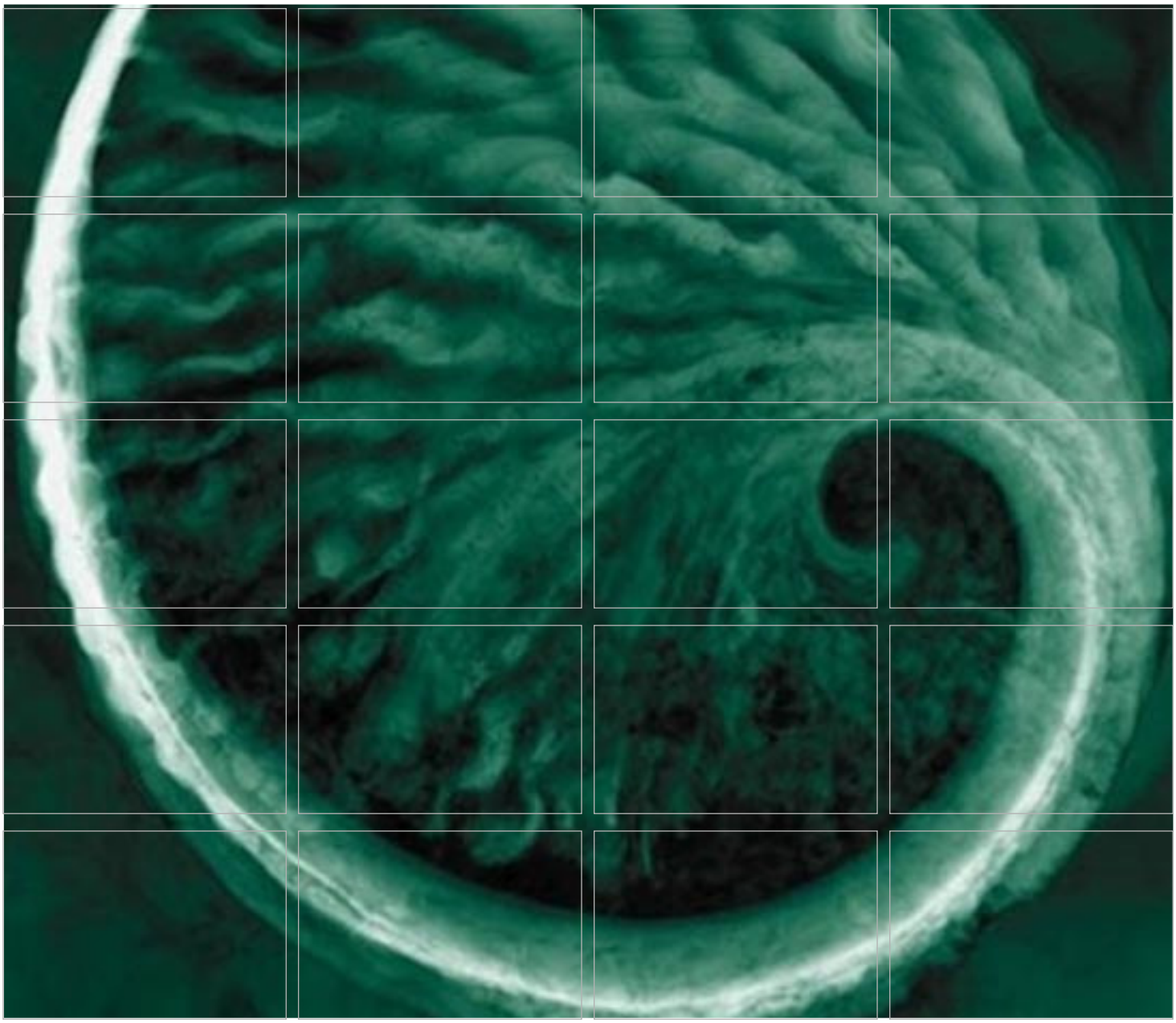

Interim Sustainability Appraisal Report for the West of England Joint Waste Core Strategy Preferred Options

Interim Draft

June 2008

Delivering sustainable solutions in a more competitive world

ERM

West of England Unitary Authorities

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June 2008

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For and on behalf of
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Signed: _____

Position: Partner _____

Date: 5th Jane 2008_____

CONTENTS

The Preferred Options Document as at 3 June 2008 aims to promote the management of waste at higher levels of the **waste hierarchy** through a number of means, increasing the **resource efficiency** of waste management methods. The Joint Waste Core Strategy (JWCS) will contribute to promoting the waste sector and strengthening its **economic contribution** and competitiveness and promoting local economies and innovation. It contains several areas of policy where the preferred options will promote greater **community responsibility** for waste.

The JWCS is likely to promote greater **energy efficiency** and lower **greenhouse gas emissions** through **minimisation of transport,** increased generation capacity, actively promoting Combined Heat and Power and promoting alternatives to road transport. However, the need for new capacity increases the potential for **climate change to affect developments** in a sub-region where **flood risk** is a constraint. The JWCS requires consideration and mitigation of flood risk, although some identified sites are within flood zones and further such development may be permitted. A Strategic Flood Risk Assessment is yet to be carried out. Consideration of impacts on **water consumption** are required by the JWCS.

The overall likely impact on **air quality** is unclear. Emissions from transport should be minimised, although effects will be small in comparison to the facilities themselves. Several of the identified sites are within areas of current or predicted future poor air quality and others are in areas which are predicted to be close to breaching standards, although site criteria for residual facilities do require developers to consider air quality. The likely effect is unclear but negative effects are possible.

Although waste transport will be minimised, the likely local impacts on **congestion** are unknown, particularly in the medium and longer term when the effects of planned improvements in other plans and strategies are likely to take effect but are as yet unknown at this stage. Developers should be required to assess and mitigate the effects of development on congestion, as already recommended.

The significance of impacts on **biodiversity** will depend on sensitivities in particular areas and standards of design, construction and operation, and on more detailed assessment in the Habitats Regulations Assessment. All but one of the identified sites contain or are close to areas of nature conservation designation or important habitats, and in some cases nature conservation value is likely to be lost. At this stage, limited ecological screening has been undertaken for the sites and thus the subsequent requirement to undertake Appropriate Assessment, if required, has not been identified. This completion of this process is essential to the "soundness" of the strategy and is a key requirement of the planning process. It is required to ensure that there is a

robust, defensible strategy in place as the strategy moves to the examination phase.

Developments are required to avoid or minimise significant adverse effects or to compensate for any loss, although development may be considered appropriate in areas designated locally important for nature conservation. Locational criteria for residual treatment facilities could be improved with respect to the **built and historic environment** to avoid adverse impacts.

The use of **previously developed land** and **urban land** is promoted, although locating sites within urban extensions is likely to result in development on **greenfield land**. Impacts on **open spaces** are possible and should be considered, particularly the countryside and valued spaces including recreational space. **Green belt** development is possible or likely for a number of different types of facility, some of which appear to accord with national green belt policy and others which do not. It is recommended that the approach to green belt is amended to reflect national policy.

If thermal residual treatment methods are employed, the **generation of hazardous waste** will increase. Although no capacity for hazardous waste disposal will be provided, there is no evidence to indicate this is required.

2 SUMMARY AND OUTCOMES

2.1 NON-TECHNICAL SUMMARY

2.1.1 Overview

This report sets out details of the process and outcomes of a Sustainability Appraisal (SA) of the West of England Joint Waste Core Strategy (JWCS) Preferred Options document.

Under the Planning and Compulsory Purchase Act 2004 the West of England authorities are required to undertake an SA of Local Development Documents including the JWCS. The SA must also satisfy the requirements for a Strategic Environmental Assessment (SEA) arising from the authorities' obligations under the European Directive on SEA and the implementing Regulations in England and Wales.

The overall purpose of the SA is to evaluate the likely implications for sustainable development in the West of England of the proposed JWCS and reasonable alternatives to it. The aim is to inform the plan-making process to enable the JWCS to take account of the ways in which waste management might affect the economy, environment and communities of the West of England.

The SA tested the JWCS Preferred Options against a series of objectives that reflect relevant sustainable development policy objectives. The Preferred Options and their alternatives were tested to determine their potential to give rise to significant effects, in order to enable the identification of a Preferred Option in the light of knowledge of the potential impacts on relevant sustainable development policy objectives.

The findings and recommendations reached through the SA are set out in this report, and the method by which the appraisals were undertaken is described.

2.1.2 The West of England JWCS and its Context

The overall purpose of the JWCS is to provide a policy framework by which the West of England authorities will jointly carry out their statutory duty to provide a land use plan for the management of waste. In doing this, the following strategic aims have been identified.

Box 2.1 Aims of the JWCS

1. To encourage waste minimisation in new development;
2. To identify sufficient sites to enable the sustainable development of an integrated network of waste management facilities that maximises re-use, recycling and composting and then recovers further value from the remaining residual waste;
3. To enable sufficient and timely provision of waste management facilities to meet forecast sub-regional requirements;
4. To encourage the provision of waste management facilities at appropriate locations having regard to the need to reduce travel;
5. To take account of the needs of business and opportunities for economic growth and the development of environmental technologies;
6. To ensure that waste management facilities do not harm the environment or endanger human health, and where possible provide benefits to the environment; and
7. To reduce the carbon footprint of waste management facilities.

Policies have yet to be identified setting out the means by which the aims will be achieved. However, the Preferred Options document describes the issues that the JWCS will encompass and indicates how it is proposed that the JWCS will address those issues. There are ten issues that will be covered in the JWCS, as follows:

- Safeguarding of existing waste sites;
- Waste minimisation;
- Apportionment of recycling and composting capacity;
- Locational priorities for recycling and composting facilities;
- Locational criteria for residual treatment facilities;
- Approach to urban extensions;
- Size and distribution of residual treatment facilities;
- Disposal of non-inert waste;
- Disposal of hazardous waste.

The JWCS sits within a framework of other policy documents which together influence both the content of the plan and its implementation. The most important of these are:

- European Union legislation, most importantly the *Landfill Directive*, which sets binding targets for reduction in the amount of biodegradable municipal waste sent to landfill;

- National legislation which is binding on the West of England authorities, principally the *Waste and Emissions Trading Act 2003* which implements the Landfill Directive in the UK and introduces a scheme of trading in landfill allowances;

- National waste policy which sets the framework of overarching policy objectives for Waste LDDs, including objectives such as promoting waste minimisation and implementing the waste hierarchy;

- National planning guidance which sets out details of the policy approaches which should be adopted by local and regional authorities;

- The draft Regional Spatial Strategy, which sets out policies for dealing with the South West region's waste, and with which local authorities should seek to align their waste LDDs;

- a *Joint Municipal Waste Management Strategy*, produced jointly by the West of England authorities, which sets out a 20-year plan for the management of residual municipal waste and delivery of residual treatment facilities, which the JWCS will be seeking to enable by providing the necessary planning framework;

- West of England statutory plans, including the Joint Replacement Structure Plan and individual authority Local Plans, which currently set the local framework for the content and implementation of the JWCS, particularly policies on the location and control of development.

- West of England non-statutory strategies and plans, which guide the policy approach of the JWCS on specific issues, but are not binding.

A list of relevant policies, plans and programmes and a review and summary of their content was set out in *Section 3* and *Annex A* of the Scoping Report.

2.1.3 The Current State of Sustainable Development in the West of England

The main issues for sustainable development in the West of England and which are relevant to the JWCS are summarised in the following table.

Table 2.1 Key Environmental, Social and Economic Issues for the West of England

Category	Key Issues
Air quality	Most of the region has good air quality although two Air Quality Management Areas have been designated where a build-up of traffic-based pollution such as NO_2 and PM_{10} may reach levels of concern.
Climate change	Of the estimated 2 million tonnes of carbon dioxide emitted in the West of England in 2003, 0.2% arose from waste treatment and disposal. Methane is also a potent greenhouse gas, arising in part from waste management, although figures are not available.
Flood risk	There are very significant areas of the sub-region that are subject to flood risk, especially large parts of Bristol, South Gloucestershire and North Somerset.
Water quality & availability	The West of England generally has good water quality. There are a number of pressures on regional water resources, including housing demand, economic development and climate change, and demand is predicted to rise.

Category	Key Issues
Waste	In 2005/06, the West of England generated a total of 562,049 tonnes of municipal waste. Although recycling is above the England average, 71% of this waste was landfilled. Commercial/industrial and construction/demolition waste are each larger waste streams than the municipal solid waste stream. 10%of C&D waste was landfilled in 2000/01, however, no data was available for C&I waste disposal routes.
Landscape	The West of England contains parts of two Areas of Outstanding Natural Beauty. 47% of the West of England is designated as green belt. The Forest of Avon covers approximately 57,000 ha.
Land quality	The West of England has relatively low amounts of previously developed land and derelict buildings, with most occurring in Bristol and North Somerset.
Biodiversity	The West of England contains sites of international, national and local importance. There are 8 internationally-designated sites within the sub-region and a further site outside but within 10km of potential waste sites. Sites of Special Scientific Interest (SSSIs) are in good condition compared to both the regional and the national picture. A number of habitats and species have been prioritised for protection and enhancement in Local Biodiversity Action Plans.
Transport	In the last 10 years, the volume of traffic has grown faster than the national average. Car ownership is very high and congestion is a major issue on the motorway network and in the city centres.
Built, cultural and archaeological heritage	The West of England has 177 Scheduled Ancient Monuments, 8,258 Listed Buildings, 43 Historic Parks and Gardens and Battlefields and 129 conservation areas.
Amenity	An area around Bristol has been identified as a fly-tipping 'hotspot', indicating a moderate problem. There is significant night light pollution in populous areas, particularly around Bristol. The South West has a relatively high number of noise offences relating to motor vehicles.
Health	Census and other data indicates health is relatively good across the sub-region, with South Gloucestershire and Bath and North East Somerset having better health than the regional and national average.
Deprivation	Bristol has a relatively high level of deprivation whilst South Gloucestershire is relatively affluent in comparison to England as a whole.
Economy	The South West has one of the smallest but strongest growing economies of the English regions. The GVA per head for the West of England is relatively higher than the regional and national average.
Employment	The South West has a higher than average percentage of those of working age in work. The largest sector for numbers in employment in the West of England is in the transport, storage and communication services.

2.1.4 Areas Likely to be Significantly Affected by the JWCS

The appraisal has considered the areas likely to be significantly affected by implementation of the JWCS, in order to identify the sustainability characteristics of those areas. In reality, the effects of implementation of the plan can be considered on two levels.

First, the overall effects will be spread throughout the sub-region, because waste arises almost everywhere, waste transport will occur throughout the West of England and the some of the impacts of recycling, recovery and disposal activities will be widespread and borne by all. In this case, the relevant sustainability characteristics are those set out in the baseline above and in *Annex A*.

On another level, some of the effects of the management of waste will occur in the vicinity of waste management sites. There are 18 sites which have been identified as appropriate for residual waste management facilities under the JWCS, and in addition the JWCS allows for development on sites which have not been identified. *Figure 4.1* shows the location of the identified sites.

As part of the site assessment work undertaken by ERM, each of these sites was assessed against a range of criteria, which include a number of SA appraisal objectives. The results of that assessment are set out in the site assessment report[1] produced for the West of England Partnership by ERM. These site assessment reports were drawn on significantly in assessing the likely sustainability impacts of the Preferred Options. The sites were also appraised against a number of additional criteria to ensure full coverage of all relevant SA objectives.

2.1.5 Existing Problems Relevant to the JWCS

A number of problems exist in the West of England which are relevant to the JWCS. These are summarised below and described in detail in the baseline in *Annex A*.

The West of England generally compares favourably to the England average for recycling municipal solid waste, although 71% of municipal solid waste was still landfilled in 2005/06. Commercial/industrial and construction/demolition waste are each larger waste streams than the municipal solid waste stream. 10%of C&D waste was landfilled in 2000/01, but there is no reliable data on C&I waste.

In the last 10 years traffic has grown faster than the national average, with high levels of car ownership. Congestion is a major issue in the region on the motorway network and in the city centres.

Air quality is generally good throughout the sub-region, although there are some areas of poor air quality, largely due to transport emissions.

The West of England has relatively low amounts of identified previously developed land and derelict buildings, with most occurring in Bristol and North Somerset. Almost half of the sub-region is designated as green belt.

(1) [1] *Detailed Site Assessment Report: Final Report*, ERM, January 2008

There are very significant areas of the West of England that are subject to flood risk, especially large parts of Bristol, South Gloucestershire and North Somerset.

The South West has a number of pressures on regional water resources, including housing demand, economic development and climate change. Without increases in water efficiency, the supply-demand balance is predicted to go into deficit in the West of England area by 2014/15 with the levels of housing growth planned under the draft Regional Spatial Strategy.

Economic productivity in the West of England is high, 10% above the average for the UK.

The West of England contains or is near to some areas which are designated as internationally important, including Special Protection Areas and Special Areas of Conservation designated pursuant to Directives 79/409/EEC[1] and 92/43/EEC[2]. The sites are all subject to pressures, most notably physical loss and damage, disturbance from human presence and activities and changes in water table levels. All bar one of the sites identified as suitable for residual waste treatment are near to one or more of these designated areas. An Appropriate Assessment will need to be undertaken by the West of England Authorities to determine the impacts that waste-related development at the sites may have on internationally-designated sites. As this work has not yet been initiated by the West of England Partnership, this is identified as a significant gap in the required assessment details and needs to completed as soon as possible to reduce the risk of the Plan being rejected at a future stage.

2.1.6 Taking Account of Relevant Sustainable Development Objectives

A long list of international, national, regional and local level policy documents was considered, to assess each one's relevance to sustainable development, and particularly in the context of the scope of the JWCS. The list of the documents considered and those reviewed is given in *Annex B*.

The review identified the key sustainable development policy objectives contained in each document, and *Table 5.1* sets out the environmental, economic and social objectives which were identified. These objectives set the policy context for the JWCS and with which it must conform. The review also identified any relevant targets which have been set.

The sustainability baseline data was also analysed to identify the key sustainability issues in the West of England which are relevant to the JWCS. The list of sustainable development objectives was then reviewed to ensure that all key issues would be covered by the appraisal framework and therefore that the JWCS would be appraised for its effect on these issues.

[1] Directive 79/409/EEC on the conservation of wild birds

[2] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

2.1.7 The Likely Significant Effects of the Policy Framework

Overarching Principles and Objectives

The JWCS sets out a number of strategic objectives which set the framework for the more detailed policies which follow. These have been tested both against the SA objectives and against each other, to ensure compatibility with sustainable development objectives and internal consistency.

There are no clear incompatibilities between the aims of the Plan and the appraisal objectives, although there are a number of areas of uncertainty. However, it is noted that there are no strategic objectives which could clearly cover the following sustainable development objectives:

- promoting rural, social and community enterprise;
- promoting good design;
- reducing the need to travel by car;
- promoting alternatives to road transport;
- promoting the sustainable use of water;
- improving the management of hazardous waste.

Promoting enterprises probably constitutes an opportunity to be captured rather than a gap in strategic objectives, while good design may be most appropriately dealt with by policies rather than a strategic objective. The final four sustainable development objectives, on car travel, alternatives to road transport, sustainable use of water and the management of hazardous waste, may be promoted by the strategic objectives but it is impossible to tell from the level of detail provided. These issues are more appropriately examined at the more detailed level of the preferred options. Therefore no recommendations are made for mitigation arising from the appraisal of strategic objectives.

2.1.8 Selecting Alternatives

Alternatives to the Preferred Options have been identified in terms of the different approaches which are feasible for different aspects of the Preferred Options.

Safeguarding

The Preferred Options document proposes to safeguard sites in existing waste use unless it can be shown that the capacity is not required or can be provided elsewhere. Furthermore, development nearby which would compromise a site's future potential will not be permitted. No alternative to this option has been identified and none is being considered or appraised. In particular, a 'do nothing' options was considered and rejected.

Waste Minimisation

The Preferred Options document proposes to introduce a requirement for waste audits to be undertaken for developments, arising from policy in the Regional Spatial Strategy.

No alternative to this option has been proposed and none is being considered or appraised. A 'do nothing' option is not considered a realistic alternative.

Recycling and Composting Capacity Apportionment

The Preferred Options document proposes that the required capacity for recycling and composting capacity for both non-inert and inert waste should be apportioned between the individual Unitary Authorities. The alternative to this approach is not to apportion capacity, in effect a 'do nothing' option. Both of these options have been appraised.

Locational Priorities for Recycling and Composting Facilities

The Preferred Option sets out broad priorities for the location of each type of recycling and composting facility. No strategic alternative to this preferred option is proposed for appraisal. However, alternatives are addressed in terms of recommended amendments to the priorities set out in order to improve the sustainability of the preferred option.

Locational Criteria for Waste Facilities

The Preferred Option proposes a number of criteria for selecting locations for new waste management facilities, in terms of land use and locational priorities, unacceptable locations, locations which may be acceptable and issues to be taken into consideration. This preferred option has been carried forward from the Issues and Options report as it was broadly supported in the public consultation. No alternative to this preferred option is therefore considered.

Urban Extensions

The Preferred Options document proposes to promote the provision of waste facilities within urban extensions to increase the potential for CHP to recover increased amounts of energy from waste. This is compared with a 'do nothing' approach which does not actively promote the incorporation of facilities within urban extensions, which is a possible alternative.

Strategic Site Options

The following four options are considered in order to meet the capacity requirements in the longer term, estimated in the Preferred Options document as 760,000-775,000 tonnes per annum for MSW and C&I waste combined:

- A concentrated distribution of residual waste treatment sites, with two facilities each with a capacity of 400,000 tonnes per annum;
- A dispersed distribution of facilities with eight smaller facilities each with a capacity of 100,000 tonnes per annum;
- A combination of the combined and dispersed approach, with one large facility with a capacity of 390,000 tonnes per annum and four smaller facilities with capacities of 150,000 tpa, 100,000 tpa, 100,000 tpa, and 60,000 tpa;
- A second combination of the refined and dispersed approach, with two medium-sized facilities with a capacity of 195,000 tonnes per annum each, and four smaller facilities with capacities of 150,000 tpa, 100,000 tpa, 100,000 tpa, and 60,000 tpa.

The method and rationale by which these options were developed is set out in detail in a separate report on the site options[1], which also explains which of the identified sites could deliver each option.

Non-Inert Disposal

The preferred option for non-inert disposal is to provide sufficient capacity within the West of England to meet the landfill requirements as set out in the RSS, by identifying areas of search avoiding known constraints. In tandem with this, a criteria-based policy will be developed to guide the identification of suitable sites. An alternative to this is to continue to export waste to surrounding areas in exchange for providing additional treatment capacity within the West of England as a reciprocal arrangement with other waste disposal authorities. A third option would be to allow sites to be identified within the areas of constraint identified in the Preferred Option, on the condition that a risk assessment is undertaken to demonstrate that there will be no significant adverse effects on any of the constraints. This is in line with the approach promoted by the Environment Agency. These three options have therefore been appraised.

Hazardous Waste Disposal

The Preferred Option proposes to maintain the status quo in relation to hazardous waste management. This means that there is no perceived need to provide new hazardous waste management facilities and that hazardous waste will continue to be exported for disposal. No alternative approaches have been proposed for hazardous waste, and the consultation on the Issues and Options did not reveal any issues arising.

2.1.9 Outcome of Options Appraisal

The significant impacts of the various Preferred Options are set out below, which also indicates the relative performance of the different options.

[1] *Spatial Options Appraisal: Final Report*, ERM, January 2008

Safeguarding

Safeguarding sites from alternative development will help to ensure the availability of sites for waste management activities which will support the economic contribution of the waste sector now and into the future. It will also help to promote the reuse of previously developed land for waste uses and to minimise the possibility that waste development will be pushed onto other land which could have landscape value or value as open space, or be greenfield land. For these and for a number of other sustainable development objectives, notably the effect on communities, on waste transport, on the natural environment and on land use, the significance of impacts depends substantially on conditions at individual sites. However, the policy approach also allows for the identification of alternative sites which can be shown to be better than existing sites, which will allow potential adverse impacts to be avoided and benefits to be captured.

Ensuring that nearby development does not compromise the future use of waste sites will help to protect nearby communities, particularly in terms of potential health and amenity effects. There are opportunities for promoting the use of CHP in nearby developments, however this falls within the remit of the individual Unitary Authorities' Core Strategies.

Waste Minimisation

Waste audits will encourage the reduction of waste generation through reuse and recycling on site, thereby promoting the waste hierarchy, increasing the recovery of value from waste, increasing resource efficiency and reducing landfill. If waste materials are reused on-site rather than being transported to further destinations, this is also likely to reduce the energy use for transport of waste and also for the production, processing and transport of new raw and intermediate materials. Greenhouse gas emissions will also be reduced through the reduction of transport and avoided production and processing of new materials.

Waste audits may also help to reduce hazardous waste generation by encouraging the decontamination and reuse of soils, and help to conserve land and soil quality by reducing the demand for newly-won minerals and soils.

Recycling and Composting Capacity Apportionment

By apportioning capacity to the individual UAs, the JWCS is likely to promote the provision of sufficient capacity for recycling and composting to meet the targets, so helping to manage waste at higher levels of the hierarchy. In doing so, more value should be recovered from waste, resource efficiency should be increased and less waste is likely to be landfilled. Without apportionment, it is possible that recycling and composting levels will be lower, resulting in the management of waste at lower levels of the hierarchy and potentially more hazardous waste being generated, or possibly in transport to more distant facilities.

Apportionment of recycling and composting capacity should promote minimisation of waste transport distances wherever possible, thereby increasing the energy efficiency of waste management, conserving energy and reducing the potential emissions of greenhouse gases and air pollutants from waste transport. Without apportionment, waste may have to travel outside of the area where it arises in order to be recycled or composted, thereby increasing waste transport distances and energy consumption. However, levels of energy required and greenhouse gas emissions will be small in comparison to the energy efficiency of waste management methods themselves.

Apportionment should increase the likelihood that new facilities will be delivered within the UAs, which will contribute to promoting the waste sector and strengthening its economic contribution and competitiveness, help to stimulate innovation and support more cost-efficient waste treatment. It will also require each Unitary Authority to take responsibility for the recycling and composting of waste generated by its communities. Similar opportunities may arise without apportionment but may be less likely.

Locational Priorities for Recycling and Composting Facilities

The locational priorities generally serve to minimise waste transport distances. Recycling and transfer sites will be well-related to the served areas and have good access to the highway network, which could potentially reduce energy consumption and emissions from transport, including greenhouse gas emissions. In addition HWRCs should be located so as not to generate significant traffic flows across town. Composting facilities may be located in rural areas to be close to the location of end use and therefore greenhouse gas emissions from onward transportation should be minimised. Inert waste recycling could be located at existing minerals and waste sites, although it also allows for urban locations which will be the main sources of arisings and therefore would help to minimise transport and its effects.

Sites located near to the urban areas served would encourage communities to take responsibility for their own waste. Providing additional HWRCs to meet identified needs will help to improve access to services, as will ensuring accessibility to the areas served and to the local road network.

By prioritising industrial and previously developed land and existing waste and minerals sites, the preferred option will help to conserve soil quality by avoiding greenfield sites and agricultural land. Ensuring sites are within or close to urban areas will help to promote optimum use of urban land.

Locational Criteria for Waste Facilities

The approach to site locational criteria will promote the provision of waste facilities on previously developed land and in or adjacent to urban areas , potentially also contributing economic and physical regeneration of areas and

minimising the development of greenfield land. Requiring sites to be well-located to the populations they serve will encourage communities to take responsibility for their own waste. It will also help to minimise the need for waste transport and so the potential greenhouse gas emissions and other emissions from waste transport. Developers are required to take account of highways and access issues, but not specifically to consider congestion and therefore there is potential for adverse effects on congestion levels.

The proposed approach regards development as acceptable in certain circumstances on flood plains and in the green belt. This approach does not appear to accord with other policy as identified by the SA and therefore has the potential for negative impacts on objectives to minimise flood risk and to protect green belt.

The locational criteria envisage circumstances where developments may be permitted with potential adverse impacts on local nature conservation sites and locally-designated landscapes. However, developers are required to avoid or minimise adverse effects, or to compensate for any loss.

A number of sustainable development issues are not considered in the locational criteria, but could or should be to avoid or minimise the potential for possible adverse effects or to capitalise on opportunities. This applies to the built and historic environment outside designations, open spaces and congestion.

Urban Extensions

Promoting waste treatment facilities within urban extensions will help to encourage the use of CHP schemes, promoting more innovative ways of managing waste. It will increase the recovery of energy from waste treatment and promote increased use of renewable energy, increasing the potential to offset greenhouse gas emissions from energy generation elsewhere and supporting the waste hierarchy. Similar opportunities may arise for facilities within existing developments but these are less likely to be practicable. Promoting facilities within urban areas will promote responsibility for the waste that these areas generated, although this is unlikely to be significantly greater in terms of responsibility than facilities sited elsewhere in the urban area.

By locating facilities within urban extensions, waste from these areas will be managed as close as practicable to its source and close to the Principal Urban Areas, although this will also be generally the case for locations outside urban extensions. However, the urban extension near Bath will create an opportunity for a waste facility nearer to the city than currently identified sites which will help to minimise transport distances in comparison to the currently identified sites at Keynsham and Radstock.

Promoting the provision of waste facilities within urban extensions will promote development on urban land, albeit newly urbanised, although the

existing identified sites which are not within urban extensions are also primarily within the urban areas and therefore benefits arise with both options. However, developments within urban extensions will be on greenfield land rather than previously developed, and may reduce soil quality and fail to protect good quality agricultural land, and will not capture benefits for remediation which can arise from developments on previously developed land outside the urban extensions.

Promoting facilities within urban extensions could create opportunities for promoting alternatives to road transport, and the Preferred Option indicates that there will be policy to encourage this in developments.

Strategic Site Options

The overall conclusion is that an option of one large facility and four small provides the greatest number of benefits overall. Along with the other options with a number of small sites included, it minimises waste transport by having a fairly dispersed configuration of sites, which enables it also to minimise energy consumption, greenhouse gas emissions and other emissions from waste transport. However, it also captures other benefits arising from economies of scale by including one large-scale facility, and also reduces the potential for site-specific adverse effects by requiring fewer sites to deliver than the options requiring more facilities.

Non-Inert Disposal

Ensuring self-sufficiency in non-inert disposal capacity will reduce waste transport distances in comparison to exporting waste to landfill and importing waste for treatment. This will support the objective of managing and disposing of waste nearer to its source than if the waste were exported, reducing the impacts from waste transport including energy consumption and greenhouse gas emissions. Transport costs will be reduced compared with waste export and the local waste management sector will be supported by requiring new facilities. However, local communities may be affected by the construction and operation of new disposal facilities, although self-sufficiency will also promote the objective of the sub-region taking responsibility for the waste it produces, which would be undermined by exporting waste for disposal.

There is no identifiable difference in sustainability terms between the preferred option and an option which does not rule out landfill within areas of constraint but requires a risk assessment. The alternative option of exporting waste to landfill and importing waste for treatment in return does not represent a sustainable option. Waste transport will be increased with the potential for impacts on congestion, air quality and health, including in the vicinity of treatment sites. Community responsibility will also be undermined.

Hazardous Waste Disposal

Continuing to export hazardous waste for disposal will require greater amounts of waste transport producing greater amounts of emissions than if it were disposed of within the sub-region, although the impact will be small in comparison to waste management activities more generally. However, the amount of hazardous waste to be managed is likely to increase if thermal residual treatment methods are employed, and community responsibility for hazardous waste will not be promoted by continuing to export for disposal.

Cumulative Effects

The following summarises the key cumulative effects that have been identified for the JWCS Preferred Options overall, acting in combination with other plans and programmes.

- ***Resource use***. The JWCS will help to reduce the pressure on resource use associated with planned housing and economic growth, through its positive effects on minimisation and recycling of waste and energy recovery, although the extent to which this will be able to offset the pressures of growth are not clear.
- ***Waste generation***. The JWCS includes measures to reduce waste generation in new development, although this is not likely to significantly reduce the effects of increased housing and economic growth promoted by other plans and strategies.
- ***Climate change***. Although the JWCS will help to reduce greenhouse gas emissions from waste management activities, it will not be able to offset all of the emissions arising from sub-regional growth promoted by other plans and strategies. Further, although it promotes adaptation in new development, the JWCS is likely to add to the flood risk pressures through the need to seek new sites in an area with flood risk constraints.
- ***Transport networks.*** The JWCS is likely to reduce the need for waste transport, so making a positive contribution in the face of increasing road transport recognised in other plans and strategies. These include measures to reduce demand and increase road capacity. The JWCS also seeks to promote rail and water transport, and there is likely to be synergy with other plans in this respect. However, the effect of waste development on local congestion is unclear, particularly in the medium and longer term when the effects of planned improvements are likely to take effect but are unknown at this stage.
- ***Flooding.*** There are plans in place to improve flood risk in some parts of the sub-region, and this may reduce or remove flood risk constraints at some of the identified sites.
- ***Land use.*** A number of plans and programmes relevant to the sub-region support housing growth and economic development, which is likely to lead to increased pressure for development sites with which waste developments will have to compete. However, opportunities are expected to arise for waste developments with the release of land for urban extensions.

- ***Air quality.*** Measures to improve congestion may help to reduce the effect of increasing traffic on emissions, although the overall effect on emissions and air quality into the medium and longer term is uncertain. The effect of the JWCS on air quality is also uncertain, mainly due to the uncertainty about likely emissions from developments but also possible effects on local congestion, and therefore these issues need to be assessed in detail when developments come forward and appropriate avoidance or mitigation incorporated.
- ***Ecosystems.*** The likely effect of the JWCS on ecosystems is unknown, and also dependent on the completion of a Habitats Regulations Assessment. Several other local plans identify waste and minerals sites which could give rise to in-combination effects with the JWCS. This should be tested in the HRA.
- ***Open space.*** Urban extensions which are planned for in other strategies are likely to lead to a loss of open space which may be of value. The JWCS also risks losing open space of value at a number of identified sites, although this is not required to be taken into account by developers, who should be required to compensate for any loss.
- ***Built and historic environment.*** No effects on the built and historic environment have been identified in other plans and programmes, although the JWCS risks adverse impacts in a number of ways.

2.1.10 Mitigation of Effects

Developers should be required to consider impacts on the following criteria in addition to those already identified, and to avoid or mitigate effects or to compensate for loss:

- built and historic environment generally, including Conservation Areas;
- open spaces, particularly the countryside and valued spaces including recreational space;
- amenity;
- congestion.

Locations should be regarded as unacceptable in the green belt and on floodplains except in very special circumstances in accordance with national policy.

A Strategic Flood Risk Assessment and a Habitats Regulations Assessment should be undertaken and the conclusions fed into the development of the Preferred Options.

Mitigation of the potential impacts arising from the preferred option of self-sufficiency in landfill capacity relates to site location and development control issues, which are not addressed by the Preferred Options document. Recommendations will be made when policy is drafted for site location and development control.

2.1.11 Uncertainties and Risks

The following are key areas where the likely impacts of the Preferred Options are not known, due to a lack of data and other information to enable an assessment to be made:

- air quality;
- greenhouse gas emissions;
- costs of waste management activities;
- waste transport;
- biodiversity;
- flood risk.

For the first four of these data items, recommendations are made for collecting data as part of the monitoring regime to fill the gap. However, for biodiversity and flood risk, there is a need to undertake further detailed assessments in order to fill the gap in the baseline information. **It is therefore recommended that a Strategic Flood Risk Assessment and a Habitats Regulations Assessment should be undertaken and the conclusions fed into the development of the Preferred Options.**

2.1.12 Monitoring Recommendations

The Sustainability Appraisal makes recommendations for monitoring, with suggested indicators to enable the West of England Partnership to monitor the likely significant impacts of the JWCS. This also includes a number of indicators to allow the Partnership to identify unforeseen adverse effects in order to be able to take appropriate remedial action.

In addition, the SA has concluded that there are gaps in available data which are potentially significant for assessing the impact of the Plan, and makes recommendations for filling those gaps. These are listed above in *Section 2.1.11*.

2.2 STATEMENT ON THE DIFFERENCE THE PROCESS HAS MADE

An iterative assessment of the emerging Preferred Options document has provided the opportunity to make amendments before finalisation of the Preferred Options document. The following recommendations for mitigation have been incorporated into the Preferred Options as a result of the SA:

- An aim has been added to highlight the importance of locating development in accordance with land use priorities, giving preference to urban land and brownfield land.
- An aim has been added to ensure that everyone has access to waste management facilities
- To address the uncertainty about the relative merits of existing sites and their potential alternatives, the preferred approach to safeguarding now

requires the proposal of an alternative site to demonstrate that this would present a better option than the existing site in sustainability terms.

- The locational priorities for inert waste recycling has been expanded to include brownfield or industrial sites in urban or rural locations, in order to allow sites to be better located in relation to the source of arisings.
- Developments are now required to consider alternatives to road transport in order to mitigate the potential contribution to climate change.
- Text has been added to require developers to address climate change mitigation and adaptation by addressing impacts on:
  - energy efficiency and energy recovery;
  - use of CHP;
  - greenhouse gas emissions;
  - flood risk and sustainable drainage;
  - good design and sustainable construction;
  - waste transport distances;
  - alternatives to road transport; and
  - water consumption
- Text has been added to require avoidance of adverse impacts on:
  - communities;
  - geodiversity;
  - wildlife;
  - landscape and visual;
  - geodiversity; and
  - air quality.
- Developers are now required to avoid adverse impacts of development and include appropriate mitigation or compensation.

2.3 HOW TO COMMENT ON THE REPORT

This Report will be subject to further review and comment as the consultation process moves forward. West of England Partnership values your comments and suggestions. Please forward these, together with any questions you may have to :

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