a limit to the site search without being overly restrictive at this stage. Further transport impact information will be sought as part of the detailed site assessment to evaluate the suitability of a site. The strategies for the disposal of waste to land will be led by the availability of suitable void space and therefore the

search area will not be restricted by proximity to the ALR, although access will be an important consideration.

Recycling and Composting

4.9 The spatial strategy options for recycling and composting will depend on the type of facility that is required and its locational requirements.

Open-windrow composting

4.10 Open-windrow composting involves the placement of shredded organic waste, typically garden or green waste, into elongated piles (windrows). The average capacity of a larger open-windrow composting sites is 25,000tpa. Facilities of this size would require a site of approximately 2ha. Sites need to be located at least 250 metres from sensitive uses, such as dwellings, schools, public open spaces or ecological designations.

4.11 Smaller facilities for composting (approx. 5,000tpa) may be linked to waste arising from farming or horticultural operations and will therefore need to be located close to where the operations take place. A rural location may be appropriate for this type of use. It is likely that new sites for open windrow composting will be greenfield sites, due to the lack of suitable brownfield sites away from sensitive uses. Sites will need to be well-related to the ALR.

Option 1: Develop a policy to enable small-scale, on-farm, open-windrow facilities (with a capacity of approx. 5,000tpa) to come forward in rural areas, over 250m from sensitive uses. Sites may be within the AONB as they are small-scale and have a low height profile.

Option 2: Identify between two and four suitable sites for larger-scale open-windrow facilities (with a capacity of approx. 25,000tpa) in rural areas with good access to the ALR (with a preference for sites close to the SLR) and over 250m from sensitive uses. The sites will not be located within the AONB, unless a suitable previously-developed site is available.

Option 3: Combination of Options 1 and 2.

In-vessel composting (IVC)

4.12 In-vessel composting (IVC) is a managed process in which biodegradable waste is broken down by naturally occurring micro-organisms with oxygen to produce a stabilised residue known as compost. Facilities typically have a capacity between 10,000tpa to 60,000tpa and would require a site of over 1ha.

4.13 Facilities will require an enclosed reception area and enclosed 'in-vessel units'. Facilities can be located in industrial areas although need to be at least 250 metres from sensitive uses. For all options, the preference will be for sites located on previously-developed land within built-up areas, followed by previously-developed land in the countryside. If no alternative sites are available, greenfield sites will be considered. Opportunities for the co-

location of IVC facilities with other waste facilities need to be explored, in order to reduce the transport of waste. Options for in-vessel composting could include:

Option 1: Identify between two and four sites for small-scale in-vessel composting facilities (capacity up to approx. 25,000tpa) to serve the north east, south east and south west of the County. Sites will have good access to the ALR and be at least 250 metres from sensitive uses. Where possible, sites will be located outside AONB, unless a suitable previously-developed site is available.

Option 2: Identify one site for a large scale in-vessel composting facility (capacity approx. 50,000tpa) in a centralised location in relation to where waste arises, with good access to the SLR and at least 250 metres from sensitive uses. The site will not be located within the AONB, unless a suitable previously-developed site is available.

Recycling Facilities

4.14 The most likely type of recycling facility to meet the need for C&I recycling will be a Material Recycling Facility (MRF). A MRF is a facility for the reception and separation of mixed dry recyclables. They are industrial in nature and require an enclosed industrial premise. Therefore, they can be located close to urban areas and on existing industrial areas. An average size facility will have a capacity of approximately 50,000tpa and will require a site size of at least 1-2ha.

4.15 Opportunities for the co-location of MRF with a treatment plant or a landfill site need to be explored, in order to reduce the transport of waste. Without co-location all waste must be removed to be recycled or to final disposal.

4.16 Proximity to waste arising and access to the Strategic Lorry Route (SLR) is important to reduce the impact of waste transport by road. For all options, the preference will be for sites located on previously-developed land within built-up areas, followed by previously-developed land in the countryside. If no alternative sites are available, greenfield sites will be considered.

Option 1: Identify three sites suitable for large-scale recycling facilities with capacity of approximately 0.1mtpa each:

- one site in the north-east of the County with good access to the M23, A24 or A23.
- one site close to the main area of coastal development in the south east of the County with good access to the A27, A23 or A24.
- one site to serve the Chichester/ Bognor Regis area and the rural areas to the north, with good access to the A27.

Sites will not be located within the AONB, unless a suitable previously-developed site is available.

Option 2: Identify one site suitable for a very large-scale recycling facility with a capacity of approximately 0.3mtpa in a centralised

location in relation to where waste arises, with good access to the SLR. The site will not be located within the AONB unless a suitable previously-developed site is available.

Option 3: Identify four to five sites suitable for smaller-scale recycling facilities (capacity up to 50,000tpa) to serve the north east, south east and south west of the County. Sites will have good access to the ALR. Smaller sites may be located within the AONB if they meet a local need, although preference will be given to sites outside the AONB.

Option 4: One of the above options, plus, develop a criteria-based policy to enable suitable unallocated sites to come forward to meet identified need.

Inert waste recycling

4.17 The processing of construction and demolition waste to produce secondary aggregates or soils usually takes place in the open, although some operations can be enclosed. Sites can vary greatly in capacity and throughputs can range from 25,000tpa to large sites processing 250,000tpa. The site size required will vary depending on capacity but generally facilities require extensive areas of land.

4.18 Typically sites have been developed on landfill sites or quarries, although industrial locations may be appropriate if it can be demonstrated that environmental impacts can be reduced to acceptable levels. Sites in quarries tend to have temporary permission in order to ensure that the restoration of the quarry is not prevented when extraction of the primary aggregate ceases. The option of extending existing facilities needs to be considered, as well as the potential for new sites linked to mineral workings. For all options, the preference will be for sites located on previously-developed land. If no alternative sites are available, greenfield sites will be considered.

Option 1: Consider potential for extending existing sites, taking into account cumulative impact.

Option 2: Consider potential for new sites linked to existing mineral workings.

Option 3: Identify one site suitable for a large inert waste recycling facility (capacity of approximately 0.2mtpa) in a centralised location in relation to where waste arises, with good access to the SLR. The site will not be located within the AONB, unless a suitable previously-developed site is available.

Option 4: Identify four sites suitable for small recycling facilities (capacity of up to 50,000tpa) to serve the north east, south east, south west of the County. Sites will have good access to the ALR. Sites may be located within the AONB, although preference will be given to sites outside the AONB.

Option 5: Combination of the above.

Treatment

MSW

4.19 The options for the treatment of MSW have been led by the letting of the Materials Resource Management Contract to Biffa. Therefore, it is not necessary to have a separate spatial strategy for MSW treatment.

C&I

4.20 The treatment of C&I waste will be the subject of commercial considerations but sites that are suitable for a range of treatment technologies will be required. Generally treatment processes are of an industrial nature, dealing with mixed materials and requiring enclosed premises. The capacity of facilities can range from 50,000tpa to over 500,000tpa and require sites between 2-5ha, depending on the type of technology. Some technologies, such as EfW and ATT will require a stack of between 30-80m. If a stack is required, any potential sites will need to take the potential for visual intrusion into account.

4.21 Various technologies could be provided in order to meet the shortfall for C&I treatment capacity, including EfW, MBT, Advance Thermal Treatment (ATT - gasification/ pyrolysis) or AD. Suitable sites will need to be well-related to the Strategic Lorry Route and sites on industrial areas (mainly B2) are also likely to be suitable. As with recycling, the co-location with other waste management activities is advantageous. Sites also need to be close to the source of waste arising in order to reduce transport impacts.

4.22 For all options, the preference will be for sites located on previously-developed land within built-up areas, followed by previously-developed land in the countryside. If no alternative sites are available, greenfield sites will be considered.

Option 1: Identify one site suitable for a very large treatment facility (capacity of approx. 0.21mtpa) in a centralised location in relation to where waste arises, with good access to the SLR. The site will not be located within the AONB, unless a suitable previously-developed site is available.

Option 2: Identify three smaller sites suitable for treatment facilities (capacity of approx. 0.07mtpa each):

- one site in the north-east of the County with good access to the M23, A24 or A23.
- one site close to the main area of coastal development in the south east of the County with good access to the A27 or A24.
- one site to serve the Chichester/ Bognor Regis area and the rural areas to the north, with good access to the A27.

The sites will not be located within the AONB, unless a suitable previously-developed site is available.

Wastewater Treatment

4.23 The spatial strategy for waste-water treatment is different from other built waste facilities as treatment facilities. Sites must be located close to centres of population in order to reduce the cost of pumping water. Larger facilities will require more buildings, control equipment and storage/treatment lagoons than smaller rural facilities.

4.24 Industrial areas and other previously-developed land around the edge of urban areas are well suited to waste-water treatment works. Smaller sites, to serve rural communities, may only need a small enclosure with a control kiosk, low level pipe-work and access covers. Sites can be screened off in a field but will still need suitable access, turning areas and passing places for tanker collections.

Option 1: Identify new sites and/or extensions to existing sites in order to meet the WWTW capacity shortfall in Crawley, sites in Horsham District, and Shoreham Harbour).

Option 2: Option 1, plus develop a policy to enable new sites and extensions to existing sites to come forward, in other locations, when the need is identified.

Option 3: Combination of the above.

Disposal to land

Non-inert waste

4.25 The situation in respect of disposal to land requires account to be taken to different factors, including the geology of the County and the availability of mineral voids (this will include consideration of all mineral voids). The need for capacity will also decline over the plan period, particularly if high recycling and treatment rates are achieved.

Option 1: Consider potential for extending existing sites, taking into account cumulative impact.

Option 2: Identify new landfill void capacity, well-related to the ALR and with a preference for sites outside the AONB, unless no suitable alternative sites are available.

Option 3: Identify new land raise capacity, well-related to the ALR and with a preference for sites outside the AONB. Land-raise sites will not be located on Grade 1 and 2 Agricultural Land

Option 4: Combination of the above

Inert waste

4.26 The disposal of inert waste to land will require the identification of suitable mineral voids.

Option 1: Consider potential for extending existing sites, taking into account cumulative impact.

Option 2: Identify new landfill void capacity, well-related to the ALR and with a preference for sites outside the AONB, unless no suitable alternative sites are available.

Option 3: Identify new land raise capacity, well-related to the ALR and with a preference for sites outside the AONB. Land-raise sites will not be located on Grade 1 and 2 Agricultural Land

Option 4: Combination of the above

Question 3:
Are the spatial strategy options deliverable and realistic?

Question 4:
Are there any alternative options that should be considered?

5. Site Search

5.1 The following sets out the methodology that will be used to locate sites to meet the spatial strategy options explored above.

Map spatial strategy options for each type of facility

5.2 The spatial strategies in Section 4 identify locational preferences that can be mapped. This will define a search area for each type of facility, within which any sites identified will be in accordance with the different spatial strategies and can be subjected to a detailed assessment.

Map definitive constraints

5.3 The locational requirements of the different types of waste management facility vary according to the scale and type of facility, however, there are certain constraints which are common to all facilities and need to be protected. This includes sites or features of international or national biodiversity, geological conservation or historical importance.

5.4 The following designated international and national sites of biodiversity and geological conservation value cover land in West Sussex and will be mapped as constraints:

- Ramsar Sites (Wetland of International Importance);
- Special Protection Areas (SPA);
- Special Areas of Conservation (SAC);
- National Nature Reserves (NNR);
- Sites of Special Scientific Interest (SSSI);
- Conservation Areas;

- Grade I and II* Listed Buildings;
- Scheduled Ancient Monuments (SAM)
- Registered Parks and Gardens of Special Historic Interest; and
- Existing land use allocations, zones and proposals in adopted Development Plans (unless compatible with waste management uses)

5.5 Excluding the above constraints from the site search area will help to minimise the impact of waste development on sites of nature conservation and historic interest.

Question 5:
Is the list of definitive constraints appropriate or is there anything else that should be considered?

Identify sites within the search areas

5.6 Once the search areas are defined and refined by removing constraints, sites will be identified. To aid the identification of suitable sites, the waste management industry and district and borough councils will be asked to put forward suggested sites within the search areas. The list of sites identified in the Strategic Waste Site Allocations Preferred Option DPD will be re-examined and updated (for the list of sites, please refer to the Strategic Waste Site Allocations Preferred Option DPD, January 2007).

5.7 In identifying sites the following 'opportunities' will be considered where information on their location is readily available:

- Previously developed and existing redundant buildings;
- Land on or adjoining sewage treatment works;
- Redundant farm buildings and their curtilages;
- Other brownfield sites including disused airfields, disused railway sidings/ facilities, disused harbour/ wharf facilities;
- Active mineral workings sites;
- Contaminated or derelict land;
- Industrial areas (B2/B8), especially those containing heavy or specialised uses, are suitable locations for waste management facilities as waste collection, sorting, transfer, recovery and treatment operations are similar to industrial processes and they require similar buildings and infrastructure. Considerations for proposals in industrial or business areas will include: their overall character (including the proportion of industrial/heavy industrial uses); plans and strategies for regeneration; the extent of vacancy/dereliction; the types of operations and processes present (for example whether there are food industries or hi-tech uses); and the nature of existing uses in the vicinity of the site.
- Sites suitable for waste facilities in built-up areas but outside industrial areas will be limited by the potential effects of operations on residential, commercial, recreational and other uses. There will, however, be scope for some types of facility, especially those dealing with waste generated in the locality (for example, recycling points and facilities within new developments).
- An expansion of an existing site if suitable (including wastewater treatment works). There may be instances where land adjoining

existing waste sites could be satisfactorily incorporated as part of proposals. In some cases, however, it may not be appropriate to locate new built facilities at sites that are operating under a temporary consent or at sites in the countryside. There may also be cases where the existing waste use is inappropriately located and should not be perpetuated.

Question 6:
Are there any other 'opportunities' that should be considered?

6. Site Assessment

6.1 The assessment of sites will follow a similar format to the assessments carried out as part of the Strategic Waste Sites Allocations DPD. This will involve desktop and on-site assessment to assess their suitability for waste use. The baseline data for each site will be drawn from: reference to information on planning and other designations; informal consultation with internal (WSCC) specialist officers; informal consultation with key external stakeholders; discussions with District and Borough Councils; and discussions with landowners and waste industry representatives.

6.2 The criteria below were drawn up for the Strategic Waste Site Allocations DPD with reference to Planning Policy Statement 10: 'Planning and Waste Management' (PPS10) and in conjunction with the members of the Waste Area Forums. Some additional criteria have been added for completeness.

Table 5: Key information and criteria
Key Information • Site description • Site area • Surrounding uses • Planning history • Planning policy, including emerging District/Borough Local Development Frameworks (LDF) • Proximity to waste arisings • Proximity to existing waste management facilities • Landownership and availability • Deliverability • Scope for integrated uses*
Key Criteria • Landscape designations/visual impact • Nature conservation • Historic environment • Water environment (including flooding) • Soil quality

- Public rights of way
- Transport (including access)
- Services and utilities
- Public amenity including noise/environmental nuisance/light pollution
- Air quality*
- Cumulative impact *
- Airport safeguarding zone*
- Minerals sterilisation*

* additional criteria added

6.3 The data gathered for the site assessment will help to determine what uses will be suitable on each site. Responses from previous consultations suggest that some criteria should be given greater weight over others; however, there are conflicting views over which criteria should be afforded greater weighting.

6.4 This methodology proposes to use a qualitative weighting system rather than a quantitative system because a decision about individual sites is essentially a judgement based on a number of criteria. Some criteria are also considered to be 'exclusionary' (e.g. sites of international importance for nature) and others are considered 'discretionary', e.g. relating to public rights of way, agricultural land, local nature conservation designations. These criteria might not necessarily lead to the exclusion of a site but would certainly be important from a sustainability perspective and should influence the decision as to whether or not to shortlist a site[1]. More detailed information about each factor is given in Appendix C.

6.5 The main planning issues associated with the different types of waste management technologies, as well as disposal to land are set out in Appendix B. This information will also be used to identify what technologies will be appropriate on each site.

Question 7:
Are there any other criteria that should be considered or any additional information that should be collected?

7. Site Selection

Selection of 'short-list' of potential sites (identification of realistic 'site options')

7.1 The outcomes of the site assessment will feed into a selection process, in order to determine the sites which are acceptable, in principle, to be taken forward. In order for a site to be acceptable there should be no overriding or fundamental constraints to the proposed form of development. If such

[1] Local Development Frameworks: Options Generation and Appraisal (The Planning Advisory Service, 2008).

impacts are not capable of being prevented, minimised, mitigated, or compensated for to an acceptable standard, the site will not be acceptable 'in principle'.

7.2 This stage will be completed by April/May 2009 and the results presented in Version 3 of this Background Paper. This stage will be linked to the Sustainability Appraisal (SA) process – the options need to be subject to appraisal. The options will be appraised and a summary of the outcome of the SA will be made available for each site. The outcome of the SA can then be used to help inform decisions about which sites will be taken forward as Preferred Sites. Version 3 will contain, for each site:

- Site Description
- Site Assessment Summary
- Potential suitable uses
- Summary of SA findings
- Conclusion on whether site is acceptable in principle

7.3 Further informal stakeholder engagement is planned for summer 2009 and this will give stakeholders an opportunity to comment on the 'site options'. The informal stakeholder engagement will enable the Council to take into account stakeholder evidence and opinions about which sites should be selected and taken forward as provisional allocations at the Preferred Options stage.

7.4 This stage will also determine if enough suitable sites are available to deliver the spatial strategy options. If suitable sites cannot be found in locations that accord with the strategies then this will impact on which strategy options are deliverable.

Selection of Preferred Sites ('provisional allocations')

7.5 If a site is acceptable in principle and there where no over-riding issues raised following the informal engagement exercise, it may, if needed, become a 'provisional allocation' and form part of the Preferred Option engagement process.

7.6 When selected, the Preferred Sites will then be taken forward to an informal consultation period in early 2010, before the Proposed Submission Core Strategy is finalised.

Question 8:
Is the site selection process clear and comprehensive?

Appendix A: Glossary of Key Terms

Acronym / Term		Explanation
ATT	**Advanced Thermal Treatment**	Term sometimes used to differentiate technologies such as gasification and pyrolysis from older "mass burn" incineration. See appendix B.
ALR	**Advisory Lorry Route**	The Advisory Lorry Route is defined in the West Sussex Transport Plan (2006) and has been developed to reduce the use of unsuitable roads by haulers. The ALR is divided into the 'Strategic Lorry Routes' (SLR), which are the preferential routes, and the 'Local Lorry Routes' (LLR) which should only be used for the start of final leg of a journey between built up areas in West Sussex.
	Agricultural waste	By-products generated by the rearing of animals, and the production and harvest of crops.
AD	**Anaerobic Digestion**	A process in which biodegradable material is encouraged to break down in the absence of oxygen. Waste is broken down in an enclosed vessel under controlled conditions, resulting in the production of digestate and biogas. See appendix B.
	Autoclave	A form of solid waste treatment that utilises heat, steam and pressure of an industrial autoclave in the processing of waste. See appendix B.
BMW	**Biodegradable Municipal Waste**	That proportion of municipal waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard. Reduction targets in European Landfill Directive apply. The proportion of municipal waste that is BMW varies but the figure of 68% has been applied in the recently established Landfill Allowance Trading Scheme.
	Brownfield Land	See Previously Developed Land (PDL).
CAS	**Civic Amenity Site**	See Household Waste Recycling Site (HWRS).
	Composting	A biological process which produces a bulk reduced, stabilised residue known as compost. Compostable wastes include the putrescible part of refuse e.g. food scraps and garden wastes, sewage sludge, manure and organic processing residues. See appendix B.
C&I	**Commercial and Industrial Waste**	Commercial waste originates from premises used for trade or business (e.g. shops and offices) or for the purposes of sport, recreation or entertainment. Industrial waste comes from factories or premises used in connection with public transport (land, water or air), supply of gas, water, electricity, and sewerage, postal or telecommunications services.

Acronym / Term		Explanation
C&D	**Construction and Demolition Waste**	Waste arising from the construction, repair, maintenance and demolition of buildings and structures. Although often described as inert, that can be misleading as C&D waste may include material such as timber, metal, plastics, paper and paint, which need to be separated out if the waste is to be re-used, e.g. as inert fill, or if disposed of at a site licensed only for inert waste.
	Controlled waste	Essentially waste that is subject to regulation by the Environment Agency through the site licensing system – includes household, industrial, commercial, construction and demolition, and hazardous wastes.
CWI	**Clinical Waste Incinerator**	A facility that can burn medical waste from hospitals and similar institutions.
DCLG	**Department for Communities and Local Government**	The job of the DCLG is to help create sustainable communities, working with other Government departments, local councils, businesses, the voluntary sector, and communities themselves (formerly ODPM).
DEFRA	**Department for Environment, Food and Rural Affairs**	DEFRA brings together environmental responsibilities from the former Ministry of Fisheries and Food (MAFF) and the former Department of the Environment for the Regions.
EfW	**Energy From Waste**	A facility that recovers heat energy for use in heating schemes from the incineration or other treatment of waste. It can also include the production of waste derived fuel that can be burnt in many conventional boilers and larger combustion units. See appendix B.
	Gasification	The process whereby carbon based wastes are heated in the presence of air or steam to produce fuel-rich gases. The technology is based on the reforming process used to produce gas from coal.
	Greenfield Land	A site that has not previously been developed.
HWRS	**Household Waste Recycling Site**	Supervised facilities where members of the public can bring and discard of a variety of household waste. Typically cater for paper, plastic, metal, glass and bulky waste such as tyres, refrigerators, electronic products, waste from DIY activities and garden waste. Formerly known as Civic Amenity Sites. See appendix B.
	Hazardous waste	Waste that may be hazardous to humans and that requires specific and separate provision for dealing with it. Categories are defined by regulations. Now includes many "everyday" items such as electrical goods. Also referred to as Special Waste.
	Incineration	The controlled thermal treatment of waste by burning, either to reduce its volume or toxicity. Energy recovery from incineration can be made by utilising the calorific value of the waste to produce heat or power. Ash residues still tend to be disposed of to landfill.

Acronym / Term		Explanation
	Industrial waste	See commercial and industrial.
	Inert waste	Waste that does not normally undergo any significant physical, chemical or biological change when deposited at a landfill site. It may include materials such as rock, concrete, brick, sand, soil or certain arisings from road building or maintenance. Most of the category "construction and demolition" waste is inert waste.
	Landfill	Normally refers to the disposal of waste material by tipping into voids in the ground (usually mineral workings), though in terms of regulations also applies to "landraising" where no previous void exists. See appendix B.
LATS	**Landfill Allowance Trading Scheme**	A scheme whereby waste disposal authorities are allocated allowances for the amount of biodegradable municipal waste that can be disposed of to landfill.
MBT	**Mechanical Biological Treatment**	MBT is a term that covers a range of technologies that pre-treat residual municipal waste – i.e. waste that has not been collected for recycling or composting and has been left in wheelie bins or black bags - before disposal. See appendix B.
MRF	**Material Recycling Facility**	A special sorting 'factory' where mixed recyclables are separated into individual materials prior to despatch to re-processors who wash and prepare the materials for manufacturing into new recycled products. See appendix B.
MRMC	**Materials Resource Management Contract**	This is a 25 year contract that will allow West Sussex to use rubbish as a resource and to further reduce landfill. It will enable waste that is not recycled to be put through a process that will separate and extract additional materials for recycling, composting and/or energy recovery. These types of process enable as much of this rubbish as possible to be used as a resource before the least favorable option of landfill.
mt		Million Tonnes
mtpa		Million Tonnes per Annum
MSW	**Municipal Solid Waste**	More commonly known as rubbish, trash or garbage — consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. In West Sussex MSW is made up of about 93% household waste and 7% C&I waste.
MWMS	**Municipal Waste Management Strategies**	A strategy produced by local authorities to deliver more sustainable waste management and break the link between economic growth and the amount of waste produced so that the disposal of waste is the last option for dealing with it.

Acronym / Term		Explanation
	Non-inert waste	Waste that is potentially biodegradable or may undergo any significant physical, chemical or biological change when deposited at a landfill site. It can originate from household, industrial and commercial waste streams. Referred to as "non-hazardous waste" in EU Directives.
PDL	**Previously Developed Land**	Land that has been previously developed. Land that is, or was, occupied by a permanent structure. This may include sites in the countryside, which have been developed for industrial or other purposes. The definition also covers the curtilage of development. However, the definition does not include buildings or land used for agricultural purposes, or land in built-up areas that has not been developed previously, e.g. parks, recreation grounds, and allotments. Also excluded is land that was previously developed but where the remains of any structure or activity have blended into the landscape over time. May also be referred to as 'Brownfield Land'.
PFI	**Private Finance Initiative**	A way of funding major capital investments, without immediate recourse to the public purse. Private consortia, usually involving large construction firms, are contracted to design, build, and in some cases manage new projects. Contracts typically last for 30 years.
	Pyrolysis	Organic waste is heated in the absence of air to produce a mixture of gaseous and liquid fuels and a solid, inert residue (mainly carbon). Pyrolysis generally requires a consistent waste stream such as tyres or plastics to produce a usable fuel product.
	Recycled Aggregates	Aggregate which has been extracted from the ground (as primary aggregate), but which has subsequently been used and recovered for re-use. It comprises material derived from construction and demolition waste.
RDF	**Refuse Derived Fuel**	A fuel product produced from the combustible fraction of household waste.
RWS	**Regional Waste Strategy**	Strategic Strategy that sets regional targets for the diversion from landfill to recycling and composting.
	Residual Waste	Waste remaining following treatment.
	Secondary Aggregates	Secondary aggregates can be a lower grade virgin material such as chalk, or previously used aggregate or used materials which were not previously aggregates, for example shredded tyres.
	Stack	A chimney or flue.
	Special waste	See hazardous waste.
SERTAB	**South East Regional Technical Advisory Body for Waste**	A group established to advise SEERA on options and strategies for dealing with Waste Management.
	Treatment	Biological, chemical or mechanical methods employed to reduce or eliminate its potential for harm to living beings ad the environment.

Acronym / Term		Explanation
WWTW	**Waste Water Treatment Works**	Facility for treatment of waste water, i.e. a combination of rainwater and the used water from toilets, bathrooms, kitchens and industrial processes. Most water is discharged into rivers or the sea following treatment. Remaining sewage sludge needs to be disposed of separately.
	Waste Hierarchy	A hierarchy of approaches to waste management, with reduction the most preferred approach, followed by re-use, recycling, composting, energy recovery from waste, and finally 'disposal'.
WCA	**Waste Collection Authority**	Local authority responsible for the collection of waste in its administrative boundary (in West Sussex the district/borough councils).
WDA	**Waste Disposal Authority**	Local authority responsible for the disposal of waste in its administrative boundary (in West Sussex, the County Council).
WEEE	**Waste Electrical and Electronic Equipment Directive**	EU Directive that aims to prevent the disposal of electrical and electronic goods and ensure greater levels of recovery and disassembly.
WPA	**Waste Planning Authority**	The local authority responsible for waste development planning and control. They are the unitary authorities, including National Park Authorities, and county councils in non-unitary areas. The County Council is the WPA for West Sussex.
WTS	**Waste Transfer Station**	A facility where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere. See appendix B.
	Windrow	Open air composting of biodegradable waste is often undertaken in long lines, which enables the matter to be mechanically turned easily. This usually occurs once a week to maintain aerobic conditions.

Appendix B: Land use requirements of the principal waste recycling, composting, recovery technologies as well as disposal to land

The following table sets out the land use requirements for the main waste management facilities that will be required to meet targets over the plan period. It highlights the site sizes that will be required for the different types of facility and the key considerations that need to be taken into account.

Summary of land use requirements of waste management facilities

Facility	Purpose	Capacity	Site Area/land take (ha)	Building Floorspace	Max. Height	Key locational requirements	Key planning issues
Household Waste Recycling Site (HWRS) (Civic Amenity Sites)	Centralised waste collection facility for householders.	Between 10,000 tpa and 50,000 tpa	0.5 – 1 ha			Close to source of waste arising but not too close to sensitive receptors.	Traffic management and access; Amenity issues; Visual impact; Hours of operation.
Materials Recycling* Facilities (MRF) (*also called Recovery, or Reclamation)	Reception and separation of mixed dry recyclables	20,000 tpa to over 100,000 tpa. Average approx. 50,000 tpa	At least 1 – 2 ha	200m² - 12,000m²	12m	Depends on size of facility. Co-location at residual waste processing operation or landfill site beneficial. Avoid close proximity to residential areas. Preference for industrial or degraded sites or close to existing facilities. B1/B2/B8 potentially acceptable.	Traffic impacts and control; Size and form of building; Amenity issues; Impact on water resources; Impact on landscape and visual intrusion.
Waste Transfer Stations	Centralised collection point for bulking waste prior to onward	Vary from small to over 150,000 tpa	At least 1 – 2 ha	Over 2,000m²	12m	Preference for industrial land.	Traffic and highways considerations; Amenity issues; Potential for extended hours of working;

Facility	Purpose	Capacity	Site Area/land take (ha)	Building Floorspace	Max. Height	Key locational requirements	Key planning issues
	transport (often combined with HWRS)						Design of building.
Energy from Waste (EfW)	Thermal treatment designed to burn waste to produce energy	50,000 tpa to over 500,000 tpa	2-5 ha (smaller facilities) 34 ha (500,000 tpa facility based on Kent Enviropower facility in Allington, Kent). Other studies indicate landtake for large facilities to be 5ha.	3,500m² - 7,000m² (smaller facilities) 70,000m² (larger facilities)	30-80m stack	Suitable for location on land previously used for general industrial activities or land allocated in development plans for such (B2) uses. Require good transport infrastructure. Co-location with other waste operations advantageous. Potential for export of energy to host users or the national grid. Sites capable of accommodating large built structures and associated infrastructure. Application of good design principles essential.	Air emissions/ health effects; Amenity issues; Impact on water resources; Visual intrusion; Traffic - Number of vehicles and frequency; Disposal of residues; Public concerns and perceptions.
Anaerobic Digestion	Biodegradation of organic material in absence of oxygen	Typically 40,000 tpa	1 ha			Suitable for location on land previously used for general industrial activities or land allocated in development plans for such (B2) uses. Require good transport infrastructure. Co-location with other waste	Air emissions/ health effects; Amenity concerns; Impact on water resources; Visual intrusion (potential of a stack); Disposal of liquor; Traffic;

Facility	Purpose	Capacity	Site Area/land take (ha)	Building Floorspace	Max. Height	Key locational requirements	Key planning issues
						operations advantageous. Potential for export of energy to host users or the national grid. Application of good design principles essential.	
Advanced Thermal Treatment (ATT)(gasification and pyrolysis)	Thermal treatment processes involving chemical reactions at high temperature.	Typically up to 50,000 tpa (small). Large – up to 240,000tpa	Between 1.5 – 4 ha	3,000m²	10-15m. Open systems require stack – 30 – 70m	Suitable for location on land previously used for general industrial activities or land allocated in development plans for such (B2) uses. Require good transport infrastructure. Co-location with other waste operations advantageous. Potential for export of energy to host users or the national grid. Good design principles essential.	Traffic; Air emissions/ health effects; Amenity concerns; Impact on water resources; Visual intrusion (potential for a stack); Public concern.
Autoclave	Treatment of waste with high temperature steam. Clean materials can then be sorted for further recycling.	Similar to Advanced Thermal Treatment					
Inert waste processing/ aggregate	Processing of C&D waste to produce	25,000tpa – 250,000tp	Extensive areas of land	N/A	N/A	Industrial locations suitable if environmental impacts reduced to	Traffic; Control of emissions and proximity to sensitive

Facility	Purpose	Capacity	Site Area/land take (ha)	Building Floorspace	Max. Height	Key locational requirements	Key planning issues
recycling	secondary aggregates or soils	a	required			acceptable levels.	receptors; Landscaping and screening to reduce visual impact; Height of stockpiles; Design and form of buildings where required.
Mechanical and Biological Treatment (MBT/BMT)	Combination of technologies for treatment of waste to reduce its volume, weight and biodegradable content and recover recyclables.	50,000 tpa – 180 tpa upwards	Approx. 2 – 4 ha	3,000m² - estimated 10,000m²	10 – 20m aver. plus may have stack	Suitable for location on land previously used for general industrial activities or land allocated in development plans for such (B2) uses. Require good transport infrastructure. Co-location with other waste operations advantageous. Good design principles essential. Avoid proximity to sensitive receptors.	Air emissions; Amenity concerns; Impact on water resources; Visual intrusion; Site setting – not close to listed buildings, conservation areas or sensitive viewpoints; Existing large buildings and structures; Potential of a stack; Use of screening features; Traffic - Number of vehicles and frequency.
Non-inert landfill	Disposal of non-inert waste to the ground	1 - 5,000,000 m³	5 – 50 ha	N/A	N/A	Preference to existing mineral voids, brownfield, contaminated or despoiled land. Require good transport infrastructure. Avoid proximity to sensitive receptors.	Traffic; Air Emissions; Amenity issues; Impact on water resources; Land stability/ geology; Visual intrusion; Nature conservation – direct and indirect effects; Archaeology; Public concern.
Inert Landfill	Disposal of inert waste to	Various	Various	N/A	N/A	Preference to existing mineral voids, brownfield,	Traffic; Archaeology;

Facility	Purpose	Capacity	Site Area/land take (ha)	Building Floorspace	Max. Height	Key locational requirements	Key planning issues
	the ground					contaminated or despoiled land. Require good transport infrastructure.	Amenity issues;
In-vessel composting	Enclosed batch processes with forced aeration and extraction of bioaerosols. Treats food wastes	Typically upwards of 25,000 tpa	Over 1 ha	1,000m² - 4,000m²		Avoid proximity to sensitive receptors. Constraints on development in the countryside and landscape impacts.	Control of emissions; Traffic.
Open windrow composting	Placement of shredded organic waste into elongated piles (windrows) to degrade	Typically 25,000 tpa	2 ha	N/A	N/A	Countryside location may be appropriate; 250 buffer from sensitive uses.	Located on impermeable surface with sealed drainage; Amenity issues; Release of bio-aerosols.
Wastewater treatment	Treatment of waste water from various sources prior to being discharged.	Varied - small scale works to serve villages to larger scale works to serve urban areas	Under 1ha plus	Varied	N/A	Industrial locations and previously developed land close to urban areas – need to be located close to source of wastewater.	Traffic; Control of emissions.

Source of information:
High Quality Waste Facilities Supplementary Planning Document (WSCC, December 2006) http://www.westsussex.gov.uk/yourcouncil/ppri/mwdf/adopted_spd_dec06.pdf
Planning for Waste Management Facilities: A Research Study (ODPM, August 2004)
New Technologies Publications (Defra, 2007) - http://www.defra.gov.uk/environment/waste/wip/newtech/index.htm
Study into the Arisings and Management of Hazardous Waste and Low Level Radioactive Waste in the South East Region (SEERA, 2008

Appendix C: Details of site assessment criteria

Criteria	Assessment
Landscape Designations/ Visual Impact	
Landscape Designations	There are three AONB within West Sussex; the Sussex Downs, Chichester Harbour and the High Weald. The proposed National Park for the South Downs (SDNP) may cover an even larger area, although the boundary of the proposed SDNP has yet to be decided. The need to protect landscapes of national importance will be considered.
Landscape Character	The County Council completed a Landscape Character Assessment (LCA) in 2003 to provide an information base to understand what makes West Sussex unique. Land Management Guidelines are available for each identified landscape character area. From this assessment, a Landscape Strategy[2] was produced which includes a vision and objectives for the West Sussex landscape and guidelines for dealing with the likely changes to the landscape. The Land Management Guidelines and Landscape Strategy will inform decisions about the impact a potential site may have on the landscape.
Nature Conservation	
International/National Designations (Special Protection Areas, Special Areas of Conservation, Ramsar sites, National Nature Reserves, Sites of Special Scientific Interest)	International sites are afforded the highest level of protection. These include Ramsar sites, Special Protection Areas (SPA) and Special Areas of Conservation (SAC). There is a requirement under European Legislation to assess whether the Minerals and Waste Core Strategy will have a significant environmental effect on these sites and the county will need to undertake a Habitat Regulations Assessment as part of the plan preparation. Waste development should not take place where it would adversely affect a site of European Importance. The likelihood of any adverse impact on National Nature Reserves (NNR) will also be considered. Many Sites of Special Scientific Interest (SSSIs) are also designated as sites of international importance and there are numerous sites distributed throughout the county. Waste development should not occur on land within or outside SSSIs if it is likely to have an adverse effect on the SSSI.

[2] West Sussex County Council (2006). A Strategy for the West Sussex Landscape.

Regional and Local Sites (Local Nature Reserves, Regionally Important Geological Sites, Sites of Nature Conservation Importance).	Sites of regional and local importance including; Local Nature Reserves (LNR), Regionally Important Geological Sites (RIGs) and Sites of Nature Conservation Importance (SNCI) make a significant contribution to overall biodiversity targets. Harm to sites of nature conservation interest should be avoided unless appropriate mitigation can be incorporated or there is an overriding need for the development.
Ancient Woodland	Ancient Woodland is a valuable biodiversity resource and once lost, they cannot be recreated. Development which would result in the loss or deterioration of ancient woodland should be avoided unless the need for, and benefits of, the development outweigh the loss of the woodland habitat. The conservation of ancient woodland should be encouraged as part of development proposals.
Protected Species	Many individual wildlife species receive statutory protection under a range of legislative provisions, for example, badgers, bats and wild birds. These species should be protected from the adverse effects of development. Development should not occur where harm to the species or their habitats would result, unless the need for, and benefits of, the development clearly outweigh that harm. Planning conditions or obligations can help to ensure that species are protected from the adverse effects of development.
BAP Habitats	It will be important for the MWDF to take account of other strategies which will include the Local Biodiversity Action Plan. Biodiversity Action Plans (BAP) set out local priorities for biodiversity and the planning system should support this. The BAP identifies characteristic habitats based on the following criteria: • Habitats for which the UK has international obligations; • Habitats at risk, such as those with a high rate of decline, especially over the last 20 years, or which are rare; • Habitats which may be functionally critical (i.e. areas that are part of a wider ecosystem but provide reproductive or feeding areas for particular species); and • Habitats which are important for priority species. Consideration will be given to whether the site is situated within a BAP habitat area and the overall strategy for that habitat.

Historic Environment	
Listed Buildings	There should be a presumption in favour of the preservation of listed buildings and their setting, if waste proposals would have an adverse effect on them.
Scheduled Ancient Monuments	There are numerous scheduled ancient monuments within West Sussex. There should be a presumption in favour of the preservation of nationally important archaeological remains in situ and their settings, if waste proposals would cause damage or have a significant impact on them.
Conservation Areas	Proposals for waste development should not affect the character or appearance of conservation areas.
Historic Parks and Gardens	Although historic parks and gardens have no statutory controls, they should be protected. The effect of a proposed development on a registered park or garden or its setting will be considered.
Archaeological features	There should be a presumption in favour of the preservation of nationally important archaeological remains, if waste proposals would cause damage or have a significant impact on them.

Water Environment (including flooding)	
Flooding	The County Council has prepared a Strategic Flood Risk Assessment (SFRA)[3] to inform the preparation of the Minerals and Waste Development Framework (MWDF). The challenge is to ensure that new waste development does not increase the risk of flooding within the county. Landfill sites and sites used for waste management facilities for hazardous waste are classed as more vulnerable to flooding according to Planning Policy Statement 25: "Development and Flood Risk" (PPS25). This means that an exception test will need to be passed if more vulnerable uses are to be located in Flood Zone 3a. More vulnerable uses are compatible with Flood Zone 2. Notwithstanding the above, all sites of 1ha or more will require a Flood Risk Assessment (FRA) to demonstrate that the development will not increase the risk of flooding elsewhere.

[3] Capita Symonds (2008). Strategic Flood Risk Assessment of West Sussex.

Movement of surface and groundwater	Landfill sites can have a significant impact on hydrogeology. Sites should be suitably located so they will not lead to increased environmental risk. Waste development needs to take account of the presence of Source Protection Zones and the major aquifer that coincides with the chalk of the South Downs. Careful consideration of the potential for water pollution, not only in the immediate vicinity of the site, but further away, along watercourses will be important.

Soil Quality	
Agricultural Land	The presence of the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification), should be taken into account. Where significant development of agricultural land is unavoidable, poorer quality land (grades 3b, 4 and 5) should be used in preference to that of a higher quality.
Public Rights of Way (PRoW)	
Impact on users of PRoW, Potential Changes to network	The countryside is popular for leisure/recreational uses and waste development can have a detrimental impact on people's quiet enjoyment of the countryside, therefore, the location of waste development in relation to PRoW will be a key consideration.

Transport (including access)	
Access to site, mode of transport	The Advisory Lorry Route (ALR) is defined in the West Sussex Transport Plan 2006-2016 (March, 2006). It is also shown in Background Paper 4: Transportation of Minerals and Waste. The ALR is divided into the 'Strategic Lorry Route' (SLR), which are the preferred routes and the 'Local Lorry Route' (LLR) which should only be used for the start or final leg of a journey or between built up areas of West Sussex. Minerals have to be worked where they occur therefore will not always be close to the ALR, although access to the ALR is desirable. The challenge is to avoid the use of unsustainable roads by locating minerals sites close to the ALR and to minimise the environmental impact of the transportation of minerals. The preferred spatial strategy is to locate minerals sites close to the ALR.

Services and Utilities	
Water, Gas, Electricity, Telecommunications	Sites which have utilities passing underneath may not be showstoppers but will be a consideration in terms of the costs and benefits of dealing with them. It is also important

	for sites to have access to services and utilities to ensure the efficient running of mineral sites. Extensions to existing sites can utilise existing infrastructure and minimise environmental disturbance and may often be more sustainable. However, in some instances, new sites may be more sustainable therefore, it is important that they have suitable access to services and utilities to enable the site to be operated efficiently and is deliverable.

Public Amenity	
Noise, dust, smell, light, vibration, air quality, impact on residents and neighbouring uses, impact on wider areas (users of the countryside)	With regard to air emissions, including dust, consideration will include the proximity of sensitive receptors and the extent to which adverse emissions can be controlled. In order to reduce to impact of odours, consideration will include the proximity of sensitive receptors and the extent to which adverse odours can be controlled. Vermin and birds also need to be considered. As the operation of large waste management facilities can produce noise the proximity of sensitive receptors needs to be considered.
Cumulative impact	Policies and proposals should take account of existing activity and impacts.

Airport Safeguarding Zone	
Airport Safeguarding Zone	Many types of development can attract to birds, including large flat-roofed structures, landfill sites, gravel pit restoration schemes and nature reserves. Waste sites should not have an adverse impact on the operational integrity or aviation facilities of the airport safeguarded areas of Gatwick, Shoreham or Goodwood Airports. The relevant managing bodies will need to be consulted if a sites lies within 13km radius of an airport. It may be possible to incorporate mitigation measures to overcome aviation objections.

Site specific information	
Landownership Developer/Operator	It also important that sites allocated within the Minerals and Waste Core Strategy are deliverable. Sites which are included within a plan with no chance of coming forward should not be included. Therefore additional information about the sites is required to determine whether a site can be delivered during the plan period. It is therefore proposed

	to gain further information from the waste industry about the deliverability of waste sites. If the relevant information is not forthcoming, the County Council will not be able to consider such sites as allocations as it would not be a 'sound' approach to progress a site without technical justification.